

# Index

## Numerics

802.1x See port authentication  
802.2, Ethernet encapsulation 10-5

## A

Access Control List 26-2  
access control, encryption 29-6  
access mode, MIB object 39-7  
ACL 7-40, 26-2  
ACTIVATE FLASH COMPACTION command 6-15  
ACTIVATE L2TP CALL command 12-17  
activate mstp migrationcheck port 8-27  
ACTIVATE MSTP MIGRATIONCHECK PORTcommand 8-27  
ACTIVATE PORTAUTH PORT REAUTHENTICATE command 32-22  
ACTIVATE PPP command 11-29  
ACTIVATE SCRIPT command 43-6  
ACTIVATE SWITCH PORT command 7-50  
ACTIVATE TRIGGER command 44-5  
adaptive learning 7-36  
add 7-64  
ADD ALIAS command 2-10, 6-17, 6-22, 6-33  
ADD BGP AGGREGATE command 20-46, 40-16  
ADD BGP CONFEDERATIONPEER command 20-48  
ADD BGP IMPORT command 20-49  
ADD BGP NETWORK command 20-50  
ADD BGP PEER command 20-51  
ADD BOOTP RELAY command 14-9  
ADD CFLASH DIR command 6-16  
ADD DHCP POLICY command 14-11  
ADD DHCP RANGE command 14-17  
ADD DVMRP INTERFACE command 17-42  
ADD GRE command 22-11  
ADD IGMP FILTER command 17-43  
ADD IGMP Snooping ROUTERADDRESS command 17-44  
ADD IP ARP command 13-55  
ADD IP AS PATHLIST command 21-38  
ADD IP COMMUNITYLIST command 21-40  
ADD IP FILTER command 13-59  
ADD IP HELPER command 13-66  
ADD IP HOST command 13-67  
ADD IP INTERFACE command 13-68, 22-4  
ADD IP RIP command 18-7  
ADD IP ROUTE command 13-74  
ADD IP ROUTE FILTER command 21-44  
ADD IP ROUTE TEMPLATE command 13-77  
ADD IP ROUTEMAP command 21-46  
ADD IP SA command 21-46  
ADD IP TRUSTED command 18-11  
ADD IPV6 FILTER command 23-35  
ADD IPV6 HOST command 23-41  
ADD IPV6 INTERFACE command 23-42  
ADD IPV6 RIP command 23-46  
ADD IPV6 ROUTE command 23-47  
ADD IPV6 TUNNEL command 23-48  
ADD L2TP CALL command 12-18  
ADD L2TP IP command 12-21  
ADD L2TP USER command 12-23, 12-28  
ADD LACP PORT command 7-51  
ADD LOG OUTPUT command 45-10  
ADD LOG RECEIVE command 45-13  
ADD NTP PEER command 41-8  
ADD OSPF AREA command 19-23  
ADD OSPF HOST command 19-25  
ADD OSPF INTERFACE command 19-26  
ADD OSPF NEIGHBOUR command 19-31  
ADD OSPF RANGE command 19-32  
ADD OSPF STUB command 19-35  
ADD OSPF SUMMARYADDRESS command 19-36  
ADD PIM BSRCANDIDATE command 17-47  
ADD PIM INTERFACE command 17-48  
ADD PIM RPCANDIDATE command 17-49  
ADD PIM6 BSRCANDIDATE command 25-26  
ADD PIM6 INTERFACE command 25-27  
ADD PIM6 RPCANDIDATE command 25-28  
ADD PING POLL command 37-7  
ADD PKI CERTIFICATE command 35-16  
ADD PKI CRL command 35-18  
ADD PKI LDAPREPOSITORY command 35-19  
ADD PPP ACSERVICE command 11-33  
ADD PPP command 11-30  
ADD QOS FLOWGROUP command 27-42  
ADD QOS POLICY command 27-43  
ADD QOS TRAFFICCLASS command 27-45  
ADD RADIUS SERVER command 29-29  
ADD SCRIPT command 43-8  
ADD SNMP COMMUNITY command 39-24



ADD SNMP GROUP command 39-26  
 ADD SNMP TARGETADDR command 39-27  
 ADD SNMP TARGETPARAMS command 39-28  
 ADD SNMP USER command 39-29  
 ADD SSH USER command 33-10  
 add stack interface command 42-18  
 ADD STP VLAN command 8-29  
 ADD STREAM command 47-4  
 ADD SWITCH FILTER command 7-54  
 ADD SWITCH HWFILTER command 7-56  
 ADD SWITCH TRUNK command 7-57  
 ADD TACACS SERVER command 29-30  
 ADD TRIGGER command 44-6  
 ADD USER command 29-32  
 ADD USER RSO command 29-34  
 ADD VLAN BRIDGE command 8-30  
 ADD VLAN PORT command 7-58, 7-64  
 ADD VLAN PROTOCOL command 7-62  
 ADD VLAN SUBNET command 7-64  
 ADD VRRP IP command 36-11  
 ADD VRRP MONITOREDINTERFACE command 36-12

#### adding

- aliases 2-10, 6-17, 6-22, 6-33
- Certificate Revocation Lists 35-18
- compact flash directory 6-16
- NTP peer 41-8
- physical links to PPP interfaces 11-30
- PKI certificates 35-16
- PKI LDAP Repositories 35-19
- route templates 13-77
- stream ports 47-4

adding Classifier Based Packet Filters

- switch

- Classifier Based Packet Filters 7-39

address pools, IP 13-45

- creating 13-78
- destroying 13-85
- displaying 13-164

Address Resolution Protocol (ARP) 13-12

- adding entries 13-13, 13-55
- changing entries 13-111
- deleting entries 13-78
- displaying entries 13-47, 13-140
- modifying entries 13-111
- proxy 13-16
- setting entries 13-111

address translation group, MIB-II MIB C-26

#### addresses

- Ethernet multicast 10-6, 10-47 to 10-48
- Internet Protocol (IP) 13-5
  - address pools 13-45, 13-78, 13-85, 13-164
  - classes 13-7
  - format 13-7
  - source 13-5
  - subnet 13-8
- multicast 10-6, 10-47 to 10-48
- subnet 13-8

addressless interfaces, OSPF 19-10, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58

adjacency, OSPF 19-5 to 19-6

administrator name

- displaying 4-54

- setting 4-29

Adopt VRRP IP address 36-6

ageing timer 7-36

#### switch

- disabling 7-80

- enabling 7-88

- setting 7-101

Aggregation Port Debug group, Link Aggregation MIB C-38

Aggregation Port group, Link Aggregation MIB C-38

Aggregation Port Statistics group, Link Aggregation MIB C-38

Aggregator group, Link Aggregation MIB C-38

aging, OSPF 19-5, 19-79, 19-82

Alarm group, RMON MIB C-42 to C-43

#### aliases

- adding 2-10, 6-17, 6-22, 6-33

- deleting 2-11

- displaying 2-13 to 2-14, 6-49

alliedTelesis MIB object C-4

#### Applications

- disabling 9-8

arBoardIndex MIB object C-17

arBoardMaxIndex MIB object C-17

arBoardTable MIB object C-17 to C-18

#### area

- OSPF 19-3, 19-23, 19-32, 19-37, 19-40, 19-55, 19-63, 19-69

area border router, OSPF 19-4

arIfXIndex MIB object C-17

arIfXTable MIB object C-17

arInterfaceBoardIndex MIB object C-17

arInterfacePosition MIB object C-17

arInterfaces Group, Allied Telesis Enterprise MIB C-17

arInterfaces MIB object C-9

arInterfaceTable MIB object C-17

arSlotBoardIndex MIB object C-17

arSlotSlotIndex MIB object C-17

arSlotTable MIB object C-17

Assert message, PIM Sparse Mode 17-13

asymmetric keys 35-2

asymmetrical encryption algorithms 30-4, 31-5

#### asynchronous

- calls, CSLIP 10-8

- calls, SLIP 10-8

- CSLIP encapsulation 10-8

#### ports

- configuration 10-9, 10-17, 10-20 to 10-22

- connecting to 10-17

- disabling ports 10-17

- resetting counters 10-21

- resetting history 10-22

- resetting ports 10-20

- setting port characteristics 10-9, 10-24

- SLIP encapsulation 10-8

Asynchronous Call Control (ACC)

- CSLIP encapsulation 10-8

- encapsulation, CSLIP 10-8



- encapsulation, SLIP 10-8
- SLIP encapsulation 10-8
- Asynchronous Control Character Map (ACCM) Option, LCP 11-5
- asynchronous port security 29-12
- asynchronous ports 10-8
  - CSLIP encapsulation 10-8
  - encapsulation 10-8
  - encapsulation, CSLIP 10-8
  - encapsulation, SLIP 10-8
  - SLIP encapsulation 10-8
- at-8624PoE MIB object C-8
- at-8624T2M MIB object C-8
- at-8624XL-80 MIB object C-7
- at-8648-2SP MIB object C-8
- at-8724MLB MIB object C-8
- at-8724XL MIB object C-7
- at-8724XLDC MIB object C-7
- at-8724XL-DC-NEBS MIB object C-8
- at-8748XL MIB object C-7
- at-8748XL-80 MIB object C-7
- at-8748XLDC MIB object C-7
- at-8824 MIB object C-7
- at-8824-DC MIB object C-7
- at-8848 MIB object C-7
- at-8848-DC MIB object C-7
- at-8948EX MIB object C-7
- at-8948i MIB object C-8
- at-8948i-N MIB object C-8
- at-9812T MIB object C-7
- at-9812T-DC MIB object C-7
- at-9812TF MIB object C-7
- at-9816GB MIB object C-7
- at-9816GB-DC MIB object C-7
- at-9816GF MIB object C-7
- at-9924SP MIB object C-8
- at-9924SPi MIB object C-8
- at-9924SPsi MIB object C-8
- at-9924T MIB object C-8
- at-9924T-4SP MIB object C-8
- at-9924TEMC MIB object C-8
- at-9924Ti MIB object C-8
- at-9924Ts MIB object C-8
- at-9924Tsi MIB object C-8
- at-9924Tsi-N MIB object C-8
- atAgents MIB object C-9
- at-AR410Router MIB object C-5
- at-AR410v2Router MIB object C-5
- at-AR410v3Router MIB object C-5
- at-AR415SRouter MIB object C-6
- at-AR415SRouterDC MIB object C-6
- at-AR420Router MIB object C-6
- at-AR440Router MIB object C-6
- at-AR441Router MIB object C-6
- at-AR442Router MIB object C-6
- at-AR443Router MIB object C-6
- at-AR444Router MIB object C-6
- at-AR450DualRouter MIB object C-5
- at-AR450Router MIB object C-5
- at-AR550Router MIB object C-6
- at-AR550SRouterDP MIB object C-6
- at-AR551Router MIB object C-6
- at-AR552Router MIB object C-6
- at-AR570Router MIB object C-6
- at-AR725Router MIB object C-5
- at-AR725RouterDC MIB object C-5
- at-AR740RouterDC MIB object C-5
- at-AR745Router MIB object C-5
- at-AR745RouterDC MIB object C-5
- at-AR770Router MIB object C-6
- atContactDetails MIB object C-16
- atIfIndex MIB object C-27
- atNetAddress MIB object C-27
- atPhysAddress MIB object C-27
- at-Rapier16fMT MIB object C-6
- at-Rapier16fMTi MIB object C-6
- at-Rapier16fSC MIB object C-6
- at-Rapier16fSCi MIB object C-7
- at-rapier16fVF MIB object C-6
- at-Rapier24 MIB object C-6
- at-Rapier24i MIB object C-7
- at-Rapier24i-DC-NEBS MIB object C-8
- at-Rapier48 MIB object C-6
- at-Rapier48i MIB object C-7
- at-Rapier48w MIB object C-8
- at-Rapier8fMT MIB object C-6
- at-Rapier8fMTi MIB object C-6
- at-Rapier8fSC MIB object C-6
- at-Rapier8fSCi MIB object C-6
- at-Rapier8t8fMT MIB object C-6
- at-Rapier8t8fMTi MIB object C-6
- at-Rapier8t8fSC MIB object C-6
- at-Rapier8t8fSCi MIB object C-6
- at-RapierG6 MIB object C-6
- at-RapierG6LX MIB object C-6
- at-RapierG6MT MIB object C-6
- at-RapierG6SX MIB object C-6
- atrDot1xAuthConfigTable MIB object C-24
- atrDot1xAuthenticated trap message C-24
- atrDot1XAuthGuestVlan MIB object C-23
- atrDot1xAuthLastAuthReason MIB object C-23
- atrDot1XAuthMibReset MIB object C-23
- atrDot1xAuthPostAuthVlan MIB object C-23
- atrDot1xAuthPreAuthVlan MIB object C-23
- atrDot1XAuthSecureVlan MIB object C-23
- atrDot1xAuthStatsTable MIB object C-24
- atrDot1XAuthTrap MIB object C-23
- atrDot1XAuthVlanAssignment MIB object C-23
- atrDot1xFailedAuth trap message C-24
- atrDot1xPaePortNumber MIB object C-24
- atrDot1xPaePortSuppMacAddress MIB object C-24
- atrDot1xPaePortTable MIB object C-24
- atrDot1xUnAuthenticated trap message C-24
- atrEpsrControlVLANId C-25
- atrEpsrDomainName C-25
- atrEpsrFromState C-25
- atrEpsrNodeTrap MIB object C-25
- atrEpsrNodeTrapType C-25
- atrEpsrPrimaryIfIndex C-25
- atrEpsrPrimaryIfState C-25



atrEpsrSecondaryIfIndex C-25  
 atrEpsrSecondaryState C-25  
 atrEpsrToState C-25  
 atrMacBasedAuthAuthenticated trap message C-24  
 atrMacBasedAuthConfigTable MIB object C-24  
 atrMacBasedAuthFailedAuth trap message C-24  
 atrMacBasedAuthPaePortTable MIB object C-24  
 atrMacBasedAuthUnAuthenticated trap message C-24  
 atRouter MIB object C-9  
 atRouter sub-tree, Allied Telesis Enterprise MIB C-9  
 atrPaeMib MIB object C-23  
 at-Switchblade4AC MIB object C-7  
 at-Switchblade4DC MIB object C-7  
 at-Switchblade8AC MIB object C-7  
 at-Switchblade8DC MIB object C-7  
 authentication  
     Dynamic Host Configuration Protocol for IPv6 (DHCP6)  
         24-6, 24-11, 24-16, 24-21  
     OSPF 19-3, 19-23, 19-37, 19-55  
     SNMPv1 and v2 39-17  
     using RADIUS servers 29-9, 29-14, 29-29, 29-35, 29-57  
     using TACACS servers 29-9, 29-17, 29-30, 29-36,  
         29-62  
     using User Authentication Database 29-9 to 29-10,  
         29-32, 29-37, 29-41, 29-45 to 29-48, 29-54,  
         29-67  
 Authentication Protocol Option, LCP 11-5  
 authentication protocols, PPP 11-17  
 auto-bauding 10-14  
 autonegotiation  
     duplex 7-8  
     port speed 7-8  
 autonomous systems 19-3  
     setting AS number 20-100

## B

backbone, OSPF 19-19, 19-23, 19-37, 19-55  
 BACP. See Bandwidth Allocation Control Protocol  
 Bandwidth Allocation Control Protocol (BACP) 11-8  
 bandwidth allocation meter (Quality of Service)  
     single-rate 27-25  
     twin-rate 27-26  
 Bandwidth Allocation Protocol (BAP) 11-8  
 bandwidth on demand, PPP 11-10  
 BAP. See Bandwidth Allocation Protocol  
 base hardware serial number  
     displaying 4-74  
 bbrNvs MIB object C-16  
 bgp MIB object C-48  
 BGP Peer table, Border Gateway Protocol version 4 (BGP-4)  
     MIB C-48  
 BGP Received Path Attribute table, Border Gateway Proto-  
     col version 4 (BGP-4) MIB C-48  
 BGP-4 Received Path Attribute table, Border Gateway Pro-  
     tocol version 4 (BGP-4) MIB C-48  
 bgp4PathAttrTable MIB object C-48  
 bgpBackwardTransition trap message C-48  
 bgpEstablished trap message C-48  
 bgpIdentifier MIB object C-48  
 bgpLocalAs MIB object C-48

bgpPeerTable MIB object C-48  
 bgpRcvdPathAttrTable MIB object C-48  
 bgpVersion MIB object C-48  
 boards MIB object C-9  
 BOOT.CFG 43-2  
 booting the router 4-10, 5-37  
 BOOTP relay agent 14-4 to 14-5  
 bootstrap router, PIM Sparse Mode 17-11  
     adding PIM BSR candidate, IPv4 17-15, 17-47, 25-10  
     adding PIM BSR candidate, IPv6 25-26  
     deleting PIM BSR candidate, IPv4 17-15, 17-54, 25-10  
     deleting PIM BSR candidate, IPv6 25-29  
     setting PIM BSR candidate parameters, IPv6 25-41  
     setting PIM BSR candidate preference, IPv4 17-78  
 Border Gateway Protocol version 4 (BGP-4)  
     commands  
         ADD BGP AGGREGATE 20-46, 40-16  
         ADD BGP CONFEDERATIONPEER 20-48  
         ADD BGP IMPORT 20-49  
         ADD BGP NETWORK 20-50  
         ADD BGP PEER 20-51  
         DELETE BGP AGGREGATE 20-65  
         DELETE BGP CONFEDERATIONPEER 20-66  
         DELETE BGP IMPORT 20-66  
         DELETE BGP NETWORK 20-67  
         DELETE BGP PEER 20-67  
         DISABLE BGP DEBUG 20-71  
         DISABLE BGP PEER 20-72  
         ENABLE BGP DEBUG 20-75  
         ENABLE BGP PEER 20-77  
         RESET BGP PEER 20-78  
         SET BGP 20-80  
         SET BGP AGGREGATE 20-82  
         SET BGP IMPORT 20-86  
         SET BGP PEER 20-87  
         SHOW BGP 20-101  
         SHOW BGP AGGREGATE 20-103  
         SHOW BGP CONFEDERATION 20-104  
         SHOW BGP IMPORT 20-114  
         SHOW BGP NETWORK 20-118  
         SHOW BGP PEER 20-119  
         SHOW BGP ROUTE 20-126

Border Gateway Protocol version 4 (BGP-4) MIB C-48  
 Bridge MIB C-34  
 bridgeRouter MIB object C-5  
 Broadband MAU Basic Group, MAU MIB C-32 to C-33  
 Broadband MAU Basic MIB table, MAU MIB C-32  
 broadcast  
     NTP entity 41-2  
 broadcast forwarding 13-40 to 13-43  
     to a broadcast address 13-42  
     to a unicast address 13-41  
 broadcast storm protection 7-14  
 broadMauBasicTable object C-32  
 BSR. See bootstrap router

## C

CA. See Certificate Authority (CA)  
 cached sessions 34-4  
 calls



- encapsulation, CSLIP 10-8
- encapsulation, SLIP 10-8
- centreCOM-AR120Router MIB object C-5
- centreCOM-AR130SRouter MIB object C-5
- centreCOM-AR130URouter MIB object C-5
- centreCOM-AR140SRouter MIB object C-5
- centreCOM-AR140URouter MIB object C-5
- centreCOM-AR160Router MIB object C-5
- centreCOM-AR300 MIB object C-5
- centreCOM-AR300L MIB object C-5
- centreCOM-AR300LU MIB object C-5
- centreCOM-AR300U MIB object C-5
- centreCOM-AR310 MIB object C-5
- centreCOM-AR310U MIB object C-5
- centreCOM-AR320Router MIB object C-5
- centreCOM-AR330 MIB object C-5
- centreCOM-AR350 MIB object C-5
- centreCOM-AR370 MIB object C-5
- centreCOM-AR370U MIB object C-5
- centreCOM-AR390 MIB object C-5
- centreCOM-AR395 MIB object C-5
- centreCOM-AR720 MIB object C-5
- centreCOM-AR740Router MIB object C-5
- Certificate Authority (CA) 35-5
  - root 35-6, 35-8
- Certificate Management Protocol (CMP) 35-9
- Certificate Revocation List (CRL) 35-9
  - CRL Database 35-9
- certificates 34-4, 35-3
  - Certificate Database 35-7
  - chains 35-6
  - deleting 35-23
  - destroying requests 35-24
  - requesting 35-9, 35-21
  - updating keypairs 35-10
  - validating 35-6, 35-8
  - X.509 35-3
- Challenge-Handshake Authentication Protocol (CHAP) 11-18 to 11-19
- CHAP. See Challenge-Handshake Authentication Protocol (CHAP)
- chip68020Cpu MIB object C-15
- chip68302Cpu MIB object C-15
- chip68340Cpu MIB object C-15
- chip68360Cpu MIB object C-15
- chip860TCpu MIB object C-15
- chipFlash1mb MIB object C-16
- chipFlash2mb MIB object C-16
- chipFlash3mb MIB object C-16
- chipFlash4mb MIB object C-16
- chipFlash6mb MIB object C-16
- chipFlash8mb MIB object C-16
- chipPem MIB object C-16
- chipRam12mb MIB object C-15
- chipRam16mb MIB object C-15
- chipRam1mb MIB object C-15
- chipRam20mb MIB object C-15
- chipRam2mb MIB object C-15
- chipRam32mb MIB object C-15
- chipRam3mb MIB object C-15
- chipRam4mb MIB object C-15
- chipRam6mb MIB object C-15
- chipRam8mb MIB object C-15
- chipRtc1 MIB object C-15
- chipRtc2 MIB object C-15
- chipRtc3 MIB object C-15
- chipRtc4 MIB object C-15
- chips MIB object C-15
- cipher 34-4
- cipher suite
  - definition 34-4
- cipher text 31-4
- ciphertext 30-2
- Classifier Based Packet Filters 7-39
- Classifier Module
  - commands
    - CREATE CLASSIFIER 26-4
    - DESTROY CLASSIFIER 26-15
    - SET CLASSIFIER 26-16
- classifiers (Quality of Service) 27-15
- CLEAR CFLASH command 6-18
- CLEAR FLASH TOTALLY command 6-19
- CLEAR NVS TOTALLY command 6-19
- clearing NVS memory 6-19
- client
  - NTP entity 41-2, 41-4
- clock
  - displaying 4-75
  - setting 4-35
- clocks. See Network Time Protocol (NTP)
- CMOT group, MIB-II MIB C-26
- combined notation 39-6
- command
  - editing 2-3
  - history 2-3
  - prompt 2-3
- CommandName
  - add epsr datavlan 38-15
  - delete epsr datavlan datavlan 38-18
  - destroy epsr datavlan 38-19
  - disable epsr 38-20
  - disable epsr debug 38-21
  - enble epsr 38-21
  - enble epsr debug 38-22
  - purge epsr 38-22 to 38-23
  - set epsr 38-23
  - set epsr port 38-25
  - show epsr 38-26
  - show epsr counter 38-29
  - show epsr debug 38-30
- commands 5-61
  - ACTIVATE FLASH COMPACTION 6-15
  - ACTIVATE L2TP CALL 12-17
  - ACTIVATE MSTP MIGRATIONCHECK PORT 8-27
  - ACTIVATE PORTAUTH PORT REAUTHENTICATE 32-22
  - ACTIVATE PPP 11-29
  - ACTIVATE SCRIPT 43-6
  - ACTIVATE SWITCH PORT 7-50
  - ACTIVATE TRIGGER 44-5
  - ADD ALIAS 2-10, 6-17, 6-22, 6-33



ADD BGP AGGREGATE 20-46, 40-16  
 ADD BGP CONFEDERATIONPEER 20-48  
 ADD BGP IMPORT 20-49  
 ADD BGP NETWORK 20-50  
 ADD BGP PEER 20-51  
 ADD BOOTP RELAY 14-9  
 ADD CFLASH DIR 6-16  
 ADD DHCP POLICY 14-11  
 ADD DHCP RANGE 14-17  
 ADD DVMRP INTERFACE 17-42  
 add epsr datavlan 38-15  
 ADD GRE 22-11  
 ADD IGMP FILTER 17-43  
 ADD IGMP Snooping ROUTERADDRESS 17-44  
 ADD IP ARP 13-55  
 ADD IP FILTER 13-59  
 ADD IP HELPER 13-66, 13-80  
 ADD IP HOST 13-67  
 ADD IP INTERFACE 13-68, 22-4  
 ADD IP LOCAL 13-73  
 ADD IP RIP 18-7  
 ADD IP ROUTE 13-74  
 ADD IP ROUTE FILTER 21-44  
 ADD IP ROUTE TEMPLATE 13-77  
 ADD IP SA 21-46  
 ADD IP TRUSTED 18-11  
 ADD IPV6 FILTER 23-35  
 ADD IPV6 HOST 23-41  
 ADD IPV6 INTERFACE 23-42  
 ADD IPV6 RIP 23-46  
 ADD IPV6 ROUTE 23-47  
 ADD IPV6 TUNNEL 23-48  
 ADD L2TP CALL 12-18  
 ADD L2TP IP 12-21  
 ADD L2TP USER 12-23, 12-28  
 ADD LACP PORT 7-51  
 ADD LOG OUTPUT 45-10  
 ADD LOG RECEIVE 45-13  
 ADD NTP PEER 41-8  
 ADD OSPF AREA 19-23  
 ADD OSPF HOST 19-25  
 ADD OSPF INTERFACE 19-26  
 ADD OSPF NEIGHBOUR 19-31  
 ADD OSPF RANGE 19-32  
 ADD OSPF STUB 19-35  
 ADD OSPF SUMMARYADDRESS 19-36  
 ADD PIM BSR CANDIDATE 17-47  
 ADD PIM INTERFACE 17-48  
 ADD PIM RPCANDIDATE 17-49  
 ADD PIM6 BSR CANDIDATE 25-26  
 ADD PIM6 INTERFACE 25-27  
 ADD PIM6 RPCANDIDATE 25-28  
 ADD PING POLL 37-7  
 ADD PKI CERTIFICATE 35-16  
 ADD PKI CRL 35-18  
 ADD PKI LDAPREPOSITORY 35-19  
 ADD PPP 11-30  
 ADD QOS FLOWGROUP 27-42  
 ADD QOS POLICY 27-43  
 ADD QOS TRAFFICCLASS 27-45

ADD RADIUS SERVER 29-29  
 ADD SCRIPT 43-8  
 ADD SNMP COMMUNITY 39-24  
 ADD SNMP GROUP 39-26  
 ADD SNMP TARGETADDR 39-27  
 ADD SNMP TARGETPARAMS 39-28  
 ADD SNMP USER 39-29  
 ADD SSH USER 33-10  
 add stack interface 42-18  
 ADD STP VLAN 8-29  
 ADD STREAM 47-4  
 ADD SWITCH FILTER 7-54  
 ADD SWITCH HWFILTER 7-56  
 ADD SWITCH TRUNK 7-57  
 ADD TACACS SERVER 29-30  
 ADD TRIGGER 44-6  
 ADD USER 29-32  
 ADD USER RSO 29-34  
 ADD VLAN BRIDGE 8-30  
 ADD VLAN PORT 7-58, 7-64  
 ADD VLAN PROTOCOL 7-62  
 ADD VLAN SUBNET 7-64  
 ADD VRRP IP 36-11  
 ADD VRRP MONITOREDINTERFACE 36-12  
 CLEAR CFLASH 6-18  
 CLEAR FLASH TOTALLY 6-19  
 CLEAR NVS TOTALLY 6-19  
 CONNECT 46-7  
 CONNECT ASYN 10-17  
 CONNECT PORT 10-17  
 CREATE CLASSIFIER 26-4  
 CREATE CONFIG 5-22  
 CREATE DHCP POLICY 14-18  
 CREATE DHCP RANGE 14-19, 14-43  
 CREATE ENCO KEY 30-11, 31-14  
 CREATE IGMP FILTER 17-50  
 CREATE IP POOL 13-78  
 CREATE IPV6 INTERFACE 23-49  
 CREATE LOG OUTPUT 45-14  
 CREATE PKI ENROLLMENTREQUEST 35-21  
 CREATE PKI KEYUPDATEREQUEST 35-22  
 CREATE PPP 11-33  
 CREATE PPP TEMPLATE 11-40  
 CREATE QOS FLOWGROUP 27-46  
 CREATE QOS POLICY 27-48  
 CREATE QOS RED 27-54  
 CREATE QOS TRAFFICCLASS 27-55  
 CREATE RSVP PROXY 28-9  
 CREATE SNMP COMMUNITY 39-31 to 39-33  
 CREATE STP 8-32  
 CREATE SWITCH TRUNK 7-65  
 CREATE TRIGGER 44-7  
 CREATE VLAN 7-68  
 CREATE VRRP 36-13  
 DEACTIVATE L2TP CALL 12-26  
 DEACTIVATE SCRIPT 43-9  
 DELETE ALIAS 2-11  
 DELETE BGP AGGREGATE 20-65  
 DELETE BGP CONFEDERATIONPEER 20-66  
 DELETE BGP IMPORT 20-66





DELETE BGP NETWORK 20-67  
 DELETE BGP PEER 20-67  
 DELETE BOOTP RELAY 14-20  
 DELETE CFLASH DIR 6-23  
 DELETE DHCP POLICY 14-22  
 DELETE DHCP RANGE 14-26  
 DELETE DVMRP INTERFACE 17-52  
 delete epsr datavlan 38-18  
 DELETE FILE 6-23  
 DELETE GRE 22-4, 22-14  
 DELETE IGMP FILTER 17-52  
 DELETE IGMP Snooping RouterAddress 17-53  
 DELETE INSTALL 5-23  
 DELETE IP ARP 13-78  
 DELETE IP FILTER 13-80  
 DELETE IP HOST 13-81  
 DELETE IP INTERFACE 13-82  
 DELETE IP LOCAL 13-83  
 DELETE IP RIP 18-12  
 DELETE IP ROUTE 13-83  
 DELETE IP ROUTE FILTER 21-54  
 DELETE IP ROUTE TEMPLATE 13-84  
 DELETE IP TRUSTED 18-13  
 DELETE IPV6 FILTER 23-50  
 DELETE IPV6 HOST 23-51  
 DELETE IPV6 INTERFACE 23-51  
 DELETE IPV6 RIP 23-54  
 DELETE IPV6 ROUTE 23-55  
 DELETE IPV6 TUNNEL 23-56  
 DELETE L2TP CALL 12-27  
 DELETE L2TP IP 12-27  
 DELETE L2TP USER 12-29  
 DELETE LACP PORT 7-70  
 DELETE LOG OUTPUT 45-18  
 DELETE LOG RECEIVE 45-19  
 DELETE MAIL 4-16  
 DELETE NTP PEER 41-8  
 DELETE NVS 6-25  
 DELETE OSPF AREA 19-37  
 DELETE OSPF HOST 19-37  
 DELETE OSPF INTERFACE 19-38  
 DELETE OSPF NEIGHBOUR 19-40  
 DELETE OSPF RANGE 19-40  
 DELETE OSPF STUB 19-42  
 DELETE OSPF SUMMARYADDRESS 19-43  
 DELETE PIM BSRCandidate 17-54  
 DELETE PIM INTERFACE 17-55  
 DELETE PIM RPCandidate 17-56  
 DELETE PIM6 BSRCandidate 25-29  
 DELETE PIM6 INTERFACE 25-29  
 DELETE PIM6 RPCandidate 25-30  
 DELETE PING POLL 37-9  
 DELETE PKI CERTIFICATE 35-23  
 DELETE PKI CRL 35-23  
 DELETE PKI LDAPREPOSITORY 35-24  
 DELETE PPP 11-46  
 DELETE QOS FLOWGROUP 27-61  
 DELETE QOS POLICY 27-62  
 DELETE QOS TRAFFICCLASS 27-64  
 DELETE RADIUS SERVER 29-35  
 DELETE SCRIPT 43-10  
 DELETE SNMP COMMUNITY 39-32  
 DELETE SNMP GROUP 39-33  
 DELETE SNMP TARGETADDR 39-33  
 DELETE SNMP TARGETPARAMS 39-34  
 DELETE SNMP USER 39-34  
 DELETE SNMP VIEW 39-35  
 DELETE SSH USER 33-11  
 delete stack interface 42-18  
 DELETE STP VLAN 8-33  
 DELETE STREAM 47-5  
 DELETE SWITCH FILTER 7-71, 8-34  
 DELETE SWITCH HWFILTER 7-71  
 DELETE SWITCH L3FILTER 8-34  
 DELETE SWITCH L3FILTER ENTRY 8-34  
 DELETE SWITCH TRUNK 7-72, 8-34  
 DELETE TACACS SERVER 29-36  
 DELETE TCP 13-85  
 DELETE TRIGGER 44-12  
 DELETE USER 29-37  
 DELETE USER RSO 29-38  
 DELETE VLAN BRIDGE 8-34  
 DELETE VLAN PORT 7-73, 8-34  
 DELETE VLAN PROTOCOL 7-75  
 DELETE VLAN SUBNET 7-76  
 DELETE VRRP IP 36-16  
 DELETE VRRP MONITOREDINTERFACE 36-16  
 DESTROY CLASSIFIER 26-15  
 DESTROY DHCP POLICY 14-27  
 DESTROY DHCP RANGE 14-27  
 DESTROY ENCO KEY 30-13, 31-17  
 destroy epsr 38-19  
 DESTROY IGMP FILTER 17-57  
 DESTROY IP POOL 13-85  
 DESTROY IPV6 INTERFACE 23-57  
 DESTROY LOG OUTPUT 45-19  
 DESTROY PKI ENROLLMENTREQUEST 35-24  
 DESTROY PKI KEYUPDATEREQUEST 35-25  
 DESTROY PPP 11-47  
 DESTROY PPP TEMPLATE 11-48  
 DESTROY QOS FLOWGROUP 27-65  
 DESTROY QOS POLICY 27-66  
 DESTROY QOS RED 27-67  
 DESTROY QOS TRAFFICCLASS 27-68  
 DESTROY RSVP PROXY 28-12  
 DESTROY SNMP COMMUNITY 39-36  
 DESTROY STP 8-34  
 DESTROY SWITCH TRUNK 7-77  
 DESTROY TRIGGER 44-12  
 DESTROY VLAN 7-77  
 DESTROY VRRP 36-17  
 DISABLE ASYN 10-17  
 DISABLE BGP DEBUG 20-71  
 DISABLE BGP PEER 20-72  
 DISABLE BOOTP RELAY 14-28  
 DISABLE CFLASH TEST 6-25  
 DISABLE DVMRP 17-58  
 DISABLE DVMRP DEBUG 17-58  
 DISABLE ENCO COMPSTATISTICS 30-14, 31-17  
 DISABLE ENCO DEBUGGING 30-14, 31-18



