



-
- ## A
- adding
 - secure addresses [3-20](#), [3-21](#)
 - static addresses [3-22](#)
 - address
 - resolution [3-17](#)
 - see also addresses
 - addresses
 - dynamic
 - aging time [3-19](#)
 - described [3-18](#)
 - removing [3-20](#)
 - for IP phones [3-9](#)
 - MAC
 - adding secure [3-20](#)
 - aging time [3-19](#)
 - discovering [3-18](#), [3-19](#)
 - tables, managing [3-18](#)
 - secure
 - adding [3-20](#), [3-21](#)
 - described [3-18](#), [3-20](#)
 - removing [3-21](#)
 - static
 - adding [3-22](#)
 - described [3-18](#), [3-22](#)
 - removing [3-23](#)
 - Address Resolution Protocol (ARP)
 - see ARP table
 - address table
 - aging time, configuring [3-19](#)
 - dynamic addresses, removing [3-20](#)
 - MAC [3-18](#)
 - secure addresses
 - adding [3-21](#)
 - removing [3-21](#)
 - static addresses
 - removing [3-23](#)
 - ADPCM codec [B-4](#)
 - aging time, changing address [3-19](#)
 - analog signals [B-3](#)
 - APPN (Advanced Peer-to-Peer Networking)
 - SNA-to-IP integration [12-6 to 12-7](#)
 - ARP table
 - address resolution [3-17](#)
 - managing [3-17](#)

asynchronous/synchronous serial interface
 configuring 4-6
audience xviii

B

backup Cisco CallManager 5-4
Bc 6-39
Be 6-39
BECN 6-38
BECN (backward explicit congestion
 notification)
 FRTS 10-10
 GTS 10-6
BOOTP 3-11

C

call agent, manual redirection 5-6
call leg 6-15
Catalyst 3524 PWR XL 3-14
ccm-manager command 5-4
CELP codec B-4
central office (CO) B-8
CIR 6-37
Cisco 3600 series routers
 interface numbering 2-4
Cisco CallManager
 configuring 5-16

Cisco IOS
 command modes 2-6
 enable mode 2-8
 getting help 2-6
 saving configuration changes 2-8
 undo command 2-8
class-based shaping
 feature description 10-8
CMCC (Cisco Mainframe Channel Connection)
 adapter
 SNA-to-IP integration 12-11
codec
 applied B-3
 configuring 6-35
 described B-4
command modes, Cisco IOS 2-6
Commands
 voice port
 timing inter-digit 7-7
commands
 ccm-manager 5-4
 copy running-config 2-8
 copy-running-config 5-3
 dial-peer 5-8
 exec-timeout 4-3
 help 2-6
 MGCP 5-4
 ping 4-18
 show config 4-3
 show interfaces 4-18

- show protocols 4-18
- show running-config 4-18
- show startup-config 5-3
- show version 4-18
- switchback 5-5
- switchover 5-6
- undo 2-8
- commands show running-config 5-3
- configuration
 - saving 4-19
 - saving changes 2-8
 - tasks 6-3
 - timeout 4-3
 - verifying 4-18
 - voice ports
 - troubleshooting tips 7-5
- configuring
 - aging time 3-19
 - asynchronous/synchronous serial interface 4-6
 - Cisco CallManager 5-16
 - codec and VAD 6-35
 - custom queuing 6-11
 - dial peers 6-15
 - DNS 3-13
 - DS-0 hunt groups 5-9, 5-21
 - E1 interface 4-12
 - Frame Relay for VoIP 6-37
 - H.323 endpoint 5-17
 - inline power 3-15
 - IP information 3-11
 - IP networks for real-time voice traffic 6-3
 - IP Phone 3-15
 - ISDN-BRI interface 4-9
 - ISDN PRI interface 4-12
 - E1 interface 4-16, 5-13, 5-33
 - T1 interface 4-12, 5-10, 5-31
 - multiflex trunk interface 4-12
 - E1 interface 4-16, 5-13, 5-33
 - T1 interface 4-12, 5-10, 5-31
 - Multilink PPP interleaving 6-7
 - number expansion 6-12
 - POTS dial peer 6-20
 - RSVP for Voice 6-5
 - RTP header compression 6-9
 - T1 interface 4-12
 - time slots for a DS-0 group 5-9
 - timeslots for a DS-0 group 5-20
 - trap managers 3-11
 - VLANs A-1
 - voice interfaces 5-1
 - Voice over IP 5-1
 - voice ports 6-22
 - VoIP dial peer 6-21
 - weighted fair queuing 6-12
 - wildcard destination patterns 5-18
- conventions used xx
- copy-running-config command 2-8, 5-3
- custom queuing 6-11

