



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 [2-278](#)
 - showing the mode [2-699, 2-700](#)
- 802.1Q trunk ports and native VLANs [2-1117](#)
- 802.1Q tunnel ports
 - configuring [2-1049](#)
- 802.1S Multiple Spanning Tree
 - see MST
- 802.1X
 - configuring for multiple hosts [2-218](#)
 - configuring for single host [2-218](#)
 - configuring multiple domains [2-218](#)
 - disabling port control [2-210](#)
 - enabling port control [2-210](#)
- 802.1X Critical Authentication
 - disabling on a port [2-212](#)
 - disabling on a VLAN [2-215](#)
- EAPOL

- disabling send success packets [2-213](#)
- enabling send success packets [2-213](#)
- enabling on a port [2-212](#)
- enabling on a VLAN [2-215](#)
- returning delay time to default setting [2-214](#)
- setting delay time on a port [2-214](#)
- 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 [2-149](#)
 - displaying port based authentication [2-679](#)
 - enabling accounting for authentication sessions [2-4](#)
 - enabling authentication on the system [2-229](#)
 - enabling guest VLAN [2-216](#)
 - enabling guest VLAN supplicant [2-209, 2-217](#)
 - enabling manual control of auth state [2-225](#)
 - enabling periodic re-authentication of the client [2-228](#)
 - initializing re-authentication of dot1x ports [2-227](#)
 - initializing state machines [2-220](#)
 - receive session termination message upon reboot [2-5](#)
 - setting maximum number for EAP requests [2-223](#)
 - setting the reauthentication timer [2-230](#)

A

- aaa authorization network command [2-211](#)
- abbreviating commands
 - context-sensitive help [1-1](#)
- Access Gateway Module
 - connecting to a module [2-22](#)
 - connecting to a remote module [2-589](#)
 - connecting to a specific remote module [2-618](#)

- access-group
 - displaying mac interface [2-821](#)
 - show mode interface [2-553, 2-639, 2-902](#)
- access groups
 - IP [2-6, 2-205](#)
- access lists
 - clearing an access template [2-104](#)
 - defining ARP [2-21](#)
 - displaying ARP information [2-643](#)
 - See also ACLs, MAC ACLs, and VACLs
- access maps
 - applying with VLAN filter [2-1119](#)
- access-node-identifier, setting for the switch [2-556](#)
- access-policies, applying using host-mode [2-30](#)
- 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 [2-267](#)
 - displaying mac access-group interface [2-821](#)
 - enabling hardware statistics [2-267](#)
 - using ACL naming conventions for MAC ACLs [2-410](#)
- action clause
 - specifying drop or forward action in a VACL [2-13](#)
- addresses, configuring a maximum [2-530](#)
- adjacency
 - debugging the adjacency table [2-140](#)
 - disabling the debug facility [2-140](#)
 - displaying information about the adjacency table [2-640](#)
 - displaying IPC table entries [2-140](#)
- aggregate policer
 - displaying information [2-903](#)
- aging time
 - displaying MAC address aging time [2-824](#)
 - MAC address table [2-413, 2-415](#)
- alarms
 - displaying operational status [2-687](#)
- alternation
 - description [1-10](#)
- anchoring
 - description [1-10](#)
- anycp, show multicast [2-642](#)
- ANCP client
 - port identifier [2-16](#)
 - remote server [2-17](#)
 - set router to become [2-18](#)
- ARP
 - access list, displaying detailed information [2-643](#)
 - defining access-lists [2-21](#)
- ARP inspection
 - enforce certain types of checking [2-301](#)
- ARP packet
 - deny based on DHCP bindings [2-184](#)
 - permit based on DHCP bindings [2-508](#)
- authentication [2-25, 2-32](#)
 - changing the control-direction [2-23](#)
 - configure actions for events
 - configuring the actions [2-26](#)
 - configuring port-control [2-36](#)
 - enabling reauthentication [2-35](#)
 - enabling Webauth fallback [2-29](#)
 - host-mode configuration [2-30](#)
 - setting priority of methods [2-38](#)
 - setting the timer [2-40](#)
 - setting username [2-1104](#)
 - specifying the order of methods [2-33](#)
 - using an MD5-type encryption method [2-1104](#)
 - verifying MD5 signature [2-1106](#)
 - verifying the checksum for Flash memory [2-1106](#)
- authentication control-direction command [2-23](#)
- authentication critical recovery delay command [2-25](#)
- authentication event command [2-26](#)
- authentication fallback command [2-29](#)
- authentication host-mode [2-30](#)
- authentication methods, setting priority [2-38](#)

authentication methods, specifying the order of attempts [2-33](#)
 authentication open command [2-32](#)
 authentication order command [2-33](#)
 authentication periodic command [2-35](#)
 authentication port-control command [2-36](#)
 authentication priority command [2-38](#)
 authentication timer, setting [2-40](#)
 authentication timer command [2-40](#)
 authentication violation command [2-42](#)
 auth fail VLAN
 enable on a port [2-209](#)
 set max number of attempts [2-208](#)
 Auth Manager
 configuring
 authentication timer [2-40](#)
 authorization state
 enabling manual control [2-225](#)
 authorization state of a controlled port [2-225](#)
 automatic installation
 displaying status [2-648](#)
 automatic medium-dependent interface crossover
 See Auto-MDIX
 Auto-MDIX
 disabling [2-461](#)
 enabling [2-461](#)
 auto-negotiate interface speed
 example [2-1019](#)
 auto-QoS
 configuring for VoIP [2-64](#)
 displaying configuration [2-649](#)
 auto qos srnd4 command [2-52](#)
 average-packet-size (netflow-lite monitor submode) command [2-73](#)

B

baby giants
 displaying the system MTU setting [2-942](#)

 setting the maximum Layer 2 payload size [2-1076](#)
 BackboneFast
 displaying debugging messages [2-171](#)
 displaying spanning tree status [2-926](#)
 enabling debugging [2-171](#)
 bandwidth command [2-75](#)
 bindings
 store for DHCP snooping [2-313](#)
 BOOT environment variable
 displaying information [2-652](#)
 bootflash
 displaying information [2-650](#)
 BPDUs
 debugging spanning tree activities [2-169](#)
 bridge protocol data units
 See BPDUs
 broadcast suppression level
 configuring [2-1020, 2-1022](#)
 enabling [2-1020, 2-1022](#)

C

cable diagnostics
 TDR
 displaying test results [2-653](#)
 testing conditions of copper cables [2-1080](#)
 call home
 displaying information [2-655](#)
 e-mailing output [2-83](#)
 entering configuration submode [2-78](#)
 executing [2-83](#)
 manually send test message [2-86](#)
 receiving information [2-81](#)
 sending alert group message [2-84](#)
 submitting information [2-81](#)
 call home destination profiles
 displaying [2-657](#)
 Catalyst 4507R [2-528](#)
 CDP

