Mobile Agent

- Capabilities, on page 1
- Initial Setup, on page 16
- Administration and Usage, on page 27
- Serviceability , on page 30

Capabilities

Cisco Unified Mobile Agent Description

Unified Mobile Agent supports call center agents using phones that your contact center enterprise solution does not directly control. You can deploy a Mobile Agent as follows:

- Outside the contact center, by using an analog phone or a mobile phone in the home.
- On an IP phone connection that is not CTI-controlled by Unified CCE or by an associated Unified Communications Manager.
- On any voice endpoint of any ACD (including endpoints on other Unified Communication Managers) that the contact center Unified Communication Manager can reach by a SIP trunk.

A Mobile Agent can use different phone numbers at different times; the agent enters the phone number at login time. An agent can access the Mobile Agent functionality using any phone number that is included in the Unified Communications Manager dial plan.

With Cisco Unified Mobile Agent, contact centers can:

- Add or enable temporary staff during seasonal high call volume who can be brought on line with reduced startup costs
- Provide agents with the flexibility to work from home with similar quality, function, performance, convenience, and security as are available in the corporate headquarters contact center
- Allow agents to use the device they are most comfortable with, which improves agent productivity, helps to retain agents, and reduces training costs
- Hire skilled employees where they live and integrate remote workers into geographically dispersed teams with access to equivalent corporate applications

The sections that follow highlight some of the benefits of Unified Mobile Agent, and describe its features.

Unified Mobile Agent Extends Unified CCE Capabilities

Before Mobile Agent, Unified CCE used a JTAPI interface to Unified CM to connect customer calls arriving on a voice gateway to an agent's IP phone. Mobile Agent enables the Unified CCE architecture to connect customer calls to an agent phone that Unified CCE does not directly control.

Mobile Agent uses a pair of CTI ports that function as proxies for the Mobile Agent phone and the caller phone. Every logged-in Mobile Agent requires two CTI ports (local and remote). The two CTI ports take the place of the Cisco IP Phone monitored and controlled by Unified CM JTAPI. The agent at login uses the local CTI port DN. When this agent is selected, the router transfers the caller to that CTI port. The remote CTI port calls the agent either at login for a nailed (permanent) connection or upon being selected for a call-by-call connection.

Cisco Unified Contact Center functionality remains intact whether an agent is mobile or local:

- Mobile Agents have the same capabilities and functionality that local agents have.
- Mobile Agents do not need any specialized equipment; they can receive calls on an analog or mobile phone.
- Unified Mobile Agent supports Cisco Finesse.
- Mobile Agent activity is recorded in the same contact center reports as local agent activity.
- Mobile Agent CTI and application data uses the same security mechanisms as local agent data.

Unified Mobile Agent Provides Agent Sign-In Flexibility

Agents can be either local agents or Mobile Agents, depending on how they sign in at various times.

Regardless of whether agents sign in as local or Mobile Agents, their skill groups do not change. Because agents are chosen by existing selection rules and not by how they are connected, the same routing applies regardless of how the agents log in. If you want to control routing depending on whether agents are local or mobile, assign the agents to different skill groups and design your scripts accordingly.

Connection Modes

Cisco Unified Mobile Agent allows system administrators to configure agents to use either call by call dialing or a nailed connection, or the administrator can configure agents to choose a connection mode at login time.

Mobile Agents are defined as agents using phones not directly controlled by Unified CC, irrespective of their physical location. (The term local agent refers to an agent who uses a phone that is under control of Unified CC, irrespective of physical location.)

You can configure Mobile Agents using either of two delivery modes:

- Call by Call—In this mode, the Mobile Agent's phone is dialed for each incoming call. When the call ends, the Mobile Agent's phone is disconnected before being made ready for the next call.
- Nailed Connection—In this mode, the agent is called at login time and the line stays connected through multiple customer calls.

Note The administrator can select the *Agent chooses* option, which allows an agent to select a call delivery mode at login.

Call by Call

In a *call by call* delivery mode, the Mobile Agent's phone is dialed for each incoming call. When the call ends, the Mobile Agent's phone disconnects before is it made ready for the next call.

The *call by call* call flow works as follows:

1. At login, the agent specifies an assigned extension for a CTI port.
2. A customer call arrives in the system and, through Unified ICM configuration and scripting, is queued for a skill group or an agent. (This is no different than existing processing for local agents.)
3. The system assigns an agent to the call. If the agent's Desk Setting is Unified Mobile Agent-enabled and configured for either call by call or Agent chooses mode, the router uses the extension of the agent's CTI port as a label.
4. The incoming call rings at the agent's CTI port. The JTAPI Gateway and PIM notice this but do not answer the call.
5. A call to the agent is initiated on another CTI port chosen from a preconfigured pool. If this call fails, Redirect on No Answer processing is initiated.

Note In call by call mode, the Answer Wait Time is 3 to 15 seconds longer than in a local agent inbound call scenario. Specify a Redirect on No Answer setting large enough to accommodate the extra processing time.

6. When the agent takes the remote phone off-hook to answer the call, the system directs the customer call to the agent's call media address and the agent's call to the customer's call media address.
7. When the call ends, both connections are terminated and the agent is ready to accept another call.

Note To configure Mobile Agent in call by call delivery mode, you must set the wrap-up timer to at least one second using the Agent Desktop Settings List tool in the Configuration Manager.

In call by call delivery mode, callers often perceive a longer ring time compared to nailed connection delivery mode. This is because callers hear the ringtone during the call flow; ringing stops only after the agent answers. From the Unified CCE reporting perspective, a Mobile Agent in call by call delivery mode has a longer Answer Wait Time for the same reason.

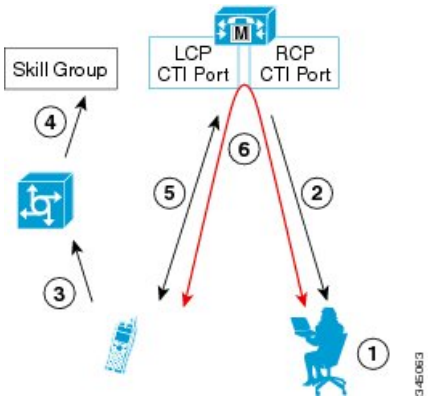
Related Topics

Configure Agent Desk Settings with Configuration Manager, on page 21

Nailed Connections

In *nailed connection* delivery mode, the agent is called once, at login, and the phone line remains connected through multiple customer calls. See the following figure.

Figure 1: Nailed Connection Call Flow



The nailed connection call flow works as follows:

1. At login, the agent specifies an assigned extension for a CTI port from a pool.
2. A call to the agent is initiated on another CTI port chosen from a preconfigured pool. The agent answers the call. (The agent must answer this setup call to complete the connection and finalize the login procedure.)
3. A customer's call arrives in the system and, through Packaged CCE configuration and scripting, is queued for a skill group or an agent. (This is no different than existing processing for local agents.)
4. The system assigns an agent to the call. If the agent's Desk Setting is Unified Mobile Agent-enabled and configured for either nailed connection or Agent chooses mode, the router uses the extension of the agent's CTI port as a label.
5. The incoming call rings at the agent's CTI port. The JTAPI Gateway and PIM notice this but does not answer the call.
6. The agent desktop indicates a call is ringing and the agent clicks **Answer**.
7. When the agent indicates that they will answer the phone, the system directs the customer call to the agent's call media address and the agent call to the customer's call media address.
8. When the call ends, the customer connection is terminated and the agent state is set to Ready.

