



Mobile Agent Guide for Cisco Unified Contact Center Enterprise & Hosted

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Preface

Purpose

This guide provides an overview of Cisco Unified Mobile Agent (Unified MA), Unified MA call flow information, configuration tasks, and step-by-step installation instructions for using the Cisco Unified MA feature for Cisco Unified Contact Center Enterprise/Hosted (Unified CCE/CCH).

For ease of use, the guide separates system configuration instructions and troubleshooting information from task-related instructions for supervisors and agents using Unified MA.

Cisco Unified Mobile Agent enables an agent using any PSTN phone and a broadband VPN connection (for agent desktop communications) to function just like a Cisco Unified Contact Center Enterprise (Unified CCE) agent sitting in a formal call center and using a Cisco IP Phone monitored and controlled by Cisco Unified Communications Manager (Unified CM) JTAPI.

If you are upgrading to 8.0(1) and are planning to configure a mobile agent to use an *analog* phone or an IP Phone *without* Cisco Business Ready Teleworker setup, you should use the Mobile Agent Option. However, if you are planning to configure a mobile agent to use the deployment option of IP Phone *with* Cisco Business Ready Teleworker setup, use Remote Agent.

Audience

This document is intended for the administrator responsible for Unified MA configuration, and for contact center supervisors and agents using Unified MA to handle calls.

This guide refers to the *product as a whole* by its new name. It refers to *components and utilities* by the names that appear in the user interface.

Organization

The following describes the information contained in the sections of this guide:

Section	Description
Part 1: Cisco Unified Mobile Agent	This section contains the following: <ul style="list-style-type: none"> • Introduction to Cisco Unified Mobile Agent for Cisco Unified CCE/CCH (page 9) • System Configuration for Cisco Unified Mobile Agent (page 27)
Part 2: Using Unified Mobile Agent in Your Contact Center	This section contains the following: <ul style="list-style-type: none"> • Unified Mobile Agent for Agents (page 39) • Unified Mobile Agent for Supervisors (page 39)
Part 3: Configuration and Troubleshooting Appendix for Remote Agent	This section describes Remote Agent deployment models. (page 59)

Note: Read the *Cisco Unified Contact Center Enterprise 8.x Solution Reference Network Design (SRND)* guide before configuring Unified MA.

For additional information about Unified CCE software, see the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1844/tsd_products_support_series_home.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1844/tsd_products_support_series_home.html).

Related Documentation

Documentation for Cisco Unified ICM/Contact Center Enterprise & Hosted, as well as related documentation, is accessible from Cisco.com at: <http://www.cisco.com/cisco/web/psa/default.html>.

Related documentation includes the documentation sets for Cisco CTI Object Server (CTI OS), Cisco Agent Desktop (CAD), Cisco Agent Desktop Browser Edition (CAD-BE), Cisco Unified Contact Center Management Portal, Cisco Unified Customer Voice Portal (CVP), Cisco Unified IP IVR, Cisco Unified Intelligence Center, and Cisco Support Tools. The following list provides more information.

- For documentation for the Cisco Unified Contact Center products mentioned above, go to <http://www.cisco.com/cisco/web/psa/default.html>, click **Voice and Unified Communications**, then click **Customer Collaboration**, and then click **Cisco Unified Contact Center Products** or **Cisco Unified Voice Self-Service Products**, then click the product or option you are interested in.

- For troubleshooting tips for the Cisco Unified Contact Center Products mentioned above, go to <http://docwiki.cisco.com/wiki/Category:Troubleshooting>, and then click the product or option you are interested in.
- Documentation for Cisco Unified Communications Manager is accessible from: <http://www.cisco.com/cisco/web/psa/default.html>.
- Technical Support documentation and tools are accessible from: <http://www.cisco.com/en/US/support/index.html>.
- The Product Alert tool is accessible from (login required): <http://www.cisco.com/cgi-bin/Support/FieldNoticeTool/field-notice>.
- For information about the Cisco software support methodology, see *Software Release and Support Methodology: ICM/IPCC* available at (login required): http://www.cisco.com/en/US/partner/products/sw/custcosw/ps1844/prod_bulletins_list.html.
- For a detailed list of language localizations, see the *Cisco Unified ICM/Contact Center Product and System Localization Matrix* available at the bottom of the following page: http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_technical_reference_list.html.

Product Naming Conventions

In this release, the product names listed in the table below have changed. The New Name (long version) is reserved for the first instance of that product name and in all headings. The New Name (short version) is used for subsequent instances of the product name.

Note: This document uses the naming conventions provided in each GUI, which means that in some cases the old product name is in use.

Old Product Name	New Name (long version)	New Name (short version)
Cisco IPCC Enterprise Edition	Cisco Unified Contact Center Enterprise	Unified CCE
Cisco System IPCC Enterprise Edition	Cisco Unified System Contact Center Enterprise	Unified SCCE
Cisco IPCC Hosted Edition	Cisco Unified Contact Center Hosted	Unified CCH
Cisco Intelligent Contact Management (ICM) Enterprise Edition	Cisco Unified Intelligent Contact Management Enterprise	Unified ICME
Cisco Intelligent Contact Management (ICM) Hosted Edition	Cisco Unified Intelligent Contact Management Hosted	Unified ICMH
Cisco CallManager/Cisco Unified CallManager	Cisco Unified Communications Manager	Unified CM

Conventions

This manual uses the following conventions:

Convention	Description
boldface font	<p>Boldface font is used to indicate commands, such as user entries, keys, buttons, and folder and submenu names. For example:</p> <ul style="list-style-type: none"> Choose Edit > Find. Click Finish.
<i>italic font</i>	<p>Italic font is used to indicate the following:</p> <ul style="list-style-type: none"> To introduce a new term; for example: A <i>skill group</i> is a collection of agents who share similar skills For emphasis; for example: <i>Do not</i> use the numerical naming convention A syntax value that the user must replace; for example: IF (<i>condition, true-value, false-value</i>) A book title; for example: Refer to the <i>Cisco CRS Installation Guide</i>
window font	<p>Window font, such as Courier, is used for the following:</p> <ul style="list-style-type: none"> Text as it appears in code or that the window displays; for example: <code><html><title>Cisco Systems, Inc. </title></html></code> Navigational text when selecting menu options; for example: ICM Configuration Manager > Tools> Explorer Tools > Agent Explorer
< >	<p>Angle brackets are used to indicate the following:</p> <ul style="list-style-type: none"> For arguments where the context does not allow italic, such as ASCII output A character string that the user enters but that does not appear on the window such as a password

Obtaining Documentation and Submitting a Service Request

For information about obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

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We appreciate your comments.

Part 1: Cisco Unified Mobile Agent

This section provides:

- [An introduction to Unified MA. \(page 9\)](#)
- [Instructions for system configuration of Unified MA. \(page 27\)](#)



Chapter 1

Introduction to Cisco Unified Mobile Agent for Cisco Unified CCE/CCH

This chapter contains the following topics:

- [What is Unified MA for Unified CCE/CCH? , page 9](#)
- [Feature Requirements, page 14](#)
- [Supported Unified CCE/CCH Features, page 15](#)
- [Unsupported or Limited Features for Mobile Agent, page 17](#)
- [Important Considerations, page 17](#)
- [Unified MA Call Flows, page 19](#)
- [Unified Mobile Agent Reporting, page 25](#)

What is Unified MA for Unified CCE/CCH?

Cisco Unified Mobile Agent (Unified MA) enables an agent using any PSTN phone and a broadband VPN connection (for agent desktop communications) to function just like a Unified CCE agent sitting in a formal call center and using a Cisco IP Phone monitored and controlled by Unified CM JTAPI.

Unified MA for Unified CCE/CCH support call center agents using phones that are not directly controlled by Unified CCE/CCH. A mobile agent can be physically located:

- Outside the contact center, using an analog phone in the home or a cell phone.
- Within the contact center, using an IP phone connection that is not being controlled by Unified CCE/CCH or an associated Unified CM.

What is Unified MA for Unified CCE/CCH?

Figure 1: An Agent at Home Using Unified MA



Note: Throughout this guide the term *local agent* refers to a Cisco Unified CCE/CCH agent that is configured as a *non-mobile agent*. The term *mobile agent* refers to a Cisco Unified CCE/CCH agent using a phone that is not under control of Unified CCE/CCH. Both local and mobile agents can be physically located *within* a contact center or at a *remote* location.

With Cisco Unified MA contact centers can:

- Add/enable temporary staff during seasonal high call volume who can be brought on line with reduced startup costs.
- Provide agents 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 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.

Note: Some caveats apply; for information, see [Non-supported or Limited Unified CCE/CCH Features \(page 17\)](#).

The sections that follow highlight some of the benefits of Unified MA and describe its features.

Unified MA Extends Cisco Unified CCE/CCH Capabilities

Prior to Unified MA, Unified CCE/CCH used a JTAPI interface to Unified CM to connect customer calls arriving on a voice gateway to an agent's IP phone. Unified MA extends the Unified CCE/CCH architecture by enabling it to connect customer calls to an agent phone that *is not* controlled by Unified CCE/CCH.

Unified MA uses a pair of CTI ports that function as proxies for the mobile agent phone and the caller phone. Two CTI ports (local and remote) are required for every logged-in mobile agent, and the two CTI ports take the place of the Cisco IP Phone monitored and controlled by Unified CM JTAPI. The local CTI port DN is used by the agent at login and is where callers are routed when this agent is selected. The remote CTI port calls the agent either at login for a nailed-up connection or upon being selected for a call by call connection.

Cisco Unified CC 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 cellular phone.
- Unified MA supports Cisco CTI OS Agent Desktop, Cisco Agent Desktop (CAD), and Cisco Agent Desktop-Browser Edition (CAD-BE).
- 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 MA Provides Agent Log In Flexibility

An agent, at various times, can be either a local agent or a mobile agent, depending on how they log in.

Regardless of whether an agent logs in as a local or mobile agent, the skill groups the agent belongs to will not change. In addition, since agents are chosen by existing selection rules, not how they are connected, the same routing applies regardless of how the agent logs in.

Note: If you want to use the scripting environment to control routing depending on whether an agent is local or mobile, you will need to assign the agent to different skill groups and design the script accordingly.

In addition, a mobile agent can be available through different phone numbers at different times; the agent enters the phone number at login time. (The phone number only needs to be dialable through the Unified CM dial plan.)

Note: For more information about logging in to Unified MA, see [Using Unified MA in Your Contact Center \(page 39\)](#).

Connection Modes

Cisco Unified MA 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.

What is Unified MA for Unified CCE/CCH?

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.)

Mobile agents can be configured 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 log in 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 log in.

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 log in, the agent specifies an assigned extension for a CTI port.
2. A customer call arrives in the system and, through normal 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 MA-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 will 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: When using call by call mode, the Answer Wait Time is 3 - 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. (For instructions, see [How to Configure Unified MA on Unified ICM Configuration Manager \(page 33\)](#).)

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 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: 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 ring tone for the duration of 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.

Nailed Connection

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

The *nailed connection* call flow works as follows:

1. At log in, 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 call arrives in the system and, through normal Unified ICM 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 MA-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 will 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 terminates 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 via the agent's headset to let the agent know when a new call is connected. In the nailed connection mode, an audible connect tone can be configured in addition to a call arrival notice (on the desktop only).

Here are the features of Connect Tone:

1. It is an audible tone (2 beeps) that is sent to the mobile agent head set when the call to the nailed connection mobile agent is connected.
2. It is a DTMP tone played by Unified CM and cannot be modified.

Feature Requirements

3. It is particularly useful when auto answer is enabled or the agent is an Outbound agent.
4. The Connect Tone is played only when the nailed connection mobile agent receives a call, as in the following examples:
 - Inbound call to the agent
 - Consultation call to the agent
 - Outbound reservation call to the agent
 - Outbound call to the agent
5. The Connect Tone is not played when the nailed connection mobile agent initiates a call, as in the following examples:
 - Call is made from the agent
 - Consultation call is made from the agent
 - Outbound direct preview call is made
 - Supervisor Barge-in call is made

See Also

See the section, [How to Enable the Mobile Agent Connect Tone \(page 37\)](#), for instructions on how to enable the Connect Tone feature.

Feature Requirements

Hardware and Software Requirements

Hardware and software requirements for the Unified MA are identical to those of Cisco Unified CCE. Limitations and scalability for Unified MA are discussed in the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)*.

Phone Requirements

A mobile agent can use an analog, digital, or IP phone to handle calls.

Note: When Mobile Agent phones are located on a cluster and a SIP Trunk is used to connect the cluster to another cluster under Unified CCE control, you must either use SIP phones as Mobile Agent phones, or select *ttp required* on the Unified CCE cluster to allow mobile agent calls to work.

CTI Port Requirements

Two CTI ports (local and remote) are required for every logged-in mobile agent.

Unified MA 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's extension.
- Unified CCE/CCH, using the JTAPI Gateway, intercepts the call arriving on the CTI Port and directs Unified CM to connect the call to the mobile agent.

For Unified MA to work properly, you need to configure two pools of CTI Ports:

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

Each pool requires one port per mobile agent. These CTI Ports must be assigned to the Unified ICME application, and will be recognized by Unified ICME when receiving the Unified CM configuration.

Note: For more information, see [How to Configure CTI Port Pools \(page 30\)](#).

Supported Unified CCE/CCH Features

The following features are supported in Release 8.0(1):

- Unified CCE and Unified SCCE support temporary uninstallation while preserving Mobile agent data.

