



INDEX

Symbols

- \$ matches the end of a string [1-7](#)
- () in commands [1-11](#)
- * matches 0 or more sequences of a pattern [1-7](#)
- + matches 1 or more sequences of a pattern [1-7](#)
- . matches any single character [1-7](#)
- ? command [1-1](#)
- ? matches 0 or 1 occurrence of a pattern [1-7](#)
- ^ matches the beginning of a string [1-7](#)
- _ matches a comma (,), left brace ({), left parenthesis [1-7](#)
- “ [1-10](#)

Numerics

- 10-Gigabit Ethernet uplink
 - selecting [2-213](#)
 - showing the mode [2-575, 2-576](#)
- 802.1Q trunk ports and native VLANs [2-935](#)
- 802.1Q tunnel ports
 - configuring [2-874](#)
- 802.1S Multiple Spanning Tree
 - see MST
- 802.1X
 - configuring for multiple hosts [2-169](#)
 - configuring for single host [2-169](#)
 - configuring multiple domains [2-169](#)
 - disabling port control [2-161](#)
 - enabling port control [2-161](#)
- 802.1X Critical Authentication
 - disabling on a port [2-163](#)
 - disabling on a VLAN [2-166](#)
- EAPOL

- disabling send success packets [2-164](#)
- enabling send success packets [2-164](#)
- enabling on a port [2-163](#)
- enabling on a VLAN [2-166](#)
- returning delay time to default setting [2-165](#)
- setting delay time on a port [2-165](#)
- 802.1X critical authentication
 - configure parameters [2-25](#)
- 802.1X critical recovery delay, configuring [2-25](#)
- 802.1X Port Based Authentication
 - debugging 802.1X Port Based Authentication [2-112](#)
 - displaying port based authentication [2-555](#)
 - enabling accounting for authentication sessions [2-4](#)
 - enabling authentication on the system [2-180](#)
 - enabling guest VLAN [2-167](#)
 - enabling guest VLAN supplicant [2-159, 2-168](#)
 - enabling manual control of auth state [2-176](#)
 - enabling periodic re-authentication of the client [2-179](#)
 - initializing re-authentication of dot1x ports [2-178](#)
 - initializing state machines [2-171](#)
 - receive session termination message upon reboot [2-5](#)
 - setting maximum number for EAP requests [2-174](#)
 - setting the reauthentication timer [2-181](#)

A

- aaa authorization network command [2-162](#)
- abbreviating commands
 - context-sensitive help [1-1](#)
- Access Gateway Module
 - connecting to a module [2-22](#)
 - connecting to a remote module [2-484](#)
 - connecting to a specific remote module [2-496](#)

- access-group
 - displaying mac interface [2-683](#)
 - show mode interface [2-428, 2-517, 2-745](#)
- access groups
 - IP [2-6](#)
- access lists
 - clearing an access template [2-74](#)
 - defining ARP [2-21](#)
 - displaying ARP information [2-521](#)
 - See also ACLs, MAC ACLs, and VACLs
- access maps
 - applying with VLAN filter [2-937](#)
- access-node-identifier, setting for the switch [2-431](#)
- access-policies, applying using host-mode [2-29](#)
- ACLs
 - access-group mode [2-6](#)
 - balancing hardware regions [2-12](#)
 - capturing control packets [2-8](#)
 - determining ACL hardware programming [2-10](#)
 - disabling hardware statistics [2-208](#)
 - displaying mac access-group interface [2-683](#)
 - enabling hardware statistics [2-208](#)
 - using ACL naming conventions for MAC ACLs [2-326](#)
- action clause
 - specifying drop or forward action in a VACL [2-13](#)
- addresses, configuring a maximum [2-416](#)
- adjacency
 - debugging the adjacency table [2-105](#)
 - disabling the debug facility [2-105](#)
 - displaying information about the adjacency table [2-518](#)
 - displaying IPC table entries [2-105](#)
- aggregate policer
 - displaying information [2-746](#)
- aging time
 - displaying MAC address aging time [2-686](#)
 - MAC address table [2-329](#)
- alarms
 - displaying operational status [2-563](#)
- alternation
 - description [1-10](#)
- anchoring
 - description [1-10](#)
- anycp, show multicast [2-520](#)
- ANCP client
 - port identifier [2-16](#)
 - remote server [2-17](#)
 - set router to become [2-18](#)
- ARP
 - access list, displaying detailed information [2-521](#)
 - defining access-lists [2-21](#)
- ARP inspection
 - enforce certain types of checking [2-230](#)
- ARP packet
 - deny based on DHCP bindings [2-147](#)
 - permit based on DHCP bindings [2-395](#)
- authentication [2-25, 2-31](#)
 - changing the control-direction [2-23](#)
 - configure actions for events
 - configuring the actions [2-26](#)
 - configuring port-control [2-35](#)
 - enabling reauthentication [2-34](#)
 - enabling Webauth fallback [2-28](#)
 - host-mode configuration [2-29](#)
 - setting priority of methods [2-37](#)
 - setting the timer [2-39](#)
 - setting username [2-922](#)
 - specifying the order of methods [2-32](#)
 - using an MD5-type encryption method [2-922](#)
 - verifying MD5 signature [2-924](#)
 - verifying the checksum for Flash memory [2-924](#)
- authentication control-direction command [2-23](#)
- authentication critical recovery delay command [2-25](#)
- authentication event command [2-26](#)
- authentication fallback command [2-28](#)
- authentication host-mode [2-29](#)
- authentication methods, setting priority [2-37](#)

authentication methods, specifying the order of attempts [2-32](#)

authentication open command [2-31](#)

authentication order command [2-32](#)

authentication periodic command [2-34](#)

authentication port-control command [2-35](#)

authentication priority command [2-37](#)

authentication timer, setting [2-39](#)

authentication timer command [2-39](#)

auth fail VLAN

enable on a port [2-160](#)

set max number of attempts [2-159](#)

Auth Manager

configuring

authentication timer [2-39](#)

authorization state

enabling manual control [2-176](#)

authorization state of a controlled port [2-176](#)

automatic installation

displaying status [2-526](#)

automatic medium-dependent interface crossover

See Auto-MDIX

Auto-MDIX

disabling [2-374](#)

enabling [2-374](#)

auto-negotiate interface speed

example [2-851](#)

auto-QoS

configuring for VoIP [2-41](#)

displaying configuration [2-527](#)

B

baby giants

displaying the system MTU setting [2-780](#)

setting the maximum Layer 2 payload size [2-902](#)

BackboneFast

displaying debugging messages [2-134](#)

displaying spanning tree status [2-769](#)

enabling debugging [2-134](#)

bandwidth command [2-45](#)

bindings

store for DHCP snooping [2-242](#)

BOOT environment variable

displaying information [2-530](#)

bootflash

displaying information [2-528](#)

BPDUs

debugging spanning tree activities [2-132](#)

bridge protocol data units

See BPDUs

broadcast suppression level

configuring [2-852, 2-854](#)

enabling [2-852, 2-854](#)