disable epsr 38-20  
 disable epsr debug 38-21  
 DISABLE FEATURE 5-24  
 DISABLE GARP 9-8  
 DISABLE GARP DEBUG 9-9  
 DISABLE GARP GIP 9-10  
 DISABLE GRE 22-15  
 DISABLE GUI 5-25  
 DISABLE HTTP DEBUG 5-25  
 DISABLE HTTP SERVER 5-25  
 DISABLE IGMP Snooping 17-59  
 DISABLE INTERFACE 10-18  
 DISABLE IP 13-86  
 DISABLE IP DEBUG 13-87  
 DISABLE IP DNSRELAY 13-87  
 DISABLE IP ECHOREPLY 13-87  
 DISABLE IP FOFILTER 13-88  
 DISABLE IP FORWARDING 13-89  
 DISABLE IP HELPER 13-89  
 DISABLE IP IGMP 17-59  
 DISABLE IP IGMP INTERFACE 17-61  
 DISABLE IP INTERFACE 13-91  
 DISABLE IP REMOTEASSIGN 13-92  
 DISABLE IP ROUTE 13-93  
 DISABLE IP SRCROUTE 13-94  
 DISABLE IPV6 23-57  
 DISABLE IPV6 ADV 23-58  
 DISABLE IPV6 DEBUG 23-58  
 DISABLE IPV6 MLD 25-30  
 DISABLE IPV6 MLD DEBUG 25-31  
 DISABLE IPV6 MLD INTERFACE 25-31  
 DISABLE IPV6 RIP 23-59  
 DISABLE L2TP 12-30  
 DISABLE L2TP DEBUG 12-30  
 DISABLE L2TP SERVER 12-31  
 DISABLE LACP 7-78  
 DISABLE LACP DEBUG 7-78  
 DISABLE LOG 45-19  
 DISABLE LOG GENERATION 45-20  
 DISABLE LOG OUTPUT 45-20  
 DISABLE LOG RECEPTION 45-20  
 DISABLE MAIL DEBUG 4-18  
 DISABLE MLDSNOOPING 25-32  
 DISABLE MLDSNOOPING DEBUG 25-32  
 DISABLE MSTP 8-42  
 DISABLE NTP 41-9  
 DISABLE OSPF 19-43  
 DISABLE OSPF DEBUG 19-43  
 DISABLE OSPF INTERFACE 19-45  
 DISABLE OSPF LOG 19-45  
 DISABLE PIM 17-61  
 DISABLE PIM DEBUG 17-62  
 DISABLE PIM6 25-32  
 DISABLE PIM6 DEBUG 25-33  
 DISABLE PING POLL 37-10  
 DISABLE PING POLL DEBUG 37-10  
 DISABLE PKI DEBUG 35-25  
 DISABLE PORT 10-17  
 DISABLE PORTAUTH 32-23  
 DISABLE PORTAUTH DEBUG PORT 32-24  
 DISABLE PORTAUTH PORT 32-25  
 DISABLE PPP 11-49  
 DISABLE PPP DEBUG 11-49  
 DISABLE PPP TEMPLATE DEBUG 11-51  
 DISABLE QOS DEBUG 27-69  
 DISABLE RELEASE 5-26  
 DISABLE RSVP 28-12  
 DISABLE RSVP DEBUG 28-13  
 DISABLE RSVP INTERFACE 28-14  
 DISABLE RSVP PROXY 28-15  
 DISABLE SNMP 39-36  
 DISABLE SNMP AUTHENTICATE\_TRAP 39-36  
 DISABLE SNMP COMMUNITY 39-37  
 DISABLE SSH SERVER 33-13, 33-18  
 DISABLE SSH USER 33-14  
 DISABLE SSL DEBUG 34-8  
 disable stack 42-19  
 disable stack debug 42-19  
 DISABLE STP 8-38  
 DISABLE STP DEBUG 8-39  
 DISABLE STP PORT 8-41  
 DISABLE SWITCH ACCELERATOR 7-78  
 DISABLE SWITCH ACCELERATOR DEBUG 7-79  
 DISABLE SWITCH AGEINGTIMER 7-80  
 DISABLE SWITCH DEBUG 7-80  
 DISABLE SWITCH LEARNING 7-82  
 DISABLE SWITCH MCLIMITING 7-81  
 DISABLE SWITCH MIRROR 7-82  
 DISABLE SWITCH PORT 7-83  
 DISABLE SWITCH STORMPROTECT 7-85  
 DISABLE SYSTEM SECURITY\_MODE 29-39  
 DISABLE TELNET SERVER 13-95  
 DISABLE TEST INTERFACE 48-9  
 DISABLE TRIGGER 44-13  
 DISABLE USER 29-41  
 DISABLE USER RSO 29-41  
 DISABLE VLAN DEBUG 7-85  
 DISABLE VLANRELAY 8-42  
 DISABLE VLANRELAY DEBUG 8-42  
 DISABLE VRRP 36-17  
 DISABLE VRRP DEBUG 36-18  
 DISCONNECT 46-8  
 DUMP 4-19  
 DUMP NVS 6-26  
 EDIT 6-27, 43-3  
 ENABLE BGP DEBUG 20-75  
 ENABLE BGP PEER 20-77  
 ENABLE BOOTP RELAY 14-30  
 ENABLE CFLASH TEST 6-30  
 ENABLE DVMRP 17-63  
 ENABLE DVMRP DEBUG 17-63  
 ENABLE ENCO COMPSTATISTICS 30-14, 31-18  
 ENABLE ENCO DEBUGGING 30-15, 31-19  
 ENABLE FEATURE 5-28  
 ENABLE GARP 9-11  
 ENABLE GARP DEBUG 9-12  
 ENABLE GARP GIP 9-13  
 ENABLE GRE 22-15  
 ENABLE GUI 3-19  
 ENABLE HTTP DEBUG 5-29, 33-12, 33-14, 33-17





- ENABLE HTTP SERVER 5-29
- ENABLE IGMP Snooping 17-64
- ENABLE INTERFACE LINKTRAP 10-19
- ENABLE IP 13-95
- ENABLE IP DEBUG 13-97
- ENABLE IP DNSRELAY 13-98
- ENABLE IP ECHOREPLY 13-98
- ENABLE IP FOFILTER 13-99
- ENABLE IP FORWARDING 13-100
- ENABLE IP HELPER 13-100
- ENABLE IP IGMP 17-64
- ENABLE IP IGMP INTERFACE 17-66
- ENABLE IP INTERFACE 13-101
- ENABLE IP REMOTEASSIGN 13-103
- ENABLE IP ROUTE 13-103
- ENABLE IP SRCROUTE 13-93 to 13-94, 13-104 to 13-105
- ENABLE IPV6 23-59
- ENABLE IPV6 ADV 23-60
- ENABLE IPV6 DEBUG 23-60
- ENABLE IPV6 MLD 25-33
- ENABLE IPV6 MLD DEBUG 25-33, 25-48
- ENABLE IPV6 MLD INTERFACE 25-34
- ENABLE IPV6 RIP 23-61
- ENABLE L2TP 12-31
- ENABLE L2TP DEBUG 12-32
- ENABLE L2TP SERVER 12-35
- ENABLE LOG 45-21
- ENABLE LOG GENERATION 45-21
- ENABLE LOG OUTPUT 45-21
- ENABLE LOG RECEPTION 45-22
- ENABLE MAIL DEBUG 4-21
- ENABLE MLDSNOOPING 25-35
- ENABLE MLDSNOOPING DEBUG 25-35
- ENABLE MSTP CIST PORT 8-43
- ENABLE NTP 41-9
- ENABLE OSPF 19-46
- ENABLE OSPF DEBUG 19-46
- ENABLE OSPF INTERFACE 19-47
- ENABLE OSPF LOG 19-48
- ENABLE PIM 17-62, 17-66 to 17-67
- ENABLE PIM DEBUG 17-67
- ENABLE PIM6 25-35
- ENABLE PIM6 DEBUG 25-36
- ENABLE PING POLL 37-11
- ENABLE PING POLL DEBUG 37-11
- ENABLE PKI DEBUG 35-26
- ENABLE PORTAUTH 32-26
- ENABLE PORTAUTH DEBUG PORT 32-27
- ENABLE PPP 11-51
- ENABLE PPP DEBUG 11-52
- ENABLE PPP TEMPLATE DEBUG 11-55
- ENABLE QOS DEBUG 27-69
- ENABLE RELEASE 5-30
- ENABLE RSVP 28-15
- ENABLE RSVP DEBUG 28-16
- ENABLE RSVP INTERFACE 28-17
- ENABLE RSVP PROXY 28-18
- ENABLE SNMP 39-37
- ENABLE SNMP AUTHENTICATE\_TRAP 39-38
- ENABLE SNMP COMMUNITY 39-38
- ENABLE SSH SERVER 33-15
- ENABLE SSH USER 33-16
- ENABLE SSL DEBUG 34-8
- enable stack 42-20
- enable stack debug 42-21
- ENABLE STP 8-47
- ENABLE STP DEBUG 8-48
- ENABLE STP PORT 8-50
- ENABLE SWITCH AGEINGTIMER 7-88
- ENABLE SWITCH DEBUG 7-90
- ENABLE SWITCH HASH 7-92
- ENABLE SWITCH LEARNING 7-92
- ENABLE SWITCH MCLIMITING 7-92
- ENABLE SWITCH MIRROR 7-92
- ENABLE SWITCH PORT 7-94
- ENABLE SWITCH STORMPROTECT 7-96
- ENABLE SYSTEM SECURITY\_MODE 29-43
- ENABLE TELNET SERVER 13-105
- ENABLE TEST CABLE 48-10
- ENABLE TEST INTERFACE 48-11
- ENABLE TRIGGER 44-14
- ENABLE USER 29-45
- ENABLE USER RSO 29-46
- ENABLE VLAN DEBUG 7-96
- ENABLE VLANRELAY DEBUG 8-51
- ENABLE VRRP 36-18
- ENABLE VRRP DEBUG 36-19
- enble epsr 38-21
- enble epsr debug 38-22
- FINGER 13-106
- FLUSH LOG OUTPUT 45-22
- HELP 2-12
- host-directed commands (HDC) 42-17
- Internet Protocol (IP) 13-55 to 13-186, 18-7
- LOAD 5-31, 43-3 to 43-4
- LOGIN 29-46
- LOGOFF 29-47
- MAIL 4-22
- MODIFY 4-24
- MODIFY NVS 6-30
- PING 13-107
- Point-to-Point Protocol (PPP) 11-29
- PURGE ASYN 10-20
- PURGE BOOTP RELAY 14-32
- PURGE DVMRP 17-68
- purge epsr 38-22 to 38-23
- PURGE GRE 22-16
- PURGE IP 13-109
- PURGE LACP 7-96
- PURGE LOG 45-23
- PURGE NTP 41-9
- PURGE OSPF 19-49
- PURGE PIM 17-68
- PURGE PIM6 25-36
- PURGE PKI 35-27
- PURGE PORTAUTH PORT 32-34
- PURGE PPP 11-56
- PURGE QOS 27-70
- PURGE SNMP 39-39



PURGE STP 8-51  
 PURGE TRIGGER 44-14  
 PURGE USER 29-47  
 RECONNECT 46-9  
 RENAME 6-32  
 RESET BGP PEER 20-78  
 RESET CPU UTILISATION 4-25  
 RESET DVMRP INTERFACE 17-69  
 RESET ENCO COUNTERS 30-16, 31-20  
 RESET ETH 10-22  
 RESET ETH COUNTERS 10-23  
 Reset Eth Counters 10-23  
 RESET GARP 9-14  
 RESET GRE 22-17  
 RESET HTTP SERVER 5-36  
 RESET INTERFACE COUNTER 10-23  
 RESET IP 13-109  
 RESET IP INTERFACE 13-110  
 RESET LACP PORT COUNTER 7-97, 8-52  
 RESET LOADER 5-37  
 RESET MSTP COUNTER PORT 8-52  
 RESET NTP 41-10  
 RESET OSPF 19-49  
 RESET OSPF COUNTER 19-50  
 RESET OSPF INTERFACE 19-50  
 RESET OSPF SPF 19-51  
 RESET PIM INTERFACE 17-69  
 RESET PIM6 INTERFACE 25-37  
 RESET PING POLL 37-12  
 RESET PORT 10-20  
 RESET PORT COUNTERS 10-21  
 RESET PORT HISTORY 10-22  
 RESET PORTAUTH PORT MULTIMIB 32-36  
 RESET PPP 11-57  
 RESET RSVP PROXY 28-19  
 RESET STP 8-52  
 RESET STREAM 47-5  
 RESET SWITCH 7-97, 8-52  
 RESET SWITCH ACCELERATOR COUNTER 7-97  
 RESET SWITCH PORT 7-98, 8-52  
 RESET TEST CABLE 48-12  
 RESET TEST INTERFACE 48-12  
 RESET USER 29-48  
 RESTART 5-37  
 SET ASYN 10-24  
 SET BGP 20-80  
 SET BGP AGGREGATE 20-82  
 SET BGP IMPORT 20-86  
 SET BGP PEER 20-87  
 SET BOOTP MAXHOPS 14-32  
 SET CFLASH DIR 6-34  
 SET CLASSIFIER 26-16  
 SET CONFIG 5-39  
 SET DHCP POLICY 14-37  
 SET DVMRP INTERFACE 17-70  
 SET ENCO DHPADDING 31-21  
 SET ENCO DHPRIORITY 30-16, 31-21  
 SET ENCO KEY 30-17, 31-22  
 SET ENCO SW 31-23  
 set epsr 38-23  
 set epsr port 38-25  
 SET ETH SPEED 10-29  
 SET GARP PORT 9-15  
 SET GARP TIMER 9-17  
 SET GRE 22-17  
 SET HELP 2-13  
 SET HTTP SERVER 5-40  
 SET IGMP FILTER 17-71  
 SET IGMP Snooping FASTLEAVE 17-72  
 SET IGMP Snooping ROUTERMODE 17-73  
 SET INSTALL 5-41, 5-43  
 SET INTERFACE MTU 10-30  
 SET INTERFACE TRAPLIMIT 10-31  
 SET IP ARP 13-111  
 SET IP ARP TIMEOUT 13-112  
 SET IP AUTONOMOUS 20-100  
 SET IP DNSRELAY 13-116  
 SET IP FILTER 13-117  
 SET IP HOST 13-121  
 SET IP IGMP 17-74  
 SET IP IGMP INTERFACE 17-75  
 SET IP INTERFACE 13-122, 22-4  
 SET IP LOCAL 13-126  
 SET IP NAMESERVER 13-127  
 SET IP RIP 18-14  
 SET IP RIPTIMER 18-17  
 SET IP ROUTE 13-128  
 SET IP ROUTE FILTER 21-57  
 SET IP ROUTE TEMPLATE 13-131  
 SET IP SECONDARYNAMESERVER 13-132  
 SET IPV6 FILTER 23-62  
 SET IPV6 INTERFACE 23-65  
 SET IPV6 MLD 25-38  
 SET IPV6 MLD INTERFACE 25-39  
 SET IPV6 MTU 23-66  
 SET L2TP CALL 12-36  
 SET L2TP CHECKSUM 12-39  
 SET L2TP FILTER 12-39  
 SET L2TP PASSWORD 12-40  
 SET L2TP USER 12-41  
 SET LACP PORT 7-99  
 SET LACP PRIORITY 7-100, 8-53  
 SET LOADER 5-44  
 SET LOG OUTPUT 45-23  
 SET LOG RECEIVE 45-29  
 SET LOG UTCOFFSET 45-30  
 SET MAIL 4-26  
 SET MANAGER PORT 29-49  
 SET NTP UTCOFFSET 41-10  
 SET OSPF 19-52  
 SET OSPF AREA 19-55  
 SET OSPF HOST 19-57  
 SET OSPF INTERFACE 19-58  
 SET OSPF NEIGHBOUR 19-62  
 SET OSPF RANGE 19-63  
 SET OSPF STUB 19-65  
 SET OSPF SUMMARYADDRESS 19-66  
 SET PASSWORD 29-49 to 29-50  
 SET PIM 17-76  
 SET PIM BSRCANDIDATE 17-78



SET PIM INTERFACE 17-79  
 SET PIM RPCANDIDATE 17-80  
 SET PIM6 25-40  
 SET PIM6 BSR CANDIDATE 25-41  
 SET PIM6 INTERFACE 25-42  
 SET PIM6 RPCANDIDATE 25-43  
 SET PING 13-133  
 SET PING POLL 37-12  
 SET PKI 35-27  
 SET PKI CERTIFICATE 35-28  
 SET PKI CRL 35-29  
 SET PKI LDAPREPOSITORY 35-30  
 SET PORT 10-24  
 SET PORTAUTH PORT 32-37  
 SET PORTAUTH PORT SUPPLICANTMAC 32-43  
 SET PORTAUTH USERNAME 32-46  
 SET PPP 11-58  
 SET PPP TEMPLATE 11-64  
 SET QOS DEFAULTPRIORITY 27-73  
 SET QOS DSCP MAP 27-74  
 SET QOS FABRIC QUEUE 27-76  
 SET QOS FABRIC QUEUEMAP 27-77  
 SET QOS FLOWGROUP 27-78  
 SET QOS POLICY 27-80  
 SET QOS PORT 27-85  
 SET QOS PORT EGRESSQUEUE 27-87, 27-90  
 SET QOS RED 27-90  
 SET QOS TRAFFICCLASS 27-93  
 SET RSVP INTERFACE 28-20  
 SET RSVP PROXY 28-21  
 SET SCRIPT 43-12  
 SET SNMP COMMUNITY 39-39, 39-48  
 SET SNMP ENGINEID 39-40  
 SET SNMP GROUP 39-41  
 SET SNMP LOCAL 39-42  
 SET SNMP TARGETADDR 39-42  
 SET SNMP TARGETPARAMS command 39-43  
 SET SNMP USER 39-44  
 SET SSH USER 33-19  
 SET SSL 34-9  
 set stack authentication 42-22  
 set stack stackid 42-23  
 SET STP 8-61  
 SET STP PORT 8-64  
 SET STREAM 47-6  
 SET SWI NESTEDTPID 7-106  
 SET SWITCH AGEINGTIMER 7-101  
 SET SWITCH DLFLIMIT 7-102  
 SET SWITCH JUMBO 7-105  
 SET SWITCH MIRROR 7-105  
 SET SWITCH PORT 7-106  
 SET SWITCH TRUNK 7-112 to 7-113  
 SET SYSTEM CONTACT 4-29  
 SET SYSTEM LOCATION 4-32  
 SET SYSTEM NAME 4-33  
 SET TELNET 46-9  
 SET TIME 4-35  
 SET TRACE 13-135  
 SET TRIGGER 44-15  
 SET TTY 46-11

SET USER 29-54  
 SET VLAN PORT 7-115  
 SET VRRP 36-19  
 SHOW ALIAS 2-13 to 2-14, 6-49  
 SHOW BGP 20-101  
 SHOW BGP AGGREGATE 20-103  
 SHOW BGP CONFEDERATION 20-104  
 SHOW BGP IMPORT 20-114  
 SHOW BGP NETWORK 20-118  
 SHOW BGP PEER 20-119  
 SHOW BGP ROUTE 20-126  
 SHOW BOOTP RELAY 14-44  
 SHOW BUFFER 4-37  
 SHOW CFLASH 6-39  
 SHOW CFLASH COUNTERS 6-40  
 SHOW CFLASH FILE 6-41  
 SHOW CFLASH TEST 6-42  
 SHOW CONFIG 5-48  
 SHOW CPU 4-42  
 SHOW DEBUG 4-44  
 SHOW DHCP 14-47  
 SHOW DHCP CLIENT 14-49  
 SHOW DHCP POLICY 14-51  
 SHOW DHCP RANGE 14-52  
 SHOW DVMRP 17-81  
 SHOW DVMRP COUNTERS 17-81  
 SHOW DVMRP DEBUG 17-82  
 SHOW DVMRP FORWARDING 17-83  
 SHOW DVMRP INTERFACE 17-84  
 SHOW DVMRP NEIGHBOUR 17-85  
 SHOW DVMRP ROUTE 17-86  
 SHOW ENCO CHANNEL 30-19, 31-26  
 SHOW ENCO COUNTERS 30-24, 31-31  
 SHOW ENCO KEY 30-35, 31-45  
 show epsr 38-26  
 show epsr counter 38-29  
 show epsr debug 38-30  
 SHOW ETH CONFIGURATION 10-40  
 SHOW ETH COUNTERS 10-41  
 SHOW ETH MACADDRESS 10-47  
 SHOW ETH RECEIVE 10-48  
 SHOW ETH STATE 10-49  
 SHOW EXCEPTION 4-50  
 SHOW FEATURE 5-50  
 SHOW FFIL 6-44, 6-46  
 SHOW FLASH 6-50  
 SHOW FLASH PHYSICAL 6-52  
 SHOW GARP 9-19  
 SHOW GARP COUNTER 9-21  
 SHOW GARP DB 9-23  
 SHOW GARP DEBUG 9-24  
 SHOW GARP GIP 9-25  
 SHOW GARP MACHINE 9-26  
 SHOW GRE 22-20 to 22-22  
 SHOW HTTP CLIENT 5-52  
 SHOW HTTP DEBUG 5-53  
 SHOW HTTP SERVER 5-53  
 SHOW HTTP SESSION 5-55  
 SHOW IGMP FILTER 17-87  
 SHOW IGMP SNOOPING 17-88



SHOW IGMP Snooping Counter 17-90	SHOW NVS 6-53
SHOW IGMP Snooping Router Address 17-91	SHOW NVS FREE 6-54
SHOW INSTALL 5-56	SHOW OSPF 19-67
SHOW INTERFACE 10-51	SHOW OSPF AREA 19-69
SHOW IP ARP 13-140	SHOW OSPF DEBUG 19-72
SHOW IP DEBUG 13-150	SHOW OSPF HOST 19-72
SHOW IP FILTER 13-154	SHOW OSPF INTERFACE 19-74
SHOW IP HELPER 13-156	SHOW OSPF LSA 19-78
SHOW IP HOST 13-158	SHOW OSPF Neighbours 19-85
SHOW IP IGMP 17-92	SHOW OSPF RANGE 19-86
SHOW IP IGMP Counter 17-95	SHOW OSPF ROUTE 19-88
SHOW IP INTERFACE 13-159	SHOW OSPF STUB 19-90
SHOW IP POOL 13-164	SHOW OSPF Summary Address 19-91
SHOW IP RIP 18-18	SHOW PATCH 5-63
SHOW IP RIP Counter 18-19	SHOW PIM 17-98
SHOW IP RTTimer 18-22	SHOW PIM BSR Candidate 17-99
SHOW IP ROUTE 13-166	SHOW PIM Counters 17-101
SHOW IP ROUTE FILTER 21-68	SHOW PIM DEBUG 17-104
SHOW IP ROUTE Multicast 13-170	SHOW PIM INTERFACE 17-105
SHOW IP ROUTE Template 13-172	SHOW PIM Neighbour 17-107
SHOW IP TRUSTED 18-23	SHOW PIM ROUTE 17-108
SHOW IP UDP 13-174	SHOW PIM RPCandidate 17-113
SHOW IPV6 23-71	SHOW PIM RPSet 17-114
SHOW IPV6 Counter 23-77	SHOW PIM StateRefresh 17-116
SHOW IPV6 FILTER 23-81	SHOW PIM TIMER 17-117
SHOW IPV6 HOST 23-83	SHOW PIM6 BSR Candidate 25-52
SHOW IPV6 INTERFACE 23-84	SHOW PIM6 CONFIG 25-53
SHOW IPV6 MLD 25-44	SHOW PIM6 Counters 25-54
SHOW IPV6 MLD CONFIG 25-46	SHOW PIM6 DEBUG 25-57
SHOW IPV6 MLD Counters 25-47	SHOW PIM6 INTERFACE 25-57
SHOW IPV6 MLD DEBUG 25-48	SHOW PIM6 Neighbour 25-59
SHOW IPV6 Multicast 23-86	SHOW PIM6 ROUTE 25-60
SHOW IPV6 ND 23-87	SHOW PIM6 RPCandidate 25-65
SHOW IPV6 RIP 23-90	SHOW PIM6 RPSet 25-66
SHOW IPV6 ROUTE 23-92	SHOW PIM6 StateRefresh 25-68
SHOW IPV6 TUNNEL 23-96	SHOW PIM6 TIMER 25-69
SHOW L2TP 12-43	SHOW PING 13-176
SHOW L2TP CALL 12-44	SHOW PING POLL 37-15
SHOW L2TP IP 12-49	SHOW PKI 35-32
SHOW L2TP TUNNEL 12-50, 12-53	SHOW PKI Certificate 35-39
SHOW L2TP USER 12-61	SHOW PKI CRL 35-42
SHOW LACP 7-116	SHOW PKI Enrollment Request 35-45
SHOW LACP PORT 7-117, 7-119 to 7-120, 8-67	SHOW PKI KeyUpdate Request 35-47
SHOW LACP TRUNK 7-120, 8-67	SHOW PKI LDAP Repository 35-49
SHOW LOG 45-31 to 45-32	SHOW PORTAUTH 32-48
SHOW LOG Counters 45-37	SHOW PORTAUTH PORT 32-53
SHOW LOG OUTPUT 45-39, 45-42	SHOW PORTAUTH PORT MultiSupplicant 32-60
SHOW LOG QUEUE 45-43, 45-45	SHOW PORTAUTH TIMER 32-66
SHOW LOG RECEIVE 45-44	SHOW PPP 11-71
SHOW LOG STATUS 45-45	SHOW PPP CONFIG 11-72
Logging Facility 45-45	SHOW PPP COUNT 11-78
SHOW MAIL 4-51	SHOW PPP DEBUG 11-90
SHOW Manager Port 29-57	SHOW PPP IDLETimer 11-91
SHOW MLD Snooping 25-48	SHOW PPP Limits 11-92
SHOW MLD Snooping Counter 25-50	SHOW PPP MultiLink 11-93
SHOW MSTP 8-67, 8-69	SHOW PPP NameServer 11-95
SHOW MSTP CIST Port 8-72	SHOW PPP Template 11-96
SHOW MSTP Counter Port 8-74	SHOW PPP TxStatus 11-101
SHOW MSTP DEBUG MSTI 8-75	SHOW PPP Utilisation 11-103
SHOW NTP 41-11	SHOW QoS DefaultPriority 27-101



SHOW QOS DSCPMAP 27-101  
 SHOW QOS FABRIC 27-103  
 SHOW QOS FLOWGROUP 27-104  
 SHOW QOS POLICY 27-106  
 SHOW QOS PORT 27-109  
 SHOW QOS PRIO2QUEUEMAP 27-117  
 SHOW QOS QUEUE2PRIOMAP 27-118  
 SHOW QOS RED 27-118  
 SHOW QOS TRAFFICCLASS 27-122  
 SHOW RADIUS 29-57  
 SHOW RELEASE 5-63 to 5-64  
 SHOW RSVP 28-23  
 SHOW RSVP COUNTER 28-24  
 SHOW RSVP INTERFACE 28-26  
 SHOW RSVP PATH 28-28  
 SHOW RSVP PROXY 28-29  
 SHOW RSVP PROXY COUNTER 28-31  
 SHOW RSVP RESV 28-32  
 SHOW SCRIPT 43-14  
 SHOW SESSION 46-12  
 SHOW SNMP 39-45, 39-48  
 SHOW SNMP COMMUNITY 39-48  
 SHOW SNMP GROUP 39-49  
 SHOW SNMP TARGETADDR 39-50  
 SHOW SNMP TARGETPARAMS 39-51  
 SHOW SNMP USER 39-52  
 SHOW SNMP VIEW 39-53  
 SHOW SSH 33-20  
 SHOW SSH SESSIONS 33-29  
 SHOW SSH USER 33-31  
 SHOW SSL 34-10  
 SHOW SSL COUNTERS 34-12  
 SHOW SSL SESSIONS 34-20  
 show stack 42-24  
 SHOW STARTUP 4-52  
 SHOW STP 8-79  
 SHOW STP COUNTER 8-83  
 SHOW STP DEBUG 8-85  
 SHOW STP PORT 8-86  
 SHOW STREAM 47-7  
 SHOW SWITCH 7-120  
 SHOW SWITCH COUNTER 7-131  
 SHOW SWITCH DEBUG 7-133  
 SHOW SWITCH FDB 7-135  
 SHOW SWITCH FILTER 7-135  
 SHOW SWITCH PORT 7-138  
 SHOW SWITCH PORT COUNTER 7-142  
 SHOW SWITCH PORT INTRUSION 7-144  
 SHOW SWITCH TRUNK 7-145  
 SHOW SYSTEM 4-54  
 SHOW SYSTEM SERIALNUMBER 4-74  
 SHOW TACACS SERVER 29-62  
 SHOW TCP 13-178  
 SHOW TEST 48-13  
 SHOW TEST CABLE 48-19  
 SHOW TIME 4-75  
 SHOW TRACE 13-183  
 SHOW TRIGGER 44-19  
 SHOW TTY 46-14  
 SHOW USER 29-67

SHOW USER RSO 29-71  
 SHOW VLAN 7-147  
 SHOW VLAN DEBUG 7-152 to 7-153  
 SHOW VRRP 36-22  
 Simple Network Management Protocol (SNMP)  
     39-24 to 39-54  
 SSH 33-33  
 STOP PING 13-184  
 STOP TRACE 13-185  
 stream printing 47-4  
 Switch 7-50, 26-4, 38-7 to 38-9, 38-13  
 TELNET 46-17  
 terminal server 46-7, 46-9  
 TRACE 13-185  
 UPLOAD 5-66  
 WAIT 43-11, 43-15  
 Common and Internal Spanning Tree (CIST)  
     Trunks and Spanning Trees 8-26  
     Vectors 8-24  
 COMMUNITY command 39-32  
 community, SNMP 39-11  
 Compact Flash  
     clear 6-18  
     displaying 6-39  
 Compact Flash commands  
     ADD CFLASH DIR 6-16  
     CLEAR CFLASH 6-18  
     DELETE CFLASH DIR 6-23  
     DISABLE CFLASH TEST 6-25  
     ENABLE CFLASH TEST 6-30  
     SET CFLASH DIR 6-34  
     SHOW CFLASH 6-39  
     SHOW CFLASH COUNTERS 6-40  
     SHOW CFLASH FILE 6-41  
     SHOW CFLASH TEST 6-42  
 Compact Flash counters  
     displaying 6-40  
 Compact Flash current directory  
     displaying 6-41  
 Compact Flash directory  
     adding 6-16  
     deleting 6-23  
     setting 6-34  
 Compact Flash memory 6-12  
 Compact Flash test  
     disable 6-25  
     displaying 6-42  
     enable 6-30  
 compacting FLASH memory 6-10  
 Compressed Serial Line Internet Protocol (CSLIP) 10-8  
     encapsulation, asynchronous ports 10-8  
 compression  
     commands  
         DELETE USER RSO 29-38  
         DISABLE USER RSO 29-41  
         ENABLE USER RSO 29-46  
         SHOW USER RSO 29-71  
 compression. See Compression and Encryption Services;  
     Link Compression and Encryption; IP Security (IPsec)  
 Compression and Encryption Services 30-1 to 31-46



See also Link Compression and Encryption; IP Security (IPsec)