- configuring tunneling encapsulation rate [2-395](#)
- displaying
 - neighbor information [2-660](#)
- enabling protocol tunneling for [2-390](#)
- set drop threshold for [2-393](#)
- CEF
 - displaying next-hop information [2-737](#)
 - displaying VLAN configuration information [2-737](#)
- chassis
 - displaying
 - chassis MAC address ranges [2-818](#)
 - current and peak traffic meter readings [2-818](#)
 - percentage of backplane utilization [2-818](#)
 - switching clock failure recovery mode [2-818](#)
- circuit-id
 - setting for an interface [2-558](#)
- circuit-id, setting for an interface VLAN range [2-559](#)
- cisco-desktop
 - macro apply [2-424](#)
- Cisco Express Forwarding
 - See CEF
- cisco-phone
 - macro apply [2-426](#)
- cisco-router
 - macro apply [2-428](#)
- cisco-switch
 - macro apply [2-430](#)
- CISP
 - See Client Information Signalling Protocol
- cisp enable command [2-91](#)
- class maps
 - creating [2-95](#)
 - defining the match criteria [2-454](#)
- monitor capture [2-467](#)
- clear commands
 - clearing Gigabit Ethernet interfaces [2-102](#)
 - clearing IGMP group cache entries [2-111](#)
 - clearing interface counters [2-97](#)
 - clearing IP access lists [2-104, 2-105](#)
 - clearing IP ARP inspection statistics VLAN [2-106](#)
 - clearing IP DHCP snooping database statistics [2-110](#)
 - clearing MFIB counters and routes [2-114](#)
 - clearing MFIB fastdrop entries [2-115](#)
 - clearing PAgP channel information [2-124](#)
 - clearing QoS aggregate counters [2-128](#)
 - clearing VLAN interfaces [2-103](#)
- clear energywise neighbors command [2-99](#)
- clear ip wccp command [2-116](#)
- clear netflow-lite exporter statistics command [2-121](#)
- clear netflow-lite monitor statistics interface command [2-122](#)
- clear nmsp statistics command [2-123](#)
- Client Information Signalling Protocol [2-211](#)
- Client Information Signalling Protocol, enabling [2-91](#)
- 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 [2-467](#)
- 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 [2-142](#)
- condition vlan
 - debugging VLAN output [2-145](#)
- configuration, saving [1-11](#)
- configuring
 - root as secondary [2-1003](#)
- configuring a SPAN session to monitor

- limit SPAN source traffic [2-480](#)
- configuring critical recovery [2-25](#)
- configuring forward delay [2-999](#)
- configuring root as primary [2-1003](#)
- CoPP
 - attaching
 - policy map to control plane [2-616](#)
 - displaying
 - policy-map class information [2-877](#)
 - entering configuration mode [2-132](#)
 - removing
 - service policy from control plane [2-616](#)
- CoS
 - assigning to Layer 2 protocol packets [2-392](#)
- cos (netflow-lite exporter submode) command [2-134](#)
- counter command [2-136](#)
- counters
 - clearing interface counters [2-97](#)
- critical authentication, configure 802.1X parameters [2-25](#)
- critical recovery, configuring 802.1X parameter [2-25](#)

D

- DAI
 - clear statistics [2-106](#)
- DBL
 - displaying qos dbl [2-904](#)
- debug commands
 - debugging backup events [2-141](#)
 - debugging DHCP snooping events [2-154](#)
 - debugging DHCP snooping messages [2-155](#)
 - debugging EtherChannel/PAgP/shim [2-150](#)
 - debugging IPC activity [2-153](#)
 - debugging IP DHCP snooping security messages [2-156](#)
 - debugging NVRAM activities [2-160](#)
 - debugging PAgP activities [2-161](#)
 - debugging port manager activities [2-164](#)
 - debugging spanning tree activities [2-169](#)
 - debugging spanning tree backbonefast [2-171](#)
 - debugging spanning tree UplinkFast [2-174](#)
 - debugging supervisor redundancy [2-168](#)
 - debugging VLAN manager activities [2-175](#)
 - displaying monitor activity [2-158](#)
 - displaying the adjacency table [2-140](#)
 - enabling debug dot1x [2-149](#)
 - enabling debugging messages for ISL VLAN IDs [2-178](#)
 - enabling debugging messages for VTP [2-179](#)
 - enabling debugging of UDLD activity [2-180](#)
 - enabling switch shim debugging [2-172](#)
 - enabling VLAN manager file system error tests [2-176](#)
 - limiting debugging output for VLANs [2-145](#)
 - limiting interface debugging output [2-142](#)
 - limiting output for debugging standby state changes [2-143](#)
 - shortcut to the debug condition interface [2-152](#)
- debugging
 - activity monitoring [2-158](#)
 - DHCP snooping events [2-154](#)
 - DHCP snooping packets [2-155](#)
 - IPC activities [2-153](#)
 - IP DHCP snooping security packets [2-156](#)
 - NVRAM activities [2-160](#)
 - PAgP activities [2-161](#)
 - PAgP shim [2-150](#)
 - PM activities [2-164](#)
 - PPPoE Intermediate Agent [2-166](#)
 - spanning tree BackboneFast events [2-171](#)
 - spanning tree switch shim [2-172](#)
 - spanning tree UplinkFast events [2-174](#)
 - VLAN manager activities [2-175](#)
 - VLAN manager IOS file system error tests [2-176](#)
 - VTP protocol debug messages [2-179](#)
- debug nmsp command [2-159](#)
- debug spanning tree switch [2-172](#)
- debug sw-vlan vtp [2-179](#)
- default form of a command, using [1-6](#)

- destination (netflow-lite exporter submode) command [2-186](#)
- device-sensor filter-list command [2-196](#)
- device-sensor filter-list dhcp command [2-199](#)
- device-sensor filter-spec command [2-201](#)
- device-sensor notify command [2-203](#)
- DHCP
 - clearing database statistics [2-110](#)
- DHCP bindings
 - configuring bindings [2-311](#)
 - deny ARP packet based on matches [2-184](#)
 - permit ARP packet based on matches [2-508](#)
- DHCP snooping
 - clearing binding entries [2-107](#)
 - clearing database [2-109](#)
 - displaying binding table [2-739](#)
 - displaying configuration information [2-738](#)
 - displaying status of DHCP database [2-743](#)
 - displaying status of error detection [2-690](#)
 - enabling DHCP globally [2-310](#)
 - enabling IP source guard [2-352](#)
 - enabling on a VLAN [2-320](#)
 - enabling option 82 [2-315](#), [2-317](#)
 - enabling option-82 [2-322](#)
 - enabling rate limiting on an interface [2-318](#)
 - enabling trust on an interface [2-319](#)
 - establishing binding configuration [2-311](#)
 - renew binding database [2-591](#)
 - store generated bindings [2-313](#)
- diagnostic fpga soft-error recover command [2-205](#)
- diagnostic test
 - bootup packet memory [2-673](#)
 - displaying attributes [2-667](#)
 - display module-based results [2-669](#)
 - running [2-207](#)
 - show results for TDR [2-653](#)
 - testing conditions of copper cables [2-1080](#)
- displaying error disable recovery [2-691](#)
- displaying inline power status [2-891](#)
- displaying monitoring activity [2-158](#)
- displaying PoE policing and monitoring status [2-899](#)
- displaying SEEPROM information
 - GBIC [2-701](#)
- displaying SPAN session information [2-942](#), [2-1022](#)
- document conventions [1-xxiv](#)
- document organization [1-xxiii](#)
- DoS
 - CoPP
 - attaching policy map to control plane [2-616](#)
 - displaying policy-map class information [2-877](#)
 - entering configuration mode [2-132](#)
 - removing service policy from control plane [2-616](#)
 - entering
 - CoPP configuration mode [2-132](#)
- DOS attack
 - protecting system's resources [2-296](#)
- dot1x credentials (global configuration) command [2-211](#)
- drop threshold, Layer 2 protocol tunneling [2-393](#)
- dscp (netflow-lite exporter submode command [2-232](#)
- DSCP rewrite for IP packets
 - enable [2-579](#)
- dual-active detection (virtual switch) command [2-234](#)
- dual-active recovery ip address command [2-236](#)
- dual-capable port
 - selecting a connector [2-463](#)
- duplex mode
 - configuring autonegotiation on an interface [2-238](#)
 - configuring full duplex on an interface [2-238](#)
 - configuring half duplex on an interface [2-238](#)
- dynamic ARP inspection
 - preventing [2-296](#)
- Dynamic Host Configuration Protocol
 - See DHCP