For more information on temporary uninstallation, refer to one of the following installation guides:

- *Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted*
- *Installation and Configuration Guide for Cisco Unified System Contact Center Enterprise*
- Mobile agents can participate in outbound campaigns, but they must use a nailed-up connection for all outbound dialing modes.
- Unified MA 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 MA supports silent monitoring in CTI OS and in Cisco Agent Desktop (CAD)

Note: See [Silent Monitoring Limitations \(page 18\)](#) for a list of silent monitoring usage limitations for Unified MA.

- Unified MA supports the same call control capabilities as Unified CCE/CCH (answer, hold, transfer, etc.). All call control is done through the CAD.
- Unified MA supports G.711 or G.729 codecs.
- There is no direct interaction between Unified MA and multichannel applications. Email and Chat are IP applications that will continue to operate normally, assuming the mobile agent has a desktop with enough bandwidth on the broadband connection to support them.
- Unified MA supports Cisco Unified Customer Voice Portal(Unified CVP) and Cisco Unified IP-IVR (Unified IP IVR).

Fault Tolerance Support

Fault tolerance for the Unified MA follows the behavior of Cisco Unified CCE/CCH:

- The JTAPI Gateway, IPCC PIM, and CTI components record key events related to Unified MA as part of their normal logging.
- As with standard Unified CC calls, if a peripheral gateway (PG) component such as the JTAPI Gateway fails, the phone call will not be 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 will have to log in again after a Unified CM or Unified ICM failure has occurred.
- Where CTI data is delivered for screen pops, CTI data is preserved.

Unified MA can experience many of the same failure cases as Unified CC:

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

There are also some failure cases that are unique to Unified MA:

- A situation where a mobile agent is using a cellular phone and the connection is dropped due to non-availability of a signal, would be deemed as external failure. The agent would need to call back and login again.
- If a mobile agent's phone line disconnects while using Nailed Connection mode, the agent would need to log in again to receive new calls.

Note: For information, see [Failover \(page 17\)](#) in the Non-Support/Limitations section.

Unsupported or Limited Features for Mobile Agent

- Mobile Agent scalability may be contingent on specific Unified CM versions, see the *Cisco Unified Contact Center Enterprise 8.x Solution Reference Network Design (SRND)* for details.
- Web Callback is not supported for Mobile Agent.
- Cisco Unified Contact Center Express is not supported for Mobile Agent, but does support Remote Agent. See Part 3 of this guide.
- Blended Collaboration is not supported for Mobile Agent.
- Unified CM-based silent monitoring is not supported for Mobile Agent.
- If a Mobile Agent calls RP (route point) or another Mobile Agent's instrument under the following conditions, the call will fail:
 - both Mobile Agents are using an SCCP phone as a mobile phone.
 - The remote call leg which is from RTP CTI Port to Mobile phone is via SIP CTI trunk.

Workarounds are:

- Enable MTP on SIP trunk (though note that Unified CM has limited RTP resources).
- If a SIP trunk is used, use SIP phones.
- Instead of using a SIP trunk, use H.323.

Important Considerations

Before you proceed, consider the following Unified MA limitations and recommendations:

Failover

- During failover, if an agent in call by call mode answers an alerting call, the call might be dropped. This occurs because the media cannot be bridged when there is no active PG.
- During a prolonged failover, if an agent takes call control action for a Unified MA-to-Unified MA call, the call might be dropped. This occurs because the activating PG might not have information for all agents and calls at that point.
- Unified CM failover causes a Mobile Agent call to be lost because call preservation on H.323 devices is not supported.

Important Considerations

Performance

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

For more details about sizing mobile agents, refer to the *Cisco Unified Contact Center Enterprise 8.x Solution Reference Network Design (SRND)*.

For more information, refer to the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)* for this release.

- Since Unified MA adds processing steps to Unified CCE/CCH default functionality, mobile agents might experience some delay in screen pops.
- From a caller's perspective, the call by call delivery mode has a longer ring time compared to the nailed connection delivery mode. This is because Unified CCE/CCH 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 ring tone while Unified CCE/CCH makes these connections.

Codec

The codec settings on the Peripheral Gateway and Voice Gateway must match.

Silent Monitoring

Unified MA provides the following Silent Monitoring support:

- Unified MA supports Silent Monitoring in a CAD or CTI OS deployment.
- Unified MA requires that caller and agent voice gateways be on separate devices if Silent Monitoring is to be used.
- Unified MA does not support Desktop Monitoring.

Note: For more information about Silent Monitoring requirements in a Unified MA environment, see *CTI OS System Manager's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

Unified MA Call Flows

This section provides sample Unified MA call flows for:

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

In all Unified MA 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, and perform call control.

About The Figures in This Section

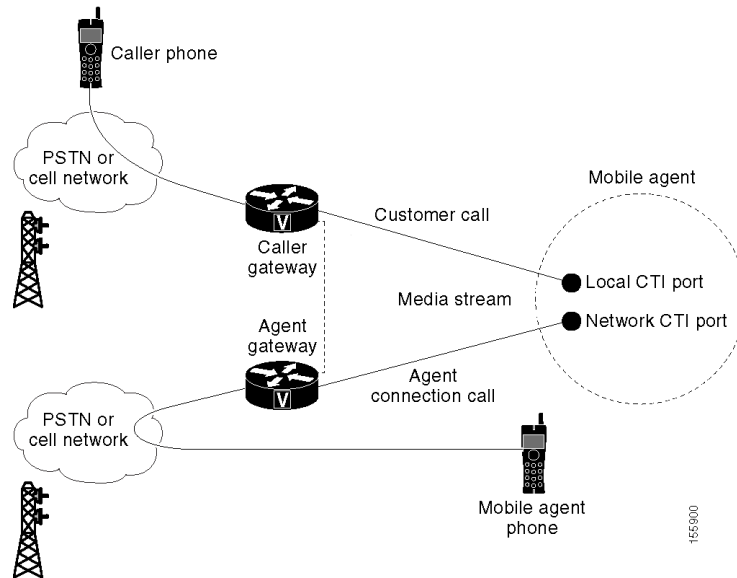
The figures in this section:

- 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 MA.

Inbound Call Flow

The following figure shows an inbound call flow.

Figure 2: Mobile Agent Inbound Call Flow



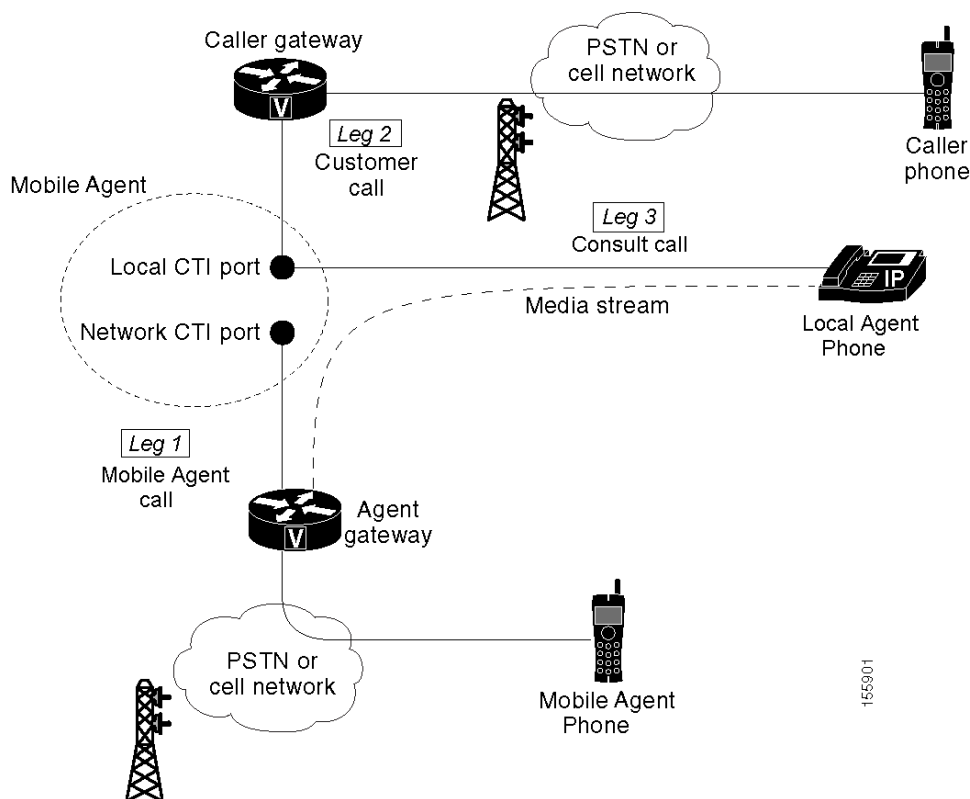
Note: Caller and Agent voice gateways can co-reside on one device, except in deployments where Silent Monitoring is required.

1. The mobile agent becomes available to answer calls by:
 - Logging on to the corporate domain using VPN over the ADSL/Cable connection.
 - Launching the agent desktop interface and logging in to the CTI server with their remote phone information.
 - Entering the Ready mode.
2. A customer call arrives at the Cisco 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 call's media 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 3: Mobile Agent Local Consult Call Flow



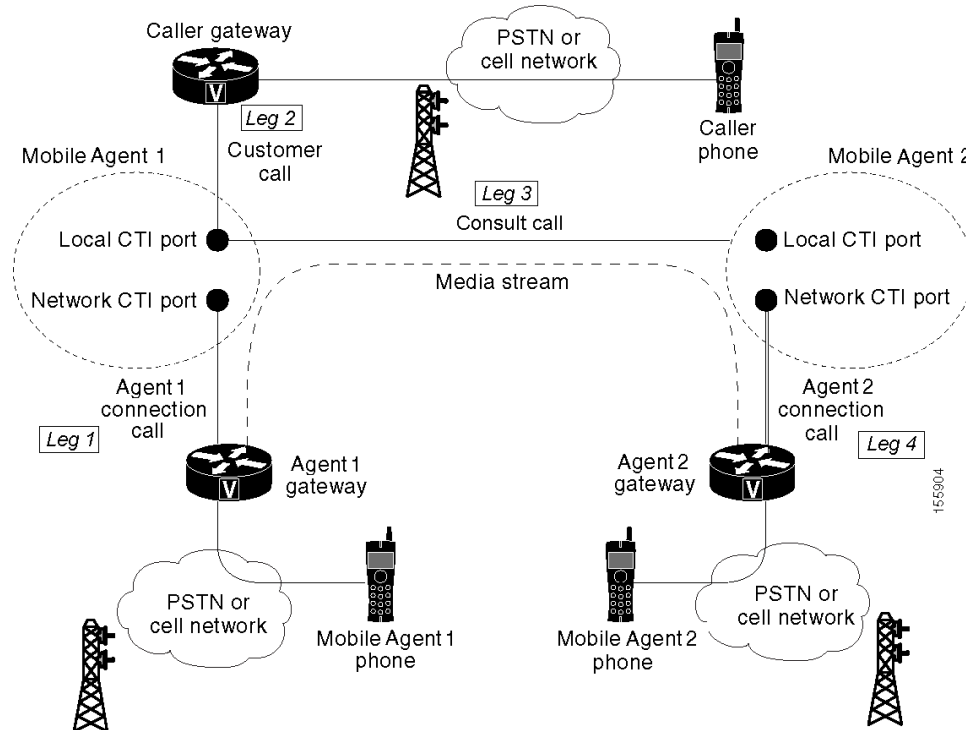
Note: Caller and Agent voice gateways can co-reside on one device, except in deployments where Silent Monitoring is required.

1. The mobile agent becomes available to answer calls by:
 - Logging on to the corporate domain using VPN over the ADSL/Cable connection.
 - Launching the agent desktop interface and logging in to the CTI server with their remote phone information.
 - Entering the Ready mode.
2. A customer call arrives at the Cisco 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/CCH agent.
7. The JTAPI Gateway uses local and network CTI ports of the mobile agent to stream the call's media 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 4: Mobile Agent Remote Consult Call Flow



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

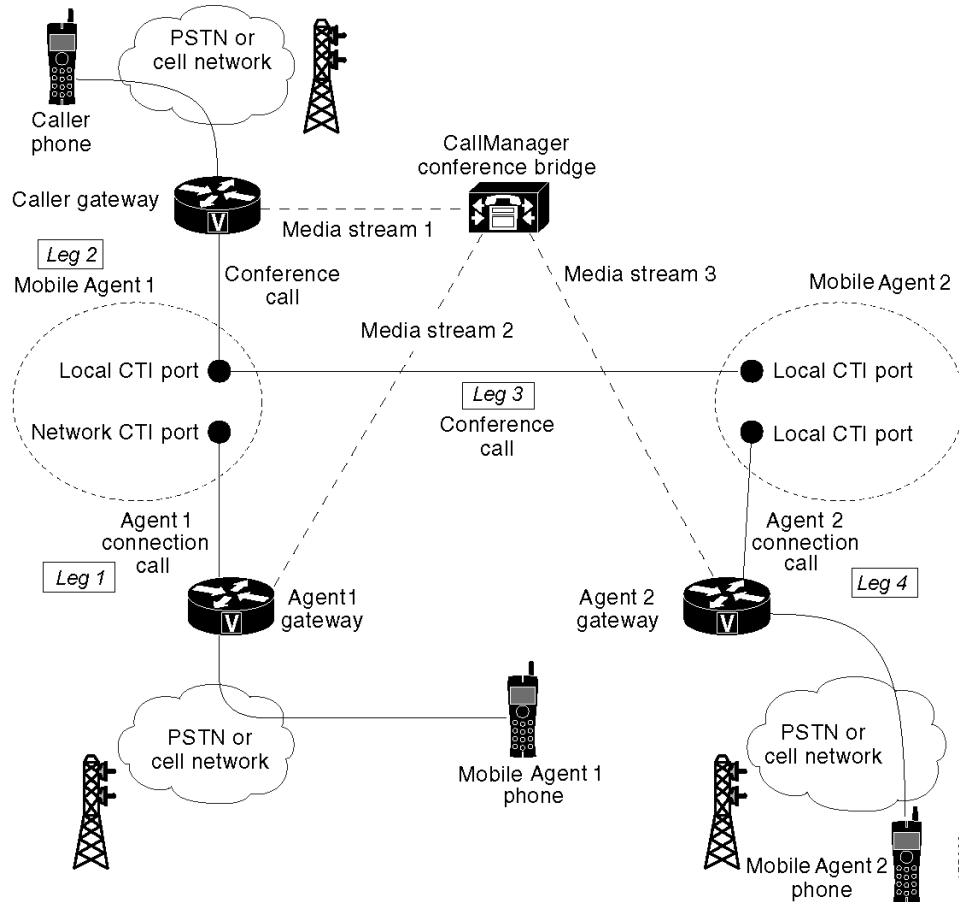
1. The mobile agent becomes available to answer calls by:
 - Logging on to the corporate domain using VPN over the ADSL/Cable connection.
 - Launching the agent desktop interface and logging in to the CTI server with their remote phone information.
 - Entering the Ready mode.
2. A customer call arrives 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 call's media 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 5: Mobile Agent Remote Conference Call Flow



