

Master Index

ASG = Access Security Guide

ATM = Advanced Traffic Management Guide

IPv6 = IPv6 Configuration Guide

MCG = Management and Configuration Guide

RMG = Multicast and Routing Guide

Note: To make the individual chapter links from the Master Index clickable, download the master index PDF file and per Chapter PDF files to the same directory on your computer.

Symbols

... IPv6:4-7, IPv6:4-13

%**vlan suffix** ... IPv6:5-6, IPv6:5-10, IPv6:5-13

=> **prompt** ... MCG:C-80

Numerics

3DES ... ASG:8-3, ASG:9-3

802.1ad QinQ ... ATM:8-3, ATM:8-5

802.1p priority (QoS)

definition ... ATM:6-6

802.1Q VLAN tagging ... ATM:3-3

802.1w as a region ... ATM:4-16

802.1X

access control, no mesh ... ATM:5-5

ACL, effect on ... ASG:10-20

effect, LLDP ... MCG:14-78

LLDP blocked ... MCG:14-45

mesh, not supported ... ATM:5-5

802.1X access control

authenticate users ... ASG:13-5

authentication failure, SNMP

notification ... MCG:14-26

authentication methods ... ASG:13-4

authentication, local ... ASG:13-6

authentication, user-based ... ASG:13-4

authenticator ... ASG:13-19

backend state ... ASG:13-61

operation ... ASG:13-9

show commands ... ASG:13-51

state ... ASG:13-61

unblock port ... ASG:13-6

authorized-client VLAN, defined ... ASG:13-6

auth-vid ... ASG:13-23

auto ... ASG:13-21

blocked port, trunked ... ASG:13-13

caution, unauthorized-client VLAN ... ASG:13-37

CHAP ... ASG:13-3

chap-radius ... ASG:13-24

clear-statistics ... ASG:13-26

client, effect of disconnect ... ASG:13-37

client-limit, no ... ASG:13-20

configure

commands ... ASG:13-18

displaying configuration ... ASG:13-51

overview ... ASG:13-17

port ... ASG:13-19

configuring method ... ASG:13-24

control all clients ... ASG:13-12

control command ... ASG:13-21

convert to port-based ... ASG:13-20

CoS override ... ASG:13-61

counters ... ASG:13-51

delay move to unauthorized-client

VLAN ... ASG:13-33

delay Unauth-Client VLAN ... ASG:13-23

DHCP server ... ASG:13-38

display all 802.1X, Web, and MAC authentication

configuration ... ASG:4-12

displaying 802.1X port

configuration ... ASG:13-53, ASG:13-54,

ASG:13-56, ASG:13-57, ASG:13-58

EAP ... ASG:13-3

EAPOL ... ASG:13-7, ASG:13-56

eap-radius ... ASG:13-24

enabling controlled directions ... ASG:13-26

enabling on ports ... ASG:13-19

enabling on switch ... ASG:13-25

event log messages ... ASG:13-74

features ... ASG:13-3

force authorized ... ASG:13-21, ASG:13-62

force unauthorized ... ASG:13-21, ASG:13-62

general setup ... ASG:13-14

guest VLAN ... ASG:13-7, ASG:13-8, ASG:13-29,

ASG:13-36

GVRP ... ASG:13-66, ASG:13-68

effect ... ASG:13-68, ASG:13-73

hierarchy of precedence in authentication
 session ... ASG:1-15
initialize ... ASG:13-25
LACP not allowed ... ASG:13-74
local ... ASG:13-24
logoff-period ... ASG:13-23
max-requests ... ASG:13-22
MD5 ... ASG:13-7, ASG:13-48
meshing, not supported ... ASG:13-13
messages ... ASG:13-74
multiple clients ... ASG:13-37
multiple clients, same VLAN ... ASG:13-5
open port ... ASG:13-4
open VLAN
 authorized client ... ASG:13-31
 configuration ... ASG:13-41, ASG:13-43
 general operation ... ASG:13-29
 mode ... ASG:13-29, ASG:13-35
 operating notes ... ASG:13-44
 operating rules ... ASG:13-36
 PVID, no ... ASG:13-61
 security breach ... ASG:13-44
 set up ... ASG:13-40
 status ... ASG:13-55, ASG:13-62
 status, viewing ... ASG:13-61
 suspended VLAN ... ASG:13-62
 unauthorized client ... ASG:13-31
 use model ... ASG:13-31
VLAN, after authentication ... ASG:13-31,
 ASG:13-37, ASG:13-44
VLAN, tagged ... ASG:13-31, ASG:13-32,
 ASG:13-37, ASG:13-44, ASG:13-64
overview ... ASG:1-9, ASG:13-3
password for port-access ... ASG:2-12, ASG:2-21
port, supplicant ... ASG:13-16
port-based
 access ... ASG:13-4
 client without authentication ... ASG:13-5
 effect of Web/MAC auth
 operation ... ASG:13-13
 enable ... ASG:13-19, ASG:13-46
 latest client, effect ... ASG:13-5
 multiple client access ... ASG:13-6
 multiple clients authenticating ... ASG:13-5
 no client limit ... ASG:13-4
 open port ... ASG:13-4
 operation ... ASG:13-5
 recommended use ... ASG:13-5

return to ... ASG:13-20
single client authenticates ... ASG:13-5
tagged VLAN membership ... ASG:13-5
unauthorized client risk ... ASG:13-6
untagged VLAN membership ... ASG:13-5,
 ASG:13-30
with Web/MAC authentication ... ASG:13-6
See also user-based.
port-security ... ASG:13-42
port-security use ... ASG:13-6
port-security, with 802.1X ... ASG:13-45
priority of VLAN, per-port ... ASG:13-10,
 ASG:13-30
PVID ... ASG:13-63
quiet-period ... ASG:13-22
RADIUS ... ASG:13-3
 effect on VLAN operation ... ASG:13-66,
 ASG:13-67
 host IP address ... ASG:13-25
 VLAN assignment ... ASG:13-36
rate-limit override ... ASG:13-61
reauthenticate ... ASG:13-26
reauth-period ... ASG:13-23
rules of operation ... ASG:13-12
security credentials saved to configuration
 file ... ASG:2-15, ASG:2-21
server-timeout ... ASG:13-22
show commands ... ASG:13-51
show commands, supplicant ... ASG:13-65
SNMP notification of authentication
 failure ... MCG:14-26
statistics ... ASG:13-51
supplicant
 client not using ... ASG:13-34
 configuring switch port ... ASG:13-49
 enabling switch port ... ASG:13-49
 identity option ... ASG:13-49
 secret ... ASG:13-49
 switch port operating as ... ASG:13-47
supplicant state ... ASG:13-65
supplicant statistics, note ... ASG:13-65
supplicant, configuring ... ASG:13-47
supplicant-timeout ... ASG:13-22
terminology ... ASG:13-6
traffic flow on unauthenticated
 ports ... ASG:13-26
troubleshooting, gvrp ... ASG:13-66, ASG:13-67,
 ASG:13-68

trunked port blocked ... ASG:13-13
tx-period ... ASG:13-22
unauthenticated port ... ASG:13-26
unauthorized ... ASG:13-21
unauthorized-Client VLAN ... ASG:13-23
unauthorized-client VLAN, defined ... ASG:13-8
unauthorized-Client VLAN, multiple clients ... ASG:13-39
unauth-period ... ASG:13-23
unauth-period command ... ASG:13-33
unauth-vid ... ASG:13-23
use model, open VLAN mode ... ASG:13-31
used with port-security ... ASG:13-45
user-based
 access ... ASG:13-4
 authentication ... ASG:13-10
 client authentication ... ASG:13-5
 client limit ... ASG:13-3, ASG:13-4, ASG:13-46
 client-limit, enable ... ASG:13-20
 clients use same VLAN ... ASG:13-30
 convert to port-based ... ASG:13-20
 enable ... ASG:13-19, ASG:13-46
 limit ... ASG:13-4
 limit for web auth, MAC auth ... ASG:13-20
 tagged VLAN ... ASG:13-5
 VLAN ... ASG:13-38, ASG:13-39
 Web/MAC authenticated clients ... ASG:13-5
 See also port-based.
user-based vs. port-based ... ASG:13-16
VLAN
 authorized-client ... ASG:13-35, ASG:13-36, ASG:13-37
 guest ... ASG:13-36
 RADIUS assigned, effect ... ASG:13-38
 RADIUS override ... ASG:13-35
 RADIUS-assigned ... ASG:13-36
 tagged ... ASG:13-33, ASG:13-34
 temporary membership ... ASG:13-36
 unauthorized-client ... ASG:13-36, ASG:13-37
 unauthorized-client, best use ... ASG:13-39
 unauthorized-client, caution ... ASG:13-37
 unauthorized-client, on different ports ... ASG:13-39
 untagged ... ASG:13-30, ASG:13-33, ASG:13-34

 untagged membership ... ASG:13-20
 VLAN operation ... ASG:13-66
 VLAN use, multiple clients ... ASG:13-7
 VLAN, assignment conflict ... ASG:6-34, ASG:13-12
 VLAN, membership priority ... ASG:13-10, ASG:13-30
 VLAN, priority, RADIUS ... ASG:13-34
 VLAN, tagged membership ... ASG:13-34
 Wake-on-LAN traffic ... ASG:13-27
 Web/MAC auth effect ... ASG:13-13

A

aaa

 gvrp-vlans ... ASG:13-72, ASG:13-73
 port-access gvrp-vlans ... ASG:13-72, ASG:13-73
aaa authentication ... ASG:5-8
 authorized ... ASG:13-24
 chap-radius ... ASG:6-11
 peap-mschapv2 ... ASG:6-11
 privilege-mode ... ASG:5-11
 privilege-mode defined ... ASG:5-12
 web browser ... ASG:6-11

aaa port-access

See Web or MAC authentication.

ABR

definition ... RMG:5-48
OSPF ... RMG:5-48

access

manager ... MCG:14-13
methods, determining ... ASG:6-7
operator ... MCG:14-13
out-of-band ... MCG:2-3

access control list

See ACL.

access levels

authorized IP managers ... ASG:15-3

accounting

See RADIUS.

ACL

802.1X client limit ... ASG:10-20
802.1X, effect on ... ASG:10-20

ACE

 after match not used ... ASG:10-33, ASG:10-47
 defined ... ASG:10-10
 general rules ... ASG:10-49

insert in list ... ASG:10-92
limit ... ASG:10-33
minimum number ... ASG:10-117
not used ... ASG:10-29
ACE, order in list
 See sequence, ACES.
AppleTalk ... ASG:10-32
application methods ... ASG:10-31
application point ... ASG:10-24
application points ... ASG:10-31
applications ... ASG:10-5, ASG:10-6, ASG:10-15,
 ASG:10-20, ASG:10-24, ASG:10-26, ASG:10-41
assign nonexistent i.d. ... ASG:10-48
assign to VLAN ... ASG:10-48
assigning ... ASG:10-41
assigning to a VLAN ... ASG:10-81, ASG:10-82,
 ASG:10-84
assignment not deleted ... ASG:10-89
basic structure ... ASG:10-42
broadcasts, effect on ... ASG:10-117
character limit ... ASG:10-52
CIDR ... ASG:10-11
 mask ... ASG:3-26, ASG:10-50
 mask bits, IP address ... ASG:10-54,
 ASG:10-58
command summary
 extended ... ASG:10-8
 standard ... ASG:10-6
command syntax ... ASG:10-53, ASG:10-57
configuration planning ... ASG:10-24
configured but not used ... ASG:10-48
configured, not used ... ASG:10-48
configuring ... ASG:10-41
configuring offline ... ASG:10-23
connection-rate ACL ... ASG:10-11, ASG:10-15,
 ASG:10-16, ASG:10-20
copy operation appends ... ASG:10-109
create, CLI method ... ASG:10-49
DA, defined ... ASG:10-11, ASG:10-13
debug messages ... MCG:C-42, IPv6:8-13
 See also debug command.
defined ... ASG:10-4, ASG:10-10
definitions ... ASG:10-10
deleting from config ... ASG:10-89
deny any, implicit ... ASG:10-23, ASG:10-27,
 ASG:10-30, ASG:10-31, ASG:10-33, ASG:10-34,
 ASG:10-43, ASG:10-47, ASG:10-48
deny any, implicit, defined ... ASG:10-12
deny any, implicit, supersede ... ASG:10-43
deny, defined ... ASG:10-11
destination on the switch ... ASG:10-25
disable ... ASG:10-9
display ... ASG:10-9
 ACLs and assignments ... ASG:10-107
 assignments ... ASG:10-103, ASG:10-104
 configuration details ... ASG:10-102
 content of an ACL ... ASG:10-105
 data types ... ASG:10-107
 summary, configured ACLs ... ASG:10-101
dynamic ... ASG:10-5, ASG:10-6, ASG:10-26
dynamic port ACL ... MCG:E-2, ASG:10-11
 denied traffic ... ASG:10-19
 multiple clients connected ... ASG:10-19
dynamic port ACL application ... ASG:10-19
dynamic port ACL operation
 defined ... ASG:10-16
dynamic port joins to a VLAN ... ASG:10-35
editing ... ASG:10-90
editing offline ... ASG:10-108
effect of replacing ... ASG:10-48
enable ... ASG:10-9
end ... ASG:10-48
established ... ASG:10-69
example, named extended ... ASG:10-73
exception for connection-rate
 filtering ... ASG:10-22
exit statement ... ASG:10-48
extended
 command summary ... ASG:10-8
 configure ... ASG:10-60, ASG:10-74
 create ... ASG:10-8, ASG:10-60
 defined ... ASG:10-11, ASG:10-42
 delete ... ASG:10-9, ASG:10-61
 named, configure ... ASG:10-62
 numbered, configure ... ASG:10-75
 numeric I.D. range ... ASG:10-42
 protocol options ... ASG:10-42
 remark ... ASG:10-9, ASG:10-61
 resequence ... ASG:10-8, ASG:10-60
 sequence number ... ASG:10-8, ASG:10-60
 structure ... ASG:10-45
 use ... ASG:10-15
features, common to all ... ASG:10-22
filtering methods ... ASG:10-15
filtering process ... ASG:10-28, ASG:10-33
gateway fails ... MCG:C-12

host option ... ASG:10-39
ICMP
 code ... ASG:10-79
 configure ... ASG:10-79
 options ... ASG:10-70, ASG:10-79
 traffic ... ASG:10-24
 type ... ASG:10-79
 type names ... ASG:10-71
ID, defined ... ASG:10-11
identifier ... ASG:10-12
IGMP
 configure ... ASG:10-72
 option ... ASG:10-80
 traffic ... ASG:10-24
 type ... ASG:10-80
implicit deny
 See deny any, implicit.
inbound traffic, defined ... ASG:10-12
inbound traffic, RACL ... ASG:10-12
interface assignment, options ... ASG:10-26
inverse mask
 See ACL, wildcard.
IP routing required ... ASG:10-5
IP routing requirement for RACL ... ASG:10-25
IPX ... ASG:10-32
limit ... ASG:10-61
log function, with mirroring ... ASG:10-23
log message
 See ACL, logging.
logging ... ASG:10-23, ASG:10-24, ASG:10-55
 described ... ASG:10-113
 session ... ASG:10-23
logging, notes ... ASG:10-117
management access protection ... ASG:1-9
mask ... ASG:10-11, ASG:10-23, ASG:10-37,
 ASG:10-54
 CIDR ... ASG:3-26, ASG:10-50
 defined ... ASG:10-11
 multiple IP addresses ... ASG:10-40
 one IP address ... ASG:10-39
match, always ... ASG:10-48
match, criteria ... ASG:10-38
match, example ... ASG:10-39
match, ignored ... ASG:10-33
maximum allowed ... ASG:10-33, ASG:10-52
mirrored traffic exception ... ASG:10-22
mirroring ... ASG:10-16
mirroring, log keyword ... ASG:10-16
mirroring, with log function ... ASG:10-23
multiple ACLs on interface ... ASG:10-20
multiple applications ... ASG:10-20
multiple lists on an interface ... ASG:10-21
multiple on same interface ... ASG:10-20
name or number assignment ... ASG:10-48
name string, maximum characters ... ASG:10-42
named ... ASG:10-13
named, character limit ... ASG:10-52
named, rule ... ASG:10-49
nonexistent i.d., assign ... ASG:10-48
non-IP traffic ... ASG:10-32
number of entries ... ASG:10-22
numbered ... ASG:10-13
 manage as named ... ASG:10-52
 rule ... ASG:10-49
offline editing ... ASG:10-108
operation with PIM ... RMG:3-36
operator, comparison ... ASG:10-68, ASG:10-69
outbound traffic, defined ... ASG:10-13
override implicit deny ... ASG:10-30
overview ... ASG:1-9
packet screened by multiple lists ... ASG:10-21
permit any forwarding ... ASG:10-13, ASG:10-33
permit, defined ... ASG:10-13
permit, with multiple ACLs ... ASG:10-20
permit/deny policies, defined ... ASG:10-42
planning ... ASG:10-24, ASG:10-30
policies ... ASG:10-30
policy application points ... ASG:1-9, ASG:10-4
policy type ... ASG:10-42
policy, permit/deny ... ASG:10-42
port ... ASG:10-34
port ACL ... ASG:10-5
 See also static port ACL and dynamic port
 ACL.
port ACL operation defined ... ASG:10-16
port added to trunk ... ASG:10-34
port removed from trunk ... ASG:10-34
port-based 802.1X ... ASG:10-20
port-based security ... ASG:10-20
ports affected ... ASG:10-35
precedence ... ASG:10-24, ASG:10-78
precedence, numbers and names ... ASG:10-66
purpose ... ASG:10-4
RACL
 configure ... ASG:10-9
 defined ... ASG:10-5

inbound traffic ... ASG:10-12
operation defined ... ASG:10-15
RACL applications ... ASG:10-16
screening switched traffic ... ASG:10-21
RADIUS-assigned ... ASG:10-5, ASG:10-6,
ASG:10-11, ASG:10-19, ASG:10-26
rate-limit ... ASG:10-13
remark ... ASG:10-13
 remove from an ACE ... ASG:10-98
removing from a VLAN ... ASG:10-81, ASG:10-82,
 ASG:10-84
replacing ... ASG:10-34
replacing active ACEs ... ASG:10-48
resequence ... ASG:10-75
resource monitor ... ASG:10-118
resource usage ... MCG:E-2
resources ... MCG:E-3
RL-PACL ... ASG:10-13, ASG:10-86
routed traffic ... ASG:10-35
routing requirement ... ASG:10-33
rules, configuration ... ASG:10-33
rules, operation ... ASG:10-33
SA or DA on the switch ... ASG:10-35
SA, defined ... ASG:10-13
security use ... ASG:1-9, ASG:10-4, ASG:10-32
security use, caution ... ASG:10-32
sequence number ... ASG:10-14, ASG:10-91
 use to delete ACE ... ASG:10-94
 use to insert ACE ... ASG:10-92
sequence number interval ... ASG:10-75
source routing, caution ... ASG:10-25, ASG:10-41
standard
 command summary ... ASG:10-6
 configure ... ASG:10-51
 create ... ASG:10-6, ASG:10-51
 defined ... ASG:10-14, ASG:10-42
 delete ... ASG:10-51
 example ... ASG:10-59
 named, configure ... ASG:10-54
 numbered, configure ... ASG:10-57
 numeric I.D. range ... ASG:10-42
 remark ... ASG:10-7, ASG:10-51
 resequence ... ASG:10-6, ASG:10-51
 sequence number ... ASG:10-6, ASG:10-51
 structure ... ASG:10-43
 use ... ASG:10-15, ASG:10-52
static port ACL ... ASG:10-9, ASG:10-14
static port ACL application ... ASG:10-19
static VLAN requirement ... ASG:10-25,
 ASG:10-34, ASG:10-35
static, defined ... ASG:10-5
supernetting ... ASG:10-37
supersede implicit deny any ... ASG:10-47
switched packets ... ASG:10-35
syntax
 See command syntax.
Syslog
 See ACL, logging.
TCP or UDP port number, IANA ... ASG:10-69
TCP/UDP operators ... ASG:10-68
TCP/UDP, port names ... ASG:10-69
terms ... ASG:10-10
ToS setting ... ASG:10-24
ToS, numbers and names ... ASG:10-67,
 ASG:10-78
traffic not filtered ... ASG:10-32
traffic to/from the switch ... ASG:10-35
traffic types filtered ... ASG:10-4, ASG:10-30
transferring command files ... MCG:A-29
troubleshooting ... MCG:C-9
trunk ... ASG:10-34
trunk, adding port ... ASG:10-34
type ... ASG:10-47, ASG:10-52, ASG:10-93,
 ASG:10-100, ASG:10-103, ASG:10-104,
 ASG:10-105
user-based 802.1X ... ASG:10-20
user-based security ... ASG:10-20
VACL
 configure ... ASG:10-9
 defined ... ASG:10-5
 operation defined ... ASG:10-16
 VACL applications ... ASG:10-18
VLAN ACL
 See VACL.
VLANs ... ASG:10-34
where applied to traffic ... ASG:10-26, ASG:10-35
wildcard ... ASG:10-11, ASG:10-38, ASG:10-39
wildcard, defined ... ASG:7-10, ASG:10-14
ACL, connection-rate
 See connection-rate filtering.
ACLs
 See ACL.
 See also RADIUS-assigned ACLs.
address
 authorized for port security ... ASG:14-5
 IP ... RMG:5-15

network manager ... MCG:14-4

address configuration

- DNS for IPv6 ... IPv6:2-14
- duplicate unicast addresses ... IPv6:3-6
- duplicate unicast addresses on an interface ... IPv6:2-9, IPv6:4-18
- IPv6 anycast address ... IPv6:2-9
- IPv6 configuration using web browser ... IPv6:2-11
- IPv6 global unicast ... IPv6:2-7, IPv6:2-8, IPv6:3-5, IPv6:3-11, IPv6:3-16, IPv6:3-17, IPv6:4-7, IPv6:4-13
- IPv6 global unicast using DHCPv6 ... IPv6:2-8, IPv6:3-5, IPv6:3-6, IPv6:3-8, IPv6:4-9
- IPv6 link-local ... IPv6:2-8, IPv6:3-5, IPv6:4-12
- IPv6 link-local autoconfiguration ... IPv6:2-7, IPv6:3-5, IPv6:3-11, IPv6:3-13, IPv6:4-6
- IPv6 unique local unicast ... IPv6:3-11
- maximum number of IPv6 addresses ... IPv6:2-15
- multiple IPv6 addresses on an interface ... IPv6:3-3, IPv6:3-5, IPv6:3-9
- neighbor discovery for IPv6 ... IPv6:2-14
- network prefix in IPv6 address ... IPv6:3-4
- omitting zeros in IPv6 address ... IPv6:3-3
- single IPv6 local-link address on an interface ... IPv6:3-13

See also IPv6.

address table, port ... MCG:B-17

address, network manager ... MCG:14-5

administrative distance, OSPF ... RMG:5-80

advertise location ... MCG:14-57

advertisement, GVRP

- definition ... ATM:3-3

advertisement, OSPF ... RMG:5-47

- area ... RMG:5-66
- retransmit interval ... RMG:5-85
- retransmit interval in virtual link ... RMG:5-93

AES encryption ... MCG:14-9

alert log ... MCG:5-20

- alert types ... MCG:5-21
- disabling ... MCG:5-25
- setting the sensitivity level ... MCG:5-24
- sorting the entries ... MCG:5-20

alerts

- generating for monitored events ... ASG:11-34

all-nodes, used in IPv6 DAD ... IPv6:4-18

allocation, class ... MCG:11-20

allocation, value ... MCG:11-20

anycast address ... IPv6:5-2

- DAD not supported ... IPv6:3-20
- deprecation ... IPv6:4-32
- in IPv6 ... IPv6:2-9
- IPv6 address ... IPv6:3-10, IPv6:3-20
- IPv6 address configuration ... IPv6:4-14
- preferred lifetime ... IPv6:4-32
- valid lifetime ... IPv6:4-32

area range, OSPF

- configuring ... RMG:5-77

area, OSPF

- assigning VLAN to ... RMG:5-71, RMG:5-72
- configuring ... RMG:5-66
- definition ... RMG:5-51
- displaying area information ... RMG:5-100

ARP

- adding IP-to-MAC binding ... ASG:11-20, ASG:11-28
- arp age, default ... MCG:8-7
- arp-age ... RMG:5-12
- cache ... RMG:5-8
- cache table ... RMG:5-8
- configuring parameters ... RMG:5-17
- debugging ... ASG:11-23
- displaying statistics ... ASG:11-22
- dynamic ARP protection ... ASG:11-16
- enabling local proxy ... RMG:5-19, RMG:5-20
- how it works ... RMG:5-17
- local proxy option ... RMG:5-19
- maximums ... MCG:G-1
- proxy ... RMG:5-19
- requests ... ASG:11-33
- trusted ports ... ASG:11-18
- validation checks on ARP packets, configuring ... ASG:11-21