C

cable diagnostics

TDR

displaying test results [2-531](#)

testing conditions of copper cables [2-904](#)

call home

displaying information [2-533](#)

e-mailing output [2-53](#)

entering configuration submenu [2-48](#)

executing [2-53](#)

manually send test message [2-56](#)

receiving information [2-51](#)

sending alert group message [2-54](#)

submitting information [2-51](#)

call home destination profiles

displaying [2-535](#)

Catalyst 4507R [2-414](#)

CDP

configuring tunneling encapsulation rate [2-313](#)

displaying

neighbor information [2-538](#)

enabling protocol tunneling for [2-308](#)

- set drop threshold for [2-311](#)
- CEF
 - displaying next-hop information [2-612](#)
 - displaying VLAN configuration information [2-612](#)
- chassis
 - displaying
 - chassis MAC address ranges [2-680](#)
 - current and peak traffic meter readings [2-680](#)
 - percentage of backplane utilization [2-680](#)
 - switching clock failure recovery mode [2-680](#)
- circuit-id
 - setting for an interface [2-433](#)
- circuit-id, setting for an interface VLAN range [2-434](#)
- cisco-desktop
 - macro apply [2-338](#)
- Cisco Express Forwarding
 - See CEF
- cisco-phone
 - macro apply [2-340](#)
- cisco-router
 - macro apply [2-342](#)
- cisco-switch
 - macro apply [2-344](#)
- CISP
 - See Client Information Signalling Protocol
- cisp enable command [2-61](#)
- class maps
 - creating [2-65](#)
 - defining the match criteria [2-367](#)
- clear commands
 - clearing Gigabit Ethernet interfaces [2-72](#)
 - clearing IGMP group cache entries [2-81](#)
 - clearing interface counters [2-67](#)
 - clearing IP access lists [2-74, 2-75](#)
 - clearing IP ARP inspection statistics VLAN [2-76](#)
 - clearing IP DHCP snooping database statistics [2-80](#)
 - clearing MFIB counters and routes [2-84](#)
 - clearing MFIB fastdrop entries [2-85](#)
 - clearing PAgP channel information [2-91](#)
 - clearing QoS aggregate counters [2-95](#)
 - clearing VLAN interfaces [2-73](#)
- clear energywise neighbors command [2-69](#)
- clear nmsp statistics command [2-90](#)
- Client Information Signalling Protocol [2-162](#)
- Client Information Signalling Protocol, enabling [2-61](#)
- CLI string search
 - anchoring [1-10](#)
 - expressions [1-7](#)
 - filtering [1-6](#)
 - multiple-character patterns [1-8](#)
 - multipliers [1-9](#)
 - parentheses for recall [1-11](#)
 - searching outputs [1-6](#)
 - single-character patterns [1-7](#)
 - using [1-6](#)
- command modes
 - accessing privileged EXEC mode [1-5](#)
 - exiting [1-5](#)
 - understanding user EXEC and configuration modes [1-5](#)
- condition interface
 - debugging interface-related activities [2-107](#)
- condition vlan
 - debugging VLAN output [2-110](#)
- configuration, saving [1-11](#)
- configuring
 - root as secondary [2-835](#)
- configuring a SPAN session to monitor
 - limit SPAN source traffic [2-379](#)
- configuring critical recovery [2-25](#)
- configuring forward delay [2-831](#)
- configuring root as primary [2-835](#)
- CoPP
 - attaching
 - policy map to control plane [2-494](#)
 - displaying
 - policy-map class information [2-719](#)
 - entering configuration mode [2-99](#)

- removing
 - service policy from control plane [2-494](#)
- CoS
 - assigning to Layer 2 protocol packets [2-310](#)
- CoS QoS default
 - defining value on an interface [2-460](#)
- Cost of Service
 - See QoS CoS
- counter command [2-101](#)
- counters
 - clearing interface counters [2-67](#)
- critical authentication, configure 802.1X parameters [2-25](#)
- critical recovery, configuring 802.1X parameter [2-25](#)

D

- DAI
 - clear statistics [2-76](#)
- DBL
 - displaying qos dbl [2-747](#)
 - enabling DBL globally on the switch [2-461](#)
- debug commands
 - debugging backup events [2-106](#)
 - debugging DHCP snooping events [2-117](#)
 - debugging DHCP snooping messages [2-118](#)
 - debugging EtherChannel/PAgP/shim [2-113](#)
 - debugging IPC activity [2-116](#)
 - debugging IP DHCP snooping security messages [2-119](#)
 - debugging NVRAM activities [2-123](#)
 - debugging PAgP activities [2-124](#)
 - debugging port manager activities [2-127](#)
 - debugging spanning tree activities [2-132](#)
 - debugging spanning tree backbonefast [2-134](#)
 - debugging spanning tree UplinkFast [2-137](#)
 - debugging supervisor redundancy [2-131](#)
 - debugging VLAN manager activities [2-138](#)
 - displaying monitor activity [2-121](#)
 - displaying the adjacency table [2-105](#)

- enabling debug dot1x [2-112](#)
- enabling debugging messages for ISL VLAN IDs [2-141](#)
- enabling debugging messages for VTP [2-142](#)
- enabling debugging of UDLD activity [2-143](#)
- enabling switch shim debugging [2-135](#)
- enabling VLAN manager file system error tests [2-139](#)
- limiting debugging output for VLANs [2-110](#)
- limiting interface debugging output [2-107](#)
- limiting output for debugging standby state changes [2-108](#)
- shortcut to the debug condition interface [2-115](#)
- debugging
 - activity monitoring [2-121](#)
 - DHCP snooping events [2-117](#)
 - DHCP snooping packets [2-118](#)
 - IPC activities [2-116](#)
 - IP DHCP snooping security packets [2-119](#)
 - NVRAM activities [2-123](#)
 - PAgP activities [2-124](#)
 - PAgP shim [2-113](#)
 - PM activities [2-127](#)
 - PPPoE Intermediate Agent [2-129](#)
 - spanning tree BackboneFast events [2-134](#)
 - spanning tree switch shim [2-135](#)
 - spanning tree UplinkFast events [2-137](#)
 - VLAN manager activities [2-138](#)
 - VLAN manager IOS file system error tests [2-139](#)
 - VTP protocol debug messages [2-142](#)
- debug nmsp command [2-122](#)
- debug spanning tree switch [2-135](#)
- debug sw-vlan vtp [2-142](#)
- default CoS value [2-460](#)
- default form of a command, using [1-6](#)
- defining egress DSCP-to-CoS mapping [2-467](#)
- DHCP
 - clearing database statistics [2-80](#)
- DHCP bindings
 - configuring bindings [2-240](#)