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

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

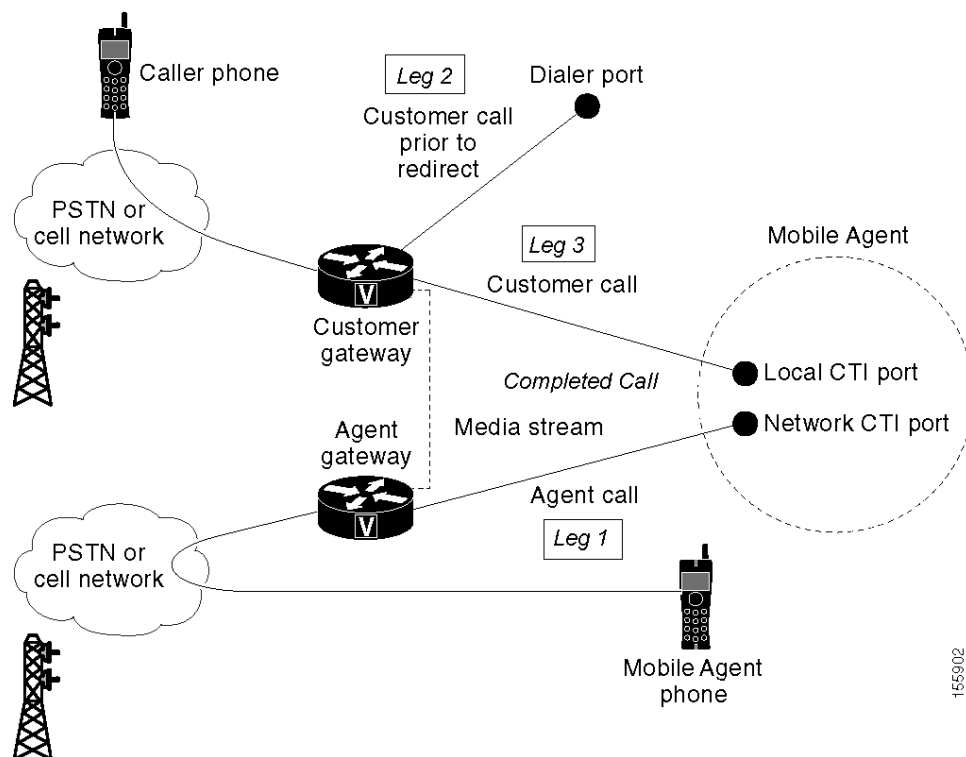
3. The JTAPI Gateway creates a mobile agent class to manage local and network CTI ports for a mobile agent.
4. The Router passes the call to the *local* CTI Port of a mobile agent.
5. Unified CM redirects the media stream 1 from inbound gateway on the Caller Gateway to the conference bridge during call merging process.
6. The JTAPI Gateway uses local and network CTI ports of mobile agent 1 to loop the call's Media Stream 2 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 call's Media Stream 3 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 MA supports Outbound Option calls in nailed connection delivery mode, *only*.

Figure 6: Mobile Agent Outbound Call Flow



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

1. The mobile agent becomes available to answer calls by:
 - Logging on to the corporate domain using VPN over the ADSL/Cable connection.
 - Launching the agent desktop interface and logging in to the CTI server 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 call's media from the inbound gateway port to the outbound gateway port.

Unified Mobile Agent Reporting

Unified MA-specific call data is contained in the following Unified CC reports:

- **Agent Real time reports (Agent20, Agtper20, Agtskg30, Agteam20).** These reports show what kind of call the agent is on (not mobile, call by call, nailed connection), and the mobile agent's phone number.
- **Agent Log Out Reports (Agent03, Agtper03, Agteam03).** These reports show what kind of call the agent was on (not mobile, call by call, nailed connection) and the mobile agent's phone number.
- **Agent Real Time All Fields Reports (Agent28, Agtper28, Agtskg28, Agteam28).** These reports show what kind of call the agent was on (not mobile, call by call, nailed connection etc.) and the mobile agents 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, since 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/CCH 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.

See Also

For more information about these reports, see *WebView Template Reference Guide for Cisco Unified Contact Center Enterprise & Hosted*.

For information about Unified MA fields in the database schema, see *Database Schema Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*



Chapter 2

System Configuration for Unified Mobile Agent

This chapter contains the following topics:

- [Summary of Unified Mobile Agent System Configuration Tasks, page 27](#)
- [About Unified Mobile Agent Performance and Optimization, page 28](#)
- [Configuring Unified CM for Unified MA, page 28](#)
- [Configuring the Unified CM Maximum Call Duration Timer, page 32](#)
- [Configuring Agent Desk Setting for Unified MA, page 32](#)
- [Configuring Device Targets for Unified MA, page 35](#)
- [Configuring Cisco CTI OS for Unified MA, page 36](#)
- [Enabling the Connect Tone Feature, page 37](#)
- [How to Enable the Mobile Agent Connect Tone, page 37](#)

Summary of Unified Mobile Agent System Configuration Tasks

This section describes the configuration tasks *specific* to Unified MA configuration. It *does not* describe Unified CCE/CCH.

Note: For complete details about installing and configuring Unified CCE/CCH, see *Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted*.

Table 1: Unified MA System Configuration Tasks

Task	See
Configure Unified CM CTI Port pools and Call Duration Timer	Configuring Unified Communications Manager for Unified MA (page 28) provides: <ul style="list-style-type: none">• Information about naming conventions for CTI Port pools in a Unified MA deployment and instructions for configuring and mapping the port pools.

About Unified Mobile Agent Performance and Optimization

Task	See
	<ul style="list-style-type: none"> Instructions for configuring the Unified CM Maximum Call Duration Timer.
Configure Agent Desk Settings	Configuring Agent Desk Setting for Unified MA (page 32) for instructions for performing this task.
Configure Device Targets	Configuring Device Targets for Unified MA (page 35) for instructions for performing this task.
Configure CTI OS	Configuring Cisco CTI OS for Unified MA (page 36) for instructions for performing this task.

About Unified Mobile Agent Performance and Optimization

Unified MA is resource-intensive. Since it essentially uses two CTI ports for each mobile agent, you might find that your system's call capacity level will be lower.

For complete information about configuring Unified MA to maximize performance, refer to this release's version of the following documents:

- *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)*
- *Cisco Unified Contact Center Enterprise 8.x Solution Reference Network Design*

Configuring Unified CM for Unified MA

This section contains the following topics:

- Configuring and Mapping Unified CM CTI Ports for Unified MA
- Configuring the Unified CM Maximum Call Duration Timer

Configuring and Mapping Unified CM CTI Ports for Unified MA

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 *Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted* or the *Installation and Configuration Guide for Cisco Unified System Contact Center Enterprise* (if using the System Deployment of Unified CCE).

Unified MA needs two CTI Port pools configured on Unified CM:

- A *local* CTI port, which Unified MA uses as the agent's virtual extension.
- A *network* CTI port, which Unified MA 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 network port *must* begin with the string **RCP**.
- Although not required, for best practices, use the following naming convention:
 - For a **local** CTI Port pool name, configure a name in the format LCPxxxxFyyyy, 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** would represent 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 substituting **RCP** as the first three characters.

Note: While a naming convention is not required, 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. Adding the CTI port as you would for an IP Phone.
2. Using the naming convention described above to map the local and network CTI ports.

Note: Each local CTI port needs to have a corresponding network CTI port.

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

Music on Hold Design

If a caller must hear music when a mobile agent places the caller on hold, you must assign MoH resources to the ingress voice gateway or trunk that is connected to the *caller* (as you would 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 agent is put 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.

Note: Cisco recommends that you do not assign MoH resources to local ports and remote CTI ports, as it might impact 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. In general, Cisco recommends enabling MoH to the mobile agent phone for nailed connection calls. If MoH resources are an issue, multicast MoH services should be considered.

If a remote Mobile Agent calls over a nailed connection, and If MoH is disabled, the hold tone will be played 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). With the hold tone enabled, it is difficult for the agent to identify if a call arrived from listening to the Mobile Agent connect tone. Therefore, Cisco recommends that you disable the hold tone for Unified CM. To do this, change the setting of the *Tone on Hold Timer* service parameter. For details on setting this parameter, refer to the Unified CM product documentation available at http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_series_home.html

How to Configure Unified CM CTI Port Pools for Unified MA

Perform the following steps to configure CTI Ports.

-
- 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 example naming convention format LCPxxxxFyyyy:

- **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**.

- Step 6** In Description, enter text identifying the local CTI Port pool.
- Step 7** Use the Device Pool drop-down list to choose the device pool to which you want network CTI Port pool assigned. (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** When finished, click **Save** and **Close**.
- Step 12** Repeat the steps above to configure the **network** CTI Port pool.

In Device Name, using the example naming convention format RCPxxxxFyyyy, where:

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

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

- Step 13** In Description, enter text identifying the network CTI Port pool.
- Step 14** Use the Device Pool drop-down list to choose the device pool to which you want network CTI Port pool assigned. (The device pool defines sets of common characteristics for devices.)
- Step 15** Click **Save**.
- Step 16** Highlight a record and select Add a New DN.
- Step 17** Add a unique directory number for the CTI port you just created.
- Step 18** When finished, click **Save** and **Close**.
-

How to Map Local and Network CTI ports With PG User

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

- Step 1** In Unified CM Administration, select **Application User**.
- Step 2** Select a user name and associate ports with it.
- Step 3** When finished, click **Save** and **Close**.

Note: If CTI ports for Unified MA are disassociated at the Unified CM while a mobile agent is on an active call, the call might be dropped.

Configuring the Unified CM Maximum Call Duration Timer

By default, mobile agents in nailed connection mode will be logged 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 MA deployment will be logged on *longer than* 12 hours, follow the instructions below to either:

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

How to Configure the Unified CM Maximum Call Duration Timer

Note: This procedure applies *only* to Unified MA deployments where agents logged on in nailed connection mode are to remain connected *longer than* 12 hours.

Note: If your Mobile Agent deployment uses intercluster trunks, you must perform the following steps on both local and network Unified CM clusters.

-
- Step 1** In Unified CM Administration, select **System > Service Parameters**.
- Step 2** In the Server drop-down list, choose a server.
- Step 3** In the Service drop-down list, choose **Unified CM**.
- The Service Parameters Configuration window appears.
- 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**.
-

Configuring Agent Desk Setting for Unified MA

This section describes Agent Desk Settings you should modify to accommodate Unified MA features.

You can configure Agent Desk settings through:

- Unified ICM Configuration Manager

- System IPCC Web Administration

How to Configure Agent Desk Settings with Unified ICM Configuration Manager

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

Note: The instructions below describe how to configure *one* Agent Desk Setting; repeat this process for each different Agent Desk Setting in your deployment.

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.** Unified CCE/CCH will allow a call to ring at the agent's station before redirecting the call. This can be from 1 to 120 seconds.

Note: If using 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 Unified CCE will logout the agent. A blank entry will disable the timer.

Note: In addition, the CTI OS ConnectionProfiles key **RejectIfAlreadyLoggedIn** should be set to 1 to prohibit an agent from logging in again as both a remote and a local agent. For more information, see [Configuring Unified MA for Cisco CTI Object Server \(CTI OS\) \(page 37\)](#).

- **Cisco Unified Mobile Agent** (checkbox). Enables the Unified MA feature so that the agent can login 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 complete details configuring Agent Desk Settings in Unified CCE/CCH, see *Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted*.

How to Configure Agent Desk Settings with System IPCC Web Administration

This section describes Agent Desk Settings configuration settings you should specify through System IPCC Web Administration to accommodate Unified MA features.

Note:

- The instructions below describe how to configure *one* Agent Desk Setting; repeat this process for each different Agent Desk Setting in your deployment.
 - Cisco Unified System Contact Center Enterprise (Unified SCCE) is supported in 8.0(1); however, there is not a separate 8.0(1) version. If you request features that are in 8.0(1), you must migrate to the Unified ICM/CCE/CCH software. Full migration information is documented in the *Upgrade Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.
-

Step 1 Log in to the System IPCC Web Administration tool.

Step 2 Under Agent Management, click **Desk Settings**.

Step 3 Create a new Desk Setting or edit an existing Desk Setting, making sure to include settings for the following fields and check boxes:

- **Ring no answer time.** Unified CCE/CCH will allow a call to ring at the agent's station before redirecting the call. This can be from 1 to 120 seconds.

