



Basic and Additional H.323 Services

This section provides information about key basic and additional H.323 services that the Cisco ATA supports:

- [Important Basic H.323 Services, page 4-1](#)—This section includes a list of parameters that you must configure in order for the Cisco ATA to function in an H.323 environment.
- [Additional H.323 Services, page 4-7](#)—This section contains information about additional, commonly used H.323 features, with references to the parameters for configuring these services.
- [Complete Reference Table of all Cisco ATA H.323 Services, page 4-12](#)—This section contains a complete listing of Cisco ATA services supported for H.323, and includes cross references to the parameters for configuring these services.



Note

The term *Cisco ATA* refers to both the Cisco ATA 186 and the Cisco ATA 188, unless otherwise stated.

Important Basic H.323 Services

This section provides descriptions and cross references for configuring required H.323 parameters and also for configuring important H.323 services:

- [Required Parameters, page 4-1](#)
- [Setting the Signaling Image to H.323 Mode, page 4-2](#)
- [Setting Up User IDs for the Cisco ATA, page 4-3](#)
- [Using the Cisco ATA with an H.323 Gatekeeper, page 4-3](#)
- [Using the Cisco ATA Without an H.323 Gatekeeper, page 4-6](#)
- [Setting the Audio Codecs, page 4-7](#)

Required Parameters

If the UseSIP parameter is set to 0 (you are using the H.323 protocol), you need to supply values for the required H.323 parameters shown in [Table 4-1](#). The Parameter column provides the name of the parameter and a cross reference which provides a more-detailed description of the parameter.



Note

See [Chapter 5, “Parameters and Defaults,”](#) for information about additional Cisco ATA parameters.

Table 4-1 Required H.323 Parameters and Defaults

Parameter	Value Type	Description	Voice Menu Access Code	Default
UID0, page 5-10	Alphanumeric string	User ID for the Phone 1 port.	3	0
UID1, page 5-11	Alphanumeric string	User ID for Phone 2 port.	13	0
PWD0, page 5-10	Alphanumeric string	Password for the Phone 1 port.	4	0
PWD1, page 5-12	Alphanumeric string	Password for the Phone 2 port.	14	0
LoginID0, page 5-13	Alphanumeric string	Login ID for the Phone 1 port. If this value is 0, the UID0 parameter is used for authentication.	46	0
LoginID1, page 5-14	Alphanumeric string	Login ID for the Phone 2 port. If this value is 0, the UID1 parameter is used for authentication.	47	0
GkOrProxy, page 5-15	Alphanumeric string	IP address of the H.323 gatekeeper.	5	0
UseLoginID, page 5-13	Boolean	Enables the Cisco ATA to use its H.323 ID for authenticated login.	93	0
AltGk, page 5-16	Alphanumeric string	IP address of the statically defined alternate gatekeeper.	6	0
AltGkTimeOut, page 5-16	Integer	The timeout value, in seconds, for an alternate gatekeeper. The allowed range is 30 to 4294967295 seconds.	251	0
GkTimeToLive, page 5-17	Integer	The “time to live” value that is used when the Cisco ATA registers with the H.323 gatekeeper. The registration is valid until the configured time expires.	250	0
GkId, page 5-17	Alphanumeric string	Identifier for the primary H.323 gatekeeper.	91	.
UseSIP, page 5-18	Boolean	H.323 or SIP mode selection. Set to 0 for H.323 mode.	38	0
ToConfig, page 5-4	Boolean	Indicates if parameters have been set. Set this value to 0 after you have completed configuration of the Cisco ATA. If this value remains at 1, the Cisco ATA will unnecessarily continue to contact the TFTP server.	80001	1

Setting the Signaling Image to H.323 Mode

If you are using the H.323 signaling protocol, you *must* set the UseSIP parameter to 0.

Setting Up User IDs for the Cisco ATA

Each Cisco ATA can support two FXS ports. You can assign a user ID, which is usually an E.164 phone number, to each port. Use the Cisco ATA parameter `UID0` to configure an ID for the **Phone 1** port, and use the `UID1` parameter for the user ID of the **Phone 2** port.

Related Configuration Parameters

- [UID0, page 5-10](#)
- [UID1, page 5-11](#)

Using the Cisco ATA with an H.323 Gatekeeper

The Cisco ATA can function with an H.323 gatekeeper to enable Cisco ATA registration, admission, and use of directory services on an H.323 network. To use the Cisco ATA with a primary H.323 gatekeeper, you need to configure the `GkOrProxy` parameter with the IP address assigned to the primary H.323 gatekeeper. Optionally, you can specify the primary gatekeeper identifier using the `GkId` parameter if this identifier is required for the Cisco ATA to successfully register with the H.323 network.