E

EAP

- restarting authentication process [2-223](#)

- EDCS-587028 [2-644, 2-818](#)
 - EIGRP (Enhanced IGRP)
 - filters
 - routing updates, preventing [2-505](#)
 - enabling
 - debugging for UDLD [2-180](#)
 - voice VLANs [2-1036, 2-1037, 2-1039, 2-1041, 2-1042](#)
 - enabling open access [2-32](#)
 - EnergyWise
 - display power information through queries [2-247](#)
 - display setting, status of entity and PoE ports [2-683](#)
 - on an entity
 - enable, assign to domain, and set password [2-245](#)
 - on an entity, enable and configure [2-240](#)
 - on a PoE port
 - configuring on PoE port [2-242](#)
 - energywise (global configuration) command [2-240, 2-242](#)
 - energywise domain command [2-245](#)
 - EnergyWise neighbor table, deleting [2-99](#)
 - energywise query command [2-247](#)
 - environmental
 - alarms [2-687](#)
 - displaying information [2-687](#)
 - status [2-687](#)
 - temperature [2-687](#)
 - epm access control command [2-251](#)
 - erase a file [2-252](#)
 - error disable detection
 - clearing error disable on an interface [2-100](#)
 - enabling error disable detection [2-100, 2-255](#)
 - enabling per-VLAN on BPDU guard [2-255](#)
 - error-disabled state
 - displaying [2-721](#)
 - error disable recovery
 - configuring recovery mechanism variables [2-257](#)
 - displaying recovery timer information [2-691](#)
 - enabling ARP inspection timeout [2-257](#)
 - specifying recovery cause [2-257](#)
 - EtherChannel
 - assigning interfaces to EtherChannel groups [2-87](#)
 - debugging EtherChannel [2-150](#)
 - debugging PAgP shim [2-150](#)
 - debugging spanning tree activities [2-169](#)
 - displaying information for a channel [2-693](#)
 - removing interfaces from EtherChannel groups [2-87](#)
 - EtherChannel guard
 - detecting STP misconfiguration [2-989](#)
 - Explicit Host Tracking
 - clearing the database [2-113](#)
 - enabling per-VLAN [2-334](#)
 - exporter (netflow-lite monitor submode) command [2-262](#)
 - 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 [2-29](#)
 - field replaceable unit (FRU)
 - displaying status information [2-687](#)
 - filters
 - EIGRP
 - routing updates, preventing [2-505](#)
 - Flash memory file system
 - displaying file system information [2-650](#)
 - verifying checksum [2-1106](#)
 - flow control
 - configuring a gigabit interface for pause frames [2-264](#)
 - displaying per-interface statistics for flow control [2-697](#)
-
- ## G
- GBIC

- displaying SEEPROM information [2-701](#)
- generic-error-message, setting for the switch [2-556](#)
- Gigabit Ethernet interface
 - clearing the hardware logic [2-102](#)
- Gigabit Ethernet uplink
 - selecting [2-278](#)
 - showing the mode [2-699, 2-700](#)
- global configuration mode
 - using [1-5](#)

H

- hardware module
 - resetting a module by toggling the power [2-274](#)
- hardware statistics
 - disabling [2-267](#)
 - enabling [2-267](#)
- hardware uplink
 - selecting the mode [2-278](#)
 - showing the mode [2-699, 2-700](#)
- helper addresses, IP [2-758](#)
- hot standby protocol
 - debugging [2-143](#)
 - disabling debugging [2-143](#)
 - limiting output [2-143](#)
- hw-module beacon command [2-268](#)
- hw-module module start command [2-269](#)
- hw-module module stop command [2-271](#)
- hw-module uplink mode command [2-276](#)

I

- identifier-string, setting for the switch [2-556](#)
- ID mapping, creating an ANCP client [2-16](#)
- IDROMs
 - displaying SEEPROM information
 - chassis [2-701](#)
 - clock module [2-701](#)

- fan trays [2-701](#)
- module [2-701](#)
- mux buffer [2-701](#)
- power supplies [2-701](#)
- supervisor engine [2-701](#)

- ifIndex persistence
 - compress SNMP ifIndex table format [2-978](#)
 - disabling globally [2-977](#)
 - disabling on an interface [2-973](#)
 - enabling globally [2-977](#)

IGMP

- applying filters for host joining on Layer 2 interfaces [2-324](#)
- clearing IGMP group cache entries [2-111](#)
- configuring frequency for IGMP host-query messages [2-327](#)
- creating an IGMP profile [2-326](#)
- displaying IGMP interface configuration information [2-745](#)
- displaying profiles [2-747](#)
- setting maximum group numbers [2-325](#)

IGMP profiles

- displaying [2-747](#)

IGMP snooping

- clearing the EHT database [2-113](#)
- configuring a Layer 2 interface as a group member [2-340](#)
- configuring a Layer 2 interface as a multicast router [2-338](#)
- configuring a static VLAN interface [2-340](#)
- displaying multicast information [2-754](#)
- displaying VLAN information [2-748, 2-752, 2-755](#)
- enabling [2-329](#)
- enabling immediate-leave processing [2-336](#)
- enabling on a VLAN [2-333](#)
- enabling per-VLAN Explicit Host Tracking [2-334](#)

informs

- enabling [2-975](#)

inline power

- displaying inline power status [2-891](#)