See also IP Security (IPsec)

access control 30-10, 31-12

asymmetrical encryption algorithms 30-4, 31-5

authentication 30-5, 31-7

HMAC 30-5, 31-7

MD5 30-5, 31-7

services 30-8, 31-9

SHA 30-5, 31-7

channels

ENCO 30-19, 31-26

checksum 30-2, 31-4

Cipher Block Chaining (CBC) encryption algorithm 30-3, 31-5

Cipher Feedback (CFB) encryption algorithm 30-3, 31-5

cipher text 30-2, 31-4

commands

CREATE ENCO KEY 30-11, 31-14

DESTROY ENCO KEY 30-13, 31-17

DISABLE ENCO COMPSTATISTICS 30-14, 31-17

DISABLE ENCO DEBUGGING 30-14, 31-18

ENABLE ENCO COMPSTATISTICS 30-14, 31-18

ENABLE ENCO DEBUGGING 30-15, 31-19

RESET ENCO COUNTERS 30-16, 31-20

SET ENCO DHPADDING 31-21

SET ENCO DHPRIORITY 30-16, 31-21

SET ENCO KEY 30-17, 31-22

SET ENCO SW 31-23

SHOW ENCO CHANNEL 30-19, 31-26

SHOW ENCO COUNTERS 30-24, 31-31

SHOW ENCO KEY 30-35, 31-45

compression

header 31-3

history 31-2

Lempel-Ziv algorithm 31-2

link 31-2

lossless 31-2

lossy 31-2

payload 31-3

Predictor 31-23

services 31-9

software 31-23

speed 31-23

STAC LZS 31-23

statistics 30-14, 31-17 to 31-18

Van Jacobson 31-3

counters

displaying 30-24, 31-31

resetting 30-16, 31-20

creating

encryption keys 30-11, 31-14

data authentication 30-5, 31-7

data compression 31-2 to 31-3

data encryption 30-2, 31-4

debugging

disabling ENCO 30-14, 31-18

enabling ENCO 30-15, 31-19

decommissioning 30-10, 31-12

DES encryption 30-3, 31-4

Diffie-Hellman key exchange algorithm 30-6, 31-11

disabling

debugging 30-14, 31-18

displaying

ENCO counters 30-24, 31-31

displaying counters 30-24, 31-31

Electronic Code Book (ECB) encryption algorithm 30-3, 31-5

enabling

debugging 30-15, 31-19

ENCO channels 30-19, 31-26

ENCO services 30-7 to 30-10, 30-19, 31-8, 31-26

encryption

asymmetrical 30-4, 31-5

Cipher Block Chaining (CBC) 30-3, 31-5

Cipher Feedback (CFB) 30-3, 31-5

cipher text 31-4

ciphertext 30-2

creating keys 30-11, 31-14

decommissioning 30-10, 31-12

DES 30-3, 31-4

Electronic Code Book (ECB) 30-3, 31-5

key formats 30-8, 31-10

link 31-6

network 31-6

Output Feedback (OFB) 30-3, 31-5

payload 30-4, 31-6

plain text 31-4

plaintext 30-2

services 30-7, 31-9

symmetrical 30-3, 31-4

Triple DES 30-3

Triple DES inner CBC mode 30-4, 31-5

Triple DES outer CBC mode 30-4, 31-5

formats, encryption keys 30-8, 31-10

header compression 31-3

history, compression 31-2

HMAC authentication algorithm 30-5, 31-7

key creation and storage 30-8, 30-11, 31-10, 31-14

key exchange

algorithms 30-6, 31-8

services 30-8, 31-11

key formats, encryption 30-8, 31-10

Lempel-Ziv compression algorithm 31-2

link compression 31-2

link encryption 31-6

lossless data compression 31-2

lossy data compression 31-2

MD5 authentication algorithm 30-5, 31-7

network encryption 31-6

Output Feedback (CFB) encryption algorithm 30-3, 31-5

payload compression 31-3

payload encryption 30-4, 31-6, 31-13

plain text 30-2, 31-4

PPP 31-13

Predictor compression 31-23

resetting

ENCO counters 30-16, 31-20

resetting counters 30-16, 31-20

Secure Shell 31-13





- security 30-10, 31-12
- services 30-7 to 30-10, 30-19, 31-8, 31-26
  - authentication 30-8, 31-9
  - compression 31-9
  - encryption 30-7, 31-9
  - key creation and storage 30-8, 31-10
  - key exchange 30-8, 31-11
- SHA authentication algorithm 30-5, 31-7
- software compression 31-23
- speed, software compression 31-23
- STAC LZS compression 31-23
- statistics, compression 30-14, 31-17 to 31-18
- symmetrical encryption algorithms 30-3, 31-4
- Triple DES encryption 30-3
- Triple DES inner CBC mode encryption algorithm 30-4, 31-5
- Triple DES outer CBC mode encryption algorithm 30-4, 31-5
- user modules
  - IP 31-13
  - PPP 31-13
  - Secure Shell 31-13
  - VPNNet 31-13
- Van Jacobson header compression 31-3
- VPNNet 31-13
- compression statistics 30-14, 31-17 to 31-18
- configFile MIB object C-19 to C-20
- configFileExist MIB object C-20
- configFileExistTrap trap message C-20
- configuration
  - asynchronous ports 10-9
  - displaying dynamic 5-48
  - Ethernet 10-23
  - examples
    - Internet Protocol (IP) 13-46, 18-5
    - stream printing 47-3
  - Internet Protocol (IP) 13-46, 18-5
    - examples 13-46, 18-5
  - OSPF 19-17, 19-67
  - saving dynamic 5-22
  - setting default 5-39
- configuration example 34-6
- configuration examples
  - DHCP 14-7
  - DHCP for IPv6 24-7
  - DVMRP 17-31
  - GRE 22-5
  - IGMP 17-31, 17-34
  - IPv4 Multicasting 17-31, 17-34
  - IPv6 Multicasting 25-15
  - Layer Two Tunnelling Protocol (L2TP) 12-11
  - mail subsystem 4-12
  - Multicast Listener Discovery (MLD) 25-15
  - PKI 35-11 to 35-15
    - enrollment with CMP 35-14
    - manual enrollment 35-11
  - Point-to-Point Protocol (PPP) 11-28
  - Protocol Independent Multicasting (PIM), IPv4 17-34
  - Protocol Independent Multicasting (PIM), IPv6 25-15
  - Secure Shell 33-6
  - SNMP 39-23
- configuring
  - DHCP 14-7
  - NTP 41-4
  - stream printing 47-3
- Configuring EPSR 38-6
- CONNECT ASYN command 10-17
- CONNECT command 46-7
- CONNECT PORT command 10-17
- contact name
  - displaying 4-54
  - setting 4-29
- control protocols, Point-to-Point Protocol 11-4 to 11-5
- control structures, in scripts 43-5, 43-11
- conventions, file naming 6-3, 6-7
- coprocessor engine
  - commands
    - DELETE USER RSO 29-38
    - DISABLE USER RSO 29-41
    - ENABLE USER RSO 29-46
    - SHOW USER RSO 29-71
- Counter
  - displaying 9-21
- counters
  - displaying
    - ENCO 30-24, 31-31
    - STP 8-83
    - switch 7-135
    - switch port 7-142
  - displaying PPP activity 11-24
  - ENCO
    - displaying 30-24, 31-31
    - resetting 30-16, 31-20
  - ETH 10-23, 10-41
  - Ethernet 10-23
  - OSPF 19-50
  - Point-to-Point Protocol (PPP) 11-24
  - resetting
    - ENCO 30-16, 31-20
    - resetting PPP activity 11-24, 11-57
    - STP 8-83
    - switch port 7-142
- counters MIB object C-25
- cpu MIB object C-16
- CPU utilisation 4-8, 4-42
  - resetting 4-25
- CREATE CLASSIFIER command 26-4
- CREATE CONFIG command 5-22
- CREATE DHCP POLICY command 14-18
- CREATE DHCP RANGE command 14-19, 14-43
- CREATE ENCO KEY command 30-11, 31-14
- CREATE IGMP FILTER command 17-50
- CREATE IP POOL command 13-78
- CREATE IPV6 INTERFACE command 23-49
- CREATE LOG OUTPUT command 45-14
- CREATE PKI ENROLLMENTREQUEST command 35-21
- CREATE PKI KEYUPDATEREQUEST command 35-22
- CREATE PPP command 11-33
- CREATE PPP TEMPLATE command 11-40
- CREATE QOS FLOWGROUP command 27-46



CREATE QOS POLICY command 27-48  
 CREATE QOS RED command 27-54  
 CREATE QOS TRAFFICCLASS command 27-55  
 CREATE RSVP PROXY command 28-9  
 CREATE SNMP COMMUNITY command 39-31  
 CREATE STP command 8-32  
 CREATE SWITCH TRUNK command 7-65  
 CREATE TRIGGER command 44-7  
 CREATE VLAN command 7-68  
 CREATE VRRP command 36-13  
 createConfigFile MIB object C-20  
 creating

- encryption keys 30-11, 31-14
- files 6-6
- IP address pools 13-78
- PKI enrollment requests 35-21
- PKI Key Update requests 35-22
- PPP interfaces 11-33
- PPP templates 11-40
- RSVP proxy agent 28-7, 28-9
- templates 11-40

CRL. See Certificate Revocation List (CRL)  
 currentConfigFile MIB object C-20

## D

data authentication. See Compression and Encryption Services  
 data compression. See Compression and Encryption Services  
 data encryption. See Compression and Encryption Services  
 Database  
   displaying 9-23  
 date  
   displaying 4-75  
   setting 4-35  
 DB  
   displaying 9-23  
 DEACTIVATE L2TP CALL command 12-26  
 DEACTIVATE SCRIPT command 43-9  
 debug  
   STP  
     disabling 8-39  
     displaying 8-85  
     enabling 8-48  
   switch  
     disabling 7-80  
     displaying 7-133  
     enabling 7-90  
 Debugging  
   disabling 9-9  
   displaying 9-24  
   enabling 9-12  
 debugging 4-12  
   disabling  
     ENCO 30-14, 31-18  
   enabling  
     ENCO 30-15, 31-19  
 ENCO  
   disabling 30-14, 31-18  
   enabling 30-15, 31-19

mail 4-21  
 OSPF 19-43, 19-46  
 PPP interfaces 11-49, 11-52  
 PPP links 11-25, 11-90  
 PPP templates 11-51, 11-55  
 router 4-44  
   templates 11-51, 11-55  
 debugging, Internet Protocol (IP) 13-37 to 13-38, 13-87, 13-97, 13-150  
 decommissioning, encryption hardware 30-10, 31-12  
 default configuration, setting 5-39  
 DELETE ALIAS command 2-11  
 DELETE BGP AGGREGATE command 20-65  
 DELETE BGP CONFEDERATIONPEER command 20-66  
 DELETE BGP IMPORT command 20-66  
 DELETE BGP NETWORK command 20-67  
 DELETE BGP PEER command 20-67  
 DELETE BOOTP RELAY command 14-20  
 DELETE CFLASH DIR command 6-23  
 DELETE DHCP POLICY command 14-22  
 DELETE DHCP RANGE command 14-26  
 DELETE DVMRP INTERFACE command 17-52  
 DELETE FILE command 6-23  
 DELETE GRE command 22-4, 22-14  
 DELETE IGMP FILTER command 17-52  
 DELETE IGMP Snooping ROUTERADDRESS command 17-53  
 DELETE INSTALL command 5-23  
 DELETE IP ARP command 13-78  
 DELETE IP AS PATHLIST command 21-53  
 DELETE IP COMMUNITYLIST command 21-53  
 DELETE IP FILTER command 13-80  
 DELETE IP HELPER command 13-80  
 DELETE IP HOST command 13-81  
 DELETE IP INTERFACE command 13-82  
 DELETE IP RIP command 18-12  
 DELETE IP ROUTE command 13-83  
 DELETE IP ROUTE FILTER command 21-54  
 DELETE IP ROUTE TEMPLATE command 13-84  
 DELETE IP ROUTEMAP 21-55  
 DELETE IP TRUSTED command 18-13  
 DELETE IPV6 FILTER command 23-50  
 DELETE IPV6 HOST command 23-51  
 DELETE IPV6 INTERFACE command 23-51  
 DELETE IPV6 RIP command 23-54  
 DELETE IPV6 ROUTE command 23-55  
 DELETE IPV6 TUNNEL command 23-56  
 DELETE L2TP CALL command 12-27  
 DELETE L2TP IP command 12-27  
 DELETE L2TP USER command 12-29  
 DELETE LACP PORT command 7-70  
 DELETE LOG OUTPUT command 45-18  
 DELETE LOG RECEIVE command 45-19  
 DELETE MAIL command 4-16  
 DELETE NTP PEER command 41-8  
 DELETE NVS command 6-25  
 DELETE OSPF AREA command 19-37  
 DELETE OSPF HOST command 19-37  
 DELETE OSPF INTERFACE command 19-38  
 DELETE OSPF NEIGHBOUR command 19-40



DELETE OSPF RANGE command 19-40  
 DELETE OSPF STUB command 19-42  
 DELETE OSPF SUMMARYADDRESS command 19-43  
 DELETE PIM BSR CANDIDATE command 17-54  
 DELETE PIM INTERFACE command 17-55  
 DELETE PIM RPCANDIDATE command 17-56  
 DELETE PIM6 BSR CANDIDATE command 25-29  
 DELETE PIM6 INTERFACE command 25-29  
 DELETE PIM6 RPCANDIDATE command 25-30  
 DELETE PING POLL command 37-9  
 DELETE PKI CERTIFICATE command 35-23  
 DELETE PKI CRL command 35-23  
 DELETE PKI LDAPREPOSITORY command 35-24  
 DELETE PPP ACSERVICE command 11-47  
 DELETE PPP command 11-46  
 DELETE QOS FLOWGROUP command 27-61  
 DELETE QOS POLICY command 27-62  
 DELETE QOS TRAFFICCLASS command 27-64  
 DELETE RADIUS SERVER command 29-35  
 DELETE SCRIPT command 43-10  
 DELETE SNMP COMMUNITY command 39-32  
 DELETE SNMP GROUP command 39-33  
 DELETE SNMP TARGETADDR command 39-33  
 DELETE SNMP TARGETPARAMS command 39-34  
 DELETE SNMP USER command 39-34  
 DELETE SNMP VIEW command 39-35  
 DELETE SSH USER command 33-11  
 delete stack interface command 42-18  
 DELETE STP VLAN command 8-33  
 DELETE STREAM command 47-5  
 DELETE SWITCH FILTER command 7-71, 8-34  
 DELETE SWITCH HWFILTER command 7-71  
 DELETE SWITCH L3FILTER command 8-34  
 DELETE SWITCH L3FILTER ENTRY command 8-34  
 DELETE SWITCH TRUNK command 7-72, 8-34  
 DELETE TACACS SERVER command 29-36  
 DELETE TCP command 13-85  
 DELETE TRIGGER command 44-12  
 DELETE USER command 29-37  
 DELETE USER RSO command 29-38  
 DELETE VLAN BRIDGE command 8-34  
 DELETE VLAN PORT command 7-73, 8-34  
 DELETE VLAN PROTOCOL command 7-75  
 DELETE VLAN SUBNET command 7-76  
 DELETE VRRP IP command 36-16  
 DELETE VRRP MONITOREDINTERFACE command 36-16  
 deleting  
   aliases 2-11  
   compact flash directory 6-23  
   files 6-23  
   FLASH files 6-23  
   install information 5-23  
   mail messages 4-12, 4-16  
   NTP peer 41-8  
   NVS blocks 6-25  
   physical links from PPP interfaces 11-46  
   PKI Certificates 35-23  
   PKI LDAP repositories 35-24  
   PPP interfaces 11-47  
   route templates 13-84

  stream ports 47-5  
 deprecated status 39-8  
 DES encryption  
   algorithm 30-3, 31-4  
 descriptor 39-6  
 descriptor, MIB object 39-6  
 designated bridge 8-3  
 designated router, OSPF 19-5, 19-7, 19-27 to 19-28, 19-31, 19-40, 19-60, 19-62, 19-74  
 designated router, PIM Sparse Mode 17-11  
   setting PIM DR priority, IPv4 17-79  
   setting PIM DR priority, IPv6 25-27, 25-42  
 DESTROY CLASSIFIER command 26-15  
 DESTROY DHCP POLICY command 14-27  
 DESTROY DHCP RANGE command 14-27  
 DESTROY ENCO KEY command 30-13, 31-17  
 DESTROY IGMP FILTER command 17-57  
 DESTROY IP POOL command 13-85  
 DESTROY IPV6 INTERFACE command 23-57  
 DESTROY LOG OUTPUT command 45-19  
 DESTROY PKI ENROLLMENTREQUEST command 35-24  
 DESTROY PKI KEYUPDATEREQUEST command 35-25  
 DESTROY PPP command 11-47  
 DESTROY PPP TEMPLATE command 11-48  
 DESTROY QOS FLOWGROUP command 27-65  
 DESTROY QOS POLICY command 27-66  
 DESTROY QOS RED command 27-67  
 DESTROY QOS TRAFFICCLASS command 27-68  
 DESTROY RSVP PROXY command 28-12  
 DESTROY SNMP COMMUNITY command 39-36  
 DESTROY STP command 8-34  
 DESTROY SWITCH TRUNK command 7-77  
 DESTROY TRIGGER command 44-12  
 DESTROY VLAN command 7-77  
 DESTROY VRRP command 36-17  
 destroying  
   IP address pools 13-85  
   PKI Enrollment Requests 35-24  
   PPP interfaces 11-47  
   PPP templates 11-48  
   RSVP proxy agent 28-7, 28-12  
   templates 11-48  
 DHCP client 13-18, 13-69, 13-87, 13-98, 13-123  
 DHCP group, Allied Telesis Enterprise MIB C-21  
 dhcp MIB object C-21  
 DHCP Unique Identifier 24-3  
 DHCP. See Dynamic Host Configuration Protocol (DHCP)  
 DHCP6. See Dynamic Host Configuration Protocol for IPv6 (DHCP6)  
 dhcpRangeExhaustedGateway MIB object C-21  
 dhcpRangeExhaustedInterface MIB object C-21  
 dhcpRangeTable MIB object C-21  
 dhcpTrapVariable MIB object C-21  
 dial-on-demand, PPP 11-9  
 Diffie-Hellman key exchange algorithm 30-6, 31-11  
 DiffServ domains (Quality of Service) 27-36  
 digital certificates. See certificates  
 digital signatures 35-2  
 directory of files 6-5  
 disable



compact flash test 6-25  
 OSPF 19-43  
 DISABLE ASYNCommand 10-17  
 DISABLE BGP DEBUG command 20-71  
 DISABLE BGP PEER command 20-72  
 DISABLE BOOTP RELAY command 14-28  
 DISABLE CFLASH TEST command 6-25  
 DISABLE DVMRP command 17-58  
 DISABLE DVMRP DEBUG command 17-58  
 DISABLE ENCO COMPSTATISTICS command 30-14, 31-17  
 DISABLE ENCO DEBUGGING command 30-14, 31-18  
 DISABLE FEATURE command 5-24  
 DISABLE GARP command 9-8  
 DISABLE GARP DEBUG command 9-9  
 DISABLE GARP GIP command 9-10  
 DISABLE GRE command 22-15  
 DISABLE GUI command 5-25  
 DISABLE HTTP DEBUG command 5-25  
 DISABLE HTTP SERVER command 5-25  
 DISABLE IGMPSNOOPING command 17-59  
 DISABLE INTERFACE command 10-18  
 DISABLE IP command 13-86  
 DISABLE IP DEBUG command 13-87  
 DISABLE IP DNSRELAY command 13-87  
 DISABLE IP ECHOREPLY command 13-87  
 DISABLE IP FOFILTER command 13-88  
 DISABLE IP FORWARDING command 13-89  
 DISABLE IP HELPER command 13-89  
 DISABLE IP IGMP command 17-59  
 DISABLE IP IGMP INTERFACE command 17-61  
 DISABLE IP INTERFACE command 13-91  
 DISABLE IP REMOTEASSIGN command 13-92  
 DISABLE IP ROUTE command 13-93  
 DISABLE IP SRCROUTE command 13-94  
 DISABLE IPV6 ADV command 23-58  
 DISABLE IPV6 command 23-57  
 DISABLE IPV6 DEBUG command 23-58  
 DISABLE IPV6 MLD command 25-30  
 DISABLE IPV6 MLD DEBUG command 25-31  
 DISABLE IPV6 MLD INTERFACE command 25-31  
 DISABLE IPV6 RIP command 23-59  
 DISABLE L2TP command 12-30  
 DISABLE L2TP DEBUG command 12-30  
 DISABLE L2TP SERVER command 12-31  
 DISABLE LACP command 7-78  
 DISABLE LACP DEBUG 7-78  
 DISABLE LACP DEBUG command 7-78  
 DISABLE LOG command 45-19  
 DISABLE LOG GENERATION command 45-20  
 DISABLE LOG OUTPUT command 45-20  
 DISABLE LOG RECEPTION command 45-20  
 DISABLE MAIL DEBUG command 4-18  
 DISABLE MLDSNOOPING command 25-32  
 DISABLE MLDSNOOPING DEBUG command 25-32  
 DISABLE MSTP command 8-42  
 DISABLE NTP command 41-9  
 DISABLE OSPF command 19-43  
 DISABLE OSPF DEBUG command 19-43  
 DISABLE OSPF INTERFACE command 19-45  
 DISABLE OSPF LOG command 19-45

DISABLE PIM command 17-61  
 DISABLE PIM DEBUG command 17-62  
 DISABLE PIM6 command 25-32  
 DISABLE PIM6 DEBUG command 25-33  
 DISABLE PING POLL command 37-10  
 DISABLE PING POLL DEBUG command 37-10  
 DISABLE PKI DEBUG command 35-25  
 DISABLE PORT command 10-17  
 DISABLE PORTAUTH command 32-23  
 DISABLE PORTAUTH DEBUG PORT command 32-24  
 DISABLE PORTAUTH PORT command 32-25  
 DISABLE PPP ACCESSCONCENTRATOR command 11-49  
 DISABLE PPP command 11-49  
 DISABLE PPP DEBUG command 11-49  
 DISABLE PPP TEMPLATE DEBUG command 11-51  
 DISABLE QOS DEBUG command 27-69  
 DISABLE RELEASE command 5-26  
 DISABLE RSVP command 28-12  
 DISABLE RSVP DEBUG command 28-13  
 DISABLE RSVP INTERFACE command 28-14  
 DISABLE RSVP PROXY command 28-15  
 DISABLE SNMP AUTHENTICATE\_TRAP command 39-36  
 DISABLE SNMP command 39-36  
 DISABLE SNMP COMMUNITY command 39-37  
 DISABLE SSH SERVER command 33-13, 33-18  
 DISABLE SSH USER command 33-14  
 DISABLE SSL DEBUG command 34-8  
 disable stack command 42-19  
 disable stack debug command 42-19  
 DISABLE STP command 8-38  
 DISABLE STP DEBUG command 8-39  
 DISABLE STP PORT command 8-41  
 DISABLE SWITCH ACCELERATOR command 7-78  
 DISABLE SWITCH ACCELERATOR DEBUG command 7-79  
 DISABLE SWITCH AGEINGTIMER command 7-80  
 DISABLE SWITCH DEBUG command 7-80  
 DISABLE SWITCH LEARNING command 7-82  
 DISABLE SWITCH MCLIMITING command 7-81  
 DISABLE SWITCH MIRROR command 7-82  
 DISABLE SWITCH PORT command 7-83  
 DISABLE SWITCH STORMPROTECT command 7-85  
 DISABLE SYSTEM SECURITY\_MODE command 29-39  
 DISABLE TELNET SERVER command 13-95  
 DISABLE TEST INTERFACE command 48-9  
 DISABLE TRIGGER command 44-13  
 DISABLE USER command 29-41  
 DISABLE USER RSO command 29-41  
 DISABLE VLAN DEBUG command 7-85  
 DISABLE VLANRELAY command 8-42  
 DISABLE VLANRELAY DEBUG command 8-42  
 DISABLE VRRP command 36-17  
 DISABLE VRRP DEBUG command 36-18  
 Disabling  
   applications 9-8  
   debugging 9-9  
   DISABLE MLDSNOOPING 25-32  
   DISABLE MLDSNOOPING DEBUG 25-32  
   GARP GIP 9-10  
   MSTP 8-42  
 disabling



- debugging
  - ENCO 30-14, 31-18
- debugging, PPP interfaces 11-49
- debugging, PPP templates 11-51
- ENCO debugging 30-14, 31-18
- hardware tests 48-9
- interfaces, PPP 11-49
- mail debugging 4-18
- NTP 41-9
- PPP interfaces 11-49
  - debugging 11-49
- PPP templates
  - debugging 11-51
- RSVP 28-5, 28-12
- RSVP debugging 28-6, 28-13, 28-15
- RSVP interfaces 28-6, 28-14
- RSVP proxies 28-7
- RSVP proxy agent 28-7, 28-15
- security mode 29-39
- software releases 5-26
- special feature licences 5-24
- tests 48-9
- Disabling GARP 9-8
- disabling GUI 5-25
- DISCONNECT command 46-8
- Displaying
  - counter 9-21
  - database 9-23
  - DB 9-23
  - debugging 9-24
  - GARP 9-19
  - GIP 9-25
  - machine state 9-26
- displaying
  - activity counters on PPP interfaces 11-24
  - aliases 2-13 to 2-14, 6-49
  - clock 4-75
  - compact flash 6-39
  - compact flash counters 6-40
  - compact flash current directory 6-41
  - compact flash test 6-42
  - configuration, PPP 11-72
  - counters
    - ENCO 30-24, 31-31
  - counters, PPP 11-78
  - date 4-75
  - debugging, PPP 11-90
  - directory of FLASH files 6-9
  - dynamic configuration 5-48
  - files 6-46
  - FLASH files 6-44, 6-46
  - free NVS 6-54
  - hardware test results 48-13
  - install information 5-56
  - interfaces table, MIB-II 10-15, 10-51
  - interfaces, PPP 11-71
  - intrusion 7-144
  - IP address pools 13-164
  - mail 4-12
  - mail status 4-51
  - memory contents 4-19
  - multilink information, PPP 11-93
  - nameservers, PPP 11-95
  - NTP configuration 41-11
  - NVS blocks 6-53
  - NVS contents 6-26
  - PPP configuration 11-72
  - PPP counters 11-78
  - PPP debugging 11-90
  - PPP interfaces 11-71
  - PPP multilink information 11-93
  - PPP nameservers 11-95
  - PPP templates 11-96
  - PPP timers 11-91
  - PPP transmission queue 11-101
  - route templates 13-172
  - RSVP counters 28-6, 28-24
  - RSVP interfaces 28-6, 28-26
  - RSVP Path messages 28-6, 28-28
  - RSVP proxies 28-8, 28-29
  - RSVP proxy agent counters 28-8, 28-31
  - RSVP Resv messages 28-6, 28-32
  - semipermanent manager port 29-57
  - software releases 5-63 to 5-64
  - special feature licences 5-50
  - STP 8-79
  - STP counters 8-83
  - STP debug 8-85
  - STP ports 8-86
  - stream ports 47-7
  - switch configuration 7-120
  - switch debug 7-133
  - switch filter 7-135
  - switch port counter 7-142
  - system clock 4-75
  - system date 4-75
  - system information 4-75
  - system time 4-75
  - templates 11-96
  - test results 48-13
  - time 4-75
  - timers, PPP 11-91
  - transmission queue, PPP 11-101
  - trunk group 7-145
- Distance Vector Multicast Routing Protocol (DVMRP)
  - adding interfaces 17-42
  - commands
    - ADD DVMRP INTERFACE 17-42
    - DELETE DVMRP INTERFACE 17-52
    - DISABLE DVMRP 17-58
    - DISABLE DVMRP DEBUG 17-58
    - ENABLE DVMRP 17-63
    - ENABLE DVMRP DEBUG 17-63
    - PURGE DVMRP 17-68
    - RESET DVMRP INTERFACE 17-69
    - SET DVMRP INTERFACE 17-70
    - SHOW DVMRP 17-81
    - SHOW DVMRP COUNTERS 17-81
    - SHOW DVMRP DEBUG 17-82
    - SHOW DVMRP FORWARDING 17-83





- SHOW DVMRP INTERFACE 17-84
- SHOW DVMRP NEIGHBOUR 17-85
- SHOW DVMRP ROUTE 17-86
- deleting interfaces 17-52
- disabling 17-58
- disabling debug 17-58
- displaying 17-81
- enabling 17-63
- enabling debug 17-63
- interoperability with PIM 17-5
- introduction 17-5
- resetting interfaces 17-69
- setting interfaces 17-70
- DNS relay agent 13-87, 13-98, 13-116
- dot1dBase group, Bridge MIB C-34
- dot1dBaseNumPorts MIB object C-35
- dot1dBridge MIB object C-34
- dot1dSr group, Bridge MIB C-34
- dot1dStatic group, Bridge MIB C-34
- dot1dStp group, Bridge MIB C-34
- dot1dTp group, Bridge MIB C-34
- dot1qBase group, Virtual Bridge (VLAN) MIB C-36
- dot1qConstraintSetDefault MIB object C-37
- dot1qConstraintTypeDefault MIB object C-37
- dot1qFdbTable MIB object C-36
- dot1qForwardAllTable MIB object C-37
- dot1qForwardUnregisteredTable MIB object C-37
- dot1qLearningConstraintsTable MIB object C-37
- dot1qNextFreeLocalVlanIndex MIB object C-37
- dot1qPortVlanHCStatisticsTable MIB object C-37
- dot1qPortVlanStatisticsTable MIB object C-37
- dot1qPortVlanTable MIB object C-37
- dot1qStatic group, Virtual Bridge (VLAN) MIB C-36 to C-37
- dot1qTp group, Virtual Bridge (VLAN) MIB C-36 to C-37
- dot1qTpFdbTable MIB object C-36
- dot1qTpGroupTable MIB object C-37
- dot1qVlan group, Virtual Bridge (VLAN) MIB C-36 to C-37
- dot1qVlanCurrentTable MIB object C-37
- dot1qVlanNumDeletes MIB object C-36
- dot1qVlanStaticTable MIB object C-37
- dot1xAuthAdminControlledDirections MIB object C-41
- dot1xAuthConfigTable MIB object C-41
- dot1xAuthDiagTable MIB object C-41
- dot1xAuthKeyTxEnabled MIB object C-41
- dot1xAuthSessionStatsTable MIB object C-41
- dot1xAuthStatsTable MIB object C-41
- dot1xPaePortTable MIB object C-41
- dot1xSuppConfigTable MIB object C-41
- dot1xSuppStatsTable MIB object C-41
- dot3 MIB object C-31
- dot3adAggCollectorMaxDelay MIB object C-39
- dot3adAggIndex MIB object C-38
- dot3adAggPortActorAdminState MIB object C-39
- dot3adAggPortActorOperKey MIB object C-39
- dot3adAggPortPartnerAdminKey MIB object C-39
- dot3adAggPortPartnerAdminPort MIB object C-39
- dot3adAggPortPartnerAdminPortPriority MIB object C-39
- dot3adAggPortPartnerAdminState MIB object C-39
- dot3adAggPortPartnerAdminSystemID MIB object C-39
- dot3adAggPortPartnerAdminSystemPriority MIB object C-39
- C-39
- dot3adAggPortStatsMarkerPDUrx MIB object C-39
- dot3adAggPortStatsMarkerPDUtx MIB object C-39
- dot3adAggPortStatsMarkerResponsePDUrx MIB object C-39
- dot3adAggPortStatsMarkerResponsePDUtx MIB object C-39
- dot3BroadMauBasicGroup MIB object C-32 to C-33
- dot3IfMauAutoNegGroup MIB object C-32 to C-33
- dot3IfMauBasicGroup MIB object C-32 to C-33
- dot3MauType MIB object C-32 to C-33
- dot3RpMauBasicGroup MIB object C-32 to C-33
- Dotted notation 39-6
- downloading
  - files 5-37, 5-44, 5-61, 5-66, 6-6
- DS3 group, Allied Telesis Enterprise MIB C-23
- ds3module MIB object C-23
- ds3TrapTable MIB object C-23
- DUID 24-3
- dump
  - memory 4-19
  - NVS blocks 6-26
- DUMP command 4-19
- DUMP NVS command 6-26
- duplex mode, autonegotiation 7-8
- DVMRP. See Distance Vector Multicast Routing Protocol (DVMRP)
- dynamic configuration
  - displaying 5-48
  - saving 5-22
- Dynamic Host Configuration Protocol (DHCP)
  - adding
    - policy options 14-11
    - ranges 14-17
  - address allocation 14-3
    - automatic 14-4
    - dynamic 14-3
    - static 14-4
  - automatic address allocation 14-4
  - BOOTP 14-2 to 14-3
  - clients 14-49
  - commands
    - ADD DHCP POLICY 14-11
    - ADD DHCP RANGE 14-17
    - CREATE DHCP POLICY 14-18
    - CREATE DHCP RANGE 14-19, 14-43
    - DELETE DHCP POLICY 14-22
    - DELETE DHCP RANGE 14-26
    - DESTROY DHCP POLICY 14-27
    - DESTROY DHCP RANGE 14-27
    - SET DHCP POLICY 14-37
    - SHOW DHCP 14-47
    - SHOW DHCP CLIENT 14-49
    - SHOW DHCP POLICY 14-51
    - SHOW DHCP RANGE 14-52
  - configuring 14-7
  - creating
    - policies 14-18
    - ranges 14-19, 14-43
  - deleting





- policy options 14-22
  - ranges 14-26
- destroying
  - policies 14-27
  - ranges 14-27
- displaying
  - clients 14-49
  - policies 14-51
  - ranges 14-52
  - status 14-47
- dynamic address allocation 14-3
- example configuration 14-7
- lease time for IP addresses 14-3
- modifying policy options 14-37
- policies
  - adding options 14-11
  - creating 14-18
  - deleting options 14-22
  - destroying 14-27
  - displaying 14-51
  - modifying options 14-37
- policy 14-3
- range 14-3
- ranges
  - adding 14-17
  - creating 14-19, 14-43
  - deleting 14-26
  - destroying 14-27
  - displaying 14-52
- reuse IP addresses 14-3
- server 14-2
- static address allocation 14-4
- status 14-47

Dynamic Host Configuration Protocol for IPv6 (DHCP6)

24-1

- address assignment 24-4, 24-7
- authentication 24-6, 24-11, 24-16, 24-21
- clients 24-5, 24-35
- configuring clients 24-5
- configuring servers 24-4
- counters 24-27
- debugging 24-19 to 24-20, 24-27
- diagnostics 24-20, 24-27
- disabling servers 24-19
- displaying status 24-23
- DUID 24-3
- enabling servers 24-20
- example configurations 24-7
- IAID 24-3
- interfaces 24-4, 24-10, 24-16, 24-30
- policies 24-4, 24-12, 24-14, 24-17 to 24-18, 24-22, 24-33
- prefix delegation 24-4, 24-8
- ranges 24-4, 24-13, 24-15, 24-18 to 24-19, 24-34
- Rapid Commit 24-6, 24-20 to 24-21
- reserved addresses 24-3
- servers 24-4, 24-25
- status 24-23

## E

- EDIT command 6-27, 43-3
- editing
  - files 6-6, 6-27
- editor 6-6, 6-27
- egress rules 7-37
- enable
  - compact flash test 6-30
  - OSPF 19-43, 19-46
- ENABLE BGP DEBUG command 20-75
- ENABLE BGP PEER command 20-77
- ENABLE BOOTP RELAY command 14-30
- ENABLE CFLASH TEST command 6-30
- ENABLE DVMRP command 17-63
- ENABLE DVMRP DEBUG command 17-63
- ENABLE ENCO COMPSTATISTICS command 30-14, 31-18
- ENABLE ENCO DEBUGGING command 30-15, 31-19
- ENABLE FEATURE command 5-28
- ENABLE GARP command 9-11
- ENABLE GARP DEBUG command 9-12
- ENABLE GARP GIP command 9-13
- ENABLE GRE command 22-15
- ENABLE GUI command 3-19
- ENABLE HTTP DEBUG command 5-29, 33-12, 33-14, 33-17
- ENABLE HTTP SERVER command 5-29
- ENABLE IGMP SNOOPING command 17-64
- ENABLE INTERFACE LINKTRAP command 10-19
- ENABLE IP command 13-95
- ENABLE IP DEBUG command 13-97
- ENABLE IP DNSRELAY command 13-98
- ENABLE IP ECHOREPLY command 13-98
- ENABLE IP FOFILTER command 13-99
- ENABLE IP FORWARDING command 13-100
- ENABLE IP HELPER command 13-100
- ENABLE IP IGMP command 17-64
- ENABLE IP IGMP INTERFACE command 17-66
- ENABLE IP INTERFACE command 13-101
- ENABLE IP REMOTEASSIGN command 13-103
- ENABLE IP ROUTE command 13-103
- ENABLE IP SRCROUTE command 13-93 to 13-94, 13-104 to 13-105
- ENABLE IPV6 ADV command 23-60
- ENABLE IPV6 command 23-59
- ENABLE IPV6 DEBUG command 23-60
- ENABLE IPV6 MLD command 25-33
- ENABLE IPV6 MLD DEBUG command 25-33, 25-48
- ENABLE IPV6 MLD INTERFACE command 25-34
- ENABLE IPV6 RIP command 23-61
- ENABLE L2TP command 12-31
- ENABLE L2TP DEBUG command 12-32
- ENABLE L2TP SERVER command 12-35
- ENABLE LOG command 45-21
- ENABLE LOG GENERATION command 45-21
- ENABLE LOG OUTPUT command 45-21
- ENABLE LOG RECEPTION command 45-22
- ENABLE MAIL DEBUG command 4-21
- ENABLE MLDSNOOPING command 25-35
- ENABLE MLDSNOOPING DEBUG command 25-35
- ENABLE MSTP CIST PORT command 8-43