Note: If using 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 Unified CCE will logout the agent. A blank entry will disable the timer.
- **Enable Cisco Unified Mobile Agent** (checkbox). Enables the Unified MA feature so that the agent can login 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 4** Click **Save**.
- Step 5** Under Agent Management, click **Agents**.
- Step 6** Click the hyperlinked name of an agent you want to be enabled for Unified MA and select a Unified MA Desk Setting from the pull-down on the Edit Agent page.
- Step 7** Click **Save**.

Note: For complete details configuring Agent Desk Settings using the Unified CCE Web Administration Tool, see *Installation and Configuration Guide for Cisco Unified System Contact Center Enterprise*.

Configuring Device Targets for Unified MA

Unified CCE systems require that a device target be configured for each IP telephone that might be used by an agent. The only difference between configuring a device target for a local agent and a remote agent is that Unified MA uses the agent's *local CTI port* instead of the agent's *extension*.

How to Configure Device Targets

Note: This step is not required for deployments that use the System PG.

-
- Step 1** From the Unified ICM Configuration Manager, choose **Configure ICM > Targets > Device Target > Device Target Explorer**.
- The Device Target Explorer window opens.
- Step 2** Click **Retrieve** and then click **Add Device Target**.
- The Device Target tab opens.
- Step 3** Enter values for the following fields:
- **Name.** An enterprise name for the target. This name must be unique among all device targets in the enterprise.
 - **Global Address.** The global address for the device. Must be set to a value that is unique from all other device targets in the enterprise. It is suggested that you use the same value that you entered in the Enterprise Name field.
 - **Config Parameters.** Use this field to enter any specific configuration parameters that might be required:
 - /devtype (CiscoPhone)

- /dn (Line number of the LCP port)

The system software gives this string to the Unified CM to initialize the device.

- **Description.** Enter a description of the device. This is an optional field used to provide additional information about the device.

Step 4 When finished, click the **Save**.

Note: For complete details configuring Device Targets in Unified CCE/CCH, see *Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted*.

Configuring Cisco CTI OS for Unified MA

This section describes information about CTI OS configuration settings that you need to know *after* initial installation of a Mobile Agent-enabled CTI OS Server.

Note: For complete instructions on installing and configuring CTI OS Server, see *CTI OS System Manager's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

About CTI OS Installation and Unified MA

Note: Running the CTI OS 7.x server installer is not the same as running CTI OS 7.x installer from the CTI OS bin directory.

To configure Mobile Agent, first run the CTI OS 7.x server installer. Then run the CTI OS installer from the CTI OS bin directory. The first installer updates CTI OS server while the second installer allows you to configure mobile agent. Use this procedure for configuring any new feature made available in a maintenance release.

During the peripheral identification step of CTI OS Server installation:

- The Unified MA feature is enabled for the CTI Desktop (from the CTI OS bin directory).
- The call delivery mode (agent choose, call by call, nailed connection) is defined.

About Call Delivery Mode and Agent Profiles

- The call delivery mode selected during CTI OS Server installation enables CTI OS to send an agent profile to each desktop client for that mode.
- The call delivery mode the agent uses at login needs to match the mode configured for the agent in the Agent Desk Setting.

- Re-running the CTI OS installation and selecting a different Mobile Agent mode will overwrite the existing profile.
- Additional profiles can be added manually using the CTI OS registry.

How to Prevent Duplicate Logins to the Same AgentID

In the default Installation, the CTI OS system does not prevent duplicate logins. If you want to change the default, you need to make the following change in the Windows Registry for the key *RejectIfAlreadyLoggedIn*.

Perform the following steps to prevent duplicate logins.

-
- | | |
|---------------|---|
| Step 1 | On the CTI OS Server, open the Registry Editor (regedit.exe). |
| Step 2 | Navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\CTIOS\CTIOS_<InstanceName>\ctios1\EnterpriseDesktopSettings\All Desktops\Login\ConnectionProfiles\Name\<YourConnectionProfileName>\RejectIfAlreadyLoggedIn |
| | The Edit DWORD Value dialog box appears. |
| Step 3 | In the Value data: field, enter 1 and click OK . |
| Step 4 | Exit the Registry Editor to save the change, and reboot your computer. |
-

Optionally, you can configure the CTI OS CTI Driver key **IdleTimeout** to the same value as the Unified ICM Agent Desk Settings **Logout non-activity time** value. See [How to Configure Unified MA on Unified ICM Configuration Manager \(page 33\)](#) for information about configuring Agent Desk Settings.

Enabling the Connect Tone Feature

In a nailed-up connection, it enables the system to play a tone to the mobile agent via the agent's headset to let the agent know when a new call is connected. In the default Installation, the Mobile Agent Connect Tone feature is disabled.

How to Enable the Mobile Agent Connect Tone

If Unified MA Connect Tone is required, you need to make the following change in the Windows Registry for the key *PlayMAConnectTone* under the JTAPI GW PG registry entries.

Perform the following steps to allow a mobile agent in the nailed connection mode to hear a tone when a new call is connected.

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

Enabling the Connect Tone Feature

- Step 2** Navigate to **HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\icm7\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.
-

Part 2: Using Unified Mobile Agent in Your Contact Center

This section provides the following:

- Important information about Unified Mobile Agent features and functionality.
- Instructions for call processing for agents using the Cisco CTI OS Agent Desktop or the Cisco Agent Desktop.
- Instructions for call processing and agent management for supervisors using the Cisco CTI OS Supervisor Desktop or CAD Supervisor Desktop.

Note:

- This section describes tasks that are *specific* to interacting with Unified MA. For complete information about using these desktops, refer to the Cisco CTI OS documentation (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps14/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps14/products_user_guide_list.html)) and the CAD documentation (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps427/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps427/products_user_guide_list.html)).
- Refer to the *Hardware and System Software Specifications (Bill of Materials) for Cisco Unified ICM/Unified Contact Center Enterprise & Hosted, Release 8.0(1)* for this release (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html)) for details about desktop operating system and software requirements.



Chapter 3

Important Considerations

Before You Begin

Cisco recommends that you disable home or cell phone calling features that might impact a customer call experience prior to login. Examples of calling features are, but may not be limited to:

- Call waiting
- Call forwarding
- Voicemail

Before you log in and begin to process calls as a mobile agent, you should be aware of the way Mobile Agent operates. Remember that:

- Mobile agents cannot perform agent state and call control without a CTI Desktop.
- Unified MA supports Outbound Option calls in nailed connection delivery mode, *only*.
- If a mobile agent on one PG calls a mobile agent on a different PG, and both PGs are connected to the same Unified CM cluster, only blind transfer/conference are supported.
- During a consult transfer or conference call, a source Unified MA agent does not hear a ring back after dialing the destination agent because the media stream cannot be bridged until that agent answers. If configured, the source agent hears Music on Hold (MoH).
- You cannot transfer or conference a call using the buttons on your mobile agent phone; you must use the Agent Desktop to perform these functions.
- If you log in and intend to use nailed connection mode, you *must* answer the setup call before log in is complete.

Before You Begin

- If a mobile agent in call by call mode places an outbound call -- that is, uses the CTI OS Agent Desktop **Dial** button or the Cisco Agent Desktop **Make Call** button -- the agent's phone will ring before the destination phone rings. This happens because Unified CCE establishes the agent call leg before it establishes the destination call leg.
- By default, a mobile agent in nailed connection mode on CTI OS Agent Desktop *does not ring* when a call arrives.

Note: For information about how to change the default setting, see [How to Enable a Ring Tone on the CTI OS Agent Desktop \(page 45\)](#).

Note: If a mobile agent in nailed connection mode has not disabled voicemail and rejects the setup call, the setup call is sent to voicemail. The mobile agent continues to be logged into the CTI Desktop and agent state is set to Ready. However, because the setup call was not accepted, the system will log off the mobile agent when the voicemail ends and the agent phone line disconnects.



Chapter 4

Unified Mobile Agent for Agents

Unified MA is available on the following Cisco Agent Desktops:

- Cisco CTI OS Agent Desktop
- Cisco Agent Desktop (CAD) and Cisco Agent Desktop-Browser Edition (CAD-BE)

This chapter contains the following topics:

- [Using the CTI OS Agent Desktop, page 43](#)
- [Using the Cisco Agent Desktop \(CAD\), page 48](#)

Using the CTI OS Agent Desktop

Unified MA is available with the Cisco CTI OS Agent Desktop.

CTI OS Agent Desktop provides an interface that:

- Enables you to perform telephony call control -- such as call answer, hold, conference, and transfer -- and agent state control -- such as ready/not ready, wrap up, etc.
- Presents customer call data in the form of a screen pop.
- Provides you with agent statistics and chat capability.

Note: CTI OS only supports chat between agents on the same peripheral.

Note: For more information about using CTI OS Agent Desktop to handle calls, refer to the *CTI OS Agent Desktop User Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

How to Log In

Perform the following steps to log in to the CTI OS Agent Desktop.

Step 1 From the desktop, click **Login**.

The CTI Login dialog box displays.

Figure 7: CTI Login

Step 2 In the CTI Login dialog box, enter the following information in the corresponding fields:

- **Connect to.** Use the drop-down menu to select the connection mode you want to use.
- **Agent ID** or **Agent Login Name.** Your supervisor assigns your Agent ID.

Note: You are prompted to enter either your Agent ID or Agent Login Name. Log in options are determined during the installation of the CTI OS Server.

- **Password.** Your supervisor assigns your this password.
- **Instrument.** The directory number for the local CTI port; this is your Unified CCE phone extension.
- **Mobile Agent.** You must select this checkbox to log in as a mobile agent.
- **Phone Number.** The dial number for the phone you intend to use.

Note: The format for the phone number must follow the dial plan, for example, 91978-936-xxxx.

- **Call Mode.** Use the drop-down menu to choose the connection mode you want to use; Call by call or nailed connection.

Note: Auto-answer is supported *only* with the nailed connection mode.

Step 3 Click **OK**.

The desktop automatically enters the state configured on the switch (either Ready or Not Ready) and the buttons for actions that state are enabled.

Note: For a Nailed connection, a setup call must be received and *answered* before agent login is complete.

See Also

[Connection Modes \(page 11\)](#)

How to Verify Log In

Perform the following steps to verify your log in.

Step 1 Check to be sure that your desktop is in the Ready or Not Ready state.

Note: Switch configuration determines the state the desktop enters at log in time.

Step 2 Check to be sure the status bar of your Unified MA Desktop displays the following:

- Agent ID for the logged in agent
- Agent Extension
- Agent Instrument
- Current Agent Status
- The server that the desktop is connected to

Step 3 Check to be sure the action buttons that are allowed for your current agent state are enabled.

How to Enable a Ring Tone on the CTI OS Agent Desktop

Note: This procedure applies only to agents using CTI OS Agent Desktop in nailed connection delivery mode.

By default, a CTI OS Agent Desktop in nailed connection delivery mode *does not ring* when a call arrives. Instead, an alert message appears on the desktop to indicate the arrival of a call.

Perform the following steps to enable a ring tone on the CTI OS Agent Desktop:

Step 1 Click **Dial**.

The CTI Dialing Pad dialog displays.

Step 2 Click **More**.

The Options dialog displays.

Step 3 Click the **Mute Tones** tab and clear the **Ring Back** check box.

This action disables the mute setting of the ring back tone.

Step 4 Click **Close**.

This setting remains in effect until you change it or log out. You need to repeat these steps each time you log in.

See Also

[Nailed Connection \(page 13\)](#)

How to Enable the Ready State

You must be set to the Ready state to accept calls. At log in, the system switch determines whether you are placed in the Ready or Not Ready state.

Step 1 If you are in the Not Ready state and the **Ready** button is enabled, click the **Ready** button.

How to Initiate a Call

Perform the following steps to initiate a call.

Step 1 Enter a state from which you can make a call. (You are in the correct state to make a call if the **Dial** button is enabled.)

Note: Depending on the switch, you might also be able to make calls if the **Ready** or **Not Ready** buttons are enabled.

Step 2 Use the CTI Dial Pad to enter a phone number.

How to Transfer a Call

Perform the following steps to transfer a call.

Step 1 Click the **Transfer** button. The CTI Dialing Pad dialog box appears.

- Step 2** Enter the phone number to be dialed in the Dialed Number field or select a destination from the pull-down menu. The pull-down menu contains the last six numbers dialed from this desktop.
- Step 3** Optionally, click the **More** button to display the Call Data tab, where you can optionally enter data associated with the call.
- Step 4** Do one of the following:
- If you *do want to speak* with the consulted agent, click the **Transfer Init** button. When the **Transfer Init** button is pressed, the call is put on hold. The agent has an opportunity to speak to the consulted agent before completing the transfer. When the consult call is answered, the button changes to **Transfer Complete**. To complete the transfer, click **Transfer Complete**.
 - If you *do not want to speak* with the consulted agent, click **Single Step**. The call transfers automatically.
-

How to Conference a Call

Perform the following steps to conference a call.