ARP protection

- debug messages ... IPv6:8-13
- SNMP notification ... MCG:14-17, MCG:14-26

assigning

- IP address ... RMG:5-15

asterisk

- meaning in show config ... MCG:6-30
- meaning in traceroute ... MCG:C-78

- authentication**
DCA-applied parameters to non-authenticated client sessions ... ASG:1-15
display all 802.1X, Web, and MAC configurations ... ASG:4-12
NIM override ... ASG:1-16
notification messages ... MCG:14-17, MCG:14-26
OSPF MD5 ... RMG:5-88
RADIUS override ... ASG:1-17, ASG:7-4
- authentication failures** ... ASG:11-33
- authentication session**
client-specific configuration applied with DCA ... ASG:1-15
- authentication trap**
See also SNMP.
- authenticator**
backend state ... ASG:13-61
state ... ASG:13-61
- authorized addresses**
for IP management security ... ASG:15-4
for port security ... ASG:14-5
- authorized IP managers**
access levels ... ASG:15-3
binary expressions of hexadecimal blocks ... IPv6:6-7, IPv6:6-11
building IP masks ... ASG:15-10
configuration command ... IPv6:6-5
configuration examples ... IPv6:6-8, IPv6:6-13
configuring access privilege ... IPv6:6-4
configuring in browser interface ... ASG:15-7, ASG:15-9
configuring in console ... ASG:15-5
definitions of single and multiple ... ASG:15-4
displaying configuration ... IPv6:6-12
effect of duplicate IP addresses ... ASG:15-13
feature description ... IPv6:6-3
IP mask for multiple stations ... ASG:15-11
IP mask for single station ... ASG:15-10
IP mask operation ... ASG:15-4
IP mask used to configure single station ... IPv6:6-5
IP masks used to configure multiple stations ... IPv6:6-6
operating notes ... ASG:15-13
overview ... ASG:15-1
precedence among security settings ... IPv6:6-4
SNMP, blocking ... MCG:14-3
troubleshooting ... ASG:15-13
- using IP masks ... IPv6:6-3, IPv6:6-5
- authorized server** ... ASG:11-5
- authorized server address, configuring** ... ASG:11-9
- authorized, option for authentication** ... ASG:6-11, ASG:13-24
- auto MDI/MDI-X**
configuration, display ... MCG:10-16
operation ... MCG:10-15, MCG:10-16
port mode, display ... MCG:10-16
- auto port setting** ... RMG:2-5
- Auto-10** ... MCG:12-4, MCG:12-7, MCG:12-18
- autoconfigured address**
effect of static address ... IPv6:4-14
- autoconfigured unicast address**
DHCPv6 precedence ... IPv6:4-11
- autonegotiate** ... MCG:14-57
- Autonomous system, OSPF** ... RMG:5-51
- autorun**
TFTP download of key file ... IPv6:5-17
TFTP download of trusted certificate ... IPv6:5-17
- auto-TFTP**
download to a redundant management system ... MCG:A-8
downloading software images ... IPv6:5-19
for IPv6 ... IPv6:5-19
- B**
- bandwidth**
displaying port utilization ... MCG:10-9
displaying utilization ... MCG:5-17
effect of QoS ... ATM:6-1
guaranteed minimum
See guaranteed minimum bandwidth.
- bandwidth loss, spanning tree** ... ATM:4-12
- banner** ... MCG:2-9
configuring ... MCG:2-11
default ... MCG:2-9
non-default ... MCG:2-10
operation ... MCG:2-9
redundant management ... MCG:2-10
- binary expressions of IPv6 address** ... IPv6:6-7, IPv6:6-11
- binding database** ... ASG:11-12
- bindings**
adding IP to MAC ... ASG:11-28

- displaying configuration ... ASG:11-29
- blocked link from STP operation** ... ATM:4-12
- blocked port**
- from IGMP operation ... RMG:2-5
 - from STP operation ... ATM:4-10
- boot**
- See also* reboot.
- boot active** ... MCG:15-13
- boot command** ... MCG:6-4, MCG:6-20
- boot ROM console** ... MCG:A-4
- boot ROM mode** ... MCG:C-80
- boot-history command** ... MCG:15-42
- Bootp**
- Bootp table file ... MCG:8-13
 - Bootptab file ... MCG:8-13
 - effect of no reply ... MCG:C-8
 - gateway ignored ... ATM:2-47
 - operation ... MCG:8-12, MCG:8-13
 - server ... MCG:8-2
 - using with Unix systems ... MCG:8-13
- See also* DHCP.
- Bootp/DHCP differences** ... MCG:8-13
- Bootp/DHCP, LLDP** ... MCG:14-53
- bootstrap message, defined** ... RMG:4-6
- bootstrap router** ... RMG:4-6
- BPDU** ... ATM:3-3
- BPDU filtering** ... ASG:1-13
- BPDU port protection**
- See* spanning-tree, 802.1s.
- BPDU protection** ... ASG:1-13
- bridge protocol data unit** ... ATM:3-3
- broadcast domain** ... ATM:2-4
- broadcast forwarding** ... RMG:5-124
- broadcast limit** ... MCG:10-4, MCG:10-14
- broadcast storm** ... MCG:12-3, MCG:C-19, ATM:4-3, ATM:5-4
- broadcast traffic** ... ATM:5-16
- effect of ACL ... ASG:10-117
 - enabling forwarding of directed ... RMG:5-21
 - IPX ... MCG:10-4, MCG:10-14
 - RIP ... MCG:10-4, MCG:10-14
- browser interface**
- See* web browser interface.
- BSM, PIM-SM** ... RMG:4-6
- BSR**
- change priority setting ... RMG:4-36
 - configuration ... RMG:4-13
 - configuring a candidate ... RMG:4-35
- display data ... RMG:4-61
- election ... RMG:4-13
- enable or disable operation ... RMG:4-35
- fault recovery ... RMG:4-14
- non-default settings ... RMG:4-62
- operation ... RMG:4-13
- PIM-SM domain ... RMG:4-6
- C**
- caches**
- ARP ... RMG:5-8
 - IP forwarding ... RMG:5-9
- Candidate Rendezvous Point**
- See* C-RP.
- CDP** ... MCG:14-79, MCG:14-80, MCG:14-81, MCG:14-82, MCG:14-84
- certificate**
- CA-signed ... ASG:9-3
 - root ... ASG:9-4
 - self-signed ... ASG:9-3
- chain, key management** ... RMG:5-104
- CHAP** ... ASG:6-11
- chap-radius** ... ASG:6-11
- CIDR** ... RMG:5-15
- circuit ID** ... RMG:5-130, RMG:5-133
- Class of Service**
- See* CoS.
- Clear + Reset button combination** ... MCG:6-37
- Clear button** ... MCG:5-10, ASG:1-7
- restoring factory default
 - configuration ... MCG:C-79
 - to delete password protection ... ASG:2-7
- clear logging** ... MCG:C-37
- clear neighbor cache** ... IPv6:5-2, IPv6:5-5
- CLI**
- accessing from menu console ... MCG:3-8
 - context configuration level ... MCG:4-5
 - context level ... MCG:10-11
 - global configuration level ... MCG:4-5
 - Help ... MCG:4-11
 - keystroke shortcuts ... MCG:4-16
 - listing command options ... MCG:4-8
 - moving to or from the menu ... MCG:4-7
 - port or trunk-specific commands ... MCG:4-13
 - privilege levels ... MCG:4-3
 - using ... MCG:4-2–MCG:4-16
 - VLAN-specific commands ... MCG:4-15

command file
TFTP download and running command
script ... IPv6:5-17

command index, IPv6 ... IPv6:-xi

command line interface
See CLI.

command output
TFTP upload on remote device ... IPv6:5-18

command prompts ... IPv6:1-3

command syntax conventions ... MCG:1-2,
IPv6:1-2

communities, SNMP ... MCG:14-14
viewing and configuring with the
CLI ... MCG:14-15

viewing and configuring with the
menu ... MCG:14-13

config files, SCP/SFTP transfer ... MCG:6-40

configuration ... ATM:4-10
ARP parameters ... RMG:5-17
Bootp ... MCG:8-13
Class of Service ... ATM:6-11
comparing startup to running ... MCG:6-6
console ... MCG:7-3
copying ... MCG:A-24
default route ... RMG:5-29
DHCP Relay ... RMG:5-123
factory default ... MCG:6-9, MCG:8-2, ATM:2-22,
ATM:2-28, ATM:4-9
filters ... ASG:12-2
impacts of software download on ... MCG:A-4
IP ... MCG:8-2
IP routing parameters ... RMG:5-15
OSPF ... RMG:5-44
permanent ... MCG:6-7
permanent change defined ... MCG:6-4
port ... MCG:10-1
port security ... ASG:14-7
port trunk group ... MCG:12-1
port, duplex ... MCG:10-11
port, speed ... MCG:10-11
quick ... MCG:3-8
RADIUS
See RADIUS.
reboot to activate changes ... MCG:3-13
restoring factory defaults ... MCG:C-79
RIP ... RMG:5-30, RMG:5-32
enabling RIP globally ... RMG:5-32
router loop prevention ... RMG:5-37

router ID ... RMG:5-15
saving from menu interface ... MCG:3-10
saving security credentials in multiple
files ... ASG:2-20
serial link ... MCG:7-3
SNMP ... MCG:14-4, MCG:14-5, MCG:14-11
SNMP communities ... MCG:14-13, MCG:14-15
spanning tree protocol ... ATM:4-10
SSH
See SSH.
startup ... MCG:3-10
static IP routes ... RMG:5-25, RMG:5-27
storage of security credentials
system ... MCG:7-10
Telnet access configuration ... MCG:7-3
traffic mirroring ... MCG:B-26
transferring ... MCG:A-24
trap receivers ... MCG:14-19
usb autorun ... MCG:A-37
using Menu interface ... MCG:3-7
viewing ... MCG:6-6
web browser access ... MCG:7-3

configuration file
browsing for troubleshooting ... MCG:C-73
TFTP download ... IPv6:5-17
TFTP upload on remote device ... IPv6:5-18

configuration file, multiple
after first reboot ... MCG:6-29
applications ... MCG:6-27
asterisk ... MCG:6-30
backupConfig ... MCG:6-28
change policy ... MCG:6-31
Clear + Reset button combination ... MCG:6-37
copy from a USB device ... MCG:A-28
copy from tftp host ... MCG:6-39
copy to a USB device ... MCG:A-28
copy to tftp host ... MCG:6-38
copy via tftp ... MCG:A-25
copy via Xmodem ... MCG:A-26
create new file ... MCG:6-28, MCG:6-34,
MCG:6-35
current file in use ... MCG:6-30
default reboot from primary ... MCG:6-32
erasing ... MCG:6-35
memory assignments ... MCG:6-29
memory slot ... MCG:6-27, MCG:6-30, MCG:6-32
minconfig ... MCG:6-32, MCG:6-36
newconfig ... MCG:6-32

oldConfig ... MCG:6-29
override reboot policy ... MCG:6-31
policy, override ... MCG:6-33
power cycle ... MCG:6-32
primary boot path ... MCG:6-30
reboot policy options ... MCG:6-27
reboot policy, override ... MCG:6-31
reboot process ... MCG:6-28
reload ... MCG:6-33
rename config file ... MCG:6-34
reset ... MCG:6-32
running-config file ... MCG:6-28
running-config file operation ... MCG:6-28
secondary boot path ... MCG:6-30
show config file content ... MCG:6-31
show multiple files ... MCG:6-30
startup-config ... MCG:6-28
startup-config file ... MCG:6-28
transition to multiple files ... MCG:6-29
unable to copy ... MCG:6-34
workingConfig ... MCG:6-28, MCG:6-29
xmodem from host ... MCG:6-40
xmodem to host ... MCG:6-39

connection-rate ACL ... ASG:3-6

connection-rate filtering ... ASG:3-31

access-control list ... ASG:3-6

ACL

- ACE mask ... ASG:3-26
- application to port ... ASG:3-21
- applying ... ASG:3-26
- CIDR notation ... ASG:3-26
- configuring ... ASG:3-19
- example ... ASG:3-27, ASG:3-28
- filter ... ASG:3-20, ASG:3-22, ASG:3-23,
 ASG:3-30
- ignore ... ASG:3-20, ASG:3-22, ASG:3-23,
 ASG:3-29
- implicit filter ... ASG:3-20, ASG:3-30
- operation ... ASG:3-20
- source IP ... ASG:3-21
- UDP/TCP ... ASG:3-23
- UDP/TCP options ... ASG:3-24
- UDP/TCP port data ... ASG:3-25
- VLAN effect ... ASG:3-20

activation ... ASG:3-4, ASG:3-7
affect on switch resources ... MCG:E-2
benefits ... ASG:3-4
block ... ASG:3-12

blocked host ... ASG:3-5, ASG:3-7, ASG:3-17,
 ASG:3-18

blocked host, re-enable ... ASG:3-5, ASG:3-9

configuration, example ... ASG:3-14

configuring per-port ... ASG:3-12

edge of network ... ASG:3-3

enabling, commands ... ASG:3-11

event log notice ... ASG:3-5

exception for, configuring ... ASG:10-22

false positive ... ASG:3-6

guidelines ... ASG:3-8, ASG:3-9

high rate, legitimate ... ASG:3-18

host, trusted ... ASG:3-18

host, unblocking ... ASG:3-18

ICMP ping message ... ASG:3-3

notify and reduce ... ASG:3-5

notify only ... ASG:3-5

notify-only ... ASG:3-12

operating rules ... ASG:3-7

operation ... ASG:3-5

options ... ASG:3-5

penalty period, throttling ... ASG:3-12

port setting change, effect ... ASG:3-7

reboot, effect ... ASG:3-7

recommended application ... ASG:3-3

re-enable blocked host ... ASG:3-7

resource usage ... MCG:E-2

routed traffic ... ASG:3-10

sensitivity level ... ASG:3-5, ASG:3-8

sensitivity level, changing ... ASG:3-18

sensitivity level, command ... ASG:3-11

show, command ... ASG:3-15, ASG:3-17

signature recognition ... ASG:3-3, ASG:3-4

SNMP trap ... ASG:3-5

throttle ... ASG:3-5, ASG:3-6, ASG:3-12

trigger ... ASG:3-4, ASG:3-7, ASG:3-10

unblock command ... ASG:3-9, ASG:3-18

unblocking a host ... ASG:3-7

VLAN delete, effect ... ASG:3-7

worm ... ASG:3-3, ASG:3-4

console

- Actions line ... MCG:3-10, MCG:3-11
- authorized IP managers,
 - configuring ... ASG:15-5
- configuring ... MCG:7-3
- ending a session ... MCG:3-5
- features ... MCG:2-3
- Help ... MCG:3-9, MCG:3-11

Main Menu interface ... MCG:3-7
meaning of asterisk ... MCG:3-10, MCG:3-13
measuring network activity ... MCG:C-8
navigation ... MCG:3-9, MCG:3-10
operation ... MCG:3-10
starting a session ... MCG:3-4
statistics, clear counters ... MCG:3-12
status and counters access ... MCG:3-7
status and counters menu ... MCG:B-6
switch meshing, configuring ... ATM:5-9
troubleshooting access problems ... MCG:C-6

context level
global config ... MCG:4-5, MCG:8-10
manager level ... MCG:4-5
moving between contexts ... MCG:4-7
port or trunk-group ... MCG:4-13
VLAN-specific ... MCG:4-15

copy
command output ... MCG:A-33
crash data ... MCG:A-34
crash log ... MCG:A-35
event log output ... MCG:A-33
multiple config file, tftp ... MCG:6-38
software images ... MCG:A-23
TFTP transfers ... IPv6:5-15

CoS
configuring using RADIUS server ... ASG:7-3
no override example ... ASG:7-5
non-default priority ... ASG:7-6
override ... ASG:7-3, ASG:13-61
override example ... ASG:7-5
priority assignment ... ASG:6-4
RADIUS override ... ASG:7-5
viewing per-port config ... ASG:7-4

CPU utilization ... MCG:B-7

crash data file
TFTP upload on remote device ... IPv6:5-18

crash log
TFTP upload on remote device ... IPv6:5-18

C-RP
add multicast group ... RMG:4-40
change hold time ... RMG:4-40
configuring operation ... RMG:4-38
defined ... RMG:4-6
display config ... RMG:4-65
display status ... RMG:4-65
displaying current set ... RMG:4-63
election priority ... RMG:4-41

enabling or disabling ... RMG:4-40
multicast groups ... RMG:4-38
specify VLAN interface ... RMG:4-38
with PIM-SM router ... RMG:4-6

D

DA, defined ... ASG:7-9, ASG:10-11, ASG:10-13

DAD
configuration ... IPv6:4-19
detecting duplicate unicast addresses ... IPv6:3-6, IPv6:4-18
detecting duplicate unicast addresses on an interface ... IPv6:2-9, IPv6:4-5, IPv6:4-8, IPv6:4-10, IPv6:4-12, IPv6:4-16
not supported on anycast addresses ... IPv6:3-20
performed on all IPv6 unicast addresses ... IPv6:4-20

database, snooping ... ASG:11-5

date format, events ... MCG:C-28

date, configure ... MCG:7-16

debug
compared to event log ... MCG:C-41, IPv6:8-12
displaying debug configuration ... MCG:C-45
forIPv6 ... IPv6:8-12
overview
sending event log messages ... MCG:C-41, IPv6:8-12
using CLI session ... MCG:C-41, IPv6:8-15

debug command
configuring debug/Syslog
operation ... MCG:C-44
destinations ... MCG:C-41, MCG:C-51
DHIPv6 messages ... IPv6:8-14
event log ... MCG:C-58
event log as default ... MCG:C-42
event log messages ... MCG:C-49, IPv6:8-13
event types supported ... MCG:C-41
IPv4/IPv6 event messages ... IPv6:8-13
IPv6 event types supported ... IPv6:8-12
LLDP messages ... IPv6:8-14
operating notes ... MCG:C-58
OSPF messages ... MCG:C-50, IPv6:8-14
RIP messages ... MCG:C-50, IPv6:8-14
show debug ... MCG:C-45
support for "debug" severity on Syslog
servers ... MCG:C-51, MCG:C-58
syntax ... MCG:C-42, MCG:C-49

using CLI session ... MCG:C-51
using Syslog servers ... IPv6:8-15
wireless-services messages ... IPv6:8-14

debug logging
DHCP snooping ... ASG:11-13
LLDP ... MCG:14-43

dedicated management VLAN ... ATM:2-46

default configuration and security ... ASG:1-4

default gateway ... MCG:8-3
See also gateway.

default route ... RMG:5-29

default trunk type ... MCG:12-10

denial-of-service
avoid attacks using BPDU
protection ... ASG:1-13
avoid attacks using DHCP snooping ... ASG:11-4
ICMPv6 rate limiting ... IPv6:2-13
monitoring system resources ... ASG:11-33

deprecated address ... IPv6:4-22

DES ... ASG:8-3, ASG:9-3

DES encryption ... MCG:14-9

Designated Router
defined ... RMG:4-7
election criteria ... RMG:4-12
in VLAN ... RMG:4-12

device identifier in IPv6 address ... IPv6:3-4
See also interface identifier.

Device Passwords window ... MCG:5-8

DHCP
address problems ... MCG:C-8
Bootp operation ... MCG:8-12
effect of no reply ... MCG:C-8
gateway ignored ... ATM:2-47
hop count, disabling ... RMG:5-125
hop count, displaying ... RMG:5-128
manual gateway precedence ... MCG:8-12

DHCP Option 82
IP-to-MAC binding database ... ASG:11-20,
ASG:11-28

DHCP protection
See DHCP snooping.

DHCP Relay
broadcast forwarding ... RMG:5-124
configuration ... RMG:5-123
enabling ... RMG:5-124
helper address ... RMG:5-125
hop count in requests ... RMG:5-125
minimum requirements ... RMG:5-124

Option 82
circuit ID ... RMG:5-130, RMG:5-133
packet forwarding ... RMG:5-123
See also Option 82.
verifying configuration ... RMG:5-126

DHCP snooping ... ASG:11-4
authorized server ... ASG:11-5
binding database ... ASG:11-12
changing remote-id ... ASG:11-11
configuring authorized server
address ... ASG:11-9
database ... ASG:11-5
denial-of-service attack ... ASG:11-4
DHCPACK ... ASG:11-5
DHCPDECLINE ... ASG:11-5
DHCPNACK ... ASG:11-5
DHCPOFFER ... ASG:11-5
DHCPRELEASE ... ASG:11-5
disable MAC check ... ASG:11-11
disabling ... ASG:11-5
dropping packets ... ASG:11-5
enabling ... ASG:11-5
debug logging ... ASG:11-13
on trusted ports ... ASG:11-8
on VLANs ... ASG:11-6, ASG:11-7
IP-to-MAC binding database ... ASG:11-20,
ASG:11-28
log messages ... ASG:11-14
Option 82 ... ASG:11-9
option parameter ... ASG:11-6
remote-id ... ASG:11-10
resource usage ... MCG:E-2
show configuration ... ASG:11-6
SNMP notification ... MCG:14-17, MCG:14-26
stats ... ASG:11-6
trust ... ASG:11-6
untrusted-policy ... ASG:11-10
verify ... ASG:11-6

DHCP/Bootp differences ... MCG:8-13

DHCP/Bootp process ... MCG:8-12

DHCP/Bootp, LLDP ... MCG:14-53

DHCPv6
debug messages ... IPv6:8-14
DHCP relay for IPv6 ... IPv6:3-8
does not assign link-local address ... IPv6:4-9
dual-stack operation ... IPv6:3-8
mutually exclusive with autconfigured global
unicast address ... IPv6:4-7

mutually exclusive with static global unicast
address ... IPv6:4-11

NTP server ... IPv6:2-8

precedence over autoconfig
address ... IPv6:4-11

server-assigned global unicast
address ... IPv6:2-8, IPv6:3-5, IPv6:3-6,
IPv6:3-8, IPv6:4-9

supported with DHCPv4 on same
VLAN ... IPv6:4-10

timep server ... IPv6:2-8

diagnostics tools ... MCG:C-59

browsing the configuration file ... MCG:C-73

ping and link tests ... MCG:C-60

directed broadcasts ... RMG:5-21

DNS

- configuration ... MCG:C-66, MCG:C-69, IPv6:8-9
- configuration error ... MCG:C-72
- configuration, viewing ... MCG:C-70
- DNS-compatible commands ... MCG:C-64,
MCG:C-66
- domain name, fully qualified ... MCG:C-64,
MCG:C-65, MCG:C-70
- domain suffix ... MCG:C-64
- domain-name ... IPv6:8-10
- domain-name configuration ... MCG:C-68
- event log messages ... MCG:C-72
- example ... MCG:C-68
- for IPv6 ... IPv6:2-14
- host name ... MCG:C-64
- IPv6 DNS resolution ... MCG:C-64
- name, using in web browser
- operating notes ... MCG:C-71
- ping ... MCG:C-64, MCG:C-66, MCG:C-69
- resolver ... MCG:C-64
- resolver operation ... MCG:C-65
- secure management VLAN ... MCG:C-71
- server address, DHCP not used ... MCG:C-71
- server IP address ... MCG:C-65, MCG:C-71
- server-address configuration ... MCG:C-67
- three entries supported ... MCG:C-67
- three server entries supported ... MCG:C-67
- traceroute ... MCG:C-64, MCG:C-66, MCG:C-69
- view configuration ... IPv6:8-11
- VLAN, best route selection ... MCG:C-71

documentation

- feature matrix ... MCG:ii
- installation guide ... IPv6:1-8

latest versions ... MCG:-i, IPv6:1-2, IPv6:1-4,
IPv6:1-6

printed in-box publications ... MCG:-i

release notes ... MCG:-i

sources for more information ... IPv6:1-4

Domain Name Server

See DNS.

domains, connecting ... ATM:5-24

download

- software ... MCG:15-17, MCG:A-20
- software using TFTP ... MCG:A-4
- switch-to-switch ... MCG:A-20
- TFTP ... MCG:A-5
- troubleshooting ... MCG:A-6
- Xmodem ... MCG:A-15

See also switch software.

downstream device (QoS)

- definition ... ATM:6-6
- effect of priority settings ... ATM:6-9

DR (designated router)

- defined ... RMG:4-7
- election criteria ... RMG:4-12
- OSPF election ... RMG:5-49

See also OSPF.

DSCP

- Policy Table ... ATM:6-58
- policy, defined ... ATM:6-6

See also priority.

dual-stack operation ... IPv6:2-6

- switching IPv4 and IPv6 traffic on same
VLAN ... IPv6:2-3, IPv6:2-4, IPv6:3-6
- using DHCPv6 ... IPv6:3-8

duplex advertisements ... MCG:14-55

duplex information, displaying ... MCG:14-72

duplicate address detection

See DAD.

duplicate IP address

- effect on authorized IP managers ... ASG:15-13

duplicate MAC address

See MAC address.