ENABLE NTP command 41-9  
 ENABLE OSPF command 19-46  
 ENABLE OSPF DEBUG command 19-46  
 ENABLE OSPF INTERFACE command 19-47  
 ENABLE OSPF LOG command 19-48  
 ENABLE PIM command 17-62, 17-66 to 17-67  
 ENABLE PIM DEBUG command 17-67  
 ENABLE PIM6 command 25-35  
 ENABLE PIM6 DEBUG command 25-36  
 ENABLE PING POLL command 37-11  
 ENABLE PING POLL DEBUG command 37-11  
 ENABLE PKI DEBUG command 35-26  
 ENABLE PORTAUTH command 32-26  
 ENABLE PORTAUTH DEBUG PORT command 32-27  
 ENABLE PPP ACCESSCONCENTRATOR command 11-52  
 ENABLE PPP command 11-51  
 ENABLE PPP DEBUG command 11-52  
 ENABLE PPP TEMPLATE DEBUG command 11-55  
 ENABLE QOS DEBUG command 27-69  
 ENABLE RELEASE command 5-30  
 ENABLE RSVP command 28-15  
 ENABLE RSVP DEBUG command 28-16  
 ENABLE RSVP INTERFACE command 28-17  
 ENABLE RSVP PROXY command 28-18  
 ENABLE SNMP AUTHENTICATE\_TRAP command 39-38  
 ENABLE SNMP command 39-37  
 ENABLE SNMP COMMUNITY command 39-38  
 ENABLE SSH SERVER command 33-15  
 ENABLE SSH USER command 33-16  
 ENABLE SSL DEBUG command 34-8  
 enable stack command 42-20  
 enable stack debug command 42-21  
 ENABLE STP command 8-47  
 ENABLE STP DEBUG command 8-48  
 ENABLE STP PORT command 8-50  
 ENABLE SWITCH AGEINGTIMER command 7-88  
 ENABLE SWITCH DEBUG command 7-90  
 ENABLE SWITCH HASH command 7-92  
 ENABLE SWITCH LEARNING command 7-92  
 ENABLE SWITCH MCLIMITING command 7-92  
 ENABLE SWITCH MIRROR command 7-92  
 ENABLE SWITCH PORT command 7-94  
 ENABLE SWITCH STORMPROTECT command 7-96  
 ENABLE SYSTEM SECURITY\_MODE command 29-43  
 ENABLE TELNET SERVER command 13-105  
 ENABLE TEST CABLE command 48-10  
 ENABLE TEST INTERFACE command 48-11  
 ENABLE TRIGGER command 44-14  
 ENABLE USER command 29-45  
 ENABLE USER RSO command 29-46  
 ENABLE VLAN DEBUG command 7-96  
 ENABLE VLANRELAY DEBUG command 8-51  
 ENABLE VRRP command 36-18  
 ENABLE VRRP DEBUG command 36-19  
 Enabling  
     debugging 9-12  
     ENABLE MLDSNOOPING 25-35  
     ENABLE MLDSNOOPING DEBUG 25-35  
     GARP 9-11  
 enabling

debugging  
     ENCO 30-15, 31-19  
 debugging, PPP interfaces 11-52  
 debugging, PPP templates 11-55  
 ENCO debugging 30-15, 31-19  
 graphical user interface 3-15  
 hardware tests 48-11  
 interfaces, PPP 11-51  
 mail debugging 4-21  
 NTP 41-9  
 PPP interfaces 11-51  
     debugging 11-52  
 PPP templates  
     debugging 11-55  
 RSVP 28-5, 28-15  
 RSVP debugging 28-6, 28-16, 28-18  
 RSVP interfaces 28-6, 28-17  
 RSVP proxies 28-7  
 RSVP proxy agent 28-7, 28-18  
 security mode 29-43  
 software releases 5-30  
 special feature licences 5-28  
 tests 48-11  
 Enabling GIP 9-13  
 enabling GUI 3-19  
 encapsulation  
     802.2 10-5  
     CSLIP 10-8  
     Ethernet 10-4  
     GRE 22-2  
     PPP 11-3  
     SLIP 10-8  
     SNAP 10-5  
 encapsulation, L2TP 12-3  
 ENCO. See Compression and Encryption Services  
 encryption  
     access control 29-6  
     adding  
         Remote Security Officer 29-34  
     asymmetrical and symmetrical 34-2  
     commands  
         DELETE USER RSO 29-38  
         DISABLE USER RSO 29-41  
         ENABLE USER RSO 29-46  
         SHOW USER RSO 29-71  
     definition 34-2  
     deleting  
         Remote Security Officer 29-38  
     disabling  
         Remote Security Officer 29-41  
     displaying  
         Remote Security Officer 29-71  
     enabling  
         Remote Security Officer 29-46  
 Remote Security Officer 29-6  
     adding 29-34  
     deleting 29-38  
     disabling 29-41  
     displaying 29-71  
     enabling 29-46



encryption. See Compression and Encryption Services; Link  
Compression and Encryption; IP Security (IPsec)

End Entity 35-5

Endpoint Discriminator Option 11-5

Endpoint Discriminator Option, LCP 11-5

entering commands 2-3

enterprise MIB C-4

envMon MIB object C-16

EPSR 38-2

commands

add epsr datavlan 38-15

delete epsr datavlan 38-18

destroy epsr 38-19

disable epsr 38-20

disable epsr debug 38-21

enable epsr 38-21

enable epsr debug 38-22

purge epsr 38-22 to 38-23

set epsr 38-23

set epsr port 38-25

show epsr 38-26

show epsr counter 38-29

show epsr debug 38-30

configuring 38-6

Master Node 38-3, 38-5

Transit Node 38-3, 38-5

EPSR and spanning tree operation 38-12

EPSR group, Allied Telesis Enterprise MIB C-25

epsr MIB object C-25

epsrTraps MIB object C-25

Ethernet 10-3

commands

RESET ETH 10-22

RESET ETH COUNTERS 10-23

SET ETH SPEED 10-29

SHOW ETH CONFIGURATION 10-40

SHOW ETH COUNTERS 10-41

SHOW ETH MACADDRESS 10-47

SHOW ETH RECEIVE 10-48

SHOW ETH STATE 10-49

configuration 10-23, 10-40

counters 10-23, 10-41

encapsulation 10-4

interface on router 10-3

MIB 10-41

multicast addresses 10-6, 10-47 to 10-48

reset 10-22

Ethernet group, Allied Telesis Enterprise MIB C-18

ethernet MIB object C-18

Ethernet-like Collision Statistics group, Ethernet-like Inter-  
face Types MIB C-31

Ethernet-like Interface Types MIB C-31

Ethernet-like Statistics group, Ethernet-like Interface Types  
MIB C-31

ethIntTable MIB object C-18

Event group, RMON MIB C-43

event logging 4-7

See also Logging Facility

events, Point-to-Point Protocol (PPP) 11-5

example configurations

DHCP 14-7

DHCP for IPv6 24-7

GRE 22-5

PKI 35-11 to 35-15

enrollment with CMP 35-14

manual enrollment 35-11

Point-to-Point Protocol (PPP) 11-28

SNMP 39-23

examples

Internet Protocol (IP) configuration 13-46, 18-5

Layer Two Tunnelling Protocol (L2TP) 12-11

mail subsystem 4-12

OSPF configuration 19-17

Secure Shell 33-6

stream printing configuration 47-3

exceptions 4-10, 4-50

exclusion filters

Internet Protocol (IP) 13-59, 13-80, 13-117, 13-154

expansion options

testing 48-1

external routes, OSPF 19-3

## F

Fallback software 5-13

fanAndPs MIB object C-16

fatal errors 4-10, 4-50

fault diagnosis 4-7

File group, Allied Telesis Enterprise MIB C-20

file MIB object C-20

file naming conventions 6-3

using wildcards 6-7

file subsystem

creating files 6-6

deleting files 6-23

displaying directory 6-5

displaying files 6-46

downloading files 5-37, 5-44, 5-61, 5-66, 6-6

editing files 6-6, 6-27

file types 6-4

naming conventions 6-3

renaming files 6-32

wildcards 6-7

file types 6-4

fileNumbers MIB object C-20

files

creating 6-6

deleting 6-23

displaying 6-46

downloading 5-37, 5-44, 5-61, 5-66, 6-6

editing 6-6, 6-27

renaming 6-32

fileTable MIB object C-20

Filter group, RMON MIB C-42

filtering

Classifier Based Packet Filters 7-39

Layer 2 7-36, 7-38, 8-5

filtering, IGMP 17-27

filters

exclusion

Internet Protocol (IP) 13-59, 13-80, 13-117, 13-154



- fragment offset
  - Internet Protocol (IP) 13-88, 13-99
- inclusion
  - Internet Protocol (IP) 13-59, 13-80, 13-117, 13-154
- Internet Protocol (IP) 13-88, 13-99
  - exclusion 13-59, 13-80, 13-117, 13-154
  - fragment offset 13-88, 13-99
  - inclusion 13-59, 13-80, 13-117, 13-154
  - routing information 21-44, 21-54, 21-57, 21-68
- routing information
  - Internet Protocol (IP) 13-26, 21-44, 21-54, 21-57, 21-68
- switch
  - adding Layer 2 7-38, 7-54
  - deleting Layer 2 7-71, 8-34
  - deleting Layer 3 8-34
  - displaying Layer 2 7-135
- traffic
  - Internet Protocol (IP) 13-35
- finger client 13-39, 13-106
- FINGER command 13-106
- FLASH File System (FFS)
  - displaying files 6-44
- FLASH files 6-9
  - deleting 6-23
  - displaying 6-44, 6-46
  - displaying directory 6-9
  - downloading 5-37, 5-44, 5-61, 5-66
  - editing 6-27
  - renaming 6-32
- Flash group, Allied Telesis Enterprise MIB C-18
- FLASH memory 6-8
  - compacting 6-10
  - displaying 6-9, 6-50, 6-52
- flash MIB object C-18
- flashCheckFailure MIB object C-18
- flashCloseFailure MIB object C-18
- flashCompactFailure MIB object C-18
- flashCompleteFailure MIB object C-18
- flashCreateFailure MIB object C-18
- flashDeleteFailure MIB object C-18
- flashEraseFailure MIB object C-18
- flashFailureTrap trap message C-18
- flashGetFailure MIB object C-18
- flashOpenFailure MIB object C-18
- flashPutFailure MIB object C-18
- flashReadFailure MIB object C-18
- flashVerifyFailure MIB object C-18
- flashWriteFailure MIB object C-18
- flooding 7-36, 8-5
- flow groups (Quality of Service) 27-15
- FLUSH LOG OUTPUT command 45-22
- format of file names 6-3, 6-7
- format, SNMP messages 39-9 to 39-10, 39-13
- Forwarding Database 7-36, 7-38, 8-5
  - displaying 7-135
- forwarding process 7-36, 8-5
- fragment offset filter
  - Internet Protocol (IP) 13-88, 13-99
- frame storage 7-36, 8-5

- framework, for network management 39-3
- free NVS memory, displaying 6-54

## G

- GARP
  - disabling 9-8
  - disabling debugging 9-9
  - displaying 9-19
  - displaying counter 9-21
  - displaying database 9-23
  - enabling 9-11
  - enabling debugging 9-12
  - resetting 9-14
  - setting ports 9-15
  - setting timer 9-17
- GARP Information Declaration (GID) 9-2
- GARP Information Propagation (GIP) 9-2
- GARP VLAN Registration Protocol (GVRP) 9-2
- Generic Receive Address table, Interface Extensions MIB C-28 to C-29
- Generic Routing Encapsulation (GRE) 22-1 to 22-22
  - adding entities 22-11
  - commands
    - ADD GRE 22-11
    - ADD IP INTERFACE 22-4
    - DELETE GRE 22-4, 22-14
    - DISABLE GRE 22-15
    - ENABLE GRE 22-15
    - PURGE GRE 22-16
    - RESET GRE 22-17
    - SET GRE 22-17
    - SET IP INTERFACE 22-4
    - SHOW GRE 22-20 to 22-22
  - configuration 22-5
  - configuring multi-point GRE 22-7
  - configuring point-to-point GRE 22-5
  - deleting entities 22-14
  - disabling 22-4, 22-15
  - disabling interfaces 22-4
  - displaying entities 22-20 to 22-22
  - enabling 22-4, 22-15
  - entities 22-3, 22-11, 22-14, 22-17, 22-20 to 22-22
  - examples 22-5
  - interfaces 22-4
  - IP over IP 22-3
  - modifying entities 22-17
  - multi-point 22-4
    - example configuration 22-7
  - patterns 22-3
  - point-to-point 22-3
    - example configuration 22-5
  - private IP networks 22-2
  - public IP networks 22-2
  - purging 22-16
  - reserved IP address ranges 22-2
  - resetting 22-17
  - supported encapsulations 22-3
- Generic VLAN Registration Protocol (GVRP) 9-5
- get-bulk-request PDU 39-9
- get-next PDU 39-9



get-request PDU 39-9  
 get-response PDU 39-9  
 GIP  
   disabling 9-10  
   displaying 9-25  
   enabling 9-13  
 Graphical User Interface  
   disabling 5-25  
   enabling 3-19  
 GRE. See Generic Routing Encapsulation (GRE)  
 GROUP command 39-33  
 Groups, MIB  
   address translation C-26  
   Aggregation Port C-38  
   Aggregation Port Debug C-38  
   Aggregation Port Statistics C-38  
   Aggregator C-38  
   Alarm C-42 to C-43  
   arInterfaces C-17  
   Broadband MAU Basic C-32 to C-33  
   CMOT C-26  
   DHCP C-21  
   dot1dBase C-34  
   dot1dSr C-34  
   dot1dStatic C-34  
   dot1dStp C-34  
   dot1dTp C-34  
   dot1qBase C-36  
   dot1qStatic C-36 to C-37  
   dot1qTp C-36 to C-37  
   dot1qVlan C-36 to C-37  
   DS3 C-23  
   EPSR C-25  
   Ethernet C-18  
   Ethernet-like Collision Statistics C-31  
   Ethernet-like Statistics C-31  
   Event C-43  
   File C-20  
   Filter C-42  
   Flash C-18  
   History C-42 to C-43  
   Host C-42  
   Host Resources Device C-44 to C-45  
   Host Resources Installed Software C-44 to C-45  
   Host Resources Running Software C-44 to C-45  
   Host Resources Running Software Performance  
     C-44 to C-45  
   Host Resources Storage C-44 to C-45  
   Host Resources System C-44 to C-45  
   HostTopN C-42  
   ICMP C-26  
   Install C-19  
   Interface MAU Autonegotiation C-32 to C-33  
   Interface MAU Basic C-32 to C-33  
   interfaces C-26, C-35  
   IP C-26, C-30  
   Load Balancer C-23  
   Loader C-19  
   Matrix C-42  
   Modules C-18

Objects C-9  
 Packet Capture C-43  
 PAE Authenticator C-40 to C-41  
 PAE Supplicant C-41  
 PAE System C-40 to C-41  
 PIM4 C-22  
 Ping C-20  
 Port Authentication C-23  
 QoS C-22  
 Repeater MAU Basic C-32 to C-33  
 SNMP C-26  
 Stack C-24  
 Statistics C-42 to C-43  
 Switch C-21  
 sysinfo C-16  
 system C-26, C-35  
 TCP C-26  
 Transmission C-26, C-31  
 traps C-16  
 Trigger C-20  
 TTY C-19  
 UDP C-26  
 GUI  
   disable 5-25  
   enable 3-19

## H

handshake  
   definition 34-4  
 hardware  
   testing 48-1  
 header compression 31-3  
 header, Internet Protocol (IP) 13-5  
 Hello message  
   PIM Sparse Mode 17-12  
 Hello packets, OSPF 19-5, 19-26, 19-38, 19-45, 19-47,  
   19-50, 19-58  
 help  
   displaying 1-4, 2-8, 2-12  
   setting system help file 2-13  
 HELP command 2-12  
 History group, RMON MIB C-42 to C-43  
 history, command recall 2-3  
 history, compression 31-2  
 homepage  
   setting HTTP server 5-40  
 host  
   adding Internet Protocol (IP) 13-67  
   adding OSPF 19-25  
   changing Internet Protocol (IP) 13-121  
   deleting Internet Protocol (IP) 13-81  
   deleting OSPF 19-37  
   displaying Internet Protocol (IP) 13-158  
   displaying OSPF 19-72  
   modifying Internet Protocol (IP) 13-121  
   modifying OSPF 19-57  
   setting Internet Protocol (IP) 13-121  
 Host group, RMON MIB C-42  
 host MIB object C-44  
 Host Resources Device group, Host Resources MIB



C-44 to C-45  
 Host Resources Installed Software group, Host Resources MIB C-44 to C-45  
 Host Resources MIB C-44  
 Host Resources Running Software group, Host Resources MIB C-44 to C-45  
 Host Resources Running Software Performance group, Host Resources MIB C-44 to C-45  
 Host Resources Storage group, Host Resources MIB C-44 to C-45  
 Host Resources System group, Host Resources MIB C-44 to C-45  
 host-directed commands (HDC) for stacking 42-17  
 hostId MIB object C-16  
 HostTopN group, RMON MIB C-42  
 hrDeviceDiskStorage MIB object C-45  
 hrDeviceEntry MIB object C-45  
 hrDeviceID MIB object C-9, C-45  
 hrDeviceType MIB object C-45  
 hrDiskStorageTable MIB object C-45  
 hrFSTable MIB object C-45  
 hrNetworkTable MIB object C-45  
 hrPrinterTable MIB object C-45  
 hrStorageAllocationUnits MIB object C-45  
 hrSWRunTable MIB object C-44  
 hrSystemDate MIB object C-45  
 hrSystemInitialLoadDevice MIB object C-45  
 hrSystemInitialLoadParameters MIB object C-45  
 hrSystemMaxProcesses MIB object C-45  
 hrSystemNumUsers MIB object C-45  
 hrSystemProcesses MIB object C-45  
 HTTP server 5-9  
   disabling 5-25  
   disabling debugging 5-25  
   displaying client status 5-52  
   displaying debugging status 5-53  
   displaying session information 5-55  
   displaying status 5-53  
   enabling 5-29  
   enabling and disabling the GUI 3-15  
   enabling debugging 5-29, 33-12, 33-14, 33-17  
   resetting 5-36  
   setting homepage 5-40

## I

IAID 24-3  
 ICMP group, MIB-II MIB C-26  
 identifier, instance 39-6  
 identifier, MIB object 39-6  
   combined notation 39-6  
   dotted notation 39-6  
   textual notation 39-6  
 Identity associations 24-3  
 IEEE 802.2, Ethernet encapsulation 10-5  
 ieee8021paeMIB MIB object C-40  
 if..then..else..endif, in scripts 43-5, 43-11  
 ifaceAsyn MIB object C-15  
 ifaceBri MIB object C-15  
 ifaceEth MIB object C-15  
 ifaceGBIC MIB object C-15

ifacePots MIB object C-15  
 ifacePri MIB object C-15  
 ifaceSyn MIB object C-15  
 ifAdminStatus MIB object C-27  
 ifExtnsRcvAddrTable MIB object C-28  
 ifExtnsTable MIB object C-28  
 ifIndex MIB object C-18, C-32, C-38  
 ifJackTable MIB object C-32  
 ifMauAutoNegAdminStatus MIB object C-33  
 ifMauAutoNegCapAdvertised MIB object C-33  
 ifMauAutoNegRestart MIB object C-33  
 ifMauAutoNegTable object C-32  
 ifMauDefaultType MIB object C-33  
 ifMaulfIndex MIB object C-32  
 ifMauStatus MIB object C-33  
 ifMauTable object C-32  
 ifMIB MIB object C-28  
 ifName MIB object C-16  
 ifNumber MIB object C-28 to C-29  
 ifPromiscuousMode MIB object C-29  
 ifRcvAddressAddress MIB object C-29  
 ifRcvAddressStatus MIB object C-29  
 ifRcvAddressTable MIB object C-28 to C-29  
 ifRcvAddressType MIB object C-29  
 ifSpecific MIB object C-31  
 ifStackStatus MIB object C-29  
 ifStackTable MIB object C-28 to C-29  
 ifTable MIB object C-28 to C-29, C-38  
 ifTableLastChange MIB object C-28  
 ifTestTable MIB object C-28 to C-29  
 ifType MIB object C-31  
 iftypes MIB object C-15  
 ifXTable MIB object C-28 to C-29  
 IGMP. See Internet Group Management Protocol (IGMP)  
 IGMP filtering 17-27  
 IGMP proxy 17-21  
 IGMP snooping 17-23, 17-88, 17-90  
   disabling 17-59  
   enabling 17-64  
 IGMP throttling 17-29  
 IGMP. See Internet Group Management Protocol  
 igmpGeneralQueryNotReceivedEvent trap message C-16  
 inclusion filters  
   Internet Protocol (IP) 13-59, 13-80, 13-117, 13-154  
 ingress filtering 7-35  
 ingress rules 7-35  
 Install group, Allied Telesis Enterprise MIB C-19  
 install information 5-12  
   deleting 5-23  
   displaying 5-56  
   setting 5-41, 5-43  
 install MIB object C-19  
 installHistoryTable MIB object C-19  
 installTable MIB object C-19  
 instance 10-2  
 instance identifier, MIB object 39-6  
 instance, MIB object 39-6  
 Interface Extensions table, Interface Extensions MIB C-28 to C-29  
 Interface Jack Table, MAU MIB C-32





Interface MAU Autonegotiation Group, MAU MIB  
C-32 to C-33

Interface MAU Autonegotiation MIB table, MAU MIB C-32

Interface MAU Basic Group, MAU MIB C-32 to C-33

Interface MAU MIB table, MAU MIB C-32

Interface Stack table, Interface Extensions MIB  
C-28 to C-29

Interface Test table, Interface Extensions MIB C-28 to C-29

Interfaces 10-3

link up/down traps 10-16, 10-18 to 10-19, 10-31

managing with SNMP 10-16

interfaces

adding

Internet Protocol (IP) 13-68

OSPF 19-26

PPP physical links 11-30

addressless

OSPF 19-10, 19-26, 19-38, 19-45, 19-47, 19-50,  
19-58

asynchronous ports 10-8

changing

Internet Protocol (IP) 13-126

commands

CONNECT ASYN 10-17

DISABLE ASYN 10-17

DISABLE INTERFACE 10-18

ENABLE INTERFACE LINKTRAP 10-19

SET ETH SPEED 10-29

SET INTERFACE MTU 10-30

SET INTERFACE TRAPLIMIT 10-31

SHOW ETH STATE 10-49

SHOW INTERFACE 10-51

configuration

asynchronous ports 10-8

Ethernet 10-23

creating

PPP 11-33

defined 10-2

deleting

Internet Protocol (IP) 13-82

OSPF 19-38

PPP physical links 11-46

destroying

PPP 11-47

disabling

Internet Protocol (IP) 13-91

OSPF 19-45

PPP 11-49

displaying

Internet Protocol (IP) 13-159

OSPF 19-74

PPP 11-71

displaying MIB 10-15, 10-51

enabling

Internet Protocol (IP) 13-101

OSPF 19-47

PPP 11-51

Ethernet 10-23

instance 10-2

Internet Protocol (IP)

adding 13-68

changing 13-126

deleting 13-82

disabling 13-91

displaying 13-159

enabling 13-101

modifying 13-122, 13-126

resetting 13-110

setting 13-126

modifying

Internet Protocol (IP) 13-122, 13-126

OSPF 19-58

PPP 11-58

naming 10-2

OSPF 19-7, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58

adding 19-26

addressless 19-10, 19-26, 19-38, 19-45, 19-47,  
19-50, 19-58

deleting 19-38

disabling 19-45

displaying 19-74

enabling 19-47

modifying 19-58

resetting 19-50

PPP

adding physical links 11-30

creating 11-33

deleting physical links 11-46

destroying 11-47

disabling 11-49

displaying 11-71

enabling 11-51

modifying 11-58

purging 11-56

resetting 11-57

purging

PPP 11-56

resetting

Internet Protocol (IP) 13-110

OSPF 19-50

PPP 11-57

setting

Internet Protocol (IP) 13-126

testing 48-1

types 10-2

Interfaces Group MIB C-28

Interfaces group, MIB-II C-35

interfaces group, MIB-II C-26, C-35

Interfaces table, Interface Extensions MIB C-28 to C-29

Internet 13-5

Internet Control Message Protocol (ICMP) 13-18

Internet Group Management Protocol (IGMP) 25-13

adding

filters 17-43

commands

ADD IGMP FILTER 17-43

ADD IGMP Snooping RouterAddress 17-44

CREATE IGMP FILTER 17-50

DELETE IGMP FILTER 17-52

DELETE IGMP Snooping RouterAddress 17-53



- DESTROY IGMP FILTER 17-57
- DISABLE IGMP Snooping 17-59
- DISABLE IP IGMP INTERFACE 17-61
- ENABLE IGMP Snooping 17-64
- ENABLE IP IGMP 17-64
- ENABLE IP IGMP INTERFACE 17-66
- SET IGMP FILTER 17-71
- SET IGMP Snooping FastLeave 17-72
- SET IGMP Snooping RouterMode 17-73
- SET IP IGMP 17-74
- SET IP IGMP INTERFACE 17-75
- SHOW IGMP FILTER 17-87
- SHOW IGMP Snooping 17-88
- SHOW IGMP Snooping Counter 17-90
- SHOW IGMP Snooping RouterAddress 17-91
- SHOW IP IGMP 17-92
- SHOW IP IGMP Counter 17-95
- creating
  - filters 17-50
- deleting
  - filters 17-52
- destroying
  - filters 17-57
- disabling 17-59
- disabling interfaces 17-61
- displaying 17-92
  - filters 17-87
- displaying counters 17-95
- enabling 17-64
- enabling interfaces 17-66
- filtering 17-27
- filters
  - adding 17-43
  - creating 17-50
  - deleting 17-52
  - destroying 17-57
  - displaying 17-87
  - modifying 17-71
- introduction 17-18
- modifying
  - filters 17-71
- proxy 17-21
- setting timers 17-74 to 17-75
- snooping 17-23
- throttling 17-29
- Internet Protocol (IP)
  - adding
    - ARP entries 13-13, 13-55
    - BOOTP relay destination 14-9
    - exclusion filters 13-59
    - filters 13-59
    - hosts 13-67
    - inclusion filters 13-59
    - interfaces 13-68
    - metric boosts 13-27
    - proxy ARPs 13-16
    - RIP addresses 18-2, 18-7
    - route templates 13-77
    - routes 13-20, 13-74, 18-7
    - routing filters 21-44
    - trusted routers 18-11
  - address assignment
    - remote 13-44, 13-92, 13-103
    - using DHCP 13-18, 13-87, 13-98
  - address classes 13-7
  - address format 13-7
  - address pools 13-45
    - creating 13-78
    - destroying 13-85
    - displaying 13-164
  - Address Resolution Protocol (ARP)
    - adding entries 13-13, 13-55
    - changing entries 13-111
    - deleting entries 13-78
    - displaying entries 13-140
    - modifying entries 13-111
    - proxy 13-16
    - setting entries 13-111
  - addresses 13-5, 13-7, 13-44, 13-92, 13-103
  - agent, SNMP
    - displaying 39-48
  - authentication, SNMPv1 and v2 39-17
  - autonomous system number 20-100
  - boosts 13-27
  - BOOTP relay agent 14-4, 14-9, 14-20, 14-28, 14-30, 14-44
  - broadcast forwarding 13-40 to 13-43, 13-66, 13-80, 13-89, 13-100, 13-156
    - to a broadcast address 13-42
    - to a unicast address 13-41
  - changing
    - ARP entries 13-111
    - hosts 13-121
    - interfaces 13-126
    - RIP addresses 18-14
    - RIP timers 18-17
    - routes 13-128, 18-14
  - commands 13-55, 18-7
    - ADD BOOTP RELAY 14-9
    - ADD IP ARP 13-55
    - ADD IP FILTER 13-59
    - ADD IP HELPER 13-66
    - ADD IP HOST 13-67
    - ADD IP INTERFACE 13-68
    - ADD IP RIP 18-7
    - ADD IP ROUTE 13-74
    - ADD IP ROUTE FILTER 21-44
    - ADD IP ROUTE TEMPLATE 13-77
    - ADD IP SA 21-46
    - ADD IP TRUSTED 18-11
    - CREATE IP POOL 13-78
    - DELETE BOOTP RELAY 14-20
    - DELETE IP ARP 13-78
    - DELETE IP FILTER 13-80
    - DELETE IP HELPER 13-80
    - DELETE IP HOST 13-81
    - DELETE IP INTERFACE 13-82
    - DELETE IP RIP 18-12
    - DELETE IP ROUTE 13-83
    - DELETE IP ROUTE FILTER 21-54



- DELETE IP ROUTE TEMPLATE 13-84
- DELETE IP TRUSTED 18-13
- DELETE TCP 13-85
- DESTROY IP POOL 13-85
- DISABLE BOOTP RELAY 14-28
- DISABLE IP 13-86
- DISABLE IP DEBUG 13-87
- DISABLE IP DNSRELAY 13-87
- DISABLE IP ECHOREPLY 13-87
- DISABLE IP FOFILTER 13-88
- DISABLE IP FORWARDING 13-89
- DISABLE IP HELPER 13-89
- DISABLE IP INTERFACE 13-91
- DISABLE IP REMOTEASSIGN 13-92
- DISABLE IP ROUTE 13-93
- DISABLE IP SRCROUTE 13-94
- ENABLE BOOTP RELAY 14-30
- ENABLE IP 13-95
- ENABLE IP DEBUG 13-97
- ENABLE IP DNSRELAY 13-98
- ENABLE IP ECHOREPLY 13-98
- ENABLE IP FOFILTER 13-99
- ENABLE IP FORWARDING 13-100
- ENABLE IP HELPER 13-100
- ENABLE IP INTERFACE 13-101
- ENABLE IP REMOTEASSIGN 13-103
- ENABLE IP ROUTE 13-103
- ENABLE IP SRCROUTE 13-93 to 13-94, 13-104 to 13-105
- FINGER 13-106
- PING 13-107
- PURGE BOOTP RELAY 14-32
- PURGE IP 13-109
- RESET IP 13-109
- RESET IP INTERFACE 13-110
- SET BOOTP MAXHOPS 14-32
- SET IP ARP 13-111
- SET IP ARP TIMEOUT 13-112
- SET IP AUTONOMOUS 20-100
- SET IP DNSRELAY 13-116
- SET IP FILTER 13-117
- SET IP HOST 13-121
- SET IP INTERFACE 13-122
- SET IP LOCAL 13-126
- SET IP NAMESERVER 13-127
- SET IP RIP 18-14
- SET IP RIPTIMER 18-17
- SET IP ROUTE 13-128
- SET IP ROUTE FILTER 21-57
- SET IP ROUTE TEMPLATE 13-131
- SET IP SECONDARYNAMESERVER 13-132
- SET PING 13-133
- SET TRACE 13-135
- SHOW BOOTP RELAY 14-44
- SHOW IP ARP 13-140
- SHOW IP DEBUG 13-150
- SHOW IP FILTER 13-154
- SHOW IP HELPER 13-156
- SHOW IP HOST 13-158
- SHOW IP INTERFACE 13-159
- SHOW IP POOL 13-164
- SHOW IP RIP 18-18
- SHOW IP RIP COUNTER 18-19
- SHOW IP RIPTIMER 18-22
- SHOW IP ROUTE 13-166
- SHOW IP ROUTE FILTER 21-68
- SHOW IP ROUTE MULTICAST 13-170
- SHOW IP ROUTE TEMPLATE 13-172
- SHOW IP TRUSTED 18-23
- SHOW IP UDP 13-174
- SHOW PING 13-176
- SHOW SNMP 39-48
- SHOW SNMP COMMUNITY 39-48
- SHOW TCP 13-178
- SHOW TRACE 13-183
- STOP PING 13-184
- STOP TRACE 13-185
- TRACE 13-185
- communities, SNMP 39-16
  - displaying 39-48
- configuration 13-46, 18-5
  - examples 13-46, 18-5
- connection vs. connectionless mode 13-5
- control functions 13-37
- counters 18-19
- creating
  - address pools 13-78
- debugging functions 13-37 to 13-38, 13-87, 13-97, 13-150
- definition 13-5
- deleting
  - ARP entries 13-78
  - BOOTP relay destination 14-20
  - exclusion filters 13-80
  - filters 13-80
  - hosts 13-81
  - inclusion filters 13-80, 13-117
  - interfaces 13-82
  - metric boosts 13-27
  - RIP addresses 18-12
  - route templates 13-84
  - routes 13-83, 18-12
  - routing filters 21-54
  - TCP sessions 13-85
  - trusted routers 18-13
- destination address 13-5
- destroying
  - address pools 13-85
- DHCP client 13-18, 13-69, 13-87, 13-98, 13-123
- disabling
  - BOOTP relay agent 14-28
  - fragment offset filter 13-88
  - interfaces 13-91
  - routes 13-93
- displaying
  - address pools 13-164
  - ARP entries 13-47, 13-140
  - BOOTP relay destination 14-44
  - counters 18-19
  - exclusion filters 13-154