In Service Software Upgrade

See ISSU

inspection log

clearing log buffer [2-105](#)

interface

displaying suppressed multicast bytes [2-712, 2-714](#)

interface (virtual switch) command [2-287](#)

interface capabilities

displaying [2-710](#)

interface configuration mode

summary [1-5](#)

interface link

display cable disconnect time [2-718](#)

interfaces

configuring dot1q tunnel ports [2-1049](#)

creating an interface-range macro [2-183](#)

debugging output of interface related activities [2-142](#)

displaying description [2-717](#)

displaying error-disabled state [2-721](#)

displaying information when tunneling is enabled [2-806](#)

displaying status [2-717](#)

displaying traffic for a specific interface [2-707](#)

entering interface configuration mode [2-285, 2-287](#)

executing a command on multiple ports in a range [2-290](#)

selecting an interface to configure [2-285, 2-287](#)

setting a CoS value for Layer 2 packets [2-392](#)

setting drop threshold for Layer 2 packets [2-393](#)

setting the interface type [2-1049](#)

interface speed

configuring interface speed [2-1017](#)

interface transceiver

displaying diagnostic data [2-725](#)

internal VLAN allocation

configuring [2-1122](#)

default setting [2-1122](#)

displaying allocation information [2-956](#)

Internet Group Management Protocol

See IGMP

IP address of remote ANCP server, setting [2-17](#)

IP ARP

applying ARP ACL to VLAN [2-294](#)

clearing inspection statistics [2-106](#)

clearing status of log buffer [2-105](#)

controlling packet logging [2-305](#)

enabling dynamic inspection [2-303](#)

limit rate of incoming requests [2-296](#)

set per-port config trust state [2-300](#)

showing status of dynamic ARP inspection [2-732](#)

showing status of log buffer [2-735](#)

IPC

debugging IPC activities [2-153](#)

IP DHCP Snooping

See DHCP snooping

IP header validation

disabling [2-351](#)

enabling [2-351](#)

IP interfaces

displaying usability status [2-757](#)

IP multicast

displaying multicast routing table information [2-763](#)

ip multicast multipath command [2-344](#)

IP packets

enable DSCP rewrite [2-579](#)

IP phone and standard desktop

enabling Cisco-recommended features [2-426](#)

IP Port Security

enabling [2-352](#)

IP source binding

adding or deleting [2-348](#)

displaying bindingstaggging [2-768](#)

IP source guard

debugging messages [2-156](#)

displaying configuration and filters [2-769](#)

enabling on DHCP snooping [2-352](#)

IPv4 statistics, enabling collection [2-136](#)

IPv6 MLD

- configuring queries [2-369, 2-371](#)
- configuring snooping
 - last-listener-query-intervals [2-371](#)
 - configuring snooping
 - listener-message-suppression [2-373](#)
 - configuring snooping robustness-variables [2-374](#)
 - configuring tcn topology change notifications [2-376](#)
 - counting snooping last-listener-queries [2-369](#)
 - displaying information [2-782](#)
 - displaying ports for a switch or VLAN [2-784](#)
 - displaying querier information [2-785](#)
 - enabling snooping [2-367](#)
 - enabling snooping on a VLAN [2-377](#)
- IPv6 statistics, enabling collection [2-136](#)
- ip wccp check services all command [2-359](#)
- ip wccp command [2-356](#)
- ip wccp group-address command [2-356](#)
- ip wccp group-list command [2-356](#)
- ip wccp group-listen command [2-361](#)
- ip wccp password command [2-356, 2-358](#)
- ip wccp redirect command [2-363](#)
- ip wccp redirect exclude in command [2-365](#)
- ip wccp redirect-list command [2-356](#)
- ISSU
 - canceling process [2-379](#)
 - configuring rollback timer [2-389](#)
 - displaying capability [2-787](#)
 - displaying client information [2-789](#)
 - displaying compatibility matrix [2-791](#)
 - displaying endpoint information [2-796](#)
 - displaying entities [2-797](#)
 - displaying FSM session [2-798](#)
 - displaying messages [2-799](#)
 - displaying negotiated [2-801](#)
 - displaying rollback-timer [2-802](#)
 - displaying session information [2-803](#)
 - displaying software version [2-804](#)
 - displaying state [2-804](#)
 - forcing switchover to standby supervisor engine [2-387](#)

- loading new image [2-383](#)
- starting process [2-385](#)
- stopping rollback timer [2-381](#)

J

- Jumbo frames
 - enabling jumbo frames [2-485](#)

L

- LACP
 - deselecting channeling protocol [2-89](#)
 - enabling LACP on an interface [2-89](#)
 - setting channeling protocol [2-89](#)
- lacp port-priority command [2-397](#)
- lacp system-priority command [2-398](#)
- Layer 2
 - displaying ACL configuration [2-821](#)
- Layer 2 interface type
 - specifying a nontrunking, nontagged single VLAN interface [2-1049](#)
 - specifying a trunking VLAN interface [2-1049](#)
- Layer 2 protocol ports
 - displaying [2-806](#)
- Layer 2 protocol tunneling error recovery [2-395](#)
- Layer 2 switching
 - enabling voice VLANs [2-1036, 2-1037, 2-1039, 2-1041, 2-1042](#)
 - modifying switching characteristics [2-1036, 2-1037, 2-1039, 2-1041, 2-1042](#)
- Layer 2 traceroute
 - IP addresses [2-1085](#)
- Layer 3 interface, assign counters [2-136](#)
- Layer 3 switching
 - displaying information about an adjacency table [2-640](#)
 - displaying port status [2-723](#)
 - displaying status of native VLAN tagging [2-723](#)
- license right-to-use activate command [2-399](#)

license right-to-use deactivate command [2-400](#)

link-status event messages

disabling

globally [2-402, 2-405](#)

on an interface [2-403, 2-406](#)

enabling

globally [2-402, 2-405](#)

on an interface [2-403, 2-406](#)

LLDP

enabling power negotiation [2-401](#)

lldp tlv-select power-management command [2-401](#)

log buffer

show status [2-735](#)

logging

controlling IP ARP packets [2-305](#)

M

MAB, display information [2-818](#)

MAB, enable and configure [2-408](#)

mab command [2-408](#)

MAC Access Control Lists

See MAC ACLs

MAC ACLs

defining extended MAC access list [2-410](#)

displaying MAC ACL information [2-952](#)

naming an ACL [2-410](#)

mac-address (virtual switch) command [2-413](#)

MAC addresses

disabling MAC address learning per VLAN [2-419](#)

displaying

notification settings [2-251, 2-781, 2-832](#)

MAC address filtering

configuring [2-423](#)

disabling [2-423](#)

enabling [2-423](#)

MAC address learning on a VLAN, enabling [2-419](#)

MAC address table

adding static entries [2-451](#)

clearing dynamic entries [2-118, 2-120](#)

configuring aging time [2-413, 2-415](#)

displaying dynamic table entry information [2-828](#)

displaying entry count [2-826](#)

displaying information [2-822](#)

displaying interface-based information [2-830](#)

displaying multicast information [2-833](#)

displaying notification information [2-835](#)

displaying protocol-based information [2-837](#)

displaying static table entry information [2-839](#)

displaying the MAC address aging time [2-824](#)

displaying VLAN-based information [2-842](#)

enabling authentication bypass [2-221](#)

enabling notifications [2-421](#)

learning in the protocol buckets [2-416](#)

removing static entries [2-451](#)

mac address-table learning vlan command [2-419](#)

MAC address tables

adding static entries [2-423](#)

deleting secure or specific addresses [2-125](#)

disabling IGMP snooping on static MAC addresses [2-423](#)

removing static entries [2-423](#)

mac-address-table static [2-423](#)