Connect Tone

The *Connect Tone* feature in the nailed connection mode enables the system to play a tone to the Mobile Agent through the agent's headset to let the agent know when a new call is connected. In the nailed connection mode, you can configure an audible connect tone in addition to a call arrival notice (on the desktop only).

Connect Tone is particularly useful when Auto Answer is enabled or the agent is an Outbound agent. Here are its features:

- An audible tone (two beeps) is sent to the Mobile Agent headset when the call to the nailed connection Mobile Agent is connected. It is a DTMF tone played by Unified CM and cannot be modified.
- The Connect Tone plays only when the nailed connection Mobile Agent receives a call, as in the following examples:
  - The agent receives a consultation call.
  - The agent receives an outbound call.

- The Connect Tone does not play when the nailed connection Mobile Agent initiates a call, as in the following examples:
  - The agent makes a call.
  - The agent makes the consultation call.
  - Outbound direct preview call is made.
  - Supervisor barge-in call is made.

Related Topics

Enable Mobile Agent Connect Tone, on page 26

Agent Greeting and Whisper Announcement

The Agent Greeting and Whisper Announcement features are available to Unified Mobile Agents. The following sections explain more about how these features apply to Unified Mobile Agents.

Agent Greeting

You can use the Agent Greeting feature to record a message that plays automatically to callers when they connect to you. Your greeting message can welcome the caller, identify you, and include other useful information.

Limitations

The following limitations apply to the Agent Greeting feature for Mobile Agents.

- If a Mobile Agent ends the call when an Agent Greeting plays, the customer still hears the complete Agent Greeting before the call ends. This applies for both call by call and nailed-up calls.

Note In the Agent Greeting Call Type Report, this call does not appear as a failed agent greeting call.

- A supervisor cannot barge in when an Agent Greeting is playing.
- If a Peripheral Gateway (PG), JTAPI Gateway (JGW), or PIM failover occurs when an Agent Greeting plays for a Mobile Agent, the call fails.
- If a Mobile Agent ends the call when an Agent Greeting plays, the customer still hears the complete Agent Greeting before the call ends.

Note In the Agent Greeting Call Type Report, this call does not appear as a failed agent greeting call.

- If a Peripheral Gateway (PG), JTAPI Gateway (JGW), or PIM failover occurs when an Agent Greeting plays for a Mobile Agent, the call fails. This applies for both call-by-call and nailed-up calls.

Note You can use Agent Greeting for Mobile Agents only with parent/child deployments that are approved by Cisco Assessment-to-Quality (A2Q) with Design Mentoring Services (DMS).

For more information about Agent Greeting, see Capabilities.

Whisper Announcement

With Whisper Announcement, agents can hear a brief prerecorded message just before they connect with each caller. The announcement plays only to the agent; the caller hears ringing (based on existing ringtone patterns) while the announcement plays. The announcement can contain information about the caller, such as language preference or customer status. This information helps the agent prepare for the call.

Configuration Requirement

For the Whisper Announcement feature for Unified Mobile Agents, you require a Media Termination Point (MTP) resource on an incoming SIP device.

Feature Requirements

Hardware and Software Requirements

Hardware and software requirements for the Unified Mobile Agent are identical to those of Unified CCE. For more information on feature requirements, consult these documents:

- *Solution Design Guide for Cisco Unified Contact Center Enterprise* at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-implementation-design-guides-list.html
- *Virtualization for Unified Contact Center Enterprise* at https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/cisco-collaboration-virtualization.html
- *Contact Center Enterprise Compatibility Matrix* at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-device-support-tables-list.html

Phone Requirements

A Unified Mobile Agent can use an analog, digital, or IP phone to handle calls.

Conference Requirements

To use Agent Greeting for Mobile Agents, you must configure external conference-bridge (hardware) resources. To estimate the number of required resources, you can use the following formula:

Number of conference bridge resources = Mobile Agent call rate × Average greeting time (in seconds)

For information about configuring external conference-bridge resources, see the `dspfarm profile 1 for conference` configuration section in the sample configuration gateway, listed in Media Termination Points Configuration, on page 22.

CTI Port Requirements

You need two CTI ports (local and remote) for every logged-in Mobile Agent.

Unified Mobile Agent uses Unified CM CTI Port as a proxy for the agent's phone. When this proxy is set up, whenever a Mobile Agent is selected to handle a customer call, the following happens:

- The call is directed to the CTI port extension.
- Unified CCE, using the JTAPI Gateway, intercepts the call arriving on the CTI Port and directs Unified CM to connect the call to the Mobile Agent.

Unified Mobile Agent requires that maximum number of calls is set to 2 and busy trigger is set to 1.

For Unified Mobile Agent to work properly, you must configure two CTI ports:

- One port to serve as the agent's virtual extension.
- The other port to initiate calls to the agent.

You must assign these CTI ports to the Unified ICM application. The ports are recognized by Unified ICM when receiving the Unified CM configuration.

For these CTI ports in IPv6 enabled deployments, you have to set **IP Addressing Mode** to **IPv4 Only**. You do this by creating a **Common Device Configuration** and referencing it to these CTI ports.

Supported Unified CCE Features

The following features are supported:

- Unified CCE supports temporary uninstallation while preserving Mobile Agent data.

  For more information about temporary uninstallation, see the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide*.
- Mobile Agents can participate in outbound campaigns, but they must use a nailed-up connection for all outbound dialing modes.
- Unified Mobile Agent supports Redirect on No Answer (RONA). If the Mobile Agent fails to answer, the agent is made Not Ready, and the call is redirected to a RANA DN route point.
- Unified Mobile Agent supports G.711A-law, G.711u-law, and G.729 codecs.
- There is no direct interaction between Unified Mobile Agent and multichannel applications. Email and Chat are IP applications that continue to operate, assuming the Mobile Agent has a desktop with enough bandwidth on the broadband connection to support them.
- Unified Mobile Agent supports Cisco Unified Customer Voice Portal (Unified CVP) and Cisco Unified IP-IVR (Unified IP IVR).

Related Topics

Silent Monitoring, on page 9

Fault Tolerance Support

Fault tolerance for the Unified Mobile Agent follows the behavior of Unified CCE:

- The JTAPI Gateway, Unified CCE PIM, and CTI components record key events related to Unified Mobile Agent as part of the logging process.
- As with standard Unified CCE calls, if a Peripheral Gateway (PG) component such as the JTAPI Gateway fails, the phone call is not lost, but subsequent call control (transfer, conference, or hold) might not be possible after a failover. The Mobile Agent is notified of a failure (on the desktop), but they must log in again after a Unified CM or Unified ICM failure occurs.
- Where CTI data is delivered for screen pops, CTI data is preserved.

Unified Mobile Agent can experience many of the same failure cases as Unified CCE:

- Side A/B failure
- VRU failure
- Unified CM failure
- CTI server failure

There are also some failure cases that are unique to Unified Mobile Agent:

- A situation where a Mobile Agent is using a cellular phone and the connection is dropped due to non-availability of a signal, is deemed as external failure. The agent must call back and log-in again.
- If a Mobile Agent's phone line disconnects while using nailed connection mode, the agent must log in again to receive new calls.