- deny ARP packet based on matches [2-147](#)
 - permit ARP packet based on matches [2-395](#)
 - DHCP snooping
 - clearing binding entries [2-77](#)
 - clearing database [2-79](#)
 - displaying binding table [2-615](#)
 - displaying configuration information [2-613](#)
 - displaying status of DHCP database [2-618](#)
 - displaying status of error detection [2-566](#)
 - enabling DHCP globally [2-239](#)
 - enabling IP source guard [2-281](#)
 - enabling on a VLAN [2-249](#)
 - enabling option 82 [2-244, 2-246](#)
 - enabling option-82 [2-251](#)
 - enabling rate limiting on an interface [2-247](#)
 - enabling trust on an interface [2-248](#)
 - establishing binding configuration [2-240](#)
 - renew binding database [2-486](#)
 - store generated bindings [2-242](#)
 - diagnostic test
 - bootup packet memory [2-549](#)
 - displaying attributes [2-543](#)
 - display module-based results [2-545](#)
 - running [2-158](#)
 - show results for TDR [2-531](#)
 - testing conditions of copper cables [2-904](#)
 - displaying error disable recovery [2-567](#)
 - displaying inline power status [2-734](#)
 - displaying monitoring activity [2-121](#)
 - displaying PoE policing and monitoring status [2-742](#)
 - displaying SEEPROM information
 - GBIC [2-577](#)
 - displaying SPAN session information [2-780, 2-854](#)
 - document conventions [1-xxii](#)
 - document organization [1-xxi](#)
 - DoS
 - CoPP
 - entering configuration mode [2-99](#)
 - removing service policy from control plane [2-494](#)
 - entering
 - CoPP configuration mode [2-99](#)
 - DOS attack
 - protecting system's resources [2-225](#)
 - dot1x credentials (global configuration) command [2-162](#)
 - drop threshold, Layer 2 protocol tunneling [2-311](#)
 - DSCP rewrite for IP packets
 - enable [2-471](#)
 - dual-capable port
 - selecting a connector [2-376](#)
 - duplex mode
 - configuring autonegotiation on an interface [2-183](#)
 - configuring full duplex on an interface [2-183](#)
 - configuring half duplex on an interface [2-183](#)
 - dynamic ARP inspection
 - preventing [2-225](#)
 - Dynamic Buffer Limiting
 - See DBL
 - Dynamic Host Configuration Protocol
 - See DHCP
-
- ## E
- EAP
 - restarting authentication process [2-174](#)
 - EDCS-587028 [2-522, 2-680](#)
 - EIGRP (Enhanced IGRP)
 - filters
 - routing updates, preventing [2-392](#)
 - enabling
 - debugging for UDLD [2-143](#)
 - voice VLANs [2-867](#)
 - enabling open access [2-31](#)
 - EnergyWise
 - display power information through queries [2-192](#)
 - display setting, status of entity and PoE ports [2-559](#)
 - on an entity

- enable, assign to domain, and set password [2-190](#)
 - on an entity, enable and configure [2-185](#)
 - on a PoE port
 - configuring on PoE port [2-187](#)
- energywise (global configuration) command [2-185, 2-187](#)
- energywise domain command [2-190](#)
- EnergyWise neighbor table, deleting [2-69](#)
- energywise query command [2-192](#)
- environmental
 - alarms [2-563](#)
 - displaying information [2-563](#)
 - status [2-563](#)
 - temperature [2-563](#)
- epm access control command [2-196](#)
- erase a file [2-197](#)
- error disable detection
 - clearing error disable on an interface [2-70](#)
 - enabling error disable detection [2-70, 2-200](#)
 - enabling per-VLAN on BPDU guard [2-200](#)
- error-disabled state
 - displaying [2-596](#)
- error disable recovery
 - configuring recovery mechanism variables [2-202](#)
 - displaying recovery timer information [2-567](#)
 - enabling ARP inspection timeout [2-202](#)
 - specifying recovery cause [2-202](#)
- EtherChannel
 - assigning interfaces to EtherChannel groups [2-57](#)
 - debugging EtherChannel [2-113](#)
 - debugging PAgP shim [2-113](#)
 - debugging spanning tree activities [2-132](#)
 - displaying information for a channel [2-569](#)
 - removing interfaces from EtherChannel groups [2-57](#)
- EtherChannel guard
 - detecting STP misconfiguration [2-821](#)
- Explicit Host Tracking
 - clearing the database [2-83](#)
 - enabling per-VLAN [2-263](#)
- expressions

- matching multiple expression occurrences [1-9](#)
 - multiple-character patterns [1-8](#)
 - multiplying pattern occurrence [1-11](#)
 - single-character patterns [1-7](#)
- Extensible Authentication Protocol
 - See EAP

F

- fallback profile, specifying [2-28](#)
- field replaceable unit (FRU)
 - displaying status information [2-563](#)
- filters
 - EIGRP
 - routing updates, preventing [2-392](#)
- Flash memory file system
 - displaying file system information [2-528](#)
 - verifying checksum [2-924](#)
- flow control
 - configuring a gigabit interface for pause frames [2-205](#)
 - displaying per-interface statistics for flow control [2-573](#)

G

- GBIC
 - displaying SEEPROM information [2-577](#)
- generic-error-message, setting for the switch [2-431](#)
- Gigabit Ethernet interface
 - clearing the hardware logic [2-72](#)
- Gigabit Ethernet uplink
 - selecting [2-213](#)
 - showing the mode [2-575, 2-576](#)
- global configuration mode
 - using [1-5](#)

H

- hardware module

- resetting a module by toggling the power [2-210](#)
- hardware statistics
 - disabling [2-208](#)
 - enabling [2-208](#)
- hardware uplink
 - changing the mode [2-211](#)
 - selecting the mode [2-213](#)
 - showing the mode [2-575, 2-576](#)
- helper addresses, IP [2-633](#)
- hot standby protocol
 - debugging [2-108](#)
 - disabling debugging [2-108](#)
 - limiting output [2-108](#)

I

- identifier-string, setting for the switch [2-431](#)
- ID mapping, creating an ANCP client [2-16](#)
- IDPROMs
 - displaying SEEPROM information
 - chassis [2-577](#)
 - clock module [2-577](#)
 - fan trays [2-577](#)
 - module [2-577](#)
 - mux buffer [2-577](#)
 - power supplies [2-577](#)
 - supervisor engine [2-577](#)

- ifIndex persistence
 - clearing SNMP ifIndex commands [2-807](#)
 - compress SNMP ifIndex table format [2-814](#)
 - disabling globally [2-813](#)
 - disabling on an interface [2-809](#)
 - enabling globally [2-813](#)
 - enabling on an interface [2-809](#)

- IGMP
 - applying filters for host joining on Layer 2 interfaces [2-253](#)
 - clearing IGMP group cache entries [2-81](#)