- hosts 13-158
- inclusion filters 13-154
- interfaces 13-159
- metric boosts 13-27
- proxy ARPs 13-16
- RIP addresses 18-2, 18-18
- RIP counters 18-19
- RIP timers 18-22
- route templates 13-172
- routes 13-24, 13-47, 13-166
- routing filters 21-68
- TCP sessions 13-178
- trusted routers 18-23
- UDP sessions 13-174
- DNS relay agent 13-87, 13-98, 13-116
- echo reply
  - disabling 13-87
  - enabling 13-98
- enabling
  - BOOTP relay agent 14-30
  - fragment offset filter 13-99
  - interfaces 13-101
  - routes 13-103
- examples 13-46, 18-5
- exclusion filters 13-59, 13-80, 13-117, 13-154
- filters 13-26, 13-35, 13-59, 13-80, 13-88, 13-99, 13-117, 13-154
- finger client 13-39, 13-106
- fragment offset filter 13-88, 13-99
- gateway 13-53, 13-86, 13-89, 13-95, 13-100
- header 13-5
- hosts 13-67, 13-81, 13-121, 13-158
- inclusion filters 13-59, 13-80, 13-117, 13-154
- interfaces
  - adding 13-68
  - changing 13-126
  - deleting 13-82
  - disabling 13-91
  - displaying 13-159
  - enabling 13-101
  - modifying 13-122, 13-126
  - resetting 13-110
  - setting 13-126
- Internet Control Message Protocol (ICMP) 13-18
- local interface 13-126
- metrics 13-27
- MIB 13-37, 39-1
- modifying
  - ARP entries 13-111
  - hosts 13-121
  - interfaces 13-122, 13-126
  - route templates 13-131
  - routes 13-128
  - routing filters 21-57
- multicasting 13-43
- multihoming 13-11
- name server 13-127, 13-132
- Open Shortest Path First (OSPF) 13-26
- ping function 13-38, 13-107, 13-133, 13-176, 13-184
- primary name server 13-127
- proxy ARPs 13-16
- purge configuration database 13-109
- reinitialise module 13-109
- remote address assignment 13-44, 13-92, 13-103
- resetting
  - interfaces 13-110
- restart module 13-109
- RIP timers
  - displaying 18-22
  - setting 18-17
- route templates 13-30
  - adding 13-77
  - deleting 13-84
  - displaying 13-172
  - modifying 13-131
- router type 13-53, 13-86, 13-89, 13-95, 13-100
- routes 13-19
  - adding 13-20, 13-74
  - changing 13-128
  - deleting 13-83
  - disabling 13-93
  - displaying 13-24, 13-166
  - enabling 13-103
  - modifying 13-128
  - setting 13-128
  - tracing 13-135, 13-183, 13-185
- routing 13-19
- routing filters 21-44
  - deleting 21-54
  - displaying 21-68
  - modifying 21-57
- routing information filters 13-26
- Routing Information Protocol (RIP) 13-26, 18-7, 18-12, 18-14, 18-17 to 18-19, 18-22
- routing protocols
  - Open Shortest Path First (OSPF) 13-26
  - Routing Information Protocol (RIP) 13-26, 18-7, 18-12, 18-14, 18-17, 18-22
- routing table 13-20, 13-166
- secondary name server 13-132
- security associations 21-46
- security options 13-40, 13-88, 13-99
- server 13-53, 13-86, 13-89, 13-95, 13-100
- Server selection 13-35
- setting
  - ARP entries 13-111
  - displaying 13-154
  - exclusion filters 13-117
  - filters 13-117
  - hosts 13-121
  - interfaces 13-126
  - routes 13-128
- SNMP 13-37, 39-1
- SNMP agent
  - displaying 39-48
- SNMP authenticationv1 and v2 39-17
- SNMP communities 39-16
  - displaying 39-48
- source address 13-5
- subnet 13-8



- subnet mask 13-8
- TCP sessions 13-85, 13-178
- Telnet server 13-53, 13-86, 13-89, 13-95, 13-100
- timers
  - RIP 18-17, 18-22
- trace route 13-135, 13-183, 13-185
- traffic filters 13-35
- trusted routers 18-11, 18-13, 18-23
- UDP sessions 13-174
- Internet Protocol (IP). *See also* Generic Routing Encapsulation (GRE)
  - reserved IP address ranges 22-2
- Internet Protocol version 6 (IPv6) 23-11
  - addresses
    - adding to interfaces 23-12
    - associating with host names 23-14
    - slash notation 23-12
  - commands
    - ADD IPV6 FILTER 23-35
    - ADD IPV6 HOST 23-41
    - ADD IPV6 INTERFACE 23-42
    - ADD IPV6 RIP 23-46
    - ADD IPV6 ROUTE 23-47
    - ADD IPV6 TUNNEL 23-48
    - CREATE IPV6 INTERFACE 23-49
    - DELETE IPV6 FILTER 23-50
    - DELETE IPV6 HOST 23-51
    - DELETE IPV6 INTERFACE 23-51
    - DELETE IPV6 RIP 23-54
    - DELETE IPV6 ROUTE 23-55
    - DELETE IPV6 TUNNEL 23-56
    - DESTROY IPV6 INTERFACE 23-57
    - DISABLE IPV6 23-57
    - DISABLE IPV6 ADV 23-58
    - DISABLE IPV6 DEBUG 23-58
    - DISABLE IPV6 RIP 23-59
    - ENABLE IPV6 23-59
    - ENABLE IPV6 ADV 23-60
    - ENABLE IPV6 DEBUG 23-60
    - ENABLE IPV6 RIP 23-61
    - SET IPV6 FILTER 23-62
    - SET IPV6 INTERFACE 23-65
    - SET IPV6 MTU 23-66
    - SHOW IPV6 23-71
    - SHOW IPV6 COUNTER 23-77
    - SHOW IPV6 FILTER 23-81
    - SHOW IPV6 HOST 23-83
    - SHOW IPV6 INTERFACE 23-84
    - SHOW IPV6 MULTICAST 23-86
    - SHOW IPV6 ND 23-87
    - SHOW IPV6 RIP 23-90
    - SHOW IPV6 ROUTE 23-92
    - SHOW IPV6 TUNNEL 23-96
  - default routes 23-14
  - DHCP. *See* Dynamic Host Configuration Protocol for IPv6 (DHCP6)
    - disabling 23-12
    - enabling 23-12
    - extension headers 23-14
    - filtering 23-16
    - fragmentation 23-17
    - headers
      - extension 23-14
    - ICMPv6 23-18
    - integration with IPv4 23-20
    - interfaces 23-12
    - MTU 23-17
    - neighbour discovery 23-15
    - ping 23-18
    - prefix delegation 24-4
    - RIPv6 23-14
    - routes
      - default 23-14
      - static 23-14
    - routing 23-14 to 23-15
      - through IPv4 networks 23-20
    - Stateless Address Autoconfiguration 23-12
    - static routes 23-14
    - TCP 23-17
    - telnet 23-17
    - trace route 23-18
    - tunnelling 23-20
    - UDP 23-14
  - Internet-standard MIB 39-5
  - Internet-standard Network Management Framework 39-3
  - Introduction 11-3, 15-2, 23-2, 24-2, 36-2
  - IP address 13-69, 13-123
    - from DHCP 13-18, 13-87, 13-98
  - IP CIDR Route table, IP Forwarding Table MIB C-30
  - IP Forwarding Table MIB C-30
  - IP Forwarding table, IP Forwarding Table MIB C-30
  - IP group, MIB-II MIB C-26, C-30
  - IP Multicasting
    - displaying route 13-170
    - static multicast forwarding 13-44
  - ipCidrRouteNumber MIB object C-30
  - ipCidrRouteTable MIB object C-30
  - ipForward MIB object C-30
  - ipForwardNumber MIB object C-30
  - ipForwardTable MIB object C-30
  - ipNetToMediaIfIndex MIB object C-27
  - ipNetToMediaNetAddress MIB object C-27
  - ipNetToMediaPhysAddress MIB object C-27
  - ipNetToMediaType MIB object C-27
  - ipRouteAge MIB object C-27
  - ipRouteIfIndex MIB object C-27
  - ipRouteMask MIB object C-27
  - ipRouteMetric1 MIB object C-27
  - ipRouteMetric2 MIB object C-27
  - ipRouteMetric3 MIB object C-27
  - ipRouteMetric4 MIB object C-27
  - ipRouteMetric5 MIB object C-27
  - ipRouteNextHop MIB object C-27
  - ipRouteType MIB object C-27
  - IPv4 Multicasting 17-4
    - See also* Distance Vector Multicast Routing Protocol (DVMRP)
    - See also* Internet Group Management Protocol (IGMP)
    - See also* Protocol Independent Multicast (PIM)
    - Multicast Border Router 17-5



## IPv6

DHCP. See Dynamic Host Configuration Protocol for IPv6 (DHCP6)

## IPv6 Multicasting 25-3

See *also* Multicast Listener Discovery (MLD)

See *also* Protocol Independent Multicast (PIM) configuration example 25-15

Multicast Border Router 25-4

IPv6. See Internet Protocol version 6 (IPv6)

**J**

Jumbo frames 7-18

**K**

key exchange. See Compression and Encryption Services

keys  
creating 30-11, 31-14

**L**

L2TP Access Concentrator. See Layer Two Tunnelling Protocol (L2TP)

L2TP Network Server. See Layer Two Tunnelling Protocol (L2TP)

L2TP. See Layer Two Tunnelling Protocol (L2TP)

LAC. See Layer Two Tunnelling Protocol (L2TP)

Layer 2 Filtering 7-36, 7-38, 8-5

Layer 2 Switching 7-34

ageing timer 7-36

commands

ACTIVATE SWITCH PORT 7-50

ADD STP VLAN 8-29

ADD SWITCH FILTER 7-54

ADD SWITCH HWFILTER 7-56

ADD SWITCH TRUNK 7-57

ADD VLAN BRIDGE 8-30

ADD VLAN PORT 7-58, 7-64

ADD VLAN PROTOCOL 7-62

ADD VLAN SUBNET 7-64

CREATE STP 8-32

CREATE SWITCH TRUNK 7-65

CREATE VLAN 7-68

DELETE STP VLAN 8-33

DELETE SWITCH FILTER 7-71, 8-34

DELETE SWITCH HWFILTER 7-71

DELETE SWITCH TRUNK 7-72, 8-34

DELETE VLAN BRIDGE 8-34

DELETE VLAN PORT 7-73, 8-34

DELETE VLAN PROTOCOL 7-75

DELETE VLAN SUBNET 7-76

DESTROY STP 8-34

DESTROY SWITCH TRUNK 7-77

DESTROY VLAN 7-77

DISABLE STP 8-38

DISABLE STP DEBUG 8-39

DISABLE STP PORT 8-41

DISABLE SWITCH AGEINGTIMER 7-80

DISABLE SWITCH DEBUG 7-80

DISABLE SWITCH LEARNING 7-82

DISABLE SWITCH MIRROR 7-82

DISABLE SWITCH PORT 7-83

DISABLE SWITCH STORMPROTECT 7-85

DISABLE VLAN DEBUG 7-85

ENABLE MSTP CIST PORT 8-43

ENABLE STP 8-47

ENABLE STP DEBUG 8-48

ENABLE STP PORT 8-50

ENABLE SWITCH AGEINGTIMER 7-88

ENABLE SWITCH DEBUG 7-90

ENABLE SWITCH HASH 7-92

ENABLE SWITCH LEARNING 7-92

**switch** 7-92

ENABLE SWITCH MIRROR 7-92

ENABLE SWITCH PORT 7-94

ENABLE SWITCH STORMPROTECT 7-96

ENABLE VLAN DEBUG 7-96

PURGE STP 8-51

RESET MSTP COUNTER PORT 8-52

RESET STP 8-52

RESET SWITCH 7-97, 8-52

RESET SWITCH PORT 7-98, 8-52

SET STP 8-61

SET STP PORT 8-64

SET SWI NESTEDTPID 7-106

SET SWITCH AGEINGTIMER 7-101

SET SWITCH JUMBO 7-105

SET SWITCH MIRROR 7-105

SET SWITCH PORT 7-106

SET SWITCH TRUNK 7-112 to 7-113

SET VLAN PORT 7-115

SHOW MSTP 8-67, 8-69

SHOW MSTP COUNTER PORT 8-74

SHOW MSTP DEBUG MSTI 8-75

SHOW STP 8-79

SHOW STP COUNTER 8-83

SHOW STP DEBUG 8-85

SHOW STP PORT 8-86

SHOW SWITCH 7-120

SHOW SWITCH COUNTER 7-131

SHOW SWITCH DEBUG 7-133

SHOW SWITCH FDB 7-135

SHOW SWITCH FILTER 7-135

SHOW SWITCH PORT 7-138

SHOW SWITCH PORT COUNTER 7-142

SHOW SWITCH PORT INTRUSION 7-144

SHOW SWITCH TRUNK 7-145

SHOW VLAN 7-147

SHOW VLAN DEBUG 7-153

egress rules 7-37

Forwarding Database 7-38

ingress rules 7-35

switch learning 7-36

switch ports 7-5

triggers 7-42

VLAN tagging 7-37

Layer 3 Switching

commands

DELETE SWITCH L3FILTER 8-34

DELETE SWITCH L3FILTER ENTRY 8-34

Layer Two Tunnelling Protocol (L2TP) 12-1 to 12-62

activating calls 12-9, 12-17





- adding
  - calls 12-8, 12-18
  - filters 12-39
  - PPP templates 12-5, 12-21
  - username mappings 12-23, 12-28
- authentication 12-3
- call id 12-3
- calls
  - activating 12-9, 12-17
  - adding 12-8, 12-18
  - deactivating 12-9, 12-26
  - deleting 12-9, 12-27
  - displaying 12-9, 12-44, 12-50, 12-53
  - modifying 12-8, 12-36
- checksum, UDP 12-39
- commands
  - ACTIVATE L2TP CALL 12-17
  - ADD L2TP CALL 12-18
  - ADD L2TP IP 12-21
  - ADD L2TP USER 12-23, 12-28
  - DEACTIVATE L2TP CALL 12-26
  - DELETE L2TP CALL 12-27
  - DELETE L2TP IP 12-27
  - DELETE L2TP USER 12-29
  - DISABLE L2TP 12-30
  - DISABLE L2TP DEBUG 12-30
  - DISABLE L2TP SERVER 12-31
  - ENABLE L2TP 12-31
  - ENABLE L2TP DEBUG 12-32
  - ENABLE L2TP SERVER 12-35
  - SET L2TP CALL 12-36
  - SET L2TP CHECKSUM 12-39
  - SET L2TP FILTER 12-39
  - SET L2TP PASSWORD 12-40
  - SET L2TP USER 12-41
  - SHOW L2TP 12-43
  - SHOW L2TP CALL 12-44
  - SHOW L2TP IP 12-49
  - SHOW L2TP TUNNEL 12-50, 12-53
  - SHOW L2TP USER 12-61
- configuration
  - displaying 12-9, 12-43
- configuration examples 12-11
  - configure L2TP to tunnel PPPoE sessions 12-15
  - configure L2TP tunnels 12-11
  - simple dial-in system 12-13
- counters
  - displaying 12-43, 12-50, 12-53
- deactivating calls 12-9, 12-26
- debugging
  - disabling 12-30
  - enabling 12-32
- deleting
  - calls 12-9, 12-27
  - PPP templates 12-7, 12-27
  - username mappings 12-6, 12-29
- dial-up connections 12-3
- disabling
  - debugging 12-30
  - L2TP server 12-30 to 12-31
- displaying
  - calls 12-9, 12-44, 12-50, 12-53
  - configuration 12-9, 12-43
  - counters 12-43, 12-50, 12-53
  - PPP templates 12-7, 12-49
  - tunnels 12-9, 12-50, 12-53
  - username mappings 12-8, 12-61
- enabling
  - debugging 12-32
  - L2TP server 12-31, 12-35
- encapsulation 12-3
- example configurations 12-11
  - configure L2TP to tunnel PPPoE sessions 12-15
  - configure L2TP tunnels 12-11
  - simple dial-in system 12-13
- filter, adding 12-39
- L2TP Access Concentrator (LAC) 12-3
  - disabling 12-31
  - enabling 12-35
- L2TP Network Server (LNS) 12-3
  - disabling 12-31
  - enabling 12-35
- LAC. See L2TP Access Concentrator
- LNS. See L2TP Network Server
- mapping usernames to actions 12-23, 12-28 to 12-29, 12-41, 12-61
- modifying
  - calls 12-8, 12-36
  - username mappings 12-41
- overview 12-3
- password 12-40
- PPP templates
  - associating with L2TP peers 12-5, 12-7, 12-21, 12-27, 12-49
- support for 12-5
- templates
  - associating with L2TP peers 12-5, 12-7, 12-21, 12-27, 12-49
- tunnels 12-3
  - displaying 12-9, 12-50, 12-53
- two-way connections 12-8
- UDP checksum 12-39
- username mappings
  - adding 12-23, 12-28
  - deleting 12-6, 12-29
  - displaying 12-8, 12-61
  - modifying 12-41
- lb MIB object C-23
- lbShowAffTable MIB object C-23
- lbShowConTable MIB object C-23
- lbShowGlobalTable MIB object C-23
- lbShowResPoolTable MIB object C-23
- lbShowResTable MIB object C-23
- lbShowVirtBalTable MIB object C-23
- LDAP. See Lightweight Directory Access Protocol (LDAP)
- learning
  - switch
    - disabling 7-82
    - enabling 7-92
- Learning Process 7-36



leased line backup, PPP 11-9  
 Lempel-Ziv compression algorithm 31-2  
 licenceTable MIB object C-20  
 Lightweight Directory Access Protocol (LDAP) 35-5, 35-9  
   PKI repositories  
     adding 35-19  
     deleting 35-24  
 limits, on PPP interfaces 11-23, 11-33, 11-40, 11-57 to 11-58, 11-64  
 Link 7-13  
 Link Aggregation Control Protocol 7-13  
 Link Aggregation MIB C-38  
 link compression 31-2  
 Link Control Protocol (LCP) 11-4, 11-24  
   options 11-5  
     Asynchronous Control Character Map (ACCM) 11-5  
     Authentication Protocol 11-5  
     Endpoint Discriminator 11-5  
     Link Discriminator 11-5 to 11-6  
     Link Quality Reporting (LQR) 11-5, 11-7  
     Magic Number 11-5  
     Maximum Receive Unit 11-5  
     Maximum Received Reconstructed Unit 11-5  
 Link Discriminator Option, LCP 11-5 to 11-6  
 link encryption 31-6  
 link management, PPP 11-23, 11-33, 11-40, 11-57 to 11-58, 11-64  
 link quality management (LQM) 11-28  
 Link Quality Reporting (LQR) Option, LCP 11-5, 11-7  
 link state advertisements, OSPF 19-5, 19-78  
 link up/down traps 10-16, 10-18 to 10-19, 10-31  
 linkagg MIB object C-38  
 LINKDOWN trigger 7-42  
 LINKUP trigger 7-42  
 lldpConfiguration MIB object C-50  
 lldpLocalSystemData MIB object C-50  
 lldpMIB MIB object C-50  
 lldpNotifications MIB object C-50  
 lldpRemoteSystemsData MIB object C-50  
 lldpStatistics MIB object C-50  
 LNS. See Layer Two Tunnelling Protocol (L2TP)  
 Load Balancer group, Allied Telesis Enterprise MIB C-23  
 LOAD command 5-31, 43-3 to 43-4  
 Loader group, Allied Telesis Enterprise MIB C-19  
 loader MIB object C-19  
 loadStatus MIB object C-19  
 loadTable MIB object C-19  
 location  
   displaying 4-54  
   setting 4-32  
 logging  
   OSPF 19-45, 19-48  
 Logging Facility 45-1 to 45-45  
   adding log filters 45-8, 45-10  
   changing log filters 45-9, 45-23  
   changing output definitions 45-8, 45-23  
   changing reception of log messages 45-29  
   commands  
     ADD LOG OUTPUT 45-10  
     ADD LOG RECEIVE 45-13

CREATE LOG OUTPUT 45-14  
 DELETE LOG OUTPUT 45-18  
 DELETE LOG RECEIVE 45-19  
 DESTROY LOG OUTPUT 45-19  
 DISABLE LOG 45-19  
 DISABLE LOG GENERATION 45-20  
 DISABLE LOG OUTPUT 45-20  
 DISABLE LOG RECEPTION 45-20  
 ENABLE LOG 45-21  
 ENABLE LOG GENERATION 45-21  
 ENABLE LOG OUTPUT 45-21  
 ENABLE LOG RECEPTION 45-22  
 FLUSH LOG OUTPUT 45-22  
 PURGE LOG 45-23  
 SET LOG OUTPUT 45-23  
 SET LOG RECEIVE 45-29  
 SET LOG UTCOFFSET 45-30  
 SHOW LOG 45-31 to 45-32  
 SHOW LOG COUNTERS 45-37  
 SHOW LOG OUTPUT 45-39, 45-42  
 SHOW LOG QUEUE 45-43, 45-45  
 SHOW LOG RECEIVE 45-44  
 SHOW LOG STATUS 45-45  
 comparison operators 45-9, 45-23  
 configuring 45-45  
 counters 45-37  
 creating output definitions 45-8, 45-14  
 deleting log filters 45-9  
 deleting output definitions 45-8, 45-18 to 45-19  
 destinations 45-4, 45-6, 45-14, 45-22 to 45-23, 45-42  
 disabling 45-19, 45-45  
 disabling generation of log messages 45-20  
 disabling output definitions 45-8, 45-20, 45-39  
 disabling reception of log messages 45-20  
 displaying counters 45-37  
 displaying log filters 45-39  
 displaying log messages 45-31 to 45-32  
 displaying log queues 45-43, 45-45  
 displaying output definitions 45-8, 45-42  
 displaying reception of log messages 45-44  
 enabling 45-21, 45-45  
 enabling generation of log messages 45-21  
 enabling output definitions 45-8, 45-21  
 enabling reception of log messages 45-22  
 fields in log message 45-3  
 filters 45-4, 45-10, 45-23, 45-39  
 format of log messages 45-3  
 forwarding to another router via SRLP 45-6, 45-23  
 forwarding to syslog server 45-6, 45-23  
 forwarding via email 45-6  
 forwarding via SRLP 45-23  
 message filter comparison operators 45-9, 45-23  
 message filters 45-4, 45-8, 45-10, 45-23, 45-39  
 message ID 45-3  
 message reference 45-3  
 message severity 45-3 to 45-4  
 message subtype 45-3 to 45-4  
 message text 45-3  
 message type 45-3 to 45-4  
 modifying log filters 45-9, 45-23



- modifying output definitions 45-8, 45-23
- module ID 45-3
- Net Manage protocol 45-2, 45-4, 45-13, 45-19 to 45-20, 45-22, 45-29 to 45-30, 45-44
- output definitions 45-4, 45-8, 45-14, 45-18 to 45-23, 45-39, 45-42
- output to asynchronous port 45-6
- output to RAM or NVS 45-6
- PERMANENT output definition 45-5
- processing of log messages 45-4
- purging 45-23
- queues 45-5, 45-22 to 45-23, 45-43, 45-45
- reception via Net Manage 45-13, 45-19 to 45-20, 45-22, 45-29, 45-44
- reception via SRLP 45-13, 45-19 to 45-20, 45-22, 45-29, 45-44 to 45-45
- secure router logging protocol (SRLP) 45-2, 45-4, 45-6, 45-13, 45-20, 45-22, 45-29, 45-44
- source file 45-3
- source line 45-3
- status 45-45
- syslog server 45-6
- TEMPORARY output definition 45-5
- Universal Coordinated Time (UTC) 45-3, 45-30
- logging in and out 29-8, 29-46 to 29-47
- LOGIN command 29-46
- loginFailureAttempts MIB object C-19
- loginFailureIPAddress MIB object C-19
- loginFailureTrap trap message C-19
- loginFailureUser MIB object C-19
- LOGOFF command 29-47
- loopback plugs
  - for testing 48-2
- loops 8-3
- lossless data compression 31-2
- lossy data compression 31-2
- LQM. *See* link quality management

## M

- MAC (message authentication code)
  - definition 34-2
- Machine state
  - displaying 9-26
- Magic Number Option, LCP 11-5
- magic number, PPP 11-15
- MAIL command 4-22
- mail subsystem 4-11
  - configuration examples 4-12
  - debugging 4-12
  - deleting mail messages 4-12, 4-16
  - disabling debugging 4-18
  - displaying mail 4-12
  - displaying status 4-51
  - enabling debugging 4-21
  - sending mail 4-12, 4-22
  - setting host name 4-26
- managed devices, SNMP 39-3
- Management Information Base C-47
  - See also* Tables, MIB
  - See also* Groups, MIB

- access mode 39-7
- Allied Telesis Enterprise MIB C-4
- atRouter subtree, Allied Telesis Enterprise MIB C-9
- Border Gateway Protocol version 4 (BGP-4) MIB C-48
- Bridge MIB C-34
- combined notation 39-6
- deprecated status 39-8
- dotted notation 39-6
- enterprise MIB C-4
- Ethernet-like Interface Types MIB C-31
- get-bulk-request PDU 39-9
- get-next PDU 39-9
- get-request PDU 39-9
- get-response PDU 39-9
- Host Resources MIB C-44
- instance identifier 39-6
- Interfaces Group MIB C-28
- Internet-standard MIB 39-5
- IP Forwarding Table MIB C-30
- Link Aggregation MIB C-38
- Management Target MIB C-47
- mandatory status 39-8
- Medium Attachment Unit (MAU) MIB C-32
- Message Processing and Dispatching MIB C-47
- mib-2 C-26
- MIB-II MIB C-26
- not-accessible access mode 39-7
- object descriptor 39-6
- object identifier 39-6
- object instance 39-6
- object syntax 39-7
- obsolete status 39-8
- optional status 39-8
- Port Access Control MIB C-40
- Products subtree, Allied Telesis Enterprise MIB C-5
- read-only access mode 39-7
- read-write access mode 39-7
- RMON MIB C-42
- set PDU 39-9
- SNMP Framework MIB C-47
- SNMPv3 MIBs C-47
- status 39-8
- textual notation 39-6
- trap PDU 39-9
- User-based Security MIB C-47
- Virtual Bridge (VLAN) MIB C-36
- write-only access mode 39-7
- Management Information Base (MIB)
  - Ethernet 10-41
  - Internet Protocol (IP) 13-37, 39-1
  - Point-to-Point Protocol (PPP) 11-24
- Management Target MIB C-47
- management, using Telnet 46-6
- manager port, semipermanent 29-4, 29-13, 29-49, 29-57
- MANAGER privilege 29-4
- mandatory status 39-8
- mask, OSPF 19-3, 19-23, 19-37, 19-55
- Master Node (EPSR) 38-3, 38-5
- Matrix group, RMON MIB C-42
- MAU MIB. *See* Medium Attachment Unit (MAU) MIB



Maximum Receive Unit Option, LCP 11-5  
 Maximum Received Reconstructed Unit Option, LCP 11-5  
 Maximum Transmission Unit (MTU)  
   Internet Protocol version 6 (IPv6) 23-17  
 Medium Attachment Unit (MAU) MIB C-32  
 memory  
   clearing NVS 6-19  
   deleting NVS blocks 6-25  
   displaying  
     contents 4-9, 4-19  
     free 4-9, 4-37  
     free NVS 6-54  
     NVS blocks 6-53  
     NVS contents 6-26  
   modifying  
     contents 4-10, 4-24  
     NVS contents 6-30  
 memory MIB object C-16  
 meshed network 8-3  
 message format  
   NTP 41-3  
 message format, SNMP protocol 39-9 to 39-10, 39-13  
 Message Processing and Dispatching MIB C-47  
 metering (Quality of Service)  
   bandwidth allocation 27-24  
   bandwidth conformance classes 27-24  
 metering properties (Quality of Service)  
   specifying 27-25 to 27-26  
 metrics  
   boosts 13-27  
   Internet Protocol (IP) 13-27  
 MIB. See Management Information Base  
 mib-2 MIB C-26  
 MIB-II MIB C-26  
 MIOX circuits 1-20  
 mirror ports  
   disabling 7-82  
   enabling 7-92  
   modifying 7-105  
 mirroring  
   switch ports 7-15  
 MLD 25-7  
 MLD Snooping commands  
   DISABLE MLDSNOOPING 25-32  
   DISABLE MLDSNOOPING DEBUG 25-32  
   ENABLE MLDSNOOPING 25-35  
   ENABLE MLDSNOOPING DEBUG 25-35  
   SHOW MLDSNOOPING 25-48  
   SHOW MLDSNOOPING COUNTER 25-50  
 MLD. See Multicast Listener Discovery  
 MODIFY command 4-24  
 MODIFY NVS command 6-30  
 modifying  
   interfaces, PPP 11-58  
   passwords 29-49 to 29-50  
   PPP interfaces 11-58  
   PPP templates 11-64  
   route templates 13-131  
   RSVP interfaces 28-6, 28-20  
   RSVP proxy agent 28-7, 28-21

stream ports 47-6  
 templates 11-64  
 Modules group, Allied Telesis Enterprise MIB C-18  
 modules MIB object C-9  
 monitoring operation 4-7  
 MSTP  
   disabling 8-42  
 mstp MIB object C-52  
 mstpNewRootBridge trap message C-52  
 mstpNewRootPort trap message C-52  
 mstpTopologyChange trap message C-52  
 mstpXstId MIB object C-52  
 mstpXstPortIndex MIB object C-52  
 mstpXstPortState MIB object C-52  
 MTU. See Maximum Transmission Unit (MTU)  
 multicast addresses 10-6, 10-47 to 10-48  
 Multicast Border Router  
   IPv4 17-5  
   IPv6 25-4  
 Multicast Listener Discovery (MLD)  
   commands  
     DISABLE IPV6 MLD 25-30  
     DISABLE IPV6 MLD DEBUG 25-31  
     DISABLE IPV6 MLD INTERFACE 25-31  
     ENABLE IPV6 MLD 25-33  
     ENABLE IPV6 MLD DEBUG 25-33, 25-48  
     ENABLE IPV6 MLD INTERFACE 25-34  
     SET IPV6 MLD 25-38  
     SET IPV6 MLD INTERFACE 25-39  
     SHOW IPV6 MLD 25-44  
     SHOW IPV6 MLD CONFIG 25-46  
     SHOW IPV6 MLD COUNTERS 25-47  
     SHOW IPV6 MLD DEBUG 25-48  
   configuration 25-7  
     displaying 25-46  
   configuration example 25-15  
   counters 25-38  
     displaying 25-47  
   debugging  
     displaying 25-48  
   disabling 25-7, 25-30  
   disabling debugging 25-31  
   disabling interfaces 25-31  
   displaying 25-44  
   displaying configuration 25-46  
   displaying counters 25-47  
   displaying debugging 25-48  
   enabling 25-7, 25-33  
   enabling debugging 25-32 to 25-33, 25-35, 25-48  
   enabling interfaces 25-34  
   example configuration 25-15  
   introduction 25-5  
   MLD Snooping 25-7  
   setting interface parameters 25-39  
   timers 25-38  
 multicast rate limiting  
   disabling 7-81  
   enabling 7-92  
 multicasting  
   displaying IP route 13-170



- multicasting, IP 13-43
- Multicasting, IPv4. *See* IPv4 Multicasting
- Multicasting, IPv6. *See* IPv6 Multicasting
- multihoming, Internet Protocol (IP) 13-11
- multilink, PPP 11-8
- Multiple Spanning Tree Protocol (MSTP CIST PORT)
  - enabling 8-43
- Multiple Spanning Tree Protocol (MSTP COUNTER PORT)
  - displaying 8-74
  - resetting 8-52
- Multiple Spanning Tree Protocol (MSTP)
  - Bridge Protocol Data Units (BPDUs) 8-14
  - Compatibility with previous versions 8-15
  - Configuring 8-16
  - MSTI
    - Path selection 8-21
    - Root bridge selection 8-20
  - Regions 8-13
- Multiple Spanning Tree Protocol (SHOW MSTP DEBUG MSTI)
  - displaying 8-75
- Multiple Spanning Tree Protocol (SHOW MSTP)
  - displaying 8-67, 8-69

## N

- name
  - displaying 4-54
  - setting 4-33
- name server 13-127, 13-132
- name server, Internet Protocol (IP) 13-127
- Names, MIB objects 39-6
- naming files 6-3
  - using wildcards 6-7
- naming interfaces 10-2
- neighbour
  - OSPF 19-31, 19-40, 19-62, 19-85
- Net Manage protocol 45-2, 45-4
- network classes 13-7
- Network Control Protocol (NCP) 11-4
- network management protocol 39-3
- Network Management Station (NMS) 39-3
- Network Time Protocol (NTP) 41-1 to 41-12
  - adding peer 41-8
  - broadcast mode 41-2
  - client mode 41-2, 41-4
  - commands
    - ADD NTP PEER 41-8
    - DELETE NTP PEER 41-8
    - DISABLE NTP 41-9
    - ENABLE NTP 41-9
    - PURGE NTP 41-9
    - RESET NTP 41-10
    - SET NTP UTCOFFSET 41-10
    - SHOW NTP 41-11
  - configuring 41-4
  - deleting peer 41-8
  - disabling 41-9
  - displaying configuration 41-11
  - enabling 41-9
  - message format 41-3

- operating modes 41-2
- operation 41-4
- peer 41-2
  - adding 41-8
  - deleting 41-8
- purging 41-9
- reference clocks 41-2
- resetting 41-10
- server mode 41-2, 41-4
- setting
  - UTC offset 41-10
- symmetric mode 41-2
- time servers 41-2
- UTC offset 41-10
- network types, OSPF 19-4
- Non-Volatile Storage (NVS) 6-11
  - clearing 6-19
  - deleting blocks 6-25
  - displaying
    - blocks 6-53
    - contents 6-11, 6-26
    - free memory 6-54
    - free space 6-11
    - information 6-11
- normal mode operation 29-39, 29-43
- not-accessible, MIB object 39-7
- notation, MIB object identifiers
  - combined 39-6
  - dotted 39-6
  - textual 39-6
- NTP *See* Network Time Protocol (NTP)
- NVS. *See* Non-Volatile Storage (NVS)

## O

- object descriptor 39-6
- object identifier 39-6
  - combined notation 39-6
  - dotted notation 39-6
  - textual notation 39-6
- object instance 39-6
- object syntax 39-7
- object, MIB
  - access mode 39-7
  - deprecated 39-8
  - mandatory 39-8
  - not-accessible 39-7
  - obsolete 39-8
  - optional 39-8
  - read-only 39-7
  - read-write 39-7
  - status 39-8
  - write-only 39-7
- Objects group, Allied Telesis Enterprise MIB C-9
- objects MIB object C-9
- obsolete status 39-8
- online help 2-12
  - setting system help file 2-13
- Open Shortest Path First (OSPF) 19-3
  - adding
    - areas 19-23, 19-32