Related Topics

Failover, on page 8

Important Considerations

Before you proceed, consider the following Unified Mobile Agent limitations and considerations:

Failover

- During a failover, if an agent in call by call mode answers an alerting call, the call can drop. This occurs because the media cannot be bridged when there is no active PG.
- During a prolonged Peripheral Gateway (PG) failover, if an agent takes call control action for a Unified Mobile Agent-to-Unified Mobile Agent call, the call can drop. This occurs because the activating PG may not have information for all agents and calls at that point.
- Unified Communications Manager failover causes a Mobile Agent call to be lost.
- If a call by call Mobile Agent initiates a call (including a supervisor call) and does not answer the remote leg of the call before PG failover, the call fails. The agent must disconnect the remote agent call leg and reinitiate the call.

Performance

- Mobile Agent call processing uses more server resources and therefore reduces the maximum number of supported agents on both Unified CM and the Unified ICM Agent PG.

For more information about sizing Mobile Agents, see the *Solution Design Guide for Cisco Unified Contact Center Enterprise*.

- Because Unified Mobile Agent adds processing steps to Unified CCE default functionality, Mobile Agents may experience some delay in screen popup windows.
- From a caller's perspective, the call by call delivery mode has a longer ring time compared with the nailed connection delivery mode. This is because Unified CCE does not start to dial the Mobile Agent's phone number until *after* the call information is routed to the agent desktop. In addition, the customer call media stream is not connected to the agent until after the agent answers the phone.

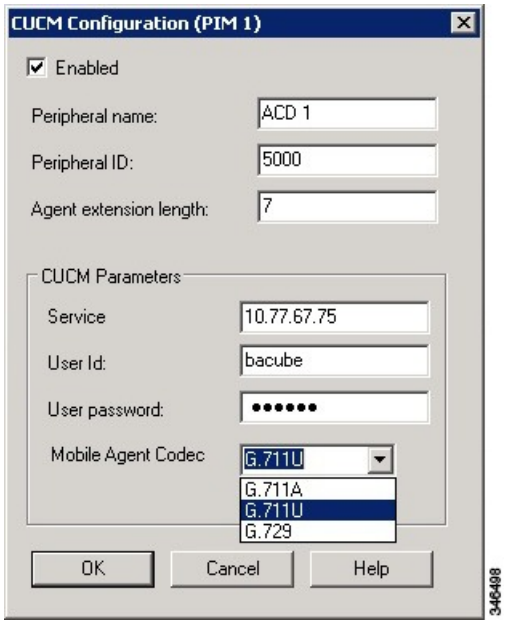
  The caller hears a repeated ringtone while Unified CCE makes these connections.

Codec

The codec settings on the Peripheral Gateway and Voice Gateway must match. Perform the following procedure:

1. Launch the Peripheral Gateway Setup.
2. In the Peripheral Gateway Component Properties, select the UCM PIM and click **Edit.**
3. In the CallManager Parameters section, select the appropriate codec from the Mobile Agent Codec drop down list.

Figure 2: Mobile Agent Codec Selection



Silent Monitoring

Unified Mobile Agent provides the following silent monitoring support:

- Unified Mobile Agent requires that caller and agent voice gateways be on separate devices if silent monitoring is to be used.
- Unified Mobile Agent does not support desktop monitoring.

- Whenever silent monitoring is used on Unified Mobile Agent, caller and agent voice gateways must be on separate devices. Similarly, if MTP is enabled when silent monitoring is used, MTP resources for caller and agent must also be on separate devices.

Mobile Agent Scalability

Mobile Agent scalability may be contingent on specific Unified CM versions. For more information, see the *Solution Design Guide for Cisco Unified Contact Center Enterprise* at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-implementation-design-guides-list.html.

Unsupported Features

The following is a list of unsupported features for Mobile Agent:

- Web Callback
- Blended Collaboration
- Unified CM-based Silent Monitoring
- Agent Request

Unified Mobile Agent Call Flows

This section provides sample Unified Mobile Agent call flows for:

- Inbound calls
- Local consultation calls
- Remote consultation calls
- Remote conference calls

In all Unified Mobile Agent call flows, the JTAPI Gateway maintains the signaling association between the inbound and outbound calls and, if necessary, performs further operations on the call. JTAPI Gateway, however, does not terminate media; it uses CTI to deliver the customer call from the inbound gateway port to the outbound gateway port.

This means that a Mobile Agent *must* use an agent desktop application to log in, change agent state, log out, send dual-tone multifrequency (DTMF) digits, and perform call control.

About Figures in This Section

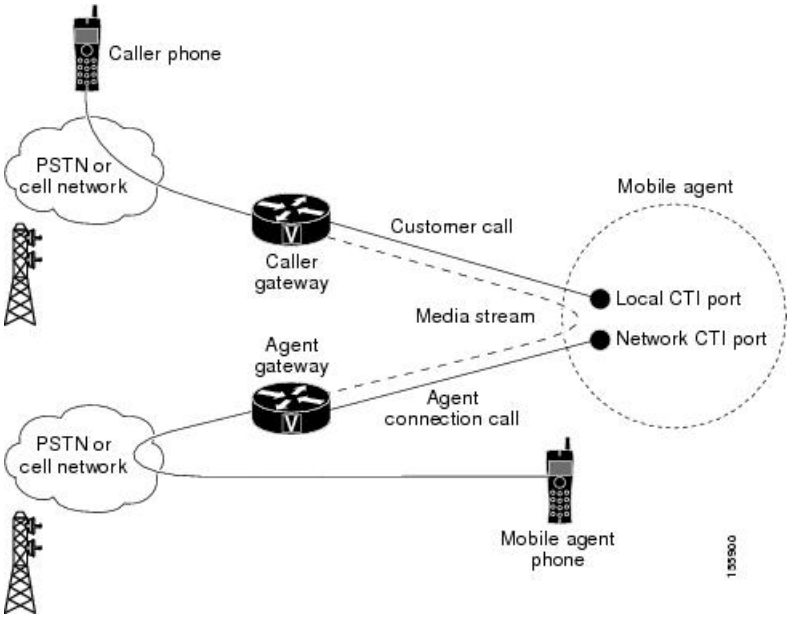
The figures in this section:

- Show a caller and a Mobile Agent in a cellular network. However, the same concepts apply whether the Mobile Agent is using an enterprise desk phone, an IP Phone spanning another Unified CM cluster, standard analog phone, or a third-party ACD phone.
- Focus solely on call media flow; a Mobile Agent must use a CTI Desktop with broadband access to perform agent state and call control.
- Show only a sampling of the call flows possible with Unified Mobile Agent.

Inbound Call Flow

The following figure shows an inbound call flow.

Figure 3: Mobile Agent Inbound Call Flow



Note Caller and Agent voice gateways can coreside on one device, except in deployments where Silent Monitoring is required.