- configuring frequency for IGMP host-query messages [2-256](#)
- creating an IGMP profile [2-255](#)
- displaying IGMP interface configuration information [2-620](#)
- displaying profiles [2-622](#)
- setting maximum group numbers [2-254](#)
- IGMP profiles
 - displaying [2-622](#)
- IGMP snooping
 - clearing the EHT database [2-83](#)
 - configuring a Layer 2 interface as a group member [2-269](#)
 - configuring a Layer 2 interface as a multicast router [2-267](#)
 - configuring a static VLAN interface [2-269](#)
 - displaying multicast information [2-629](#)
 - displaying VLAN information [2-623, 2-627, 2-630](#)
 - enabling [2-258](#)
 - enabling immediate-leave processing [2-265](#)
 - enabling on a VLAN [2-262](#)
 - enabling per-VLAN Explicit Host Tracking [2-263](#)
- informs
 - enabling [2-811](#)
- inline power
 - displaying inline power status [2-734](#)
- In Service Software Upgrade
 - See ISSU
- inspection log
 - clearing log buffer [2-75](#)
- interface
 - displaying suppressed multicast bytes [2-590](#)
- interface capabilities
 - displaying [2-586](#)
- interface configuration mode
 - summary [1-5](#)
- interface link
 - display cable disconnect time [2-593](#)
- interfaces
 - configuring dot1q tunnel ports [2-874](#)

- creating an interface-range macro [2-146](#)
- debugging output of interface related activities [2-107](#)
- displaying description [2-592](#)
- displaying error-disabled state [2-596](#)
- displaying information when tunneling is enabled [2-674](#)
- displaying status [2-592](#)
- displaying traffic for a specific interface [2-583](#)
- entering interface configuration mode [2-217](#)
- executing a command on multiple ports in a range [2-220](#)
- selecting an interface to configure [2-217](#)
- setting a CoS value for Layer 2 packets [2-310](#)
- setting drop threshold for Layer 2 packets [2-311](#)
- setting the interface type [2-874](#)
- interface speed
 - configuring interface speed [2-849](#)
- interface transceiver
 - displaying diagnostic data [2-600](#)
- internal VLAN allocation
 - configuring [2-940](#)
 - default setting [2-940](#)
 - displaying allocation information [2-794](#)
- Internet Group Management Protocol
 - See IGMP
- IP address of remote ANCP server, setting [2-17](#)
- IP ARP
 - applying ARP ACL to VLAN [2-223](#)
 - clearing inspection statistics [2-76](#)
 - clearing status of log buffer [2-75](#)
 - controlling packet logging [2-234](#)
 - enabling dynamic inspection [2-232](#)
 - limit rate of incoming requests [2-225](#)
 - set per-port config trust state [2-229](#)
 - showing status of dynamic ARP inspection [2-607](#)
 - showing status of log buffer [2-610](#)
- IPC
 - debugging IPC activities [2-116](#)
- IP DHCP Snooping
 - See DHCP snooping
- IP header validation
 - disabling [2-280](#)
 - enabling [2-280](#)
- IP interfaces
 - displaying usability status [2-632](#)
- IP multicast
 - displaying multicast routing table information [2-638](#)
- ip multicast multipath command [2-273](#)
- IP packets
 - enable DSCP rewrite [2-471](#)
- IP phone and standard desktop
 - enabling Cisco-recommended features [2-340](#)
- IP Port Security
 - enabling [2-281](#)
- IP source binding
 - adding or deleting [2-277](#)
 - displaying bindingstaging [2-643](#)
- IP source guard
 - debugging messages [2-119](#)
 - displaying configuration and filters [2-644](#)
 - enabling on DHCP snooping [2-281](#)
- IPv4 statistics, enabling collection [2-101](#)
- IPv6 MLD
 - configuring queries [2-287, 2-289](#)
 - configuring snooping last-listener-query-intervals [2-289](#)
 - configuring snooping listener-message-suppression [2-291](#)
 - configuring snooping robustness-variables [2-292](#)
 - configuring tcn topology change notifications [2-294](#)
 - counting snooping last-listener-queries [2-287](#)
 - displaying information [2-650](#)
 - displaying ports for a switch or VLAN [2-652](#)
 - displaying querier information [2-653](#)
 - enabling snooping [2-285](#)
 - enabling snooping on a VLAN [2-295](#)
- IPv6 statistics, enabling collection [2-101](#)
- ISSU

canceling process [2-297](#)
 configuring rollback timer [2-307](#)
 displaying capability [2-655](#)
 displaying client information [2-657](#)
 displaying compatibility matrix [2-659](#)
 displaying endpoint information [2-664](#)
 displaying entities [2-665](#)
 displaying FSM session [2-666](#)
 displaying messages [2-667](#)
 displaying negotiated [2-669](#)
 displaying rollback-timer [2-670](#)
 displaying session information [2-671](#)
 displaying software version [2-672](#)
 displaying state [2-672](#)
 forcing switchover to standby supervisor engine [2-305](#)
 loading new image [2-301](#)
 starting process [2-303](#)
 stopping rollback timer [2-299](#)

J

Jumbo frames

enabling jumbo frames [2-385](#)

L

LACP

deselecting channeling protocol [2-59](#)
 enabling LACP on an interface [2-59](#)
 setting channeling protocol [2-59](#)

Layer 2

displaying ACL configuration [2-683](#)

Layer 2 interface type

specifying a nontrunking, nontagged single VLAN interface [2-874](#)
 specifying a trunking VLAN interface [2-874](#)

Layer 2 protocol ports

displaying [2-674](#)

Layer 2 protocol tunneling error recovery [2-313](#)

Layer 2 switching

enabling voice VLANs [2-867](#)
 modifying switching characteristics [2-867](#)

Layer 2 traceroute

IP addresses [2-909](#)

Layer 3 interface, assign counters [2-101](#)

Layer 3 switching

displaying information about an adjacency table [2-518](#)
 displaying port status [2-598](#)
 displaying status of native VLAN tagging [2-598](#)

link-status event messages

disabling

globally [2-318, 2-321](#)
 on an interface [2-319, 2-322](#)

enabling

globally [2-318, 2-321](#)
 on an interface [2-319, 2-322](#)

LLDP

enabling power negotiation [2-317](#)

lldp tlv-select power-management command [2-317](#)

log buffer

show status [2-610](#)

logging

controlling IP ARP packets [2-234](#)

M

MAB, display information [2-680](#)

MAB, enable and configure [2-324](#)

mab command [2-324](#)

MAC Access Control Lists

See MAC ACLs

MAC ACLs

defining extended MAC access list [2-326](#)
 displaying MAC ACL information [2-790](#)
 naming an ACL [2-326](#)

