# Fax Configuration on a Cisco WS−X6624 with an H.323 Gateway

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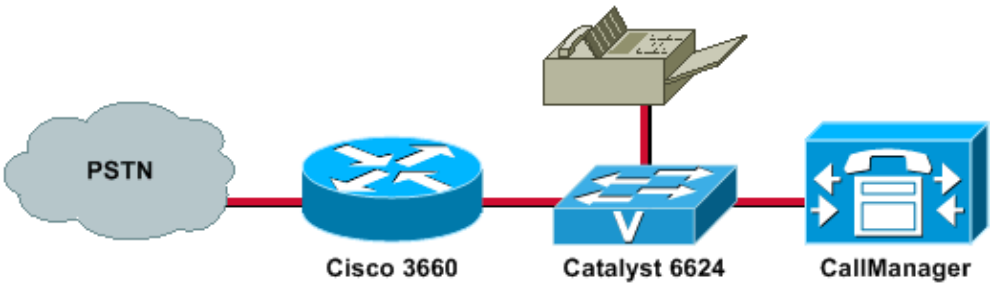
## Introduction

This document presents available options for the proper operation of faxes in this topology:




In that topology, problems might arise due to a mismatch between the two fax modes that the gateways are running. For the fax to be successful, the two gateways must negotiate the same fax mode. By default, a Cisco router and gateway use Cisco fax−relay negotiation (except the 5350 and 5400, on which Cisco fax relay is not supported). However, as of the 3.010 load for WS−X6624 (A002A3A0), the default fax mode is fax pass−through. This document shows how to modify the settings on both devices to get them synchronized.

With Cisco IOS® Software Release 12.2(11)T1, load 47 on a 6608 or load 41 on a 6624, and with Cisco IOS Software Release 1.2(1) on a VG248 voice, Cisco fax relay, and modem pass−through should inter−operate. Prior to those releases, only voice and Cisco fax relay are supported between IOS and non−IOS voice platforms, due to incompatibility.

## Prerequisites

### Requirements

Readers of this document should be aware that there are several techniques to pass fax calls across a Packet

Telephony network on Cisco IOS gateways. These techniques include:

- Cisco proprietary Fax Relay
- T.38 Fax Relay
- Fax Pass−Through
- Fax Upspeed
- T.37 Fax Store and Forward

## Components Used

The information in this document is based on these software and hardware versions:

- Cisco CallManager versions 3.x and 4.x
- 24−port FXS blade

  **Note:** The Catalyst 6000 24−Port FXS Analog Module is now in End−of−Life (EOL) stage. Customers that need FXS analog interfaces should now use the Cisco Communication Media Module (CMM). Refer to End−of−Sale and End−of−Life for Cisco Catalyst 6000 24−Port FXS Analog Module.
- Refer to the Fax Support Matrix section of Cisco AVVID Gateway Support for Fax Relay and Fax Pass−Through for further information about gateways.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

# Definitions

Fax Relay Cisco fax relay does not involve Cisco CallManager; it is a gateway−controlled fax mode. Most faxes are processed in the digital signal processors (DSPs) and require only packet switching from the main processor (CPU) and some limited signaling, to switch to fax mode. In fax relay mode, the gateways terminate the T.30 fax signaling.

Fax Pass−Through Although fax calls are not distinguished from voice calls that use fax pass−through, some functions are disabled, such as compression, echo cancellation, high−pass filter, and voice activity detection (VAD). Because the fax is handled like a voice call, the gateway uses the G.711 codec for fax pass−through transmission. All Cisco voice gateways support fax pass−through.

# To Configure the FXS Port for Fax Relay

Use this procedure to configure the Foreign Exchange Station (FXS) port for fax relay:

1. Open the Cisco CallManager Administration panel.

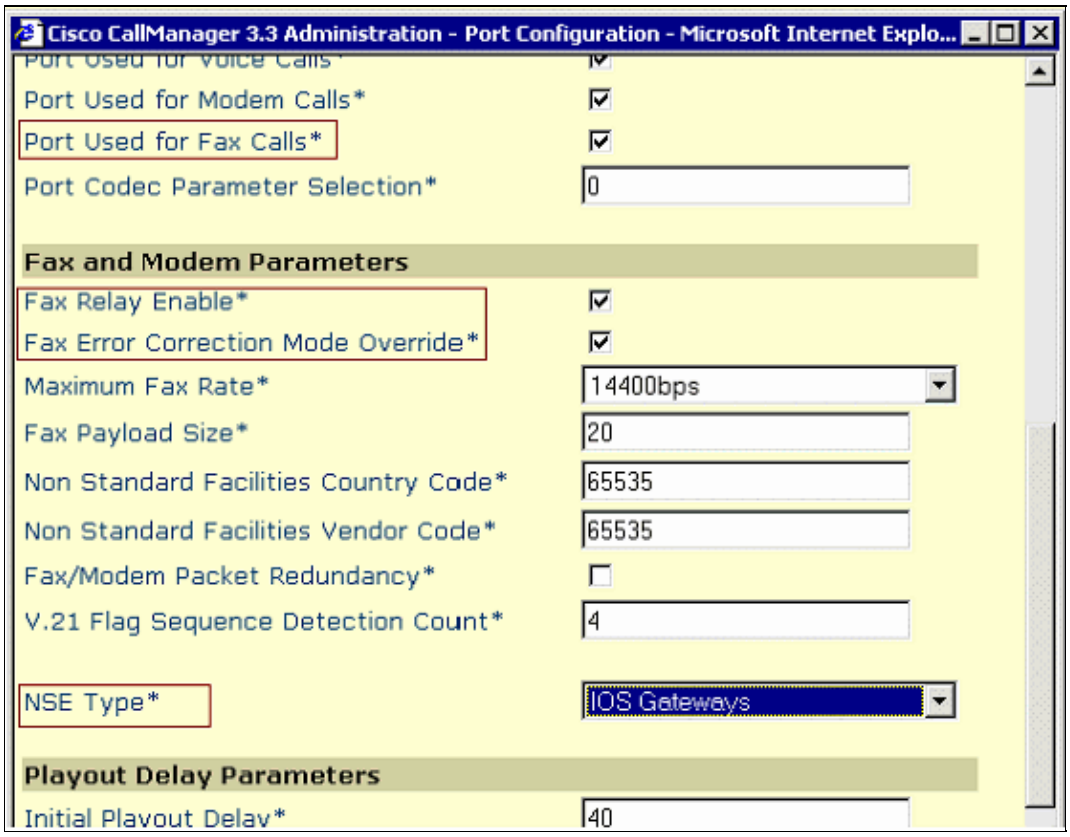
2. Click the 24−port FXS blade configured on your Cisco CallManager.

3. Click the **POTS** icon next to the port, to select the port that is in use (the port to which your fax has been connected).

   The Product Specific Configuration section appears.

   a. Verify that **Port Used for Fax Calls** is checked.
   b. For Cisco fax relay, check **Fax Relay Enable** in the Fax and Modem Parameters area.
   c. For modem pass−through, set the NSE Type field to **IOS Gateway** mode in the Fax and

Modem Parameters area.




**Note:** This configuration supports voice, Cisco fax relay, and modem pass−through between a VG248, 6608, or 6624 and Cisco IOS gateways (with the exception of the AS5350 and AS5400, which do not support Cisco fax relay).

# Router Configuration

On the router used for the fax detection application, ensure that you have installed at least the minimum version of Cisco IOS software that is listed in Platform Support for Fax Services.

## To Configure the H.323 Gateway for Cisco Fax Relay

To configure fax relay when the default G.729 codec is used, the **fax−rate** command must be set for 9600 or 14400 baud. When G.711 is used, this command is not required.

```
dial-peer voice 1 voip
 destination-pattern 2000
 session target ipv4:10.200.72.37
 fax protocol cisco              (default)
 fax-relay ecm disable           (optional)
 fax nsf <000000>                (optional)
 fax-rate <1440> bytes <20>      (optional)
```

## To Configure the H.323 Gateway for Fax Pass−Through

To configure fax pass−through, you must configure the matching Voice over IP (VoIP) dial peer:

```
dial-peer voice 1 voip
 destination-pattern 2000
 session target ipv4:10.200.72.37
 modem passthrough nse payload-type 100 codec G711ulow
```

```
fax rate disable
```

### To Configure the MGCP Gateway for Cisco Fax Relay

Issue these commands in global configuration mode, to set and configure Cisco fax relay:

```
ccm-manager fax protocol cisco          (default)

mgcp fax t38 inhibit
```

### To Configure the MGCP Gateway for Fax Pass−Through

Issue these commands in global configuration mode, to set Cisco fax relay and to configure fax pass−through:

```
no ccm-manager fax protocol cisco

mgcp modem passthrough voip mode nse

mgcp modem passthrough voip codec g711ulaw
```

## Troubleshooting

Use this procedure to troubleshoot your configuration:

1. Verify that you can make normal voice calls to the FXS port where the fax is connected.

   This is an important step, because it ensures that the signaling works properly.
2. For Cisco CallManager versions earlier than 3.0.11, verify that the load on the 6624 is A002A3A0.
3. On the H.323 gateway, run Cisco IOS Software Release 12.1(3)T or later for Cisco fax relay, and run Cisco IOS Software Release 12.2(11)T or later for fax pass−through.
4. If you are running in Cisco fax relay mode and you are in the fax disconnect after it, add the **fax−relay ecm disable** command to start transmission.
5. Configure your fax machine to pick up the call after the first ring.
6. Every effort should be made to minimize these types of problems:

   - ♦ Loss Fax and modem traffic require an essentially lossless transport.
   - ♦ Delay
   - ♦ Delay Variation (Jitter)

   Refer to the Solution Reference Network Designs and to the Configuration Considerations section of the Fax Relay Troubleshooting Guide for more information.
7. Disable Call Waiting on all dedicated fax ports.

## Related Information

- **Configuring Fax Pass−Through**
- **Cisco AVVID Gateway Support for Fax Relay and Fax Pass−Through**
- **Voice Technology Support**
- **Voice and IP Communications Product Support**
- **Troubleshooting Cisco IP Telephony**
- **Technical Support & Documentation − Cisco Systems**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