MAC address unicast filtering

dropping unicast traffic [2-423](#)

MAC authentication bypass (MAB), display information [2-818](#)

MAC authorization bypass(MAB), enable and configure [2-408](#)

macro

displaying descriptions [2-450](#)

macro auto global processing command [2-432, 2-434, 2-437, 2-439, 2-441, 2-443, 2-445, 2-447, 2-844](#)

macro auto monitor command [2-444](#)

macro keywords

help strings [2-2](#)

macros

adding a global description [2-450](#)

cisco global [2-448](#)

- system-cpp [2-449](#)
- mapping secondary VLANs to MST instance [2-572](#)
- mapping VLAN(s) to an MST instance [2-282](#)
- match (class-map configuration) command [2-14](#), [2-188](#), [2-190](#), [2-192](#), [2-194](#), [2-454](#), [2-575](#), [2-1024](#), [2-1026](#), [2-1028](#), [2-1030](#), [2-1034](#)
- maximum transmission unit (MTU)
 - displaying the system MTU setting [2-942](#)
 - setting the maximum Layer 2 payload size [2-1076](#)
- MD5
 - verifying MD5 signature [2-1106](#)
- message digest 5
 - See MD5
- MFIB
 - clearing ip mfib counters [2-114](#)
 - clearing ip mfib fastdrop [2-115](#)
 - displaying all active MFIB routes [2-760](#)
 - displaying MFIB fastdrop table entries [2-762](#)
 - enabling IP MFIB fastdrops [2-343](#)
- MLD
 - configuring snooping
 - last-listener-query-intervals [2-371](#)
 - configuring snooping
 - listener-message-suppression [2-373](#)
 - configuring snooping robustness-variables [2-374](#)
 - configuring topology change notifications [2-376](#)
 - counting snooping last-listener-queries [2-369](#)
 - enabling snooping [2-367](#)
 - enabling snooping on a VLAN [2-377](#)
- MLD snooping
 - displaying [2-785](#)
- modes
 - access-group [2-6](#)
 - show access-group interface [2-553](#), [2-639](#), [2-902](#)
 - switching between PVST+, MST, and Rapid PVST [2-994](#)
 - See also command modes
- module password clearing [2-101](#)
- module reset
 - resetting a module by toggling the power [2-274](#)
- monitor capture {access-list | class-map} command [2-466](#)
- monitor capture mycap match command [2-473](#)
- monitor capture start command [2-475](#)
- More-- prompt
 - filter [1-6](#)
 - search [1-7](#)
- MST
 - designating the primary and secondary root [2-1003](#)
 - displaying MST protocol information [2-931](#)
 - displaying region configuration information [2-931](#)
 - displaying spanning tree information [2-931](#)
 - entering MST configuration submode [2-997](#)
 - setting configuration revision number [2-608](#)
 - setting path cost and port priority for instances [2-995](#)
 - setting the forward delay timer for all instances [2-999](#)
 - setting the hello-time delay timer for all instances [2-1000](#)
 - setting the max-age timer for all instances [2-1001](#)
 - setting the MST region name [2-486](#)
 - specifying the maximum number of hops [2-1002](#)
 - switching between PVST+ and Rapid PVST [2-994](#)
 - using the MST configuration submode revision command [2-608](#)
 - using the submode name command [2-486](#)
- MTU
 - displaying global MTU settings [2-942](#)
- multi-auth, setting [2-30](#)
- Multicast Listener Discovery
 - See MLD
- multicast
 - enabling storm control [2-1022](#)
 - show ancp [2-642](#)
- multicast/unicast packets
 - prevent forwarding [2-1048](#)
- Multicast Forwarding Information Base
 - See MFIB
- multi-domain, setting [2-30](#)
- multiple-character patterns [1-8](#)
- Multiple Spanning Tree

See MST

N

native VLAN

- controlling tagging of traffic [2-1069](#)
- displaying ports eligible for native tagging [2-954](#)
- displaying ports eligible for tagging [2-954](#)
- enabling tagging on 802.1Q trunk ports [2-1117](#)
- specifying the tagging of traffic [2-1070](#)

NetFlow

- enabling NetFlow statistics [2-346](#)
- including infer fields in routing statistics [2-346](#)

netflow-lite exporter command [2-487](#)

netflow-lite monitor command [2-489](#)

netflow-lite sampler command [2-491](#)

next-hop

- displaying CEF VLAN information [2-737](#)

nmsp attachment suppress command [2-494](#)

nmsp command [2-493](#)

no form of a command, using [1-6](#)

NVRAM

- debugging NVRAM activities [2-160](#)

O

open access on a port, enabling [2-32](#)

options timeout (netflow-lite exporter submode)
command [2-260](#), [2-495](#)

output

- pattern searches [1-7](#)

P

packet counters (statistics)

- clear for PPPoE Intermediate Agent [2-127](#)

packet counters, display for PPPoE Intermediate Agent [2-900](#)

packet forwarding

prevent unknown packets [2-1048](#)

packet memory failure

- direct switch action upon detection [2-206](#)

packet memory test

- bootup, displaying results [2-673](#), [2-675](#)
- ongoing, displaying results [2-677](#)

packet-offset (netflow-lite sampler submode)
command [2-497](#)

packet rate (netflow-lite sampler submode)
command [2-499](#)

packet-section size (netflow-lite sampler submode)
command [2-501](#)

PACL

- access-group mode [2-6](#)

paging prompt

- see --More-- prompt

PAGP

- clearing port channel information [2-124](#)
- debugging PAGP activity [2-161](#)
- deselecting channeling protocol [2-89](#)
- displaying port channel information [2-872](#), [2-874](#)
- hot standby mode
 - returning to defaults [2-504](#)
 - selecting ports [2-504](#)
- input interface of incoming packets
 - learning [2-503](#)
 - returning to defaults [2-503](#)
- setting channeling protocol [2-89](#)

parentheses [1-11](#)

password

- clearing on an intelligent line module [2-101](#)
- establishing enhanced password security [2-1104](#)
- setting username [2-1104](#)

PBR

- displaying route maps [1-xxiv](#)
- redistributing route maps [1-xxiv](#)

PM activities

- debugging [2-164](#)
- disabling debugging [2-164](#)

