



Voice Mail Connectivity to Cisco CallManager

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.

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

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Voice-Mail System Access

Cisco CallManager supports both directly connected and gateway-based messaging systems. Directly connected voice-messaging systems communicate directly with Cisco CallManager by using a packet protocol. A gateway-based voice-messaging system connects to Cisco CallManager through analog or digital trunks that are connected to an analog gateway.

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 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, they dial the directory number that is associated with the first voice-messaging port in the forwarding chain. This directory number specifies 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 by using a search algorithm. For gateway-based voice-messaging systems, the voice-messaging pilot number specifies that of the route list itself.

Calls to directory numbers that are 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 gets 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 profile.

Voice-Mail Pilot Numbers

The voice-mail pilot number specifies the directory number that 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 voice-mail pilot number can belong to a different voice-mail messaging system.

The Voice Mail Pilot Configuration window of Cisco CallManager Administration defines the voice-messaging number.

A default voice-mail pilot number exists in Cisco CallManager. You may create a new default, which replaces the current default setting.

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

Voice-Mail Profiles

Voice mail profiles allow you to define any line-related voice-mail information that is associated to a directory number, not a device. The voice-mail profile contains the following information:

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

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 line routes to its 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 calls are routed 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 support a 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 that is associated with the user for whom a voice message is intended, the Call Forward feature gets modified when calls are forwarded to voice-mail systems.

Cisco CallManager supports multiple voice-mail pilot numbers (profiles). Each pilot number can belong to a different voice-mail system. Configure the voice-mail pilot profile 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-mail pilot profile.

One limitation exists for intercluster call forwarding. For a call that is forwarded across a cluster and then forwarded to voice mail, Cisco CallManager forwards a call to the voice-mail system of the last redirect endpoint in the other cluster. This occurs because Cisco CallManager does not have the voice-mail pilot profile of the original endpoint in the other cluster.

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

Examples

Intracluster 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-mail pilot to a phone served by another voice-mail pilot. The second phone forwards to voice mail. Cisco CallManager delivers the call to the voice-mail pilot number that is associated with the first phone.

Intracluster 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-mail pilot to a phone that is served by another voice-mail 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 delivers the call to the voice-mail pilot number that is associated with the last phone.

Intracluster call forwarding chains with CTI

When Cisco CallManager Attendant Console or other CTI applications take control of a call, they often choose to eliminate information about the original call, so the next destination receives voice messages. Cisco CallManager must direct the call to the voice-messaging system that manages the voice-messaging box that Cisco CallManager reports as the target voice-mailbox, as shown in the following examples.

A call arrives at a phone, which forwards to the attendant console, 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 that associated with the destination that is chosen by the calling user, not the attendant console.

In another example, phone A forwards all calls to phone B. A call arrives at the attendant console, and the attendant console sends the call to phone A. Cisco CallManager forwards the call to phone B. If no one answers the call, Cisco CallManager forwards the call to voice mail. Because the call was originally for phone A, the message goes to the voice mailbox of phone A, not phone B.

Intercluster call forwarding chains with RDNIS

Phone A on a PBX calls phone B on the same PBX. The call forwards to 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 that is associated with phone C, but reports the extension number of phone B.

No voice-mail pilot number information is available about phone B because of the intercluster boundary. Therefore, Cisco CallManager sends the call to the voice-mail pilot number that is associated with the final destination but reports the directory number passed from the PBX to Cisco CallManager as the voice mailbox.

Message Waiting

A centralized message-waiting configuration exists for directly connected-based message waiting to a single configuration window in Cisco CallManager Administration. The Message Waiting Configuration window of Cisco CallManager Administration defines message waiting on and message waiting off directory numbers, depending on the setting of the message-waiting indicator. A directly connected-based voice-messaging system uses the specified directory number 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 actions:

- 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 validation of the message-waiting number and calling search space entry and 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 received the voice message. Similarly, when the owner of a voice-mailbox deletes all pending voice messages, the voice-messaging system needs to send a messaging-waiting indication to inform the voice-mailbox owner that no more messages are pending.

Cisco CallManager enables administrators to configure when to illuminate the handset indicator of Cisco IP Phones 7940 and 7960 for pending voice messages. You can configure Cisco CallManager to

- Always light the message-waiting indicator.
- Never light the message-waiting indicator.
- Only light the message-waiting indicator if a voice message is pending on the primary line.

You can set the message-waiting indication policy by using two different methods. In the Directory Number Configuration window, you can use the Message Waiting Lamp Policy field to set when the handset lamp turns on for a given line (always, never, or based on the Message Waiting Lamp Policy service parameter). In the Service Parameter Configuration window (for the Cisco CallManager service), you can use the Message Waiting Lamp Policy clusterwide service parameter to set the message-waiting indication policy for Cisco 7900 series IP Phones (always, never, or only on the primary line).

The message-waiting policy that you choose depends on the needs of your users. For example, an administrative assistant, who shares the manager directory number as a secondary directory number, may want to have the policy set to always light to see whether the manager line has any pending voice messages. General office members, who may share a line appearance with a coworker may want to have the policy set so that the indicator lights only when messages are pending for the primary line appearance.

For customers who do not have complex message-waiting indicator requirements, you can use the Cisco CallManager service parameter to dictate the conditions under which Cisco CallManager turns on the message-waiting lamp.

Voice-Mail Interfaces

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

- Skinny Protocol—Skinny Protocol-based voice-messaging systems, more properly termed directly connected voice-messaging systems, get used even though 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 that is especially configured in Cisco CallManager Administration. In Cisco CallManager Administration, you can configure the interface to directly connected voice-messaging systems by creating voice-mail ports. Multiple simultaneous calls to a voice-messaging system can occur 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—H.323-based voice-messaging systems and legacy voice-messaging systems use PSTN Gateway interfaces. These systems usually (but not necessarily) send message-waiting indications by using SMDI over an EIA/TIA-232 interface. The Cisco Messaging Interface 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. By creating a route group that contains individual gateway ports, you can enable simultaneous calls to a voice-messaging system. In addition, if the voice-messaging system uses SMDI, you must configure and run the Cisco Messaging Interface service. 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-mail pilot number on the intercluster trunk; however, because 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 Mail Port Wizard](#), *Cisco CallManager Administration Guide*
- [Message Waiting Configuration](#), *Cisco CallManager Administration Guide*
- [Cisco Voice Mail Pilot Configuration](#), *Cisco CallManager Administration Guide*
- [Voice Mail Profile Configuration](#), *Cisco CallManager Administration Guide*
- [Service Parameters Configuration](#), *Cisco CallManager Administration Guide*