Dyn1

See LACP.

dynamic ARP protection

- additional validation checks on ARP
packets ... ASG:11-21
- ARP packet debugging ... ASG:11-23
- displaying ARP statistics ... ASG:11-22
- enabling ... ASG:11-16

- IP-to-MAC binding, adding to DHCP
 database ... ASG:11-20, ASG:11-28
resource usage ... MCG:E-2
trusted ports, configuring ... ASG:11-18
verifying configuration ... ASG:11-21
- Dynamic Configuration Arbiter (DCA)**
applying settings to non-authenticated
 clients ... ASG:1-15
hierarchy of precedence in authentication
 sessions ... ASG:1-17
overview ... ASG:1-15
- dynamic IP lockdown**
debugging ... ASG:11-30
DHCP binding database ... ASG:11-25
DHCP leases ... ASG:11-25
DHCP snooping ... ASG:11-24
enabling ... ASG:11-26
filtering IP addresses ... ASG:11-25
overview ... ASG:11-23
platform differences ... ASG:11-31
spoofing protection ... ASG:11-24
verifying configuration ... ASG:11-28
VLAN binding ... ASG:11-25
- E**
- Eavesdrop Protection** ... ASG:14-4
- ECMP**
 feature description ... RMG:5-57
 in OSPF ... RMG:5-57
- edge devices** ... RMG:6-3
- edge ports** ... MCG:13-4
- edge router, defined** ... RMG:4-7
- Emergency Location Id Number** ... MCG:14-38,
 MCG:14-66
- encryption key**
 RADIUS ... ASG:2-12, ASG:2-16
 TACACS ... ASG:2-12, ASG:2-15
- enhancing network security** ... ASG:7-12
- EUI**
 in IPv6 address autoconfiguration ... IPv6:4-7,
 IPv6:4-13
 used in IPv6 address
 autoconfiguration ... IPv6:2-7, IPv6:3-4,
 IPv6:3-5, IPv6:3-13, IPv6:3-14, IPv6:4-6
- event log**
 alerts for monitored events ... ASG:11-34
 clearing entries ... MCG:C-37
- compared to debug/Syslog
 operation ... MCG:C-41, IPv6:8-12
connection-rate filtering alerts ... ASG:3-31
console menu ... MCG:3-7
counter ... RMG:3-38
debug messages ... IPv6:8-13
debugging by severity level ... MCG:C-42,
 MCG:C-52, IPv6:8-12
debugging by system module ... MCG:C-42,
 MCG:C-52, IPv6:8-12
- Event Log Message Reference Guide** ... MCG:-i
- format, date ... MCG:C-28
generated by system module ... MCG:C-28
how to read entries ... MCG:C-27
intrusion alerts ... ASG:14-39
IPv6 support ... IPv6:2-14
listing entries ... MCG:C-36
losing messages ... MCG:C-27
messages ... ASG:3-31
navigation ... MCG:C-35
not affected by debug
 configuration ... MCG:C-58
PIM messages ... RMG:3-38
security levels ... MCG:14-20
sending event log messages as
 traps ... MCG:14-20
- sending messages to Syslog server ... MCG:C-42
severity level ... MCG:C-27, MCG:C-56
system module ... MCG:C-57
TFTP upload on remote device ... IPv6:5-18
time format ... MCG:C-28
UDLD warning messages ... MCG:10-31
used for debugging ... MCG:C-42
used for troubleshooting ... MCG:C-27
- log**
 See event log.
- excessive frames** ... MCG:13-37
- Exclude Source**
 See IGMP.
- extended unique identifier**
 See EUI.
- external LSA**
 displaying ... RMG:5-101
- F**
- fabric modules**
 disabling ... MCG:15-12

enabling ... MCG:15-12

factory default configuration restoring ... MCG:6-9, MCG:C-79

failover, VRRP ... RMG:6-3

failure, switch software download ... MCG:A-7

fans, show status ... MCG:B-8

fast leave MLD configuration ... IPv6:7-10, IPv6:7-11 used in MLD snooping ... IPv6:7-7

fastboot command ... MCG:6-24

fault detection policy ... MCG:5-8, MCG:5-24

fault-tolerance ... MCG:12-4

FD, unique local unicast address prefix ... IPv6:3-12, IPv6:3-19

FE80 link-local address prefix ... IPv6:3-11, IPv6:4-6

FE80, link-local address autoconfiguration ... IPv6:2-7, IPv6:3-9, IPv6:3-13, IPv6:3-14

FF, IPv6 multicast address prefix ... IPv6:3-12

fiber optics, monitoring links ... MCG:10-25

filter, source-port applicable models ... ASG:12-2 editing ... ASG:12-20 filter indexing ... ASG:12-22 filter type ... ASG:12-8 idx ... ASG:12-8, ASG:12-22 index ... ASG:12-8, ASG:12-22 jumbo VLANs ... MCG:13-35 named ... ASG:12-6 operating rules ... ASG:12-4, ASG:12-6 port-trunk operation ... ASG:12-3, ASG:12-19 show ... ASG:12-8 value ... ASG:12-8 viewing ... ASG:12-8 See also source port filters.

filtering MAC addresses ... ASG:11-25

filters effect of IGMP ... RMG:2-28, ASG:12-16 maximum allowed ... RMG:2-6 multicast ... ASG:12-15 overview ... ASG:12-2 protocol ... ASG:12-16 source port ... ASG:12-4 source-port filter value ... ASG:12-22 static ... ASG:12-3 types ... ASG:12-3 See also OSPF and RIP.

firmware version ... MCG:B-7

flash memory ... MCG:3-10, MCG:6-3

flow control constraints ... MCG:10-4, MCG:10-12 effect on rate-limiting ... MCG:13-9, MCG:13-16 global ... MCG:10-12 global requirement ... MCG:10-4 jumbo frames ... MCG:13-35 per-port ... MCG:10-4, MCG:10-12 status ... MCG:B-14 terminal ... MCG:7-3

flow sampling ... MCG:14-4, IPv6:5-20

flow, defined ... RMG:4-7

forbid option See GVRP.

forwarding directed broadcasts ... RMG:5-21 parameters, IP routing configuring ... RMG:5-21

forwarding database See VLAN.

forwarding port, IGMP ... RMG:2-5

Framed-IP-Address ... ASG:6-38

friendly port names See port names, friendly.

front-panel access ... ASG:1-7

G

GARP See GVRP.

gateway configuring ... MCG:8-5 default gateway ... MCG:8-3 determining default IPv6 route ... IPv6:2-8, IPv6:4-29 IP address ... MCG:8-4, MCG:8-6 manual config priority ... MCG:8-12, ATM:2-47 on primary VLAN ... MCG:8-4 precedence of manual gateway over DHCP/ Bootp ... MCG:8-12 routing fails ... MCG:C-12

giant frames ... MCG:13-37

global config level ... MCG:8-10

global unicast address autoconfiguration ... IPv6:3-5, IPv6:3-11, IPv6:3-16, IPv6:4-7

- autoconfigured is mutually exclusive with DHCP
 server-assigned address ... IPv6:4-7
- default prefix ... IPv6:3-18
- deprecation ... IPv6:3-16, IPv6:4-32
- device identifier ... IPv6:3-18
- leading 2 in prefix ... IPv6:3-12
- manual configuration ... IPv6:2-8, IPv6:3-5,
 IPv6:3-9, IPv6:3-17, IPv6:4-13
- network prefix ... IPv6:3-4
- preferred lifetime ... IPv6:3-25, IPv6:4-8,
 IPv6:4-10, IPv6:4-12, IPv6:4-32
- valid lifetime ... IPv6:3-25, IPv6:4-8, IPv6:4-10,
 IPv6:4-32
- GMB**
See guaranteed minimum bandwidth.
- guaranteed minimum bandwidth**
- apportioning unallocated
 - bandwidth ... MCG:13-21
 - configuration ... MCG:13-22
 - described ... MCG:13-19
 - displaying current configuration ... MCG:13-25
 - impacts of QoS queue
 - configuration ... MCG:13-21
 - operation ... MCG:13-19
 - outbound queue priority ... MCG:13-20
 - starving queues ... MCG:13-21
- guest VLAN** ... ASG:13-7, ASG:13-8, ASG:13-29
- GVRP** ... ATM:4-8
- ACLs, restriction ... ATM:3-19
 - advertisement ... ATM:3-19
 - advertisement, defined ... ATM:3-3
 - advertisement, responses to ... ATM:3-6
 - advertisements, generating ... ATM:3-11
 - auto option ... ATM:3-10
 - benefit ... ATM:3-3
 - block ... ATM:3-8
 - CLI, configuring ... ATM:3-14
 - configurable port options ... ATM:3-6
 - configuring learn, block, disable ... ATM:3-8
 - convert dynamic to static ... ATM:3-7
 - converting to static VLAN ... ATM:3-4
 - disable ... ATM:3-8
 - dynamic VLAN and reboots ... ATM:3-19
 - dynamic VLANs ... ASG:13-72
 - dynamic VLANs always tagged ... ATM:3-4
 - effect on client authentication ... ASG:13-66,
 ASG:13-68
 - forbid option ... ATM:3-10
- GARP ... ATM:3-3
- general operation ... ATM:3-4
- IP addressing ... ATM:3-7
- jumbo frames ... ATM:3-19
- learn ... ATM:3-8
- learn, block, disable ... ATM:3-10
- menu, configuring ... ATM:3-13
- meshed ports ... ATM:5-21
- meshing requirement ... ATM:5-6
- non-GVRP aware ... ATM:3-18
- non-GVRP device ... ATM:3-18
- operating notes ... ATM:3-18
- port control options ... ATM:3-11
- port-leave from dynamic ... ATM:3-11
- provider-gvrp (QinQ) ... ATM:8-14
- reboot, switch ... ATM:3-12
- recommended tagging ... ATM:3-11
- standard ... ATM:3-3
- static VLAN not advertised ... ASG:13-69,
 ASG:13-73
- tagged, dynamic VLAN ... ATM:3-4
- unknown VLAN ... ATM:3-11
- unknown VLAN, options ... ATM:3-7
- VLAN behavior ... ATM:2-13
- VLAN, dynamic adds ... ATM:2-26
- VLAN, maximum ... ATM:3-18
- with QinQ ... ATM:8-28
- with QoS ... ATM:6-45

H

heartbeat packets in VLAN MAC configuration ... ATM:2-62

Help

- for CLI ... MCG:1-7, MCG:4-11
- for menu interface ... MCG:1-6, MCG:3-9,
 MCG:3-11
- for web browser interface ... MCG:1-7,
 MCG:5-13
- online, inoperable ... MCG:5-13

helper address for DHCP Relay ... RMG:5-125

hierarchy of precedence, used by

DCA ... ASG:1-15

hop count in DHCP requests

disabling ... RMG:5-125

displaying configuration ... RMG:5-128

hop, router ... MCG:8-10
hotswapping mgmt module ... MCG:15-15
HP
 Auto-MDIX feature ... MCG:10-15
 web browser interface ... MCG:2-5

I

IANA ... RMG:5-149, ASG:10-69
IANA, protocol numbers ... ASG:10-65, ASG:10-70
ICMP
 bucket-size ... IPv6:8-3
 configuring ... RMG:5-23
 disabling messages ... RMG:5-23
 error-interval ... IPv6:8-3
 for IPv6 ... IPv6:2-13
 rate-limiting controls ... IPv6:8-2
 resources ... MCG:E-3

ICMP rate-limiting
 all-traffic
 See rate-limiting.
 caution ... MCG:13-11
 configuring ... MCG:13-13
 current rate-limit configuration ... MCG:13-14
 effect of flow control ... MCG:13-16
 effect on port trunks ... MCG:13-15
 effects of ... MCG:13-12
 event log messages ... MCG:13-17
 interface support ... MCG:13-15
 monitoring/mirroring ... MCG:13-15
 network application ... MCG:13-12
 no meshing ... MCG:13-15
 note on testing ... MCG:13-16
 operating notes ... MCG:13-15
 operation ... MCG:13-10, MCG:13-13
 optimum packet size ... MCG:13-16
 resource usage ... MCG:E-2
 spoofed ping ... MCG:13-12
 See also ICMP and rate-limiting.

Identity Driven Manager
 See IDM.

IDM
 authentication control features ... ASG:7-2
 for enhanced client authentication ... ASG:7-8
 overview ... ASG:1-14
 RADIUS-based security classifiers ... ASG:1-14
 RADIUS-based sessions ... ASG:7-28
 resource usage ... MCG:E-2

resources ... MCG:E-3, MCG:E-5
 See also RADIUS-assigned ACLs.

IDS ... MCG:B-28
IEEE 802.1ad specification ... ATM:8-3, ATM:8-5
IEEE 802.1d ... MCG:C-19
IEEE P802.1AB/D9 ... MCG:14-43
IGMP
 benefits ... RMG:2-3
 configure per VLAN ... RMG:2-5
 effect on filters ... RMG:2-28, ASG:12-16
 Exclude Source ... RMG:2-12
 Fast Leave ... RMG:2-14
 high-priority disabled with PIM ... RMG:3-36
 high-priority forwarding ... RMG:2-5
 host not receiving ... MCG:C-14
 in switch mesh domain ... ATM:5-20
 Include Source ... RMG:2-12
 IP multicast address range ... RMG:2-28,
 ASG:12-16
 leave group ... RMG:2-12
 maximum address count ... RMG:2-6
 mesh requirement ... ATM:5-6
 multicast group ... RMG:2-12
 multimedia ... RMG:2-3
 not working ... MCG:C-14
 operation ... RMG:2-12, RMG:2-13
 port states ... RMG:2-5
 proxy
 forward loop ... RMG:2-25
 forwarding ... RMG:2-18
 forwarding commands ... RMG:2-21
 show command ... RMG:2-23
 vlan context command ... RMG:2-22
 query ... RMG:2-12
 report ... RMG:2-12
 statistics ... MCG:B-22
 status ... RMG:2-13
 traffic ... RMG:2-5
 Version 3 ... RMG:2-12

IGP ... RMG:5-45
inactivity timeout ... MCG:7-4
inbound port (QoS)
 definition ... ATM:6-6

Inbound Telnet Enabled parameter ... MCG:C-7

include credentials command ... ASG:2-11
 See also security credentials.

Include Source
 See IGMP.

- inform messages** ... IPv6:5-20
informs
 sending to trap receiver ... MCG:14-20
 SNMP ... MCG:14-21
intelligent mirroring
 See mirroring.
interface
 rate-limit ip access-group ... ASG:10-86
 unknown-vlans command ... ASG:13-73
interface identifier
 in global unicast address ... IPv6:3-18
 in IPv6 address
intrusion alarms
 entries dropped from log ... ASG:14-41
 event log ... ASG:14-39
 prior to ... ASG:14-41
Intrusion Log
 prior to ... ASG:14-37, ASG:14-38
IP ... MCG:8-7
 address count ... ASG:11-33
 address maximums ... MCG:G-1
 authorized IP managers ... ASG:15-1
 CLI access ... MCG:8-6
 configuration ... MCG:8-2
 DHCP/Bootp ... MCG:8-2
 duplicate address ... MCG:C-8
 duplicate address, DHCP network ... MCG:C-8
 effect when address not used ... MCG:8-11
 features available with and without ... MCG:8-11
 gateway ... MCG:8-3, ATM:2-47
 gateway (IP) address ... MCG:8-4
 menu access ... MCG:8-5
 multiple addresses in VLAN ... MCG:8-3,
 MCG:8-8
 reserved port numbers ... ASG:8-17
 subnet ... MCG:8-3, MCG:8-8
 subnet mask ... MCG:8-2, MCG:8-6
 time server address ... MCG:9-9, MCG:9-19
 Time-To-Live ... MCG:8-7, MCG:8-10
 traffic priority based on ToS field ... ATM:6-31,
 ATM:6-43
 TTL ... MCG:8-7, MCG:8-10
 using for web browser interface ... MCG:5-4
 web access ... MCG:8-10
IP address
 assigning ... RMG:5-15
 CIDR notation ... RMG:5-15
 for SNMP management ... MCG:14-3
 loopback interface configuration ... MCG:8-16
 manually configure ... MCG:8-6
 multiple ... RMG:6-17
 multiple in a VLAN ... MCG:8-8
 quick start ... MCG:1-8, MCG:8-3
 removing or replacing ... MCG:8-10
 setup screen ... MCG:8-3
 show management command ... MCG:8-7
 virtual ... RMG:6-5
IP attribute ... ASG:6-38
IP authorized managers
 for IPv6 ... IPv6:2-12
IP forwarding cache ... RMG:5-9
IP global parameters ... RMG:5-10
IP interface parameters ... RMG:5-14
IP masks
 building ... ASG:15-10
 for multiple authorized manager
 stations ... ASG:15-11, IPv6:6-6
 for single authorized manager
 station ... ASG:15-10, IPv6:6-5
 operation ... ASG:15-4
 used in configuring authorized IP
 management ... IPv6:6-5
 used in configuring authorized IP management
 stations ... IPv6:6-3
IP Preserve
 configuring ... IPv6:5-23
 DHCP server ... MCG:8-20
 DHCP-assigned address ... IPv6:5-24
 downloading configuration file to IPv6
 switch ... IPv6:5-24
 feature description ... IPv6:5-23
 for IPv6 ... IPv6:2-11
 overview ... MCG:8-20
 rules, operating ... MCG:8-20
 summary of effect ... MCG:8-23
IP route exchange protocols ... RMG:5-10
IP route table ... RMG:5-8
IP routing
 ARP cache table ... RMG:5-8
 AS ... RMG:5-45
 backup designated router ... RMG:5-45
 BDR ... RMG:5-45
 chain ... RMG:5-104
 changing ARP parameters ... RMG:5-17
 changing router ID ... RMG:5-15
 configuring static routes ... RMG:5-25

debug messages ... MCG:C-42
default route ... RMG:5-29
designated router ... RMG:5-45
DHCP Relay configuration
 See DHCP relay.
directed broadcasts ... RMG:5-21
DR ... RMG:5-45
dynamic ARP protection, enabling ... ASG:11-16
forwarding cache ... RMG:5-9
forwarding parameters ... RMG:5-21
global parameters ... RMG:5-10
helper address ... RMG:5-125
helper address, UDP ... RMG:5-14
interface parameters ... RMG:5-14
interior gateway protocol ... RMG:5-45
IP static routes
 administrative distance ... RMG:5-28
 blackhole ... RMG:5-25, RMG:5-28
 configuration ... RMG:5-28
 default route ... RMG:5-11, RMG:5-26
 default route, configuring ... RMG:5-26
 display ... RMG:5-29
 maximum ... RMG:5-6
 null interface ... RMG:5-26
 null route ... RMG:5-25, RMG:5-27
 one per destination ... RMG:5-25
 reject ... RMG:5-28
 VLAN state ... RMG:5-27
loopback interface
 ... RMG:5-51
null routes ... RMG:5-25
overview ... RMG:5-6
parameter configuring ... RMG:5-15
Proxy ARP, enabling ... RMG:5-19
required for ACLs ... ASG:10-5
route exchange protocols ... RMG:5-10
router ID ... RMG:5-49, RMG:5-50, RMG:5-51
routing table ... RMG:5-8
static route configuration ... RMG:5-27
static route parameters ... RMG:5-26
static route types ... RMG:5-25
static routes
 administrative distance ... RMG:5-26
 discard traffic ... RMG:5-27
 discard, ICMP notification ... RMG:5-27
 metric ... RMG:5-26
tables and caches ... RMG:5-7
terminology ... RMG:5-45
type-7 LSA ... RMG:5-45
validation checks on ARP packets,
 configuring ... ASG:11-21
VLAN interface ... RMG:5-7
See also DHCP, ICMP, IRDP, OSPF, and UDP
broadcast forwarding.
ip source-binding ... ASG:11-28
ip source-lockdown ... ASG:11-26, ASG:11-27
ip source-lockdown bindings ... ASG:11-29,
 ASG:11-30
IP spoofing
 protection against ... ASG:11-24
IP, type of service
 configuring priority ... ATM:6-31, ATM:6-43
IP-to-MAC binding ... ASG:11-20, ASG:11-28
IPv6
 address format ... IPv6:3-3
 anycast address ... IPv6:2-9, IPv6:3-10, IPv6:3-20,
 IPv6:4-14, IPv6:5-2
 benefits ... IPv6:2-6
 command index ... IPv6:-xi
 configuration overview ... IPv6:4-4
 DAD ... IPv6:4-18
 debug ... IPv6:8-12
 default gateway ... IPv6:2-8, IPv6:4-29
 DHCPv6 server-assigned address ... IPv6:2-8,
 IPv6:3-5, IPv6:3-6, IPv6:3-8, IPv6:4-4, IPv6:4-9
 disabling ... IPv6:4-16
 displaying IPv6 configuration ... IPv6:4-21,
 IPv6:4-25
 displaying IPv6 routing table ... IPv6:4-29,
 IPv6:4-30
 DNS configuration ... IPv6:8-9
 DNS support ... IPv6:2-14
 dual-stack operation ... IPv6:2-3, IPv6:2-4
 enabling commands ... IPv6:3-14, IPv6:4-5
 displayed in IPv6 configuration ... IPv6:4-25
 event log ... IPv6:2-14
 global unicast address
 autoconfiguration ... IPv6:2-7, IPv6:3-5,
 IPv6:3-11, IPv6:3-16, IPv6:4-7
 global unicast address deprecation ... IPv6:3-16,
 IPv6:3-25
 global unicast address manual
 configuration ... IPv6:2-8, IPv6:3-5, IPv6:3-9,
 IPv6:3-17, IPv6:4-13
 ICMP error messages ... IPv6:2-13
 IP authorized managers ... IPv6:2-12

- IP Preserve ... IPv6:2-11, IPv6:5-23
link-local address autoconfiguration ... IPv6:2-7, IPv6:3-5, IPv6:3-11, IPv6:3-13, IPv6:4-6
link-local address manual configuration ... IPv6:2-8, IPv6:3-5, IPv6:3-9, IPv6:4-12
link-local suffix ... IPv6:5-6, IPv6:5-10, IPv6:5-13
loopback address ... IPv6:2-15, IPv6:3-24
management station ... IPv6:2-7
migrating from IPv4 ... IPv6:2-3, IPv6:2-4
MTU ... IPv6:2-9, IPv6:2-16
multicast ... IPv6:2-9
multicast address ... IPv6:2-6, IPv6:3-10, IPv6:3-21, IPv6:3-22
multicast listener discovery
 See MLD.
multiple addresses on an interface ... IPv6:3-3, IPv6:3-5
neighbor cache, clear ... IPv6:5-5
neighbor cache, view ... IPv6:5-3
neighbor discovery ... IPv6:2-9, IPv6:2-14, IPv6:4-17, IPv6:5-2
network prefix ... IPv6:3-4
omitting zeros in address ... IPv6:3-3
ping6 ... IPv6:2-11, IPv6:2-13
planning an addressing scheme ... IPv6:3-6
restrictions ... IPv6:2-15
routing between different VLANs ... IPv6:4-27
security features ... IPv6:2-11
selecting default router on a VLAN ... IPv6:4-28
single IPv6 link-local address on an interface ... IPv6:3-13
SNMP support ... IPv6:2-15, IPv6:5-20
SNTP
 See SNTP server.
SSHv2 ... IPv6:2-11
 See also SSH.
static address configuration ... IPv6:4-11
supported switches ... IPv6:1-2
switching IPv4 and IPv6 traffic on same VLAN ... IPv6:2-3
switching IPv6 traffic on same VLAN ... IPv6:2-3
switching traffic between different VLANs ... IPv6:2-3
Syslog ... IPv6:8-12
Telnet ... IPv6:2-10
Telnet, view current use ... IPv6:5-7
telnet6 ... IPv6:5-6
- Telnet6, access ... IPv6:5-8
Telnet6, view configuration ... IPv6:5-8
TFTP ... IPv6:2-10
TFTP6 transfers ... IPv6:5-15
time protocols ... IPv6:2-8, IPv6:2-10
Timep
 See Timepv6.
traceroute6 ... IPv6:2-13
troubleshooting
 for IPv6 ... IPv6:2-13
tunneling ... IPv6:2-5
tunneling over IPv4 network ... IPv6:2-5
unicast address ... IPv6:3-10
unique local unicast address ... IPv6:3-11, IPv6:3-19
unspecified address ... IPv6:3-25
use model ... IPv6:2-6
using an external router ... IPv6:2-4
web browser interface ... IPv6:2-11
when to use different address types ... IPv6:3-7
See also MLD.
- IPv6 address**
binary expression ... IPv6:6-7, IPv6:6-11
ipv6 enable ... IPv6:3-14, IPv6:4-5, IPv6:4-6
- IPv6 interface identifier**
- IPX**
broadcast traffic ... MCG:10-4, MCG:10-14
network number ... MCG:B-10
- IRDP**
configuring ... RMG:5-120
displaying information ... RMG:5-122
enabling globally ... RMG:5-121
enabling on VLAN interface ... RMG:5-121
- J**
- jumbo frames**
configuration ... MCG:13-29
excessive inbound ... MCG:13-35
flow control ... MCG:13-35
GVRP ... ATM:3-19
GVRP operation ... MCG:13-28
management VLAN ... MCG:13-34
maximum size ... MCG:13-27, MCG:13-32
meshing ... MCG:13-28
mirroring ... MCG:B-73
MTU ... MCG:13-27, MCG:B-73, MCG:B-76
port adds and moves ... MCG:13-28

port speed ... MCG:13-28
QinQ ... ATM:8-10
security concerns ... MCG:13-35
standard MTU ... MCG:13-27
switch mesh ... ATM:5-21
switch mesh domain ... MCG:13-36
through non-jumbo ports ... MCG:13-36
traffic sources ... MCG:13-28
troubleshooting ... MCG:13-37
VLAN tag ... MCG:13-27, MCG:B-74
voice VLAN ... MCG:13-34

K

key chain

See KMS key chain.

key management system

See KMS.

kill command ... MCG:7-9

KMS

accept key time ... ASG:16-5, ASG:16-7
assigning a time-dependent key ... ASG:16-5
assigning a time-independent key ... ASG:16-4
generating a key chain ... ASG:16-3
generating a time-dependent key ... ASG:16-5
generating a time-independent key ... ASG:16-4
key chain ... ASG:16-2
key chain entry ... ASG:16-3
key chain generation ... ASG:16-3
key chain in router OSPF context ... RMG:5-96
overview ... ASG:1-12, ASG:16-2
send key time ... ASG:16-5
time protocol ... ASG:16-6
time-dependent key ... ASG:16-2, ASG:16-5,
ASG:16-6
time-independent key ... ASG:16-2, ASG:16-4

L

LACP

802.1X not allowed ... MCG:12-22, ASG:13-13,
ASG:13-19, ASG:13-74
active ... MCG:12-15
blocked ports ... MCG:12-24
CLI access ... MCG:12-11
default port operation ... MCG:12-21
described ... MCG:12-6, MCG:12-18
Dyn1 ... MCG:12-7

dynamic ... MCG:12-19
effects on QinQ ... ATM:8-22
enabling dynamic trunk ... MCG:12-15
full-duplex required ... MCG:12-4, MCG:12-18
IGMP ... MCG:12-23
mesh, effect ... ATM:5-5
mirroring static trunk ... MCG:B-32
no half-duplex ... MCG:12-25
operation not allowed ... MCG:C-14
overview of port mode settings ... MCG:12-4
passive ... MCG:12-15
removing port from active trunk ... MCG:12-16
restrictions ... MCG:12-22
standby link ... MCG:12-19
status, terms ... MCG:12-21
STP ... MCG:12-23
trunk limit ... MCG:12-19
VLANs ... MCG:12-23
with 802.1X ... MCG:12-22
with port security ... MCG:12-22

latency

reducing with switch meshing ... ATM:5-17

layer-3 scalability ... MCG:G-1

leave group

See IGMP.

legacy VLAN ... ATM:2-12

limit, broadcast ... MCG:10-14

line rate ... MCG:B-32

link failures

detecting ... MCG:10-25
quick response to ... ATM:5-2

link speed, port trunk ... MCG:12-3

link test ... MCG:C-60

link, serial ... MCG:7-3

link-change traps ... MCG:14-17, MCG:14-28

Link-Layer Discovery Protocol

See LLDP.