PoE policing

- configure on an interface [2-541](#)
- PoE policing and monitoring
 - displaying status [2-899](#)
- police (percent) command [2-515](#)
- police (two rates) command [2-517, 2-519](#)
- police command [2-510](#)
- policing, configure PoE [2-541](#)
- policing and monitoring status
 - displaying PoE [2-899](#)
- Policy Based Routing
 - See PBR
- policy maps
 - creating [2-523](#)
 - marking [2-620](#)
 - See also QoS, hierarchical policies
 - traffic classification
 - defining the class
 - defining trust states [2-1092](#)
- port, dual-capable
 - selecting the connector [2-463](#)
- Port Aggregation Protocol
 - See PAgP
- port-based authentication
 - displaying debug messages [2-149](#)
 - displaying statistics and status [2-679](#)
 - enabling 802.1X [2-225](#)
 - host modes [2-218](#)
 - manual control of authorization state [2-225](#)
 - periodic re-authentication
 - enabling [2-228](#)
 - re-authenticating 802.1X-enabled ports [2-227](#)
 - switch-to-client frame-retransmission number [2-223](#)
- port channel
 - accessing [2-289](#)
 - creating [2-289](#)
 - displaying information [2-872, 2-874](#)
 - load distribution method
 - resetting to defaults [2-525](#)
 - setting [2-525](#)
- port-channel standalone-disable command [2-527](#)
- port control, changing from unidirectional or bidirectional [2-23](#)
- port-control value, configuring [2-36](#)
- port range
 - executing [2-290](#)
- port security
 - debugging ports security [2-165](#)
 - deleting secure or specific addresses [2-125](#)
 - displaying settings for an interface or switch [2-885](#)
 - enabling [2-1054](#)
 - filter source IP and MAC addresses [2-352](#)
 - setting action upon security violation [2-1054](#)
 - setting the rate limit for bad packets [2-1054](#)
 - sticky port [2-1054](#)
- Port Trust Device
 - displaying [2-905](#)
- power efficient-ethernet auto command [2-533](#)
- power inline four-pair forced command [2-538](#)
- power inline logging global command [2-540](#)
- power negotiation through LLDP, enabling [2-401](#)
- power status
 - displaying inline power [2-891](#)
 - displaying power status [2-891](#)
- power supply
 - configuring combined and redundant power on the Catalyst 4507R [2-528](#)
 - configuring inline power [2-534](#)
 - configuring power consumption [2-528](#)
 - displaying the SEEPROM [2-701](#)
 - setting inline power state [2-532](#)
- PPPoE Discovery
 - enable vendor-tag stripping on packets
- PPPoE Server
 - enable vendor-tag stripping on Discovery packets [2-562](#)
- PPPoE Discovery packets, limit rate arriving on an interface [2-560](#)
- PPPoE Intermediate Agent
 - clear statistics (packet counters) [2-127](#)
 - debugging [2-166](#)

pppoe intermediate-agent

- enable intermediate agent on a switch [2-552](#)
- enable on an interface VLAN range [2-555](#)
- enable PPPoE Intermediate Agent on an interface [2-553](#)
- enable vendor-tag stripping of Discovery packets [2-562](#)
- format-type (global) [2-556](#)
- limit rate of PPPoE Discovery packets [2-560](#)
- set circuit-id or remote-id for an interface [2-558](#)
- set circuit-id or remote-id for an interface VLAN range [2-559](#)
- set trust configuration on an interface [2-560, 2-561](#)

PPPoE Intermediate Agent, display configuration and statistics (packet counters) [2-900](#)

priority command [2-563](#)

priority-queue command [2-138](#)

Private VLAN

See PVLANS

privileged EXEC mode, summary [1-5](#)

prompts

system [1-5](#)

protocol tunneling

- configuring encapsulation rate [2-395](#)
- disabling [2-390](#)
- displaying port information [2-806](#)
- enabling [2-390](#)
- setting a CoS value for Layer 2 packets [2-392](#)
- setting a drop threshold for Layer 2 packets [2-393](#)

PVLANS

- configuring isolated, primary, and community PVLANS [2-565](#)
- controlling tagging of native VLAN traffic [2-1069](#)
- disabling sticky-ARP [2-349](#)
- displaying map information for VLAN SVIs [2-720](#)
- displaying PVLAN information [2-960](#)
- enabling interface configuration mode [2-1049](#)
- enabling sticky-ARP [2-349](#)
- mapping VLANs to the same SVI [2-569](#)
- specifying host ports [2-1049](#)

specifying promiscuous ports [2-1049](#)

PVST+

switching between PVST and MST [2-994](#)

Q

QoS

- account Layer 2 encapsulation [2-577](#)
- attaching a policy-map to an interface [2-611](#)
- automatic configuration [2-44, 2-48, 2-52, 2-56, 2-60, 2-64, 2-67](#)
- class maps
 - creating [2-95](#)
 - defining the match criteria [2-454](#)
- clearing aggregate counters [2-128](#)
- configuring auto [2-64](#)
- defining a named aggregate policer [2-579](#)
- displaying aggregate policer information [2-903](#)
- displaying auto configuration [2-649](#)
- displaying class maps information [2-663](#)
- displaying configuration information [2-649](#)
- displaying configurations of policies [2-880](#)
- displaying policy map information [2-876, 2-883](#)
- displaying QoS information [2-902](#)
- displaying QoS map information [2-907](#)
- egress queue-sets
 - enabling the priority queue [2-138](#)
- enabling global configuration mode [2-56, 2-576](#)
- enabling per-VLAN QoS for a Layer 2 interface [2-581](#)
- hierarchical policies
 - average-rate traffic shaping on a class [2-633](#)
 - bandwidth allocation for a class [2-75, 2-94](#)
 - creating a service policy [2-614](#)
 - marking [2-620](#)
 - strict priority queueing (LLQ) [2-563](#)
- policy maps
 - creating [2-523](#)
 - marking [2-620](#)

- traffic classifications
- trust states [2-1092](#)
- setting the trust state [2-579](#)
- specifying flow-based match criteria [2-457](#)
- Supervisor Engine 6-E
 - setting CoS [2-622](#)
 - setting DSCP [2-625](#)
 - setting precedence values [2-628](#)
 - setting QoS group identifiers [2-631](#)
- QoS CoS
 - configuring for tunneled Layer 2 protocol packets [2-392](#)
- quality of service
 - See QoS
- question command [1-1](#)
- queueing information
 - displaying [2-905](#)
- queue limiting
 - configuring packet limits [2-581](#)

R

- Rapid PVST
 - switching between PVST and MST [2-994](#)
- re-authenticating 802.1X-enabled ports [2-227](#)
- re-authentication
 - periodic [2-228](#)
 - set the time [2-230](#)
- reauthentication, enabling [2-35](#)
- reboots
 - restoring bindings across [2-311](#)
- redundancy
 - accessing the main CPU [2-583](#)
 - changing from active to standby supervisor engine [2-587](#)
 - displaying information [2-909](#)
 - displaying ISSU config-sync failure information [2-913](#)
 - displaying redundancy facility information [2-909](#)
 - displaying RF client list [2-909](#)
 - displaying RF operational counters [2-909](#)
 - displaying RF states [2-909](#)
 - enabling automatic synchronization [2-72](#)
 - forcing switchover to standby supervisor engine [2-587](#)
 - mismatched command listing [2-585](#)
 - set the mode [2-464](#)
 - synchronizing the route processor configurations [2-451](#)
- related documentation [1-xxiii](#)
- remote-id, setting for an interface [2-558](#)
- remote-id, setting for an interface VLAN range [2-559](#)
- remote SPAN
 - See RSPAN
- renew commands
 - ip dhcp snooping database [2-591](#)
- rep admin vlan command [2-592](#)
- rep block port command [2-593](#)
- rep lsl-age-timer command [2-597](#)
- rep preempt delay command [2-599](#)
- rep preempt segment command [2-601](#)
- rep segment command [2-602](#)
- rep stcn command [2-605](#)
- resetting PVLAN trunk
 - setting switchport to trunk [2-1049](#)
- retry failed authentication, configuring [2-26](#)
- rj45 connector, selecting the connector [2-463](#)
- 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 [2-354](#)
 - enabling IPv4 exists-only checks [2-354](#)
- RPR
 - set the redundancy mode [2-464](#)
- RSPAN

converting VLAN to RSPAN VLAN [2-590](#)

displaying list [2-962](#)