MAC addresses

- disabling MAC address learning per VLAN [2-333](#)
 - displaying
 - notification settings [2-196, 2-649, 2-694](#)
- MAC address filtering
 - configuring [2-337](#)
 - disabling [2-337](#)
 - enabling [2-337](#)
- MAC address learning on a VLAN, enabling [2-333](#)
- MAC address table
 - adding static entries [2-364](#)
 - clearing dynamic entries [2-87, 2-89](#)
 - configuring aging time [2-329](#)
 - displaying dynamic table entry information [2-690](#)
 - displaying entry count [2-688](#)
 - displaying information [2-684](#)
 - displaying interface-based information [2-692](#)
 - displaying multicast information [2-695](#)
 - displaying notification information [2-697](#)
 - displaying protocol-based information [2-699](#)
 - displaying static table entry information [2-701](#)
 - displaying the MAC address aging time [2-686](#)
 - displaying VLAN-based information [2-704](#)
 - enabling authentication bypass [2-172](#)
 - enabling notifications [2-335](#)
 - learning in the protocol buckets [2-330](#)
 - removing static entries [2-364](#)
- mac address-table learning vlan command [2-333](#)
- MAC address tables
 - adding static entries [2-337](#)
 - deleting secure or specific addresses [2-92](#)
 - disabling IGMP snooping on static MAC addresses [2-337](#)
 - removing static entries [2-337](#)
- mac-address-table static [2-337](#)
- MAC address unicast filtering
 - dropping unicast traffic [2-337](#)
- MAC authentication bypass (MAB), display information [2-680](#)
- MAC authorization bypass(MAB), enable and configure [2-324](#)
- macro
 - displaying descriptions [2-363](#)
- macro auto global processing command [2-346, 2-348, 2-351, 2-353, 2-355, 2-357, 2-358, 2-360, 2-706](#)
- macro keywords
 - help strings [2-2](#)
- macros
 - adding a global description [2-363](#)
 - cisco global [2-361](#)
 - system-cpp [2-362](#)
- mapping secondary VLANs to MST instance [2-447](#)
- mapping VLAN(s) to an MST instance [2-215](#)
- match (class-map configuration) command [2-14, 2-149, 2-151, 2-153, 2-155, 2-367, 2-855, 2-857, 2-859, 2-861, 2-865](#)
- maximum transmission unit (MTU)
 - displaying the system MTU setting [2-780](#)
 - setting the maximum Layer 2 payload size [2-902](#)
- MD5
 - verifying MD5 signature [2-924](#)
- message digest 5
 - See MD5
- MFIB
 - clearing ip mfib counters [2-84](#)
 - clearing ip mfib fastdrop [2-85](#)
 - displaying all active MFIB routes [2-635](#)
 - displaying MFIB fastdrop table entries [2-637](#)
 - enabling IP MFIB fastdrops [2-272](#)
- MLD
 - configuring snooping
 - last-listener-query-intervals [2-289](#)
 - configuring snooping
 - listener-message-suppression [2-291](#)
 - configuring snooping robustness-variables [2-292](#)
 - configuring topology change notifications [2-294](#)
 - counting snooping last-listener-queries [2-287](#)
 - enabling snooping [2-285](#)
 - enabling snooping on a VLAN [2-295](#)
- MLD snooping
 - displaying [2-653](#)
- modes

access-group [2-6](#)
 show access-group interface [2-428, 2-517, 2-745](#)
 switching between PVST+, MST, and Rapid PVST [2-826](#)
 See also command modes
 module password clearing [2-71](#)
 module reset
 resetting a module by toggling the power [2-210](#)
 --More-- prompt
 filter [1-6](#)
 search [1-7](#)
 MST
 designating the primary and secondary root [2-835](#)
 displaying MST protocol information [2-774](#)
 displaying region configuration information [2-774](#)
 displaying spanning tree information [2-774](#)
 entering MST configuration submode [2-829](#)
 setting configuration revision number [2-488](#)
 setting path cost and port priority for instances [2-827](#)
 setting the forward delay timer for all instances [2-831](#)
 setting the hello-time delay timer for all instances [2-832](#)
 setting the max-age timer for all instances [2-833](#)
 setting the MST region name [2-386](#)
 specifying the maximum number of hops [2-834](#)
 switching between PVST+ and Rapid PVST [2-826](#)
 using the MST configuration submode revision command [2-488](#)
 using the submode name command [2-386](#)
 MTU
 displaying global MTU settings [2-780](#)
 multi-auth, setting [2-29](#)
 Multicast Listener Discovery
 See MLD
 multicast
 enabling storm control [2-854](#)
 show ancp [2-520](#)
 multicast/unicast packets
 prevent forwarding [2-873](#)
 Multicast Forwarding Information Base

See MFIB
 multi-domain, setting [2-29](#)
 multiple-character patterns [1-8](#)
 Multiple Spanning Tree
 See MST

N

native VLAN
 controlling tagging of traffic [2-894](#)
 displaying ports eligible for native tagging [2-792](#)
 displaying ports eligible for tagging [2-792](#)
 enabling tagging on 802.1Q trunk ports [2-935](#)
 specifying the tagging of traffic [2-895](#)
 NEAT, enable globally on switch [2-387](#)
 neat enable command [2-387](#)
 NetFlow
 enabling NetFlow statistics [2-275](#)
 including infer fields in routing statistics [2-275](#)
 next-hop
 displaying CEF VLAN information [2-612](#)
 nmsp attachment suppress command [2-389](#)
 nmsp command [2-388](#)
 no form of a command, using [1-6](#)
 NVRAM
 debugging NVRAM activities [2-123](#)

O

open access on a port, enabling [2-31](#)
 output
 pattern searches [1-7](#)

P

packet counters (statistics)
 clear for PPPoE Intermediate Agent [2-94](#)
 packet counters, display for PPPoE Intermediate Agent [2-743](#)

- packet forwarding
 - prevent unknown packets [2-873](#)
- packet memory failure
 - direct switch action upon detection [2-157](#)
- packet memory test
 - bootup, displaying results [2-549, 2-551](#)
 - ongoing, displaying results [2-553](#)
- PACL
 - access-group mode [2-6](#)
- paging prompt
 - see --More-- prompt
- PAgP
 - clearing port channel information [2-91](#)
 - debugging PAgP activity [2-124](#)
 - deselecting channeling protocol [2-59](#)
 - displaying port channel information [2-716](#)
 - hot standby mode
 - returning to defaults [2-391](#)
 - selecting ports [2-391](#)
 - input interface of incoming packets
 - learning [2-390](#)
 - returning to defaults [2-390](#)
 - setting channeling protocol [2-59](#)
- parentheses [1-11](#)
- password
 - clearing on an intelligent line module [2-71](#)
 - establishing enhanced password security [2-922](#)
 - setting username [2-922](#)
- PBR
 - displaying route maps [1-xxii](#)
 - redistributing route maps [1-xxii](#)
- PM activities
 - debugging [2-127](#)
 - disabling debugging [2-127](#)
- PoE policing
 - configure on an interface [2-423](#)
- PoE policing and monitoring
 - displaying status [2-742](#)
- police (percent) command [2-402](#)
- police (two rates) command [2-404, 2-406](#)
- police command [2-397](#)
- policing, configure PoE [2-423](#)
- policing and monitoring status
 - displaying PoE [2-742](#)
- Policy Based Routing
 - See PBR
- policy maps
 - creating [2-410](#)
 - marking [2-498](#)
 - See also QoS, hierarchical policies
 - traffic classification
 - defining the class
 - defining trust states [2-912](#)
- port, dual-capable
 - selecting the connector [2-376](#)
- Port Aggregation Protocol
 - See PAgP
- port-based authentication
 - displaying debug messages [2-112](#)
 - displaying statistics and status [2-555](#)
 - enabling 802.1X [2-176](#)
 - host modes [2-169](#)
 - manual control of authorization state [2-176](#)
 - periodic re-authentication
 - enabling [2-179](#)
 - re-authenticating 802.1X-enabled ports [2-178](#)
 - switch-to-client frame-retransmission number [2-174](#)
- port channel
 - accessing [2-219](#)
 - creating [2-219](#)
 - displaying information [2-716](#)
 - load distribution method
 - resetting to defaults [2-412](#)
 - setting [2-412](#)
- port control, changing from unidirectional or bidirectional [2-23](#)
- port-control value, configuring [2-35](#)
- port range