link-local address

autoconfiguration ... IPv6:2-7, IPv6:3-5,
IPv6:3-11, IPv6:3-13, IPv6:4-6
autoconfiguration using EUI ... IPv6:3-14
manual configuration ... IPv6:2-8, IPv6:3-5,
IPv6:3-9, IPv6:4-12
network prefix ... IPv6:3-4

one address per interface ... IPv6:3-13

links, redundant, in mesh ... ATM:5-24

LLDP

802.1D-compliant switch ... MCG:14-78

802.1X blocking ... MCG:14-45
802.1X effect ... MCG:14-78
active port ... MCG:14-38
adjacent device ... MCG:14-38
advertisement ... MCG:14-38
advertisement content ... MCG:14-53
advertisement data ... MCG:14-70
advertisement, mandatory data ... MCG:14-53
advertisement, optional data ... MCG:14-54
advertisements, delay interval ... MCG:14-49
CDP neighbor data ... MCG:14-79
chassis ID ... MCG:14-53
chassis type ... MCG:14-53
clear statistics counters ... MCG:14-75
comparison with CDP data fields ... MCG:14-80
configuration options ... MCG:14-41
configuring optional data ... MCG:14-54
data options ... MCG:14-42
data read options ... MCG:14-43
data unit ... MCG:14-39
debug logging ... MCG:14-43
debug messages ... MCG:C-42, IPv6:8-14
default configuration ... MCG:14-45
DHCP/Bootp operation ... MCG:14-44
disable, per-port ... MCG:14-52
display neighbor data ... MCG:14-73
ELIN ... MCG:14-38
enable/disable, global ... MCG:14-47
features ... MCG:14-37
general operation ... MCG:14-40
global counters ... MCG:14-75
holdtime multiplier ... MCG:14-49
hub, packet-forwarding ... MCG:14-40
IEEE P802.1AB/D9 ... MCG:14-43
inconsistent value ... MCG:14-50
information options ... MCG:14-42
invalid frames ... MCG:14-76
IP address advertisement ... MCG:14-44,
 MCG:14-78
IP address subelement ... MCG:14-53
IP address, DHCP/Bootp ... MCG:14-53
IP address, options ... MCG:14-53
IP address, version advertised ... MCG:14-53
LLDP-aware ... MCG:14-38
LLDPDU ... MCG:14-39
mandatory TLVs ... MCG:14-78
MIB ... MCG:14-40, MCG:14-43
neighbor ... MCG:14-39

neighbor data remaining ... MCG:14-78
neighbor data, displaying ... MCG:14-73
neighbor statistics ... MCG:14-75
neighbor, maximum ... MCG:14-77
operating rules ... MCG:14-44
operation ... MCG:14-40
optional data, configuring ... MCG:14-54
outbound packet options ... MCG:14-42
packet boundaries ... MCG:14-40
packet dropped ... MCG:14-40
packet time-to-live ... MCG:14-43
packet-forwarding ... MCG:14-40, MCG:14-78
packets not forwarded ... MCG:14-39
per-port counters ... MCG:14-76
port description ... MCG:14-54
port ID ... MCG:14-53
port speed ... MCG:14-55
port trunks ... MCG:14-44
port type ... MCG:14-53
refresh interval ... MCG:14-48
reinitialization delay ... MCG:14-50
remote management address ... MCG:14-43
remote manager address ... MCG:14-53
reset counters ... MCG:14-75
rxonly ... MCG:14-52
setmib, delay interval ... MCG:14-49
setmib, reinit delay ... MCG:14-51
show advertisement data ... MCG:14-70
show commands ... MCG:14-45, MCG:14-47
show outbound advertisement ... MCG:14-71
SNMP notification ... MCG:14-42
SNMP traps ... MCG:14-42
spanning-tree blocking ... MCG:14-45
standards compatibility ... MCG:14-43
statistics ... MCG:14-75
statistics, displaying ... MCG:14-75
system capabilities ... MCG:14-54
system description ... MCG:14-54
system name ... MCG:14-54
terminology ... MCG:14-38
time-to-live ... MCG:14-41, MCG:14-49
TLV ... MCG:14-40
transmission frequency ... MCG:14-41
transmission interval, change ... MCG:14-48
transmit and receive ... MCG:14-41
transmit/receive modes ... MCG:14-41
transmit/receive modes, per-port ... MCG:14-52
trap notice interval ... MCG:14-52

- trap notification ... MCG:14-51
 trap receiver, data change notice ... MCG:14-51
 TTL ... MCG:14-41, MCG:14-43
 txonly ... MCG:14-52
 VLAN, untagged ... MCG:14-78
 walkmib ... MCG:14-43
- LLDP-MED**
 displaying speed ... MCG:14-72
 ELIN ... MCG:14-66
 enable or disable ... MCG:14-41
 endpoint support ... MCG:14-57
 fast start control ... MCG:14-61
 location data ... MCG:14-65
 medTlvenable ... MCG:14-63
 Neighbors MIB ... MCG:14-73
 topology change notification ... MCG:14-59
 Voice over IP ... MCG:14-56
- load balancing**
See port trunk.
- local unicast address**
 network prefix ... IPv6:3-4
- log keyword, ACL mirroring** ... ASG:10-16
- logging command** ... MCG:C-49
 configuring a Syslog server ... IPv6:8-16
 syntax ... MCG:C-42, MCG:C-52, IPv6:8-12
- logical port** ... MCG:12-8
- login attempts, monitoring** ... ASG:11-33
- loop protection**
 configuring ... ATM:4-38
 disable-timer ... ATM:4-38
 send-disable ... ATM:4-38
 show ... ATM:4-39
 transmit-interval ... ATM:4-39
 trap ... ATM:4-39
- loop, network** ... MCG:12-3, ATM:4-10
- loopback address** ... IPv6:2-15, IPv6:3-24
- loopback interface**
 benefits ... MCG:8-15
 configuration ... MCG:8-16
 default ... MCG:8-15, MCG:8-18
 displaying configuration ... MCG:8-18
 in OSPF area ... MCG:8-16
 multiple interfaces supported ... MCG:8-15
 router priority ... RMG:5-51
- lost password** ... MCG:5-10
- LSA**
 displaying ... RMG:5-106
 external, displaying ... RMG:5-101
- M**
- MAC address** ... MCG:8-13, MCG:B-7, MCG:D-2
 count, monitoring ... ASG:11-33
 displaying detected devices ... MCG:D-7
 duplicate ... MCG:C-19, MCG:C-25, ATM:2-18
 inconsistent value ... ASG:14-20
 learned ... MCG:B-17
 moves, monitoring ... ASG:11-33
 per switch ... ATM:2-18
 per VLAN ... ATM:2-18
 per-slot or per-switch ... MCG:D-5
 port ... MCG:D-2, MCG:D-4
 same for all VLANs ... ATM:2-58
 same MAC, multiple VLANs ... MCG:D-6
 single forwarding database ... ATM:2-18
 switch ... MCG:D-2
 used in IPv6 interface identifier ... IPv6:3-4,
 IPv6:4-6
 used in IPv6 link-local
 autoconfiguration ... IPv6:2-7, IPv6:3-5,
 IPv6:3-13, IPv6:3-14, IPv6:4-6
 used in mirroring ... MCG:B-30
 VLAN ... MCG:D-2, MCG:D-5
 walkmib ... MCG:D-5
- MAC authentication**
 authenticator operation ... ASG:4-4
 blocked traffic ... ASG:4-2
 CHAP
 defined ... ASG:4-9
 usage ... ASG:4-2
 client status ... ASG:4-42
 configuration commands ... ASG:4-33
 configuring
 on the switch ... ASG:4-32
 switch for RADIUS access ... ASG:4-15
 the RADIUS server ... ASG:4-14
 general setup ... ASG:4-12
 hierarchy of precedence in authentication
 session ... ASG:1-15
 LACP not allowed ... ASG:4-12
 overview ... ASG:1-10
 port access ... ASG:13-4
 rules of operation ... ASG:4-10
 show status and configuration ... ASG:4-36
 SNMP notification ... MCG:14-26
 terminology ... ASG:4-9

MAC Lockdown ... ASG:14-3
MAC Lockout ... ASG:14-3
Maintenance Power Signature ... MCG:11-4
management
 interfaces described ... MCG:2-2
 server URL ... MCG:5-12, MCG:5-13
 server URL default ... MCG:5-13
Management Information Base
 See MIB.
management VLAN
 See Option 82.
 See VLAN.
management VLAN, DNS ... MCG:C-71
management VLAN, secure
 See secure management VLAN
manager access ... MCG:4-5, MCG:4-6, MCG:14-13
manager password ... MCG:5-8, MCG:5-10, ASG:1-4,
 ASG:2-4, ASG:2-6, ASG:2-7
 recommended ... ASG:5-7
 saving to configuration file ... ASG:2-12
 SNMP notification ... MCG:14-17, MCG:14-26
manager privileges ... MCG:4-5, MCG:4-6
manual address configuration
 See static address configuration.
masks
 See IP masks.
max frame size, jumbo ... MCG:13-32
maximum transmission unit ... IPv6:2-9
 See MTU.
maximum VLANs, GVRP ... ATM:3-18
maximums ... MCG:G-1
MD5
 See RADIUS.
MD5 authentication ... MCG:14-9
MD5 authentication, OSPF ... RMG:5-88
MDI/MDI-X
 configuration, display ... MCG:10-16
 operation ... MCG:10-15
 port mode, display ... MCG:10-16
media type, port trunk ... MCG:12-3
memory
 flash ... MCG:3-10, MCG:6-3
 startup configuration ... MCG:3-10
menu interface
 configuration changes, saving ... MCG:3-10
 moving to or from the CLI ... MCG:4-7
 See also console.

mesh
 802.1X not supported ... ATM:5-5
 benefits ... ATM:5-2
 blocked ports ... ATM:5-8
 broadcast storm ... ATM:5-4
 broadcast traffic ... ATM:5-16
 broadcast tree ... ATM:5-16
 configuring from the console ... ATM:5-9
 connecting domains ... ATM:5-24
 connecting multiple domains ... ATM:5-6
 domain ... ATM:5-3
 domain, defined ... ATM:5-4
 dynamic vlan ... ATM:5-21
 edge switch ... ATM:5-4, ATM:5-16
 filtering ... ATM:5-20
 GVRP ... ATM:5-21
 GVRP requirement ... ATM:5-6
 hop count ... ATM:5-5
 hub not allowed ... ATM:5-5, ATM:5-7
 IGMP requirement ... ATM:5-6
 increase STP cost ... ATM:5-19
 IP routing not allowed ... ATM:5-5
 jumbo frames ... MCG:13-36, ATM:5-21
 LACP dynamic trunk, effect ... ATM:5-5
 link blocked ... ATM:5-19
 link to non-mesh switch ... ATM:5-18
 links, multiple ... ATM:5-24
 load-balancing technology ... ATM:5-2
 management VLAN ... ATM:2-54
 mirroring ... MCG:B-26
 multicast traffic ... ATM:5-16
 multiple mesh domains ... ATM:5-19
 multiple VLANs ... ATM:5-17
 no Type selection ... ATM:5-24
 operating details ... ATM:5-15
 operating notes ... ATM:5-15
 operating rules ... ATM:5-5
 port limit per-switch ... ATM:5-5
 port trunk ... ATM:5-24
 port types ... ATM:5-2
 QinQ ... ATM:8-11, ATM:8-29
 redundant links ... ATM:5-4, ATM:5-19,
 ATM:5-24
 redundant paths ... ATM:5-3
 removing a port, effect ... ATM:5-5
 RSTP ... ATM:5-6
 RSTP caution ... ATM:5-19
 spanning tree ... ATM:4-16

spanning-tree requirement ... ATM:5-6
static VLANs ... ATM:5-20
status, viewing ... ATM:5-12
STP ... ATM:5-6
STP caution ... ATM:5-19
switch hop count ... ATM:5-23
switch limit per-domain ... ATM:5-5
trunked links not allowed ... ATM:5-5, ATM:5-7
Type setting ... ATM:5-10
unicast ... ATM:5-17
utilization ... ATM:5-15
VLAN ... ATM:5-20
VLAN, dynamic ... ATM:5-6
VLAN, static ... ATM:5-6
with IGMP ... ATM:5-20
with network monitor port ... ATM:5-24

meshed ports, mirroring ... MCG:B-29

message
inconsistent value ... ASG:14-20
VLAN already exists ... ATM:2-39

metric
OSPF redistribution ... RMG:5-77

MIB
HP proprietary ... MCG:14-4
listing ... MCG:14-4
SNMP access ... ASG:1-5
SNMP access to authentication MIB ... ASG:1-6
standard ... MCG:14-4

MIB support
SNMP ... IPv6:5-20

migration from IPv4 to IPv6 ... IPv6:2-3, IPv6:2-4, IPv6:2-6

mirrored traffic ... ASG:10-22

mirroring ... ASG:10-16

802.1Q tag ... MCG:B-75, MCG:B-76
ACL criteria ... MCG:B-27, MCG:B-31, MCG:B-53, MCG:B-54, MCG:B-56, MCG:B-57, MCG:B-58, MCG:B-61
ACL limit ... MCG:B-49
ACL, IP traffic only ... MCG:B-54
ARP request ... MCG:B-76
booting pre-K.12.xx OS ... MCG:B-33
caution, configure destination
first ... MCG:B-29, MCG:B-38, MCG:B-47
caution, endpoint removal ... MCG:B-45
caution, exit port connection ... MCG:B-28, MCG:B-77
CLI option ... MCG:B-26, MCG:B-32

command index ... MCG:B-37
configuration options ... MCG:B-31
configuration override ... MCG:B-33
configuration, Menu ... MCG:B-34
criteria for selecting traffic ... MCG:B-27, MCG:B-30
destination configuration ... MCG:B-63
destination switch ... MCG:B-44
destination, local ... MCG:B-29
destination, remote ... MCG:B-29
directional-based criteria ... MCG:B-27, MCG:B-50
disable remote ... MCG:B-41
display configuration ... MCG:B-61
distributed traffic ... MCG:B-32
dropped traffic ... MCG:B-32
dropped traffic mirrored ... MCG:B-75
duplicate frames, IGMP ... MCG:B-76
effect of STP state ... MCG:B-75
encapsulation ... MCG:B-33
encryption ... MCG:B-76
endpoint ... MCG:B-38
endpoint configuration ... MCG:B-45, MCG:B-63
endpoint switch ... MCG:B-32
entry port ... MCG:B-27
example, configuration ... MCG:B-68, MCG:B-69, MCG:B-71
exit configuration ... MCG:B-63
exit interface ... MCG:B-32
exit port, caution ... MCG:B-28
exit port, example ... MCG:B-71
exit port, host connection ... MCG:B-28
exit port, local mirroring ... MCG:B-28, MCG:B-39
exit port, oversubscribe ... MCG:B-31
exit port, remote mirroring ... MCG:B-28, MCG:B-42
exit port, VLAN rule ... MCG:B-27, MCG:B-28, MCG:B-30, MCG:B-38, MCG:B-44, MCG:B-77
exit switch ... MCG:B-28
frame fragment ... MCG:B-33
frame truncation, not allowed ... MCG:B-33, MCG:B-73
general steps ... MCG:B-38
header ... MCG:B-26
IDS ... MCG:B-26, MCG:B-28
IGMP, duplicate frames ... MCG:B-76
in configuration file ... MCG:B-67

intelligent mirroring ... MCG:B-26
interface sources ... MCG:B-29
intermediate switches ... MCG:B-32
IPv4 encapsulation ... MCG:B-26, MCG:B-29,
 MCG:B-38, MCG:B-47, MCG:B-73, MCG:B-76
IPv4 frames not mirrored ... MCG:B-76
IPv4, encapsulation ... MCG:B-33
jumbo frames ... MCG:B-26, MCG:B-73
K.12.xx, earlier software ... MCG:B-33
K.12.xx, update to ... MCG:B-32
legacy configuration ... MCG:B-32
local, configuration steps ... MCG:B-39
local, defined ... MCG:B-28
MAC-based criteria ... MCG:B-27, MCG:B-31,
 MCG:B-61, MCG:B-64
maximum sessions, destination ... MCG:B-26
maximum sessions, source ... MCG:B-27
maximum sources or destination ... MCG:B-27
Menu interface limit ... MCG:B-32, MCG:B-33
Menu interface, local-only ... MCG:B-32
Menu option ... MCG:B-26
mesh source ... MCG:B-31, MCG:B-35
meshed ports ... MCG:B-29
mirror command ... MCG:B-46
monitor, autoconfig session 1 ... MCG:B-41,
 MCG:B-50, MCG:B-52, MCG:B-55, MCG:B-56,
 MCG:B-76
MTU ... MCG:B-73, MCG:B-76
operating notes ... MCG:B-75
overload on destination ... MCG:B-32
oversized frames ... MCG:B-33
port ... MCG:B-35
port screen ... MCG:B-26
port source ... MCG:B-31
port source, trunk ... MCG:B-32
quick reference, local ... MCG:B-40
quick reference, remote ... MCG:B-41
rate ... MCG:B-32
remote destination switch
 See remote exit switch.
remote, configuration steps ... MCG:B-38
remote, defined ... MCG:B-29
remote, first release ... MCG:B-26
remote, supported switches ... MCG:B-29
session 1, legacy configuration ... MCG:B-32
session identity ... MCG:B-44
session limits ... MCG:B-30, MCG:B-44
session, source ... MCG:B-46

show commands ... MCG:B-61, MCG:B-63,
 MCG:B-64, MCG:B-67
simultaneous source/destination ... MCG:B-31
SNMP ... MCG:B-32, MCG:B-33
software release ... MCG:B-26
source switch ... MCG:B-28
source, configure ... MCG:B-49
source, limits ... MCG:B-49
static trunk ... MCG:B-29
static VLANs ... MCG:B-29
terminology ... MCG:B-27
traffic overload ... MCG:B-32
traffic, injected into mirrored
 stream ... MCG:B-76
traffic, intercepted ... MCG:B-76
troubleshooting ... MCG:B-77
trunk source ... MCG:B-31, MCG:B-35
UDP destination address ... MCG:B-62,
 MCG:B-63, MCG:B-64
UDP port ... MCG:B-62, MCG:B-63, MCG:B-64,
 MCG:B-71
UDP source address ... MCG:B-63, MCG:B-64
update from pre-K.12.xx ... MCG:B-32
using MAC addresses ... MCG:B-30
VLAN ... MCG:B-31, MCG:B-35
VLAN rule, example ... MCG:B-71
VLAN rule, exit port ... MCG:B-44, MCG:B-77
VLAN tag, frame size ... MCG:B-74
VLAN tagging ... MCG:B-75
VLAN, rule, exit port ... MCG:B-27, MCG:B-28
Web interface ... MCG:B-32
Web limits ... MCG:B-33

MLD

blocking multicast packet
 forwarding ... IPv6:7-5, IPv6:7-9
configuration ... IPv6:7-8
displaying configuration ... IPv6:7-12, IPv6:7-15
displaying statistics ... IPv6:7-18, IPv6:7-20
forwarding multicast packets ... IPv6:7-5,
 IPv6:7-9
overview ... IPv6:2-11
reducing multicast flooding ... IPv6:7-2, IPv6:7-4
snooping at port level ... IPv6:7-2
used on IPv6 local link ... IPv6:7-2

MLTS ... MCG:14-39

module

CLI command ... MCG:10-24
configuring when not inserted ... MCG:10-24

- pre-configuring ... MCG:10-24
- monitoring**
- links between ports ... MCG:10-25
 - status and counters screens ... MCG:B-5
- monitoring, traffic**
- See* mirroring.
- MPS, defined** ... MCG:11-4
- MSCHAPv2** ... ASG:6-11
- MSTI, configuration** ... ATM:4-41
- MSTP**
- instance mapping ... ATM:4-49
 - meshing ... ATM:5-17
 - preconfigure benefits ... ATM:4-48
 - preconfigure topology ... ATM:4-48
 - preconfigure vlans in instance ... ATM:4-49
 - saving current configuration ... ATM:4-53
 - See* spanning-tree, 802.1s.
 - vlan range option ... ATM:4-50
- MTU**
- for IPv6 ... IPv6:2-16
 - for IPv6 traffic ... IPv6:2-9
- multicast**
- IPv6 address ... IPv6:2-6, IPv6:3-10, IPv6:3-21
 - IPv6 address format ... IPv6:3-22
 - IPv6 network prefix ... IPv6:3-4, IPv6:3-12
 - IPv6 solicited-node group ... IPv6:3-21, IPv6:3-23
 - IPv6 traffic ... IPv6:2-9
 - MLD snooping reduces multicast flooding ... IPv6:7-2, IPv6:7-4
- multicast address, spanning tree protocol** ... ASG:12-16
- multicast filter** ... ASG:12-3, ASG:12-15
- multicast group**
- See* IGMP.
- Multicast Listener Discovery**
- See* MLD.
- multicast MAC address, STP**
- multicast source, defined** ... RMG:4-7
- multicast traffic** ... ATM:5-16
- Multiline Telephone system** ... MCG:14-39
- multimedia**
- See* IGMP.
- multinetted VLANs and Option 82** ... RMG:5-139
- multinetting** ... MCG:8-3, MCG:8-8
- See also* ACLs.
- multiple configuration file**
- See* configuration file, multiple.
- multiple forwarding database** ... MCG:B-10, MCG:B-20, ATM:2-18
- multiple relay agents** ... RMG:5-136
- multiple VLAN** ... MCG:14-3
- N**
- named source port filters**
- configuring ... ASG:12-7
 - displaying ... ASG:12-8
 - operating rules ... ASG:12-6
 - See also* source port filters.
- NANP** ... MCG:14-39
- navigation, event log** ... MCG:C-36
- neighbor cache, view** ... IPv6:5-3
- neighbor discovery**
- for IPv6 nodes ... IPv6:2-14
 - IPv6 similar to IPv4 ARP ... IPv6:2-9, IPv6:4-17
- neighbor solicitations**
- used in duplicate address detection ... IPv6:4-19
- neighbor, clear cache** ... IPv6:5-2
- Network Immunity Manager (NIM)**
- hierarchy of precedence in authentication
 - session ... ASG:1-15
 - overview ... ASG:1-16
- network management applications** ... ASG:7-2
- network management functions** ... MCG:14-5, MCG:14-13
- network manager address** ... MCG:14-4, MCG:14-5
- network slow** ... MCG:C-8
- non-routable VLAN** ... ATM:2-54
- North American Numbering Plan** ... MCG:14-39
- notifications**
- authentication messages ... MCG:14-17, MCG:14-26
 - configuring trap receivers ... MCG:14-19
 - displaying configuration ... IPv6:5-22
 - enabling for network security ... MCG:14-26
 - link-change traps ... MCG:14-17
 - network security ... MCG:14-26
 - supported in IPv6 ... IPv6:5-20
- NTP server** ... IPv6:2-8
- O**
- online Help**
- See* Help.

open VLAN mode

See 802.1X access control.

OpenSSH ... ASG:8-3**OpenSSL** ... ASG:9-2**operating notes**

- authorized IP managers ... ASG:15-13
- port security ... ASG:14-41
- switch meshing ... ATM:5-15

operating system

See switch software.

operation not allowed, LACP ... MCG:C-14**operator access** ... MCG:4-4, MCG:4-6, MCG:14-13**operator password** ... MCG:5-10, ASG:2-4, ASG:2-6, ASG:2-7

- saving to configuration file ... ASG:2-12
- setting via web browser ... MCG:5-8

operator privileges ... MCG:4-4, MCG:4-6**Option 82** ... RMG:5-128

- circuit ID ... RMG:5-130, RMG:5-133
- compliance ... RMG:5-129
- configuring operation ... RMG:5-139
- field content ... RMG:5-132
- forwarding policy ... RMG:5-130, RMG:5-135
- management VLAN ... RMG:5-131, RMG:5-133, RMG:5-139
- multinetted VLANS ... RMG:5-139
- multiple relay agents ... RMG:5-136
- operation ... RMG:5-131
- Option 82 field ... RMG:5-128
- overview ... RMG:5-128
- policy boundary ... RMG:5-130
- primary relay agent ... RMG:5-131
- relay agent ... RMG:5-131
- Relay Agent Information ... RMG:5-128
- remote ID ... RMG:5-131, RMG:5-132
- requirements ... RMG:5-131
- secondary relay agent ... RMG:5-131
- server support ... RMG:5-129
- snooping ... ASG:11-6
- validating server response
 - packets ... RMG:5-137

OS

- version ... MCG:A-21

See also switch software.

OSPF

- ABR ... RMG:5-45, RMG:5-46, RMG:5-48
- ABR, connection requirement ... RMG:5-66
- ABR, range configuration ... RMG:5-60

administrative distance ... RMG:5-60, RMG:5-80

advertisement, blocking ... RMG:5-79

advertisements ... RMG:5-78

area ... RMG:5-46, RMG:5-51, RMG:5-60

assigning VLAN to ... RMG:5-71, RMG:5-72

configuring ... RMG:5-66

area border router ... RMG:5-45, RMG:5-48

area configuration ... RMG:5-66

area information ... RMG:5-100

area range

configuring ... RMG:5-77

area types ... RMG:5-51

ASBR ... RMG:5-45, RMG:5-49, RMG:5-60

ASBR, advertising ... RMG:5-55

ASBR, in NSSA ... RMG:5-60

assigning area range ... RMG:5-77

authentication ... RMG:5-61

description ... RMG:5-87, RMG:5-95

interface ... RMG:5-87

MD5 ... RMG:5-88, RMG:5-96

MD5, virtual link ... RMG:5-96

password ... RMG:5-87, RMG:5-95

virtual link ... RMG:5-95

autonomous system ... RMG:5-45, RMG:5-51

autonomous system boundary

router ... RMG:5-45, RMG:5-49

backbone area ... RMG:5-45, RMG:5-51, RMG:5-52

backbone area, configure ... RMG:5-67

blocking routes ... RMG:5-77

chain ... RMG:5-104

changing compliance setting ... RMG:5-64

changing defaults ... RMG:5-82

changing port parameters ... RMG:5-64

configuration rules ... RMG:5-61

configuration steps ... RMG:5-63

configuring ... RMG:5-44

cost ... RMG:5-60, RMG:5-82, RMG:5-83

dead-interval ... RMG:5-60, RMG:5-82, RMG:5-83

debug command ... MCG:C-50

debug messages ... MCG:C-42, IPv6:8-14

default metric ... RMG:5-76

default parameter settings ... RMG:5-60

default port parameters ... RMG:5-64

default route ... RMG:5-45

displaying configuration and status ... RMG:5-98

displaying information ... RMG:5-98, RMG:5-99, RMG:5-103, RMG:5-105

area ... RMG:5-100
external LSA ... RMG:5-101
LSA ... RMG:5-106
neighbor ... RMG:5-109
virtual link ... RMG:5-113
virtual neighbor ... RMG:5-112
displaying redistribution ... RMG:5-111
DR (designated router) ... RMG:5-49
 election ... RMG:5-49
enabling ... RMG:5-59, RMG:5-63
enabling redistribution ... RMG:5-76
equal cost multi-path (ECMP) multiple next-hop
 routing ... RMG:5-57
external LSA ... RMG:5-45
external route cost options ... RMG:5-69
external routes, redistribution ... RMG:5-60
general configuration steps ... RMG:5-60
general information ... RMG:5-99
hello-interval ... RMG:5-60, RMG:5-82, RMG:5-84
interface
 defaults ... RMG:5-82
interface parameters ... RMG:5-82
interior router ... RMG:5-45, RMG:5-48
key chain ... RMG:5-96
link-state advertisement ... RMG:5-45, RMG:5-46
loopback interface ... RMG:5-51, RMG:5-60
loopback interface, assigning ... RMG:5-72
loopback interface, redistribution ... RMG:5-73
LSA ... RMG:5-45, RMG:5-46
 displaying information ... RMG:5-101
LSA types ... RMG:5-47
LSA, external, reduction ... RMG:5-55
LSA, reduction ... RMG:5-54
MD5 authentication ... RMG:5-88
metric-type ... RMG:5-69
neighbor ... RMG:5-89
no-advertise ... RMG:5-78
normal area ... RMG:5-46, RMG:5-51, RMG:5-52
normal area, configure ... RMG:5-67
no-summary ... RMG:5-69
no-summary, effect ... RMG:5-56
not-so-stubby-area
 See NSSA.
NSSA ... RMG:5-46, RMG:5-47, RMG:5-51,
 RMG:5-53
NSSA, configuring ... RMG:5-68
overview ... RMG:5-47
parameters, default global ... RMG:5-61
parameters, default interface ... RMG:5-62
passive ... RMG:5-97
password ... RMG:5-87
password, virtual link ... RMG:5-95
priority ... RMG:5-60, RMG:5-82, RMG:5-84
range, blocking ... RMG:5-79
redistribution ... RMG:5-76
 enabling ... RMG:5-76
 metric ... RMG:5-76
 metric type ... RMG:5-77
redistribution filters
 displaying ... RMG:5-111
redistribution information ... RMG:5-111
redistribution, configuring ... RMG:5-75
redistribution, loopback interface ... RMG:5-73
restrict redistribution filters,
 display ... RMG:5-111
restrict redistribution ... RMG:5-74
retransmit-interval ... RMG:5-82, RMG:5-85
RFC 1583 compliance option ... RMG:5-60
RFC 1583, compliance setting ... RMG:5-64
RFC 1583, example ... RMG:5-65
RFC 2178 ... RMG:5-64
RFC 2328 ... RMG:5-47, RMG:5-54, RMG:5-55,
 RMG:5-64
RFC 3101 ... RMG:5-47, RMG:5-54
RFC compliance ... RMG:5-54, RMG:5-64
route choice, influencing ... RMG:5-80
router ID ... RMG:5-16, RMG:5-49, RMG:5-50,
 RMG:5-51, RMG:5-55, RMG:5-59, RMG:5-89,
 RMG:5-106, RMG:5-107, RMG:5-109,
 RMG:5-110, RMG:5-112, RMG:5-113,
 RMG:5-115, RMG:5-116
router ID, displayed ... RMG:5-99, RMG:5-101,
 RMG:5-102
routing table, displaying ... RMG:5-115
show commands ... RMG:5-98
show passive information ... RMG:5-97
software license requirements ... RMG:5-6
stub area ... RMG:5-46, RMG:5-51, RMG:5-54
stub area, configuring ... RMG:5-68
summarizing routes ... RMG:5-77
summary link-state-advertisement ... RMG:5-46
topological database ... RMG:5-46
transit area ... RMG:5-89
transit area ID ... RMG:5-92, RMG:5-93,
 RMG:5-94, RMG:5-95
transit-delay ... RMG:5-82, RMG:5-85

traps ... RMG:5-60, RMG:5-81
type-3 default summary LSA ... RMG:5-69
type-3 LSA ... RMG:5-46, RMG:5-54
type-3 summary LSA ... RMG:5-56, RMG:5-69
type-5 LSA ... RMG:5-45, RMG:5-46
type-7 default external LSA ... RMG:5-56,
 RMG:5-69
using loopback interface as router
 ID ... MCG:8-16
virtual link ... RMG:5-46, RMG:5-66
 authentication ... RMG:5-95
 change settings ... RMG:5-92
 configuration ... RMG:5-89
 dead-interval ... RMG:5-92
 defaults ... RMG:5-92
 displaying information ... RMG:5-113
 hello-interval ... RMG:5-93
 interface parameters ... RMG:5-92
 MD5 authentication ... RMG:5-96
 parameters ... RMG:5-92
 retransmit-interval ... RMG:5-93
 transit-delay ... RMG:5-94
virtual neighbor
 displaying information ... RMG:5-112

outbound port (QoS)
 definition ... ATM:6-6

outbound port queue (QoS)
 changing the number of queues ... ATM:6-65
 definition ... ATM:6-7

outbound Telnet6 ... IPv6:5-6

out-of-band access ... MCG:2-3

P

packet validation ... ASG:11-6

parameters
 IP global ... RMG:5-10
 IP interface ... RMG:5-14
 OSPF interface ... RMG:5-82
 See also DHCP, ICMP, IRDP, and OSPF.