This section contains the following topics:

- [Choosing Cisco ATA Registration Mode with an H.323 Gatekeeper, page 4-3](#)
- [Setting Up Gatekeeper Time-To-Live Value, page 4-4](#)
- [Setting Up an Alternate H.323 Gatekeeper, page 4-4](#)
- [Establishing Authentication with Cisco H.323 Gatekeeper, page 4-5](#)

Related Configuration Parameters

- [GkOrProxy, page 5-15](#)
- [GkId, page 5-17](#)

Choosing Cisco ATA Registration Mode with an H.323 Gatekeeper

The Cisco ATA can register with an H.323 gatekeeper in one of two modes:

- Single registration—Both Cisco ATA FXS ports register at the same time with the H.323 gatekeeper. This reduces gatekeeper registration traffic by 50 percent when both ports are enabled.
- Dual registration—Each FXS port registers separately with the H.323 gatekeeper.

To configure single-mode registration, you need to set the `UseLoginID` parameter to **1**, and then configure the `LoginID1` and `LoginID2` parameters with identical values. The `LoginID1` and `LoginID2` parameters are used for the H.323 ID, whereas the `UID0` and `UID1` parameter values are used as E.164 phone numbers.

If LoginID1 and LoginID2 are not used or are not set to identical values, the Cisco ATA uses dual-registration mode.

Related Parameters

- [LoginID0, page 5-13](#)
- [LoginID1, page 5-14](#)
- [UID0, page 5-10](#)
- [UID1, page 5-11](#)

Setting Up Gatekeeper Time-To-Live Value

You can specify the valid duration of the H.323 gatekeeper registration, in seconds, by using the GkTimeToLive parameter.

Related Configuration Parameter

[GkTimeToLive, page 5-17](#)

Setting Up an Alternate H.323 Gatekeeper

To provide redundancy in systems that use an H.323 gatekeeper, the Cisco ATA allows you to either statically configure an alternate H.323 gatekeeper or dynamically assign an H.323 gatekeeper.

To enable the static alternate gatekeeper feature, you need to configure the AltGk parameter with the IP address assigned to the alternate H.323 gatekeeper. To enable the Cisco ATA to perform full gatekeeper registration when it switches to a statically configured alternate H.323 gatekeeper, configure Bit 3 of the ConnectMode parameter to the value of **1**.

To enable the dynamic alternate gatekeeper feature, you need to configure the primary H.323 gatekeeper so that the list of alternate gatekeepers is included in the H.225 RAS messages that the H.323 gatekeeper sends to the Cisco ATA. The Cisco ATA can accept as many as four dynamic alternate gatekeepers configured in the H.225 RAS messages. (The Cisco ATA supports the alternate gatekeeper list in GCF/GRJ, ACF/ARJ, RCF/RRJ, and DRJ RAS messages.)

Dynamic alternate gatekeepers and static alternate gatekeepers can co-exist. When the Cisco ATA receives an alternate gatekeeper list in an H.225 RAS message, the static alternate gatekeeper is merged with the dynamic alternate gatekeepers. The static alternate gatekeeper is kept and given the lowest priority.

You can configure the AltGkTimeout parameter to specify the number of seconds the Cisco ATA should wait before it automatically switches back to the primary H.323 gatekeeper after being moved to an alternate gatekeeper. By default, the switch-back procedure is disabled (the AltGkTimeout parameter value is set to 0).

Related Configuration Parameters

- [AltGk, page 5-16](#)
- [AltGkTimeOut, page 5-16](#)
- [ConnectMode, page 5-28](#)

Establishing Authentication with Cisco H.323 Gatekeeper

You can configure the Cisco ATA to establish authentication with a Cisco H.323 Gatekeeper. The Cisco ATA supports two authentication methods:

- Cisco registration level-security
- Cisco admission-level security (per-call basis)

To configure either authentication method, use the following procedure:

Procedure

-
- Step 1** Set the UseLoginID parameter to **1**. This setting indicates that the LoginID0 and LoginID1 fields will be used for Cisco ATA H.323 registration.
 - Step 2** Set the UID0 and UID1 parameters to the E.164 phone numbers that are assigned to the FXS ports on the Cisco ATA.
 - Step 3** Set the LoginID0 and LoginID1 parameters to the H.323 ID. The H.323 ID is used when the Cisco ATA registers with the H.323 gatekeeper. This ID is also used as the account ID for the RADIUS server.
 - Step 4** Set the PWD0 and PWD1 parameters to the passwords for the **Phone 1** and **Phone 2** FXS ports (the passwords in the RADIUS server), respectively.
 - Step 5** Set the NTPIP and AltNTPIP parameters to the IP addresses of the NTP servers in your network.
 - Step 6** Select the authentication method using the AutMethod parameter (**0** indicates no authentication; **1** indicates the Cisco registration level security method; **2** indicates the Cisco admission level security method).