- Step 1** Click the **Conference** button.
- The CTI Dialing Pad dialog box displays.
- Step 2** Enter the phone number to be dialed in the Dialed Number field or select a destination from the pull-down menu. The pull-down menu contains the last six numbers dialed from this desktop.
- Step 3** Optionally, click the **More** button to display the CTI Dialing Pad.
- Step 4** Click the **Conference Init** button.
- This action places the call on hold, which gives you an opportunity to speak to the consulted agent before completing the conference. When the consult call is answered, the button changes to **Conference Complete**.
- Step 5** Click **Conference Complete** to complete the conference.
- The two calls now appear on the Call Information Grid as one call.
-

Integrating CRM Desktops with Unified CCE via CTI OS

Customer Relationship Management (CRM) applications can be integrated with Unified CCE via CTI OS to allow an agent to log in via their CRM application, and they can be enhanced to allow an agent to have a Mobile Agent Checkbooks option and to supply a call mode and phone number. However, those integrated CRM interfaces must be enhanced in order to support using mobile agents. It is likely that a mobile agent could log in via the CTI OS agent desktop and

Using the Cisco Agent Desktop (CAD)

then continue to use the integrated CRM agent interface as usual for call control and any further agent state control. However, this capability would have to be verified for each CRM integrated offering.

The Cisco CTI Driver for Siebel is an installable component developed by Cisco that enables integration of the Cisco Unified CCE with the Siebel CRM Environment. In this solution, the Siebel Agent Desktop provides the agent state and call control interface. The Siebel Desktop utilizes the Cisco CTI Driver for Siebel, which is built on top of the CTI Desktop Toolkit C++ CIL to communicate with the CTI Object Server. For more information

See the *Cisco Unified Contact Center Enterprise 8.x Solution Reference Network Design (SRND)* guide for additional information on CRM desktop integrations.

Using the Cisco Agent Desktop (CAD)

Unified MA is available with the Cisco Agent Desktop.

CAD:

- Provides call control capabilities—such as call answer, hold, conference, and transfer, and ACD state control—ready/not ready, wrap up, etc.
- Presents customer information through an enterprise data window and an optional screen pop.
- Requires minimum screen real estate and enables agents to customize its functionality to meet their individual needs.

Note: For complete information about using CAD to handle calls, see the *CTI OS Agent Desktop User Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

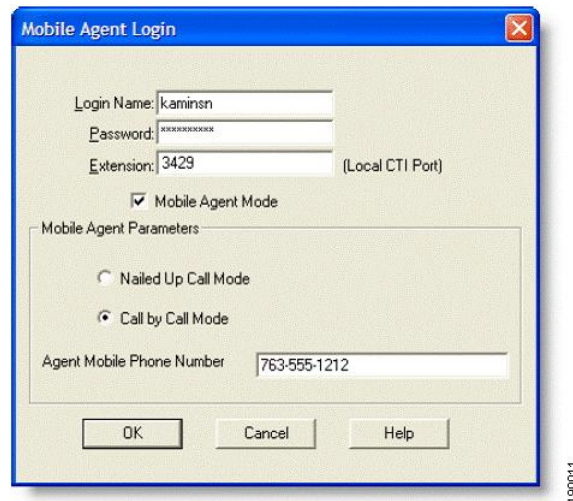
How to Log In

Perform the following steps to start Cisco Agent Desktop and log in as a mobile agent.

Step 1 Choose **Start > Programs > Cisco > Desktop > Agent**.

The Mobile Agent Login dialog box displays.

Figure 8: Mobile Agent Login



Step 2 In the Mobile Agent Login dialog box, enter the following information in the corresponding fields:

Step 3 Enter your **Login Name/Agent ID**.

You are prompted to enter either your Agent ID or Login Name. Log in options are determined during the installation of the CTI OS Server.

The maximum length for the Login Name field is 32 characters. For Agent ID, extension and password fields, the maximum data length is limited to 12 characters.

Note: If the login method (Login Name or Agent ID) is changed while you are in the process of logging in, an error message displays to indicate the log in method has changed. You will need to restart Agent Desktop to log in using the new method.

Step 4 Enter your **Password**.

Step 5 Enter your **Extension**.

Agent Desktop can control only those calls on the extension entered in this field, regardless of whether the mobile agent is configured with multiple extensions.

Step 6 Select **Mobile Agent Mode**.

Step 7 Under Mobile Agent Parameters, select a call delivery mode.

Step 8 Specify a **Mobile Agent Phone Number**. The dial number for the phone you are using.

Note: The Mobile Agent Phone Number field can contain only numeric characters.

Step 9 Click **OK**.

The Agent Desktop starts and is immediately minimized on the taskbar at the bottom of the mobile agent's Windows desktop.

Note: For a Nailed connection, a setup call must be received and answered before agent login is complete.

How to Verify Log In

Step 1 Check to be sure your Cisco Agent Desktop displays the following:

- Your agent name, as configured in Unified ICM.
 - Your agent extension, as entered in the Login dialog box.
 - Your agent ID or name, as entered in the Login dialog box.
 - Your current agent state and the time spent in that state.
 - Current status of agent desktop features.
 - Current system time.
-

Note: Remember, you must enter the Ready state before you can begin processing calls.

How to Enable the Ready State

You must be set to the Ready state to answer an ACD call.

Step 1 On the toolbar, click **Ready**.

How to Initiate a Call

Step 1 Click **Not Ready**.

Note: You must be in the **Not Ready** state to initiate a call.

Step 2 Click **Make Call**.

The Make a Call window appears.

Step 3 Enter a number in the Name: Number field.

Step 4 Click **Dial**.

How to Transfer a Call

There are two types of transfer calls:

- **Supervised transfers:** In a supervised transfer, the mobile agent speaks to the third party to whom the call is being transferred before connecting the active call; this allows the mobile agent to confirm that the third party is ready to accept the call.
- **Blind transfers:** In a blind transfer, the mobile agent transfers the active call to the third party without speaking. The remote agent hangs up before the third party answers the phone and therefore, can't confirm if the third party is ready to accept the call.

Follow the instructions below to transfer a call.

-
- | | |
|---------------|---|
| Step 1 | With a call active, click Transfer . |
| | The Transferring Call window appears. |
| Step 2 | Enter the phone number to which the remote agent is transferring the call in the Name: Number field. |
| Step 3 | Click Dial . |
| Step 4 | When the phone rings, the Dial button changes to the Transfer button. |
| Step 5 | If: You want to do a supervised transfer.
Then: Wait for the third person to answer the phone, announce the transfer, then click Transfer . |
-
- | | |
|--|--|
| | If: You want to do a blind transfer.
Then: Click Transfer without waiting for the third person to pick up the phone. |
|--|--|
-

How to Conference a Call

There are two types of conference calls:

- **Supervised conference.** In a supervised conference, the mobile agent speaks to the third party the agent wants to add to the call before completing the conference, to confirm that the third party is ready to accept the call.
- **Blind conference.** In a blind conference, the mobile agent adds the third party to the conference without speaking to him or her.

Note: When using a blind conference to add someone to the call, the remote agent might or might not see the call tagged as a conference call in the dashboard pane.

Follow the instructions below to make a conference call.

-
- | | |
|---------------|---|
| Step 1 | With a call active, click Conference . |
|---------------|---|

The Conferencing window appears.

Step 2 Enter the phone number of the person the mobile agent wants to add to the call in the Name: Number field.

Step 3 Click **Dial**.

When the phone rings, the **Dial** button changes to the **Add to Conf.** button.

Step 4 **If:** If you want a supervised conference.
Then: Wait for the third person to answer the phone, announce the conference, then click **Add to Conf.**

If: If you want a blind conference.

Then: Click Add to Conf. without waiting for the third person to pick up the phone.

The Conferencing window closes.

Step 5 To add one or more people to the conference call, repeat Steps 1 to 4 for each person.

Note: The total number of conference call participants on a call is determined by settings on the Unified CM. Ask your supervisor for the total number configured for your contact center.



Chapter 5

Unified Mobile Agent for Supervisors

Unified MA is available on the following Cisco supervisor desktops:

- Cisco CTI OS Supervisor Desktop
- CAD Supervisor Desktop

This chapter contains the following topics:

- [Using the CTI OS Supervisor Desktop , page 53](#)
- [Using the CAD Supervisor Desktop, page 55](#)

Using the CTI OS Supervisor Desktop

Unified MA is available with CTI OS Supervisor Desktop. The CTI OS Supervisor Desktop has all of the functionality of the Agent Desktop, with additional functions for monitoring and managing Agent Team members.

Note: CTI OS Supervisor Desktop is supported for use on Unified CCE/CCH, *only*. It is not supported for use on TDM peripherals.

The instructions that follow describe CTI OS Supervisor Desktop tasks that are *specific* to configuring and interacting with mobile agents. For complete information about using this desktop, see *CTI OS Supervisor Desktop User Guide for Cisco Unified Contact Center Enterprise & Hosted* .

How to login to the CTI OS Supervisor Desktop

-
- Step 1** Select **Start > Programs > Cisco Systems CTI Toolkit > IPCC Supervisor Desktop**.

The Supervisor Softphone and Team Real-Time Status windows appear.

Step 2 On the Softphone, click **Login**.

The Login dialog box appears.

Step 3 Enter the following information in the dialog box:

- **Connect to.** Use the drop-down menu to select the connection mode that you want to use.
- **Agent ID** or **Agent Login Name.** The agent ID as assigned by the agent's manager.

Note: Depending on the option chosen for logging in during the installation of the CTI OS Server, the Login dialog on the Agent desktop will prompt for either the Agent ID or the Agent Login Name.

- **Password.** The password as assigned by the agent's manager.
- **Instrument.** The directory number for the local CTI port (the agent's virtual extension).
- **Mobile Agent.** Check this box to log in as a mobile agent.
- **Phone Number.** The dial number for the phone the mobile agent is using. This should include all dial-plan information Unified CCE/CCH needs to reach the agent phone.
- **Call Mode.** Choose Nailed Connection or Call by Call. A new call is placed to the agent for each incoming call. (For more information, see [How does Unified MA deliver calls to mobile agents? \(page 11\)](#))

Note:

- If you login using nailed connection mode, you *must* answer a setup call before login is complete.
- Auto answer is supported with the Unified MA Nailed Connection mode. It is not supported with the Unified MA call by call connection mode.

Step 4 Click **OK**.

The supervisor automatically enters the Not Ready state and the **Ready**, **Dial**, and **Logout** agent state control buttons are enabled.

How to Verify Log In

Step 1 Check that your desktop is in the Not Ready state.

Step 2 Check that the status bar of your Unified MA Supervisor Desktop displays the following:

- Agent ID for the logged in supervisor

- Supervisor Extension
- Supervisor Instrument
- Current Supervisor Status
- The server that the Supervisor is connected to

Step 3 Check that the **Ready**, **Dial**, and **Logout** agent state control buttons are enabled.

How to Configure a Mobile Agent

CTI Desktop agent configuration is handled through Unified ICM Configuration Manager or, in System IPCC, through the Web Administration tool. For more information, see [How to Configure Unified Mobile Agent on Unified ICM Configuration Manager \(page 33\)](#).

How to Monitor Mobile Agent Calls

A supervisor can silent monitor an agent on his/her team. The silent monitoring feature voice packets sent to and received by the agent's IP device are captured from the network and sent to the supervisor desktop. At the supervisor desktop, these voice packets are decoded and played on the supervisor's system sound card.

Note: For more information about silent monitoring, see *CTI OS Supervisor Desktop User Guide for Cisco Unified Contact Center Enterprise & Hosted*.

Step 1 Select a logged in agent from the Team State Information grid.

Step 2 In the Team State window, click **Start Silent Monitor**.

When the targeted agent desktop accepts the session, the voice conversation between the monitored agent and the caller will be forwarded to the supervisor desktop and played back on the soundcard of the system.

Step 3 Click **Stop Monitoring Agent** to end the monitoring session.

Using the CAD Supervisor Desktop

Unified MA is available with CAD Supervisor Desktop. The CTI OS Supervisor Desktop has all of the functionality of the Agent Desktop, with additional functions for monitoring and managing Agent Team members.

The instructions that describe CAD Supervisor Desktop tasks that are *specific* to configuring and interacting with mobile agents. For complete information about using this desktop, see *CAD Supervisor Desktop User Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* .

How to Log In to the Supervisor Desktop

Step 1 Log in to Cisco Agent Desktop.

Note: You must be logged in to be able to use all of Supervisor Desktop's functionality.

Step 2 Choose **Start > Programs > Cisco > Desktop > Supervisor**. The Supervisor Login dialog box appears.

Step 3 Enter your Supervisor Desktop login ID and password, and then click **OK** or press **Enter**.

Supervisor Desktop starts. The application will show no data and the status bar will display “No Service” until you select a team from the Team drop-down list.

Note:

- Supervisor Desktop can be configured by the Administrator so that you log in using your login name, not your login ID. The field name (Login ID or Login Name) will reflect which login method you should use.
 - The first time you log into Supervisor Desktop, the password is empty by default—all you need to enter is your Login ID. Use the Change Password function to create your password.
 - It might take some time for Supervisor Desktop to start because default report data must be generated.
-

How to View Mobile Agents

Step 1 In Supervisor Desktop, choose **View > Preferences**, and then select the Agents node.

Step 2 In the Format node text grid, check the elements you want to use to identify an agent.

The elements are:

- Name
- Extension
- Application used by the agent (CAD, CAD-BE, or IPPA)
- Type of agent (mobile)

A sample of what the name will look like appears on the Sample line.

Step 3 Click **OK**.

For example, if you enter John Doe x1000 CAD 6125551234 (Mobile):

- *John Doe* is the agent name.
- *x1000* is the CTI port the agent is connected to when logging in.
- *CAD* is the application the agent uses.
- *6125551234 (Mobile)* is the number of the phone device the mobile agent is using to handle calls.

Part 3: Configuration and Troubleshooting

Appendix for Remote Agent

Remote Agent, the predecessor of Mobile Agent, offers two deployment options:

- Remote Agent with IP Phone (over a Cisco Business Ready Teleworker setup).
- Remote Agent with analog phone.

Mobile Agent provides flexibility and ease of use benefits compared to the Remote Agent with analog phone. Remote Agent will continue to be supported for customers who already have it installed.