password ... MCG:5-8, MCG:5-10
 802.1X port-access ... ASG:2-12, ASG:2-21
 browser/console access ... ASG:2-5
 case-sensitive ... ASG:2-6
 caution ... ASG:2-5
 configuring manager and operator ... ASG:2-13
 console ... MCG:3-7
 creating ... MCG:5-8

default configuration ... ASG:1-4
delete ... MCG:5-10, ASG:2-7
deleting with the Clear button ... ASG:2-7
disables usb autorun ... MCG:4-11, ASG:2-5
if you lose the password ... MCG:5-10, ASG:2-7
included with security credentials ... ASG:2-11
incorrect ... ASG:2-5
length ... ASG:2-6
locally configured, hierarchy of precedence in
 authentication session ... ASG:1-15
lost ... MCG:5-10
manager ... MCG:4-4, MCG:5-8
operator ... MCG:4-4, MCG:5-8
operator only, caution ... ASG:2-5
password pair ... ASG:2-3
protection ... ASG:1-4
setting ... MCG:5-9, ASG:2-6
SNMP configuration ... ASG:2-3, ASG:2-9
SNMP notification ... MCG:14-26
SNMP notification for invalid
 login ... MCG:14-17
 using to access browser and
 console ... MCG:5-10
 web interface ... MCG:5-8

password security ... ASG:1-4, ASG:8-18
 saved to configuration file ... ASG:2-12

path costs
 802.1D STP versus RSTP and MSTP ... ATM:4-17
 configuring 802.1D STP pathcost
 values ... ATM:4-23

PCM
 See ProCurve Manager.

PD ... MCG:14-39

peap-mschapv2 ... ASG:6-11

peers, RIP
 displaying information ... RMG:5-41

physical security ... ASG:1-7

PIM-DM
 age-out, multicast group entry ... RMG:3-25
 bandwidth conservation ... RMG:3-8
 common subnet requirement ... RMG:3-6
 compatible draft versions ... RMG:3-4
 configuration ... RMG:3-11, RMG:3-12,
 RMG:3-13, RMG:3-14, RMG:3-21, RMG:3-30
 configuration order, recommended ... RMG:3-12
 configuration, general elements ... RMG:3-9
 configuration, router ... RMG:3-12
 default settings recommended ... RMG:3-9

displaying data and configuration ... RMG:3-22
draft versions 1 and 2 ... RMG:3-4
error messages ... RMG:3-38
expiry time ... RMG:3-26, RMG:3-34
extended branch ... RMG:3-5
features ... RMG:3-4
flood ... RMG:3-6
flood and prune ... RMG:3-6, RMG:3-7, RMG:3-28
flood and prune cycle ... RMG:3-35
flow ... RMG:3-6, RMG:3-9
flow, bridged ... RMG:3-37
flow, equalizing ... RMG:3-36, RMG:3-38,
 RMG:3-39, RMG:3-40, RMG:3-41
flow, hardware ... RMG:3-10, RMG:3-13
flow, multicast, limit ... RMG:3-10, RMG:3-38
flow, software ... RMG:3-10, RMG:3-13
flow, VLAN limit ... RMG:3-4
forwarding state ... RMG:3-7
general operation ... RMG:3-5
graft packets ... RMG:3-16, RMG:3-17
group entry, age-out ... RMG:3-25
hello hold-time ... RMG:3-15, RMG:3-30
hello interval, effect ... RMG:3-15
host ... RMG:3-9
IGMP required, per VLAN ... RMG:3-9
IGMP requirement ... RMG:3-36
IGMP version 1 ... RMG:3-4
IGMP version 2 ... RMG:3-4
IGMP version 3 ... RMG:3-4
IGMP, per VLAN ... RMG:3-5
IP address required ... RMG:3-36, RMG:3-39
join ... RMG:3-5, RMG:3-6, RMG:3-9
limit, multicast flow ... RMG:3-10
log message ... RMG:3-37, RMG:3-38
log message counter operation ... RMG:3-38
MIB support ... RMG:3-4
MRT ... RMG:3-4, RMG:3-10, RMG:3-13,
 RMG:3-31, RMG:3-37
MRT, explained ... RMG:3-9
multicast address ... RMG:3-5, RMG:3-10
multicast flow, limit ... RMG:3-10
multicast group address
 See multicast address.
multicast router, multiple ... RMG:3-32
multicast routing MIB ... RMG:3-4
multicast routing table
 See MRT. ... RMG:3-4
multicast routing, defined ... RMG:3-10
multicast server ... RMG:3-10
multinetted VLAN ... RMG:3-6, RMG:3-10,
 RMG:3-19, RMG:3-20
 common subnet required ... RMG:3-10,
 RMG:3-15
neighbor field, blank ... RMG:3-27
neighbor, PIM ... RMG:3-10, RMG:3-23,
 RMG:3-34
OSPF ... RMG:3-5
outbound VLAN limit ... RMG:3-10
PIM instance per VLAN ... RMG:3-10
prune ... RMG:3-6, RMG:3-10, RMG:3-26,
 RMG:3-33
prune delay ... RMG:3-17, RMG:3-18
prune state ... RMG:3-7
pruned branch ... RMG:3-5
prune-pending state ... RMG:3-18
pruning ... RMG:3-7
reverse path forwarding ... RMG:3-5
RFC 2932 ... RMG:3-4
RFC 2932 exceptions ... RMG:3-42
RFCs, applicable ... RMG:3-41
RIP ... RMG:3-5
route data ... RMG:3-23
router configuration ... RMG:3-12
routing protocol ... RMG:3-5, RMG:3-9
routing switch 9300 ... RMG:3-35
RPF ... RMG:3-5
S/G pair ... RMG:3-9, RMG:3-10
SNMP traps ... RMG:3-13, RMG:3-28
software license requirements ... RMG:3-2
source address, unicast ... RMG:3-10
state refresh ... RMG:3-7, RMG:3-8, RMG:3-13,
 RMG:3-25, RMG:3-28, RMG:3-31, RMG:3-34,
 RMG:3-35
state refresh, on other routers ... RMG:3-35
static route ... RMG:3-5
subnet, common ... RMG:3-6, RMG:3-10
time-to-live threshold ... RMG:3-19, RMG:3-24
traps, SNMP ... RMG:3-13, RMG:3-28
tree, multicast ... RMG:3-5, RMG:3-6
TTL zero ... RMG:3-38
unicast routing ... RMG:3-4, RMG:3-5
unicast source address ... RMG:3-5
unicast source address, server ... RMG:3-10
version differences ... RMG:3-40
VLAN support, inbound ... RMG:3-4
VLAN support, outbound ... RMG:3-4

- VLAN, flow limit ... RMG:3-4
VLAN, multinetted ... RMG:3-6
VLAN, PIM instance per ... RMG:3-10
XRRP ... RMG:3-4
- PIM-SM**
- age-out, multicast group entry ... RMG:4-48
 - border routers ... RMG:4-12
 - BSR ... RMG:4-12, RMG:4-13
 - candidate configuration ... RMG:4-35
 - message interval ... RMG:4-37
 - non-default settings ... RMG:4-62
 - priority setting ... RMG:4-36
 - protocol ... RMG:4-5
 - changing DR priority ... RMG:4-33
 - compatible draft versions ... RMG:4-6
 - configuration ... RMG:4-27, RMG:4-56
 - configuring candidate-RPs ... RMG:4-37
 - Designated Router ... RMG:4-12
 - display BSR data ... RMG:4-61
 - display config ... RMG:4-51
 - display C-RP config ... RMG:4-65
 - display RP set ... RMG:4-63
 - display status ... RMG:4-51
 - displaying settings ... RMG:4-46
 - DR ... RMG:4-7
 - priority ... RMG:4-57
 - draft versions 1 and 2 ... RMG:4-6
 - enable/disable SNMP Traps ... RMG:4-41
 - entries in routing table ... RMG:4-52
 - event log messages ... RMG:4-68
 - expire time ... RMG:4-48, RMG:4-57
 - features ... RMG:4-5
 - flow capacity ... RMG:4-5
 - flow, defined ... RMG:4-7
 - flow, hardware ... RMG:4-41
 - flow, software ... RMG:4-41
 - flow, VLAN limit ... RMG:4-5
 - group address ... RMG:4-47, RMG:4-52
 - group entry, age-out ... RMG:4-48
 - hello delay ... RMG:4-31
 - hello hold-time ... RMG:4-30
 - hello interval ... RMG:4-31
 - hello interval, effect ... RMG:4-30
 - IGMP link ... RMG:4-4
 - IGMP version 1 ... RMG:4-6
 - IGMP version 2 ... RMG:4-6
 - IGMP version 3 ... RMG:4-6
 - join ... RMG:4-7
- join/prune interval ... RMG:4-42
 - lan-prune-delay ... RMG:4-31
 - list interfaces ... RMG:4-55
 - MIB support ... RMG:4-6
 - MRT ... RMG:4-41, RMG:4-52
 - multicast group distribution ... RMG:4-36
 - multicast router, multiple ... RMG:4-53
 - multicast routing MIB ... RMG:4-6
 - multicast routing protocol ... RMG:4-48
 - multicast routing table
 - See MRT.
 - multicast source ... RMG:4-7
 - neighbor ... RMG:4-47
 - neighbor field, blank ... RMG:4-49
 - neighbor, PIM ... RMG:4-57
 - non-flooding model ... RMG:4-9
 - operating notes ... RMG:4-67
 - operation ... RMG:4-9
 - pending join requests ... RMG:4-59
 - pending RP join requests ... RMG:4-60
 - PMBR not supported ... RMG:4-12
 - propagation delay ... RMG:4-31
 - prune ... RMG:4-7, RMG:4-49, RMG:4-54
 - assert ... RMG:4-54
 - delay ... RMG:4-32
 - prune delay ... RMG:4-33
 - prune-pending state ... RMG:4-33
 - rendezvous point ... RMG:4-7
 - rendezvous point tree ... RMG:4-7
 - RFC 2932 ... RMG:4-6
 - router types ... RMG:4-12
 - RP ... RMG:4-12
 - RP mapping ... RMG:4-5
 - RPF ... RMG:4-7
 - RP-Set command ... RMG:4-8
 - RPT-bit ... RMG:4-53
 - shortest path tree ... RMG:4-8
 - show VLAN configs ... RMG:4-55
 - SNMP traps ... RMG:4-41, RMG:4-51
 - software license requirements ... RMG:4-5
 - source address ... RMG:4-47, RMG:4-52
 - state refresh ... RMG:4-48, RMG:4-51, RMG:4-57
 - static rendezvous point ... RMG:4-8
 - Static-RP ... RMG:4-12
 - time-to-live threshold ... RMG:4-50
 - traps, SNMP ... RMG:4-41, RMG:4-51
 - TTL threshold ... RMG:4-50
 - unicast routing ... RMG:4-5

- unicast routing protocol ... RMG:4-49
up time ... RMG:4-48
using SPT controls ... RMG:4-42
VLAN support, inbound ... RMG:4-5
VLAN support, outbound ... RMG:4-5
VLAN, flow limit ... RMG:4-5
VRP ... RMG:4-6
- ping** ... MCG:C-64, MCG:C-66, MCG:C-69
See also DNS, resolver.
See also troubleshooting.
- ping test** ... MCG:C-60
- ping6** ... IPv6:2-13, IPv6:8-4
- ping6 on web browser** ... IPv6:2-11
- PMBR** ... RMG:4-12
- PoE**
- active ports, defined ... MCG:11-4
 - advertisements ... MCG:14-65
 - allocation, usage ... MCG:11-20
 - benefit of LLDP-MED ... MCG:14-57
 - changing priority level ... MCG:11-14
 - changing the threshold ... MCG:11-14, MCG:11-17
 - configuration planning ... MCG:11-32
 - configure unique identifier ... MCG:11-22
 - configured type ... MCG:11-22
 - configuring operation ... MCG:11-14
 - enable or disable operation ... MCG:11-5, MCG:11-15
 - enabling, disabling redundancy ... MCG:11-16
 - EPS, defined ... MCG:11-4
 - event log messages ... MCG:11-37
 - LLDP detection, enabling or disabling ... MCG:11-19
 - manually configuring power levels ... MCG:11-20
 - maximum load calculation ... MCG:11-34
 - messages ... MCG:11-37
 - minimum wattage required ... MCG:11-8
 - MPS, defined ... MCG:11-4
 - non-PoE device support ... MCG:11-8
 - other fault ... MCG:11-28
 - oversubscribed ... MCG:11-4
 - overview of status ... MCG:11-26
 - PD, defined ... MCG:11-4
 - port identifiers ... MCG:11-22
 - port-number priority ... MCG:11-11
 - port-number priority, defined ... MCG:11-4
 - power supplies ... MCG:11-3
 - power, provisioning ... MCG:11-5
 - prioritizing power ... MCG:11-10
 - priority class ... MCG:11-4, MCG:11-11
 - priority class, defined ... MCG:11-4
 - priority policies ... MCG:11-33
 - priority, port ... MCG:11-8, MCG:11-10
 - PSE, defined ... MCG:11-4
 - QoS classifiers ... MCG:11-33
 - related publications ... MCG:11-5
 - RPS, defined ... MCG:11-4
 - security ... MCG:11-32
 - setmib ... MCG:11-22
 - slot-id-range option ... MCG:11-17
 - status ... MCG:14-61
 - status on specific ports ... MCG:11-28
 - supporting pre-standard devices ... MCG:11-15
 - terminology ... MCG:11-4
 - threshold, global power ... MCG:11-7
 - threshold, per-slot ... MCG:11-7
 - threshold, power ... MCG:11-17
 - viewing status ... MCG:11-24
 - VLAN assignments ... MCG:11-32
 - walkmib ... MCG:11-22
- policy enforcement engine**
- described ... MCG:E-2
 - displaying resource usage ... MCG:E-2
- poll interval**
- See* TimeP.
- port**
- address table ... MCG:B-17
 - auto, IGMP ... RMG:2-5
 - blocked by STP operation ... ATM:4-10
 - blocked by UDLD ... MCG:10-26
 - blocked in mesh ... ATM:5-8
 - blocked, IGMP ... RMG:2-5
 - broadcast limit ... MCG:10-14
 - CLI access ... MCG:10-7
 - configuration ... MCG:10-1
 - configuring UDLD ... MCG:10-26
 - context level ... MCG:10-11
 - counters ... MCG:B-14
 - counters, reset ... MCG:B-14
 - default loopback interface ... MCG:8-18
 - displaying loopback interface ... MCG:8-18
 - duplex, view ... MCG:10-7
 - enabling UDLD ... MCG:10-27
 - fiber-optic ... MCG:10-4
 - forwarding, IGMP ... RMG:2-5

- loop ... ATM:4-10
loopback interface configuration ... MCG:8-15,
 MCG:8-16
MAC address ... MCG:D-4, MCG:D-5
manually re-enabling ... ATM:4-36
menu access ... MCG:10-5
mirroring
 See mirroring.
mirroring, static LACP trunk ... MCG:B-32
MLD snooping ... IPv6:7-17
monitoring ... ATM:2-58
 See monitoring.
redundant path ... ATM:4-10
security configuration ... ASG:14-3
speed, view ... MCG:10-7
state, IGMP control ... RMG:2-5
traffic patterns ... MCG:B-14
transceiver status ... MCG:10-9
trunk
 See port trunk.
trusted ... ASG:11-18
untrusted ... ASG:11-20, ASG:11-28
utilization ... MCG:5-17, MCG:10-9
 CLI ... MCG:10-9
 web browser interface ... MCG:5-17
 web browser access ... MCG:10-18
- port access**
client limit ... ASG:13-20
concurrent ... ASG:13-20
MAC authentication ... ASG:13-4
tracking client authentication
 failures ... ASG:11-33
Web authentication ... ASG:13-4
Web/MAC ... ASG:13-20
 See also 802.1X access control.
- port ACL** ... ASG:10-5
- port configuration** ... MCG:12-1
- port monitoring, ACL** ... ASG:10-16
- port names, friendly**
 configuring ... MCG:10-19
 displaying ... MCG:10-20
 summary ... MCG:10-18
- port scan, detecting** ... ASG:11-33
- port security**
 802.1X, learn mode requirement ... ASG:14-14
 authorized address definition ... ASG:14-5
 basic operation ... ASG:14-4
 caution, device limit ... ASG:14-14
 configuring ... ASG:14-7
 configuring in browser interface ... ASG:14-33,
 ASG:14-40
 event log ... ASG:14-39
 notice of security violations ... ASG:14-33
 operating notes ... ASG:14-41
 overview ... ASG:1-11, ASG:14-3
 port trunk restriction ... MCG:12-3
 prior to ... ASG:14-41
 proxy web server ... ASG:14-41
 TCP/UDP closed ports ... ASG:11-33
 trunk restriction ... MCG:12-8
- port trunk** ... MCG:12-2
bandwidth capacity ... MCG:12-2
caution ... MCG:12-3, MCG:12-9, MCG:12-17
CLI access ... MCG:12-11
default trunk type ... MCG:12-10
enabling dynamic LACP ... MCG:12-15
enabling UDLD ... MCG:10-27
IGMP ... MCG:12-8
limit ... MCG:12-2
limit, combined ... MCG:12-19
link requirements ... MCG:12-3
logical port ... MCG:12-8
media requirements ... MCG:12-7
media type ... MCG:12-3
menu access to static trunk ... MCG:12-9
meshed switch ... ATM:5-24
mirroring ... MCG:B-26
monitor port restrictions ... MCG:12-8
nonconsecutive ports ... MCG:12-2
port security restriction ... MCG:12-8
removing port from static trunk ... MCG:12-15
requirements ... MCG:12-7
SA/DA ... MCG:12-27
spanning tree protocol ... MCG:12-8
static trunk ... MCG:12-7
static trunk, overview ... MCG:12-4
static/dynamic limit ... MCG:12-19
STP ... MCG:12-8
STP operation ... MCG:12-7
traffic distribution ... MCG:12-7
Trk1 ... MCG:12-7
trunk (non-protocol) option ... MCG:12-6
trunk option described ... MCG:12-26
types ... MCG:12-6
UDLD configuration ... MCG:10-26
VLAN ... MCG:12-8, ATM:2-58

- VLAN operation ... MCG:12-7
web browser access ... MCG:12-17
See also LACP.
- port trunk group**
interface access ... MCG:12-1
- port, active** ... MCG:14-38
- port-access authentication**
SNMP notification ... MCG:14-26
- port-based access control**
event log ... MCG:C-15
LACP not allowed ... MCG:12-22
password ... ASG:2-12, ASG:2-21
port-security learn mode ... ASG:14-14
troubleshooting ... MCG:C-15
VLAN, tagged member ... ASG:13-31
See also 802.1X access control.
- port-level MLD snooping** ... IPv6:7-2, IPv6:7-9
- ports**
trusted ... ASG:11-6
- port-type (QinQ)**
customer-edge port ... ATM:8-11
customer-network port ... ATM:8-5
provider-network port ... ATM:8-5
- port-utilization and status displays** ... MCG:10-9
- power levels, configuring** ... MCG:11-20
- power supply**
show settings ... MCG:B-8
using like kinds ... MCG:11-5
- power-over-ethernet**
See PoE.
- Power-Sourcing Equipment** ... MCG:11-4, MCG:14-39
- precedence bits (QoS)**
definition ... ATM:6-6
- preferred address** ... IPv6:4-22
- preferred lifetime** ... IPv6:4-22
of global unicast address ... IPv6:3-7, IPv6:3-25, IPv6:4-8, IPv6:4-10, IPv6:4-12
use of IPv6 address as source or destination ... IPv6:4-32
- Premium License**
OSPF ... RMG:5-6
overview, list of features ... MCG:ii
PIM-DM ... RMG:3-2
PIM-SM ... RMG:4-5
QinQ ... ATM:8-2
VRRP ... RMG:6-3
- primary relay agent** ... RMG:5-131
primary VLAN
See VLAN, primary.
- prior to** ... ASG:14-37, ASG:14-38, ASG:14-41
- priority**
802.1p priority, defined ... ATM:6-6
codepoint, defined ... ATM:6-6
configuring number of queues ... ATM:6-64
downstream device, defined ... ATM:6-6
DSCP policy, defined ... ATM:6-6
DSCP, defined ... ATM:6-6
inbound port, defined ... ATM:6-6
IP multicast traffic ... RMG:2-5
outbound port, defined ... ATM:6-6
queues per port ... ATM:6-64
upstream device, defined ... ATM:6-7
- priority (QoS)**
changing queues per port ... ATM:6-64
criteria for prioritizing packets ... ATM:6-10
device priority screen ... ATM:6-25
IP address, source and destination match ... ATM:6-25
type of service screen ... ATM:6-31, ATM:6-43
VID, effect of eliminating ... ATM:6-45
VLAN ID priority ... ATM:6-45, ATM:6-51
- priority class, defined** ... MCG:11-4
- priority of operation** ... MCG:11-5
- Privacy Enhanced Mode (PEM)**
See SSH.
- privilege levels** ... MCG:4-3
- privilege-mode** ... ASG:5-11, ASG:5-12
- ProCurve**
Auto-MDIX feature ... MCG:10-15
support URL ... MCG:5-13
switch documentation ... MCG:i
- ProCurve Manager**
IDM as a plug-in to ... ASG:1-14
port security alerts ... ASG:14-4
RADIUS server support ... ASG:7-2
reading USB autorun files ... MCG:A-39
required for USB autorun ... MCG:A-37
security concerns when deleting public community ... MCG:14-5
SNMP and network management ... MCG:14-3
starting web browser ... MCG:5-4
updating switch software ... MCG:A-22
using Java-enabled browser ... MCG:5-5

ProCurve, HP, URL ... MCG:14-4
prompt, => ... MCG:C-80
protocol filters ... ASG:12-16
protocols
 IP route exchange ... RMG:5-10
proxy
 web server ... ASG:14-41
Proxy ARP, enabling ... RMG:5-19
proxy forwarding, IGMP ... RMG:2-19
prune, defined ... RMG:4-7
PSAP ... MCG:14-39
PSE ... MCG:14-39
PSE, defined ... MCG:11-4
Public Safety Answering Point ... MCG:14-39
public SNMP community ... MCG:14-5, MCG:14-13
public-key file
 TFTP download ... IPv6:5-18

PVST
 disabling ... ATM:4-35
 enabling ... ATM:4-35
 enabling filtering ... ATM:4-36
 filtering ... ATM:4-34
 manually re-enabling port ... ATM:4-36
 protection ... ATM:4-34
 show configured ports ... ATM:4-37

