



Configuring the Telephony Settings on the VG248

The telephony settings on the VG248 determine the functionality of the analog phones connected to it. However, before configuring these settings, ensure that you have completed the basic network configuration described in [Chapter 2, “Getting Started with the VG248.”](#)

After verifying connectivity to the network, review these sections to customize the telephony settings:

- [Identifying the Cisco CallManager TFTP Server, page 3-2](#)
- [Changing the Cisco CallManager Device Name, page 3-2](#)
- [Assigning Feature Codes, page 3-3](#)
- [Identifying the Country Code for VG248, page 3-5](#)
- [Changing the Hook Flash Timer for Analog Phones, page 3-33](#)
- [Setting the Port Enable Policy, page 3-5](#)
- [Configuring Port Parameters, page 3-7](#)
- [Configuring Fax and Modem Settings, page 3-16](#)
- [Configuring Advanced Settings, page 3-24](#)

Identifying the Cisco CallManager TFTP Server

The VG248 uses the TFTP server to identify the correct Cisco CallManager system. If you are using DHCP, the VG248 attempts to obtain the TFTP server address from the DHCP server. Or, you can select a different TFTP server by modifying this setting. If you are not using DHCP, or if your DHCP server is not configured with a TFTP server address, you should identify the TFTP server using this setting.

Procedure

To assign a TFTP server, perform these steps:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **CallManager TFTP server**.
 - Step 4** Enter the IP address or host name of the TFTP server.

To enter multiple TFTP servers, separate them using a comma (,) or semicolon (;). You can enter a maximum of five (5) TFTP servers.

Changing the Cisco CallManager Device Name

The VG248 uses the Cisco CallManager device name when registering ports with Cisco CallManager. The actual device name used is the value shown for this menu option followed by the port number. By default, this is set to “VGC” followed by 10 digits of the MAC address of the VG248. For example, port one would use VCGxxxxxxxxx01 as its device name, where xxxxxxxxxxxx are the last 10 digits of the MAC address.

You can change the default device name, but you must use the standard format described in the [“Using Auto-Registration” section on page 5-2](#).

Procedure

To change the Cisco CallManager device name, perform these steps:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **CallManager device name**.
 - Step 4** Enter the new device name.
-

Assigning Feature Codes

Many of the telephony features available in standard and feature mode are activated by feature codes, which end users indicate using the dial pad on their telephones.

Procedure

To change these feature codes from their default values, follow these steps:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Feature codes**.
 - Step 4** Choose the code to configure.
 - Step 5** Enter the setting for the code.

The default settings for the feature codes are as follows:

Code	Default Setting	Call Mode
Hang up last call	#1	Feature
Transfer	#2	Feature
Conference	#3	Feature
Drop Last Conference Party	#4	Standard, Feature

Code	Default Setting	Call Mode
Forward all to voice mail¹	**0	Basic, Standard, Feature
Call forward all¹	**1	Basic, Standard, Feature
Cancel call forward	**2	Basic, Standard, Feature
Pickup	**3	Basic, Standard, Feature
Group Pickup	**4	Basic, Standard, Feature
Redial	*#	All
Malicious Call Identification²	***	Standard, Feature
SpeedDial Voicemail	*0	All
SpeedDial 1	*1	All
SpeedDial 2	*2	All
SpeedDial 3	*3	All
SpeedDial 4	*4	All
SpeedDial 5	*5	All
SpeedDial 6	*6	All
SpeedDial 7	*7	All
SpeedDial 8	*8	All
SpeedDial 9	*9	All

1. When forward all is activated, users hear a distinctive dial tone to indicate that all incoming calls are currently being forwarded to a different directory number.
2. When Malicious Call Identification is activated, users are briefly put on hold and may hear music on hold.


Tip

- If you set a feature code to a blank string, users cannot use that feature.
- You cannot disable transfer or conference in standard mode because those features are activated by hanging up or using the hook flash, rather than by feature codes.

- If you have two feature codes assigned to the same setting, one of the features does not work.
 - If one feature code setting masks another, you cannot use the masked setting (such as if transfer is * and conference is **, conference does not work).
-

Identifying the Country Code for VG248

The country code identifies the country in which you are using the VG248. It automatically sets country-specific settings, such as the sound of the tones, the cadence of the rings, impedance, hook, and gain, for example.