Note The authentication methods are Cisco Proprietary H.235 implementations, which use the Cisco access/clear token structure rather than the VocalTec crypto token structure.

Related Configuration Parameters

- [UseLoginID, page 5-13](#)
- [AutMethod, page 5-14](#)
- [LoginID0, page 5-13](#)
- [LoginID1, page 5-14](#)
- [UID0, page 5-10](#)
- [UID1, page 5-11](#)
- [PWD0, page 5-10](#)
- [PWD1, page 5-12](#)
- [NTPIP, page 5-30](#)
- [AltNTPIP, page 5-30](#)

Using the Cisco ATA Without an H.323 Gatekeeper

You can use the Cisco ATA without using an H.323 gatekeeper, as this section describes with the following topics:

- [Using the Cisco ATA With an H.323 Gateway but Without an H.323 Gatekeeper, page 4-6](#)
- [Using Multiple Cisco ATAs Without an H.323 Gatekeeper, page 4-6](#)

Using the Cisco ATA With an H.323 Gateway but Without an H.323 Gatekeeper

You can use a Cisco ATA with an H.323 network that does not contain an H.323 gatekeeper. In this scenario, all calls initiated from the Cisco ATA are directed to a specified H.323 gateway. To specify this H.323 gateway, you configure its IP address using the Gateway parameter, and you disable the H.323 gatekeeper feature by setting the GkorProxy parameter to 0.



Note

For all calls sent from the H.323 gateway to the Cisco ATA, the E.164 number assigned to each of the Cisco ATA FXS ports must be included in the H.225 Setup message, either in the DestinationAddress field or the Q.931 CalledPartyNumber field. The Cisco ATA will reject the call if it cannot find its E.164 number in the H.255 Setup message.

Related Configuration Parameters

- [Gateway, page 5-12](#)
- [GkOrProxy, page 5-15](#)

Using Multiple Cisco ATAs Without an H.323 Gatekeeper

You can make calls from one Cisco ATA to another Cisco ATA in an H.323 network that does not contain an H.323 gatekeeper.

For one Cisco ATA to access a specific FXS port on another Cisco ATA, you use an IP dialing procedure. The Cisco ATA originating the call must have the following information about the destination Cisco ATA:

- E.164 phone number of the destination FXS port
- IP address of the destination Cisco ATA

To enable the IP dialing procedure, you need to set the IPDialPlan parameter to **1** to instruct the Cisco ATA to look for the destination IP address in the dialed digits.

Example

Cisco ATA *X* is going to initiate a call to Cisco ATA *Y* (with the following pertinent information):

- IP address of Cisco ATA *Y*—192.168.2.112.
- E.164 phone number for the **Phone 1** port of Cisco ATA *Y*—1:5556666
- E.164 phone number for the **Phone 2** port of Cisco ATA *Y*—2:5558888

To call the **Phone 1** port on Cisco ATA *Y*, you would dial **5556666**192*168*2*112#**.

To call the **Phone 2** port on Cisco ATA *Y*, you would dial **5558888**192*168*2*112#**.

Related Configuration Parameters

- [IPDialPlan](#), page 5-36
- [DialPlan](#), page 5-37

Setting the Audio Codecs

You can configure the following codec-related settings:

- **Low-bit-rate codec**—When operating with a low-bit-rate codec, the Cisco ATA can support either two G.723.1 connections or one G.729 connection. You must statically configure the selection of G.723.1 or G.729 by using the `LBRCCodec` parameter.

When G.723.1 is the low-bit-rate codec, each FXS port is allocated one G.723.1 connection. When G.729 is used, only one FXS port can use G.729. The G.729 resource is allocated in a dynamic manner. When a call begins, the FXS port requests and takes an available G.729 resource. The Cisco ATA releases this resource when the call is completed.

Use Bit 1 of the `AudioMode` parameter to disable and enable the use of the low-bit-rate codec.