Q

QinQ

configuration example ... ATM:8-16–ATM:8-20
configuring ... ATM:8-12–ATM:8-22
 assigning ports to VLANs ... ATM:8-9
 auth-vid/unauth-vid ... ATM:8-27
 changing bridge modes ... ATM:8-9,
 ATM:8-21
 creating S-VLANs ... ATM:8-13
 port S-VLAN membership ... ATM:8-14
 port trunks ... ATM:8-29
 ports ... ATM:8-12, ATM:8-22
 port-types ... ATM:8-9, ATM:8-15
 qinq modes ... ATM:8-6
 updating VLAN types ... ATM:8-10
 VLAN mode ... ATM:8-13
 VLANs ... ATM:8-7
c-tagged interfaces not supported ... ATM:8-11
C-VLAN ... ATM:8-4, ATM:8-5
definition ... ATM:8-5
deleting S-VLANs ... ATM:8-13

disabling ... ATM:8-6, ATM:8-21
disabling gvrp at interface ... ATM:8-14
duplicate VIDs ... ATM:8-8
enabling ... ATM:8-6, ATM:8-13
erasing configurations when changing
 modes ... ATM:8-21
event log messages ... ATM:8-32
features and benefits ... ATM:8-4
frame size increases ... ATM:8-10
GVRP ... ATM:8-14, ATM:8-22, ATM:8-28
 disabling at the interface ... ATM:8-14
impacts on other features ... ATM:8-27–
 ATM:8-31
 aaa ... ATM:8-27
 ACLs ... ATM:8-27
 arp-protect ... ATM:8-27
 CDP ... ATM:8-28
 DHCP ... ATM:8-28
 directed-broadcast ... ATM:8-28
 GVRP ... ATM:8-28
 igmp-proxy ... ATM:8-28
 IPv6 ... ATM:8-28
 jumbo frames ... ATM:8-28
 LACP ... ATM:8-22, ATM:8-29
 load-sharing ... ATM:8-29
 meshing ... ATM:8-9, ATM:8-11, ATM:8-29
 mirroring/monitoring ... ATM:8-22,
 ATM:8-30
 multicast-routing ... ATM:8-30
 QoS ... ATM:8-30
 routing ... ATM:8-30
 spanning tree ... ATM:8-30
 stacking ... ATM:8-9, ATM:8-31
 UDLD ... ATM:8-9, ATM:8-31
 Voice VLANs ... ATM:8-31
 VRRP ... ATM:8-31
interoperating with non-ProCurve
 devices ... ATM:8-11
IP support ... ATM:8-10
jumbo frames ... ATM:8-10
LLDP not supported ... ATM:8-29
management VLAN ... ATM:8-10, ATM:8-29
meshing ... ATM:8-11, ATM:8-29
MIB objects ... ATM:8-32
mixed vlan mode ... ATM:8-5, ATM:8-6, ATM:8-7,
 ATM:8-9, ATM:8-13
port
 assigning to vlans ... ATM:8-14

- assignment to VLANs ... ATM:8-9
 - configuration ... ATM:8-12
 - configuring port trunks ... ATM:8-29
 - configuring port-types ... ATM:8-15
 - configuring S-VLAN
 - membership ... ATM:8-14, ATM:8-22
 - configuring uplink ports ... ATM:8-18
 - customer-edge port ... ATM:8-11
 - customer-network port ... ATM:8-9, ATM:8-15
 - customer-network port-type ... ATM:8-5
 - moving from C-VLANs to S-VLANs ... ATM:8-22
 - port-type defaults ... ATM:8-9
 - provider-network port ... ATM:8-9, ATM:8-15
 - provider-network port-type ... ATM:8-5
 - port-types ... ATM:8-12
 - primary VLAN ... ATM:8-10
 - provider core bridge ... ATM:8-6, ATM:8-9, ATM:8-16
 - provider edge bridge ... ATM:8-6, ATM:8-9, ATM:8-16
 - purpose ... ATM:8-3
 - restrictions ... ATM:8-9
 - service provider ... ATM:8-3, ATM:8-5
 - show commands ... ATM:8-23
 - SNMP support ... ATM:8-32
 - software license requirements ... ATM:8-2
 - spanning tree for provider network ... ATM:8-19
 - S-VLAN ... ATM:8-4, ATM:8-5, ATM:8-13
 - S-VLAN bridge ... ATM:8-6
 - svlan mode ... ATM:8-6, ATM:8-13
 - S-VLANs and C-VIDs ... ATM:8-17
 - tag-type, tpid value ... ATM:8-11
 - use model ... ATM:8-3
 - used in a single enterprise ... ATM:8-3
 - VID configuration options ... ATM:8-8, ATM:8-10
 - VLAN configurations ... ATM:8-6, ATM:8-7
 - voice-VLANs not supported ... ATM:8-10
- QoS**
See Quality of Service.
- Quality of Service**
- basic operation ... ATM:6-7
 - changing the number of outbound queues ... ATM:6-65
 - configuring ... ATM:6-11, ATM:6-15
- configuring IP type of service ... ATM:6-31, ATM:6-43
 - configuring number of priority queues ... ATM:6-64
 - criteria for prioritizing outbound packets ... ATM:6-10
 - definitions of terms ... ATM:6-6
 - device priority screen ... ATM:6-25
 - DSCP Policy Table ... ATM:6-58
 - GVRP not supported ... ATM:6-45
 - maximum entry limit ... ATM:6-68
 - no override definition ... ATM:6-14
 - No override, effect of ... ATM:6-59
 - overview ... ATM:6-1
 - prioritizing traffic based on IP ToS field ... ATM:6-31, ATM:6-43
 - priority settings map to outbound queues ... ATM:6-8
 - priority settings mapped to downstream devices ... ATM:6-9
 - QinQ configuration impacts ... ATM:8-30
 - queue configuration ... MCG:13-21, ATM:6-64
 - resource usage ... MCG:E-2
 - resources ... MCG:E-3
 - type of service screen ... ATM:6-31, ATM:6-43
 - VLAN ID priority ... ATM:6-45, ATM:6-51
- query**
See IGMP.
- quick configuration** ... MCG:3-8
- quick start** ... MCG:1-8
- ## R
- RACL defined** ... ASG:10-5
- RADIUS**
- accounting ... ASG:6-4, ASG:6-37
 - accounting, configuration outline ... ASG:6-39
 - accounting, configure server access ... ASG:6-40
 - accounting, configure types on switch ... ASG:6-42
 - accounting, exec ... ASG:6-38, ASG:6-42
 - accounting, interim updating ... ASG:6-44
 - accounting, network ... ASG:6-42, ASG:6-43
 - accounting, operating rules ... ASG:6-39
 - accounting, server failure ... ASG:6-39
 - accounting, session-blocking ... ASG:6-44
 - accounting, start-stop method ... ASG:6-43
 - accounting, statistics terms ... ASG:6-47

accounting, stop-only method ... ASG:6-43
accounting, system ... ASG:6-38, ASG:6-42
ACL, dynamic port ... ASG:7-15
administrative-user service-type
 value ... ASG:6-14
authentication options ... ASG:6-3
authentication, authorized ... ASG:6-11
authentication, local ... ASG:6-24
authentication, web ... ASG:6-3, ASG:6-10
authentication, web browser ... ASG:6-11,
 ASG:6-14
authorization ... ASG:6-26
bypass RADIUS server ... ASG:6-13
change-of-authorization attribute ... ASG:6-36
Class of Service ... ASG:7-5, ASG:7-6
commands accounting ... ASG:6-38
commands authorization ... ASG:6-26
commands, accounting ... ASG:6-37
commands, switch ... ASG:6-8
configuration outline ... ASG:6-9
configure server access ... ASG:6-14
configuring commands
 authorization ... ASG:6-28
configuring switch global
 parameters ... ASG:6-17
CoS override ... ASG:7-3
dynamic port ACL ... ASG:7-9, ASG:7-11
Egress-VLAN ID attribute ... ASG:6-35
Egress-VLAN-Name attribute ... ASG:6-35
Framed-IP-Address ... ASG:6-38
general setup ... ASG:6-7
HP-acct-terminate-cause attribute ... ASG:6-36
HP-Command-Exception ... ASG:6-28
HP-command-string ... ASG:6-28
IP attribute ... ASG:6-38
local authentication ... ASG:6-13
login privilege-mode, application
 options ... ASG:6-14
login-privilege mode ... ASG:6-13
manager access denied ... ASG:6-14
manager access privilege ... ASG:6-13
manager access privilege, service type
 value ... ASG:6-8
MD5 ... ASG:6-6
messages ... ASG:6-53
MS-RAS-Vendor attribute ... ASG:6-36
multiple ACL application types in
 use ... ASG:7-15

NAS ... ASG:7-10
NAS-Prompt-User service-type
 value ... ASG:6-14
network accounting ... ASG:6-37
operating rules, switch ... ASG:6-6
override CoS ... ASG:7-5
override CoS, example ... ASG:7-5, ASG:7-6
override Rate-Limiting ... ASG:7-5
override Rate-Limiting, example ... ASG:7-5,
 ASG:7-6
override, precedence, multiple
 clients ... ASG:7-7
rate-limiting ... ASG:7-3, ASG:7-4, ASG:7-6
rate-limiting override ... ASG:7-3
security ... ASG:6-13
security note ... ASG:6-4
server access order ... ASG:6-39
server access order, changing ... ASG:6-50
servers, multiple ... ASG:6-18
service type value ... ASG:6-8
service-type value ... ASG:6-14
service-type value, null ... ASG:6-14
shared secret key, saving to configuration
 file ... ASG:2-12, ASG:2-16
show accounting ... ASG:6-49
show authentication ... ASG:6-48
SNMP access security not supported ... ASG:6-4
SNMP access to auth config MIB ... ASG:6-4
statistics, viewing ... ASG:6-46
terminology ... ASG:6-5
TLS ... ASG:6-6
Tunnel-Type attribute ... ASG:6-35
vendor specific attributes ... ASG:6-36
vendor-specific attributes ... ASG:6-28, ASG:7-3
VSA
 See vendor-specific attribute.
VSAs ... ASG:6-29
web browser access ... MCG:5-8
web browser security not supported ... ASG:6-7
web-browser access controls ... ASG:6-25
 web-browser security not supported ... ASG:6-4,
 ASG:6-25
RADIUS-assigned ACLs ... ASG:7-8, ASG:10-5
 802.1X port-based access ... ASG:7-18
 802.1X user-based access ... ASG:7-18
ACE, defined ... ASG:7-8
application type ... ASG:7-9
contrasting dynamic and static ... ASG:7-13

DA, defined ... ASG:7-9
defined ... ASG:7-8
definitions ... ASG:7-8
deny any, implicit, switched
 packets ... ASG:7-17
deny in any ACL on an interface ... ASG:7-18
deny, defined ... ASG:7-9
dynamic port ... ASG:7-11, ASG:7-15
dynamic port ACL ... ASG:7-9
dynamic port ACL, effect ... ASG:7-18
filters ... ASG:7-12
implicit deny, defined ... ASG:7-9
inbound traffic, defined ... ASG:7-10
inverse mask
 See wildcard.
mask ... ASG:7-9
mask, defined ... ASG:7-9
multiple application types in use ... ASG:7-15
multiple clients, access restriction ... ASG:7-18
multiple dynamic ACLs ... ASG:7-18
multiple, on an interface ... ASG:7-17
outbound traffic, defined ... ASG:7-10
permit, defined ... ASG:7-10
RADIUS-based ACL filtering ... ASG:7-15
resource monitor ... ASG:7-28
resources ... MCG:E-2
source routing, caution ... ASG:7-14
static-port ACL ... ASG:7-10
switched packets ... ASG:7-17
terminology ... ASG:7-8
terms ... ASG:7-8
wildcard ... ASG:7-9, ASG:7-10
wildcard, defined ... ASG:7-10
 See also ACLs.

rate display for ports ... MCG:10-9

rate-limit

- ACLs ... ASG:10-13
- override ... ASG:13-61

rate-limiting ... ASG:7-6, ASG:11-34

- caution ... MCG:13-4
- configuration ... MCG:13-5, MCG:13-13
- displaying configuration ... MCG:13-6,
 MCG:13-14
- edge ports ... MCG:13-4
- effect of flow control ... MCG:13-9, MCG:13-16
- effect on port trunks ... MCG:13-8, MCG:13-15
- how measured ... MCG:13-9

ICMP

See ICMP rate-limiting.

intended use ... MCG:13-4

note on testing ... MCG:13-10, MCG:13-16

operating notes ... MCG:13-8

optimum packet size ... MCG:13-10, MCG:13-16

per-port only ... MCG:13-4

purpose ... MCG:13-4

RADIUS administered ... ASG:6-4

RADIUS override ... ASG:7-5

RADIUS server specified ... ASG:7-4

RADIUS server support ... ASG:7-3

traffic filters ... MCG:13-9

rate-limiting ACL ... ASG:10-86

reboot

- actions causing ... MCG:6-4
- faster boot time ... MCG:6-24
- from secondary flash ... MCG:6-23
- obtaining faster reboot time ... MCG:6-20
- scheduling remotely ... MCG:6-25
- via menu console ... MCG:3-8
- via menu interface ... MCG:3-10, MCG:3-12

See also boot.

redistribution ... RMG:5-111

- See* OSPF and RIP.

redundancy ... MCG:11-16

- boot command ... MCG:15-29
- boot-history ... MCG:15-42
- causes of switchover ... MCG:15-13
- disabling ... MCG:15-6, MCG:15-21
- downloading software ... MCG:15-17
- enabling ... MCG:15-6
- event log messages ... MCG:15-46
- hotswapping module ... MCG:15-15
- how active module determined ... MCG:15-44
- log messages ... MCG:15-41
- reload command ... MCG:15-32
- resetting mgmt module ... MCG:15-14
- setting active module ... MCG:15-9
- setting default flash for boot ... MCG:15-31
- show flash ... MCG:15-24
- show log ... MCG:15-26
- show module ... MCG:15-23
- show redundancy ... MCG:15-5, MCG:15-24
- show version ... MCG:15-25
- software version mismatch ... MCG:15-16,
 MCG:15-18
- using web browser interface ... MCG:15-36

- redundancy active-management** ... MCG:15-9
redundancy switchover ... MCG:15-8
redundant link, non-meshed ... ATM:5-18
redundant links ... ATM:5-4, ATM:5-19
redundant path ... ATM:4-10
region ... ATM:4-10
 See spanning-tree, 802.1s.
relay agent ... RMG:5-131
reload ... MCG:6-4, MCG:15-32
reload command ... MCG:6-20
remote access security ... ASG:1-4
remote ID ... RMG:5-131
remote intelligent mirroring
 See mirroring.
remote mirroring
 resource usage ... MCG:E-2
remote session, terminate ... MCG:7-9
remote-id
 changing ... ASG:11-11
 snooping ... ASG:11-10
Rendezvous Point Tree, defined ... RMG:4-7
Rendezvous Point, defined ... RMG:4-7
reserved port numbers ... ASG:8-17, ASG:9-20
Reset button ... MCG:6-4, ASG:1-7
 restoring factory default
 configuration ... MCG:C-79
reset operating system ... MCG:3-12
reset port counters ... MCG:B-14
Reset-on-clear
 disabled when saving security credentials to
 configuration file ... ASG:2-20
resetting the switch
 factory default reset ... MCG:C-79
resource monitor
 event log ... MCG:E-5
 See Management and Configuration Guide.
resource usage
 displaying ... MCG:E-3
 insufficient resources ... MCG:E-5
restricted write access ... MCG:14-13
Reverse Path Forwarding, defined ... RMG:4-7
revision number ... ATM:4-14
RFCs
 PIM-applicable ... RMG:3-41
 RFC 1493 ... MCG:14-4
 RFC 1515 ... MCG:14-4
 RFC 1583 compliance option ... RMG:5-60,
 RMG:5-64
 RFC 2178 ... RMG:5-54, RMG:5-64
 RFC 2178 compliance, enabling for
 OSPF ... RMG:5-64
 RFC 2328 ... RMG:5-47, RMG:5-54, RMG:5-55,
 RMG:5-64
 RFC 2338 ... RMG:6-33
 RFC 2362 ... RMG:4-6
 RFC 2548 ... ASG:6-36
 RFC 2737 ... MCG:14-43, MCG:14-44
 RFC 2787 ... RMG:6-33
 RFC 2863 ... MCG:14-43, MCG:14-44
 RFC 2922 ... MCG:14-43
 RFC 2932 ... RMG:3-4, RMG:4-6
 RFC 2932 MIB exceptions ... RMG:3-42
 RFC 3101 ... RMG:5-47, RMG:5-54
 RFC 3176 ... MCG:14-33
 RFC 3580 ... ASG:6-35
 RFC 3768 ... RMG:6-9, RMG:6-10, RMG:6-33,
 RMG:6-34
 RFC 4675 ... ASG:6-35
 See also MIB.

RIP

- broadcast traffic ... MCG:10-4, MCG:10-14
changing cost of RIP routes ... RMG:5-33
changing RIP type ... RMG:5-33
changing route loop prevention ... RMG:5-37
changing the RIP metric ... RMG:5-33
configuring ... RMG:5-30, RMG:5-32
debug command ... MCG:C-50
debug messages ... MCG:C-42, IPv6:8-14
displaying configuration and status ... RMG:5-37
displaying general information ... RMG:5-38
displaying information ... RMG:5-37
displaying interface information ... RMG:5-40
displaying peer information ... RMG:5-41
displaying redistribution
 information ... RMG:5-43
displaying restrict information ... RMG:5-43
enabling globally ... RMG:5-32
enabling on a VLAN ... RMG:5-33
enabling route redistribution ... RMG:5-35
general information ... RMG:5-38
global parameters ... RMG:5-31
interface information ... RMG:5-40
interface parameters ... RMG:5-31
overview ... RMG:5-30
parameters and defaults ... RMG:5-31
peer information ... RMG:5-41

redistribution ... RMG:5-35
 displaying ... RMG:5-43
 enabling ... RMG:5-35
redistribution filters
 displaying ... RMG:5-43
redistribution into RIP ... RMG:5-34
redistribution, configuring ... RMG:5-34
restrict filter information ... RMG:5-43
restrict redistribution ... RMG:5-43

RL-PACL ... ASG:10-86
troubleshooting ... ASG:10-88
viewing information about ... ASG:10-86

RMON ... MCG:14-4
RMON groups supported ... MCG:14-33
root-history ... ATM:4-64
route loop prevention, RIP
 configuration ... RMG:5-37

router
 gateway ... MCG:8-6
 maximum routes ... MCG:G-1
 OSPF area maximum ... MCG:G-1
 OSPF interface maximum ... MCG:G-1
 RIP interface maximum ... MCG:G-1
 supported routes ... MCG:G-1

router advertisements
 used in IPv6 ... IPv6:4-27

router ID, changing ... RMG:5-15

router, hop ... MCG:8-10

router, multicast, with IGMP ... RMG:2-12

routing
 determining an IPv6 gateway ... IPv6:2-8
 DHCPv6 debug messages ... IPv6:8-14
 DHCPv6 server-assigned address ... IPv6:2-8,
 IPv6:3-5, IPv6:3-6, IPv6:3-8, IPv6:4-9
 displaying IPv6 routing table ... IPv6:4-29,
 IPv6:4-30
 dual-stack operation ... IPv6:2-6
 gateway fails ... MCG:C-12
 IPv6 global unicast address
 autoconfiguration ... IPv6:2-7, IPv6:3-5,
 IPv6:3-11, IPv6:3-16, IPv6:4-7, IPv6:4-28
 IPv6 global unicast address
 deprecation ... IPv6:3-16, IPv6:3-25
 IPv6 traffic between different
 VLANs ... IPv6:4-27
 IPv6 tunneling ... IPv6:2-5
 IPv6 unique local unicast address ... IPv6:3-19

IPv6 unique local unicast address
 configuration ... IPv6:3-11
maximum number of IPv6 routes ... IPv6:2-15
non-routable VLAN ... ATM:2-54
OSPF debug messages ... MCG:C-50, IPv6:8-14
RIP debug messages ... MCG:C-50, IPv6:8-14
selecting default IPv6 router ... IPv6:4-28
source-routing, caution ... ASG:7-14, ASG:10-25,
 ASG:10-41
switching IPv6 traffic on different
 VLANs ... IPv6:2-4
traceroute ... MCG:C-76, IPv6:8-6
See also DHCP, ICMP, IRDP, IP routing, UDP
 broadcast forwarding, and OSPF.

routing table, displaying ... RMG:5-115

RP
 defined ... RMG:4-7
 dynamic ... RMG:4-6
 with PIM-SM router ... RMG:4-6

RPF, defined ... RMG:4-7

RP-Set, defined ... RMG:4-8

RPT
 traffic restricted to ... RMG:4-11

RS-232 ... MCG:2-3

RSTP
 meshing requirement ... ATM:5-6

running-config
 TFTP upload on remote device ... IPv6:5-18
 viewing ... MCG:6-6
 See also configuration.

S

SA ... ASG:10-13

scalability ... MCG:G-1

scheduled reboot ... MCG:6-25

SCP
 See SCP/SFTP.

SCP/SFTP
 enabling ... MCG:A-10
 secure alternative to TFTP
 secure file transfer
 session limit ... MCG:A-14, IPv6:6-18
 transfer of config files ... MCG:6-40

secondary relay agent ... RMG:5-131

secure copy
 See SCP/SFTP.

secure file transfers

See SCP/SFTP.

secure FTP

See SCP/SFTP.

secure management VLAN ... ATM:2-47, ASG:1-8

See VLAN.

secure management VLAN, DNS ... MCG:C-71**security**

- authorized IP managers ... ASG:15-1
- Clear button ... MCG:5-11
- enabling network security
 - notifications ... MCG:14-26
 - for IPv6 ... IPv6:2-11
 - IPv6 authorized managers ... IPv6:2-12
 - per port ... ASG:14-3
 - precedence of authorized IP manager
 - settings ... IPv6:6-4
 - privilege levels in CLI ... MCG:4-3
 - SSHv2 for IPv6 ... IPv6:2-11
 - USB autorun ... MCG:A-38
 - username and password ... MCG:5-8
 - web browser access, RADIUS ... MCG:5-8

security credentials

- 802.1X credentials saved to configuration file ... ASG:2-15, ASG:2-21
- copying configurations on the switch ... ASG:2-20
- copying startup configuration ... ASG:2-19
- disabling Reset-on-clear option ... ASG:2-20
- downloading a configuration file ... ASG:2-19
- downloading from a server ... ASG:2-10
- enabling storage in configuration file ... ASG:2-11
- manager username and password ... ASG:2-12
- operator username and password ... ASG:2-12
- RADIUS ... ASG:2-16
- saving to running configuration with include-credentials ... ASG:2-19
- saving to startup configuration ... ASG:2-19
- saving to startup configuration with write memory ... ASG:2-19
- SNMPv3 ... ASG:2-14
- SSH ... ASG:2-16
- SSH private keys not saved ... ASG:2-21
- TACACS ... ASG:2-15
- viewing in running configuration ... ASG:2-11
- viewing in startup configuration ... ASG:2-19

when SNMPv3 credentials in downloaded file are not supported ... ASG:2-21

security violations

- detecting ... ASG:11-33
- notices of ... ASG:14-33

security, ACL

See ACL, security use.

security, password

See SSH.

Self Test LED

- behavior during factory default
 - reset ... MCG:C-80

serial number ... MCG:B-7**setmib ... MCG:11-22****setmib, delay interval ... MCG:14-49****setmib, reinit delay ... MCG:14-51****setting a password ... ASG:2-6****setup screen ... MCG:1-8****severity level**

- event log ... MCG:C-27
- selecting Event Log messages for debugging ... MCG:C-56
- sFlow ... MCG:14-4, IPv6:5-20**
 - agent ... MCG:14-33
 - CLI-owned versus SNMP-owned configurations ... MCG:14-34
 - configuring via the CLI ... MCG:14-34
 - destination ... MCG:14-33
 - sampling-polling information ... MCG:14-36
 - show commands ... MCG:14-34

SFTP

See SCP/SFTP.