Procedure

Follow these steps to set the country code:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Country**.
 - Step 4** Choose the country name in which you are using the VG248.

If your country is not available, select a country that uses similar telephony standards.

Setting the Port Enable Policy

To configure the ports on the VG248 and the features required for the analog devices connected to the ports, you must add them to the Cisco CallManager database.

The port enable policy on the VG248 determines whether the VG248 can enable a port and register the phone in Cisco CallManager.

Before You Begin

The port enable policy interacts with the auto-registration settings in Cisco CallManager. Review the following explanations before choosing a port enable policy:

VG248	Cisco CallManager	Analog Phone Behavior	Tips
auto	auto-registration enabled	<ol style="list-style-type: none"> 1. User picks up the phone to use for first time. 2. VG248 attempts to register in Cisco CallManager 3. Cisco CallManager adds phone to database. 4. User makes call. 	
auto	auto-registration disabled	<ol style="list-style-type: none"> 1. User picks up the phone to use for first time. 2. VG248 attempts to register in Cisco CallManager 3. Cisco CallManager refuses registration. 4. If phone is not registered, user cannot make call. 	If the phone has already been manually added and configured in Cisco CallManager, Cisco CallManager recognizes this, and the phone works.
manual	auto-registration enabled or disabled	<ol style="list-style-type: none"> 1. User picks up the phone to use for first time. 2. VG248 does not attempt to register with Cisco CallManager. 3. User cannot make call. 	You can enable the specific port that is connected to this phone. The VG248 will then attempt to register this port with Cisco CallManager. See the “Enabling a Specific Port” section on page 3-8 for details.

Procedure

To set the port enable policy on the VG248, follow these steps:

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Port enable policy**.
- Step 4** Choose one of these options:
- **auto** (default setting)
 - **manual**
-

Configuring Port Parameters

You must configure the VG248 ports using Cisco CallManager. Each of the ports are entered in the Cisco CallManager database as a “VGC” phone type. See the [“Configuring VG248 Ports Using Cisco CallManager” section on page 5-1](#) for details.

These sections provide details of the parameters that you configure on a per port basis:

- [Enabling a Specific Port, page 3-8](#)
- [Choosing the Call Control Mode, page 3-10](#)
- [Enabling Caller ID, page 3-10](#)
- [Choosing Message Waiting Indicator Type, page 3-11](#)
- [Choosing a Call Supervision Method, page 3-12](#)
- [Setting the Input Gain, page 3-13](#)
- [Setting the Output Gain, page 3-14](#)
- [Changing the Dialing Digit Detection, page 3-15](#)

In addition to these sections, you can also configure many fax options on a per port basis. Refer to these sections for a description of these fax features:

- [Enabling Fax Relay, page 3-16](#)
- [Enabling Error Correction Mode, page 3-18](#)
- [Enabling Fax Relay NSF, page 3-19](#)
- [Configuring Pass-through Mode, page 3-20](#)

**Tip**

Although these procedures describe how to make changes to individual ports, you can configure a range of ports to use the same settings. To do this, choose **Telephony > Port specific parameters**, and then press **R** on the keyboard. Then enter a port range (such as 1-10, or 1, 2,3) and apply changes to all of those ports at once.

Enabling a Specific Port

By enabling a specific port on the VG248, you are allowing it to be registered with Cisco CallManager. When used in conjunction with the port enable policy (see the [“Setting the Port Enable Policy” section on page 3-5](#)), you can determine whether an analog phone can simply be plugged into a port connected to the VG248 and be ready to use.

Before You Begin

Before changing the port enable status for a specific port, review these guidelines to understand how this setting interacts with the port enable policy.

Port Enable Policy	Port Enable Status	Explanation
auto	enabled	You have used this phone and registered this port in Cisco CallManager.
auto	disabled	You have either manually disabled the specific port using the Telephony > Port specific parameters menu, or no one has attempted to use a phone connected to this port. This is the default setting. After someone attempts to use a phone connected to this port, the port enable status will change to enabled.
manual	enabled	You have manually enabled the specific port using the Telephony > Port specific parameters menu. By doing this, you are overriding the manual setting on the port enable policy. When the VG248 starts up, the port will attempt to register with Cisco CallManager.
manual	disabled	The port cannot be enabled by picking up the phone. To use the phone, you must manually change the port from disabled to enabled using the Telephony > Port specific parameters menu.