Related Configuration Parameters

- [LBRCCodec](#), page 5-19
- [AudioMode](#), page 5-20
- **Voice codec**—You can configure the preferred voice codec for transmitting and receiving voice data by using the `TxCodec` and `RxCodec` parameters, respectively. Cisco recommends that you configure the same voice codec for `TxCodec` and `RxCodec`.

Related Configuration Parameters

- [TxCodec](#), page 5-22
- [RxCodec](#), page 5-21
- **Silence suppression**—You can configure silence suppression for G.711/G.723.1/G.729 by using the `ConnectMode` parameter (Bit 0 for the **Phone 1** port and Bit 16 for the **Phone 2** port).

Related Configuration Parameter

[ConnectMode](#), page 5-28

Additional H.323 Services

This section describes additional H.323 services and, where applicable, provides configuration information and cross references to the parameters for configuring these services, described in alphabetical order:

- [Configuring Audio Packet Settings](#), page 4-8
- [Configuring Billable Features](#), page 4-8
- [Configuring the Call Waiting Permanent Default Setting](#), page 4-9
- [Configuring the Cisco ATA Refresh Interval](#), page 4-9
- [Configuring Hook Flash Timing](#), page 4-9
- [Configuring the Mixing of Call Waiting Tone and Audio](#), page 4-9
- [Configuring Network Ringback Tone](#), page 4-9

- [Configuring On-hook delay, page 4-10](#)
- [Configuring Reverse Audio Cut-Through Behavior, page 4-10](#)
- [Configuring Supplementary Service Behavior and Parameters, page 4-10](#)
- [Debugging Diagnostics, page 4-10](#)
- [Hardware Information Display, page 4-10](#)
- [Network Timing, page 4-11](#)
- [Polarity Settings, page 4-11](#)
- [Progress Tones, page 4-11](#)
- [Selecting DTMF and Hookflash Transmission Methods, page 4-11](#)
- [Selecting H.323 Connection and H.245 Transmission Methods, page 4-12](#)
- [Setting Dial Plans, page 4-12](#)

Configuring Audio Packet Settings

Table 4-2 lists configurable audio-packet settings and their related configuration parameters.

Table 4-2 Audio Packet Settings and Related Parameters

Feature	Related Parameter
Base port for receiving RTP packets	MediaPort, page 5-19
Class of Service (CoS) bit specification for UDP packets	VLANSetting, page 5-34
RTP-packet size	NumTxFrames, page 5-23
Type of Service (ToS) bit specification for UDP packets	UDPTOS, page 5-31

Configuring Billable Features

You can customize specific features on a subscription basis by changing the values of specific bits in several different parameters. Table 4-3 contains a list of billable features and their related parameters:

Table 4-3 Billable Features and Related Parameters

Feature	Related Parameters
Call Conferencing	PaidFeatures, page 5-25 , CallFeatures, page 5-24
Call Waiting	PaidFeatures, page 5-25 , CallFeatures, page 5-24 , SigTimer, page 5-32
Caller ID	PaidFeatures, page 5-25 , CallFeatures, page 5-24 , CallerIdMethod, page 5-26
Polarity	Polarity, page 5-27



Note

CallWaitCallerID is an obsolete parameter. Do not use it.

Configuring the Call Waiting Permanent Default Setting

This feature allows you to specify the default call-waiting setting for every call on a permanent basis by means of the service activation and deactivation codes.

Related Parameter

[ConnectMode](#), page 5-28—Bit 23

Configuring the Cisco ATA Refresh Interval

When the value specified in the `CfgInterval` parameter is reached, the Cisco ATA attempts to refresh its configuration file from the TFTP server. Set the `CfgInterval` parameter to an interval value (in seconds) for refreshing the Cisco ATA configuration file. Cisco recommends that the interval be semi-random to prevent many simultaneous contacts with the TFTP server. For more information, see the “[CfgInterval](#)” section on page 5-6.

When the Cisco ATA contacts the TFTP server, it also checks to see if an upgrade signaling image has been placed on the TFTP server. If such an image exists, the Cisco ATA will download this image.

Configuring Hook Flash Timing

This feature provides the ability to adjust the hook-flash timing to meet local requirements.

Related Parameter

[SigTimer](#), page 5-32—Bits 26 and 27 are for configuring the minimum on-hook time required for a hook flash event, and bits 28 through 31 are for configuring maximum on-hook time.

Configuring the Mixing of Call Waiting Tone and Audio

This feature allows the call-waiting tone to be mixed with the audio in an active call. This mixing causes the call-waiting tone to sound without a pause in the audio.