SHA authentication ... MCG:14-9**shared secret key**

- RADIUS ... ASG:2-12, ASG:2-16
- TACACS ... ASG:2-12, ASG:2-15

Shortest Path Tree, defined ... RMG:4-8**show**

- interfaces brief ... MCG:10-7
- interfaces config ... MCG:10-8

show debug ... MCG:C-45
show flash ... MCG:15-24
show ipv6 ... IPv6:2-9, IPv6:3-6, IPv6:4-6, IPv6:4-8,
 IPv6:4-10, IPv6:4-13, IPv6:4-15, IPv6:4-21
show log ... MCG:15-26
show management ... MCG:9-9, MCG:9-19
show module ... MCG:15-23
show power-management brief ... MCG:11-22
show redundancy ... MCG:15-24
show run
 IPv6 output ... IPv6:4-25
show tech ... MCG:C-73
show version ... MCG:15-25
single forwarding database ... ATM:2-18
single point of failure, removing ... ATM:5-2
single sign-on ... ASG:5-11
slow network ... MCG:C-8
SNMP ... MCG:14-3
 ARP protection events ... MCG:14-17
 authentication failures ... ASG:11-33
 authentication notification ... MCG:14-17,
 MCG:14-26
 CLI commands ... MCG:14-13
 communities ... MCG:14-4, MCG:14-5,
 MCG:14-13, MCG:14-14
 configuring with the CLI ... MCG:14-15
 configuring with the menu ... MCG:14-13
 mapping ... MCG:14-11
 configure ... MCG:14-4, MCG:14-5
 configuring security groups ... MCG:14-23
 configuring SNMPv1/v2c trap
 receiver ... IPv6:5-21
 configuring SNMPv3 management
 station ... IPv6:5-21
 configuring SNMPv3 notification ... MCG:14-23
 configuring SNMPv3 users ... MCG:14-23
 configuring trap receivers ... MCG:14-19
 configuring trap receivers ... MCG:14-19
 DHCP snooping events ... MCG:14-17
 different versions ... MCG:14-17
 disabling access to authentication
 MIB ... ASG:1-6
 displaying SNMPv3 management station
 configuration ... IPv6:5-23
 displaying trap configuration ... IPv6:5-22
 enabling informs ... MCG:14-21
 enabling network security traps ... MCG:14-27
 enabling SNMPv3 ... MCG:14-23

features supported for IPv6 ... IPv6:5-20
fixed traps ... MCG:14-19
invalid password in login ... MCG:14-17
IP ... MCG:14-3
IPv6 support ... IPv6:2-15
link-change traps ... MCG:14-17, MCG:14-28
manager password change ... MCG:14-17
mirroring ... MCG:B-32
network security notification ... MCG:14-26
notification, LLDP
 SNMP notification ... MCG:14-42
password and username
 configuration ... ASG:2-3, ASG:2-9
public community ... MCG:14-5, MCG:14-13
RADIUS access to auth config MIB ... ASG:6-4
remote monitoring (RMON) ... IPv6:5-20
setmib ... MCG:11-22
SNMPv1 and v2c traps ... IPv6:5-20
SNMPv2c informs ... IPv6:5-20
SNMPv3 notifications ... IPv6:5-20
source IPv6 address in notifications not
 supported ... IPv6:5-21
supported MIBs ... IPv6:5-20
supported notifications ... MCG:14-17
system thresholds ... MCG:14-19
trap generation ... ASG:11-35
traps ... MCG:10-26, MCG:14-4, MCG:14-17
walkmib ... MCG:D-5, MCG:D-6
well-known traps ... MCG:14-19
SNMP trap, LLDP ... MCG:14-51
SNMPv3
 "public" community access caution ... MCG:14-6
access ... MCG:14-5
assigning users to groups ... MCG:14-7
authentication, configuring ... MCG:14-9
communities ... MCG:14-11
enable command ... MCG:14-7
enabling ... MCG:14-6
encryption, configuring ... MCG:14-9
group access levels ... MCG:14-11
groups ... MCG:14-10
network management problems with snmpv3
 only ... MCG:14-6
restricted-access option ... MCG:14-6
saving security credentials to configuration
 file ... ASG:2-12, ASG:2-14
security credentials not supported in download-
ed file ... ASG:2-21

- set up ... MCG:14-5
users ... MCG:14-5
- snooping**
authorized server ... ASG:11-5
authorized server address ... ASG:11-9
binding database ... ASG:11-12
changing remote-id ... ASG:11-11
DHCP ... ASG:11-4
disable MAC check ... ASG:11-11
Option 82 ... ASG:11-6, ASG:11-9
statistics ... ASG:11-6
untrusted-policy ... ASG:11-10
verify ... ASG:11-6
- SNTP**
broadcast mode ... MCG:9-2, MCG:9-11
broadcast mode, requirement ... MCG:9-3
configuration ... MCG:9-4
disabling ... MCG:9-12
enabling and disabling ... MCG:9-10
event log messages ... MCG:9-26
manual config priority ... MCG:8-12
menu interface operation ... MCG:9-26
mode ... IPv6:5-11
operating modes ... MCG:9-2
poll interval ... IPv6:5-11
See TimeP.
priority ... MCG:9-14, IPv6:5-11
protocol version ... IPv6:5-11
selecting ... MCG:9-3
server address ... IPv6:5-11
server priority ... MCG:9-14
show management ... MCG:9-9
unicast mode ... MCG:9-3, MCG:9-11
unicast time polling ... MCG:9-25
unicast, deleting addresses ... MCG:9-26
unicast, replacing servers ... MCG:9-26
view configuration ... IPv6:5-11
viewing ... MCG:9-4, MCG:9-8
- SNTP server** ... IPv6:5-13
address configuration
IPv6 address
priority
- SNTPv6** ... IPv6:2-10
- software**
See switch software.
- software image**
See switch software.
TFTP download ... IPv6:5-18
- TFTP upload on remote device ... IPv6:5-18
software version ... MCG:B-7
- solicited-node**
IPv6 multicast address group ... IPv6:3-21,
IPv6:3-23
used in IPv6 neighbor discovery ... IPv6:4-17
- sorting alert log entries** ... MCG:5-20
- source port filters**
configuring ... ASG:12-4
jumbo VLANs ... MCG:13-35
named ... ASG:12-6
operating rules ... ASG:12-4
See also named source port filters.
selection criteria ... ASG:12-3
- source-routing, caution** ... ASG:7-14, ASG:10-25,
ASG:10-41
- spanning tree**
802.1s
See spanning tree, 802.1s.
blocked link ... ATM:4-12
blocked port ... ATM:4-10
broadcast storm ... ATM:4-3
caution about filtering ... ASG:12-16
edge port configuration ... ASG:4-20, ASG:13-26
enabling MSTP ... ATM:4-46
fast-uplink, troubleshooting ... MCG:C-20
mirroring blocked traffic ... MCG:B-75
MSTP
See spanning-tree, 802.1s
problems related to ... MCG:C-19
security features ... ASG:1-13
show tech, copy output ... MCG:C-74
using with port trunking ... MCG:12-8
VLAN effect on ... ATM:2-57
- spanning tree protocol**
See STP.
- spanning-tree**
config-name ... ATM:4-49
config-revision ... ATM:4-49
instance vlan ... ATM:4-48, ATM:4-49
root-history ... ATM:4-64
- spanning-tree, 802.1s** ... ATM:4-3, ATM:4-6
802.1D and 802.1w connections ... ATM:4-16
802.1D as a region ... ATM:4-13, ATM:4-16
802.1Q VLANs ... ATM:4-12
802.1s standard-compliant ... ATM:4-6
802.1w as a region ... ATM:4-13
active path ... ATM:4-10

active paths ... ATM:4-15
 bandwidth loss ... ATM:4-12
 benefit ... ATM:4-6
 blocked traffic ... ATM:4-11
 boundary port, region ... ATM:4-14, ATM:4-15
 boundary port, VLAN membership ... ATM:4-11
 BPDU ... ATM:4-11, ATM:4-19, ATM:4-22,
 ATM:4-23, ATM:4-27
 BPDU requirement ... ATM:4-14
 BPDU, function ... ATM:4-14
 bridge ... ATM:4-14
 bridge, designated for region ... ATM:4-14
 caution ... ATM:4-6, ATM:4-9
 CIST ... ATM:4-8, ATM:4-13, ATM:4-15
 CIST per-port hello time ... ATM:4-15
 CIST root ... ATM:4-28
 CIST root, display change history ... ATM:4-64
 common and internal spanning tree
 See CIST.
 common spanning tree
 See CST.
 compatibility ... ATM:4-16
 compatibility mode ... ATM:4-22
 configuration ... ATM:4-21, ATM:4-46
 configuration identifier ... ATM:4-14
 configuration steps ... ATM:4-19
 configuration, BPDU port
 protection ... ATM:4-30
 configuration, exchanging ... ATM:4-46
 configuration, MST instance ... ATM:4-41
 configuration, MSTI per-port ... ATM:4-43
 configuration, port ... ATM:4-26
 CST ... ATM:4-8, ATM:4-11, ATM:4-13
 CST and legacy devices ... ATM:4-11
 CST, view status ... ATM:4-57, ATM:4-58
 debug, display counters ... ATM:4-67, ATM:4-68,
 ATM:4-70
 default configuration ... ATM:4-9
 designated bridge ... ATM:4-11, ATM:4-14
 designated port ... ATM:4-11
 disabling MSTP ... ATM:4-46
 display statistics and configuration ... ATM:4-55
 dynamic VLANs, disallowed ... ATM:4-9
 edge port ... ATM:4-27
 enabling a region ... ATM:4-46
 enabling MSTP ... ATM:4-46
 example of multiple topologies ... ATM:4-10
 fault tolerance ... ATM:4-6
 force protocol version ... ATM:4-16
 forward-delay ... ATM:4-23
 forwarding paths ... ATM:4-16
 forwarding state ... ATM:4-27
 frame duplication and misordering ... ATM:4-16
 general operation ... ATM:4-4, ATM:4-6
 GVRP ... ATM:4-8, ATM:4-15
 hello-time, CIST root, propagated ... ATM:4-15,
 ATM:4-23
 hello-time, override ... ATM:4-15
 hello-time, propagated ... ATM:4-15
 hop-count decremented ... ATM:4-23
 instance ... ATM:4-3, ATM:4-15, ATM:4-20
 instance, display debug counters ... ATM:4-67,
 ATM:4-68, ATM:4-70
 instance, forwarding topology ... ATM:4-16
 instance, IST ... ATM:4-8
 instance, type ... ATM:4-8
 internal spanning tree
 See IST.
 interoperating with 802.1D and
 802.1w ... ATM:4-13
 IST ... ATM:4-8
 IST instance ... ATM:4-8, ATM:4-41, ATM:4-50
 IST root ... ATM:4-8, ATM:4-10, ATM:4-14
 IST root, display change history ... ATM:4-64
 IST, defined ... ATM:4-13
 IST, dynamic VLAN ... ATM:4-15
 IST, root switch ... ATM:4-13
 IST, switch membership ... ATM:4-13
 IST, VLAN membership ... ATM:4-8
 legacy devices and the CST ... ATM:4-11
 legacy STP and RSTP ... ATM:4-11
 mesh environment ... ATM:4-6, ATM:4-16
 MIB ... ATM:4-55
 MST region
 See region.
 MSTI ... ATM:4-8, ATM:4-15
 MSTI root ... ATM:4-10
 MSTI root, display change history ... ATM:4-64
 MSTI, view status ... ATM:4-59
 MSTP ... ATM:4-9
 MSTP operation ... ATM:4-9
 MSTP, view global configuration ... ATM:4-60
 multiple spanning tree instance
 See MSTI
 override hello-time ... ATM:4-15
 path cost, effect on 802.1D ... ATM:4-16

pending configuration ... ATM:4-63
pending option ... ATM:4-9, ATM:4-22, ATM:4-46
per-VLAN STP ... ATM:4-6
planning ... ATM:4-17
port connectivity ... ATM:4-26
port states ... ATM:4-10, ATM:4-16
priority resolution ... ATM:4-42
priority, device ... ATM:4-19, ATM:4-25
priority, IST port ... ATM:4-45
priority, MSTI port ... ATM:4-44
QinQ configuration impacts ... ATM:8-30
rapid state transitions ... ATM:4-16
redundant links ... ATM:4-11
region ... ATM:4-3, ATM:4-7, ATM:4-8, ATM:4-9
region name ... ATM:4-14, ATM:4-21
region root switch ... ATM:4-8
region, configuration name ... ATM:4-75
region, Configuration Revision
 number ... ATM:4-75
region, defined ... ATM:4-14
region, enabling ... ATM:4-46
region, root bridge ... ATM:4-13
region, RSTP bridge ... ATM:4-15
region, switch configuration ... ATM:4-15
region, switch excluded ... ATM:4-75
region, view configuration ... ATM:4-62
region, VLAN assignments ... ATM:4-14
regional boundary port ... ATM:4-14
regional root bridge per-instance ... ATM:4-11
regional root switch ... ATM:4-13
regional root switch, configuration ... ATM:4-15
regions, communication between ... ATM:4-15
root bridge ... ATM:4-8
root bridge per-instance ... ATM:4-11
root bridge per-region ... ATM:4-13
root port per-instance ... ATM:4-11
root switch, instance ... ATM:4-42
root switch, IST instance ... ATM:4-8, ATM:4-13
root switch, MST instance ... ATM:4-15
root switch, regional ... ATM:4-13
root, CIST ... ATM:4-23
root, IST ... ATM:4-14
root, MSTI ... ATM:4-10
routed traffic in a region ... ATM:4-11
RSTP as a region ... ATM:4-7
RSTP BPDU requirement ... ATM:4-14
RSTP bridge ... ATM:4-15
rules for operation ... ATM:4-15

separate forwarding paths ... ATM:4-8
show commands ... ATM:4-55, ATM:4-64
SNMP MIB ... ATM:4-55
STP as a region ... ATM:4-7
switch excluded from region ... ATM:4-75
topology between regions ... ATM:4-10
troubleshooting ... ATM:4-64
trunk, root, per-instance ... ATM:4-11
trunked link ... ATM:4-60
trunked link example ... ATM:4-12
types of MST instances ... ATM:4-8
VLAN assignments, region ... ATM:4-14,
 ATM:4-15
VLAN membership, region ... ATM:4-12
VLAN, change instance ... ATM:4-20
VLAN, configuration error ... ATM:4-75
VLAN, connectivity between
 regions ... ATM:4-15
VLAN, duplicate or missing packets ... ATM:4-75
VLAN, dynamic ... ATM:4-8
VLAN, instance assigned ... ATM:4-10,
 ATM:4-15, ATM:4-41, ATM:4-50
with legacy STP and RSTP ... ATM:4-7

spoofing

protection against ... ASG:11-24

SPT

defined ... RMG:4-8
operation ... RMG:4-10
PIM-SM traffic ... RMG:4-42

SSH

authenticating switch to client ... ASG:8-3
authentication, client public key ... ASG:8-2
authentication, user password ... ASG:8-2
caution, security ... ASG:8-18
CLI commands ... ASG:8-9
client behavior ... ASG:8-15, ASG:8-16
client public-key authentication ... ASG:8-19,
 ASG:8-22
client public-key, clearing ... ASG:8-26
client public-key, creating file ... ASG:8-24
client public-key, displaying ... ASG:8-25
configuring authentication ... ASG:8-18
crypto key ... ASG:8-11
disabling ... ASG:8-11
enable ... ASG:8-16, ASG:9-19
enabling ... ASG:8-15
enabling or disabling ... MCG:A-13
erase host key pair ... ASG:8-11

for IPv6 ... IPv6:2-11
generate host key pair ... ASG:8-11
generating key pairs ... ASG:8-10
host key pair ... ASG:8-11
key, babble ... ASG:8-11
key, fingerprint ... ASG:8-11
keys, zeroing ... ASG:8-11
key-size ... ASG:8-17
known-host file ... ASG:8-13, ASG:8-15
man-in-the-middle spoofing ... ASG:8-16
messages, operating ... ASG:8-28
OpenSSH ... ASG:8-3
operating rules ... ASG:8-8
outbound SSH not secure ... ASG:8-8
overview ... ASG:1-10, IPv6:6-15
password security ... ASG:8-18
password-only authentication ... ASG:8-18
passwords, assigning ... ASG:8-9
PEM ... ASG:8-4
prerequisites ... ASG:8-5
private keys not saved to configuration
 file ... ASG:2-21
public key ... ASG:8-5, ASG:8-13
public key, displaying ... ASG:8-14
public key, saving to configuration
 file ... ASG:2-12, ASG:2-16
reserved IP port numbers ... ASG:8-17
security ... ASG:8-18
SSHv2 ... ASG:8-2
SSHv2 restriction ... IPv6:6-16
steps for configuring ... ASG:8-6
supported encryption methods ... ASG:8-3
switch key to client ... ASG:8-13
TACACS exclusion ... MCG:A-14
terminology ... ASG:8-3, ASG:16-2
troubleshooting ... MCG:C-20
unauthorized access ... ASG:8-27
version ... ASG:8-2
zeroing a key ... ASG:8-11
zeroize ... ASG:8-11

SSL

 CA-signed ... ASG:9-3, ASG:9-15
 CA-signed certificate ... ASG:9-3, ASG:9-15
 CLI commands ... ASG:9-7
 client behavior ... ASG:9-17, ASG:9-18
 crypto key ... ASG:9-10
 disabling ... ASG:9-9, ASG:9-17
 enabling ... ASG:9-17

 erase certificate key pair ... ASG:9-9
 erase host key pair ... ASG:9-9
 generate CA-signed ... ASG:9-15
 generate CA-signed certificate ... ASG:9-15
 generate host key pair ... ASG:9-9
 generate self-signed ... ASG:9-12
 generate self-signed certificate ... ASG:9-9,
 ASG:9-12
 generate server host certificate ... ASG:9-9
 generating Host Certificate ... ASG:9-8
 host key pair ... ASG:9-9
 key, babble ... ASG:9-12
 key, fingerprint ... ASG:9-12
 man-in-the-middle spoofing ... ASG:9-18
 OpenSSL ... ASG:9-2
 operating notes ... ASG:9-6
 operating rules ... ASG:9-6
 passwords, assigning ... ASG:9-7
 prerequisites ... ASG:9-5
 remove self-signed certificate ... ASG:9-9
 remove server host certificate ... ASG:9-9
 reserved TCP port numbers ... ASG:9-20
 root ... ASG:9-4
 root certificate ... ASG:9-4
 self-signed ... ASG:9-3, ASG:9-12
 self-signed certificate ... ASG:9-3, ASG:9-9,
 ASG:9-12
 server host certificate ... ASG:9-9
 SSL server ... ASG:9-3
 SSLv3 ... ASG:9-2
 steps for configuring ... ASG:9-5
 supported encryption methods ... ASG:9-3
 terminology ... ASG:9-3
 TLSv1 ... ASG:9-2
 troubleshooting, operating ... ASG:9-21
 unsecured web browser access ... ASG:9-18
 version ... ASG:9-2
 zeroize ... ASG:9-10, ASG:9-11

stacking

 benefits ... ATM:7-3
 minimum software version, other ProCurve
 switches ... ATM:7-9
 primary ... ATM:7-45
 QinQ support ... ATM:8-31
 See also virtual stacking.

standard MIB ... MCG:14-4
starting a console session ... MCG:3-4
startup-config
 TFTP download ... IPv6:5-18
 TFTP upload on remote device ... IPv6:5-18
 viewing ... MCG:6-6
 See also configuration.
stateless automatic address
 configuration ... IPv6:2-7
static ACL ... ASG:10-5
static address configuration ... IPv6:4-11
 effect of autoconfig ... IPv6:4-14
static filter limit ... ASG:12-3
static IP routes
 configuring ... RMG:5-25, RMG:5-27
 route types ... RMG:5-25
 See also IP routing.
static multicast filter ... ASG:12-15
Static Rendezvous Point
 See static-RP.
static VLAN, convert to ... ATM:3-4
static-RP
 defined ... RMG:4-8
 manual configuration ... RMG:4-42
statistics ... MCG:3-7
statistics, clear counters ... MCG:6-11
status and counters
 access from console ... MCG:3-7
status overview screen ... MCG:5-6
STP
 cost change by mesh switch ... ATM:5-19
 prerequisite for 802.1X controlled
 directions ... ASG:13-26
 prerequisite for web-based controlled
 directions ... ASG:4-20
 STP multicast MAC address
subnet ... MCG:8-8, RMG:2-13
subnet address ... ATM:2-7
subnet mask ... MCG:8-4, MCG:8-6
 See also IP masks.
subnetting
 in IPv6 ... IPv6:3-3, IPv6:3-5, IPv6:3-9
suffix, link-local address ... IPv6:5-6, IPv6:5-10,
 IPv6:5-13
supernetting ... ASG:10-37
supersede implicit deny any ... ASG:10-43
support
 changing default URL ... MCG:5-13
 URL ... MCG:5-12
 URL Window ... MCG:5-12
switch console
 See console.
switch meshing
 See mesh.
switch setup menu ... MCG:3-8
switch software
 copy from a USB device ... MCG:A-18
 download using TFTP ... MCG:A-4
 download, failure indication ... MCG:A-7
 download, switch-to-switch ... MCG:A-20
 download, troubleshooting ... MCG:A-6
 download, using TFTP ... MCG:A-4
 software image ... MCG:A-3
 version ... MCG:A-6, MCG:A-16
switchover ... MCG:15-13
Syslog
 "debug" severity level as default ... MCG:C-56,
 MCG:C-58
 compared to event log ... MCG:C-41, IPv6:8-12
 configuring for debugging ... MCG:C-44
 configuring server address ... MCG:C-42
 configuring server IP address ... MCG:C-49
 configuring Syslog servers and debug
 destinations ... MCG:C-41
 displaying Syslog configuration ... MCG:C-45
 event log messages sent by default ... MCG:C-54,
 IPv6:8-16
 for IPv6 ... IPv6:8-12
 logging command ... MCG:C-49, MCG:C-51
 operating notes ... MCG:C-58
 overview ... MCG:C-41
 See ACL, logging.
 See also debug command.
 sending event log messages ... MCG:C-41,
 IPv6:8-12
 server configuration ... MCG:C-53
 severity, "debug" ... MCG:C-51
 specifying severity level events for
 debugging ... MCG:C-56
 specifying system module events for
 debugging ... MCG:C-57
 user facility as default ... MCG:C-55, MCG:C-58
 using event log for debugging ... MCG:C-42,
 MCG:C-52

system configuration screen ... MCG:7-10

system delay ... ASG:11-33

system information ... MCG:B-8

 fans ... MCG:B-8

 power-supply ... MCG:B-8

 temperature ... MCG:B-8

system module

 selecting event log messages for

 debugging ... MCG:C-57

System Name parameter ... MCG:7-11

system resource usage ... ASG:11-33

T

tables

 ARP cache ... RMG:5-8

 IP ... RMG:5-7

 IP route ... RMG:5-8

TACACS

 aaa parameters ... ASG:5-12

 authentication ... ASG:5-3

 authentication process ... ASG:5-24

 authentication, local ... ASG:5-26

 authorized IP managers, effect ... ASG:5-29

 configuration, authentication ... ASG:5-11

 configuration, encryption key ... ASG:5-22

 configuration, server access ... ASG:5-18

 configuration, timeout ... ASG:5-23

 configuration, viewing ... ASG:5-10

 encryption key ... ASG:5-6, ASG:5-18, ASG:5-19,
 ASG:5-22

 encryption key exclusion ... ASG:5-30

 encryption key, general operation ... ASG:5-27

 encryption key, global ... ASG:5-23

 encryption key, saving to configuration
 file ... ASG:2-12

 general operation ... ASG:5-2

 IP address, server ... ASG:5-18

 local manager password

 requirement ... ASG:5-30

 messages ... ASG:5-29

 NAS ... ASG:5-3

 precautions ... ASG:5-5

 preparing to configure ... ASG:5-8

 preventing switch lockout ... ASG:5-18

 privilege level code ... ASG:5-7

 server access ... ASG:5-18

 server priority ... ASG:5-21

setup, general ... ASG:5-5

shared secret key, saving to configuration

 file ... ASG:2-15

show authentication ... ASG:5-8

single login ... ASG:5-13

single sign-on ... ASG:5-13

SSH exclusion ... MCG:A-14

system requirements ... ASG:5-5

TACACS+ server ... ASG:5-3, ASG:5-8

testing ... ASG:5-5

TFTP, configuration ... ASG:5-30

timeout ... ASG:5-18

troubleshooting ... ASG:5-6

unauthorized access, preventing ... ASG:5-7

web access, controlling ... ASG:5-28

web access, no effect on ... ASG:5-5

TCP

reserved port numbers ... ASG:9-20

TCP/UDP

monitoring packets to closed ports ... ASG:11-33

Telnet

blocking inbound access ... ASG:1-5

connecting to switch ... MCG:3-4

disabling via web browser ... ASG:1-5

enable/disable ... MCG:7-4

outbound ... MCG:7-6

terminate session, kill command ... MCG:7-9

troubleshooting access ... MCG:C-7

viewing current use ... IPv6:5-7

Telnet6 ... IPv6:5-6

enable/disable inbound ... IPv6:5-8

operations supported ... IPv6:2-10

view configuration ... IPv6:5-8

temperature, show settings ... MCG:B-8

terminal access, lose connectivity ... MCG:7-7

terminal type ... MCG:7-3

terminate remote session ... MCG:7-9

test ... ASG:5-18

TFTP

auto-TFTP feature ... IPv6:5-19

copy command output ... MCG:A-33

copy crash data ... MCG:A-34

copy crash log ... MCG:A-35

copy event log output ... MCG:A-33

copying a configuration file ... MCG:A-25

copying software image ... MCG:A-23

download software using CLI ... MCG:A-7

downloading command ... IPv6:5-17

downloading configuration file ... IPv6:5-17
downloading key file ... IPv6:5-17
downloading public-key file ... IPv6:5-18
downloading software images ... IPv6:5-18
downloading software using
 console ... MCG:A-5
downloading startup-config file ... IPv6:5-18
downloading trusted certificate ... IPv6:5-17
enabling client functionality ... IPv6:5-16
enabling server functionality ... IPv6:5-16
switch-to-switch transfer ... MCG:A-20
troubleshooting download failures ... MCG:A-6
uploading an ACL command file ... MCG:A-29
uploading configuration file ... IPv6:5-18
uploading crash data file ... IPv6:5-18
uploading crash log ... IPv6:5-18
uploading event log ... IPv6:5-18
uploading running-config file ... IPv6:5-18
uploading software image file ... IPv6:5-18
uploading startup-config file ... IPv6:5-18
uploading command output ... IPv6:5-18
using to download switch software ... MCG:A-4

TFTP6
auto-TFTP ... IPv6:5-19
copy command ... IPv6:5-15, IPv6:5-17
enable client or server ... IPv6:5-16
file transfers over IPv6 ... IPv6:5-15
file transfers supported ... IPv6:2-10
See also IPv6 ... IPv6:5-15
 upload file to server ... IPv6:5-18

threshold setting ... MCG:14-5, MCG:14-13

thresholds, SNMP ... MCG:14-19

time format, events ... MCG:C-28

time protocol
 selecting ... MCG:9-3

time server ... MCG:8-2

time sync mode ... IPv6:5-11

time zone ... MCG:7-11, MCG:7-15

time, configure ... MCG:7-16

TimeP ... MCG:8-3, MCG:8-5
 assignment methods ... MCG:9-2
 disabling ... MCG:9-23
 enabling and disabling ... MCG:9-20
 manual config priority ... MCG:8-12
 poll interval ... MCG:9-23
 selecting ... MCG:9-3
 server address listing ... MCG:9-9, MCG:9-19
 show management ... MCG:9-19

viewing and configuring, menu ... MCG:9-17
viewing, CLI ... MCG:9-19

timep server ... IPv6:2-8

Timepv6 ... IPv6:2-10, IPv6:5-13
 manual configuration ... IPv6:5-13

timesync, disabling ... MCG:9-23

Time-To-Live ... MCG:8-3, MCG:8-5, MCG:8-6, MCG:8-10
 See also TTL.

time-to-live, LLDP ... MCG:14-41

Time-To-Live, on primary VLAN ... MCG:8-4

TLS
 See RADIUS.

TLV ... MCG:14-40

TLVs, mandatory ... MCG:14-78

ToS
 See Type of Service.

traceroute ... MCG:C-64, MCG:C-66, MCG:C-69, IPv6:8-6
 asterisk ... MCG:C-78
 blocked route ... MCG:C-78
 fails ... MCG:C-77
 for IPv6 ... IPv6:2-13

traceroute6 ... IPv6:8-6

traffic mirroring
 See mirroring.

traffic monitoring ... MCG:14-5, MCG:14-13
 See also mirroring.
 See also sFlow and RMON.

sFlow ... IPv6:5-20

traffic, port ... MCG:B-14

transceiver
 error messages ... MCG:10-10
 view status ... MCG:10-9

transceiver, fiber-optic ... MCG:10-4

transceivers
 configuring when not inserted ... MCG:10-24
 not inserted ... MCG:10-24

transit area
 OSPF ... RMG:5-89

trap ... MCG:5-25
 authentication trap ... MCG:14-27
 CLI access ... MCG:14-19
 configuring trap receivers ... MCG:14-19
 security levels ... MCG:14-20

trap notification ... MCG:14-51

trap receiver ... MCG:14-4, MCG:14-5
 configuring ... MCG:14-19

- sending event log messages ... MCG:14-20
sending SNMPv2 informs ... MCG:14-20
SNMP ... MCG:14-19
 up to ten supported ... MCG:14-19
- traps**
- displaying configuration ... IPv6:5-22
 - enabling network security
 - notifications ... MCG:14-26
 - fixed ... MCG:14-19
 - link-change ... MCG:14-28
 - OSPF ... RMG:5-81
 - See also* notification.
 - supported in IPv6 ... IPv6:5-20
 - threshold ... MCG:14-19
- troubleshooting**
- ACL ... MCG:C-9
 - approaches ... MCG:C-5
 - authentication via Telnet ... ASG:5-18
 - authorized IP managers ... ASG:15-13
 - browsing the configuration file ... MCG:C-73
 - configuring debug destinations ... MCG:C-41
 - configuring Syslog servers ... IPv6:8-15
 - console access problems ... MCG:C-6
 - diagnosing unusual network
 - activity ... MCG:C-8
 - diagnostics tools ... MCG:C-59
 - DNS
 - See* DNS.
 - fast-uplink ... MCG:C-19
 - IPv6 addresses in event log ... IPv6:2-14
 - ping and link tests ... MCG:C-60
 - ping6 ... IPv6:2-13
 - resource usage ... MCG:E-2
 - restoring factory default
 - configuration ... MCG:C-79
 - spanning tree ... MCG:C-19
 - SSH ... MCG:C-20
 - switch software download ... MCG:A-6
 - switch won't reboot, shows =>
 - prompt ... MCG:C-80
 - traceroute ... MCG:C-64, MCG:C-66
 - traceroute6 ... IPv6:2-13
 - unusual network activity ... MCG:C-8
 - using CLI session ... MCG:C-41, IPv6:8-15
 - using debug and Syslog messaging
 - using ICMPv6 ... IPv6:2-13
 - using IPv6 loopback address ... IPv6:2-15
 - using SNMP for IPv6 ... IPv6:2-15
 - using Syslog servers ... IPv6:8-12
 - using the event log ... MCG:C-27
 - web browser access problems ... MCG:C-6

trunk

- filter, source-port ... ASG:12-3, ASG:12-19
- LACP, 802.1X not allowed ... ASG:13-19
- port added or removed, ACL ... ASG:10-34
- See also* LACP.