However, if you are upgrading to 8.0(1) and are planning to configure a mobile agent to use an *analog* phone or an IP Phone *without* Cisco Business Ready Teleworker setup, you should use the Mobile Agent Option.

Note: Remote Agent continues to be the product of choice for remote IP Phone with the Cisco Business Ready Teleworker setup.



Chapter 6

Introduction to Unified CCE Remote Agent Option

Unified CCE Remote Agent Option provides the capability to use remote agents when staffing contact centers.

Note: A *remote agent* is classified as limited to a single agent working at a remote site, such as the agent's home or in an office outside the contact center's headquarters. They are not classified as agents working at one of the contact center's sites. Multiple agents sitting in remote sites are considered *branch agents*.

Support is provided for remote agents using one of the following options:

- Remote Agent with IP Phone (over a Cisco Business Ready Teleworker setup)

Note: Refer to the Teleworker documentation set at the following web sites: <http://www.cisco.com/go/teleworker>, <http://www.cisco.com/go/v3pn>, and <http://www.cisco.com/go/srnd>.

- Remote Agent with analog phone

By means of this support, Cisco Unified CCE remote agents *with IP Phone* can benefit from standard Cisco 8xx series Router support, persistent VPN, Cisco IOS based security, and QoS for voice.

Agents are connected to the corporate network using a residential broadband (cable or DSL) network connection that can support voice, data, and video traffic. The connection is secure, and provides "always-on" access to call-center applications using a VPN. Built-in, end-to-end security helps ensure that confidential customer information, such as medical records and financial information, is protected, and the corporate network is secure from "back door" attacks.

This chapter contains the following topics:

- [About Unified CCE Remote Agent Option Primary Components, page 62](#)
- [How Cisco Unified CCE Remote Agent Option Works with an IP Phone, page 63](#)
- [How Cisco Unified CCE Remote Agent Option Works with an Analog Phone, page 64](#)

- [Remote Agent with IP Phone Call Flow, page 65](#)
- [Remote Agent with Analog Phone Call Flow, page 65](#)

About Unified CCE Remote Agent Option Primary Components

The primary components of the Unified CCE Remote Agent Option are:

- **Cisco IP Contact Center solution:** Cisco IP Contact Center combines Cisco IP telephony and ready-to-use computer telephony integration (CTI) capabilities in a call-center product suite. The software includes intelligent call routing, multichannel automatic call distribution (ACD) capability, IVR, call queuing, and consolidated reporting features.

Cisco IP Contact Center components include the following:

- Unified CM: Provides traditional private branch exchange (PBX) telephony features and functions to packet-telephony devices. Installed on a server-class PC, Cisco Unified CM software provides basic call processing, signaling, and connection services to Cisco IP Phones, VoIP gateways, and software applications.
- Cisco Computer Telephony Integration Object Server (CTI OS) Desktop and Cisco Agent Desktop (CAD): Allow an agent to control the remote agent state (for example, Login, Available/Unavailable, and Work or Wrap Up) and perform call control (answer, release, hold, and transfer).
- Cisco Unified Customer Voice Portal (Unified CVP) (formerly Internet Service Node) or Cisco Unified IP-IVR (Unified IP IVR): Provides announcements, prompting, gathering of caller-entered digits, and a queue point to park calls when all remote agents are busy.
- VoIP gateways.
- Centralized monitoring and recording: Provides call-center managers with real-time and historic data for all remote agents.
- **Cisco Business Ready Teleworker architecture** (for IP Phone only): The Cisco Business Ready Teleworker architecture, combined with Cisco IP Contact Center, gives remote agents the same accessibility to call-center applications as staff based at central sites. Cisco Business Ready Teleworker provides the most comprehensive security and network management available in a teleworking environment over a standard cable or broadband connection. This includes QoS to help ensure prioritization of mission-critical or delay-sensitive traffic. Cisco Business Ready Teleworker can be quickly and cost-effectively deployed to deliver high-quality, consistent application access for remote agents through an always-on, secure, and centrally managed connection to the enterprise network.

Note: A remote agent using an analog phone does not require a Cisco 8xx Series Router and does not use the Cisco Business Ready Teleworker setup.

Cisco Business Ready Teleworker components include the following:

- VPN: Provides secure, consistent access to information, call-center applications, and customer data. The VPN tunnel is transparent to applications and the end user, and promotes

stable and consistent application behavior over the WAN, protecting and extending existing infrastructure investments.

Note: Agents will receive persistent VPN communication from the Cisco 800 Series Router.

- Advanced application access: With IP telephony a separate PBX, voice switch, or ACD call-control platform at the remote-agent location is not needed. Network-based ACD extends call-center services to thousands of remote-agent locations simultaneously.
- QoS: Helps ensure high-quality voice communication between the caller and remote agent. Voice, data, and video can be delivered over the same line by prioritizing applications based on bandwidth requirements or business priorities.

Note: QoS delivers marked tagged packets, but the service is not guaranteed since it is over a service provider network.

- Network security and authentication: Security is integrated completely with all other functions. End-to-end security options for remote agents include trust and identity options (802.1x authentication), integrated firewall, intrusion detection system (IDS), and host-based intrusion detection with Cisco Security Agent.
- Centralized management and support: Helps ensure control over the performance of remote agents as though they were based on the main call center. Administrators can push policies and configurations transparently to remote-agent locations, perform quality surveys, and do real-time remote monitoring.

See Also

Refer to the Cisco Unified CCE, CTI OS, and CAD documentation set at [the Cisco web page](http://www.cisco.com/univercd/cc/td/doc/product/icm/index.htm) (<http://www.cisco.com/univercd/cc/td/doc/product/icm/index.htm>) for detailed information about these applications.

Refer to the Teleworker documentation set at the following web sites: <http://www.cisco.com/go/teleworker>, <http://www.cisco.com/go/v3pn>, and <http://www.cisco.com/go/srnd>.

How Cisco Unified CCE Remote Agent Option Works with an IP Phone

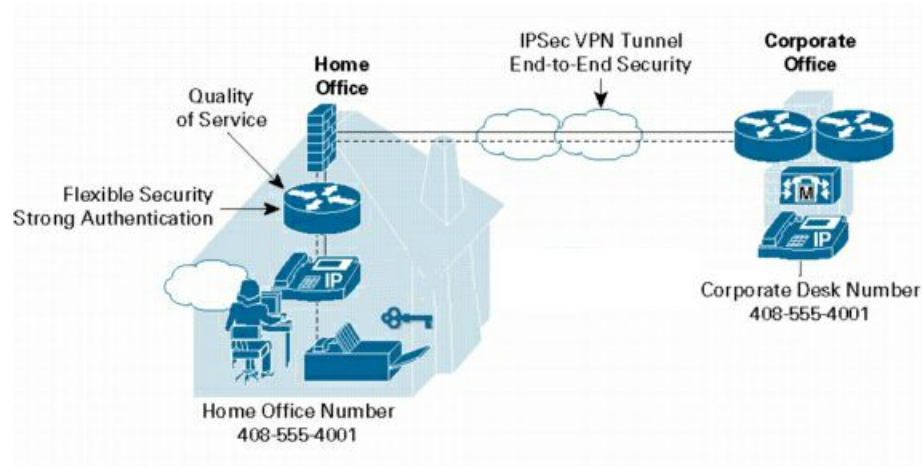
Note: Unified CCE Remote Agent Option with IP Phone is supported on the Cisco Unified CCE, the Cisco Unified Contact Center Hosted (Unified CCH), and the Cisco Unified Contact Center Express solutions.

At the remote agent site, a Cisco IP Phone, with an ACD extension number, connects to a Cisco 8xx Series secure, persistent Broadband Router that provides a secure VPN connection back to the call center over a broadband facility. The router, based on Cisco IOS Software, provides all the features necessary for an always-on, business-ready connection in a single cost-effective platform. A Unified CM on the corporate network provides the call management on the IP Phone.

How Cisco Unified CCE Remote Agent Option Works with an Analog Phone

Note: This is one option available when using Unified CCE Remote Agent Option. This product is also available using the Remote Agent with analog phone.

Figure 9: IPCC Remote Agent Option with IP Phone



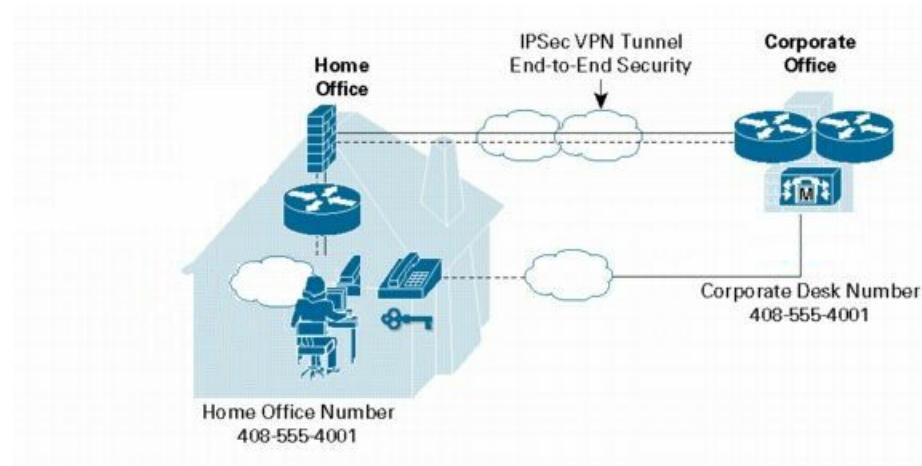
When a call comes in to the call center, the Unified CM alerts the Cisco IP Contact Center, which then finds the best available remote agent based on customer-defined business rules. If no remote agents are available, the call is held in an IVR queue, and the caller hears a recorded message or music until an agent becomes available.

How Cisco Unified CCE Remote Agent Option Works with an Analog Phone

Note: Unified CCE Remote Agent Option with analog phone is supported on the Cisco Unified CCE Enterprise Edition and the Cisco Unified CCE Hosted Edition solutions, *only*.

At the remote agent site, an analog phone connects to the PSTN and using an active broadband connection, the agent uses VPN to access the corporate site (using SoftVPN client) from his/her PC.

Figure 10: IPCC Remote Agent Option with Analog Phone

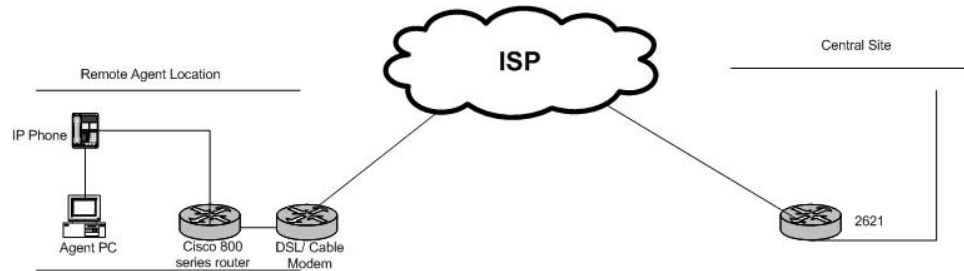


When a call comes in to the contact center, the Unified CM alerts the Cisco IP Contact Center, which then finds the best available remote agent based on customer-defined business rules. If the remote agent is on an analog phone, Unified CM sends the call to the Voice Gateway (VG248), which in turn sends it to the PSTN through the VoIP gateway's PRI lines. If no remote agents are available, the call is held in an IVR queue, and the caller hears a recorded message or music until an agent becomes available.

Remote Agent with IP Phone Call Flow

The following figure displays a typical call flow.

Figure 11: Remote Agent with IP Phone Call Flow



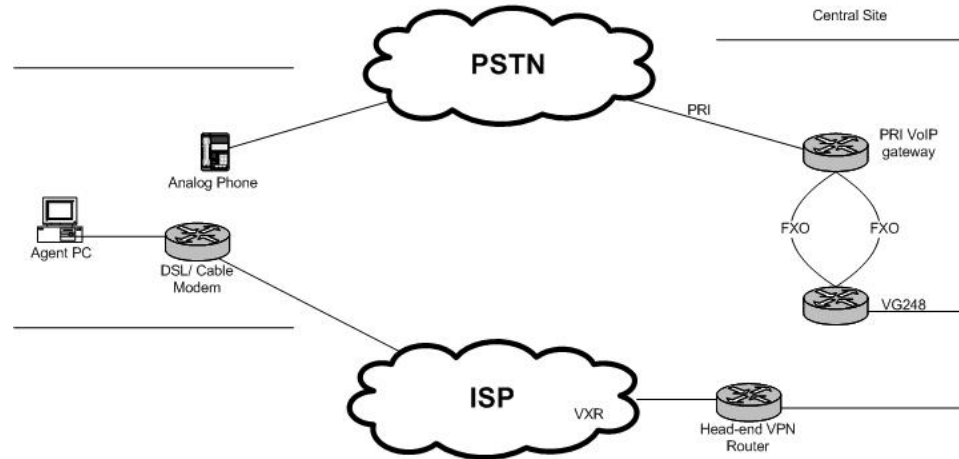
1. The remote agent becomes available by logging on to the corporate domain using VPN over the ADSL/Cable connection, and by launching the agent desktop interface to log on to the CTI server. The remote agent then goes into a ready mode.
2. Customer calls in from PSTN.
3. Call flows in on PRI VoIP gateway.
4. Call is processed by Unified CM and routed to Unified IP IVR .
5. Call is sent to the remote agent.
6. The remote agent's IP Phone rings and the agent desktop receives a screen pop with the incoming call.
7. The supervisor, whether remote or in contact center, can fully control an agent, including barge, intercept, chat, and state controls.