- executing [2-220](#)
 - port security
 - debugging ports security [2-128](#)
 - deleting secure or specific addresses [2-92](#)
 - displaying settings for an interface or switch [2-727](#)
 - enabling [2-879](#)
 - filter source IP and MAC addresses [2-281](#)
 - setting action upon security violation [2-879](#)
 - setting the rate limit for bad packets [2-879](#)
 - sticky port [2-879](#)
 - Port Trust Device
 - displaying [2-748](#)
 - power negotiation through LLDP, enabling [2-317](#)
 - power status
 - displaying inline power [2-734](#)
 - displaying power status [2-734](#)
 - power supply
 - configuring combined and redundant power on the Catalyst 4507R [2-414](#)
 - configuring inline power [2-419](#)
 - configuring power consumption [2-414](#)
 - displaying the SEEPROM [2-577](#)
 - setting inline power state [2-418](#)
 - PPPoE Discovery
 - enable vendor-tag stripping on packets
 - enable vendor-tag stripping on Discovery packets [2-437](#)
 - PPPoE Discovery packets, limit rate arriving on an interface [2-435](#)
 - PPPoE Intermediate Agent
 - clear statistics (packet counters) [2-94](#)
 - debugging [2-129](#)
 - pppoe intermediate-agent
 - enable intermediate agent on a switch [2-427](#)
 - enable on an interface VLAN range [2-430](#)
 - enable PPPoE Intermediate Agent on an interface [2-428](#)
 - enable vendor-tag stripping of Discovery packets [2-437](#)
 - format-type (global) [2-431](#)
 - limit rate of PPPoE Discovery packets [2-435](#)
 - set circuit-id or remote-id for an interface [2-433](#)
 - set circuit-id or remote-id for an interface VLAN range [2-434](#)
 - set trust configuration on an interface [2-435, 2-436](#)
 - PPPoE Intermediate Agent, display configuration and statistics (packet counters) [2-743](#)
 - priority command [2-438](#)
 - priority-queue command [2-103](#)
 - Private VLAN
 - See PVLANS
 - privileged EXEC mode, summary [1-5](#)
 - prompts
 - system [1-5](#)
 - protocol tunneling
 - configuring encapsulation rate [2-313](#)
 - disabling [2-308](#)
 - displaying port information [2-674](#)
 - enabling [2-308](#)
 - setting a CoS value for Layer 2 packets [2-310](#)
 - setting a drop threshold for Layer 2 packets [2-311](#)
 - PVLANS
 - configuring isolated, primary, and community PVLANS [2-440](#)
 - controlling tagging of native VLAN traffic [2-894](#)
 - disabling sticky-ARP [2-278](#)
 - displaying map information for VLAN SVIs [2-595](#)
 - displaying PVLAN information [2-798](#)
 - enabling interface configuration mode [2-874](#)
 - enabling sticky-ARP [2-278](#)
 - mapping VLANs to the same SVI [2-444](#)
 - specifying host ports [2-874](#)
 - specifying promiscuous ports [2-874](#)
 - PVST+
 - switching between PVST and MST [2-826](#)
-
- Q**
- QoS

- account Layer 2 encapsulation [2-452](#)
 - attaching a policy-map to an interface [2-489](#)
 - automatic configuration [2-41](#)
 - class maps
 - creating [2-65](#)
 - defining the match criteria [2-367](#)
 - clearing aggregate counters [2-95](#)
 - configuring auto [2-41](#)
 - defining a named aggregate policer [2-454](#)
 - defining default CoS value [2-460](#)
 - defining ingress CoS-to-DSCP mapping [2-465](#)
 - displaying aggregate policer information [2-746](#)
 - displaying auto configuration [2-527](#)
 - displaying class maps information [2-541](#)
 - displaying configuration information [2-527](#)
 - displaying configurations of policies [2-722](#)
 - displaying policy map information [2-718, 2-725](#)
 - displaying QoS information [2-745](#)
 - displaying QoS map information [2-750](#)
 - egress queue-sets
 - enabling the priority queue [2-103](#)
 - enabling global configuration mode [2-450](#)
 - enabling on control packets [2-457](#)
 - enabling per-VLAN QoS for a Layer 2 interface [2-474](#)
 - enabling QoS on an interface [2-451](#)
 - hierarchical policies
 - average-rate traffic shaping on a class [2-511](#)
 - bandwidth allocation for a class [2-45, 2-64](#)
 - creating a service policy [2-492](#)
 - marking [2-498](#)
 - strict priority queueing (LLQ) [2-438](#)
 - mapping DSCP values to transmit queues [2-467](#)
 - mapping egress DSCP-to-CoS [2-467](#)
 - mapping the DSCP-to-CoS value [2-467](#)
 - policy maps
 - creating [2-410](#)
 - marking [2-498](#)
 - traffic classifications
 - trust states [2-912](#)
 - setting the mapping of policed DSCP values [2-469](#)
 - setting the trust state [2-472](#)
 - specifying flow-based match criteria [2-370](#)
 - Supervisor Engine 6-E
 - setting CoS [2-500](#)
 - setting DSCP [2-503](#)
 - setting precedence values [2-506](#)
 - setting QoS group identifiers [2-509](#)
 - QoS CoS
 - configuring for tunneled Layer 2 protocol packets [2-310](#)
 - defining default CoS value [2-460](#)
 - qos dbl [2-461](#)
 - quality of service
 - See QoS
 - question command [1-1](#)
 - queueing information
 - displaying [2-748](#)
 - queue limiting
 - configuring packet limits [2-476](#)
-
- ## R
- Rapid PVST
 - switching between PVST and MST [2-826](#)
 - re-authenticating 802.1X-enabled ports [2-178](#)
 - re-authentication
 - periodic [2-179](#)
 - set the time [2-181](#)
 - reauthentication, enabling [2-34](#)
 - reboots
 - restoring bindings across [2-240](#)
 - redundancy
 - accessing the main CPU [2-478](#)
 - changing from active to standby supervisor engine [2-482](#)
 - displaying information [2-752](#)