See port trunk.

trunk, spanning-tree example ... ATM:4-12

trusted port

- defined ... ASG:11-18
- enabling ... ASG:11-18

trusted ports ... ASG:11-6

- enabling snooping ... ASG:11-8

TTL ... MCG:8-3, MCG:8-5, MCG:8-6, MCG:8-7

- IP ... MCG:8-10
- LLDP ... MCG:14-41
- manual config priority ... MCG:8-12
- on primary VLAN ... MCG:8-4
- See also* Time-To-Live.

tunneling ... IPv6:2-5

Type of Service

- configuring packet priority ... ATM:6-31, ATM:6-43
- how the switch uses ToS
 - configuration ... ATM:6-42
- using to prioritize IP traffic ... ATM:6-31, ATM:6-43

Type, meshed port ... ATM:5-10

Type-Length-Value ... MCG:14-40

types of alert log entries ... MCG:5-21

U

UDLD

- changing the keepalive interval ... MCG:10-28
- changing the keepalive retries ... MCG:10-28
- configuration ... MCG:10-26
- configuring for tagged ports ... MCG:10-28
- enabling on a port ... MCG:10-27
- event log messages ... MCG:10-31
- operation ... MCG:10-26
- overview ... MCG:10-25
- supported switches ... MCG:10-26
- viewing configuration ... MCG:10-29
- viewing statistics ... MCG:10-30
- warning messages ... MCG:10-31

- UDP broadcast forwarding** ... RMG:5-144
 address types ... RMG:5-144
 application ... RMG:5-144
 configure ... RMG:5-146
 global enable ... RMG:5-146
 invalid entry ... RMG:5-145
 IP helper address, effect ... RMG:5-144
 maximum entries ... RMG:5-144
 port-number ranges ... RMG:5-149
 show command ... RMG:5-148
 subnet address ... RMG:5-144
 subnet masking ... RMG:5-145
 UDP/TCP port number listing ... RMG:5-149
 unicast address ... RMG:5-144
 VLAN, subnetted ... RMG:5-144
- unauthorized access** ... MCG:14-27
- undersize frames** ... MCG:13-37
- unicast**
 IPv6 address ... IPv6:3-10
- unicast in switch mesh** ... ATM:5-17
- Uni-directional Link Detection**
 See UDLD.
- unique local unicast address**
 autoconfiguration ... IPv6:3-11
 used within an organization ... IPv6:3-19
- Universal Resource Locator**
 See URL.
- Unix, Bootp** ... MCG:8-13
- unrestricted write access** ... MCG:14-13
- unspecified address**
 in IPv6 ... IPv6:3-25
- untrusted policy, snooping** ... ASG:11-10
- unusual network activity** ... MCG:C-8
- up time** ... MCG:B-7
- upstream device (QoS)**
 definition ... ATM:6-7
- URL**
 browser interface online help
 location ... MCG:5-13
 management ... MCG:5-13
 management server ... MCG:5-12, MCG:5-13
 ProCurve ... MCG:5-13, MCG:14-4
 support ... MCG:5-12, MCG:5-13
- USB**
 autorun ... MCG:A-37–MCG:A-42
 AutoRun file ... MCG:A-37
 command file ... MCG:A-37
 configuring passwords ... MCG:A-41
- creating a command file ... MCG:A-37
 enabling or disabling ... MCG:A-41
 LED indications ... MCG:A-39
 report outputs ... MCG:A-39
 required software versions ... MCG:A-37
 secure-mode ... MCG:A-41
 security ... MCG:A-38
 troubleshooting ... MCG:A-39
 viewing config information ... MCG:A-42
- autorun and passwords ... ASG:2-5
- auxiliary port ... MCG:A-18, MCG:A-37
- auxiliary port LEDs ... MCG:A-39
- copy command output ... MCG:A-33
- copy configuration file to/from a USB
 device ... MCG:A-28
- copy crash data ... MCG:A-34
- copy crash log ... MCG:A-35
- copy event log output ... MCG:A-33
- copy software image to a USB
 device ... MCG:A-24
- devices with secure partitions not
 supported ... MCG:A-18
- flash drives must be formatted ... MCG:A-18
- supported capabilities ... MCG:A-18
- uploading an ACL command file ... MCG:A-31
- using to copy switch software ... MCG:A-18
- viewing flash drive contents ... MCG:A-18
- user name**
 cleared ... ASG:2-7
- SNMP configuration ... ASG:2-3, ASG:2-9
 using for browser or console access ... MCG:5-8,
 MCG:5-10
- users, SNMPv3**
 See SNMPv3.
- utilization, port** ... MCG:5-17, MCG:10-9

V

- VACL defined** ... ASG:10-5
- valid lifetime**
 of global unicast address ... IPv6:3-7, IPv6:3-25,
 IPv6:4-8, IPv6:4-10
- use of deprecated IPv6 address as source or
 destination ... IPv6:4-32
- vendor-specific attribute**
 configured in RADIUS server ... ASG:7-3
 configuring ... ASG:7-3
 configuring support for HP VSAs ... ASG:6-29

- defined ... ASG:7-10
defining ... ASG:6-30
- version, OS** ... MCG:A-21
- version, switch software** ... MCG:A-6, MCG:A-16
- VID**
- See* VLAN.
- view**
- duplex ... MCG:10-7
 port speed ... MCG:10-7
 transceiver status ... MCG:10-9
- virtual interface**
- See* loopback interface
- virtual link**
- OSPF
- displaying information ... RMG:5-113
 parameters ... RMG:5-92
- virtual MAC address** ... RMG:6-10
- virtual neighbor**
- OSPF
- displaying information ... RMG:5-112
- virtual stacking**
- transmission interval range ... ATM:7-16
- virus detection**
- monitoring ARP requests ... ASG:11-33
- virus-throttling**
- See* connection-rate filtering.
- VLAN**
- 802.1Q VLAN in mesh ... ATM:5-20
 802.1X ... ASG:13-66
 802.1X, ID changes ... ASG:13-69, ASG:13-73
 802.1X, suspend untagged VLAN ... ASG:13-62
 address ... MCG:14-3
 already exists, message ... ATM:2-39
 assigning OSPF area to ... RMG:5-71, RMG:5-72
 Bootp ... MCG:8-13
 broadcast domain ... ATM:2-4
 CLI, commands ... ATM:2-29
 CLI, configuring parameters ... ATM:2-28
 configuring Bootp ... MCG:8-13
 configuring UDLD for tagged
 ports ... MCG:10-28
 connection-rate filtering ... ASG:3-20
 convert dynamic to static ... ATM:2-38, ATM:3-4
 customer VLAN
- See* C-VLAN
- C-VLAN (QinQ) ... ATM:8-4, ATM:8-5
 dedicated management ... ATM:2-46
 default VLAN VID ... ATM:2-46
- default VLAN, name change ... ATM:2-46
 DEFAULT_VLAN ... ATM:2-46
- deleting ... ATM:2-15, ATM:2-36, ATM:2-59
 deleting, with member ports ... ATM:2-15,
 ATM:2-36, ATM:2-37
- deprecated global unicast address ... IPv6:3-16,
 IPv6:3-25
- device not seen ... MCG:C-24
- DHCP, primary VLAN ... ATM:2-46
- DHCPv6 server-assigned address ... IPv6:4-9
- displaying IPv6 configuration ... IPv6:4-23,
 IPv6:4-25
- displaying IPv6 routing table ... IPv6:4-30
- displaying MLD configuration ... IPv6:7-12,
 IPv6:7-15, IPv6:7-17
- displaying MLD statistics ... IPv6:7-18, IPv6:7-20
- double-tagging ... ATM:8-10
- dual-stack operation ... IPv6:2-4, IPv6:2-6
- duplicate MAC address ... ATM:2-18
- dynamic ... ATM:2-4, ATM:2-17, ATM:2-22,
 ATM:2-28, ATM:2-38, ATM:4-15
- effect on spanning tree ... ATM:2-57
- event log entries ... MCG:C-28
- gateway, IP ... ATM:2-47
- global unicast address
- autoconfiguration ... IPv6:2-7, IPv6:3-5,
 IPv6:3-11, IPv6:3-16, IPv6:4-7
- global unicast address manual
 configuration ... IPv6:2-8, IPv6:3-5, IPv6:3-9,
 IPv6:3-17, IPv6:4-13
- global unicast address prefix ... IPv6:3-12
- GVRP, auto ... ATM:2-14
- heartbeat packets, configuring ... ATM:2-62
- ID ... MCG:4-15
- IGMP configuration ... RMG:2-5
- IP address maximum ... MCG:G-1
- IP addressing with multiple ... MCG:8-4
- IP interface relationship ... ATM:2-58
- IPv6 link-local address
 autoconfiguration ... IPv6:4-6
- IPv6 multicast solicited-node group ... IPv6:3-21
- jumbo max frame size ... MCG:13-32
- layer-2 broadcast domain ... ATM:2-5
- layer-3 broadcast domain ... ATM:2-5
- limit ... ATM:2-22, ATM:2-28
- link blocked ... MCG:C-19
- link-local address autoconfiguration ... IPv6:2-7,
 IPv6:3-5, IPv6:3-13, IPv6:3-14, IPv6:4-6

link-local address manual
 configuration ... IPv6:2-8, IPv6:3-5, IPv6:3-9,
 IPv6:4-12
link-local address prefix ... IPv6:3-11
MAC address ... MCG:D-2, MCG:D-5
MAC address assignment ... ATM:2-58
MAC address reconfiguration ... ATM:2-60
MAC address, verifying ... ATM:2-64
management and jumbo frames ... MCG:13-34
management VLAN, resource usage ... MCG:E-2
management VLAN, SNMP block ... MCG:14-3
maximum number of IPv6
 addresses ... IPv6:2-15
maximum, GVRP ... ATM:3-18
maximums ... MCG:G-1
menu, configuring parameters ... ATM:2-22
menu, maximum capacity ... ATM:2-26
menu, missing VLAN ... ATM:2-26
mesh domain and ... ATM:5-20
migrating layer-3 VLANs ... ATM:2-60
mirroring ... MCG:B-4, MCG:B-26
mixed vlan mode (QinQ) ... ATM:8-5
MLD snooping ... IPv6:7-5, IPv6:7-8, IPv6:7-9,
 IPv6:7-10
multinet ... MCG:8-3
multinetting ... MCG:8-3, MCG:8-8
multiple ... MCG:14-3
multiple forwarding database ... ATM:2-18,
 ATM:2-21
multiple in switch mesh ... ATM:5-17
multiple IP addresses ... MCG:8-3, MCG:8-8
multiple VLANs on port ... ATM:2-43
neighbor discovery operation ... IPv6:4-17
non-routable ... ATM:2-54
not advertised for GVRP ... ASG:13-69,
 ASG:13-73
number allowed, including
 dynamic ... ATM:2-26
outbound limit ... RMG:3-10
per port configuration options ... ATM:2-13
port assignment ... ATM:2-26
port configuration ... MCG:C-24, ATM:2-45
port monitoring ... ATM:2-58
port restriction ... ATM:2-59
port trunk ... ATM:2-58
port-based ... ATM:2-5
primary ... MCG:8-3, ATM:2-35, ATM:2-46,
 ATM:7-9, ATM:7-33, ATM:7-45
primary, CLI command ... ATM:2-29, ATM:2-35
primary, select in menu ... ATM:2-23
primary, web configure ... ATM:2-40
primary, with DHCP ... ATM:2-14
prioritizing traffic from with QoS ... ATM:6-45,
 ATM:6-51
protocol ... ATM:2-5, ATM:2-6, ATM:2-10,
 ATM:2-14, ATM:2-16, ATM:2-58
 ARP requirement ... ATM:2-14, ATM:2-36
 capacity per VLAN ... ATM:2-14
 CLI only ... ATM:2-22
 commands ... ATM:2-29
 compared to port-based ... ATM:2-7
 configuration ... ATM:2-28, ATM:2-36
 example ... ATM:2-44
 forbid option not allowed ... ATM:2-39
 IP addressing ... ATM:2-7
 IPv4 routing ... ATM:2-8
 IPv4, ARP requirement ... ATM:2-14,
 ATM:2-36
 IPv6 ... ATM:2-7
 limit ... ATM:2-13
 limit on types per-port ... ATM:2-8
 non-routable ... ATM:2-8, ATM:2-11,
 ATM:2-41
 operation ... ATM:2-16
 port membership limit ... ATM:2-8
 primary VLAN not allowed ... ATM:2-35,
 ATM:2-47
 router, external ... ATM:2-9, ATM:2-11,
 ATM:2-59
 routing ... ATM:2-5, ATM:2-9, ATM:2-59
 status ... ATM:2-30, ATM:2-31, ATM:2-33
 tagged ... ATM:2-13, ATM:2-43
 tagged member ... ATM:2-8
 tagging ... ATM:2-9
 traffic separation ... ATM:2-4
 types ... ATM:2-10, ATM:2-36
 untagged member ... ATM:2-8
 untagged packet forwarding ... ATM:2-15
 untagged, limit ... ATM:2-13
 untagged, multiple ... ATM:2-43
 untagged, restriction ... ATM:2-59
 QinQ configuration options ... ATM:8-6,
 ATM:8-7
 reboot required ... MCG:3-8
 restrictions ... ATM:2-59
 router advertisements used in IPv6 ... IPv6:4-27

routing between VLANs ... ATM:2-4
routing, protocol VLANs ... ATM:2-5
rule, exit port ... MCG:B-30, MCG:B-38
same MAC, multiple VLANs ... MCG:D-6
secure management ... ATM:2-47, ASG:1-8
secure management VLAN, with
 DNS ... MCG:C-71
security, network ... ATM:2-4
selecting default IPv6 router ... IPv6:4-28
service VLAN
 See S-VLAN
show vlan ports detail ... ATM:2-30
single forwarding database ... ATM:2-18
static ... ATM:2-4, ATM:2-6, ATM:2-22, ATM:2-28,
 ATM:2-47
static, in switch mesh ... ATM:5-6
subnet ... MCG:8-3, MCG:8-8, ATM:2-4
support enable/disable ... MCG:3-8
S-VLAN (QinQ) ... ATM:8-4, ATM:8-5
svlan mode (QinQ) ... ATM:8-6
switch capacity ... ATM:2-4
switch mesh ... ATM:5-6
switch software download ... MCG:A-4
switching IPv4 and IPv6 traffic on same
 VLAN ... IPv6:2-3, IPv6:3-6
switching IPv6 traffic between different
 VLANs ... IPv6:2-3
Tagged egress VLAN in authentication
 session ... ASG:6-35
tagged egress VLAN in authentication
 session ... ASG:6-35
tagging ... ATM:2-41, ATM:2-43
tagging broadcast, multicast, and unicast
 traffic ... MCG:C-24
tunnel VLAN
 See S-VLAN
unique local unicast address
 configuration ... IPv6:3-11
unique local unicast address prefix ... IPv6:3-12
unknown VLAN ... ATM:3-11
untagged ... ATM:2-12, ATM:2-27
untagged VLAN in authentication
 session ... ASG:6-34, ASG:6-35
untagged, operation ... ATM:2-16
using an external router ... IPv6:2-4
VID ... ATM:2-4, ATM:2-43
VID, default VLAN ... ATM:2-46
voice ... ATM:2-5, ATM:2-30, ATM:2-31,
 ATM:2-33, ATM:2-57
voice, configuration ... ATM:2-37
voice, configuring ... ATM:2-29
voice, VLAN type ... ATM:2-14
web browser configuration ... ATM:2-40
 See also GVRP.

VLAN ID
 See VLAN.

VLAN interface
description ... RMG:5-7
IP routing parameters ... RMG:5-14
OSPF
 interface parameters ... RMG:5-82

VLANs
GVRP-created ... ASG:13-73
GVRP-learned ... ASG:13-72
static, 802.1s spanning tree ... ATM:4-8
 See also VLAN.

voice VLAN
 See VLAN.

VoIP
LLDP-MED support ... MCG:14-56
operating rules ... ATM:2-14
 See also VLAN, voice.

VPN solution for MANs
QinQ ... ATM:8-4

VRRP
advantages ... RMG:6-3
advertisement ... RMG:6-7
 function ... RMG:6-9
 interval ... RMG:6-9, RMG:6-11
ARP response ... RMG:6-7, RMG:6-11
authentication type ... RMG:6-34
Backup router ... RMG:6-3, RMG:6-10
 as Master ... RMG:6-3
 defined ... RMG:6-4
 elected as Master ... RMG:6-8, RMG:6-9
 multiple ... RMG:6-5
 not receiving advertisements ... RMG:6-34
 precedence ... RMG:6-4
 priority ... RMG:6-10
 priority, configure ... RMG:6-22
 virtual IP address ... RMG:6-10
 backup, configuring ... RMG:6-20
basic configuration steps ... RMG:6-13
configuration example ... RMG:6-16
configuring ... RMG:6-3-??

disable global ... RMG:6-18
 disable on VR ... RMG:6-24
 disabled during configuration ... RMG:6-20
 display

- all instances ... RMG:6-29
- configuration for all VRs ... RMG:6-25
- global configuration ... RMG:6-25
- statistics per VLAN ... RMG:6-32
- statistics, global ... RMG:6-28
- statistics, specific instance ... RMG:6-33
- uptime ... RMG:6-29
- VR, specific ... RMG:6-27

 dropped packets ... RMG:6-34
 election process ... RMG:6-5
 enable global ... RMG:6-18
 enable on VR ... RMG:6-24
 event log ... RMG:6-18
 event log messages ... RMG:6-35
 example ... RMG:6-6, RMG:6-15
 failback ... RMG:6-3, RMG:6-5, RMG:6-7
 failover ... RMG:6-3, RMG:6-6, RMG:6-7,
 RMG:6-10
 IP address, deleting ... RMG:6-12
 IP address, mismatch ... RMG:6-17
 IP address, per VR ... RMG:6-12
 IP address, real ... RMG:6-5, RMG:6-8
 IP address, virtual ... RMG:6-5, RMG:6-6,
 RMG:6-8, RMG:6-9, RMG:6-10, RMG:6-11
 IPv4 ... RMG:6-34
 MAC address

- shared ... RMG:6-7
- source ... RMG:6-7, RMG:6-11
- virtual ... RMG:6-10, RMG:6-11

 Master router ... RMG:6-5, RMG:6-9

- advertisements failing ... RMG:6-34
- defined ... RMG:6-4
- election ... RMG:6-8
- Owner unavailable ... RMG:6-8

See also Owner router.
 multinetted VLAN ... RMG:6-8, RMG:6-10,
 RMG:6-12
 overview ... RMG:6-3
 Owner priority

- See* priority.

 Owner router ... RMG:6-5, RMG:6-9

- default Master ... RMG:6-9
- defined ... RMG:6-4
- priority

See also Master router.
 owner, configuring ... RMG:6-20
 pre-empt mode ... RMG:6-10
 pre-empt mode, configure ... RMG:6-24
 priority ... RMG:6-6, RMG:6-9

- Backup ... RMG:6-8, RMG:6-11, RMG:6-14
- Backup default ... RMG:6-9
- Owner ... RMG:6-5, RMG:6-9, RMG:6-11,
 RMG:6-13
- Owner default ... RMG:6-10
- range for Backup router ... RMG:6-9
- VR ... RMG:6-10

 priority, Owner ... RMG:6-8
 real gateway ... RMG:6-9
 RFC

- See RFCs.

 software license requirements ... RMG:6-3
 source address for VR ... RMG:6-5
 standards compliance ... RMG:6-33
 traps, disable ... RMG:6-18
 traps, enable ... RMG:6-18
 virtual router

- See* VR.

 virtual router ID

- See* VRID.

 VLAN, subnetted ... RMG:6-9
 VR

- advertisement interval ... RMG:6-11
- advertisement interval,
 change ... RMG:6-22
- changes ... RMG:6-12
- configure an instance ... RMG:6-20
- deactivate ... RMG:6-12
- defined ... RMG:6-4
- IP address ... RMG:6-12
- IP address limit ... RMG:6-34
- IP address, delete ... RMG:6-34
- MAC address ... RMG:6-5, RMG:6-8
- MAC address, source ... RMG:6-6
- maximum in a VLAN ... RMG:6-8
- maximum per switch ... RMG:6-12
- maximum per VLAN ... RMG:6-12
- membership ... RMG:6-8
- multiple IP addresses ... RMG:6-17
- multiple VRs in VLAN ... RMG:6-8
- multiple, in a VLAN ... RMG:6-9
- operation ... RMG:6-8
- owner IP address ... RMG:6-21

- subnet limit per VLAN ... RMG:6-34
virtual IP address ... RMG:6-21
virtual IP address, configure ... RMG:6-23
virtual IP address, default ... RMG:6-23
- VR priority**
See VRRP, priority.
- VRID ... RMG:6-6, RMG:6-8, RMG:6-10
configure ... RMG:6-19
defined ... RMG:6-4
maximum per VLAN ... RMG:6-19
- VSA**
See vendor-specific attribute.
- VT-100 terminal** ... MCG:7-3
- W**
- Wake-on-LAN**
on 802.1X-aware ports ... ASG:13-27
on web-authenticated ports ... ASG:4-21
- walkmib** ... MCG:11-22, MCG:14-43, MCG:D-5, MCG:D-6
- web agent**
advantages ... MCG:2-5
disabling access ... MCG:5-2
enable/disable ... MCG:7-4
enabled parameter ... MCG:5-2
- Web authentication**
authenticator operation ... ASG:4-4
blocked traffic ... ASG:4-2
CHAP
 defined ... ASG:4-9
 usage ... ASG:4-2
client status ... ASG:4-42
configuration commands ... ASG:4-19
configuring
 access control on unauthenticated
 ports ... ASG:4-20
 controlled directions ... ASG:4-20
 on the switch ... ASG:4-17
 switch for RADIUS access ... ASG:4-15
display all 802.1X, Web, and MAC authentication
 configuration ... ASG:4-12, ASG:13-15
general setup ... ASG:4-12
hierarchy of precedence in authentication
 session ... ASG:1-15
LACP not allowed ... ASG:4-12
overview ... ASG:1-10
port access ... ASG:13-4
- redirect URL ... ASG:4-9
rules of operation ... ASG:4-10
show status and configuration ... ASG:4-26
SNMP notification ... MCG:14-26
terminology ... ASG:4-9
Wake-on-LAN traffic ... ASG:4-21
- web browser interface**
disabling Telnet access ... ASG:1-5
- web browser** ... IPv6:1-7
access ... ASG:1-5
See also web browser interface.
- web browser interface**
aaa authentication ... ASG:6-8
access ... ASG:6-7
access configuration ... MCG:7-3
access parameters ... MCG:5-8
access security ... MCG:7-3
alert log ... MCG:5-20
alert log details ... MCG:5-21
authorized IP managers,
 configuring ... ASG:15-7, ASG:15-9
bandwidth adjustment ... MCG:5-18
bar graph adjustment ... MCG:5-18
configuring port security ... ASG:14-33, ASG:14-40
configuring VLANs ... ATM:2-40
disable access ... MCG:5-2
enabling ... MCG:5-4
error packets ... MCG:5-17
fault detection policy ... MCG:5-8, MCG:5-24
fault detection window ... MCG:5-24
features ... MCG:2-5
first-time install ... MCG:5-7
first-time tasks ... MCG:5-7
IPv6 support ... IPv6:2-11
Java applets, enabling ... MCG:5-4
main screen ... MCG:5-16
online help ... MCG:5-13
online help location specifying ... MCG:5-13
online help, inoperable ... MCG:5-13
overview ... MCG:5-16
Overview window ... MCG:5-16
password lost ... MCG:5-10
password, setting ... MCG:5-9
port status ... MCG:5-19
port utilization ... MCG:5-17
port utilization and status displays ... MCG:5-17
screen elements ... MCG:5-16

security ... MCG:5-2, MCG:5-8
SSL ... ASG:9-18
standalone ... MCG:5-4
status bar ... MCG:5-22
status indicators ... MCG:5-23
status overview screen ... MCG:5-6
system requirements ... MCG:5-4
troubleshooting access problems ... MCG:C-6
unsecured access, SSL ... ASG:9-18
URL default ... MCG:5-13
URL, management server ... MCG:5-14
URL, support ... MCG:5-14
using for redundant management ... MCG:15-36

web server, proxy ... ASG:14-41

web site, HP ... MCG:14-4

wildcard

See ACL, wildcard.

See ACL.

wireless services

debug messages ... IPv6:8-14

world wide web site, HP

See ProCurve.

write access ... MCG:14-13

write memory

converting dynamic to static VLAN ... ATM:3-18

effect on menu interface ... MCG:3-13

redundant management ... MCG:6-7

X

Xmodem

copy command output ... MCG:A-33
copy crash data ... MCG:A-34
copy crash log ... MCG:A-35
copy event log output ... MCG:A-33
copying a configuration file ... MCG:A-26
copying a software image ... MCG:A-23
download to primary or secondary
 flash ... MCG:A-17
uploading an ACL command file ... MCG:A-30
using to download switch software ... MCG:A-15

