



## Voice Mail Connectivity to the Cisco CallManager

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As the size or number of clusters in an enterprise increases, the likelihood that an administrator needs to deploy multiple voice messaging systems also increases.

The Cisco CallManager supports the increasing number of voice messaging systems and provides configuration of message waiting indicators for users sharing line appearances.

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# Voice Mail System Access

For directly-connected voice messaging systems, Cisco CallManager supports the provisioning of voice messaging ports, to which Cisco CallManager Administration assigns directory numbers. Administrators typically forward one voice messaging port directly to another voice messaging port, so that if multiple users attempt to access a voice messaging system at the same time, all of them can find an available port from which to access the voice messaging system.

No matter which voice messaging port is actually used to place the call, when users attempt to access their voice messages, however, they dial the directory number associated with the first voice messaging port in the forwarding chain. This directory number is called a voice messaging pilot number.

For gateway-based voice messaging systems, Cisco CallManager supports the provisioning of route lists. When a user calls the route list number, it, in turn, offers incoming calls to each port of the voice messaging system using their search algorithm. For gateway-based voice messaging systems, the voice messaging pilot number is that of the route list itself.

Calls to directory numbers associated with voice messaging systems cause the called voice messaging systems to handle the call. When calls are made directly to voice messaging systems, they usually prompt the user for mailbox and password information for message retrieval. Users may reach a voice messaging system either by specifically entering the voice messaging pilot number, if known, or by pressing the messages button on a Cisco 7900 series IP Phone. When a user presses the messages button, a call is established from the user to the voice messaging pilot number that the administrator has configured against the line, or each line of a device, that is currently in use on the Cisco IP Phone. When the active line has no voice messaging pilot number configured, Cisco CallManager directs voice mail calls to a default voice messaging pilot number configured as a service parameter in Cisco CallManager Administration.

## Voice Mail Pilot Numbers

The Voice Mail Pilot Number is the directory number you dial to access your voice messages. Cisco CallManager automatically dials the voice messaging number when you press the Messages button on your phone. Each pilot number can belong to a different voice mail messaging system.

The voice messaging number is defined in the Voice Mail Pilot Configuration window of the Cisco CallManager Administration.

There is a default Voice Mail Pilot Number in the Cisco CallManager. You may create a new default, which replaces the current default setting.

Refer to the “[Cisco Voice Pilot Configuration](#)” of the *Cisco CallManager Administration Guide*.

## Voice Mail Profiles

Voice Mail Profiles allows you to define any line-related voice mail information associated to a directory number, not a device. The Voice Mail Profile contains the following information:

- Voice Mail Profile Name
- Description
- Default (checked if this particular profile is the default profile)
- Voice Mail Pilot Number
- Voice Message Box Mask

Different lines on a device can have different Voice Mail Profiles. For example, an administrative assistant phone can have a second line for the manager, which routes to the manager’s voice messaging system. The administrative assistant’s line routes to their own voice messaging system.

A predefined Default Voice Mail Profile automatically gets assigned to lines when the administrator adds a line. When you search for Voice Mail Profiles, “default” appears beside the profile name within the list.

A voice mail profile takes precedence over other settings when routing calls to a voice messaging system.

Refer to “[Voice Mail Profile Configuration](#)” in the *Cisco CallManager Administration Guide*.

# Call Forwarding in a Multiple Voice Messaging System Environment

Voice messaging systems supports maximum number of users just as Cisco CallManager supports a maximum number of users.

To ensure that calls are forwarded to the voice mail system associated with the user for who a voice message is intended, the Call Forward feature is modified when calls are forwarded to voice mail systems.

Cisco CallManager supports multiple voice message pilot numbers (profiles). Each of the pilot number can belong to a different voice mail system. The voice message pilot profile is configured on a line-by-line basis. Cisco CallManager forwards a voice mail call to the voice mail system of the original redirect endpoint (directory number) if it has the voice message pilot profile. There is one limitation for inter-cluster call forwarding.

For call that is forward across a cluster and then forward to voice mail, Cisco CallManager forwards a call to the voice mail system of the last redirect endpoint in the other cluster. The reason is that Cisco CallManager does not have the voice message pilot profile of the original endpoint in the other cluster.

The Directory Number Configuration window of the Cisco CallManager Administration contains Call Forward and Pickup Settings. By selecting the Voice Mail check box, Cisco CallManager can Forward All, Forward Busy, or Forward No Answer to all devices for the selected voice mail profile.

## Examples

### **Intra-cluster call forwarding chains where the final forwarding phone has used the Forward To Voice Mail option**

A call forwards-all from a phone served by one voice messaging pilot to a phone served by another voice messaging pilot. The second phone forwards to voice mail. Cisco CallManager shall deliver the call to the voice messaging pilot number associated with the first phone.

**Intra-cluster call forwarding chains where the final forwarding phone has not used the Forward To Voice Mail option**

A call forwards-all from a phone served by one voice messaging pilot to a phone served by another voice messaging pilot. The second phone forwards to voice mail, but the voice mail pilot number was entered as a specific numerical destination and not as a forward to voice mail. Cisco CallManager shall deliver the call to the voice messaging pilot number associated with the last phone.

**Intra-cluster call forwarding chains with CTI**

A call arrives at a phone, which forwards to WebAttendant, the calling user dials-by-name, and Cisco CallManager extends the call to a destination. The destination forwards to voice mail. Cisco CallManager delivers the call to the voice messaging number associated with the final phone, not WebAttendant.