Procedure

Follow these steps to enable a specific port:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Port specific parameters**.
 - Step 4** Use the arrow keys to select the port to configure and press **Enter**.
 - Step 5** Choose **Status**.
 - Step 6** Choose **enabled** or **disabled**.
-

Choosing the Call Control Mode

The call control mode determines how users interact with their analog phones to access features such as speed dialing, call transfer, conference, call waiting, and so on.

For assistance determining which call control mode best meets your needs, see the [“Understanding Call Control Modes” section on page 1-4](#).

Procedure

Follow these steps to set the call control mode:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Port specific parameters**.
 - Step 4** Use the arrow keys to select the port to configure and press Enter.
 - Step 5** Choose **Call control mode**.
 - Step 6** Choose one of the following:
 - **restricted**
 - **basic**
 - **standard**
 - **feature**
-

Enabling Caller ID

You can enable caller ID on a per-port basis. This allows caller ID information to be passed to some, all, or none of the analog phones connected to the VG248.

Enabling caller ID determines how the VG248 handles any caller ID instructions received from Cisco CallManager. If you are not using caller ID on Cisco CallManager, then the VG248 does not receive any caller information to pass on to the analog ports, regardless how you set the VG248.

**Caution**

The VG248 does not support Caller ID when the country is set to Japan.

Procedure

To enable caller ID for a specific port on the VG248, follow these instructions:

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Port specific parameters**.
- Step 4** Use the arrow keys to select the port to configure and press **Enter**.
- Step 5** Choose **Caller ID**.
- Step 6** Choose from the following options:
- **enabled**
 - **not with call waiting**—Caller ID displays only if the phone is on-hook.
 - **disabled**.
-

Choosing Message Waiting Indicator Type

The VG248 supports several types of methods for sending MWI messages to analog phones. Because you might have different types of analog phones connected to the VG248, you can modify the MWI type on a per-port basis. So, if you have some analog phones that have MWI lamps on them, you can notify users of awaiting messages using the lamp. Or, you can choose to play a tone when users pick up their phones.

Keep in mind that the VG248 only sends this information to the phones if it is received from Cisco CallManager. If Cisco CallManager is not integrated with your voice mail system, it does not send this information to the VG248.

Procedure

To choose the MWI type, follow these steps:

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Port specific parameters**.
- Step 4** Use the arrow keys to select the port to configure and press Enter.
- Step 5** Choose **MWI type**.
- Step 6** Choose from the following options:
- **lamp**—illuminates lamp on phone
 - **caller ID**—uses caller ID mechanism to send MWI messages to the LCD screen on phone
 - **stutter**—plays tones when user picks up the phone
 - **lamp + stutter**—illuminates lamp and plays tone
 - **caller ID + stutter**—sends message to LCD screen and plays tone
 - **none**—does not send MWI information
-

Choosing a Call Supervision Method

You can choose between several different call supervision methods:

- **None**—no call supervision
- **Drop loop current**—indicates to an analog device that the remote caller has hung up. For example, if a user calls someone with an answering machine, leaves a message, and hangs up, disconnect supervision is the electrical state that briefly drops the loop current and indicates to the answering machine that the caller has hung up.
- **Reverse polarity**—useful for billing systems. When a call connects, polarity reverses, indicating that charges begin to accrue. When the call goes down, polarity reverses back to normal and charges stop.

Procedure

Follow these steps to choose a call supervision method on a per port basis:

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Port specific parameters**.
- Step 4** Use the arrow keys to select the port to configure and press Enter.
- Step 5** Choose **Call supervision method**.
- Step 6** Choose one of the following options:
- **none**
 - **drop loop current**
 - **reverse polarity**
-

Setting the Input Gain

The input gain specifies, in decibels, the amount of gain from the analog phone to the VG248.

The country option you set on the VG248 determines the default input gain. However, you might need to modify it to account for different cable lengths, to make the signal louder or quieter, or to use a phone from a different country.

Procedure

Follow these steps to modify the input gain. The default setting is based on the country code you set (see the [“Identifying the Country Code for VG248” section on page 3-5](#)).

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Port specific parameters**.
- Step 4** Use the arrow keys to select the port to configure and press **Enter**.

Step 5 Choose **Input gain**.

Step 6 Choose from the available options (ranging from -6dB through + 14db).