Remote Agent with Analog Phone Call Flow

The following figure displays a typical call flow.

Remote Agent with Analog Phone Call Flow

Figure 12: Remote Agent with Analog Phone Call Flow



1. The remote agent becomes available by logging on to the corporate domain using VPN over the ADSL/Cable connection, and by launching the agent desktop interface to log on the CTI server. The remote agent then goes into a ready mode.
2. Customer calls in from PSTN.
3. Call flows in on PRI VoIP gateway.
4. Call is processed by Unified CM and routed to Unified IP IVR .
5. A VG248 port is designated as the remote agent phone. An incoming call to Unified CCE sends a ring command to the VG248 port.
6. The VG248 FXS port is connected to the FXO port on the voice gateway.
7. The voice gateway using Private line automatic ring down (PLAR) forwards the ring command over PSTN to the remote agent's analog phone.
8. The analog phone receives the ring command from its local PSTN provider. (This happens because the PLAR was sent from the Unified CCE voice gateway.)
9. The remote agent's analog phone rings and the agent desktop receives a screen pop with the incoming call.



Chapter 7

System Configuration for Remote Agent with IP Phone

Configuration Guidelines

The following tables provide configuration checklists and guidelines to follow when using the Remote Agent with IP Phone.

Note: Refer to the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)* for this release (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html)) and the *Cisco Response Solutions (CRS) Software and Hardware Compatibility Guide* (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_documentation_roadmaps_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_documentation_roadmaps_list.html)) for details about operating system and software requirements.

Configuring Remote Agent with IP Phone

Note: Unified CCE Remote Agent Option with IP Phone is supported on the Unified CCE, the Unified CCH, and Cisco Unified Contact Center Express solutions.

Step	Description
1.	Provision the remote agent PC and IP Phone on the Unified CCE central site to ensure operability <i>before</i> distributing it to a remote agent site.
2.	At a remote agent site, connect the agent desktop to the RJ45 port on the back of the IP Phone. Note: The IP Phone and agent desktop PC get their network settings from DHCP.
3.	Create a DNS entry for the remote agent desktop; otherwise, an agent will not be able to connect to a CTI server. DNS entries can be dynamically updated or entered as static updates.

Remote Agent with IP Phone Considerations

Step	Description
4.	Configure the agent desktop PC at the remote site with an IP address, network mask, DNS, and default gateway configured for DHCP.
5.	Make sure the 7960 IP Phone has a power supply. (The Cisco 8xx Series Router will not supply power to the IP Phone.)
6.	Critical remote agents must have a backup power supply. The backup power supply must be able to power a PC, an 831 Router, a broadband modem, and an IP Phone.

Remote Agent with IP Phone Network Requirements Checklist

Network Requirements
Ensure the ADSL and Cable bandwidth values are set to at least 256kb uplink and 1 Mbps downlink.
Do not exceed 60ms to 90ms of jitter delay each way on the maximum ADSL network delay. If the ADSL delay is greater than the maximum, the IPCC application will encounter longer response times.
Make sure the Unified CCE bandwidth value does not exceed 128k uplink; otherwise, the remote agent solution might not work properly.
The default codec for 256kb uplink is the G.729. To achieve higher voice quality, use the G.711.
Only unicast Music on Hold (MoH) streams are supported.
Set up a transcoder to enable outside callers to receive MOH, if the MOH server is not set up to stream G.729 codec.
As a backup to the remote agent desktop, you can configure the remote agent to use the IP Phone as a login device when possible.

Remote Agent with IP Phone Considerations

IP Phones supported with Unified CCE Remote Agent Option are those currently compatible with IPCC as listed in the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)*.



Chapter 8

System Configuration for Remote Agent with Analog Phone

This chapter contains the following topics:

- [Configuration Guidelines, page 69](#)
- [Remote Agent with Analog Phone Considerations, page 71](#)

Configuration Guidelines

The following tables provide configuration checklists and guidelines to follow when using the Remote Agent with analog phone.

Note: Refer to the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)* for this release (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html)) and the *Cisco Response Solutions (CRS) Software and Hardware Compatibility Guide* (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_documentation_roadmaps_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_documentation_roadmaps_list.html)) for details about operating system and software requirements.

Configuring Remote Agent with Analog Phone at the Central Office Site

Note: Unified CCE Remote Agent Option with analog phone is supported on the Cisco Unified CCE Enterprise Edition and the Cisco Unified CCE Hosted Edition solutions, *only*.

Provision the remote agent PC and analog Phone on the Unified CCE central site to ensure operability *before* distributing it to a remote agent site.

Configuration Summary: Add the VG248 voice gateway to the Unified CM configuration at the central office site. Each of the ports on the VG248 are what the agents use as their login

Configuration Guidelines

devices when they are remote. These are the extensions they use when they log in. The configuration on the VG248 is a connection through PLAR routing direct to the agents home (or remote) phone. For an example configuration, See also [Sample Cisco IOS Configuration for Analog FXO to PRI Gateway \(page 85\)](#)

Step	Description
1.	On the Unified CM, assign a Directory Number (DN) to a port on the VG248; for example: 6777.
2.	On the DC (Domain Controller)/ DNS Server, create a DNS entry for the remote agent's desktop; otherwise the agent will not be able to connect to a CTI server. DNS entries can be dynamically updated or entered as static updates. If DNS entries are not desired, ensure that the client connects to the CTI server through IP.
3.	Create labels for the new extension connected to Unified CM and the Unified IP IVR peripheral.
4.	Add the device target to the Unified CCE configuration. See the Unified CCE Administration & Configuration Guide.
5.	Add the device to pguser. This is described in the Cisco Unified CM Administration Guide. Go to the 'Users' - Application and select the user associated with the PG. From the list of unregistered devices, add the appropriate device to the list of associated devices.
6.	Directly connect the VG248 FXS port to a FXO port on the gateway router. Each FXS port you are using on the VG248 is connected to an FXO port on the voice gateway router.
7.	Configure the gateway FXO port as a connection plar to your (the agent's) home (or remote) phone number; for example: 6035551212. Note: The phone number must match the dial plan setup in Unified CM. The connection plar command goes on the FXO port of the gateway router(s).

Agent's Home (Remote) Configuration and Setup

Step	Description
1.	Configure the agent desktop PC at the remote site with an IP address, a network mask, DNS, and default gateway configured for DHCP.
2.	Set up the VPN client to connect to the contact center's headquarters.

Example Remote Connection Process

Step	Description
1.	Ensure that the VPN connection is up.
2.	Log into the CTIOS server.
3.	Agent logs in on extension 6777 and goes Available on extension 6777. Unified IPCC Enterprise knows to send the call to 6777. The phone number 6777 is the agent's remote number that is configured at the gateway. This needs to be done ahead of time. Every port on the VG248 that will be used for agents should have an associated remote phone number to call using the connection plar command.
4.	The agent gets notification that a call is coming and the home (or remote) phone rings.

Remote Agent with Analog Phone Network Requirements Checklist

Network Requirements
Do not exceed 150ms Round Trip Time (RTT) of ADSL/Cable network delay.
Do not exceed not exceed 60ms of jitter delay.
The minimum broadband bandwidth for the agent desktop is 256kb uplink and 1 Mbps downlink.
Configure the voice gateway/access server with at least one active PRI, T1, E1, or DS3 connection to the PSTN.
The remote agent's phone number is the number assigned via PLAR routing in the VoIP gateway.
Note: The remote agent PSTN phone number might vary in an actual deployment.
The phones at the remote sites will be analog phones only connected to the PSTN.
The current configuration only supports unicast Music on Hold (MoH) streams. A Unified CM is the MoH server.
The maximum PSTN delay supported is 250ms.
Configure the VG248 to use G.711.

Remote Agent with Analog Phone Considerations

An analog phone is classified as any PSTN phone; for example, a regular touchtone phone or a mobile/cell phone both qualify as analog phones.

Remote Agent with Analog Phone Considerations



Chapter 9

Remote Agent User Information

Unified CCE Remote Agent Option is available on the following Cisco desktops:

- **Cisco CTI Toolkit Agent Desktop:** Provides an interface that enables agents to perform telephony call control and agent state control. The CTI Toolkit Agent Desktop provides an interface to allow call data to be presented to an agent in the form of a screen pop. The CTI Toolkit Agent Desktop also provides agents with statistics and chat capability.

Note: CTI OS only supports chat between agents on the same peripheral.

- **Cisco CTI Toolkit Unified CCE Supervisor Desktop:** The Supervisor Desktop has all of the functionality of the Agent Desktop, with additional functions for monitoring and managing Agent Team members.

Note: The CTI Toolkit Unified CCE Supervisor Desktop is supported for use on Cisco Unified CCE Enterprise only. It is not supported for use on TDM peripherals.

- **Cisco Agent Desktop:** Provides call control capabilities—such as call answer, hold, conference, and transfer, and ACD state control—ready/not ready, wrap up, etc. Customer information is presented to an agent through an enterprise data window and an optional screen pop. Cisco Agent Desktop requires minimum screen real estate and enables agents to customize its functionality to meet their individual needs.

Note: CAD is *not* available with IP Phone Agent using an analog phone.

Note:

- Refer to the Cisco CTI OS documentation (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps14/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps14/products_user_guide_list.html)) and the CAD documentation (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps427/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps427/products_user_guide_list.html)).
- Refer to the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)* for this release (located on the [Cisco](#)

[web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html)) and the *Cisco Response Solutions (CRS) Software and Hardware Compatibility Guide* (located on the [Cisco web page](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_documentation_roadmaps_list.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_documentation_roadmaps_list.html)) for details about operating system and software requirements.

This chapter contains the following topics:

- [Using CTI Toolkit and CAD Desktops, page 74](#)
- [Installation and Configuration Checklists, page 79](#)
- [Hardware Installation and Configuration, page 80](#)

Using CTI Toolkit and CAD Desktops

Using the CTI Toolkit Agent Desktop

Action	Resolution
How does an agent log in to the desktop?	<p>To log into CTI Toolkit Agent Desktop, click the Login button. The Login button connects agents to the CTI Server and logs agents into a selected ACD switch. When an agent clicks the Login button, the CTI Login dialog box appears.</p> <p>Enter the following information in the dialog box:</p> <ul style="list-style-type: none"> • Connect to. Use the drop-down menu to select the connection profile that you want to use. • Agent ID. The agent ID as assigned by the agent's manager. <p>Note: Depending on the option chosen for logging in during the installation of the CTI OS Server, the Login dialog on the Agent desktop will prompt for either the Agent ID or the Login Name.</p> <ul style="list-style-type: none"> • Password. The password as assigned by the agent's manager. • Instrument. The device ID assigned to the teleset where the agent will receive calls. <p>After entering this information, click the OK button.</p> <p>On a successful login, the following occurs:</p> <ul style="list-style-type: none"> • The agent automatically enters the state configured on the switch, either Ready or Not Ready state. • The status bar on the bottom of the CTI Toolkit Agent Desktop Screen displays the following information: <ul style="list-style-type: none"> – Agent ID for the logged in agent – Agent Extension

Action	Resolution
	<ul style="list-style-type: none"> – Agent Instrument – Current Agent Status – The server that the agent is connected to • Buttons for actions that are allowed from your current agent state are enabled. <p>Note: If the Login button is not enabled when the CTI Toolkit Agent Desktop displays, the remote agent did not successfully log in.</p>
How can an agent verify a successful login?	<p>On a successful login, the following occurs:</p> <ul style="list-style-type: none"> • The remote agent automatically enters the state configured on the switch, either Ready or Not Ready state. • The status bar on the bottom of the CTI Toolkit Agent Desktop window displays the following information: <ul style="list-style-type: none"> – Agent ID for the logged in agent – Agent Extension – Agent Instrument – Current Agent Status – The server that the agent is connected to • Buttons for actions that are allowed from your current agent state are enabled.
How does an agent enter the Ready state to start accepting calls?	<p>An agent enters either Ready or Not Ready state on completion of a successful login, depending on the configuration of the agent's switch. If the agent is in the Not Ready state and the Ready button is enabled, enter the Ready state by clicking the Ready button.</p>
How does an agent perform a transfer?	<p>To transfer a call, perform the following steps:</p> <ol style="list-style-type: none"> 1. Click the Transfer button. The CTI Dialing Pad dialog box appears. 2. Enter the phone number to be dialed in the Dialed Number field or select a destination from the pull-down menu. The pull-down menu contains the last six numbers dialed from this desktop. 3. Optionally, click the More button to display the Call Data tab, where you can enter data associated with the call. <p>The remaining steps depend on whether the agent wants to speak with the consulted agent upon call transfer.</p>

Using CTI Toolkit and CAD Desktops

Action	Resolution
	<ul style="list-style-type: none"> If the agent does not want to speak with the consulted agent, click the Single Step button. The call is transferred automatically. If the agent wants to speak with the consulted agent, click the Transfer Init button. Once the Transfer Init button is pressed, the call is placed on hold. The agent has an opportunity to speak to the consulted agent before completing the transfer. When the consult call is answered, the button changes to Transfer Complete. To complete the transfer, click the Transfer Complete button.
How does an agent initiate a conference call?	<p>To initiate a conference call, perform the following steps:</p> <ol style="list-style-type: none"> Click the Conference button. The CTI Dialing Pad dialog box appears. Enter the phone number to be dialed in the Dialed Number field or select a destination from the pull-down menu. The pull-down menu contains the last six numbers dialed from this desktop. Optionally, click the More button to display the CTI Dialing Pad. Click the Conference Init button. The call is now put on hold. The agent will have an opportunity to speak to the consulted agent before completing the conference. When the consult call is answered, the button changes to Conference Complete. To complete the conference, click the Conference Complete button. <p>When the conference operation completes, the two calls then appear on the Call Information Grid as one call.</p>
When is an agent available to make calls?	An agent is able to make calls if the Dial button is enabled. Depending on the agent's switch, the agent might also be able to make calls if the Ready or Not Ready buttons are enabled.