D

DE (discard eligible) lists, traffic shaping [10-4](#)

debug cch323 h225 command [6-22](#)

debug cch323 rtp command [6-22](#)

debug vpm spi command [6-22](#)

delay [B-5](#)

dial-peer command [5-8](#)

dial-peer configuration

 optimizing [6-33](#)

 POTS [6-20, 6-21](#)

 table [6-19](#)

 troubleshooting tips [6-22](#)

 verifying [6-21](#)

dial peers

 configuring [6-15](#)

 described [6-15](#)

 inbound versus outbound [6-17](#)

 types [6-16](#)

digital signal processor

 see DSP

digital signals [B-4](#)

disabling

 Switch Port Analyzer (SPAN) [3-17](#)

DLCI [6-37](#)

DLSw+ (Data Link Switching Plus)

 SNA-to-IP integration [12-10](#)

DNS

 configuring [3-13](#)

 described [3-14](#)

 enabling [3-14](#)

document

 conventions [xx](#)

 objectives [xvii](#)

 organization [xviii](#)

documentation

 related [xix](#)

domain name

 described [3-14](#)

 specifying [3-13, 3-14](#)

Domain Name System server

 see DNS

DS-0

 configuring hunt groups [5-9, 5-21](#)

 configuring time slots [5-9](#)

 configuring timeslots [5-20](#)

DSP

 defined [B-1](#)

DTS (Distributed Traffic Shaping)

 See traffic shaping, Distributed

E

E&M

 emulation, sample configuration [5-23](#)

 emulation options [5-9](#)

E&M voice port

- configuration example [C-7](#)

- configuring [6-27](#)

- fine-tuning commands [6-30](#)

- signaling type [B-8](#)

- troubleshooting tips [6-30](#)

- verifying [6-29](#)

E.164 [B-3](#)

E1/T1 ISDN PRI interface [4-12, 4-16, 5-10, 5-13, 5-31, 5-33](#)

E1/T1 multiflex trunk interface [4-12, 4-16, 5-10, 5-13, 5-31, 5-33](#)

E1 interface

- configuring [4-12](#)

Echo [B-7](#)

enable mode [2-8](#)

enabling

- DNS [3-14](#)

- Switch Port Analyzer (SPAN) [3-16](#)

encapsulations

- IPX [12-1](#)

examples

- Frame Relay for VoIP [6-38](#)

FEP (front-end processor)

- replacement [12-10](#)

Frame Relay for VoIP

- configuring [6-37](#)

- example [6-38](#)

FRTS (Frame Relay Traffic Shaping) [10-9](#)

FXO

- emulation, sample configuration [5-23](#)

- emulation options [5-9](#)

FXS

- emulation, sample configuration [5-21](#)

- emulation options [5-9](#)

FXS/FXO voice ports

- configuration examples

- FXO gateway to PSTN [C-10](#)

- FXO gateway to PSTN (PLAR mode) [C-12](#)

- FXS-to-FXS connection using RSVP [C-1](#)

- configuring [6-23](#)

- fine-tuning commands [6-25](#)

- signaling type [B-8](#)

- troubleshooting tips [6-25](#)

- verifying [6-24](#)

F
Fancy Queuing [6-3](#)

FECN (forward explicit congestion notification), FRTS [10-10](#)

G

gateway, provisioning [5-16](#)

generic MGCP support [5-4](#)

global configuration command mode [2-7](#)

ground start signaling [B-8](#)

GTS (Generic Traffic Shaping)

- how it works (figure) [10-7](#)
- overview [10-6](#)

H

H.323 [B-1](#), [B-2](#)