- displaying ISSU config-sync failure information [2-756](#)
- displaying redundancy facility information [2-752](#)
- displaying RF client list [2-752](#)
- displaying RF operational counters [2-752](#)
- displaying RF states [2-752](#)
- enabling automatic synchronization [2-44](#)
- forcing switchover to standby supervisor engine [2-482](#)
- mismatched command listing [2-480](#)
- set the mode [2-377](#)
- synchronizing the route processor configurations [2-364](#)
- related documentation [1-xxi](#)
- remote-id, setting for an interface [2-433](#)
- remote-id, setting for an interface VLAN range [2-434](#)
- remote SPAN
 - See RSPAN
- renew commands
 - ip dhcp snooping database [2-486](#)
- resetting PVLAN trunk
 - setting switchport to trunk [2-874](#)
- retry failed authentication, configuring [2-26](#)
- rj45 connector, selecting the connector [2-376](#)
- ROM monitor mode
 - summary [1-6](#)
- Route Processor Redundancy
 - See redundancy
- router, set to become ANCP client [2-18](#)
- RPF
 - disabling IPv4 exists-only checks [2-283](#)
 - enabling IPv4 exists-only checks [2-283](#)
- RPR
 - set the redundancy mode [2-377](#)
- RSPAN
 - converting VLAN to RSPAN VLAN [2-485](#)
 - displaying list [2-800](#)

S

- saving configuration changes [1-11](#)
- secure address, configuring [2-414](#)
- secure ports, limitations [2-880](#)
- server (AAA) alive actions, configuring [2-26](#)
- server (AAA) dead actions, configuring [2-26](#)
- service-policy command (policy-map class) [2-492](#)
- session classification, defining [2-29](#)
- set the redundancy mode [2-377](#)
- sfp connector, selecting the connector [2-376](#)
- shape command [2-511](#)
- shell trigger command [2-515, 2-762](#)
- show ancp multicast [2-520](#)
- show authentication interface command [2-522](#)
- show authentication registration command [2-522](#)
- show authentication sessions command [2-522](#)
- show commands
 - filtering parameters [1-7](#)
 - searching and filtering [1-6](#)
 - show platform commands [1-11](#)
- show energywise command [2-559](#)
- show ipv6 first-hop counters command [2-649](#)
- show mab command [2-680](#)
- show mac address-table learning command [2-196, 2-694](#)
- show nmsp command [2-713](#)
- show vlan group command [2-793](#)
- show vlan mapping command [2-795](#)
- Simple Network Management Protocol
 - See SNMP
- single-character patterns
 - special characters [1-7](#)
- single-host, setting [2-29](#)
- slaveslot0
 - displaying information on the standby supervisor [2-765](#)
- slot0
 - displaying information about the system [2-767](#)
- SNMP

- debugging spanning tree activities [2-132](#)
- ifIndex persistence
 - clearing SNMP ifIndex commands [2-807](#)
 - compress SNMP ifIndex table format [2-814](#)
 - disabling globally [2-813](#)
 - disabling on an interface [2-809](#)
 - enabling globally [2-813](#)
 - enabling on an interface [2-809](#)
- informs
 - disabling [2-811](#)
 - enabling [2-811](#)
- traps
 - configuring to send when storm occurs [2-852](#)
 - disabling [2-811](#)
 - enabling [2-811](#)
 - mac-notification
 - adding [2-815](#)
 - removing [2-815](#)
- SPAN commands
 - configuring a SPAN session to monitor [2-379](#)
 - displaying SPAN session information [2-780, 2-854](#)
- SPAN enhancements
 - displaying status [2-711](#)
- Spanning Tree Protocol
 - See STP
- SPAN session
 - displaying session information [2-711](#)
 - filter ACLs [2-379](#)
 - specify encap type [2-379](#)
 - turn off host learning based on ingress packets [2-379](#)
- special characters
 - anchoring, table [1-10](#)
- SSO [2-377](#)
- standard desktop
 - enabling Cisco-recommended features [2-338](#)
- standard desktop and Cisco IP phone
 - enabling Cisco-recommended features [2-340](#)
- sticky address, configuring [2-415](#)
- sticky-ARP
 - disabling on PVLANS [2-278](#)
 - enabling on PVLANS [2-278](#)
- sticky port
 - deleting [2-92](#)
 - enabling security [2-879](#)
- storm control
 - configuring for action when storm occurs [2-852](#)
 - disabling suppression mode [2-566](#)
 - displaying settings [2-777](#)
 - enabling [2-852](#)
 - enabling broadcast [2-852, 2-854](#)
 - enabling multicast [2-852, 2-854](#)
 - enabling suppression mode [2-566](#)
 - enabling timer to recover from error disable [2-202](#)
 - enabling unicast [2-852, 2-854](#)
 - multicast, enabling [2-854](#)
 - setting high and low levels [2-852](#)
 - setting suppression level [2-566](#)
- STP
 - configuring link type for a port [2-824](#)
 - configuring tunneling encapsulation rate [2-313](#)
 - debugging all activities [2-132](#)
 - debugging spanning tree activities [2-132](#)
 - debugging spanning tree BackboneFast events [2-134](#)
 - debugging spanning tree UplinkFast [2-137](#)
 - detecting misconfiguration [2-821](#)
 - displaying active interfaces only [2-769](#)
 - displaying BackboneFast status [2-769](#)
 - displaying bridge status and configuration [2-769](#)
 - displaying spanning tree debug messages [2-132](#)
 - displaying summary of interface information [2-769](#)
 - enabling BPDU filtering by default on all PortFast ports [2-840](#)
 - enabling BPDU filtering on an interface [2-817](#)
 - enabling BPDU guard by default on all PortFast ports [2-842](#)
 - enabling BPDU guard on an interface [2-819](#)
 - enabling extended system ID [2-822](#)
 - enabling loop guard as a default on all ports [2-825](#)