Keep in mind that the value you are choosing is a delta value and does not reflect the actual gain value. For example, if the base value is -3dB, you might choose +1dB as the delta value. Therefore, the actual gain value for that port is -2dB overall.

Setting the Output Gain

The output gain specifies, in decibels, the amount of gain from the VG248 to the analog phone.

The country option you set on the VG248 determines the default output gain. However, you might need to modify it to account for different cable lengths (longer cables might require more gain), to make the signal quieter, or to use a phone from a different country.

Procedure

Follow these steps to modify the input gain. The default setting is based on the country code you set (see the [“Identifying the Country Code for VG248” section on page 3-5](#)).

Step 1 From the main menu, choose **Configure**.

Step 2 Choose **Telephony**.

Step 3 Choose **Port specific parameters**.

Step 4 Use the arrow keys to select the port to configure and press **Enter**.

Step 5 Choose **Output gain**.

Step 6 Choose from the available options (ranging from -14dB through 0db)

Keep in mind that the value you are choosing is a delta value and does not reflect the actual gain value. For example, if the base value is -3dB, you might choose +1dB as the delta value. Therefore, the actual gain value for that port is -2dB overall.

Changing the Dialing Digit Detection

The VG248 detects DTMF tones when users press the keys on their telephones. However, if the VG248 is having difficulty detecting the DTMF tones on some phones, you can change the dialing digit detection setting.

Changing this setting enables the VG248 to recognize the DTMF tones when users press the keys to make a new call. However, once the call connects, the VG248 might fail to recognize the DTMF tones again if users need to navigate through DTMF-driven menus.

You should only change this setting if you are working with a Cisco technical representative.

Procedure

Follow these steps to change this setting:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Port specific parameters**.
 - Step 4** Use the arrow keys to select the port to configure and press Enter.
 - Step 5** Choose **Dialing digit detection**.
 - Step 6** Choose one of the following options:
 - **default: use DSP**
 - **alternate: use SLIC**
-

Configuring Fax and Modem Settings

The VG248 enables you to integrate analog fax machines and modems with Cisco CallManager. These sections provide details of recommended settings to help achieve the most reliable and compatible configuration:

- [Enabling Fax Relay, page 3-16](#)
- [Enabling Error Correction Mode, page 3-18](#)
- [Enabling Fax Relay NSF, page 3-19](#)
- [Configuring Pass-through Mode, page 3-20](#)
- [Configuring Pass-through Signaling, page 3-21](#)
- [Changing the Cisco Fax Relay Payload Size, page 3-22](#)
- [Setting Maximum Speed of Fax Relay, page 3-23](#)
- [Modifying the Fax Relay Playout Delay, page 3-23](#)

Enabling Fax Relay

When making fax calls through a VG248, the VG248 uses fax pass-through, Cisco fax relay, or T.38 fax relay to transport the document information. Fax pass-through sends the signals in an audio form similar to that used for a normal voice call. Cisco fax relay and T.38 fax relay encode the information in a different format which is converted back to analog fax signals by the other party in the call.

Fax relay is more robust than fax pass-through and should normally be enabled:

- Use Cisco fax relay if the terminating gateway also supports Cisco fax relay.
- Use T.38 fax relay if the terminating gateway does not support Cisco fax relay but does support T.38 fax relay and NSEs for fax signaling. Examples of such gateways are the Cisco AS5350 Universal Gateway, the Cisco AS5400 Universal Gateway, and the Cisco AS5850 Universal Gateway.

Some types of modems sometimes appear to the VG248 to be sending fax signals. In these cases, fax relay should not be initiated. If you experience these modem problems, disable fax relay on the affected ports on the VG248.

If fax relay is enabled on the VG248 and the far-end gateway only supports fax pass-through, the VG248 can negotiate fax pass-through. However, if the VG248 is configured with fax relay disabled, then the VG248 cannot negotiate fax relay even if the far-end gateway can perform fax relay too.

You can enable fax relay on a per port basis instead. This enables you to configure individual ports for Cisco fax relay, T.38 fax relay or fax pass-through to ensure best performance depending on the types of fax machines attached.

Cisco fax relay is enabled by default on all ports:

- To disable Cisco fax relay and use fax pass-through instead, see the [“Enabling Fax Pass-Through”](#) section on page 3-17.
- To disable Cisco fax relay and use T.38 fax relay instead, see the [“Enabling T.38 Fax Relay”](#) section on page 3-18.