Related Parameter

[ConnectMode](#), page 5-28

Configuring Network Ringback Tone

You can configure the Cisco ATA to send a ringback tone to a caller by using bit 19 of the `ConnectMode` parameter.

Related Configuration Parameter

[ConnectMode](#), page 5-28

Configuring On-hook delay

This feature is available only for the recipient (callee) of a call. If the callee picks up the phone and then later hangs up to retrieve another call, the hang-up is not considered on-hook until the specified delay expires.

Related Parameter

[Polarity, page 5-27](#)—Bits 8 to 12

Configuring Reverse Audio Cut-Through Behavior

You can configure the reverse audio cut-through behavior of the Cisco ATA by using Bit 5 of the `ConnectMode` parameter.

Related Configuration Parameter

[ConnectMode, page 5-28](#)

Configuring Supplementary Service Behavior and Parameters

Service providers can offer many supplementary services, which can be activated, configured, or deactivated in more than one way.

The behavior and activation/deactivation of call supplementary services can be different from one country to another. You can use the `CallCmd` parameter to define the behavior and the activation/deactivation access code for the supplementary services that the Cisco ATA supports.

Related Configuration Parameter

[CallCmd, page 5-46](#)

Debugging Diagnostics

You can use the following parameter to troubleshoot operation issues:

- [NPrintf, page 5-35](#)—Use this parameter to specify the IP address and port where debug information is sent.

Hardware Information Display

Cisco ATA hardware information is displayed in the lower-left corner of the Cisco ATA Web configuration page.

Network Timing

You can fine-tune your network timing with the following parameters:

- [TimeZone, page 5-29](#)—Use for time-stamping incoming calls (offset from Greenwich Mean Time) with local time.
- [NTPIP, page 5-30](#)—Use for configuring the IP address of the Network Time Protocol server. NTP is a protocol built on top of TCP that ensures accurate local time-keeping with reference to radio and atomic clocks located on the Internet.
- [AltNTPIP, page 5-30](#)—Use to configure an alternate NTP server IP address.
- [ConnectMode, page 5-28](#)—Used to control the connection mode of the H.323 protocol.

Polarity Settings

You can control line polarity of the Cisco ATA FXS ports when a call is connected or disconnected by configuring the Polarity bitmap parameter (see the [“Polarity” section on page 5-27](#)).

Progress Tones

Values for the following parameters (all defined in the [“Call-Progress Tone Parameters” section on page 5-41](#)) must be determined based on the country in which the Cisco ATA is located:

- DialTone
- BusyTone
- ReorderTone
- RingBackTone
- CallWaitTone
- AlertTone

Selecting DTMF and Hookflash Transmission Methods

The Cisco ATA is designed to use H.245 messages to relay DTMF and hookflash events. Both the H.245 alphanumeric IE method and the H.245 signal IE method are supported for transporting DTMF events. The H.245 signal IE method has higher precedence if the far end also supports this method.

Use bits 4-5 (**Phone 1** port) and 20-21 (**Phone 2** port) of the AudioMode parameter to configure the DTMF transmission method.

Use bit 6-7 (**Phone 1** port) and 22-23 (**Phone 2** port) of the AudioMode parameter to configure the hookflash transmission method.

Related Configuration Parameter

[AudioMode, page 5-20](#)

Selecting H.323 Connection and H.245 Transmission Methods

You can configure the H.323 connection method and the H.245 transmission method. Use Bit 0 of the `ConnectMode` parameter to select either the slow-start procedure or the fast-start procedure for the H.323 connection. Use Bit 1 of the `ConnectMode` parameter to select either a separate H.245 connection or H.245 tunneling for H.245-message transmission.

Related Configuration Parameter

[ConnectMode](#), page 5-28—Bits 0 and 1

Setting Dial Plans

You can set specific dial plan rules and timeout values. Many of these values are determined on a country-by-country basis.

Related Parameter

[DialPlan](#), page 5-37

Complete Reference Table of all Cisco ATA H.323 Services

[Table 4-4](#) is a reference table that lists all configurable features for the Cisco ATA (using H.323), and includes links to the detailed descriptions of the parameters used for configuring these features.