When WebAttendant or other CTI applications take control of a call, they often choose to eliminate information about the original call in order that the final destination receives voice messages. Cisco CallManager must direct the call to the voice messaging system that manages the voice messaging box that the Cisco CallManager reports as the target voice messaging box.

**Inter-cluster call forwarding chains with RDNIS.**

Phone A on a PBX calls phone B on the same PBX. The call forwards to the Cisco CallManager, which extends the call to phone C. Phone C rolls to voice mail. Cisco CallManager extends the call to the voice messaging system associated with phone C, but reports the extension number of phone B.

No voice messaging pilot number information is available about phone B, due to the inter-cluster boundary. Therefore, the Cisco CallManager sends the call to the voice messaging pilot number associated with the final destination, but reports the directory number passed from the PBX to the Cisco CallManager as the voice mailbox.

## Message Waiting

There is a centralized message waiting configuration for directly connected-based message waiting to a single configuration window in the Cisco CallManager Administration. The Message Waiting Configuration window of the Cisco CallManager Administration defines message waiting on or message waiting off directory numbers, depending on the setting of the message waiting

indicator. The specified directory number is used by a directory connected-based voice messaging system to determine whether to set or clear a message waiting indication for a particular Cisco IP Phone.

The Message Waiting Configuration window permits the following:

- The provisioning of multiple message waiting on and off numbers per Cisco CallManager cluster
- Explicit association of a message waiting search space with each message waiting on and off number
- Cisco CallManager Administration to validate the message waiting number and calling search space entry and to search for conflicting numbers in the numbering plan.

## Message Waiting Indication

When a caller leaves a message in a mailbox, the voice messaging system needs to send a message waiting indication to the party that has received the voice message. Similarly, when the owner of a voice messaging box deletes all pending voice messages, the voice messaging system needs to send a messaging waiting indication to inform the voice messaging box owner that no more messages are pending.

Cisco CallManager permits administrators to configure a message waiting lamp policy on a line-by-line basis for each device. This feature provides an administrator-settable policy that determines when the Cisco CallManager illuminates the handset indicator of Cisco IP Phones 7940 and 7960 for pending voice messages. For example, an administrative assistant, who shares the manager directory number as a secondary directory number, can easily see whether the manager line has any pending voice messages, while also permitting general office members, who may share co-workers' line appearances in order to easily answer incoming calls for said co-workers, to receive a message waiting lamp indication only when messages are pending for the primary line appearance

The Directory Number Configuration window of the Cisco CallManager Administration contains a line-specific settings (Message Waiting Lamp Policy). This policy determines whether Cisco CallManager never lights the handset lamp, lights it when a voice message is pending for the primary line and/or specific lines on a Cisco 7900 series IP Phone, or lights it when a voice message is pending on any line on a Cisco 7900 series IP Phone.

The Enterprise Parameter Configuration window of the Cisco CallManager Administration provides a setting (MessageWaitingLampPolicy) that specifies that Cisco CallManager should never light the handset lamp of a device, that Cisco CallManager should light the handset lamp only if a message is pending for the primary line appearance, or that Cisco CallManager should always light the handset lamp of a device that has a voice message pending.

For customers that do not have complex message waiting indicator requirements, a service-wide Cisco CallManager parameter dictates the conditions under which Cisco CallManager lights the message waiting lamp.

## Voice Mail Interfaces

Cisco CallManager interacts with unified messaging systems using the following types of interfaces:

- **Skippy Protocol**—Skippy Protocol-based voice messaging systems are more properly termed directly-connected voice messaging systems, since other protocols could theoretically be used to communicate with these systems. Directly-connected voice messaging systems send message waiting indications by calling a message waiting on and off number especially configured in Cisco CallManager Administration. In Cisco CallManager Administration, you can the interface to directly-connected voice messaging systems by creating voice mail ports. Multiple simultaneous calls are permitted to a voice messaging system by creating multiple voice mail ports and then forwarding them to each other in a chain. Refer to [“Cisco Voice Mail Port Configuration”](#) in the *Cisco CallManager Administration Guide*.
- **PSTN Gateway interfaces**—PSTN Gateway interfaces are used by H.323-based voice messaging systems and legacy voice messaging systems. These systems usually (but not necessarily) send message waiting indications using SMDI over an RS-232 interface. Cisco Messaging Interface (CMI), a Windows 2000 service, relays these indications to Cisco CallManager. In Cisco CallManager Administration, you can provision the interface to gateway-based voice messaging systems simply by provisioning a gateway. Simultaneous calls are permitted to a voice messaging system by creating a route group containing individual gateway ports. In addition, if the voice messaging system uses SMDI, you must configure and run CMI. Refer to [“Cisco Messaging Interface Configuration”](#) in the *Cisco CallManager Administration Guide* for more information.

- Intercluster interfaces—A Cisco CallManager in one cluster can provide access to a voice messaging system in another cluster, if the administrator provisions the voice messaging pilot number on the intercluster trunk. However, since Cisco CallManager clusters provide no feature transparency over intercluster trunks, voice messaging systems cannot set message waiting indicators for devices in other clusters.

## Where to Find More Information

### Additional Cisco Documentation

- [Cisco Voice Mail Port Configuration](#), *Cisco CallManager Administration Guide*
- [Cisco Voice Pilot Configuration](#), *Cisco CallManager Administration Guide*
- [Message Waiting Configuration](#), *Cisco CallManager Administration Guide*
- [Voice Mail Profile Configuration](#), *Cisco CallManager Administration Guide*
- [Cisco Voice Mail Port Wizard](#), *Cisco CallManager Administration Guide*
- [Service Parameters Configuration](#), *Cisco CallManager Administration Guide*