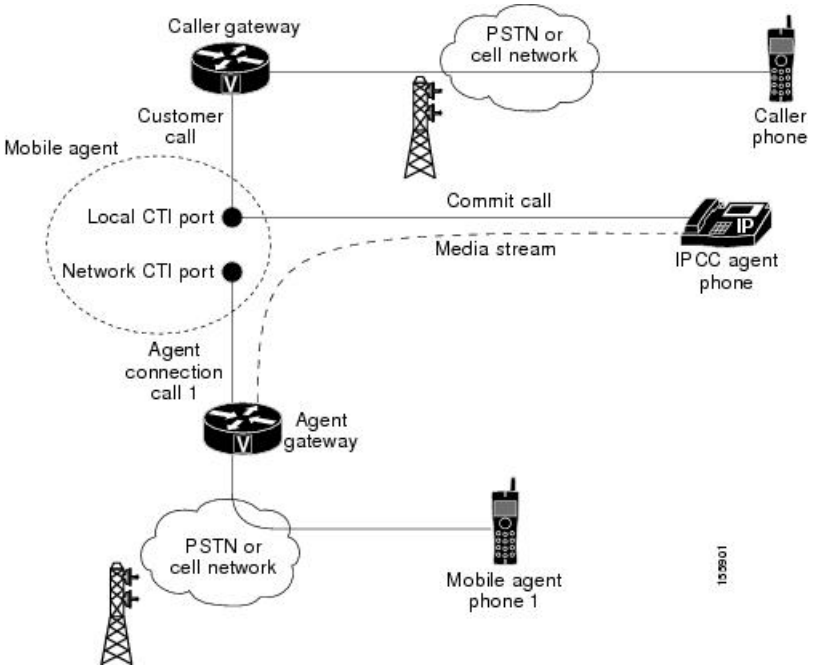
The following describes an inbound call flow:

1. The Mobile Agent becomes available to answer calls by:
   - Logging in to the corporate domain using VPN over the ADSL/Cable connection
   - Launching the agent desktop interface and logging in with their remote phone information
   - Entering the Ready mode
2. A customer call arrives at the Unified CC.
3. The JTAPI Gateway creates a Mobile Agent class to manage local and network CTI ports for a Mobile Agent.
4. The Router passes the call to the *local* CTI Port of a Mobile Agent.
5. The JTAPI Gateway places a call on a *network* CTI port to the agent's cell phone.
6. The JTAPI Gateway uses local and network CTI ports of the Mobile Agent to stream the media for the call from the inbound (caller) gateway port to the outbound (agent) gateway port.

Local Consult Calls

The following figure shows a consult call flow between a Mobile Agent and a local agent.

Figure 4: Mobile Agent Consult Call Flow



Note Caller and Agent voice gateways can coreside on one device, except in deployments where Silent Monitoring is required.

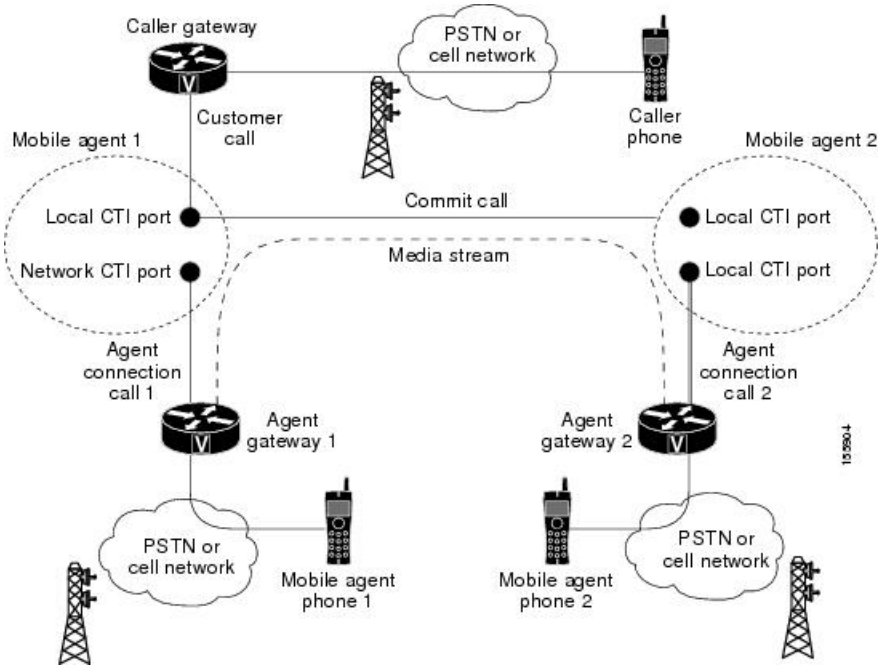
The following describes a local consult call flow:

1. The Mobile Agent becomes available to answer calls by:
   - Logging in to the corporate domain using VPN over the ADSL/Cable connection
   - Launching the agent desktop interface and logging in with their remote phone information
   - Entering the Ready mode
2. A customer call arrives at the Unified CC.
3. The JTAPI Gateway creates a Mobile Agent class to manage local and network CTI ports for a Mobile Agent.
4. The Router passes the call to the *local* CTI Port of a Mobile Agent.
5. The JTAPI Gateway places Agent Connection Call 1 on a *network* CTI port to the agent's cell phone.
6. The Mobile Agent places the customer call on hold and consults a local Unified CCE agent.
7. The JTAPI Gateway uses local and network CTI ports of the Mobile Agent to stream the media for the call from the IP hard phone to the outbound gateway port.

Remote Consult Calls

The following figure shows a remote consult call flow between two Mobile Agents.

Figure 5: Mobile Agent Remote Consult Call Flow



Note Caller and Agent voice gateways can coreside on one device, except in deployments where Silent Monitoring is required.

The following describes a remote consult call flow:

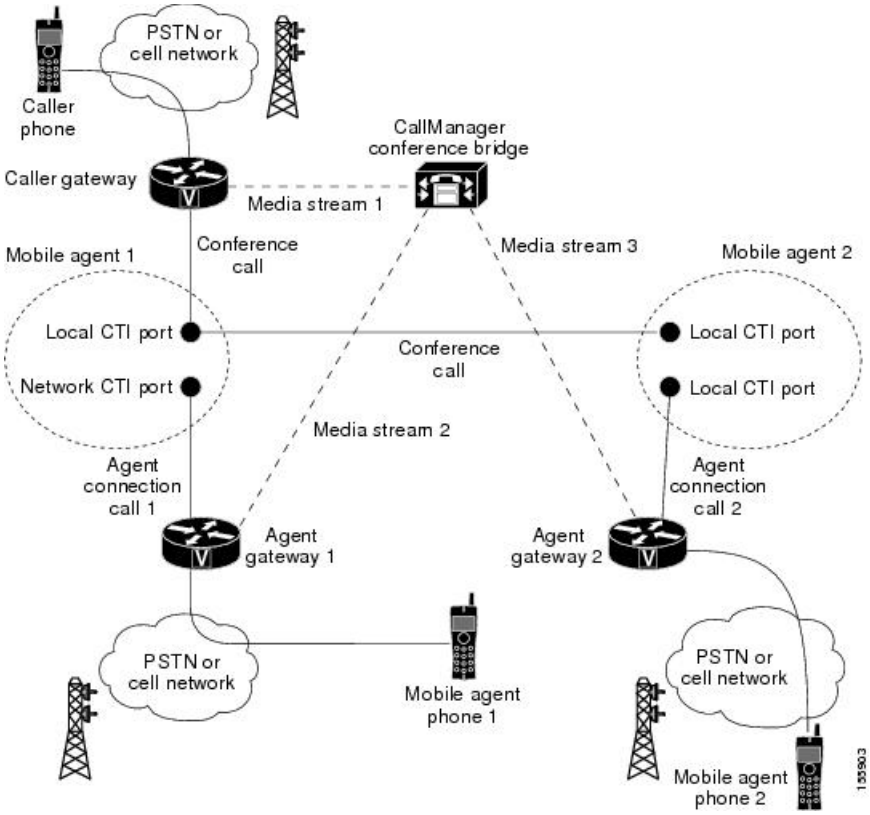
1. The Mobile Agent becomes available to answer calls by:
   - Logging in to the corporate domain using VPN over the ADSL/Cable connection
   - Launching the agent desktop interface and logging in with their remote phone information
   - Entering the Ready mode
2. A customer call arrives at the Unified CC.
3. The JTAPI Gateway creates a Mobile Agent class to manage local and network CTI ports for a Mobile Agent.
4. The Router passes the call to the *local* CTI Port of a Mobile Agent.
5. The JTAPI Gateway places Agent Connection Call 1 on a *network* CTI port to the agent's cell phone.
6. Mobile Agent 1 puts the customer call on hold and consults Mobile Agent 2.