Table 4-4 Configurable Features and Related Parameters

Configurable Features	Related Parameters
Audio Media Features <ul style="list-style-type: none"> • Low bit-rate codec selection (G.723.1, G.729) • Silence suppression • RTP media port • Preferred audio codec for transmitting and receiving voice data • RTP packet size 	Audio Media Parameters <ul style="list-style-type: none"> • LBRCCodec, page 5-19 • AudioMode, page 5-20 • MediaPort, page 5-19 • TxCodec, page 5-22, RxCodec, page 5-21 • NumTxFrames, page 5-23
Audio cut-through configuration	ConnectMode , page 5-28
Caller ID format	CallerIdMethod , page 5-26
DTMF and hookflash transmission methods	AudioMode , page 5-20
Debug and Diagnosis	NPrintf , page 5-35
Dial plans	DialPlan , page 5-37
Fax Services Features <ul style="list-style-type: none"> • Fax services mode selection • Named Signaling Event (NSE) payload type for fax pass-through 	Fax Services Parameters <ul style="list-style-type: none"> • AudioMode, page 5-20, ConnectMode, page 5-28 • ConnectMode, page 5-28

Table 4-4 Configurable Features and Related Parameters (continued)

Configurable Features	Related Parameters
H.323 connection method and H.245 transmission method	ConnectMode , page 5-28
H.323 endpoint configuration: <ul style="list-style-type: none"> E.164 phone number configuration H.323 gatekeeper configuration Authentication Gateway configuration IP dialing configuration 	H.323 endpoint parameters: <ul style="list-style-type: none"> UID0, page 5-10, UID1, page 5-11 GkOrProxy, page 5-15, GkId, page 5-17, GkTimeToLive, page 5-17, AltGk, page 5-16, AltGkTimeOut, page 5-16, ConnectMode, page 5-28 AutMethod, page 5-14, UseLoginID, page 5-13, LoginID0, page 5-13, LoginID1, page 5-14, UID0, page 5-10, UID1, page 5-11, PWD0, page 5-10, PWD1, page 5-12, NTPIP, page 5-30, AltNTPIP, page 5-30 Gateway, page 5-12, GkOrProxy, page 5-15 IPDialPlan, page 5-36, DialPlan, page 5-37
H.323 mode selection	UseSIP , page 5-18
Hook-flash detection timing configuration	SigTimer , page 5-32
Warmline/hotline support (PLAR feature)	'H' Rule to Support Hotline/Warmline, page 5-40
Network ringback tone feature	ConnectMode , page 5-28
Network-related features: <ul style="list-style-type: none"> Cisco Discovery Protocol (CDP)—on/off DHCP configuration DNS configuration Static IP configuration VLAN configuration 	Network-related Parameters: <ul style="list-style-type: none"> OpFlags, page 5-33 DHCP, page 5-7, OpFlags, page 5-33 DNS1IP, page 5-31, DNS2IP, page 5-31 StaticIp, page 5-8, StaticRoute, page 5-8, StaticNetMask, page 5-9 OpFlags, page 5-33, VLANSetting, page 5-34
Network timing configuration	TimeZone , page 5-29, NTPIP , page 5-30, AltNTPIP , page 5-30

Table 4-4 Configurable Features and Related Parameters (continued)

Configurable Features	Related Parameters
User Interface and TFTP Features: <ul style="list-style-type: none"> • User interface password • TFTP Configuration • TFTP Encryption key • TFTP image upgrade • TFTP configuration file retrieval interval • HTTP refresh/reset access—disable/enable • Web configuration—enable/disable 	User Interface and TFTP Parameters: <ul style="list-style-type: none"> • UIPassword, page 5-3 • UseTFTP, page 5-5, TftpURL, page 5-5, OpFlags, page 5-33 • EncryptKey, page 5-6 • upgradecode (see the “Upgrading the Signaling Image from a TFTP Server” section on page 8-1) • CfgInterval, page 5-6 • OpFlags, page 5-33 • OpFlags, page 5-33
Packet Precedence Features: <ul style="list-style-type: none"> • UDP Type of Service (ToS) configuration • 802.1P Class of Service (Cos) Bit configuration 	Packet Precedence Parameters: <ul style="list-style-type: none"> • UDPTOS, page 5-31 • VLANSSetting, page 5-34
Polarity settings for FXS ports	Polarity , page 5-27
Ring-cadence format	RingOnOffTime , page 5-36
Supplementary services configuration	CallCmd , page 5-46, CallFeatures , page 5-24, PaidFeatures , page 5-25
Tone format: BusyTone , CallWaitTone , ConfirmTone , DialTone , ReorderTone , and RingBackTone parameters	Call-Progress Tone Parameters , page 5-41, SigTimer , page 5-32