Using the CAD Desktop

Action	Resolution
How does an agent log in to the desktop?	<p>To start Agent Desktop:</p> <ol style="list-style-type: none"> Choose Start > Programs > Cisco > Desktop > Agent. The Agent Login dialog box appears. <p>Note:</p> <ul style="list-style-type: none"> For Unified CCE only, Agent Desktop prompts for either the remote agent's Login ID or the Login Name in the Login dialog box. Which prompt appears depends on how the administrator has configured the system. If the login method (Login Name or Login ID) is changed while the remote agent is in the process of logging in, an error message appears stating that the login method has changed. The remote agent must restart Agent Desktop to log in using the new method. (The information in this note is not applicable to Cisco Unified Contact Center Express (Unified CCX).)

Action	Resolution
	<p>2. Enter the remote agent login ID or login name, password, and extension in the appropriate fields, and then click OK or press Enter.</p> <ul style="list-style-type: none"> – If the remote agent attempts to log in and the login ID/login name (with or without the same extension used in association with it) is already in use by another agent, the remote agent will be asked to forcibly log in. If the remote agent opts to do so, that agent is logged in and the other agent using that ID will be logged out. – If the remote agent attempts to log in and the extension is already in use by another agent, that agent will not be able to log in unless a different extension is entered. <p>Agent Desktop starts and is immediately minimized on the taskbar at the bottom of the remote agent's Windows desktop.</p> <p>Login notes:</p> <ul style="list-style-type: none"> • The maximum length for the Login Name field is 32 characters. For Agent ID, extension and password fields, the maximum data length is limited to 12 characters. • Agent Desktop can control only those calls on the extension entered in the Login dialog box, even if the remote agent is configured with multiple extensions.
How does an agent get into the Ready state to start accepting calls?	Clicking the Ready button changes the state to Ready, indicating that the remote agent is available to receive ACD calls.
How does an agent transfer a call?	<p>There are two types of transfer calls:</p> <ul style="list-style-type: none"> • Supervised transfers. In a supervised transfer, the remote agent speaks to the third party to whom the call is being transferred before connecting the active call, to confirm that the third party is ready to accept the call. • Blind transfers. In a blind transfer, the remote agent transfers the active call to the third party without speaking. The remote agent hangs up before the third party answers the phone and, therefore, cannot confirm if the third party is ready to accept the call. <p>To transfer a call:</p> <ol style="list-style-type: none"> 1. With a call active, click Transfer. <p>The Transferring Call window appears.</p> <ol style="list-style-type: none"> 2. Enter the phone number to which the remote agent is transferring the call in the Name: Number field. 3. Click Dial.

Action	Resolution
	<p>When the phone rings, the Dial button changes to the Transfer button.</p> <ol style="list-style-type: none"> 4. Take one of the following actions: <ul style="list-style-type: none"> – For a supervised transfer, wait for the third person to answer the phone, announce the transfer, then click Transfer. – For a blind transfer, click Transfer without waiting for the third person to pick up the phone.
How does an agent initiate a conference call?	<p>There are two types of conference calls:</p> <ul style="list-style-type: none"> • Supervised conference. In a supervised conference, the remote agent speaks to the third party he or she wants to add to the call before completing the conference, to confirm that the third party is ready to accept the call. • Blind conference. In a blind conference, the remote agent adds the third party to the conference without speaking to him or her. <p>Note: When using a blind conference to add someone to the call, the remote agent might or might not see the call tagged as a conference call in the dashboard pane.</p> <p>To make a conference call:</p> <ol style="list-style-type: none"> 1. With a call active, click Conference. <p>The Conferencing window appears.</p> <ol style="list-style-type: none"> 2. Enter the phone number of the person the remote agent wants to add to the call in the Name: Number field. 3. Click Dial. <p>When the phone rings, the Dial button changes to the Add to Conf. button.</p> <ol style="list-style-type: none"> 4. Take one of the following actions: <ul style="list-style-type: none"> – For a supervised conference, wait for the third person to answer the phone, announce the conference, then click Add to Conf. – For a blind conference, click Add to Conf. without waiting for the third person to pick up the phone. <p>The Conferencing window closes.</p> <ol style="list-style-type: none"> 5. To add one or more people to the conference call, repeat Steps 1 to 4 for each person.

Action	Resolution
	Note: The total number of conference call participants on a call is determined by settings on the Unified CM. Ask your supervisor for the total number configured for your contact center.
When is an agent available to make calls?	When the remote agent is in the Not Ready state and the system is functioning to enable call control, the agent is available to make and receive calls.

Installation and Configuration Checklists

Validating Installation and Configuration of Remote Agent with IP Phone Components Checklist

Issue	Resolution
Does the IP Phone boot?	Make sure the separate power supply is used for the phone. The 831 router does not supply power to the IP Phone.
Does the IP Phone register with Unified CM?	The phone must be configured for DHCP; also, domain information must be entered in to the phone configuration.
Is the IPsec tunnel running?	Reboot the 831.
Do you have internet access?	Make sure you have network access to the internet.
Can the agent desktop log in to CTI OS Server?	Make sure the PC is registered in DNS. Make sure the agent login ID/password is valid.
When you pick up the IP Phone, does the desktop reflect that the line is off hook?	Cycle the PG for the remote agent.
Are callers routed to the remote agent?	Make sure callers are routing to the remote agent and the PG is online.
When the remote agent receives a call, does the desktop client's main window display the incoming call?	Check to see if the desktop client's main window displays the incoming call.
Is the desktop window displaying the incoming call correctly?	Check to see if the desktop window displays the incoming call correctly.
Does the MTP application log in?	If you are using the Platronics headset, make sure the USB connection is secure and that it is able to play sound from the desktop.
What's the agent's readiness state when taking a call using an IP Phone?	As soon as the agent takes a call (either via the IP Phone or the agent desktop), the agent state changes to either the Talking state or the Not Ready state and the agent is unavailable for calls. (The agent <i>will not</i> receive any calls while already on a call.)

Validating Installation and Configuration of Remote Agent with Analog Phone Components Checklist

Issue	Resolution
Can the agent desktop log in to CTI OS Server?	Make sure the PC is registered in DNS. Make sure the agent login ID/password is valid.
Is there a dial tone?	Pick up the analog phone and listen for a dial tone to ensure the phone is connected.
Do you have internet access?	Make sure you have network access to the internet.
Are callers routed to the remote agent?	Make sure callers are routing to the remote agent and the PG is online.
What's the agent's readiness state when taking a call using an analog phone?	Remote agents using an analog phone must manually place themselves in the Not Ready state after taking a call.

Hardware Installation and Configuration

Refer to the *Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1)* and the *Cisco Response Solutions (CRS) Software and Hardware Compatibility Guide* (located on the [Cisco web site](http://www.cisco.com/univercd/cc/td/doc/product/icm/index.htm) (<http://www.cisco.com/univercd/cc/td/doc/product/icm/index.htm>)) for details about desktop hardware requirements.



Chapter 10

Troubleshooting Cisco Unified CCE Remote Agent Option

Caveats and Limitations

Remote Agent has limitations regarding the following:

- Agents
- Supervisors
- Network
- Security
- Reporting

Agent Limitations

- Only one Unified CCE Remote Agent Option per household is supported.
- Media Termination for CTI OS and CAD is *not* supported.
- CTI OS Agent Login might take up to 30 seconds. CAD Agent Login might take up to two minutes. Other operations such as Ready/Not ready are not impacted.
- There might be times when the ADSL/Cable link goes down. When the link is back up, the remote agent might have to reset their ADSL/Cable modem, 8xx Series Router, and IP Phone. The remote agent must become familiar with restarting the 8xx Series Router. Total time for the router to cycle is about two minutes, after which the remote agent will have to log in again for CTI application.

Caveats and Limitations

- Cisco CAD-based IP Phone only agent and Cisco IP Phone control for CTI OS is *not* supported for remote agents.
- Remote agents might experience a delay in screen pop.
- The analog phone itself cannot initiate transfers, conferences, and holds. These functions can only be executed via the CTI OS/CAD desktop agent interface, and only to another agent.
- Remote agents can use the agent desktop interface to initiate calls, but only to other agents.
- A mobile agent nailed up call may be terminated by the following two Unified CM timers, and this termination can log out a nailed up mobile agent:
 - The Maximum Call Duration timer (the default value is 720 minutes).
 - The Maximum Call Hold timer (the default value is 360 minutes).

To keep the mobile agent logged in, the values for both these timers need to be set to 0, which makes the timer never expire.

These timers can be configured from the Unified CM Administration web page from the serviced parameters under the Unified CM service.

Supervisor Limitations

- Desktop-based Silent Monitoring/Recording will not work and is not supported. (Silent Monitor—for both CTI OS and CAD—is not supported with Network Address Translation.)
- Remote supervisors are *only* supported for the Remote Agent with IP Phone.

Network Limitations

- Network Address Translation (NAT) is supported when Unified CCE Remote Agent Option is used with the Cisco Business Ready Teleworker Model. Design guides for Business Ready Teleworker can be found at:
 - <http://www.cisco.com/go/teleworker>
 - <http://www.cisco.com/go/v3pn>
 - <http://www.cisco.com/go/srnd>
- Routing through a Cisco 800 Series Router with Firewall enabled is supported.
- The G.729 codec is not supported for software conference bridges. Voice quality might degrade when the remote agent IP Phone is configured using a G.729 codec and an agent enters a Unified CM software conference bridge. The conference bridge must be configured

on a DSP hardware device. There is no loss of conference voice quality using a DSP conference bridge.

Note: Use this solution even for pure IP telephony deployments.

- The Unified CCE server recognizes failures when the remote agent desktop or connection breaks. It will stop routing calls to that agent until an agent logs back in and goes to a ready call state. Callers will be routed to other available agents.
- The only traffic that is marked for priority AF31 from the agent desktop is voice. CTI traffic and Desktop Application traffic is not marked. Voice gets the priority. CRM Desktops like Siebel and Oracle are supported; however, Silent Monitoring and Recording is not supported for CRM Desktops such as Siebel, Oracle, and so forth. Silent Monitoring, both Desktop based and SPAN Port based, is not supported with CRM Desktops and will not work.
- Do not use soft VPN clients to establish VPN connectivity for remote agents with IP Phones. VPN connection has to be set up using hardware-based VPN through a 8xx Series Router.
- If the remote agent PC modem is down or the connection goes down, Unified ICME software via CTI/CAD/CTI OS server will recognize the failure and will stop routing calls to that agent, until an agent logs back in again, and goes to a ready call state.
- If the ADSL/Cable delay is greater than the maximum, the IPCC application encounters longer application response times.

Security Limitations

- Wireless access points are supported; however, determine their use by the enterprise security policies of the customer. Wireless use does not affect remote agent performance since the bandwidth that wireless supports is greater than the broadband link.

Note: 7920 Wireless IP Phones are not supported.

- This solution has only been tested with centralized Unified CCE and Unified CM Clusters.

Reporting Limitations

- No special reports exist for individual remote agents. Unified CCE reports as they pertain to a Headquarter Contact Center are applicable.
- Real Time reporting, Historical reporting, and the monitoring of desktop queue statistics are not supported.

Other Limitations

- When you use an SCCP IP Phone as a Mobile Agent device, if the Mobile Agent CTI ports are located on a different cluster other than the phone device, and if a SIP trunk is used to connect the clusters, **MTP** is required to support mobile agent call flow.
- If you enable the use of an MTP on a trunk, it will affect all the calls that traverse that trunk (even non-contact-center calls). Ensure that the number of available MTPs support the number of calls traversing the trunk.
- **DTMF Considerations:** If Mobile Agents consult an IVR or other network components that need DTMF to navigate, then they might require MTP resources. The Mobile Agent feature relies on Unified CM CTI ports which do not support in-band DTMF (RFC 2833). If the Mobile Agents use endpoints which support only in-band DTMF (or if they are configured to use in-band DTMF per RFC 2833), then Unified CM automatically inserts MTP resources due to the mismatch in capabilities. If the Mobile Agent call flow requires in-band DTMF (RFC 2833), a sufficient amount of MTP resources should be made available.
- **Cisco Unified Border Element Considerations:** Some SIP devices such as the Cisco Unified Border Element or other Session Border Controllers could dynamically change the media port during the call. In this case, if the Mobile Agent feature is used, MTP resources connected to the agent endpoint are required on the SIP trunk.



Chapter 11

Sample Cisco IOS Configuration for Analog FXO to PRI Gateway

The following section provides a sample Cisco IOS configuration for an analog FXO to PRI gateway.

Analog FXO to PRI Gateway

```
hostname pri-fxo-gateway
!
isdn switch-type primary-ni
!
controller T1 3/0
framing esf
linecode b8zs
cablelength short 133
pri-group timeslots 1-24
!
interface Serial3/0:23
bandwidth 230400
no ip address
encapsulation hdlc
no logging event link-status
isdn switch-type primary-ni
isdn incoming-voice voice
no cdp enable
!
voice-port 1/0/0
connection plar opx 4085551234
!
voice-port 1/0/1
```

```
connection plar opx 4085551235
!
dial-peer cor custom
!
dial-peer voice 1 pots
destination-pattern 4085551234
no digit-strip
port 3/0:23
!
dial-peer voice 100 pots
destination-pattern 4085551235
no digit-strip
port 3/0:23
!
end
```

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