S

sampler (netflow-lite monitor submode) command [2-609](#)

saving configuration changes [1-11](#)

secure address, configuring [2-528](#)

secure ports, limitations [2-1055](#)

server (AAA) alive actions, configuring [2-26](#)

server (AAA) dead actions, configuring [2-26](#)

service-policy command (policy-map class) [2-614](#)

session classification, defining [2-30](#)

set the redundancy mode [2-464](#)

sfp connector, selecting the connector [2-463](#)

shape command [2-633](#)

shell trigger command [2-637, 2-919](#)

show ancp multicast [2-642](#)

show authentication interface command [2-644](#)

show authentication registration command [2-644](#)

show authentication sessions command [2-644](#)

show capture command [2-856](#)

show commands

 filtering parameters [1-7](#)

 searching and filtering [1-6](#)

 show platform commands [1-11](#)

show device-sensor cache command [2-665](#)

show energywise command [2-683](#)

show interfaces (virtual switch) command [2-710](#)

show interfaces counters (virtual switch) command [2-714](#)

show ipv6 snooping counters command [2-781](#)

show ip wccp command [2-772](#)

show ip wccp detail command [2-772](#)

show ip wccp view command [2-772](#)

show license right-to-use command [2-812](#)

show mab command [2-818](#)

show mac address-table learning command [2-251, 2-832](#)

show macro auto monitor device command [2-847, 2-849, 2-851](#)

show monitor capture command [2-858, 2-860](#)

show monitor capture file command [2-860](#)

show netflow-lite exporter command [2-864](#)

show netflow-lite monitor command [2-866](#)

show netflow-lite sampler command [2-868](#)

show nmsp command [2-869](#)

show pagp dual-active (virtual switch) command [2-874](#)

show switch virtual (virtual switch) command [2-937](#)

show vlan group command [2-955](#)

show vlan mapping command [2-957](#)

show vslp (virtual switch) command [2-965](#)

Simple Network Management Protocol

 See SNMP

single-character patterns

 special characters [1-7](#)

single-host, setting [2-30](#)

slaveslot0

 displaying information on the standby supervisor [2-922](#)

slot0

 displaying information about the system [2-924](#)

SNMP

 debugging spanning tree activities [2-169](#)

 ifIndex persistence

 clearing SNMP ifIndex commands [2-971](#)

 compress SNMP ifIndex table format [2-978](#)

 enabling globally [2-977](#)

 enabling on an interface [2-973](#)

 informs

 disabling [2-975](#)

 enabling [2-975](#)

 traps

 configuring to send when storm occurs [2-1020](#)

 disabling [2-975](#)

 enabling [2-975](#)

 mac-notification

 adding [2-979](#)

 removing [2-979](#)

 source (netflow-lite exporter submode) command [2-980](#)

SPAN commands

- configuring a SPAN session to monitor [2-480](#)
- displaying SPAN session information [2-942, 2-1022](#)

SPAN enhancements

- displaying status [2-856](#)

Spanning Tree Protocol

- See STP

SPAN session

- displaying session information [2-856](#)
- filter ACLs [2-480](#)
- specify encap type [2-480](#)
- turn off host learning based on ingress packets [2-480](#)

special characters

- anchoring, table [1-10](#)

SSO [2-464](#)

standard desktop

- enabling Cisco-recommended features [2-424](#)

standard desktop and Cisco IP phone

- enabling Cisco-recommended features [2-426](#)

sticky address, configuring [2-529](#)

sticky-ARP

- disabling on PVLANS [2-349](#)
- enabling on PVLANS [2-349](#)

sticky port

- deleting [2-125](#)
- enabling security [2-1054](#)

storm control

- configuring for action when storm occurs [2-1020](#)
- disabling suppression mode [2-690](#)
- displaying settings [2-934](#)
- enabling [2-1020](#)
- enabling broadcast [2-1020, 2-1022](#)
- enabling multicast [2-1020, 2-1022](#)
- enabling suppression mode [2-690](#)
- enabling timer to recover from error disable [2-257](#)
- enabling unicast [2-1020, 2-1022](#)
- multicast, enabling [2-1022](#)
- setting high and low levels [2-1020](#)
- setting suppression level [2-690](#)

STP

- configuring link type for a port [2-992](#)
 - configuring tunneling encapsulation rate [2-395](#)
 - debugging all activities [2-169](#)
 - debugging spanning tree activities [2-169](#)
 - debugging spanning tree BackboneFast events [2-171](#)
 - debugging spanning tree UplinkFast [2-174](#)
 - detecting misconfiguration [2-989](#)
 - displaying active interfaces only [2-926](#)
 - displaying BackboneFast status [2-926](#)
 - displaying bridge status and configuration [2-926](#)
 - displaying spanning tree debug messages [2-169](#)
 - displaying summary of interface information [2-926](#)
 - enabling BPDU filtering by default on all PortFast ports [2-1008](#)
 - enabling BPDU filtering on an interface [2-985](#)
 - enabling BPDU guard by default on all PortFast ports [2-1010](#)
 - enabling BPDU guard on an interface [2-987](#)
 - enabling extended system ID [2-990](#)
 - enabling loop guard as a default on all ports [2-993](#)
 - enabling PortFast by default on all access ports [2-1011](#)
 - enabling PortFast mode [2-1006](#)
 - enabling protocol tunneling for [2-390](#)
 - enabling root guard [2-991](#)
 - enabling spanning tree BackboneFast [2-984](#)
 - enabling spanning tree on a per VLAN basis [2-1015](#)
 - enabling spanning tree UplinkFast [2-1013](#)
 - setting an interface priority [2-1012](#)
 - setting drop threshold for [2-393](#)
 - setting pathcost [2-988](#)
 - setting the default pathcost calculation method [2-1005](#)
- subinterface configuration mode, summary [1-6](#)
- SVI
- creating a Layer 3 interface on a VLAN [2-292](#)
- switch (virtual switch) command [2-1036](#)
- switch convert mode (virtual switch) command [2-1037](#)
- switching characteristics
- excluding from link-up calculation [2-1046](#)

- modifying [2-1046](#)
- returning to interfaces
 - capture function [2-1046](#)
- switchport [2-1070](#)
- switchport interfaces
 - displaying status of Layer 3 port [2-723](#)
 - displaying status of native VLAN tagging [2-723](#)
- switchport vlan mapping command [2-1074](#)
- switch shim
 - debugging [2-172](#)
 - disabling debugging [2-172](#)
- switch to router connection
 - enabling Cisco-recommended features [2-428](#)
- switch to switch connection
 - enabling Cisco-recommended features [2-430](#)
- switch virtual domain (virtual switch) command [2-1039](#)
- switch virtual interface
 - See SVI
- switch virtual link (virtual switch) command [2-1041](#)
- sw-vlan [2-175](#)
- system prompts [1-5](#)