Enabling Fax Pass-Through

To disable fax relay and use fax pass-through instead, perform the following procedure.

Procedure

Follow these steps to change the fax relay settings:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Port specific parameters**.
 - Step 4** Use the arrow keys to select the port to configure and press **Enter**.
 - Step 5** Choose **Fax relay**.
 - Step 6** Choose **disabled** to disable Cisco and T.38 fax relay.
-

Enabling T.38 Fax Relay

To use T.38 fax relay on the VG248, follow the steps in the procedure below. In addition, use the following commands on gateway dial peers that have already been defined and configured for voice calls.

- For an IOS gateway using H.323, the command is: **fax protocol t38 nse force**.
- For a gateway using MGCP, the command is: **mgcp fax t38 gateway force**.

VG248 does not support redundancy with T.38 fax relay. Be sure that the ls-redundancy option and the hs-redundancy option are both set to 0, the default.

To disable Cisco fax relay and use T.38 Fax Relay instead, follow these steps:

Procedure

Follow these steps to enable T.38 fax relay settings:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Port specific parameters**.
 - Step 4** Use the arrow keys to select the port to configure and press **Enter**.
 - Step 5** Choose **Fax relay**.
 - Step 6** Choose **T.38 peer to peer** to enable T.38 fax relay.
-

Enabling Error Correction Mode

Error Correction Mode (ECM) is intended to eliminate errors in the fax transmission. By default, ECM is enabled on the VG248. With ECM enabled, if packets drop, the receiving fax machine generates retransmission requests. If the packet drop is excessive, the call duration increases, and the call might be dropped.

For fax relay calls, you can disable ECM on the gateway itself rather than disabling it on multiple fax machines. However, if packet drops occur, the fax image quality might deteriorate. Therefore, you should disable ECM only after

considering whether you want to risk compromising image quality rather than experiencing longer call durations or dropped calls. You should also monitor and evaluate the network to identify and resolve the cause of the dropped packets.

If the fax call uses fax pass-through, ECM will not be disabled regardless how the ECM option is configured on the VG248.

Procedure

Follow these steps to modify the ECM settings:

-
- Step 1** Choose **Telephony**.
 - Step 2** Choose **Port specific parameters**.
 - Step 3** Use the arrow keys to select the port to configure and press **Enter**.
 - Step 4** Choose **Fax relay ECM**.
 - Step 5** Choose **disabled** to disable ECM.
-

Enabling Fax Relay NSF

Non-standard facilities (NSF) enables fax manufacturers to implement proprietary extensions to the fax protocol if the fax machines detect that they are talking to another machine from the same company.

You can choose one of these options:

- **Preserve value**—Retains the proprietary NSF information
- **Override with zeros**—Replaces the NSF data containing the manufacturer's ID with zeros to eliminate possible conflicts with Cisco fax relay.

Procedure

Follow these steps to modify the fax relay NSF settings:

-
- Step 1** Choose **Telephony**.
 - Step 2** Choose **Port specific parameters**.
 - Step 3** Use the arrow keys to select the port to configure and press **Enter**.

- Step 4** Choose **Fax relay NSF**.
- Step 5** Choose one of the following options:
- **preserve value**—default setting
 - **override with 000000**
-

Configuring Pass-through Mode

Typically, you should not modify these options unless you are experiencing specific difficulties with fax machines or modems connected to the VG248. You should work with a Cisco technical representative to resolve these more complex issues.

Procedure

Follow these steps to configure pass-through mode:

- Step 1** Choose **Telephony**.
- Step 2** Choose **Port specific parameters**.
- Step 3** Use the arrow keys to select the port to configure and press **Enter**.
- Step 4** Choose **Passthrough mode**.
- Step 5** Choose one of the following options:
- **default:automatic**—do not modify unless instructed to do so
 - **voice only: no passthrough**
 - **passthrough only: ECAN disabled**
 - **passthrough only: ECAN enabled**
-

Configuring Pass-through Signaling

The VG248 negotiates Cisco fax relay, T.38 fax relay, and fax and modem pass-through with far-end gateways by sending special RTP packets to identify the call type (fax, modem, voice) and method (Cisco fax relay, T.38 fax relay, fax pass-through or modem pass-through). The VG248 supports two different pass-through signaling methods for negotiating fax, modem, and voice:

- Legacy—Used for older versions of the VG248, WS-X6634-FXS, and WS-X6608-T1 or E1 gateways.