7. The JTAPI Gateway uses the network CTI port of Mobile Agent 1 and the network CTI port of Mobile Agent 2 to stream the media for the call from the outbound gateway port on Agent Gateway 1 to the outbound gateway port on Agent Gateway 2.

Remote Conference Calls

The following figure shows a remote conference call flow between two Mobile Agents.

Figure 6: Mobile Agent Remote Conference Call Flow



Note Caller and Agent voice gateways can coreside on one device, except in deployments where Silent Monitoring is required.

The following describes a remote conference call flow:

1. The Mobile Agent becomes available to answer calls by:
   - Logging in to the corporate domain using VPN over the ADSL/Cable connection
   - Launching the agent desktop interface and logging in with their remote phone information
   - Entering the Ready mode
2. A customer call arrives at the Unified CC.

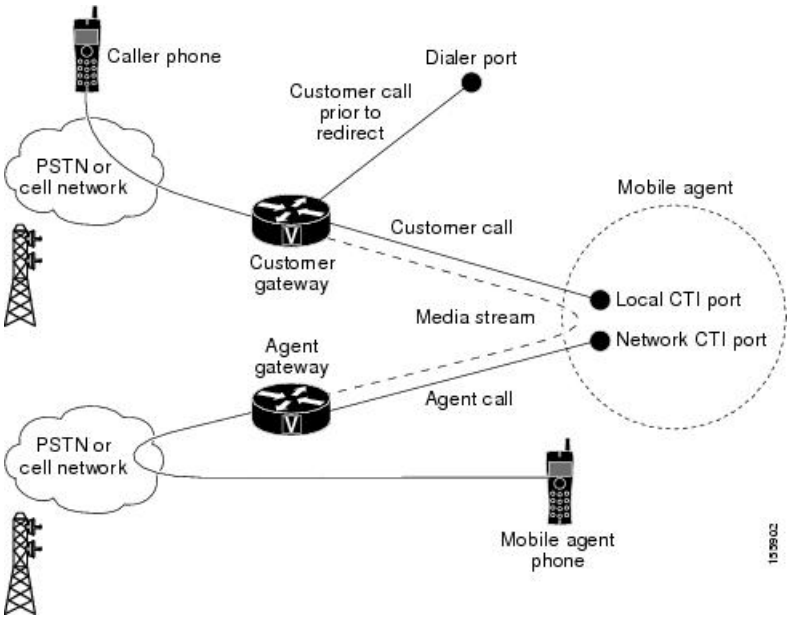
3. The JTAPI Gateway creates a Mobile Agent class to manage local and network CTI ports for a Mobile Agent.
4. The Router passes the call to the *local* CTI Port of a Mobile Agent.
5. Unified CM redirects the media stream 1 from inbound gateway on the Caller Gateway to the conference bridge during call merging process.
6. The JTAPI Gateway uses local and network CTI ports of Mobile Agent 1 to loop the Media Stream 2 for the call from the outbound gateway port on the Agent Gateway 1 to the conference bridge.
7. The JTAPI Gateway uses local and network CTI ports of Mobile Agent 2 to loop the Media Stream 3 for the call from the outbound gateway port on the Agent Gateway 2 to the conference bridge.

Outbound Option Call Flow

The following figure shows a Outbound Option call flow between a customer and a Mobile Agent.

Note Unified Mobile Agent supports Outbound Option calls in nailed connection delivery mode *only*.

Figure 7: Mobile Agent Outbound Call Flow



Note Caller and Agent voice gateways can coreside on one device, except in deployments where Silent Monitoring is required.

The following describes an Outbound Option call flow:

1. The Mobile Agent becomes available to answer calls by:
   - Logging in to the corporate domain using VPN over the ADSL/Cable connection

- Launching the agent desktop interface and logging in with their remote phone information
- Entering the Ready mode

2. The JTAPI Gateway creates a Mobile Agent class to manage local and network CTI ports for a Mobile Agent.
3. Outbound Option dials the customer number and, after reaching a live customer, the Dialer redirects the customer call to the *local* CTI Port of an Outbound Option Mobile Agent.
4. The JTAPI Gateway places a call on a *network* CTI port to the agent's cell phone.
5. The JTAPI Gateway uses local and network CTI ports of the Mobile Agent to stream the media for the call from the inbound gateway port to the outbound gateway port.

Unified Mobile Agent Reporting

Unified Mobile Agent-specific call data is contained in the following Cisco Unified Intelligence Center reports: Agent Team Historical, Agent Real Time, and Agent Skill Group Historical. These “All Field” reports contain information in multiple fields that show what kind of call the agent is on (nonmobile, call by call, nailed connection) and the Unified Mobile Agent phone number.

Notes about Mobile Agents and reporting:

- The Mobile Agent must be logged in through the agent desktop for call data to be recorded in Unified CC reports.
- Service level for Mobile Agent calls might be different than local agent calls, because it takes longer to connect the call to the agent.

  For example, a call by call Mobile Agent might have a longer Answer Wait Time Average than a local agent. This is because Unified CCE does not start to dial the Mobile Agent phone number until *after* the call information is routed to the agent desktop. In addition, the customer call media stream is not connected to the agent until after the agent answers the phone.

  For more information about Unified Mobile Agent fields in the database schema, see *Database Schema Handbook for Cisco Unified Contact Center Enterprise*.

Initial Setup

Summary of Unified Mobile Agent System Configuration Tasks

The following table describes system configuration tasks for Unified Mobile Agent.

Table 1: Unified Mobile Agent System Configuration Tasks

Task	See
Configure Unified CM CTI Port pools	Unified CM CTI Port Configuration and Mapping for Unified Mobile Agent, on page 17

Task	See
Configure Unified CM Call Duration Timer	Maximum Call Duration Timer Configuration, on page 20
Configure Agent Desk Settings	Agent Desk Setting Configuration for Unified Mobile Agent, on page 21
Configure Devices	Device Configuration for Unified Mobile Agent, on page 22
Configure Media Termination Points	Media Termination Points Configuration, on page 22

Unified CM CTI Port Configuration and Mapping for Unified Mobile Agent

This section describes the CTI Port Pool configuration tasks *specific* to Mobile Agent Option configuration. It does not discuss installation or configuration of Unified CCE.

Note For more information about installing and configuring Unified CM with Unified CCE, see the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide*.

Unified Mobile Agent must have two CTI ports configured on Unified CM:

- A *local* CTI port, which Unified Mobile Agent uses as the agent's virtual extension.
- A *remote* CTI port, which Unified Mobile Agent uses to initiate a call to the Mobile Agent's phone.