- hosts 19-25
- interfaces 19-26
- neighbours 19-31
- ranges 19-32
- stubs 19-35
- summary addresses 19-36
- addresses, summary 19-36, 19-43, 19-66, 19-91
- addressless interfaces 19-10, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58
- adjacency 19-5 to 19-6
- aging 19-5, 19-79, 19-82
- area 19-3, 19-23, 19-32, 19-37, 19-40, 19-55, 19-63, 19-69
- area border router 19-4
- authentication 19-3, 19-23, 19-37, 19-55
- autonomous systems 19-3
- backbone 19-19, 19-23, 19-37, 19-55
- commands 19-23
  - ADD OSPF AREA 19-23
  - ADD OSPF HOST 19-25
  - ADD OSPF INTERFACE 19-26
  - ADD OSPF NEIGHBOUR 19-31
  - ADD OSPF STUB 19-35
  - ADD OSPF SUMMARYADDRESS 19-36
  - DELETE OSPF AREA 19-37
  - DELETE OSPF HOST 19-37
  - DELETE OSPF INTERFACE 19-38
  - DELETE OSPF NEIGHBOUR 19-40
  - DELETE OSPF STUB 19-42
  - DELETE OSPF SUMMARYADDRESS 19-43
  - DISABLE OSPF 19-43
  - DISABLE OSPF DEBUG 19-43
  - DISABLE OSPF INTERFACE 19-45
  - DISABLE OSPF LOG 19-45
  - ENABLE OSPF 19-46
  - ENABLE OSPF DEBUG 19-46
  - ENABLE OSPF INTERFACE 19-47
  - ENABLE OSPF LOG 19-48
  - PURGE OSPF 19-49
  - RESET OSPF 19-49
  - RESET OSPF COUNTERS 19-50
  - RESET OSPF INTERFACE 19-50
  - RESET OSPF SPF 19-51
  - SET OSPF 19-52
  - SET OSPF AREA 19-55
  - SET OSPF HOST 19-57
  - SET OSPF INTERFACE 19-58
  - SET OSPF NEIGHBOUR 19-62
  - SET OSPF STUB 19-65
  - SET OSPF SUMMARYADDRESS 19-66
  - SHOW OSPF 19-67
  - SHOW OSPF AREA 19-69
  - SHOW OSPF DEBUG 19-72
  - SHOW OSPF HOST 19-72
  - SHOW OSPF INTERFACE 19-74
  - SHOW OSPF LSA 19-78
  - SHOW OSPF NEIGHBOURS 19-85
  - SHOW OSPF RANGE 19-86
  - SHOW OSPF ROUTE 19-88
  - SHOW OSPF STUB 19-90
  - SHOW OSPF SUMMARYADDRESS 19-91
- configuration 19-67
  - examples 19-17
- counters
  - resetting 19-50
- debugging 19-43, 19-46
- deleting
  - areas 19-37, 19-40
  - hosts 19-37
  - interfaces 19-38
  - neighbours 19-40
  - ranges 19-40
  - stubs 19-42
  - summary addresses 19-43
- designated router 19-5, 19-7, 19-28, 19-31, 19-40, 19-60, 19-62, 19-74
- disable 19-43
- disabling
  - interfaces 19-45
- displaying
  - areas 19-69
  - configuration 19-67
  - hosts 19-72
  - interfaces 19-74
  - link state advertisements 19-78
  - neighbours 19-85
  - ranges 19-86
  - router configuration 19-67
  - routes 19-88
  - status 19-67
  - stubs 19-90
  - summary addresses 19-91
- enable 19-43, 19-46
- enabling
  - interfaces 19-47
- examples 19-17
- external routes 19-3
- features 19-3
- Hello packets 19-5, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58
- hosts 19-25, 19-37, 19-57, 19-72
- interface to RIP 19-14, 19-52
- interfaces 19-7, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58, 19-74
  - adding 19-26
  - addressless 19-10, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58
  - deleting 19-38
  - disabling 19-45
  - displaying 19-74
  - enabling 19-47
  - modifying 19-58
  - resetting 19-50
- link state advertisements 19-5, 19-78
- logging 19-45, 19-48
- mask 19-3, 19-23, 19-37, 19-55
- modifying
  - areas 19-55, 19-63
  - hosts 19-57
  - interfaces 19-58





- neighbours 19-62
- ranges 19-63
- stubs 19-65
- summary addresses 19-66
- neighbour 19-31, 19-40, 19-62, 19-85
- network types 19-4
- packet types 19-6
- path types 19-9
- purge 19-49
- ranges 19-32, 19-40, 19-63, 19-86
- reset 19-49
- resetting
  - interfaces 19-50
  - route table 19-51
- resetting counters 19-50
- RIP interface 19-14, 19-52
- router id 19-52
- router status 19-67
- router types 19-4, 19-23, 19-37, 19-55
- routes 19-9, 19-88
- routing 19-9
- state 19-43, 19-46
- states 19-7
- status 19-67
- stub areas 19-4, 19-23, 19-37, 19-55
- stubs 19-35, 19-42, 19-65, 19-90
- summary addresses 19-36, 19-43, 19-66, 19-91
- transit network 19-6, 19-19
- virtual links 19-19, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58
- Operation
  - adding
    - users 29-32
  - administrator name
    - displaying 4-54
    - setting 4-29
  - asynchronous port security 29-12
  - base hardware serial number
    - displaying 4-74
  - booting the router 4-10, 5-37
  - changing
    - passwords 29-49 to 29-50
  - clearing NVS memory 6-19
  - command
    - editing 2-3
    - history 2-3
  - commands
    - ADD ALIAS 2-10, 6-17, 6-22, 6-33
    - ADD RADIUS SERVER 29-29
    - ADD TACACS SERVER 29-30
    - ADD USER 29-32
    - ADD USER RSO 29-34
    - CLEAR NVS TOTALLY 6-19
    - CREATE CONFIG 5-22
    - DELETE ALIAS 2-11
    - DELETE FILE 6-23
    - DELETE INSTALL 5-23
    - DELETE MAIL 4-16
    - DELETE NVS 6-25
    - DELETE RADIUS SERVER 29-35
    - DELETE TACACS SERVER 29-36
    - DELETE USER 29-37
    - DISABLE FEATURE 5-24
    - DISABLE GUI 5-25
    - DISABLE HTTP DEBUG 5-25
    - DISABLE HTTP SERVER 5-25
    - DISABLE MAIL DEBUG 4-18
    - DISABLE RELEASE 5-26
    - DISABLE SYSTEM SECURITY\_MODE 29-39
    - DISABLE USER 29-41
    - DUMP 4-19
    - DUMP NVS 6-26
    - EDIT 6-27
    - ENABLE FEATURE 5-28
    - ENABLE GUI 3-19
    - ENABLE HTTP DEBUG 5-29, 33-12, 33-14, 33-17
    - ENABLE HTTP SERVER 5-29
    - ENABLE MAIL DEBUG 4-21
    - ENABLE RELEASE 5-30
    - ENABLE SYSTEM SECURITY\_MODE 29-43
    - ENABLE USER 29-45
    - HELP 2-12
    - LOAD 5-31
    - LOGIN 29-46
    - LOGOFF 29-47
    - MAIL 4-22
    - MODIFY 4-24
    - MODIFY NVS 6-30
    - PURGE USER 29-47
    - RENAME 6-32
    - RESET CPU UTILISATION 4-25
    - RESET HTTP SERVER 5-36
    - RESET LOADER 5-37
    - RESET USER 29-48
    - RESTART 5-37
    - SET CONFIG 5-39
    - SET HELP 2-13
    - SET HTTP SERVER 5-40
    - SET INSTALL 5-41, 5-43
    - SET LOADER 5-44
    - SET MAIL 4-26
    - SET MANAGER PORT 29-49
    - SET PASSWORD 29-49 to 29-50
    - SET SYSTEM CONTACT 4-29
    - SET SYSTEM LOCATION 4-32
    - SET SYSTEM NAME 4-33
    - SET TIME 4-35
    - SET USER 29-54
    - SHOW ALIAS 2-13 to 2-14, 6-49
    - SHOW BUFFER 4-37
    - SHOW CONFIG 5-48
    - SHOW CPU 4-42
    - SHOW DEBUG 4-44
    - SHOW EXCEPTION 4-50
    - SHOW FEATURE 5-50
    - SHOW FFIL 6-44, 6-46
    - SHOW FLASH 6-50
    - SHOW FLASH PHYSICAL 6-52
    - SHOW HTTP CLIENT 5-52
    - SHOW HTTP DEBUG 5-53



- SHOW HTTP SERVER 5-53
- SHOW HTTP SESSION 5-55
- SHOW INSTALL 5-56
- SHOW LOADER 5-61
- SHOW MAIL 4-51
- SHOW MANAGER PORT 29-57
- SHOW NVS 6-53
- SHOW NVS FREE 6-54
- SHOW PATCH 5-63
- SHOW RADIUS 29-57
- SHOW RELEASE 5-63 to 5-64
- SHOW STARTUP 4-52
- SHOW SYSTEM 4-54
- SHOW SYSTEM SERIALNUMBER 4-74
- SHOW TACACS SERVER 29-62
- SHOW TIME 4-75
- SHOW USER 29-67
- UPLOAD 5-66
- Compact Flash 6-12
- configuration
  - displaying dynamic 5-48
  - saving dynamic 5-22
  - setting default 5-39
- contact name
  - displaying 4-54
  - setting 4-29
- counters 29-13
- CPU utilisation 4-8, 4-42
  - resetting 4-25
- creating
  - files 6-6
- debugging 4-10, 4-44
- debugging mail 4-12
- default configuration, setting 5-39
- deleting
  - files 6-23
  - FLASH files 6-23
  - install information 5-23
  - mail messages 4-12, 4-16
  - NVS blocks 6-25
  - users 29-37
- disabling
  - mail debugging 4-18
  - security mode 29-39
  - software releases 5-26
  - users 29-41
- displaying
  - administrator name 4-54
  - base hardware serial number 4-74
  - clock 4-75
  - contact name 4-54
  - date 4-75
  - directory of files 6-5
  - dynamic configuration 5-48
  - exceptions 4-10, 4-50
  - file downloads 5-61
  - files 6-46
  - FLASH files 6-46
  - FLASH memory 6-9, 6-50, 6-52
  - free memory 4-9, 4-37
  - free NVS memory 6-54
  - help 1-4, 2-8, 2-12
  - install information 5-56
  - location 4-54
  - mail 4-12
  - mail system 4-51
  - memory contents 4-9, 4-19
  - name 4-54
  - NVS blocks 6-53
  - NVS contents 6-26
  - patches 5-63
  - semipermanent manager port 29-57
  - software releases 5-63 to 5-64
  - special feature licences 5-50
  - startup status 4-10, 4-52
  - system clock 4-75
  - system date 4-75
  - system information 4-54
  - system location 4-54
  - system name 4-54
  - system territory 4-54
  - system time 4-75
  - territory 4-54
  - time 4-75
  - users 29-67
- download files 5-31
- downloading files 5-37, 5-44, 5-61, 6-6
- dumping
  - NVS blocks 6-26
- dynamic configuration
  - displaying 5-48
  - saving 5-22
- editing files 6-6, 6-27
- editor 6-6, 6-27
- enabling
  - mail debugging 4-21
  - security mode 29-43
  - software releases 5-30
  - special feature licences 5-28
  - users 29-45
- entering commands 2-3
- event logging 4-7
- exceptions, displaying 4-10, 4-50
- fatal errors 4-10, 4-50
- fault diagnosis 4-7
- file naming conventions 6-3
- file types 6-4
- files
  - creating 6-6
  - deleting 6-23
  - displaying 6-46
  - displaying directory 6-5
  - downloading 5-37, 5-44, 5-61, 6-6
  - editing 6-6, 6-27
  - renaming 6-32
  - uploading 5-66
- FLASH files 6-9
  - deleting 6-23
  - displaying 6-44, 6-46
  - displaying directory 6-9



- downloading 5-37, 5-44, 5-61
  - editing 6-27
  - renaming 6-32
  - uploading 5-66
- FLASH memory 6-8 to 6-9
  - compaction 6-10
  - displaying 6-50, 6-52
- GUI
  - enabling and disabling 3-15
- help
  - displaying 2-12
  - setting system help file 2-13
- help file 1-4, 2-8
- HTTP server 5-9
  - disabling 5-25
  - disabling debugging 5-25
  - displaying client status 5-52
  - displaying debugging status 5-53
  - displaying session information 5-55
  - displaying status 5-53
  - enabling 5-29
  - enabling debugging 5-29, 33-12, 33-14, 33-17
  - resetting 5-36
  - setting homepage 5-40
- install information 5-12
  - deleting 5-23
  - displaying 5-56
  - setting 5-41, 5-43
- location
  - displaying 4-54
  - setting 4-32
- logging events 4-7
- logging in and out 29-8, 29-46 to 29-47
- mail 4-22
- mail subsystem 4-11 to 4-12
  - configuration 4-12
  - deleting mail messages 4-16
  - displaying mail status 4-51
  - sending mail messages 4-22
  - setting mail host name 4-26
- manager port, semipermanent 29-4, 29-13, 29-49, 29-57
- MANAGER privilege 29-4
- memory
  - clearing NVS 6-19
  - Compact Flash 6-12
  - deleting NVS blocks 6-25
  - displaying 4-9
  - displaying contents 4-19
  - displaying FLASH 6-9
  - displaying free 4-9, 4-37
  - displaying free NVS 6-54
  - displaying NVS blocks 6-53
  - displaying NVS contents 6-26
  - FLASH 6-8 to 6-9, 6-50, 6-52
  - FLASH compaction 6-10
  - modifying 4-10, 4-24
  - modifying NVS 6-30
- modifying
  - memory 4-10, 4-24
  - NVS memory 6-30
  - passwords 29-49 to 29-50
  - users 29-54
- monitoring 4-7
- name
  - displaying 4-54
  - setting 4-33
- Non-Volatile Storage (NVS) 6-11
- normal mode 29-39, 29-43
- NVS
  - clearing 6-19
  - deleting blocks 6-25
  - displaying blocks 6-53
  - displaying contents 6-26
  - displaying free memory 6-54
- online help 1-4, 2-8, 2-12
- passwords 29-11 to 29-12
  - changing 29-49 to 29-50
  - recovering 29-12
- patches
  - displaying 5-63
  - downloading 5-37, 5-44, 5-61
- purging
  - users 29-47
- RADIUS servers 29-9, 29-14, 29-29, 29-35, 29-57
- recovering passwords 29-12
- remote management 46-6
- renaming
  - files 6-32
  - FLASH files 6-32
- resetting
  - users 29-48
- restarting the router 4-10, 5-37
- saving default configuration 5-39
- saving dynamic configuration 5-22
- security mode
  - disabling 29-39
  - enabling 29-43
- security timer 29-5
- semipermanent manager port 29-4, 29-13, 29-49, 29-57
- sending mail 4-12, 4-22
- setting
  - administrator name 4-29
  - clock 4-35
  - contact name 4-29
  - date 4-35
  - install information 5-41, 5-43
  - location 4-32
  - mail host name 4-26
  - name 4-33
  - semipermanent manager port 29-49
  - system clock 4-35
  - system date 4-35
  - system help file 2-13
  - system information 4-29, 4-32 to 4-33
  - system location 4-32
  - system name 4-33
  - system time 4-35
  - time 4-35



- snapshot 4-10, 4-44
- software releases
  - deleting 5-23
  - disabling 5-26
  - displaying 5-56, 5-63 to 5-64
  - downloading 5-37, 5-44, 5-61
  - enabling 5-30
  - setting 5-41, 5-43
- special feature licences 5-15
  - disabling 5-24
  - displaying 5-50
  - enabling 5-28
- startup status 4-10, 4-52
- system information
  - displaying 4-54
  - setting 4-29, 4-32 to 4-33
- system location
  - displaying 4-54
  - setting 4-32
- system name
  - displaying 4-54
  - setting 4-33
- system territory
  - displaying 4-54
- TACACS servers 29-9, 29-17, 29-30, 29-36, 29-62
- Telnet 46-6
- Telnet from the router 29-13
- territory
  - displaying 4-54
- text editor 6-6, 6-27
- uploading files 5-66
- User Authentication Database 29-9 to 29-10
  - adding users 29-10, 29-32
  - counters 29-13
  - deleting users 29-11, 29-37
  - disabling users 29-41
  - displaying users 29-11, 29-67
  - enabling users 29-45
  - logging in and out 29-8, 29-46 to 29-47
  - modifying users 29-11, 29-54
  - passwords 29-11 to 29-12
  - purging users 29-47
  - recovering passwords 29-12
  - resetting users 29-48
- User Authentication Facility 29-8
  - asynchronous port security 29-12
  - semipermanent manager port 29-13
  - Telnetting from the router 29-13
- USER privilege 29-3
- users
  - adding 29-32
  - deleting 29-37
  - disabling 29-41
  - displaying 29-67
  - enabling 29-45
  - modifying 29-54
  - purging 29-47
  - resetting 29-48
- wildcards, in file names 6-7
- Operations 34-2

- optional status 39-8
- ospf MIB object C-51
- ospfAddressLessIf MIB object C-51
- ospfIfIpAddress MIB object C-51
- ospfIfState MIB object C-51
- ospfIfStateChange trap message C-51
- ospfNbrAddressLessIndex MIB object C-51
- ospfNbrIfAddr MIB object C-51
- ospfNbrRtrId MIB object C-51
- ospfNbrState MIB object C-51
- ospfNbrStateChange trap message C-51
- ospfRouterId MIB object C-51
- ospfVirtIfAreaId MIB object C-51
- ospfVirtIfNeighbor MIB object C-51
- ospfVirtIfState MIB object C-51
- ospfVirtIfStateChange trap message C-51
- ospfVirtNbrArea MIB object C-51
- ospfVirtNbrRtrId MIB object C-51
- ospfVirtNbrState MIB object C-51
- ospfVirtNbrStateChange trap message C-51

## P

- Packet Capture group, RMON MIB C-43
- packet types, OSPF 19-6
- PAE Authenticator group, Port Access Control MIB C-40 to C-41
- PAE Supplicant group, Port Access Control MIB C-41
- PAE System group, Port Access Control MIB C-40 to C-41
- PAP. See Password Authentication Protocol (PAP)
- parameters, in scripts 43-4
- Password Authentication Protocol (PAP) 11-17
- passwords 29-11 to 29-12
  - changing 29-49 to 29-50
  - recovering 29-12
- patches
  - displaying 5-63
  - downloading 5-37, 5-44, 5-61, 5-66
- path types, OSPF 19-9
- payload compression 31-3
- payload encryption 30-4, 31-6
- peer
  - adding NTP 41-8
  - deleting NTP 41-8
  - NTP 41-2
- periodic triggers 44-2
- PIM Dense Mode, See Protocol Independent Multicast (PIM)
- PIM Sparse Mode, See Protocol Independent Multicast (PIM)
- PIM4 group, Allied Telesis Enterprise MIB C-22
- pim4ErrorTrap trap message C-22
- pim4ErrorTrapType MIB object C-22
- pim4Events MIB object C-22
- pim4InterfaceDownTrap trap message C-22
- pim4InterfaceUpTrap trap message C-22
- pim4NeighbourAddedTrap trap message C-22
- pim4NeighbourDeletedTrap trap message C-22
- PING 13-38, 13-107, 13-133, 13-176, 13-184
- PING command 13-107
- Ping group, Allied Telesis Enterprise MIB C-20
- ping MIB object C-20



## Ping Polling of Device Reachability

- commands
  - ADD PING POLL 37-7
  - DELETE PING POLL 37-9
  - DISABLE PING POLL 37-10
  - DISABLE PING POLL DEGBUG 37-10
  - ENABLE PING POLL 37-11
  - ENABLE PING POLL DEBUG 37-11
  - RESET PING POLL 37-12
  - SET PING POLL 37-12
  - SHOW PING POLL 37-15
- pingIndex MIB object C-20
- pingStatistics MIB object C-21
- pingStatus MIB object C-21
- pingTable MIB object C-20
- pingTrap trap message C-21
- PKI. See Public Key Infrastructure (PKI)
- plain text 31-4
- plaintext 30-2
- Point-to-Point Protocol (PPP) 11-1
  - See also Layer Two Tunnelling Protocol (L2TP)
  - adding
    - physical links 11-30
  - aggregating links 11-8
  - authentication 11-17, 11-30
  - BACP. See Bandwidth Allocation Control Protocol
  - Bandwidth Allocation Control Protocol (BACP) 11-8
  - Bandwidth Allocation Protocol (BAP) 11-8
  - bandwidth on demand 11-10
  - BAP. See Bandwidth Allocation Protocol
  - callback 11-14
  - Challenge-Handshake Authentication Protocol (CHAP) 11-18 to 11-19
  - channel aggregation 11-8
  - commands
    - ACTIVATE PPP 11-29
    - ADD PPP 11-30
    - CREATE PPP 11-33
    - CREATE PPP TEMPLATE 11-40
    - DELETE PPP 11-46
    - DESTROY PPP 11-47
    - DESTROY PPP TEMPLATE 11-48
    - DISABLE PPP 11-49
    - DISABLE PPP DEBUG 11-49
    - DISABLE PPP TEMPLATE DEBUG 11-51
    - ENABLE PPP 11-51
    - ENABLE PPP DEBUG 11-52
    - ENABLE PPP TEMPLATE DEBUG 11-55
    - PURGE PPP 11-56
    - RESET PPP 11-57
    - SET PPP 11-58
    - SET PPP TEMPLATE 11-64
    - SHOW PPP 11-71
    - SHOW PPP CONFIG 11-72
    - SHOW PPP COUNT 11-78
    - SHOW PPP DEBUG 11-90
    - SHOW PPP IDLETIMER 11-91
    - SHOW PPP LIMITS 11-92
    - SHOW PPP MULTILINK 11-93
    - SHOW PPP NAMESERVER 11-95
    - SHOW PPP TEMPLATE 11-96
    - SHOW PPP TXSTATUS 11-101
    - SHOW PPP UTILISATION 11-103
  - compression 11-30
  - configuration
    - displaying 11-72
  - configuration examples 11-28
  - control protocols 11-4
  - counters 11-24
    - displaying 11-78
    - displaying activity 11-24
    - resetting activity 11-24, 11-57
  - creating
    - interfaces 11-33
    - templates 11-40
  - debugging 11-25, 11-49, 11-52, 11-90
    - templates 11-51, 11-55
  - deleting
    - physical links 11-46
  - destroying
    - interfaces 11-47
    - templates 11-48
  - dial-on-demand 11-9
  - disabling
    - debugging, interfaces 11-49
    - debugging, templates 11-51
    - interfaces 11-49
  - displaying
    - activity counters 11-24
    - configuration 11-72
    - counters 11-78
    - debugging 11-90
    - interfaces 11-71
    - multilink information 11-93
    - nameservers 11-95
    - templates 11-96
    - timers 11-91
    - transmission queue 11-101
  - dynamic interfaces
    - templates 11-13
  - enabling
    - debugging, interfaces 11-52
    - debugging, templates 11-55
    - interfaces 11-51
  - encapsulation 11-3
  - events 11-5
  - example configurations 11-28
  - interfaces
    - adding physical links 11-30
    - creating 11-33
    - deleting physical links 11-46
    - destroying 11-47
    - disabling 11-49
    - displaying 11-71
    - enabling 11-51
    - modifying 11-58
    - purging 11-56
    - resetting 11-57
  - leased line backup 11-9
  - limiting connection time and data throughput 11-23,



- 11-33, 11-40, 11-57 to 11-58, 11-64
- Link Control Protocol (LCP) 11-4, 11-24
  - Asynchronous Control Character Map (ACCM) Option 11-5
  - Authentication Protocol Option 11-5
  - Endpoint Discriminator Option 11-5
  - Link Discriminator Option 11-5 to 11-6
  - Link Quality Reporting (LQR) Option 11-5, 11-7
  - Magic Number Option 11-5
  - Maximum Receive Unit Option 11-5
  - Maximum Received Reconstructed Unit Option 11-5 options 11-5
- link management 11-23, 11-33, 11-40, 11-57 to 11-58, 11-64
- link quality management 11-28, 11-30
- Link Quality Reporting (LQR) 11-7
- magic number 11-15
- MIB 11-24
- modifying
  - interfaces 11-58
- multilink 11-8
  - displaying 11-93
- nameservers
  - displaying 11-95
  - setting 11-58
- NCP 11-4
- Network Control Protocol (NCP) 11-4
- Password Authentication Protocol (PAP) 11-17
- protocols 11-3
- purging configuration 11-56
- resetting
  - activity counters 11-24, 11-57
- resetting interfaces 11-57
- setting
  - activity limits 11-23 to 11-24, 11-33, 11-40
- standards 11-3
- states 11-5
- templates 11-13
  - creating 11-40
  - debugging 11-51, 11-55
  - destroying 11-48
  - displaying 11-96
  - modifying 11-64
- thresholds for connection time and data throughput 11-23, 11-33, 11-40, 11-57 to 11-58, 11-64
- timers 11-24, 11-91
- transmission queue 11-101
- policies (Quality of Service) 27-18
- polling, SNMP protocol 39-11
- Port Access Control MIB C-40
- port authentication (802.1x)
  - 802.1x Port Based Network Access Control 32-2
  - authentication process 32-8
  - authentication server 32-7
  - Authenticator PAE 32-6
  - Command Reference 32-22
- commands
  - ACTIVATE PORTAUTH PORT REAUTHENTICATE 32-22
  - DISABLE PORTAUTH 32-23
  - DISABLE PORTAUTH DEBUG PORT 32-24
  - DISABLE PORTAUTH PORT 32-25
  - ENABLE PORTAUTH 32-26
  - ENABLE PORTAUTH DEBUG PORT 32-27
  - PURGE PORTAUTH PORT 32-34
  - RESET PORTAUTH PORT MULTIMIB 32-36
  - SET PORTAUTH PORT 32-37
  - SET PORTAUTH PORT SUPPLICANTMAC 32-43
  - SET PORTAUTH USERNAME 32-46
  - SHOW PORTAUTH 32-48
  - SHOW PORTAUTH PORT 32-53
  - SHOW PORTAUTH PORT MULTISUPPLICANT 32-60
  - SHOW PORTAUTH TIMER 32-66
- configuration example
  - authenticator 32-19
  - supplicant 32-20
- Configuration Examples 32-19
- configure a multi-supplicant system 32-17
- debug 802.1x 32-17
- enable 802.1x 32-14
- multi-supplicant system 32-4, 32-11
- port authentication control overview 32-5
  - Authenticator PAE 32-6
  - Supplicant PAE 32-7
- reauthenticate supplicants 32-16
- set global username and password 32-17
- single supplicant system 32-3
- supplicant and authenticator configuration 32-5
- Supplicant PAE 32-7
- Port Authentication group, Allied Telesis Enterprise MIB C-23
- Port Authentication. See 802.1x
- port group 27-44, 27-53, 27-63, 27-72, 27-89, 27-114 to 27-115
- port speed, autonegotiation 7-8
- Ports
  - setting 9-15
- ports
  - STP
    - disabling 8-41
    - displaying 8-86
    - enabling 8-50
    - modifying 8-64
- switch 7-5
  - activating 7-50
  - autonegotiation 7-8
  - blocking 8-7
  - disabling 7-5, 7-83
  - displaying counters 7-142
  - enabling 7-5, 7-94
  - ingress rules 7-35
  - intrusion 7-144
  - mirroring 7-15
  - modifying 7-106
  - resetting 7-98, 8-52
  - security 7-16, 7-106
  - STP ports 8-3
  - triggers 7-42
- VLAN
  - adding 7-58, 7-64





deleting 7-73, 8-34  
 ppr8624xl80 MIB object C-10  
 ppr8948EX MIB object C-13  
 ppr8948i MIB object C-13  
 ppr8948iN MIB object C-14  
 ppr9812T MIB object C-13  
 ppr9812TDC MIB object C-13  
 ppr9812TF MIB object C-12  
 ppr9816GB MIB object C-12  
 ppr9816GBDC MIB object C-13  
 ppr9816GF MIB object C-12  
 ppr9924SP MIB object C-13  
 ppr9924T MIB object C-13  
 ppr9924T4SP MIB object C-13  
 ppr9924TEMC MIB object C-13  
 ppr9924Ts MIB object C-14  
 ppr9924TsiN MIB object C-15  
 pprA35LXSC MIB object C-10  
 pprA35SXSC MIB object C-10  
 pprA36MTRJ MIB object C-10  
 pprA37VF45 MIB object C-10  
 pprA38LC MIB object C-10  
 pprA39Tx MIB object C-10  
 pprA40MTRJ MIB object C-12  
 pprA40SC MIB object C-12  
 pprA41MTRJ MIB object C-12  
 pprA41SC MIB object C-12  
 pprA42GBIC MIB object C-12  
 pprA46Tx MIB object C-14  
 pprA50 MIB object C-13  
 pprA51 MIB object C-13  
 pprA52 MIB object C-13  
 pprA53 MIB object C-13  
 pprAr010 MIB object C-10  
 pprAr011 MIB object C-10  
 pprAr012 MIB object C-10  
 pprAr120 MIB object C-9  
 pprAr130s MIB object C-10  
 pprAr130u MIB object C-10  
 pprAr140s MIB object C-10  
 pprAr140u MIB object C-10  
 pprAr160su MIB object C-10  
 pprAr300 MIB object C-9  
 pprAr300L MIB object C-9  
 pprAr300Lu MIB object C-9  
 pprAr300u MIB object C-9  
 pprAr310 MIB object C-9  
 pprAr310u MIB object C-9  
 pprAr320 MIB object C-10  
 pprAr330 MIB object C-10  
 pprAr350 MIB object C-9  
 pprAr370 MIB object C-10  
 pprAr370u MIB object C-10  
 pprAr390 MIB object C-10  
 pprAr395 MIB object C-10  
 pprAr410 MIB object C-12  
 pprAr410v2 MIB object C-13  
 pprAr410v3 MIB object C-13  
 pprAR415S MIB object C-14  
 pprAR415SDC MIB object C-14

pprAR420 MIB object C-14  
 pprAR440 MIB object C-14  
 pprAR441 MIB object C-14  
 pprAR442 MIB object C-14  
 pprAR443 MIB object C-14  
 pprAR444 MIB object C-14  
 pprAr450 MIB object C-13  
 pprAr450Dual MIB object C-13  
 pprAR550 MIB object C-14  
 pprAR550SDP MIB object C-14  
 pprAR551 MIB object C-14  
 pprAR552 MIB object C-14  
 pprAR570 MIB object C-14  
 pprAr720 MIB object C-9  
 pprAr725 MIB object C-12  
 pprAr725DC MIB object C-13  
 pprAr740 MIB object C-10  
 pprAr740DC MIB object C-10  
 pprAr745 MIB object C-12  
 pprAr745DC MIB object C-13  
 pprAR770 MIB object C-14  
 pprAr816fMT MIB object C-11  
 pprAr816fMTi MIB object C-11  
 pprAr816fSC MIB object C-11  
 pprAr816fSCi MIB object C-11  
 pprAr824 MIB object C-11  
 pprAr824i MIB object C-11  
 pprAr88fMT MIB object C-11  
 pprAr88fMTi MIB object C-11  
 pprAr88fSC MIB object C-11  
 pprAr88fSCi MIB object C-11  
 pprAr88t8fMT MIB object C-11  
 pprAr88t8fMTi MIB object C-11  
 pprAr88t8fSC MIB object C-11  
 pprAr88t8fSCi MIB object C-11  
 pprAT-8624PoE MIB object C-14  
 pprAt8624T2M MIB object C-14  
 pprAt86482SP MIB object C-14  
 pprAt8724XL MIB object C-11  
 pprAt8724XLDC MIB object C-11  
 pprAt8724XLDC-NEBS MIB object C-11  
 pprAt8748XL MIB object C-11  
 pprAt8748XLDC MIB object C-11  
 pprAt8824 MIB object C-11  
 pprAt8824DC MIB object C-11  
 pprAt8824XLDC MIB object C-11  
 pprAt8848 MIB object C-12  
 pprAt8848DC MIB object C-11  
 pprAtFan01 MIB object C-13  
 pprAtPwr01AC MIB object C-13  
 pprAtPwr01DC MIB object C-13  
 pprAtXum10G MIB object C-14  
 pprAtXum10Gi MIB object C-14  
 pprAtXum12SFP MIB object C-14  
 pprAtXum12SFPi MIB object C-14  
 pprAtXum12T MIB object C-14  
 pprAtXum12TiN MIB object C-14  
 pprC8724MLB MIB object C-14  
 pprFan01R MIB object C-14  
 pprFanA01 MIB object C-13



pprlcmAr020 MIB object C-10  
 pprlcmAr021s MIB object C-9  
 pprlcmAr021u MIB object C-9  
 pprlcmAr021v2s MIB object C-13  
 pprlcmAr022 MIB object C-9  
 pprlcmAr023 MIB object C-9  
 pprlcmAr024 MIB object C-9  
 pprlcmAr025 MIB object C-9  
 pprlcmAr026 MIB object C-12  
 pprlcmAr027 MIB object C-13  
 pprNsm0404Pic MIB object C-10  
 pprNsm0418BRI MIB object C-10  
 pprNsm0428BRI MIB object C-12  
 pprNsm048DS3 MIB object C-13  
 pprPwr01RAC MIB object C-14  
 pprPwr02AC MIB object C-14  
 pprPwr02RAC MIB object C-14  
 pprRapier16fMT MIB object C-10  
 pprRapier16fMTi MIB object C-10  
 pprRapier16fSC MIB object C-10  
 pprRapier16fSCi MIB object C-11  
 pprRapier24 MIB object C-10  
 pprRapier24i MIB object C-11  
 pprRapier24iDC-NEBS MIB object C-11  
 pprRapier48 MIB object C-11  
 pprRapier48i MIB object C-12  
 pprRapier48w MIB object C-15  
 pprRapier8fMT MIB object C-10  
 pprRapier8fMTi MIB object C-11  
 pprRapier8fSC MIB object C-10  
 pprRapier8fSCi MIB object C-10  
 pprRapier8t8fMT MIB object C-10  
 pprRapier8t8fMTi MIB object C-10  
 pprRapier8t8fSC MIB object C-10  
 pprRapier8t8fSCi MIB object C-10  
 pprRapierG6 MIB object C-11  
 pprRapierG6LX MIB object C-11  
 pprRapierG6MT MIB object C-11  
 pprRapierG6SX MIB object C-11  
 pprSb1XFP MIB object C-13  
 pprSb24RJ MIB object C-13  
 pprSb24SFP MIB object C-14  
 pprSb32fMT MIB object C-12  
 pprSb32fSC MIB object C-12  
 pprSb48t MIB object C-12  
 pprSb8fLXMT MIB object C-12  
 pprSb8fLXSC MIB object C-12  
 pprSb8fRJ MIB object C-12  
 pprSb8fSXMT MIB object C-12  
 pprSb8fSXSC MIB object C-12  
 pprSb8GBIC MIB object C-12  
 pprSb96t MIB object C-12  
 pprSbChassis16AC MIB object C-12  
 pprSbChassis16DC MIB object C-12  
 pprSbChassis4AC MIB object C-12  
 pprSbChassis4DC MIB object C-12  
 pprSbChassis8AC MIB object C-12  
 pprSbChassis8DC MIB object C-12  
 pprSbControl MIB object C-12  
 pprSbControlDTM MIB object C-12

pprSbExpander MIB object C-13  
 Predictor compression 31-23  
 premarking (Quality of Service) 27-23  
 primary clock source 41-2  
 primary name server 13-127  
 private keys 35-2  
 privilege levels  
     MANAGER 29-4  
     USER 29-3  
 products MIB object C-5  
 Products subtree, Allied Telesis Enterprise MIB C-5  
 Protocol Independent Multicast (PIM)  
     Assert message, Sparse Mode 17-13  
     bootstrap router candidate 17-11, 17-15, 25-10  
         adding, IPv4 17-47  
         adding, IPv6 25-26  
         deleting, IPv4 17-54  
         deleting, IPv6 25-29  
         displaying, IPv4 17-99  
         displaying, IPv6 25-52  
         setting parameters, IPv6 25-41  
         setting preference, IPv4 17-78  
     commands, IPv4  
         ADD PIM BSRCANDIDATE 17-47  
         ADD PIM INTERFACE 17-48  
         ADD PIM RPCANDIDATE 17-49  
         DELETE PIM BSRCANDIDATE 17-54  
         DELETE PIM INTERFACE 17-55  
         DELETE PIM RPCANDIDATE 17-56  
         DISABLE PIM 17-61  
         DISABLE PIM DEBUG 17-62  
         ENABLE PIM 17-62, 17-66 to 17-67  
         ENABLE PIM DEBUG 17-67  
         PURGE PIM 17-68  
         RESET PIM INTERFACE 17-69  
         SET PIM 17-76  
         SET PIM BSRCANDIDATE 17-78  
         SET PIM INTERFACE 17-79  
         SET PIM RPCANDIDATE 17-80  
         SHOW PIM 17-98  
         SHOW PIM BSRCANDIDATE 17-99  
         SHOW PIM COUNTERS 17-101  
         SHOW PIM DEBUG 17-104  
         SHOW PIM INTERFACE 17-105  
         SHOW PIM NEIGHBOUR 17-107  
         SHOW PIM ROUTE 17-108  
         SHOW PIM RPCANDIDATE 17-113  
         SHOW PIM RPSET 17-114  
         SHOW PIM STATEREFRRESH 17-116  
         SHOW PIM TIMER 17-117  
     commands, IPv6  
         ADD PIM6 BSRCANDIDATE 25-26  
         ADD PIM6 INTERFACE 25-27  
         ADD PIM6 RPCANDIDATE 25-28  
         DELETE PIM6 BSRCANDIDATE 25-29  
         DELETE PIM6 INTERFACE 25-29  
         DELETE PIM6 RPCANDIDATE 25-30  
         DISABLE PIM6 25-32  
         DISABLE PIM6 DEBUG 25-33  
         ENABLE PIM6 25-35