To determine if these devices are using legacy mode:

- For VG248, if this menu option is not present in the software interface, then it only supports legacy pass-through signalling.
- For the S-X6624-FXS, and WS-X6608-T1 or E1 gateways, check the entries for these devices in Cisco CallManager. If the NSE type field is not present in the gateway parameters, the device only supports legacy pass-through signalling.
- IOS mode—Used if the far-end gateway meets any of these conditions:
 - Runs Cisco IOS
 - Is an ATA-186/188
 - WS-X6624-FXS and WS-X6608-T1 or E1 gateways that have NSE type in Cisco CallManager
 - VG248 gateway with the pass-through signaling option.

Before You Begin

You should only modify this setting if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to configure pass-through signaling:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.

- Step 4** Choose **Passthrough signaling**.
- Step 5** Choose one of the following options:
- **legacy**
 - **IOS mode**
-

Changing the Cisco Fax Relay Payload Size

By default, if a Cisco fax relay call takes place, the encoded fax information is transported in 20 byte payloads. However, if the remote fax relay device is configured to use a different payload size, calls can fail because of the mismatched data rates. You can change this setting on the VG248, but you should also verify that all participating Cisco fax relay devices in the network have this parameter set to the same value.

Before You Begin

You should only modify this setting if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these instructions to change the Cisco fax relay payload size

- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Advanced settings**.
- Step 4** Choose **Fax relay payload size**.
- Step 5** Enter a new value from 20 to 48 bytes.
-

Setting Maximum Speed of Fax Relay

The default speed for both the Cisco fax relay and the T.38 fax relay is 14400 bps.

You should not need to change this unless you are concerned about bandwidth limitations. In those situations, you can change the speed from 2400 bps to 14400 bps. Or, you can choose voice bandwidth which limits the speed to whatever the voice codec was using before.

Procedure

Follow these steps to set the maximum speed of fax relay:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.
 - Step 4** Choose **Fax relay maximum speed**.
 - Step 5** Choose one of the available options:
 - **voice bandwidth**
 - **2400 bps**
 - **4800 bps**
 - **7200 bps**
 - **9600 bps**
 - **12000 bps**
 - **14400 bps**
-

Modifying the Fax Relay Playout Delay

The fax relay playout delay determines the time duration of the jitter buffer. By default this is 300ms, which is adequate for most networks with an average amount of jitter.

For an explanation of the jitter issues in IP telephony networks, refer to the document, *Playout Delay Enhancements for Voice over IP*, available at the following location on Cisco.com:

http://www.cisco.com/en/US/products/sw/iosswrel/ps1834/products_feature_guide09186a008008033c.html

Before You Begin

You should only modify this setting if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to modify the fax relay playout delay:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.
 - Step 4** Choose **Fax relay playout delay**.
 - Step 5** Enter a new time duration.
-

Configuring Advanced Settings

The VG248 has several settings that typically do not require any changes. You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

In addition to these sections, several of the fax settings (see “[Configuring Fax and Modem Settings](#)” section on page 3-16) are also considered to be advanced settings.

These sections provide information about the advanced settings:

- [Reverting to Previous Configuration](#), page 3-25
- [Using SRST](#), page 3-26
- [Preserving Calls](#), page 3-28

- [Setting Media Receive Timeout, page 3-29](#)
- [Enabling Busy Tones on Off-Hook Ports, page 3-30](#)
- [Modifying the DTMF Tone Duration, page 3-31](#)
- [Choosing an Echo Cancelling Policy, page 3-32](#)
- [Changing the Hook Flash Timer for Analog Phones, page 3-33](#)
- [Changing the Hook Flash Reject Period, page 3-34](#)
- [Enabling the Distinctive Ring Feature, page 3-34](#)

Reverting to Previous Configuration

By default, the VG48 ports identify their configuration using TFTP. This configuration determines the Cisco CallManager system to which these ports connect.

If persistent TFTP problems prevent the VG248 from retrieving this configuration, the VG248 ports can revert to their previous configuration. This enables the ports to connect to the Cisco CallManager system with which they were previously registered.

By default, the VG248 automatically reverts to the previous configuration if the ports fail to connect via TFTP.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

To disable this functionality, follow these steps:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.