Naming Conventions for Local and Network Ports

- The local port *must* begin with the string LCP.
- The remote port *must* begin with the string RCP.
- The remaining characters in the device names for the LCP and RCP pair *must match*. For example an LCP port named LCP0000 has a corresponding RCP port named RCP0000.
- For example, you can use the following naming convention:
  - For a local CTI Port pool name, configure a name in the format LCP*xxxxFyyyy*, where LCP identifies a local CTI Port Pool, *xxxx* is the peripheral ID for the Unified CM PIM, and *yyyy* is the number of local CTI Port.

    Example: LCP5000F0000 represents CTI Port: 0 in a local CTI Port pool for the Unified CM PIM with the peripheral ID 5000.
  - For a network CTI Port pool name, use the same format, except substitute RCP as the first three characters.

Note While you do not require a naming convention, the substrings identifying the Unified CM PIM peripheral ID and the CTI Port *must* match for each local/network pair.

CTI Port configuration consists of the following steps:

1. Add the CTI port as you would for an IP Phone.
2. Use the naming convention described above to map the local and network CTI ports.

Note Each local CTI port must have a corresponding network CTI port.

3. Add a directory number for the local CTI port (that is, the agent's virtual extension).
4. Map the local and network CTI ports with the PG user.

Music on Hold Design

If you want callers to hear music when a Mobile Agent places the caller on hold, you must assign Music on Hold (MoH) resources to the ingress voice gateway or trunk that is connected to the *caller* (as you do with traditional agents). In this case, the user or network audio source is specified on the local CTI port configuration. Similarly, if a Mobile Agent must hear music when the system puts the agent on hold, you must assign MoH resources to the ingress voice gateway or trunk that is connected to the *Mobile Agent.* In this case, the user or network audio source is specified on the remote CTI port configuration.

Do not assign MoH resources to local ports and remote CTI ports, because it might affect the system performance.

If a remote Mobile Agent calls over a nailed connection and if there is no active call to the agent, the agent is put on hold. Enable MoH to the Mobile Agent phone for nailed connection calls. If MoH resources are an issue, consider multicast MoH services.

If a remote Mobile Agent calls over a nailed connection, and if MoH is disabled, the hold tone plays to the agent phone during the hold time. This depends on the call processing agent that controls the Mobile Agent remote phone. For Unified CM, the hold tone is enabled by default (it is similar to the Mobile Agent connect tone). Because the hold tone is similar to the connect tone, it is difficult for the agent to identify if a call arrived from listening to the Mobile Agent connect tone. The hold tone prevents the agent from hearing the connect tone.

Therefore, disable the hold tone by changing the setting of the Tone on Hold Timer service parameter to 0. For more information about setting this parameter, see the Unified CM product documentation available at: https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/tsd-products-support-series-home.html.

Configure Unified CM CTI Port Pools for Unified Mobile Agent

Perform the following steps to configure CTI Ports.

Procedure

Step 1 In Unified CM Administration, select **Device** > **Phone**.

Step 2 Click **Add a New Phone**.

Step 3 From Phone Type, select **CTI Port**.

Step 4 Click **Next**.

Step 5 In Device Name, enter a unique name for the local CTI Port pool name; click **OK** when finished.

Using the naming convention format LCP*xxxxyyyy*:

- LCP identifies the CTI Port as a local device.
- *xxxx* is the peripheral ID for the Unified CM PIM.
- *yyyy* is the local CTI Port.

The name LCP5000F0000 would represent CTI Port: 0 in a local CTI Port pool for the Unified CM PIM with the peripheral ID 5000.

The name LCP0000 represents the local port.

Step 6 In Description, enter text that identifies the local CTI port.

Step 7 Use the **Device Pool** drop-down list to choose the device pool to which you want to assign the network CTI port pool. Do not select Default. (The device pool defines sets of common characteristics for devices.)

Step 8 Click **Save**.

Step 9 Highlight a record and select **Add a New DN**.

Step 10 Add a unique directory number for the CTI port you just created.

Step 11 In Maximum Number of Calls, enter **2**.

Step 12 In Busy Trigger, enter **1**.

Step 13 When finished, click **Save**, and click **Close**.

Step 14 Repeat the preceding steps to configure the network CTI port pool.

In Device Name, using the naming convention format RCP*xxxxyyyy*, where:

- RCP identifies the CTI port as the Remote CTI port where the call between the agent's remote device and the Unified CM Port is nailed up at agent login time.
- *xxxx* is the peripheral ID for the Unified CM PIM.
- *yyyy* is the network CTI port.

The name RCP5000F0000 represents CTI Port: 0 in a network CTI Port pool for the Unified CM PIM with the peripheral ID 5000.

Step 15 In Description, enter text that identifies the network CTI port pool.

Step 16 Use the **Device Pool** drop-down list to choose the device pool to which you want to assign the network CTI port. Do not select Default. pool. (The device pool defines sets of common characteristics for devices.)

Step 17 Click **Save**.

Step 18 Highlight a record and select **Add a New DN**.

Step 19 Add a unique directory number for the CTI port you just created.

The extension length can be different from the extension length of the LCP Port if your dial plan requires it.

Step 20 When finished, click **Save**, and click **Close**.

Map Local and Remote CTI Ports with Peripheral Gateway User

After you define the CTI Port pool, you must associate the CTI Ports with PG users.

Procedure

Step 1 In Unified CM Administration, select **Application User**.

Step 2 Select a username and associate ports with it.

Step 3 When finished, click **Save**, and then click **Close**.

Note If CTI ports for Unified Mobile Agent are disassociated at the Unified CM while a Mobile Agent is on an active call, the call can drop.

Maximum Call Duration Timer Configuration

By default, Mobile Agents in nailed connection mode log out after 12 hours. This happens because a Unified CM Service Parameter—the Maximum Call Duration Timer—determines the amount of time an agent phone can remain in the Connected state after login.

If you anticipate that nailed connection agents in your Unified Mobile Agent deployment will be logged on *longer than* 12 hours, use the following instructions to either:

- Increase the Maximum Call Duration Timer setting.
- Disable the timer entirely.

Configure Maximum Call Duration Timer

Note This procedure applies only to Unified Mobile Agent deployments where agents logged in to nailed connection mode are to remain connected *longer than* 12 hours. Also, if your Mobile Agent deployment uses intercluster trunks, you must perform the following steps on both local and network Unified CM clusters.

Procedure

Step 1 In Unified CM Administration, choose **System** > **Service Parameters**.

Step 2 In the Server drop-down list, choose a server.

Step 3 In the Service drop-down list, choose a server .

The **Service Parameters Configuration** windowappears.

Step 4 In the Cluster-wide Parameters section, specify a **Maximum Call Duration Timer** setting.

The default is 720 minutes (12 hours); the maximum setting allowed is 35791 minutes.

Note To disable the timer, enter **0**.

Step 5 Click **Save**.

Agent Desk Setting Configuration for Unified Mobile Agent

This section describes Agent Desk Settings that you must modify to accommodate Unified Mobile Agent features.

Configure Agent Desk Settings with Configuration Manager

This section describes Agent Desk Settings configuration settings you should specify in Unified ICM Configuration Manager to accommodate Unified Mobile Agent features.

The following instructions describe how to configure *one* Agent Desk Setting. Repeat this process for each different Agent Desk Setting in your deployment.

Procedure

Step 1 From the Unified ICM Configuration Manager, choose **Configure ICM** > **Enterprise** > **Agent Desk Settings List**.

The Unified ICM Agent Desk Settings List dialog box opens.

Step 2 Click **Retrieve**.

Step 3 Click **Add**.