- ENABLE PIM6 DEBUG 25-36
- PURGE PIM6 25-36
- RESET PIM6 INTERFACE 25-37
- SET PIM6 25-40
- SET PIM6 BSR CANDIDATE 25-41
- SET PIM6 INTERFACE 25-42
- SET PIM6 RPCANDIDATE 25-43
- SHOW PIM6 BSR CANDIDATE 25-52
- SHOW PIM6 CONFIG 25-53
- SHOW PIM6 COUNTERS 25-54
- SHOW PIM6 DEBUG 25-57
- SHOW PIM6 INTERFACE 25-57
- SHOW PIM6 NEIGHBOUR 25-59
- SHOW PIM6 ROUTE 25-60
- SHOW PIM6 RPCANDIDATE 25-65
- SHOW PIM6 RPSET 25-66
- SHOW PIM6 STATEREFRRESH 25-68
- SHOW PIM6 TIMER 25-69
- configuration
  - displaying, IPv4 17-100
  - displaying, IPv6 25-53
  - example, IPv4 17-34
  - example, IPv6 25-15
- counters
  - displaying, IPv4 17-101
  - displaying, IPv6 25-54
- debugging
  - disabling, IPv4 17-62
  - disabling, IPv6 25-33
  - displaying, IPv4 17-104
  - displaying, IPv6 25-57
  - enabling, IPv4 17-67
  - enabling, IPv6 25-12, 25-36
- Dense Mode
  - interoperability with Sparse Mode, IPv6 25-4
  - introduction 17-8
- designated router 17-11
- disabling, IPv4 17-61
- disabling, IPv6 25-32
- displaying, IPv4 17-98, 17-114
- displaying, IPv6 25-48
- enabling, IPv4 17-62, 17-66 to 17-67
- enabling, IPv6 25-35
- example configuration, IPv4 17-34
- example configuration, IPv6 25-15
- interfaces 17-8, 17-14, 25-9
  - adding, IPv4 17-48
  - adding, IPv6 25-27
  - deleting, IPv4 17-55
  - deleting, IPv6 25-29
  - displaying, IPv4 17-105
  - displaying, IPv6 25-57
  - resetting, IPv4 17-69
  - resetting, IPv6 25-37
  - setting parameters, IPv4 17-79
  - setting parameters, IPv6 25-42
- interoperability with DVMRP 17-5
- neighbours
  - displaying, IPv4 17-107
  - displaying, IPv6 25-59
- overview 17-7
- overview, IPv6 25-9
- purging, IPv4 17-68
- purging, IPv6 25-36
- Rendezvous Point candidate 17-11, 17-15
  - adding, IPv4 17-49
  - adding, IPv6 25-28
  - deleting, IPv4 17-56
  - deleting, IPv6 25-30
  - displaying information about, IPv4 17-113
  - displaying information about, IPv6 25-65 to 25-66
  - setting parameters, IPv6 25-43
  - setting priority, IPv4 17-80
- Rendezvous Point tree 17-12
- Rendezvous Point, static 17-16, 25-11
- routing table
  - displaying, IPv4 17-108
  - displaying, IPv6 25-60
- shortest path tree 17-13
- Sparse Mode
  - interoperability with Dense Mode, IPv6 25-4
  - introduction 17-10
- State Refresh, IPv4 17-9, 17-116
- State Refresh, IPv6 25-13, 25-68
- timers
  - displaying, IPv4 17-117
  - displaying, IPv6 25-69
  - setting, IPv4 17-76
  - setting, IPv6 25-40
- Protocol Independent Multicast, IPv6. See Protocol Independent Multicasting (PIM)
- protocols
  - OSPF 13-26
  - RIP 13-26
- protocols MIB object C-9
- proxy ARP 13-16
- public key encryption 35-2
- Public Key Infrastructure (PKI) 35-1
  - alternative name 35-10
  - Certificate Authority (CA) 35-5
    - root 35-6, 35-8
  - Certificate Database 35-7
  - certificates 35-3
    - adding 35-7
    - chains 35-6
    - deleting 35-23
    - fingerprint 35-8
    - modifying information about 35-8
    - requesting 35-9
    - retrieving 35-7, 35-9
    - storage limits 35-10
    - updating 35-10
    - updating keypairs 35-22
    - validating 35-6, 35-8
- CMP 35-9
- commands
  - ADD PKI CERTIFICATE 35-16
  - ADD PKI CRL 35-18
  - ADD PKI LDAPREPOSITORY 35-19
  - CREATE PKI ENROLLMENTREQUEST 35-21



CREATE PKI KEYUPDATEREQUEST 35-22  
 DELETE PKI CERTIFICATE 35-23  
 DELETE PKI CRL 35-23  
 DELETE PKI LDAPREPOSITORY 35-24  
 DESTROY PKI ENROLLMENTREQUEST 35-24  
 DESTROY PKI KEYUPDATEREQUEST 35-25  
 DISABLE PKI DEBUG 35-25  
 ENABLE PKI DEBUG 35-26  
 PURGE PKI 35-27  
 SET PKI 35-27  
 SET PKI CERTIFICATE 35-28  
 SET PKI CRL 35-29  
 SET PKI LDAPREPOSITORY 35-30  
 SHOW PKI 35-32  
 SHOW PKI CERTIFICATE 35-39  
 SHOW PKI CRL 35-42  
 SHOW PKI ENROLLMENTREQUEST 35-45  
 SHOW PKI KEYUPDATEREQUEST 35-47  
 SHOW PKI LDAPREPOSITORY 35-49  
 configuration examples 35-11  
 CRL  
   adding 35-18  
   update frequency 35-10  
 CRL Database 35-9  
 End Entity 35-5  
 enrollment 35-9, 35-21  
   removing requests 35-24  
   retry number 35-10  
   updating keypairs 35-10  
 implementing 35-7  
 ISAKMP  
   interaction with 35-8  
 Key Update requests  
   destroying 35-25  
 LDAP 35-5, 35-9  
 overview 35-2  
 PKCS #10 35-9  
 PKIX 35-9  
 repositories 35-5, 35-9  
 retrieving certificates 35-7  
 X.509 35-3  
 purge  
   Internet Protocol (IP) configuration 13-109  
   OSPF 19-49  
 PURGE ASYN command 10-20  
 PURGE BOOTP RELAY command 14-32  
 PURGE DVMRP command 17-68  
 PURGE GRE command 22-16  
 PURGE IP command 13-109  
 PURGE LACP command 7-96  
 PURGE LOG command 45-23  
 PURGE NTP command 41-9  
 PURGE OSPF command 19-49  
 PURGE PIM command 17-68  
 PURGE PIM6 command 25-36  
 PURGE PKI command 35-27  
 PURGE PORTAUTH PORT command 32-34  
 PURGE PPP command 11-56  
 PURGE QOS command 27-70  
 PURGE SNMP command 39-39

PURGE STP command 8-51  
 PURGE TRIGGER command 44-14  
 PURGE USER command 29-47  
 purging  
   NTP 41-9  
   PPP configuration 11-56  
   users 29-47

## Q

qBridgeConformance MIB object C-37  
 qBridgeMIBObjects MIB object C-36  
 QoS group, Allied Telesis Enterprise MIB C-22  
 qosSwitch MIB object C-22  
 qosSwitch8948 MIB object C-22  
 qosSwitch8948PortTable MIB object C-22  
 qosSwitch8948TrafficClassCountersTable MIB object C-22  
 qosSwitchPolicyTable MIB object C-22  
 qosSwitchPortTable MIB object C-22  
 qosSwitchTrafficClassTable MIB object C-22  
 Quality of Service (QoS)  
   classifiers 27-15  
   commands  
     ADD QOS FLOWGROUP 27-42  
     ADD QOS POLICY 27-43  
     ADD QOS TRAFFICCLASS 27-45  
     CREATE QOS FLOWGROUP 27-46  
     CREATE QOS POLICY 27-48  
     CREATE QOS RED 27-54  
     CREATE QOS TRAFFICCLASS 27-55  
     DELETE QOS FLOWGROUP 27-61  
     DELETE QOS POLICY 27-62  
     DELETE QOS TRAFFICCLASS 27-64  
     DESTROY QOS FLOWGROUP 27-65  
     DESTROY QOS POLICY 27-66  
     DESTROY QOS RED 27-67  
     DESTROY QOS TRAFFICCLASS 27-68  
     DISABLE QOS DEBUG 27-69  
     ENABLE QOS DEBUG 27-69  
     PURGE QOS 27-70  
     SET QOS DEFAULTPRIORITY 27-73  
     SET QOS DSCPMAP 27-74  
     SET QOS FABRIC QUEUE 27-76  
     SET QOS FABRIC QUEUEMAP 27-77  
     SET QOS FLOWGROUP 27-78  
     SET QOS POLICY 27-80  
     SET QOS PORT 27-85  
     SET QOS PORT EGRESSQUEUE 27-87, 27-90  
     SET QOS RED 27-90  
     SET QOS TRAFFICCLASS 27-93  
     SHOW QOS DEFAULTPRIORITY 27-101  
     SHOW QOS DSCPMAP 27-101  
     SHOW QOS FABRIC 27-103  
     SHOW QOS FLOWGROUP 27-104  
     SHOW QOS POLICY 27-106  
     SHOW QOS PORT 27-109  
     SHOW QOS PRIO2QUEUEMAP 27-117  
     SHOW QOS QUEUE2PRIOMAP 27-118  
     SHOW QOS RED 27-118  
     SHOW QOS TRAFFICCLASS 27-122  
   DiffServ domains 27-36



- Elements 27-15
- flow groups 27-15
- Functions 27-23
- How to Configure QoS on the Switch 27-32
- How to Enable DiffServ QoS Functionality on the switch 27-38
- How to Enable Layer 2 QoS Functionality on the switch 27-39
- Mechanisms 27-3
- metering
  - bandwidth allocation 27-24
    - single-rate** 27-25
    - twin-rate** 27-26
  - specifying properties 27-25 to 27-26
- policies 27-18
- policy configuration rules 27-32
- Port groups 27-21
- premarking 27-23
- RED curves 27-19
- Remarking 27-27
- remarking
  - specifying properties 27-27
- tail-drop discard 27-21
- traffic classes 27-16
- What is Quality of Service? 27-3
- queues
  - transmission 7-36, 8-5

## R

- RADIUS authentication 29-14, 29-29, 29-35, 29-57
- ranges, OSPF 19-32, 19-40, 19-63, 19-86
- Rapid Commit 24-6, 24-20 to 24-21
- read-only, MIB object 39-7
- read-write, MIB object 39-7
- realTimeClockStatus MIB object C-16
- reboot
  - triggers 44-2
- RECONNECT command 46-9
- RED curve definition 27-19
- RED curves (Quality of Service) 27-19
- reference clock 41-2
- reinitialise
  - Internet Protocol (IP) module 13-109
- Remarking (Quality of Service) 27-27
- remarking properties (Quality of Service)
  - specifying 27-27
- remote management 46-6
- Remote Security Officer, encryption 29-6
- removing
  - PKI Enrollment Requests 35-24
- RENAME command 6-32
- renaming
  - files 6-32
  - FLASH files 6-32
- Rendezvous Point (RP) 17-11
  - adding PIM RP candidate, IPv4 17-15, 17-49
  - adding PIM RP candidate, IPv6 25-10, 25-28
  - deleting PIM RP candidate, IPv4 17-15, 17-56
  - deleting PIM RP candidate, IPv6 25-10, 25-30
  - RP tree 17-12
  - static 17-16, 25-11
- Repeater Jack Table, MAU MIB C-32
- Repeater MAU Basic Group, MAU MIB C-32 to C-33
- Repeater MAU MIB table, MAU MIB C-32
- repositories 35-5, 35-9
- reset 10-23
  - Ethernet 10-22
  - OSPF 19-49
  - stream ports 47-5
- RESET BGP PEER command 20-78
- RESET CPU UTILISATION command 4-25
- RESET DVMRP INTERFACE command 17-69
- RESET ENCO COUNTERS command 30-16, 31-20
- RESET ETH command 10-22
- RESET ETH COUNTERS command 10-23
- RESET GARP command 9-14
- RESET GRE command 22-17
- RESET HTTP SERVER command 5-36
- RESET IP command 13-109
- RESET IP INTERFACE command 13-110
- RESET LACP PORT COUNTER command 7-97, 8-52
- RESET LOADER command 5-37
- RESET MSTP COUNTER PORT command 8-52
- RESET NTP command 41-10
- RESET OSPF command 19-49
- RESET OSPF COUNTERS command 19-50
- RESET OSPF INTERFACE command 19-50
- RESET OSPF SPF command 19-51
- RESET PIM INTERFACE command 17-69
- RESET PIM6 INTERFACE command 25-37
- RESET PING POLL command 37-12
- RESET PORT command 10-20
- RESET PORT COUNTERS command 10-21
- RESET PORT HISTORY command 10-22
- RESET PORTAUTH PORT MULTIMIB command 32-36
- RESET PPP command 11-57
- RESET RSVP PROXY command 28-19
- RESET STP command 8-52
- RESET STREAM command 47-5
- RESET SWITCH ACCELERATOR COUNTER command 7-97
- RESET SWITCH command 7-97, 8-52
- RESET SWITCH PORT command 7-98, 8-52
- RESET TEST CABLE command 48-12
- RESET TEST INTERFACE command 48-12
- RESET USER command 29-48
- resetting
  - activity counters on PPP interfaces 11-24, 11-57
  - counters
    - ENCO 30-16, 31-20
  - hardware tests 48-12
  - interfaces, PPP 11-57
  - NTP 41-10
  - OSPF counters 19-50
  - PPP interfaces 11-57
  - RSVP proxy agent 28-8, 28-19
  - tests 48-12
- Resetting GARP 9-14
- Resource Reservation Protocol (RSVP) 28-1 to 28-32
  - best effort QoS 28-2
  - commands 28-9 to 28-32



- CREATE RSVP PROXY 28-9
- DESTROY RSVP PROXY 28-12
- DISABLE RSVP 28-12
- DISABLE RSVP DEBUG 28-13
- DISABLE RSVP INTERFACE 28-14
- DISABLE RSVP PROXY 28-15
- ENABLE RSVP 28-15
- ENABLE RSVP DEBUG 28-16
- ENABLE RSVP INTERFACE 28-17
- ENABLE RSVP PROXY 28-18
- RESET RSVP PROXY 28-19
- SET RSVP INTERFACE 28-20
- SET RSVP PROXY 28-21
- SHOW RSVP 28-23
- SHOW RSVP COUNTER 28-24
- SHOW RSVP INTERFACE 28-26
- SHOW RSVP PATH 28-28
- SHOW RSVP PROXY 28-29
- SHOW RSVP PROXY COUNTER 28-31
- SHOW RSVP RESV 28-32
- controlled load service 28-5
- counters
  - proxy agent 28-8, 28-31
- counters, displaying 28-6, 28-24
- creating, proxy agent 28-7, 28-9
- data flows 28-2
- debugging
  - disabling 28-6, 28-13, 28-15
  - enabling 28-6, 28-16, 28-18
- destroying, proxy agent 28-7, 28-12
- disabling 28-5, 28-12
  - debugging 28-6, 28-13, 28-15
  - interfaces 28-6, 28-14
  - proxies 28-7
  - proxy agent 28-7, 28-15
- displaying
  - counters 28-6, 28-24
  - interfaces 28-6, 28-26
  - path information 28-6, 28-28
  - reservation information 28-6, 28-32
  - status 28-5, 28-23
- displaying, counters 28-8, 28-31
- displaying, proxies 28-8, 28-29
- enabling 28-5, 28-15
  - debugging 28-6, 28-16, 28-18
  - interfaces 28-6, 28-17
  - proxies 28-7
  - proxy agent 28-7, 28-18
- error messages 28-5
- FF (Fixed-Filter) style 28-4
- filter spec 28-4
- flowspec 28-4
- interfaces
  - disabling 28-6, 28-14
  - displaying 28-6, 28-26
  - enabling 28-6, 28-17
  - modifying 28-6, 28-20
- messages
  - error 28-5
  - Path 28-2
  - PathErr 28-5
  - PathTear 28-4
  - Resv 28-4
  - ResvErr 28-5
  - ResvTear 28-4
  - teardown 28-4
  - modifying
    - interfaces 28-6, 28-20
    - proxy agent 28-7, 28-21
  - overview 28-2 to 28-5
  - Path message 28-2
  - Path messages
    - displaying 28-6, 28-28
  - path state 28-4
  - PathErr message 28-5
  - PathTear message 28-4
  - protocol overview 28-2 to 28-5
  - proxy agent 28-6 to 28-9
    - creating 28-7, 28-9
    - destroying 28-7, 28-12
    - disabling 28-7, 28-15
    - disabling proxies 28-7
    - displaying counters 28-8, 28-31
    - displaying proxies 28-8, 28-29
    - enabling 28-7, 28-18
    - enabling proxies 28-7
    - modifying 28-7, 28-21
    - receiver 28-7
    - resetting 28-8, 28-19
    - sender 28-6
- QoS
  - best effort 28-2
  - controlled load 28-5
- receiver 28-4
- receiver proxy agent 28-7
- reservation state 28-4
- reservation style 28-4
- resetting, proxy agent 28-8, 28-19
- Resv message 28-4
- Resv messages
  - displaying 28-6, 28-32
- ResvErr message 28-5
- ResvTear message 28-4
- SE (Shared-Explicit) style 28-4
- sender proxy agent 28-6
- senders 28-2
- sessions 28-2
- soft state 28-4
- state
  - path 28-4
  - reservation 28-4
- status 28-5, 28-23
- support 28-5
- teardown messages 28-4
- TSpec 28-2
- WF (Wildcard-Filter) style 28-4
- restart
  - Internet Protocol (IP) module 13-109
- RESTART command 5-37
- restartGroup MIB object C-16





restarting the router 4-10, 5-37

Ring

  EPSR Ring 38-2

RIPng. See Router Information Protocol version 6 (RIPv6)

RIPv6. See Router Information Protocol version 6 (RIPv6)

RMON MIB C-42

rmon MIB object C-42

root bridge 8-3

route templates

  adding 13-77

  deleting 13-84

  displaying 13-172

  modifying 13-131

route templates, IP 13-30

router id

  OSPF 19-52

Router Information Protocol version 6 (RIPv6) 23-14

router status

  OSPF 19-67

router type

  Internet Protocol (IP) 13-86, 13-89, 13-95, 13-100

router types

  OSPF 19-4, 19-23, 19-37, 19-55

routerSwitch MIB object C-5 to C-6

routes

  adding Internet Protocol (IP) 13-20, 13-74

  changing Internet Protocol (IP) 13-128

  deleting Internet Protocol (IP) 13-83

  disabling Internet Protocol (IP) 13-93

  displaying Internet Protocol (IP) 13-24, 13-47, 13-166

  enabling Internet Protocol (IP) 13-103

  Internet Protocol (IP) 13-19, 13-74, 13-83, 13-93,  
    13-103, 13-128

  modifying Internet Protocol (IP) 13-128

  OSPF 19-9

  setting Internet Protocol (IP) 13-128

routes, OSPF 19-88

routing

  information filters 13-26

  information filters, Internet Protocol (IP) 21-44, 21-54,  
    21-57, 21-68

  Internet Protocol (IP) 13-19

  OSPF 19-9

  protocols

    Routing Information Protocol (RIP) 13-26

Routing Information Protocol (RIP) 13-26, 18-7, 18-12,

  18-14, 18-17 to 18-19, 18-22

  interface to OSPF 19-14, 19-52

  OSPF interface 19-14, 19-52

routing table, Internet Protocol (IP) 13-20, 13-166

rpJackTable MIB object C-32

rpMauTable object C-32

RSO. See Remote Security Officer

RSVP. See Resource Reservation Protocol (RSVP)

## S

saving dynamic configuration 5-22

scripting. See scripts

scripts 43-1

  activating by trigger 43-2

  activating from command line 43-2, 43-6

  adding 43-8

  BOOT.CFG 43-2

  calling other scripts 43-4

  commands

    ACTIVATE SCRIPT 43-6

    ADD SCRIPT 43-8

    DEACTIVATE SCRIPT 43-9

    DELETE SCRIPT 43-10

    SET SCRIPT 43-12

    SHOW SCRIPT 43-14

    WAIT 43-11, 43-15

  control structures 43-5, 43-11

  creating 43-2

  creating using script commands 43-3, 43-8

  creating using text editor 43-3

  deactivating 43-9

  deleting 43-10

  displaying 43-3, 43-14

  file format 43-2

  halting 43-9

  if..then..else..endif 43-5, 43-11

  loading from asynchronous port 43-4

  loading from TFTP server 43-3

  modifying 43-12

  modifying using script commands 43-3, 43-10, 43-12

  output to logging facility 43-4

  output to terminal 43-4

  parameters 43-4

  parameters, global 43-5

  pausing 43-15

  playing 43-2

  redirecting output 43-4

  script commands 43-3

  using scripts 43-4

secondary name server 13-132

Secure Copy

  configuration 33-5

secure router logging protocol (SRLP) 45-4, 45-6

Secure Shell 33-1

  adding

    users 33-4, 33-10

  ciphers 33-3

  commands

    ADD SSH USER 33-10

    DELETE SSH USER 33-11

    DISABLE SSH SERVER 33-13, 33-18

    DISABLE SSH USER 33-14

    ENABLE SSH SERVER 33-15

    ENABLE SSH USER 33-16

    SET SSH USER 33-19

    SHOW SSH 33-20

    SHOW SSH SESSIONS 33-29

    SHOW SSH USER 33-31

    SSH 33-33

  configuration 33-4



- configuration examples 33-6
- deleting
  - users 33-4, 33-11
- disabling
  - server 33-13
  - users 33-5, 33-14
- displaying
  - server configuration 33-4, 33-20
  - sessions 33-29
  - users 33-5, 33-31
- enabling
  - server 33-15
  - users 33-5, 33-16
- encryption algorithms 33-3
- encryption keys 33-2, 33-5
- example configurations 33-6
- keys 33-2, 33-5
- log messages 33-3
- modifying
  - server 33-18
  - users 33-4, 33-19
- operations 33-2
- Secure Copy 33-5
- Secure Shell protocol 33-2
- server
  - disabling 33-13
  - displaying 33-4, 33-20
  - enabling 33-15
  - modifying 33-18
- sessions 33-33
  - displaying 33-29
- users
  - adding 33-4, 33-10
  - deleting 33-4, 33-11
  - disabling 33-5, 33-14
  - displaying 33-5, 33-31
  - enabling 33-5, 33-16
  - modifying 33-4, 33-19
- Secure Sockets Layer
  - commands
    - DISABLE SSL DEBUG 34-8
    - ENABLE SSL DEBUG 34-8
    - SET SSL 34-9
    - SHOW SSL 34-10
    - SHOW SSL COUNTERS 34-12
    - SHOW SSL SESSIONS 34-20
- security
  - asynchronous ports 29-12
  - options for Internet Protocol (IP) 13-40
  - switch ports 7-16, 7-106
- security mode
  - disabling 29-39
  - enabling 29-43
- security timer 29-5
- semipermanent manager port 29-4, 29-13, 29-49, 29-57
- sending mail 4-12, 4-22
- Serial Line Internet Protocol (SLIP)
  - encapsulation, asynchronous ports 10-8
- server
  - NTP entity 41-2, 41-4
  - Server selection 13-35
  - sessions, terminal server 46-4
  - SET BGP AGGREGATE command 20-82
  - SET BGP command 20-80
  - SET BGP IMPORT command 20-86
  - SET BGP PEER command 20-87
  - SET BOOTP MAXHOPS command 14-32
  - SET CFLASH DIR command 6-34
  - SET CLASSIFIER command 26-16
  - SET CONFIG command 5-39
  - SET DHCP POLICY command 14-37
  - SET DVMRP INTERFACE command 17-70
  - SET ENCO DHPADDING command 31-21
  - SET ENCO DHPRIORITY command 30-16, 31-21
  - SET ENCO KEY command 30-17, 31-22
  - SET ENCO SW command 31-23
  - SET ETH SPEED command 10-29
  - SET GARP PORT command 9-15
  - SET GARP TIMER command 9-17
  - SET GRE command 22-17
  - SET HELP command 2-13
  - SET HTTP SERVER command 5-40
  - SET IGMP FILTER command 17-71
  - SET IGMP Snooping FASTLEAVE command 17-72
  - SET IGMP Snooping ROUTERMODE command 17-73
  - SET INSTALL command 5-41, 5-43
  - SET INTERFACE MTU command 10-30
  - SET INTERFACE TRAPLIMIT command 10-31
  - SET IP ARP command 13-111
  - SET IP ARP TIMEOUT command 13-112
  - SET IP AUTONOMOUS command 20-100
  - SET IP DNSRELAY command 13-116
  - SET IP FILTER command 13-117
  - SET IP HOST command 13-121
  - SET IP IGMP command 17-74
  - SET IP IGMP INTERFACE command 17-75
  - SET IP INTERFACE command 13-122, 22-4
  - SET IP LOCAL command 13-126
  - SET IP NAMESERVER command 13-127
  - SET IP RIP 18-14
  - SET IP RIPTIMER command 18-17
  - SET IP ROUTE command 13-128
  - SET IP ROUTE FILTER command 21-57
  - SET IP ROUTE TEMPLATE command 13-131
  - SET IP ROUTEMAP command 21-59
  - SET IP SECONDARYNAMESERVER command 13-132
  - SET IPV6 FILTER command 23-62
  - SET IPV6 INTERFACE command 23-65
  - SET IPV6 MLD command 25-38
  - SET IPV6 MLD INTERFACE command 25-39
  - SET IPV6 MTU command 23-66
  - SET L2TP CALL command 12-36
  - SET L2TP CHECKSUM command 12-39
  - SET L2TP FILTER command 12-39
  - SET L2TP PASSWORD command 12-40
  - SET L2TP USER command 12-41
  - SET LACP PORT command 7-99
  - SET LACP PRIORITY command 7-100, 8-53
  - SET LOADER command 5-44
  - SET LOG OUTPUT command 45-23



SET LOG RECEIVE command 45-29  
 SET LOG UTCOFFSET command 45-30  
 SET MAIL command 4-26  
 SET MANAGER PORT command 29-49  
 SET NTP UTCOFFSET command 41-10  
 SET OSPF AREA command 19-55  
 SET OSPF command 19-52  
 SET OSPF HOST command 19-57  
 SET OSPF INTERFACE command 19-58  
 SET OSPF NEIGHBOUR command 19-62  
 SET OSPF RANGE command 19-63  
 SET OSPF STUB command 19-65  
 SET OSPF SUMMARYADDRESS command 19-66  
 SET PASSWORD command 29-49 to 29-50  
 set PDU 39-9  
 SET PIM BSR CANDIDATE command 17-78  
 SET PIM command 17-76  
 SET PIM INTERFACE command 17-79  
 SET PIM RPCANDIDATE command 17-80  
 SET PIM6 BSR CANDIDATE command 25-41  
 SET PIM6 command 25-40  
 SET PIM6 INTERFACE command 25-42  
 SET PIM6 RPCANDIDATE command 25-43  
 SET PING command 13-133  
 SET PING POLL command 37-12  
 SET PKI CERTIFICATE command 35-28  
 SET PKI command 35-27  
 SET PKI CRL command 35-29  
 SET PKI LDAPREPOSITORY command 35-30  
 SET PORT command 10-24  
 SET PORTAUTH PORT command 32-37  
 SET PORTAUTH PORT SUPPLICANTMAC command 32-43  
 SET PORTAUTH USERNAME command 32-46  
 SET PPP ACSERVICE command 11-64  
 SET PPP command 11-58  
 SET PPP TEMPLATE command 11-64  
 SET QOS DEFAULTPRIORITY command 27-73  
 SET QOS DSCP MAP command 27-74  
 SET QOS FABRIC QUEUE command 27-76  
 SET QOS FABRIC QUEUEMAP command 27-77  
 SET QOS FLOWGROUP command 27-78  
 SET QOS POLICY command 27-80  
 SET QOS PORT command 27-85  
 SET QOS PORT EGRESSQUEUE command 27-87, 27-90  
 SET QOS RED command 27-90  
 SET QOS TRAFFICCLASS command 27-93  
 SET RSVP INTERFACE command 28-20  
 SET RSVP PROXY command 28-21  
 SET SCRIPT command 43-12  
 SET SNMP COMMUNITY command 39-39, 39-48  
 SET SNMP ENGINEID command 39-40  
 SET SNMP GROUP command 39-41  
 SET SNMP TARGETADDR command 39-42  
 SET SNMP TARGETPARAMS command 39-43  
 SET SNMP USER command 39-44  
 SET SSH USER command 33-19  
 SET SSL command 34-9  
 set stack authentication command 42-22  
 set stack stackid command 42-23  
 SET STP command 8-61

SET STP PORT command 8-64  
 SET STREAM command 47-6  
 SET SWI NESTEDTPID command 7-106  
 SET SWITCH AGEINGTIMER command 7-101  
 SET SWITCH DLFLIMIT command 7-102  
 SET SWITCH JUMBO command 7-105  
 SET SWITCH MIRROR command 7-105  
 SET SWITCH PORT command 7-106  
 SET SWITCH TRUNK command 7-112 to 7-113  
 SET SYSTEM CONTACT command 4-29  
 SET SYSTEM LOCATION command 4-32  
 SET SYSTEM NAME command 4-33  
 SET TELNET command 46-9  
 SET TIME command 4-35  
 SET TRACE command 13-135  
 SET TRIGGER command 44-15  
 SET TTY command 46-11  
 SET USER command 29-54  
 SET VLAN PORT command 7-115  
 SET VRRP command 36-19  
 Setting  
     timer 9-17  
 setting  
     activity limits on PPP interfaces 11-23 to 11-24, 11-33, 11-40  
     clock 4-35  
     compact flash directory 6-34  
     date 4-35  
     default configuration 5-39  
     install information 5-41, 5-43  
     mail host name 4-26  
     NTP  
         UTC offset 41-10  
     semipermanent manager port 29-49  
     system clock 4-35  
     system date 4-35  
     system help file 2-13  
     system information 4-35  
     system time 4-35  
     time 4-35  
 Setting Ethernet speed 10-29  
 Setting Ports 9-15  
 shortest path tree, PIM Sparse Mode 17-13  
 SHOW ALIAS command 2-13 to 2-14, 6-49  
 SHOW BGP AGGREGATE command 20-103  
 SHOW BGP command 20-101  
 SHOW BGP CONFEDERATION command 20-104  
 SHOW BGP IMPORT command 20-114  
 SHOW BGP NETWORK command 20-118  
 SHOW BGP PEER command 20-119  
 SHOW BGP ROUTE command 20-126  
 SHOW BOOTP RELAY command 14-44  
 SHOW BUFFER command 4-37  
 SHOW CFLASH command 6-39  
 SHOW CFLASH COUNTERS command 6-40  
 SHOW CFLASH FILE command 6-41  
 SHOW CFLASH TEST command 6-42  
 SHOW CONFIG command 5-48  
 SHOW CPU command 4-42  
 SHOW DEBUG command 4-44