- configuring endpoint [5-17](#)
- configuring IP address [5-18](#)

help command [2-6](#)

host name

- configuring [4-2](#)
- show config command [4-3](#)
- verifying [4-3](#)

host names

- to address mappings [3-13](#)

hunt groups, configuring [5-9](#), [5-21](#)

IDP (Internet Datagram Protocol)

- characteristics [12-1](#)

IEEE 802.1p [3-15](#)

inline power [3-16](#)

interface configuration command mode [2-7](#)

interface numbering

- Cisco 3600 series routers [2-4](#)

IP [6-9](#), [B-3](#)

IP address

- configuring for H.323 endpoints [5-18](#)

IP addresses

- discovering [3-18](#)
- removing [3-13](#)

IP addressing [3-9](#)

IP information

- assigned by BOOTP [3-12](#)
- assigning [3-12](#)
- configuring [3-11](#)
- removing [3-13](#)

IP Phone

- configuring [3-15](#)
- sound quality [3-14](#)

IP phones

- IP addressing [3-9](#)

ip rsvp bandwidth command [6-6](#)

ip rtp compression connections command [6-11](#)

ip rtp header-compression command [6-11](#)

IP telephone calls [3-15](#)

IPX

- encapsulation [12-1](#)

Enhanced IGRP

- Cisco's implementation [12-2](#)

LANE support [12-3](#)

MIB [12-2](#)

MLS support [12-3](#)

Multilayer Switching

- See* IPX, MLS support

routing

- between emulated LANs [12-3](#)

- metrics [12-1](#)

- SAP [12-1](#)

- VLAN support [12-3](#)

ISDN BRI interface, configuring [4-9](#)**ISDN PRI interface**

- configuring [4-12](#)

- E1 configuration [4-16, 5-13, 5-33](#)

- T1 configuration [4-12, 5-10, 5-31](#)

ISDN switch types [5-25](#)**ITU-T** [B-1](#)

J**Jitter** [B-6](#)

L**LANE (LAN Emulation)**

- emulated LANs, routing between [12-3](#)

- loop start signaling [B-8](#)

- LPC codec [B-4](#)

M**MAC addresses**

- adding secure [3-20](#)

- aging time [3-19](#)

- discovering [3-18, 3-19](#)

MAC address tables, managing [3-18](#)**manual redirection of call agent** [5-6](#)**mean opinion score** [B-4](#)**metrics, routing**

- IPX [12-1](#)

- XNS [12-1](#)

MIB

- IPX [12-2](#)

modem, connecting to [2-3](#)**monitoring**

- ports [3-16](#)

- traffic [3-16](#)

MP-MLQ codec [B-4](#)**MTU** [6-37](#)**multiflex trunk interface**

- configuring [4-12](#)

- E1 configuration [4-16, 5-13, 5-33](#)

- T1 configuration [4-12, 5-10, 5-31](#)

Multilink PPP Interleaving [6-7](#)

N

NANP [B-3](#)

North American Numbering Plan [B-3](#)

Novell IPX

See IPX

number expansion

command [6-12](#)

configuring [6-15](#)

described [6-12](#)

table [6-13](#)

numbering scheme [B-3](#)

P

packet loss prevention, traffic shaping [10-2](#)

password

configuring [4-2](#)

show config command [4-3](#)

verifying [4-3](#)

PCM codec [B-4](#)

phones

IP addressing [3-9](#)

port mode switch

use of [2-3](#)

POTS dial peer

configuring [6-20](#)

described [6-16](#)

power, inline [3-15](#)

power detection on the 3524-PWR [3-16](#)

primary Cisco CallManager [5-4](#)

privileged EXEC command mode [2-6](#)

provisioning the gateway [5-16](#)

PVC [6-37](#)

Q

QoS

see Quality of Service

Quality of Service

backbone routers [6-4](#)

described [6-3](#)

edge routers [6-4](#)

tools

custom queuing [6-11](#)

listed [6-4](#)

Multilink PPP Interleaving [6-7](#)

RSVP [6-5](#)

RTP header compression [6-9](#)

weighted fair queuing [6-12](#)

R

Random Early Detection [6-3](#)

RED [6-3](#)

related documentation [xix](#)

removing

dynamic address entries [3-20](#)IP information [3-13](#)secure addresses [3-21](#)static addresses [3-22, 3-23](#)