Step 4 Choose **Allow last good configuration**.

Step 5 Choose one of the following:

- **enabled**
 - **disabled**
-

Using SRST

The Survivable Remote Site Telephony (SRST) feature provides the Cisco CallManager with fallback support for the VG248. SRST enables a router or other nominated device to provide call handling support for the Cisco IP Phones when the Cisco IP Phones lose connection to the Cisco CallManager. Survivable Remote Site Telephony (SRST) indicates that there is an SRST device capable of providing Cisco CallManager functionality with a limited feature set. If all other Cisco CallManager servers are unreachable, this device assumes control of call processing.

Allowing Use of SRST

By default, the VG248 allows use of SRST on the default router. However, you can disable SRST or specify a different SRST provider. If you choose an alternative provider, you must also follow the steps in the [“Choosing an SRST Provider” section on page 3-27](#).

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to change the SRST setting:

Step 1 From the main menu, choose **Configure**.

Step 2 Choose **Telephony**.

Step 3 Choose **Advanced settings**.

- Step 4** Choose **SRST policy**.
- Step 5** Choose one of the following:
- **disabled**
 - **enabled: use default router**
 - **enabled: use specified provider**
-

Choosing an SRST Provider

If you do not want to use the default router as the SRST device, you must specify an alternative. By default, the VG248 connects to TCP port 2000 on the SRST device, but you can specify a different port.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to choose an SRST provider:

- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Advanced settings**.
- Step 4** Choose **SRST provider**.
- Step 5** Enter the IP address or host name of the device to use as an SRST provider.

To specify an alternative port, append the port number to the IP address or host name using a colon. This example indicates that the host name is *SRSTrouter* and the VG248 should connect to port *9999*: `SRSTrouter:9999`

Preserving Calls

Call preservation allows the VG248 to continue active calls if the connectivity to Cisco CallManager to which the VG248 is registered is lost. If connectivity is lost, each VG248 port with an active call enters call preservation mode. In this mode, the VG248 continues to send and receive media with the other party in the call. When the active call ends (phone returns on-hook), the call is terminated, call preservation mode ceases, and the VG248 registers with another Cisco CallManager or SRST device.

Under certain circumstances you might not want to activate call preservation. For example, when interacting with the voice mail system, if the VG248 does not receive indication from Cisco CallManager that an incoming call has been terminated, the voice mail system might not go on-hook, resulting in the port becoming permanently unavailable.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to configure call preservation:

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Advanced settings**.
- Step 4** Choose **Call preservation**.
- Step 5** Choose one of the following:
- **disabled**
 - **enabled: no timeout**
 - **enabled: 2 minute timeout**
-

Setting Media Receive Timeout

If the connection between the VG248 and Cisco CallManager is lost and the VG248 is on a call, the VG248 maintains the call using call preservation (see “Preserving Calls” section on page 3-28 for details).

However, if the remote party of the call, such as a Cisco IP phone on a different Cisco CallManager cluster, fails or loses its connection to Cisco CallManager, the VG248 cannot identify this failure or return the port to an on-hook state. The result is that the particular voice mail port or analog device might perpetually appear to be busy.

To resolve this, you can modify the media receive timeout. By default, the media receive timeout is set to disabled. When enabled, this feature causes the VG248 to disconnect the call if no media packets have been received during the specified interval.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to change the media receive timeout setting:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.
 - Step 4** Choose **Media receive timeout**.
 - Step 5** Choose one of the following:
 - **enabled: 2 minutes**
 - **disabled**
-

Enabling Busy Tones on Off-Hook Ports

From the perspective of Cisco CallManager, the state of an analog device connected to the VG248 might not necessarily correspond to its physical hook state. For example, if the user is on a call and the remote user hangs up, that port becomes idle, and new calls can be placed to it. However, from the user's perspective, the actual analog phone might still be off-hook, and they might expect callers to hear a busy tone when dialing the extension number. In fact, in all call control modes (except restricted), the following occur:

1. Callers to the off-hook extension hear a ring-back tone
2. The VG248 sends the call-waiting tone to the analog phone
3. The user can answer the call using hook-flash.