SHOW DHCP CLIENT command 14-49  
 SHOW DHCP command 14-47  
 SHOW DHCP POLICY command 14-51  
 SHOW DHCP RANGE command 14-52  
 SHOW DVMRP command 17-81  
 SHOW DVMRP COUNTERS command 17-81  
 SHOW DVMRP DEBUG command 17-82  
 SHOW DVMRP FORWARDING command 17-83  
 SHOW DVMRP INTERFACE command 17-84  
 SHOW DVMRP NEIGHBOUR command 17-85  
 SHOW DVMRP ROUTE command 17-86  
 SHOW ENCO CHANNEL command 30-19, 31-26  
 SHOW ENCO COUNTERS command 30-24, 31-31  
 SHOW ENCO KEY command 30-35, 31-45  
 SHOW ETH CONFIGURATION command 10-40  
 SHOW ETH COUNTERS command 10-41  
 SHOW ETH MACADDRESS command 10-47  
 SHOW ETH RECEIVE command 10-48  
 SHOW ETH STATE command 10-49  
 SHOW EXCEPTION command 4-50  
 SHOW FEATURE command 5-50  
 SHOW FFILE command 6-44, 6-46  
 SHOW FLASH command 6-50  
 SHOW FLASH PHYSICAL command 6-52  
 SHOW GARP command 9-19  
 SHOW GARP COUNTER command 9-21  
 SHOW GARP DB command 9-23  
 SHOW GARP DEBUG command 9-24  
 SHOW GARP GIP command 9-25  
 SHOW GARP MACHINE command 9-26  
 SHOW GRE command 22-20 to 22-22  
 SHOW HTTP DEBUG command 5-53  
 SHOW HTTP SERVER command 5-53  
 SHOW HTTP SESSION command 5-55  
 SHOW IGMP FILTER command 17-87  
 SHOW IGMP Snooping command 17-88  
 SHOW IGMP Snooping COUNTER command 17-90  
 SHOW IGMP Snooping ROUTERADDRESS command 17-91  
 SHOW INSTALL command 5-56  
 SHOW INTERFACE command 10-51  
 SHOW IP ARP command 13-140  
 SHOW IP AS PATHLIST 21-65  
 SHOW IP COMMUNITYLIST command 21-66  
 SHOW IP DEBUG command 13-150  
 SHOW IP FILTER command 13-154  
 SHOW IP HELPER command 13-156  
 SHOW IP HOST command 13-158  
 SHOW IP IGMP command 17-92  
 SHOW IP IGMP COUNTER command 17-95  
 SHOW IP INTERFACE command 13-159  
 SHOW IP POOL command 13-164  
 SHOW IP RIP command 18-18  
 SHOW IP RIP COUNTERS command 18-19  
 SHOW IP RIPTIMER command 18-22  
 SHOW IP ROUTE command 13-166  
 SHOW IP ROUTE FILTER command 21-68  
 SHOW IP ROUTE MULTICAST command 13-170  
 SHOW IP ROUTE TEMPLATE command 13-172  
 SHOW IP ROUTEMAP command 21-69

SHOW IP TRUSTED command 18-23  
 SHOW IP UDP command 13-174  
 SHOW IPV6 command 23-71  
 SHOW IPV6 COUNTER command 23-77  
 SHOW IPV6 FILTER command 23-81  
 SHOW IPV6 HOST command 23-83  
 SHOW IPV6 INTERFACE command 23-84  
 SHOW IPV6 MLD command 25-44  
 SHOW IPV6 MLD CONFIG command 25-46  
 SHOW IPV6 MLD COUNTERS command 25-47  
 SHOW IPV6 MLD DEBUG command 25-48  
 SHOW IPV6 MULTICAST command 23-86  
 SHOW IPV6 ND command 23-87  
 SHOW IPV6 RIP command 23-90  
 SHOW IPV6 ROUTE command 23-92  
 SHOW IPV6 TUNNEL command 23-96  
 SHOW L2TP CALL command 12-44  
 SHOW L2TP command 12-43  
 SHOW L2TP IP command 12-49  
 SHOW L2TP TUNNEL command 12-50, 12-53  
 SHOW L2TP USER command 12-61  
 SHOW LACP command 7-116  
 SHOW LACP PORT command 7-117, 7-119 to 7-120, 8-67  
 SHOW LACP TRUNK command 7-120, 8-67  
 SHOW LOADER 5-61  
 SHOW LOADER command 5-61  
 SHOW LOG command 45-31 to 45-32  
 SHOW LOG COUNTERS command 45-37  
 SHOW LOG OUTPUT command 45-39, 45-42  
 SHOW LOG QUEUE command 45-43, 45-45  
 SHOW LOG RECEIVE command 45-44  
 SHOW LOG STATUS command 45-45  
 SHOW MAIL command 4-51  
 SHOW MANAGER PORT command 29-57  
 SHOW MLDSNOOPING command 25-48  
 SHOW MLDSNOOPING COUNTER command 25-50  
 SHOW MSTP CIST PORT command 8-72  
 SHOW MSTP command 8-67, 8-69  
 SHOW MSTP COUNTER PORT command 8-74  
 SHOW MSTP DEBUG MSTI command 8-75  
 SHOW NTP command 41-11  
 SHOW NVS command 6-53  
 SHOW NVS FREE command 6-54  
 SHOW OSPF AREA command 19-69  
 SHOW OSPF command 19-67  
 SHOW OSPF DEBUG command 19-72  
 SHOW OSPF HOST command 19-72  
 SHOW OSPF INTERFACE command 19-74  
 SHOW OSPF LSA command 19-78  
 SHOW OSPF NEIGHBOURS command 19-85  
 SHOW OSPF RANGE command 19-86  
 SHOW OSPF ROUTE command 19-88  
 SHOW OSPF STUB command 19-90  
 SHOW OSPF SUMMARYADDRESS command 19-91  
 SHOW PATCH command 5-63  
 SHOW PIM BSRCANDIDATE command 17-99  
 SHOW PIM command 17-98  
 SHOW PIM COUNTERS command 17-101  
 SHOW PIM DEBUG command 17-104  
 SHOW PIM INTERFACE command 17-105



- SHOW PIM NEIGHBOUR command 17-107
- SHOW PIM ROUTE command 17-108
- SHOW PIM RPCANDIDATE command 17-113
- SHOW PIM RPSET command 17-114
- SHOW PIM STATEREFRRESH command 17-116
- SHOW PIM TIMER command 17-117
- SHOW PIM6 BSRCANDIDATE command 25-52
- SHOW PIM6 CONFIG command 25-53
- SHOW PIM6 COUNTERS command 25-54
- SHOW PIM6 DEBUG command 25-57
- SHOW PIM6 INTERFACE command 25-57
- SHOW PIM6 NEIGHBOUR command 25-59
- SHOW PIM6 ROUTE command 25-60
- SHOW PIM6 RPCANDIDATE command 25-65
- SHOW PIM6 RPSET command 25-66
- SHOW PIM6 STATEREFRRESH command 25-68
- SHOW PIM6 TIMER command 25-69
- SHOW PING command 13-176
- SHOW PING POLL command 37-15
- SHOW PKI CERTIFICATE command 35-39
- SHOW PKI command 35-32
- SHOW PKI CRL command 35-42
- SHOW PKI ENROLLMENTREQUEST command 35-45
- SHOW PKI KEYUPDATEREQUEST command 35-47
- SHOW PKI LDAPREPOSITORY command 35-49
- SHOW PORTAUTH command 32-48
- SHOW PORTAUTH PORT command 32-53
- SHOW PORTAUTH PORT MULTISUPPLICANT command 32-60
- SHOW PORTAUTH TIMER command 32-66
- SHOW PPP command 11-71
- SHOW PPP CONFIG command 11-72
- SHOW PPP COUNT command 11-78
- SHOW PPP DEBUG command 11-90
- SHOW PPP IDLETIMER command 11-91
- SHOW PPP LIMITS command 11-92
- SHOW PPP MULTILINK command 11-93
- SHOW PPP NAMESERVER command 11-95
- SHOW PPP PPPOE command 11-96
- SHOW PPP TEMPLATE command 11-96
- SHOW PPP TXSTATUS command 11-101
- SHOW PPP UTILISATION command 11-103
- SHOW QOS DEFAULTPRIORITY command 27-101
- SHOW QOS DSCPMP command 27-101
- SHOW QOS FABRIC command 27-103
- SHOW QOS FLOWGROUP command 27-104
- SHOW QOS POLICY command 27-106
- SHOW QOS PORT command 27-109
- SHOW QOS PRIO2QUEUEMAP command 27-117
- SHOW QOS QUEUE2PRIOMAP command 27-118
- SHOW QOS RED command 27-118
- SHOW QOS TRAFFICCLASS command 27-122
- SHOW RADIUS command 29-57
- SHOW RELEASE command 5-63 to 5-64
- SHOW RSVP command 28-23
- SHOW RSVP COUNTER command 28-24
- SHOW RSVP INTERFACE command 28-26
- SHOW RSVP PATH command 28-28
- SHOW RSVP PROXY command 28-29
- SHOW RSVP PROXY COUNTER command 28-31
- SHOW RSVP RESV command 28-32
- SHOW SCRIPT command 43-14
- SHOW SESSIONS command 46-12
- SHOW SNMP command 39-45, 39-48
- SHOW SNMP COMMUNITY command 39-48
- SHOW SNMP GROUP command 39-49
- SHOW SNMP TARGETADDR command 39-50
- SHOW SNMP TARGETPARAMS command 39-51
- SHOW SNMP USER command 39-52
- SHOW SNMP VIEW command 39-53
- SHOW SSH command 33-20
- SHOW SSH SESSIONS command 33-29
- SHOW SSH USER command 33-31
- SHOW SSL command 34-10
- SHOW SSL COUNTERS command 34-12
- SHOW SSL SESSIONS command 34-20
- show stack command 42-24
- SHOW STARTUP command 4-52
- SHOW STP command 8-79
- SHOW STP COUNTER command 8-83
- SHOW STP DEBUG command 8-85
- SHOW STP PORT command 8-86
- SHOW STREAM command 47-7
- SHOW SWITCH command 7-120
- SHOW SWITCH COUNTER command 7-131
- SHOW SWITCH DEBUG command 7-133
- SHOW SWITCH FDB command 7-135
- SHOW SWITCH FILTER command 7-135
- SHOW SWITCH PORT command 7-138
- SHOW SWITCH PORT COUNTER command 7-142
- SHOW SWITCH PORT INTRUSION command 7-144
- SHOW SWITCH TRUNK command 7-145
- SHOW SYSTEM command 4-54
- SHOW SYSTEM SERIALNUMBER command 4-74
- SHOW TACACS SERVER command 29-62
- SHOW TCP command 13-178
- SHOW TEST CABLE command 48-19
- SHOW TEST command 48-13
- SHOW TIME command 4-75
- SHOW TRACE command 13-183
- SHOW TRIGGER command 44-19
- SHOW TTY command 46-14
- SHOW USER command 29-67
- SHOW USER RSO command 29-71
- SHOW VLAN command 7-147
- SHOW VLAN DEBUG command 7-152 to 7-153
- SHOW VRRP command 36-22
- Simple Interface Names 10-3
- Simple Network Management (SNMP) commands
  - ADD SNMP TARGETADDR 39-29
- Simple Network Management Commands commands
  - ADD SNMP VIEW 39-30
- Simple Network Management Protocol (SNMP) 13-37, 39-1 to 39-54
  - access mode 39-7
  - agent
    - displaying 39-48
    - enabling 39-37
  - authentication trap
    - enabling 39-38





authenticationv1 and v2 39-17

commands

ADD SNMP COMMUNITY 39-24  
 ADD SNMP GROUP 39-26  
 ADD SNMP TARGETADDR 39-27  
 ADD SNMP TARGETPARAMS 39-28  
 ADD SNMP USER 39-29  
 CREATE SNMP COMMUNITY 39-31  
 DELETE SNMP COMMUNITY 39-32  
 ENABLE SNMP 39-37  
 ENABLE SNMP AUTHENTICATE\_TRAP 39-38  
 ENABLE SNMP COMMUNITY 39-38  
 PURGE SNMP 39-39  
 SET SNMP COMMUNITY 39-39, 39-48  
 SET SNMP ENGINEID 39-40  
 SET SNMP GROUP 39-41  
 SET SNMP TARGETADDR 39-42  
 SET SNMP TARGETPARAMS 39-43  
 SET SNMP USER 39-44  
 SHOW SNMP 39-45, 39-48  
 SHOW SNMP COMMUNITY 39-48  
 SHOW SNMP GROUP 39-49  
 SHOW SNMP TARGETADDR 39-50  
 SHOW SNMP TARGETPARAMS 39-51  
 SHOW SNMP USER 39-52  
 SHOW SNMP VIEW 39-53

communities 39-16

adding 39-24  
 creating 39-31  
 deleting 39-32  
 destroying 39-36  
 disabling 39-37  
 displaying 39-48  
 enabling 39-38  
 setting 39-39  
 showing 39-48

community 39-11

configuration example 39-23

deprecated status 39-8

example configuration 39-23

get-bulk-request PDU 39-9

get-next PDU 39-9

get-request PDU 39-9

get-response PDU 39-9

groups

adding 39-26  
 deleting 39-33  
 setting 39-41  
 showing 39-49

instance 39-6

instance identifier 39-6

interface link traps 10-16, 10-18 to 10-19, 10-31

Internet-standard MIB 39-5

Internet-standard Network Management Framework 39-3

link traps 10-16, 10-18 to 10-19, 10-31

managed devices 39-3

Management Information Base (MIB) 39-3, 39-5

managing interfaces 10-16

mandatory status 39-8

message format 39-9 to 39-10

message format SNMPv3 39-13

message protocol format SNMPv1 and v2 39-8

names, object 39-6

network management framework 39-3

network management protocol 39-3 to 39-4

Network Management Station (NMS) 39-3

not-accessible access mode 39-7

object descriptor 39-6

object identifier 39-6

object names 39-6

object syntax 39-7

obsolete status 39-8

optional status 39-8

polling 39-11

protocol format SNMPv1 39-8

read-only access mode 39-7

read-write access mode 39-7

set PDU 39-9

SNMP versions 39-8

SNMPv1 and v2 39-15

SNMPv3 39-20

entities 39-12

message protocol format 39-13

SNMPv3 MIB views 39-20

status 39-8

structure of information 39-3, 39-5

syntax 39-7

trap PDU 39-9

view 39-15

write-only access mode 39-7

Simple Network Management Protocol (SNMP) commands

DELETE SNMP SNMP 39-33

DELETE SNMP TARGETADDR 39-33

DELETE SNMP TARGETPARAMS 39-34

DELETE SNMP USER 39-34

DELETE SNMP VIEW 39-35

DESTROY SNMP COMMUNITY 39-36

DISABLE SNMP 39-36

DISABLE SNMP AUTHENTICATE\_TRAP 39-36

DISABLE SNMP COMMUNITY 39-37

SNAP

encapsulation on Ethernet 10-5

SNMP, See Simple Network Management Protocol

SNMP commands

CREATE SNMP 39-32 to 39-33

DELETE SNMP TARGETPARAMS command 39-34

SNMP Framework MIB C-47

SNMP group, MIB-II MIB C-26

snmpDot3MauMgt MIB object C-32

snmpEnableAuthenTraps MIB object C-27

snmpModules MIB object C-47

snmpMPDStats MIB object C-47

SNMPv3 MIBs C-47

Snooping 25-7

snooping, IGMP 17-23

software releases

deleting 5-23

disabling 5-26

displaying 5-56, 5-63 to 5-64





- downloading 5-37, 5-44, 5-61, 5-66
  - enabling 5-30
  - setting 5-41, 5-43
- Spanning tree and EPSR operation 38-12
- Spanning Tree Protocol (STP) 8-3
  - creating 8-32
  - debug
    - disabling 8-39
    - displaying 8-85
    - enabling 8-48
  - destroying 8-34
  - disabling 8-38
  - enabling 8-47
  - modifying 8-61
  - ports
    - disabling 8-41
    - displaying 8-86
    - enabling 8-50
    - modifying 8-64
  - purging 8-51
  - resetting 8-52
  - showing 8-79
  - showing counters 8-83
  - VLANs
    - adding 8-29
    - deleting 8-33
- Spanning Trees and Trunks 8-26
- special feature licences 5-15
  - disabling 5-24
  - displaying 5-50
  - enabling 5-28
- SRLP. See Logging Facility:secure router logging protocol (SRLP)
- SSH command 33-33
- SSL (Secure Sockets Layer)
  - load balancer 34-6
- SSL connection
  - data transfer 34-3
  - handshake 34-3
  - session 34-4
- SSL handshake
  - certificate 34-3
  - change cipher spec 34-3
  - client hello 34-3
  - client key exchange 34-3
  - finished 34-3
  - server hello 34-3
  - server hello done 34-3
- SSL messages
  - alert 34-4
  - application data 34-4
  - change cipher spec 34-4
  - record layer 34-4
- STAC LZS compression 31-23
- Stack group, Allied Telesis Enterprise MIB C-24
- stack MIB object C-24
- stackAuth MIB object C-25
- stackId MIB object C-24
- stacking
  - add stack interface 42-18
  - adding a switch 42-9
  - benefits 42-2
  - configuration example 42-15
  - creating a stack 42-6
  - definition 42-2
  - delete stack interface 42-18
  - disable stack 42-19
  - disable stack debug 42-19
  - enable stack 42-20
  - enable stack debug 42-21
  - Host-Directed Commands (HDC) 42-17
  - how it works 42-4
  - interface 42-4
  - local commands 42-5
  - planning 42-6
  - process walkthrough 42-5
  - removing a stack member 42-13
  - replacing a stack member 42-11
  - set stack authentication 42-22
  - set stack stackid 42-23
  - show stack 42-24
  - stack ID and host ID 42-4
  - topologies 42-2
- stackInterface MIB object C-25
- stackMemberTable MIB object C-25
- stackPassword MIB object C-25
- stackSnmpHost MIB object C-24
- stackStatus MIB object C-25
- standards
  - Point-to-Point Protocol (PPP) 11-3
- startup status 4-10, 4-52
- State machine
  - displaying 9-26
- State Refresh, PIM Dense Mode, IPv4 17-9
- State Refresh, PIM Dense Mode, IPv6 25-13
- state, OSPF 19-43, 19-46
- states
  - OSPF 19-7
  - Point-to-Point Protocol (PPP) 11-5
- Statistics group, RMON MIB C-42 to C-43
- statistics, compression 30-14, 31-17 to 31-18
- status, MIB object 39-8
- status, OSPF 19-67
- STOP PING command 13-184
- STOP TRACE command 13-185
- storage, frame 7-36, 8-5
- STP. See Spanning Tree Protocol (STP)
- stream printing 47-1 to 47-7
  - adding a stream port 47-3 to 47-4
  - commands 47-4
    - ADD STREAM 47-4
    - DELETE STREAM 47-5
    - RESET STREAM 47-5
    - SET STREAM 47-6
    - SHOW STREAM 47-7
  - configuration
    - examples 47-3
  - configuring 47-3
  - deleting a stream port 47-3, 47-5
  - displaying a stream port 47-3, 47-7



- examples 47-3
- modifying a stream port 47-6
- overview 47-2
- resetting a stream port 47-3, 47-5
- Structure of Management Information (SMI) 39-3, 39-5
- stub areas
  - OSPF 19-4, 19-23, 19-37, 19-55
- subnet 13-8
- subnet mask 13-8
- Subsection
  - Access Control List 7-40
- support
  - for NTP 41-4
- support for Jumbo frames 7-18
- support for SSL 34-6
- swi MIB object C-21
- swi56xxPortNumber MIB object C-21
- swi56xxPortTable MIB object C-21
- swiDebugVariables MIB object C-21 to C-22
- swiPortNumber MIB object C-21 to C-22
- swiPortTable MIB object C-21
- swiPortVlanControl MIB object C-21 to C-22
- swiPortVlanPortNumber MIB object C-21 to C-22
- swiPortVlanStateNotify MIB object C-22
- swiPortVlanTable MIB object C-21
- swiPortVlanVlanId MIB object C-21 to C-22
- switch
  - destination lookup failure packets 7-102
  - disabling stormprotection 7-85
  - displaying counter 7-131
  - displaying port 7-138
  - enabling hash 7-92
  - enabling stormprotection 7-96
  - setting Jumbo frames 7-105
  - trunking 7-57
- switch ageing timer 7-36
  - disabling 7-80
  - enabling 7-88
  - setting 7-101
- switch counters
  - displaying 7-135
- switch debug
  - disable 7-80
  - enabling 7-90
- switch filters 7-39
  - adding hardware filters 7-56
  - adding Layer 2 7-38, 7-54
  - deleting Layer 2 7-71, 8-34
  - deleting Layer 3 8-34
  - displaying Layer 2 7-135
- Switch group, Allied Telesis Enterprise MIB C-21
- switch learning 7-36
  - disabling 7-82
  - enabling 7-92
- switch ports 7-5
  - activating 7-50
  - autonegotiation 7-8
  - blocking 8-7
  - counters 7-142
  - disabling 7-5, 7-83

- enabling 7-5, 7-94
- ingress filtering 7-35
- ingress rules 7-35
- intrusion 7-144
- mirroring 7-15
- modifying 7-106
- resetting 7-98, 8-52
- security 7-16, 7-106
- STP states 8-3
- triggers 7-42
- symmetric
  - NTP entity 41-2
- symmetrical encryption algorithms 30-3, 31-4
- syntax, MIB object 39-7
- sysinfo Group, Allied Telesis Enterprise MIB C-16
- sysinfo MIB object C-9, C-16
- system clock
  - displaying 4-75
  - setting 4-35
- system date
  - displaying 4-75
  - setting 4-35
- system group, MIB-II MIB C-26, C-35
- system information
  - displaying 4-54, 4-75
  - setting 4-29, 4-32 to 4-33, 4-35
- system time
  - displaying 4-75
  - setting 4-35
- sysTemperature MIB object C-16
- sysUpTime MIB object C-28

## T

### Tables, MIB

- atrDot1xAuthConfigTable C-24
- atrDot1xAuthStatsTable C-24
- atrDot1xPaePortTable C-24
- atrMacBasedAuthConfigTable C-24
- atrMacBasedAuthPaePortTable C-24
- BGP Peer C-48
- BGP Received Path Attribute C-48
- BGP-4 Received Path Attribute C-48
- Boards C-17 to C-18
- Broadband MAU Basic C-32
- Disk Storage C-45
- dot1qFdbTable C-36
- dot1qForwardAllTable C-37
- dot1qForwardUnregisteredTable C-37
- dot1qLearningConstraintsTable C-37
- dot1qPortVlanHCStatisticsTable C-37
- dot1qPortVlanStatisticsTable C-37
- dot1qPortVlanTable C-37
- dot1qTpFdbTable C-36
- dot1qTpGroupTable C-37
- dot1qVlanCurrentTable C-37
- dot1qVlanStaticTable C-37
- dot1xAuthConfigTable C-41
- dot1xAuthDiagTable C-41
- dot1xAuthSessionStatsTable C-41
- dot1xAuthStatsTable C-41



- dot1xPaePortTable C-41
- dot1xSuppConfigTable C-41
- dot1xSuppStatsTable C-41
- ds3TrapTable C-23
- Ethernet Interfaces C-18
- File C-20
- File System C-45
- Generic Receive Address C-28 to C-29
- Host Resources Running Software C-44
- Install C-19
- Install History C-19
- Interface C-17
- Interface Extensions C-17, C-28 to C-29
- Interface Jack C-32
- Interface MAU C-32
- Interface MAU Autonegotiation C-32
- Interface Stack C-28 to C-29
- Interface Test C-28 to C-29
- Interfaces C-28 to C-29
- IP CIDR Route C-30
- IP Forwarding C-30
- lbShowAffTable C-23
- lbShowConTable C-23
- lbShowGlobalTable C-23
- lbShowResPoolTable C-23
- lbShowResTable C-23
- lbShowVirtBalTable C-23
- Load C-19
- Network Devices C-45
- Ping C-20
- Printer C-45
- qosSwitch8948PortTable C-22
- qosSwitch8948TrafficClassCountersTable C-22
- qosSwitchPolicyTable C-22
- qosSwitchPortTable C-22
- qosSwitchTrafficClassTable C-22
- Release Licence C-20
- Repeater Jack C-32
- Repeater MAU C-32
- Slot C-17
- stackMemberTable C-25
- Switch Debug C-21 to C-22
- Switch Port C-21
- TACACS authentication 29-17, 29-30, 29-36, 29-62
- tail-drop discard (Quality of Service) 27-21
- TARGETADDR command 39-33
- TARGETPARAMS command 39-51
- TCP group, MIB-II MIB C-26
- tcpConnState MIB object C-27
- Telnet 46-5 to 46-6, 46-9, 46-17
  - for remote management 46-6
  - from the router 29-13
- TELNET command 46-17
- Telnet server
  - disabling 13-95
  - enabling 13-105
- templates, PPP interfaces 11-13
  - creating 11-40
  - debugging 11-51, 11-55
  - destroying 11-48
  - displaying 11-96
  - modifying 11-64
- terminal server 46-1 to 46-18
  - accessing services 46-7 to 46-9, 46-12
  - accessing Telnet hosts 46-5, 46-9, 46-17
  - asynchronous ports 10-8, 10-17, 10-20 to 10-22, 10-24
  - auto-bauding 10-14
  - commands 46-7
    - CONNECT 46-7
    - CONNECT PORT 10-17
    - DISABLE PORT 10-17
    - DISCONNECT 46-8
    - RECONNECT 46-9
    - RESET PORT 10-20
    - RESET PORT COUNTERS 10-21
    - RESET PORT HISTORY 10-22
    - SET PORT 10-24
    - SET TELNET 46-9
    - SET TTY 46-11
    - SHOW SESSIONS 46-12
    - SHOW TTY 46-14
    - TELNET 46-17
  - configuring asynchronous ports 10-9, 10-17, 10-20 to 10-22, 10-24
  - configuring Telnet 46-9
  - configuring TTY devices 46-11
  - connecting to ports 10-17
  - creating nicknames for Telnet hosts 46-5
  - disabling ports 10-17
  - disconnecting from a session 46-8
  - displaying
    - sessions 46-12
    - TTY devices 46-14
  - displaying asynchronous port characteristics 10-11
  - history 10-22
  - multiple sessions 46-4, 46-8 to 46-9, 46-12
  - ports 10-9, 10-17, 10-20 to 10-21, 10-24
  - reconnecting to a session 46-9
  - resetting command history 10-22
  - resetting port counters 10-21
  - resetting ports 10-20
  - services 46-7
  - setting port characteristics 10-9, 10-24
  - Telnet 46-5, 46-17
  - TTY device 46-2
    - configuring 46-11
    - displaying 46-14
- territory
  - displaying 4-54
- Testing
  - commands
    - DISABLE TEST INTERFACE 48-9
    - ENABLE TEST INTERFACE 48-11
    - RESET TEST INTERFACE 48-12
    - SHOW TEST 48-13
  - disabling tests 48-9
  - displaying test results 48-13
  - enabling tests 48-11
  - expansion options 48-1



- hardware 48-1
- interfaces 48-1
- loopback plugs 48-2
- resetting tests 48-12
- text editor 6-6, 6-27
- textual notation 39-6
- throttling, IGMP 17-29
- time
  - displaying 4-75
  - setting 4-35
  - triggers 44-2
- time servers. See Network Time Protocol (NTP)
- time. See Network Time Protocol (NTP)
- Timer
  - setting 9-17
- timer
  - switch ageing 7-36
- timers
  - Point-to-Point Protocol (PPP) 11-24
- TRACE command 13-185
- trace route 13-135, 13-183, 13-185
- traffic classes (Quality of Service) 27-16
- traffic filters 13-35
- transit network
  - OSPF 19-6, 19-19
- Transit Node (EPSR) 38-3, 38-5
- Transmission group, MIB-II MIB C-26, C-31
- transmission queues 7-36, 8-5
- trap PDU 39-9
- traps Group, Allied Telesis Enterprise MIB C-16
- traps MIB object C-9, C-16
- traps, SNMP
  - bgpBackwardTransition, Border Gateway Protocol version 4 (BGP-4) MIB C-48
  - bgpEstablished, Border Gateway Protocol version 4 (BGP-4) MIB C-48
  - flashFailureTrap, Enterprise MIB C-18
  - igmpGeneralQueryNotReceivedEvent C-16
  - loginFailureTrap, Enterprise MIB C-19
  - mstpNewRootBridge, Multiple and Rapid Spanning Tree Protocols MIB C-52
  - mstpNewRootPort, Multiple and Rapid Spanning Tree Protocols MIB C-52
  - mstpTopologyChange, Multiple and Rapid Spanning Tree Protocols MIB C-52
  - ospfIfStateChange, Open Shortest Path First (OSPF) Version 2 MIB C-51
  - ospfNbrStateChange, Open Shortest Path First (OSPF) Version 2 MIB C-51
  - ospfVirtIfStateChange, Open Shortest Path First (OSPF) Version 2 MIB C-51
  - ospfVirtNbrStateChange, Open Shortest Path First (OSPF) Version 2 MIB C-51
  - vrrpTrapNewMaster, Virtual Router Redundancy Protocol (VRRP) MIB C-52
- Trigger group, Allied Telesis Enterprise MIB C-20
- trigger MIB object C-20
- triggerLastTriggerActivated MIB object C-20
- triggers 44-1 to 44-23

- actions 44-2
  - adding to triggers 44-6 to 44-7
  - deleting from triggers 44-12
  - displaying 44-19
- activation 44-2, 44-5
- automated command execution 44-2
- commands
  - ACTIVATE TRIGGER 44-5
  - ADD TRIGGER 44-6
  - CREATE TRIGGER 44-7
  - DELETE TRIGGER 44-12
  - DESTROY TRIGGER 44-12
  - DISABLE TRIGGER 44-13
  - ENABLE TRIGGER 44-14
  - PURGE TRIGGER 44-14
  - SET TRIGGER 44-15
  - SHOW TRIGGER 44-19
- CPU 44-7, 44-15
- creating 44-3, 44-7
- deleting 44-12
- destroying
  - triggers 44-12
- disabling 44-13
- displaying
  - triggers 44-19
- enabling 44-14
- firewall 44-7, 44-15
- interface 44-7, 44-15
- link 44-7, 44-15
- manual activation 44-5
- memory 44-7, 44-15
- modifying 44-15
- output 44-2
- periodic 44-2, 44-7, 44-15
- purging 44-14
- reboot 44-2, 44-7, 44-15
- response to events 44-2
- time 44-2, 44-7, 44-15
- timed command execution 44-2
- types 44-2, 44-7, 44-15
- triggerTrap trap message C-20
- Triple DES encryption algorithm 30-3
- trunk groups
  - creating 7-65
  - deleting 7-72, 8-34
  - destroying 7-77
  - displaying 7-145
  - modifying 7-112 to 7-113
- Trunks and Spanning Trees 8-26
- trusted routers 18-11, 18-13, 18-23
- TTY group, Allied Telesis Enterprise MIB C-19
- tty MIB object C-19
- ttyTraps MIB object C-19
- tunnel key, GRE 22-3
- tunnel, L2TP. See Layer Two Tunnelling Protocol (L2TP)

## U

UAF. See User Authentication Facility



UDP group, MIB-II MIB C-26  
 Universal Coordinated Time (UTC) 45-3  
 UPLOAD command 5-66  
 User Authentication Database 29-9 to 29-10  
   adding users 29-10, 29-32  
   counters 29-13  
   deleting users 29-11, 29-37  
   disabling users 29-41  
   displaying users 29-11, 29-67  
   enabling users 29-45  
   logging in and out 29-8, 29-46 to 29-47  
   modifying users 29-11, 29-54  
   passwords 29-11 to 29-12  
   purging users 29-47  
   recovering passwords 29-12  
   resetting users 29-48  
 User Authentication Facility 29-8  
   asynchronous port security 29-12  
   semipermanent manager port 29-13  
   Telnetting from the router 29-13  
 User Authentication Facility (UAF)  
   database 11-22  
 USER privilege 29-3  
 User-based Security MIB C-47  
 UTC. See Universal Coordinated Time (UTC)

## V

Van Jacobson header compression 31-3  
 Vectors 8-24  
 view, SNMP MIB 39-15  
 View-based Access Control MIB C-47  
 Virtual Bridge (VLAN) MIB C-36  
 Virtual Cable Test 48-6  
   commands  
     ENABLE TEST CABLE 48-10  
     RESET TEST CABLE 48-12  
     SHOW TEST CABLE 48-19  
 virtual links, OSPF 19-19, 19-26, 19-38, 19-45, 19-47, 19-50, 19-58  
 Virtual Local Area Networks (VLAN)  
   commands  
     ADD VLAN BRIDGE 8-30  
     ADD VLAN PORT 7-58, 7-64  
     ADD VLAN PROTOCOL 7-62  
     ADD VLAN SUBNET 7-64  
     CREATE VLAN 7-68  
     DELETE STP VLAN 8-33  
     DELETE VLAN BRIDGE 8-34  
     DELETE VLAN PORT 7-73, 8-34  
     DELETE VLAN PROTOCOL 7-75  
     DELETE VLAN SUBNET 7-76  
     DESTROY VLAN 7-77  
     DISABLE VLAN DEBUG 7-85  
     DISABLE VLANRELAY 8-42  
     DISABLE VLANRELAY DEBUG 8-42  
     ENABLE VLAN DEBUG 7-96  
     ENABLE VLANRELAY DEBUG 8-51  
     SET SWI NESTEDTPID 7-106  
     SET VLAN PORT 7-115  
     SHOW VLAN 7-147

    SHOW VLAN DEBUG 7-153  
   modifying ports 7-115  
   relaying  
     disabling debugging 8-42  
     disabling entities 8-42  
     enabling debugging 8-51  
   switch ports  
     deleting 8-34  
   tagged ports 7-115  
   tagging 7-37  
 Virtual Local Area Networks (VLANs) 7-18  
 Virtual Router Redundancy Protocol (VRRP)  
   adopt IP address address 36-6  
   commands  
     ADD VRRP IP 36-11  
     ADD VRRP MONITOREDINTERFACE 36-12  
     CREATE VRRP 36-13  
     DELETE VRRP IP 36-16  
     DELETE VRRP MONITOREDINTERFACE 36-16  
     DESTROY VRRP 36-17  
     DISABLE VRRP 36-17  
     DISABLE VRRP DEBUG 36-18  
     ENABLE VRRP 36-18  
     ENABLE VRRP DEBUG 36-19  
     SET VRRP 36-19  
     SHOW VRRP 36-22  
   triggers 36-8  
 VLAN 7-18, 38-3  
   adding protocols 7-62  
   adding subnets 7-64  
   deleting ports 7-73  
   deleting protocols 7-75  
   deleting subnets 7-76  
   destroying 7-77  
   disabling debug 7-85  
   displaying 7-147  
   displaying debug 7-153  
   enabling debug 7-96  
   EPSR Control VLAN 38-3  
   EPSR Data VLAN 38-3  
 vrrpMIB MIB object C-52  
 vrrpOperMasterIpAddr MIB object C-52  
 vrrpTrapNewMaster trap message C-52

## W

WAIT command 43-11, 43-15  
 web server. See HTTP server  
 wildcard characters  
   in file names 6-7  
 write-only, MIB object 39-7  
 WWW server. See HTTP server

## X

X.25  
   MIOX circuits 1-20