Step 4 Fill in the following Attributes tab information, making sure to include settings for the following fields and check boxes:

- **Ring no answer time**. The system allows a call to ring at the agent's station before redirecting the call. This can be from 1 to 120 seconds.

  Note If you use call by call mode, the answer wait time will be longer than in a local agent inbound call scenario, so specify a value in this field to accommodate the extra processing time.

- **Logout non-activity time**. The number of seconds of agent inactivity while in the not ready state before the system logs out the agent. A blank entry disables the timer.
- **Cisco Unified Mobile Agent** (check box). Enables the Mobile Agent feature so that the agent can log in remotely and take calls from any phone.
- **Mobile Agent mode**. Select how call connections are made to the Mobile Agent's phone:
  - **Agent chooses**. Agent selects call by call or nailed connection at login.
  - **Call by call**. Agent's phone is dialed for each incoming call. When a call ends, the connection is terminated before the agent is made ready for next call.
  - **Nailed connection**. Agent is called once, at login. The line stays connected through multiple customer calls.

Step 5 Click **Save**.

Note For more information about configuring Agent Desk Settings in Unified CCE, see *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide*.

Device Configuration for Unified Mobile Agent

Use the Agent Targeting Rules (ATR) mechanism described in the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* to configure a device as you would for a phone, but using the LCP Port in place of the agent's phone extension.

Media Termination Points Configuration

If you use SIP trunks, you must configure Media Termination Points (MTPs). You must also configure MTPs if you use TDM trunks to create an interface with service providers.

Additionally, MTPs are required for Mobile Agent call flows that involve a Cisco Unified Customer Voice Portal (CVP) solution. Because in DTMF signaling mode the Mobile Agent uses out-of-band signaling, whereas Unified CVP supports in-band signaling, the conversion from out-of-band to in-band signaling requires an MTP resource.

MTPs may be allocated as required in deployments that use a mix of IPv4 and IPv6 connections. MTP resources are allocated provided that the Media Resource Group List is configured on the IPV4 endpoint.

MTPs are available in the following forms, but not all are supported in Mobile Agent environments:

- Software-based MTPs in Cisco IOS gateways—use these MTPs for Mobile Agent as they provide codec flexibility and improved scalability compared with other MTP options. The following is a sample configuration on a gateway.

```
sccp local GigabitEthernet0/0
sccp ccm 10.10.10.31 identifier 1 priority 1 version 7.0
sccp ccm 10.10.10.131 identifier 2 priority 2 version 7.0
sccp
!
sccp ccm group 1
 associate ccm 1 priority 1
 associate ccm 2 priority 2
 associate profile 3 register gw84xcode
 associate profile 1 register gw84conf
 associate profile 2 register gw84mtp
!
dspfarm profile 3 transcode
 codec g729abr8
 codec g729ar8
 codec g711alaw
 codec g711ulaw
 codec g729r8
 codec g729br8
 maximum sessions 52
 associate application SCCP
!
dspfarm profile 1 conference
 codec g729br8
 codec g729r8
 codec g729abr8
 codec g729ar8
```

```
 codec g711alaw
 codec g711ulaw
 maximum sessions 24
 associate application SCCP
!
dspfarm profile 2 mtp
 codec g711ulaw
 maximum sessions software 500
 associate application SCCP
```

- Hardware-based MTPs in Cisco IOS gateways—These MTPs are supported. If you choose these, consider the extra cost, codec restrictions, and scalability constraints.
- Software-based MTPs using the Cisco IP Voice Media Streaming Application—These MTPs are not supported with Mobile Agents.

Note Because Unified CM-based software MTPs are used implicitly, you must add a special configuration to avoid using thcce-in10360-01-pcceucceipv6support-1101em. Create a new Media Resource Group (MRG) as a place holder, and place the software MTPs in that MRG. For instructions, refer to the Unified CM help documentation.

Configure Media Termination Points in Unified CM

Add MTP Resources to Unified CM

Perform these steps to add media termination points (MTPs) to Unified CM.

Procedure

Step 1 In Unified CM Administration click **Media Resources** > **Media Termination Point**.

Step 2 Click Add New.

Step 3 Choose **Cisco IOS Enhanced Software Media Termination Point** from the **Media Termination Point Type** drop-down list.

Step 4 Enter an MTP name. This name must match the device name you chose in IOS. In the example in the previous section, the MTP was called gw84mtp, as from the config line: **`associate profile 2 gw84mtp`**.

Step 5 Choose the appropriate device pool.

Step 6 Click **Save** and then click **Apply config**.

Step 7 Navigate back to **Media Termination Point** and ensure the newly added MTP is listed as being registered with <*Unified CM subscriber IP address*> in the Status column.

Step 8 Repeat steps 1 through 7 for each sccp ccm group you configured on each of your gateways.

Configure Media Termination Point Resources in Unified CM

This section explains how to create media resource groups and media resource group lists.

Procedure

Step 1 Navigate to **Media Resources** > **Media Resource Group** in Unified CM Administration.

Step 2 Click **Add New**.

Step 3 Specify a name and description.

Step 4 From the Available Media Resources that you just created, move the those devices from the Available to the Selected list by clicking the down arrow. Ensure that you do *not* include Unified CM Software resources. For example, type anything that starts with ANN_, MTP_, or MOH_ .

Step 5 Navigate to **Media Resources** > **Media Resource Group List**.

Step 6 Click **Add New**.

Step 7 Move the Media Resource Group you just created from the Available Media Resource Groups to the Selected Media Resource Groups.

Step 8 Click **Save**.

Associate Media Resource Group List with Device Pools

Procedure

Step 1 Navigate to **System** > **Device Pool** and click on the device pool that contains the CTI ports for Mobile Agent. If there are multiple pools, perform the next step for each device pool that applies.

Step 2 In the Media Resource Group List drop-down list, select the Media Resource Group List that you just created, click **Save** and then click **Apply config**.

Quarantine Unified CM Software-Based Resources

Unified CM-based software MTPs are used by default. However, Cisco contact center deployments do not support these resources because they may cause performance problems in call processing. You must quarantine them with a special configuration. Perform the following steps:

Procedure

Step 1 Create a new Media Resource Group (MRG) as a place holder.

Step 2 Place the software MTPs in that MRG.

For further instructions, refer to the Unified CM help documentation.

Insert MTPs

If you use SIP trunks, you must configure MTPs. This also applies if you use TDM trunks to interact with service providers. Mobile Agent cannot use an MTP with codec pass through. When you configure the MTP, you must select No pass through. KPML is not supported with Mobile Agent.

Procedure

Step 1 Log in to Unified CM Administration and select **Device** > **Trunk**.

Step 2 Select the trunk on which you want to configure MTPs.

Step 3 Depending on the scenario listed below, perform the corresponding step listed in the Description column. Note that if you configure Trunk Groups to dynamically insert MTPs, only the calls that require MTPs use them.

- If you want to always insert MTPs for inbound and outbound calls through a given trunk: In the Trunk Configuration settings, select the **Media Termination Point Required** check box.
- If you want to dynamically insert MTPs when Unified ICM detects media or signaling incompatibility between the caller and called endpoints: In the Trunk Group Configuration settings, in DTMF Signaling Method, select **RFC2833**.

Enable Call Progress Tones for Agent-Initiated Calls

Procedure

When **MTP Required** is not enabled, extra configuration is required to enable an agent to hear call progress tones for agent initiated calls. If instead you have dynamic MTP allocation by forcing mismatched DTMF settings, then configure the Unified Communications Manager to enable Early Offer.