- enabling PortFast by default on all access ports [2-843](#)
- enabling PortFast mode [2-838](#)
- enabling protocol tunneling for [2-308](#)
- enabling root guard [2-823](#)
- enabling spanning tree BackboneFast [2-816](#)
- enabling spanning tree on a per VLAN basis [2-847](#)
- enabling spanning tree UplinkFast [2-845](#)
- setting an interface priority [2-844](#)
- setting drop threshold for [2-311](#)
- setting pathcost [2-820](#)
- setting the default pathcost calculation method [2-837](#)
- subinterface configuration mode, summary [1-6](#)
- SVI
 - creating a Layer 3 interface on a VLAN [2-222](#)
- switching characteristics
 - excluding from link-up calculation [2-871](#)
 - modifying [2-871](#)
 - returning to interfaces
 - capture function [2-871](#)
- switchport [2-895](#)
- switchport interfaces
 - displaying status of Layer 3 port [2-598](#)
 - displaying status of native VLAN tagging [2-598](#)
- switchport vlan mapping command [2-899](#)
- switch shim
 - debugging [2-135](#)
 - disabling debugging [2-135](#)
- switch to router connection
 - enabling Cisco-recommended features [2-342](#)
- switch to switch connection
 - enabling Cisco-recommended features [2-344](#)
- switch virtual interface
 - See SVI
- sw-vlan [2-138](#)
- system prompts [1-5](#)
- command completion [1-1](#)
- tables
 - characters with special meaning [1-7](#)
 - mac access-list extended subcommands [2-326](#)
 - multipliers [1-9](#)
 - relationship between duplex and speed commands [2-850](#)
 - show cable-diagnostics tdr command output fields [2-532](#)
 - show cdp neighbors detail field descriptions [2-540](#)
 - show cdp neighbors field descriptions [2-539](#)
 - show ip dhcp snooping command output [2-523, 2-680](#)
 - show ip interface field descriptions [2-633](#)
 - show policy-map control-plane field descriptions [2-721](#)
 - show vlan command output fields [2-799](#)
 - show vtp command output fields [2-804](#)
 - special characters [1-9](#)
 - special characters used for anchoring [1-10](#)
 - speed command options [2-370, 2-850](#)
 - valid interface types [2-217](#)
- TAC
 - displaying information useful to TAC [2-781](#)
- TCAM
 - debugging spanning tree activities [2-132](#)
- TDR
 - displaying cable diagnostic test results [2-531](#)
 - test condition of copper cables [2-904](#)
- temperature readings
 - displaying information [2-563](#)
- Ten-Gigabit Ethernet uplink
 - blocking ports on redundant Supervisor Engine 6-E [2-211](#)
- timer information [2-567](#)
- traffic monitor
 - display status [2-680](#)
- traffic shaping
 - enable on an interface [2-513](#)
- traps, enabling [2-811](#)
- trunk encapsulation

T

Tab key

- setting format [2-895](#)
- trunk interfaces
 - displaying trunk interfaces information [2-605](#)
- trunk port, configuring VLAN mapping [2-899](#)
- trunk ports, display VLAN mapping information [2-795](#)
- trust configuration, setting on an interface [2-435, 2-436](#)
- trust state
 - setting [2-229](#)
- tunnel ports
 - displaying information about Layer 2 protocol [2-674](#)
- TX queues
 - allocating bandwidth [2-914](#)
 - returning to default values [2-914](#)
 - setting priority to high [2-914](#)
 - specifying burst size [2-914](#)
 - specifying traffic rate [2-914](#)

U

UDLD

- displaying administrative and operational status [2-783](#)
- enabling by default on all fiber interfaces [2-916](#)
- enabling on an individual interface [2-918](#)
- preventing a fiber interface from being enabled [2-918](#)
- resetting all shutdown ports [2-920](#)
- setting the message timer [2-916](#)

Unidirectional Link Detection

See UDLD

- unidirection port control, changing from bidirectional [2-23](#)
- unknown multicast traffic, preventing [2-873](#)
- unknown unicast traffic, preventing [2-873](#)
- user EXEC mode, summary [1-5](#)
- username
 - setting password and privilege level [2-922](#)

V

VACLs

- access-group mode [2-6](#)
- applying VLAN access maps [2-937](#)
- displaying VLAN access map information [2-790](#)
- specifying an action in a VLAN access map [2-13](#)
- specifying the match clause for a VLAN access-map sequence [2-365](#)
- using a VLAN filter [2-937](#)

VLAN

- applying an ARP ACL [2-223](#)
- configuring [2-926](#)
- configuring service policies [2-931](#)
- converting to RSPAN VLAN [2-485](#)
- displaying CEF information [2-612](#)
- displaying CEF next-hop information [2-612](#)
- displaying information on switch interfaces [2-623, 2-627](#)
- displaying information on VLAN switch interfaces [2-630](#)
- displaying information sorted by group IP address [2-623, 2-627](#)
- displaying IP address and version information [2-623, 2-627](#)
- displaying Layer 2 VLAN information [2-786](#)
- displaying statistical information [2-709](#)
- displaying VLAN information [2-788](#)
- enabling dynamic ARP inspection [2-232](#)
- enabling Explicit Host Tracking [2-263](#)
- enabling guest per-port [2-167](#)
- enabling guest VLAN supplicant [2-159, 2-168](#)
- entering VLAN configuration mode [2-931, 2-933](#)
- native frames
 - enabling tagging on all 802.1Q trunk ports [2-935](#)
- pruning the list for VTP [2-895](#)
- setting the list of allowed [2-895](#)

VLAN, create or modify a group [2-938](#)

VLAN Access Control Lists

See VACLs

- VLAN access map
 - See VACLs
 - VLAN database
 - resetting [2-487](#)
 - VLAN debugging
 - limiting output [2-110](#)
 - vlan group command [2-938](#)
 - VLAN groups, display VLANs mapped [2-793](#)
 - VLAN ID translation
 - See VLAN mapping
 - VLAN link-up calculation
 - excluding a switch port [2-871](#)
 - including a switch port [2-871](#)
 - VLAN manager
 - debugging [2-138](#)
 - disabling debugging [2-138](#)
 - IOS file system error tests
 - debugging [2-139](#)
 - disabling debugging [2-139](#)
 - VLAN mapping
 - configuring [2-899](#)
 - described [2-900](#)
 - displaying [2-795](#)
 - VLAN mapping, configure on trunk port [2-899](#)
 - VLAN mapping on trunk ports, display information [2-795](#)
 - VLAN Query Protocol
 - See VQP
 - VLAN query protocol (VQPC)
 - debugging [2-145](#)
 - VLANs
 - clearing
 - counters [2-97](#)
 - clearing hardware logic [2-73](#)
 - configuring
 - internal allocation scheme [2-940](#)
 - displaying
 - internal VLAN allocation information [2-794](#)
 - RSPAN VLANs [2-800](#)
 - entering VLAN configuration mode [2-933](#)
 - VMPS
 - configuring servers [2-944](#)
 - reconfirming dynamic VLAN assignments [2-145](#), [2-942](#)
 - voice VLANs
 - enabling [2-867](#)
 - VoIP
 - configuring auto-QoS [2-41](#)
 - VQP
 - per-server retry count [2-943](#)
 - reconfirming dynamic VLAN assignments [2-145](#), [2-942](#)
 - VTP
 - configuring the administrative domain name [2-948](#)
 - configuring the device in VTP client mode [2-947](#)
 - configuring the device in VTP server mode [2-951](#)
 - configuring the device in VTP transparent mode [2-952](#)
 - configuring tunnel encapsulation rate [2-313](#)
 - creating a VTP domain password [2-949](#)
 - displaying domain information [2-803](#)
 - displaying statistics information [2-803](#)
 - enabling protocol tunneling for [2-308](#)
 - enabling pruning in the VLAN database [2-950](#)
 - enabling VTP version 2 mode [2-953](#)
 - modifying the VTP configuration storage file name [2-946](#)
 - set drop threshold for [2-311](#)
 - VTP protocol code
 - activating debug messages [2-142](#)
 - deactivating debug messages [2-142](#)
-
- W**
- Webauth fallback, enabling [2-28](#)