If you do not want this to happen, you can configure the VG248 to keep off-hook ports busy so remote callers will hear a busy tone until the handset physically goes on-hook.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to enable this feature:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.
 - Step 4** Choose **Busy out off hook ports**.
 - Step 5** Choose one of the following:
 - **disabled**
 - **enabled**
-

Modifying the DTMF Tone Duration

During a call, if the remote party presses a number on the telephone keypad, Cisco CallManager instructs the VG248 to play a DTMF tone to the attached analog device. However, this analog device could be a voice mail or other IVR system on which such tones are used to navigate an automatic, interactive system.

By default, the VG248 plays these DTMF tones for 100ms duration, with 100ms gaps between the tones. Thus, each tone requires a total of 200ms to complete. However, you can modify the length of the audio tone if the attached system is experiencing difficulties.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to modify the DTMF tone duration:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.
 - Step 4** Choose **DTMF tone duration**.
 - Step 5** Choose one of the following:
 - **100ms**
 - **150ms**
 - **200ms**
 - **250ms**
-

Choosing an Echo Cancelling Policy

You can select an alternative method for cancelling echo that might be present in the system. For an explanation of the echo issues in IP telephony networks, refer to the document, *Echo Analysis for Voice over IP*, available at the following location on Cisco.com:

http://www.cisco.com/univercd/cc/td/doc/cisintwk/intsolns/voipsol/ea_isd.htm

You should only change this setting if you experience certain specific echo issues in your network and you are instructed to do so by a Cisco technical representative. The VG248 has two options for line echo cancellations, one provided by the line interface devices (SLIC) and one by the main digital signal processor (DSP).

The SLIC provides line echo cancellation (LEC) for echoes up to 8 ms in length which is normally perfectly acceptable for cancelling line echo, particularly since the VG248 has a maximum supported line length from port to phone. The LEC in the SLIC can cancel electrically simple echoes. However, the nature of the impedance-matching problem is such that some phones may reflect the signal, but distort it in a non-linear manner that cannot be completely cancelled by the standard LEC. To counter this, the LEC stage of the SLIC is followed by a Non-Linear Processor (NLP) that is suited to cancelling any non-linear echo that remains after the LEC.

The DSP provides LEC for echoes up to 32 ms in length. However, with this option there is no non-linear processing state.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

Follow these steps to choose the echo cancelling policy:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.

Step 4 Choose **Echo cancelling policy**.

Step 5 Choose one of the following:

- **default: use SLIC**
 - **alternate: use DSP**
-

Changing the Hook Flash Timer for Analog Phones

The hook flash timer is the length of time before the hook flash indicates a time-out (or call disconnect). The hook flash timer setting is based on the country of origin of the analog phones. This is normally set to the default value for the country code selected, but you can modify this setting.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

To change the hook flash timer, follow these steps:

Step 1 From the main menu, choose **Configure**.

Step 2 Choose **Telephony**.

Step 3 Choose **Advanced settings**.

Step 4 Choose **Hook flash timer**.

Step 5 Choose the appropriate hook flash timer value (ranging from 100-1500ms).

Changing the Hook Flash Reject Period

This option allows hook-flashes to be ignored for a short period after an off-hook event. Unless you are experiencing difficulties with the VG248 not distinguishing between on-hook, off-hook, and flash signalling, you should not need to change this setting.

Before You Begin

You should only modify these settings if you are experiencing complex technical issues and are instructed to make changes by a Cisco technical representative.

Procedure

To change this setting, follow these steps:

-
- Step 1** From the main menu, choose **Configure**.
 - Step 2** Choose **Telephony**.
 - Step 3** Choose **Advanced settings**.
 - Step 4** Choose **Hook flash reject period**.
 - Step 5** Choose one of the following options:
 - **None**
 - **200 ms**
 - **500 ms**
 - **1000 ms**
 - **2000 ms**
-

Enabling the Distinctive Ring Feature

The Distinctive Ring feature enables the VG248 to use different cadences for internal or external calls. You can leave the feature set to the default to keep the call cadence of previous releases. Or you can set either internal or external calls to have a distinctive ring.

Procedure

To enable the Distinctive Ring feature, follow these steps:

-
- Step 1** From the main menu, choose **Configure**.
- Step 2** Choose **Telephony**.
- Step 3** Choose **Advanced settings**.
- Step 4** Choose **Distinctive Ring**.
- Step 5** Choose one of the following options:
- **no call distinction (default)**
 - **internal calls are distinct**
 - **external calls are distinct**
-