For information on configuring the Unified Communications Manager, see the Unified Communications Manager product documentation at https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/tsd-products-support-series-home.html. The Cisco Annunciator does not generate ringback and other call progress tones, as it does for regular phones and softphones. Instead, Mobile Agent relies on the called party generating these tones (and the early offer setting triggers sending these tones to the agent).

Note This selection does not affect MTP sizing for IP Phones and other endpoints that support RFC2833 signaling, as is the case for many Cisco phones. For more information about supported phones, see the Contact Center Enterprise Compatibility Matrix at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-device-support-tables-list.html.

Verify MTP Resource Utilization

Since Unified CM comes preconfigured with Software MTP resources, these resources may sometimes be used to provide MTP for Mobile Agent calls without proper configuration. Because we don't support the use of Unified CM based software MTPs, we explicitly quarantined them in the above section, Disabling Unified CM Based Software MTPs. To ensure that the new IOS-based MTPs are the ones being used for Mobile Agents, perform the following steps to verify that correct MTPs are used.

Procedure

Step 1 Install the Unified CM Realtime monitoring tool. This tool can be downloaded under **Application** > **Plugins** within Unified CM Administration.

Step 2 Place a call to a logged-in Mobile Agent.

Step 3 Open the Unified CM Realtime monitoring tool and navigate to **System** > **Performance** > **Open Performance Monitoring**.

Step 4 Expand the node(s) that are associated with your IOS-based MTP resources and choose **Cisco MTP Device**.

Step 5 Double-click **Resources Active** and choose all of the available resources to monitor. This includes both IOS and Unified CM-based resources. Ensure that the only resources that are active during the Mobile Agent phone call are the IOS-based resources. Also, ensure that all UCM-based MTP resources are *not* active.

Step 6 Repeat the previous step for each node that has MTP resources associated with it.

Enabled Connect Tone Feature

In a nailed connection, the system can play a tone to the Unified Mobile Agent through the agent headset to let the agent know when a new call is connected. In the default Installation, the Mobile Agent Connect Tone feature is disabled.

Enable Mobile Agent Connect Tone

If you require Unified Mobile Agent Connect Tone, you must make the following change in the Windows Registry for the key PlayMAConnectTone under the JTAPI GW PG registry entries.

Perform the following procedure to allow a Mobile Agent in the nailed connection mode to hear a tone when a new call is connected.

Before you begin

MTP resources must be associated with the CUCM trunk that connects to the Agent Gateway.

Procedure

Step 1 On the PG machine, open the Registry Editor (regedit.exe).

Step 2 Navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<InstanceName>\PG1A\PG\CurrentVersion\JGWS\jgw1\JGWData\Config\PlayMAConnectTone`.

The Edit DWORD Value dialog box appears.

Step 3 In the Value data: field, enter **1** to enable Mobile Agent Connect Tone and click **OK**.

Step 4 Exit the Registry Editor to save the change, and cycle the PG service.

Administration and Usage

Cisco Finesse

Finesse provides a browser-based desktop for agents and supervisors. Mobile agents can perform the same call control functions as Unified CCE agents. Mobile supervisors can perform all call control functions except for silent monitoring.

Sign in to Cisco Finesse Desktop

Procedure

Step 1 Enter the hostname of the Finesse server in the fully qualified domain name (FQDN) format: https://<FQDN of Finesse server>, where FQDN is the fully qualified domain name of the Finesse server.

In an IPv6-enabled environment, you must include the port number in the URL (https://*FQDN of Finesse server*:8082/desktop).

Step 2 In the ID field, enter your agent ID.

Step 3 In the Password field, enter your password.

Step 4 In the Extension field, enter your extension.

For a mobile agent, the extension represents the virtual extension for the agent, also known as the local CTI port (LCP).

Step 5 Check the **Sign in as a Mobile Agent** check box.

The Mode and Dial Number fields appear.

Step 6 From the Mode drop-down list, choose the mode you want to use.

In **Call by Call** mode, your phone is dialed for each incoming call and disconnected when the call ends.

In **Nailed Connection** mode, your phone is called when you sign in and the line stays connected through multiple customer calls.

Step 7 In the Dial Number field, enter the number for the phone you are using.

Option	Description
ID	The agent ID.
Password	Your supervisor assigns this password.
Extension	The agent's extension.
Sign in as Unified Mobile Agent	Select to sign in as a Unified Mobile Agent.
Mode	Call by Call or Nailed Connection
Dial Number	The number of the phone being used.

Step 8 Click **Sign In**.

Note In Nailed Connection mode, the desktop must receive and answer a setup call before sign-in is complete.

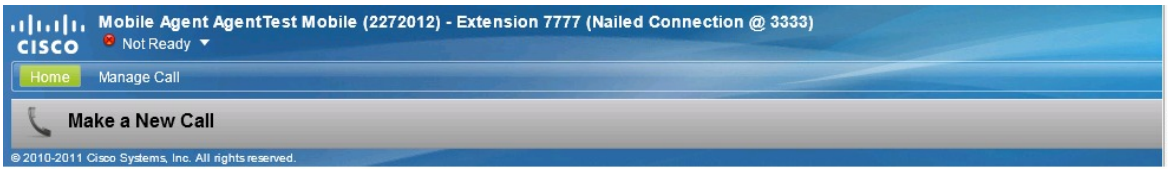
In Call by Call mode, the dial number provided is not verified. To ensure that the number is correct, verify the number in the header on the Agent Desktop after sign-in is complete.

Verify Sign-In to Cisco Finesse

Procedure

Check to be sure the Finesse Agent Desktop displays the following in the header:

- *Mobile Agent* before your agent name
- The mode used (Call by Call or Nailed Connection)
- The dial number you provided



344134

Enable Ready State

You must be in Ready state to process incoming calls.

Procedure

Choose **Ready** from the drop-down list below the agent name.

Note If you are in call-by-call mode, you must answer and end each incoming call on your physical phone. After you answer a call, you must perform all other call control functions (such as Conference, Transfer, Hold, Retrieve) using the desktop.

With call-by-call connection, an agent cannot end one leg of a transfer without terminating it at the other end. The transfer must either be fully completed or both legs completely dropped.

If you are in Nailed Connection mode, after you answer the initial setup call, you must perform all other call control functions using the desktop.

Make a Call

Procedure

Step 1 From the drop-down list below the agent name, choose **Not Ready**.

Note You must be in Not Ready state to make a call.

Step 2 Click **Make a New Call**.

Step 3 Enter the number you want to call on the keypad, and then click **Call**.

If you are in Call by Call mode, the CTI server sends a setup call to your phone. A message appears on the keypad that states the following:

```
A call will be initiated to your phone which must be answered before an
outbound call to your destination can be made.
```

After the setup call is answered, the system establishes the outbound call to the destination specified.

Serviceability

On a Mobile Agent call flow, CUCM may return a 404 error due to the absence of a agent greeting, leading to call failure. To fix this issue, do the following:

1. Create a new Run External Script node. Map the backup media of the script to the agent greeting recording (media file).
2. Add the Run External Script node between the failure path of the AgentGreeting Run External Script node and the End node.
3. Connect the Run External Script node's success path to the existing Release Call node and failure path to the existing End node.

Note This fix may add a short delay of one to two seconds to the call flow.

For information about Agent Greeting Play Script.