RSVP

applied [B-2](#)configuring for voice [6-5](#)enabled [6-5](#)FXS-to-FXS connection example [C-1](#)RTCP [B-3](#)RTP [6-9, B-3](#)RTP header compression [6-9](#)

S

SAP (Service Advertisement Protocol)

description [12-1](#)saving configuration changes [2-8, 4-19](#)

secure addresses

adding [3-20, 3-21](#)described [3-20](#)removing [3-21](#)server, domain name [3-14](#)servers, BOOTP [3-11](#)show config command [4-3](#)show running-config command [5-3](#)show startup-config command [5-3](#)

signaling types

E&M [6-22, B-8](#)FXS/FXO [6-22, B-8](#)

SNA (Systems Network Architecture)

internetworking overview [12-11](#)

SNA-to-IP integration

description [12-4](#)

phases

(figure) [12-5](#)IP centric [12-9](#)IP client [12-8](#)IP transport [12-7](#)SNA centric [12-6](#)scenarios [12-10](#)

SNMP

trap managers, configuring [3-11](#)trap message, generating [6-35](#)

SPAN

described [3-16](#)disabling [3-17](#)enabling [3-17](#)

static addresses

adding [3-22](#)described [3-18, 3-22](#)removing [3-23](#)

see also static address

Survivable Remote Site Telephony [5-5](#)switchback command [5-5](#)switchback options [5-5](#)

switchover [5-5](#)
switchover command [5-6](#)
Switch Port Analyzer (SPAN)
 disabling [3-17](#)
 enabling [3-16](#)

T

T1 channel bank [5-19](#)
T1 interface
 configuring [4-12](#)
terminal, connecting to [2-3](#)
timeout, disabling [4-3](#)
time slots, configuring [5-9](#)
timeslots, configuring [5-20](#)
traffic
 monitoring [3-16](#)
traffic shaping
 defined [10-1](#)
 Distributed
 benefits [10-13](#)
 prerequisites [10-12](#)
 restrictions [10-14](#)
 excess burst size [10-3](#)
 FRTS [10-9](#)
 GTS [10-6](#)
 queueing [10-6](#)
 uses [10-2](#)
traffic shaping in Frame Relay [6-38](#)

trap managers
 adding [3-11](#)
 configuring [3-11](#)
troubleshooting
 dial-peer configuration [6-22](#)
 E&M configuration [6-30](#)
 FXS/FXO configuration [6-25](#)

U

UDP [6-9, B-3](#)
undo command [2-8](#)
user EXEC command mode [2-6](#)

V

VAD
 configuring [6-36](#)
 described [6-35](#)
verifying
 interface configuration [4-18](#)
VIC
 described [6-22](#)
viewing current configuration [5-7](#)
VLAN ID, discovering [3-18, 3-19](#)
VLANs
 configuring [A-1](#)
 IPX support [12-3](#)
 MAC addresses [3-19](#)

- voice activity detection
 - see VAD
- voice interfaces
 - configuring [5-1](#)
- Voice over IP
 - configuring [3-14](#), [5-1](#), [6-1](#)
 - Frame Relay, configuring for [6-37](#)
 - port configuration [3-15](#)
- voice over IP
 - linking PBX users with E&M trunk lines [5-35](#)
- voice ports
 - configuring
 - troubleshooting tips [7-5](#)
- E&M
 - configuring [6-27](#)
 - described [6-23](#)
 - fine-tuning commands [6-30](#)
 - troubleshooting tips [6-30](#)
 - verifying [6-29](#)
- FXS/FXO
 - configuring [6-23](#)
 - described [6-22](#)
 - fine-tuning commands [6-25](#)
 - troubleshooting tips [6-25](#)
 - verifying [6-24](#)
- voice traffic [3-15](#)

- VoIP
 - see Voice-over-IP
- VoIP dial peer
 - configuring [6-21](#)
 - described [6-16](#)

W

- weighted fair queuing [6-12](#)
- Weighted Random Early Detection [6-3](#)
- wildcard destination patterns, configuring [5-18](#)
- WRED [6-3](#)

X

- XNS (Xerox Network Systems)
 - IDP [12-1](#)
 - routing metrics [12-1](#)