T

Tab key

- command completion [1-1](#)

tables

- characters with special meaning [1-7](#)
- mac access-list extended subcommands [2-410](#)
- multipliers [1-9](#)
- relationship between duplex and speed commands [2-1018](#)
- show cable-diagnostics tdr command output fields [2-654](#)
- show cdp neighbors detail field descriptions [2-662](#)
- show cdp neighbors field descriptions [2-661](#)
- show ip dhcp snooping command output [2-645, 2-818](#)
- show ip interface field descriptions [2-758](#)

- show policy-map control-plane field descriptions [2-879](#)
- show vlan command output fields [2-961](#)
- show vtp command output fields [2-969](#)
- special characters [1-9](#)
- special characters used for anchoring [1-10](#)
- speed command options [2-457, 2-1018](#)
- valid interface types [2-285, 2-287](#)

TAC

- displaying information useful to TAC [2-943](#)

TCAM

- debugging spanning tree activities [2-169](#)

TDR

- displaying cable diagnostic test results [2-653](#)
- test condition of copper cables [2-1080](#)

temperature readings

- displaying information [2-687](#)

template data timeout (netflow-lite exporter submode) command [2-1078](#)

timer information [2-691](#)

traffic monitor

- display status [2-818](#)

traffic shaping

- enable on an interface [2-635](#)

transport udp (netflow-lite exporter submode) command [2-1088](#)

transport udp load-share (netflow-lite exporter submode) command [2-1090](#)

traps, enabling [2-975](#)

trunk encapsulation

- setting format [2-1070](#)

trunk interfaces

- displaying trunk interfaces information [2-730](#)

trunk port, configuring VLAN mapping [2-1074](#)

trunk ports, display VLAN mapping information [2-957](#)

trust configuration, setting on an interface [2-560, 2-561](#)

trust state

- setting [2-300](#)

ttl (netflow-lite exporter submode) command [2-1094](#)

tunnel ports

displaying information about Layer 2 protocol [2-806](#)

TX queues

- allocating bandwidth [2-1096](#)
- returning to default values [2-1096](#)
- setting priority to high [2-1096](#)
- specifying burst size [2-1096](#)
- specifying traffic rate [2-1096](#)

U

UDLD

- displaying administrative and operational status [2-945](#)
- enabling by default on all fiber interfaces [2-1098](#)
- enabling on an individual interface [2-1100](#)
- preventing a fiber interface from being enabled [2-1100](#)
- resetting all shutdown ports [2-1102](#)
- setting the message timer [2-1098](#)

Unidirectional Link Detection

See UDLD

unidirection port control, changing from bidirectional [2-23](#)

unknown multicast traffic, preventing [2-1048](#)

unknown unicast traffic, preventing [2-1048](#)

user EXEC mode, summary [1-5](#)

username

- setting password and privilege level [2-1104](#)

V

VACLs

- access-group mode [2-6](#)
- applying VLAN access maps [2-1119](#)
- displaying VLAN access map information [2-952](#)
- specifying an action in a VLAN access map [2-13](#)
- specifying the match clause for a VLAN access-map sequence [2-452](#)
- using a VLAN filter [2-1119](#)

VLAN

applying an ARP ACL [2-294](#)

configuring [2-1108](#)

configuring service policies [2-1113](#)

converting to RSPAN VLAN [2-590](#)

displaying CEF information [2-737](#)

displaying CEF next-hop information [2-737](#)

displaying information on switch interfaces [2-748](#), [2-752](#)

displaying information on VLAN switch interfaces [2-755](#)

displaying information sorted by group IP address [2-748](#), [2-752](#)

displaying IP address and version information [2-748](#), [2-752](#)

displaying Layer 2 VLAN information [2-948](#)

displaying statistical information [2-854](#)

displaying VLAN information [2-950](#)

enabling dynamic ARP inspection [2-303](#)

enabling Explicit Host Tracking [2-334](#)

enabling guest per-port [2-216](#)

enabling guest VLAN supplicant [2-209](#), [2-217](#)

entering VLAN configuration mode [2-1113](#), [2-1115](#)

native frames

- enabling tagging on all 802.1Q trunk ports [2-1117](#)

pruning the list for VTP [2-1070](#)

setting the list of allowed [2-1070](#)

VLAN, create or modify a group [2-1120](#)

VLAN Access Control Lists

See VACLs

VLAN access map

See VACLs

VLAN database

- resetting [2-607](#)

VLAN debugging

- limiting output [2-145](#)

vlan group command [2-1120](#)

VLAN groups, display VLANs mapped [2-955](#)

VLAN link-up calculation

- excluding a switch port [2-1046](#)

- including a switch port [2-1046](#)

- VLAN manager
 - debugging [2-175](#)
 - disabling debugging [2-175](#)
 - IOS file system error tests
 - debugging [2-176](#)
 - disabling debugging [2-176](#)
- VLAN mapping
 - configuring [2-1074](#)
 - displaying [2-957](#)
- VLAN mapping, configure on trunk port [2-1074](#)
- VLAN mapping on trunk ports, display information [2-957](#)
- VLAN Query Protocol
 - See VQP
- VLAN query protocol (VQPC)
 - debugging [2-182](#)
- VLANs
 - clearing
 - counters [2-130](#)
 - clearing hardware logic [2-103](#)
 - configuring
 - internal allocation scheme [2-1122](#)
 - displaying
 - internal VLAN allocation information [2-956](#)
 - RSPAN VLANs [2-962](#)
 - entering VLAN configuration mode [2-1115](#)
- VMPS
 - configuring servers [2-1126](#)
 - reconfirming dynamic VLAN assignments [2-182](#), [2-1124](#)
- voice VLANs
 - enabling [2-1042](#)
- VoIP
 - configuring auto-QoS [2-64](#)
- VQP
 - per-server retry count [2-1125](#)
 - reconfirming dynamic VLAN assignments [2-182](#), [2-1124](#)
- vrf (netflow-lite exporter submode) command [2-1128](#)
- VTP
 - configuring the administrative domain name [2-1133](#)
 - configuring the device in VTP client mode [2-1132](#)
 - configuring the device in VTP server mode [2-1136](#)
 - configuring the device in VTP transparent mode [2-1137](#)
 - configuring tunnel encapsulation rate [2-395](#)
 - creating a VTP domain password [2-1134](#)
 - displaying domain information [2-968](#)
 - displaying statistics information [2-968](#)
 - enabling protocol tunneling for [2-390](#)
 - enabling pruning in the VLAN database [2-1135](#)
 - enabling VTP version 2 mode [2-1138](#)
 - modifying the VTP configuration storage file name [2-1131](#)
 - set drop threshold for [2-393](#)
- VTP protocol code
 - activating debug messages [2-179](#)
 - deactivating debug messages [2-179](#)

W

- Webauth fallback, enabling [2-29](#)

