Configure CTI Applications

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CTI Applications Overview

You can use Computer Telephony Integration (CTI) to take advantage of computer-processing functions while making, receiving, and managing telephone calls. CTI applications allow you to perform such tasks as retrieving customer information from a database using a caller ID, or to work with the information gathered by an Interactive Voice Response (IVR) system to route a customer's call, along with their information, to the appropriate customer service representative.

Applications that want to terminate media for calls at route points must specify the media and port for the call on a per-call basis. CTI applications can terminate media on CTI ports and CTI route points using either static or dynamic IP addresses and port numbers.

This chapter describes how to configure Cisco Unified Communications Manager to work with CTI applications. For information about how to configure specific applications, see the *Feature Configuration Guide for Cisco Unified Communications Manager.*

Some of the Cisco CTI applications available are:

- Cisco IP Communicator: A desktop application which turns your computer into a full-feature telephone with the added advantages of call tracking, desktop collaboration, and one-click dialing from online directories.
- Cisco Unified Communications Manager Auto-Attendant: Works with Unified Communications Manager to receive calls on specific telephone extensions and to allow the caller to choose an appropriate extension.
- Cisco Web Dialer: Allows Cisco IP Phone users to make calls from web and desktop applications.
- Cisco Unified Communications Manager Assistant: Enables managers and their assistants to work together more effectively. The feature comprises a call-routing service, enhancements to phone capabilities for the manager and the assistant, and assistant console interfaces that are primarily used by the assistant.

Note To determine which Unified Communications Manager CTI applications support SIP IP phones, see the application-specific documentation.

CTI Route Points Overview

A CTI route point virtual device can receive multiple, simultaneous calls for application-controlled redirection. You can configure one or more lines on a CTI route point that users can call to access the application. Applications can answer calls at a route point and can also redirect calls to a CTI port or IP phone. When a CTI application requests to redirect a call by using the Redirect API, Cisco Unified Communications Manager uses the configuration for the line/device calling search space for the redirected party.

With CTI route points you can:

- Answer a call
- Make and receive multiple active calls
- Redirect a call
- Hold a call
- Unhold a call
- Drop a call

CTI Redundancy on Cisco Unified Communications Manager

When a Unified Communications Manager node in a cluster fails, the CTIManager recovers the affected CTI ports and route points by reopening these devices on another Unified Communications Manager node. If an application has a phone device open, the CTIManager also reopens the phone when the phone fails over to a different Unified Communications Manager. If the Cisco IP Phone does not fail over to a different Unified Communications Manager, the CTIManager cannot open the phone or a line on the phone. The CTIManager uses the Unified Communications Manager group that is assigned to the device pool to determine which Unified Communications Manager to use to recover the CTI devices and phones that the applications opened.

CTI Redundancy on CTIManager

When a CTIManager fails, the applications that are connected to the CTIManager can recover the affected resources by reopening these devices on another CTIManager. An application determines which CTIManager to use on the basis of CTIManagers that you defined as primary and backup when you set up the application (if supported by the application). When the application connects to the new CTIManager, it can reopen the devices and lines that previously opened. An application can reopen a Cisco IP Phone before the phone rehomes to the new Unified Communications Manager; however, it cannot control the phone until the rehoming completes.

Note The applications do not rehome to the primary CTIManager when it comes back in service. Applications fail back to the primary CTIManager if you restart the application or if the backup CTIManager fails.

CTI Redundancy for Application Failure

When an application (TAPI/JTAPI or an application that directly connects to the CTIManager) fails, the CTIManager closes the application and redirects unterminated calls at CTI ports and route points to the configured call forward on failure (CFOF) number. The CTIManager also routes subsequent calls into those CTI ports and route points to the configured Call Forward No Answer (CFNA) number until the application recovers and reregisters those devices.

CTI Applications Prerequisites

You must have device pools configured before you can configure Cisco Unified Communications Manager for CTI Applications.

Add and configure IP phones for each CTI application. For further information on adding and configuring IP Phones see, Cisco Unified IP Phones.

Configure the end users and application users that will use CTI applications.

Computer Telephony Integration (CTI) provides IP address information through the JTAPI and TAPI interfaces, which can support IPv4 and IPv6 addresses. If you want to support IPv6 addresses, make sure that your applications are using a JTAPI /TAPI client interface version that supports IPv6.

Configure CTI Applications Task Flow

To configure Cisco Unified Communications Manager for CTI applications follow these tasks.

Procedure

	Command or Action	Purpose
Step 1	Activate the CTIManager Service, on page 4	Activate the CTIManager service on the appropriate servers, if not already activated.
Step 2	Configure CTIManager and Cisco Unified Communications Manager Service Parameters, on page 4	Configure CTIManager advanced clusterwide service parameters that are used in conjunction with the CTI Super Provider capability.
Step 3	To configure CTI Route Points perform the following procedure: • Configure CTI Route Points, on page 5 • Configure New Call Accept Timer, on page 6 • Configure Simultaneous Active Calls, on page 6 • Synchronize CTI Route Point, on page 6	Configure one or more CTI route point virtual devices which can receive multiple, simultaneous calls for application-controlled redirection.
Step 4	Configure CTI Device Directory Number, on page 7	Configure the directory number for the CTI device.

	Command or Action	Purpose
Step 5	Associate Devices with Groups, on page 7	Associate all devices that the application will use for application users and end users with the appropriate Cisco Unified Communications Manager group (via the device pool).
Step 6	Add End Users and Application Users, on page 8	Allow a CTI application to control any CTI-controllable devices that are configured in the Cisco Unified Communications Manager system by adding the end users and application users to the Standard CTI Enabled user group.
Step 7	(Optional) Configure CTI Redundancy for Application Failure, on page 9	To define the interval at which CTIManager expects to receive a message from an application within two consecutive intervals.

Activate the CTIManager Service

Procedure

Step 1 On Cisco Unified Serviceability, choose **Tools** > **Service Activation**.

Step 2 Choose the node from the **Server** drop-down list.

Step 3 Check the **Cisco CTIManager** check box in the CM Services section.

Step 4 Click **Save**.

Configure CTIManager and Cisco Unified Communications Manager Service Parameters

Configure CTIManager advanced clusterwide service parameters that are used in conjunction with the CTI Super Provider capability.

Note If the configured limits are exceeded, CTI generates alarms, but the applications continue to operate with the extra devices.

Procedure

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

Step 2 Choose the node from the **Server** drop-down list.

Step 3 Choose Cisco CTIManager (Active) from the **Service** drop-down list.

Step 4 On the **Service Parameter Configuration** window, click **Advanced**.

Step 5 In the **Maximum Devices Per Provider** field, enter the maximum number of devices that a single CTI application can open. The default is 2000 devices.

Step 6 In the Maximum Devices Per Node field, enter the maximum number of devices that all CTI applications can open on any CTIManager node in the Unified Communications Manager system. The default is 800 devices.

Step 7 Click **Save**.

Configure CTI Route Points Task Flow

Procedure

	Command or Action	Purpose
Step 1	Configure CTI Route Points, on page 5	Add a new, or modify an existing CTI route point.
Step 2	Configure New Call Accept Timer, on page 6	Configure the New Call Accept Timer so that when a call arrives at a route point, the application will handle (accept, answer, redirect) it within the time specified.
Step 3	Configure Simultaneous Active Calls, on page 6	Configure the number of simultaneous active calls on the route point.
Step 4	**Optional**: Synchronize CTI Route Point, on page 6	Synchronize a CTI route point with the most recent configuration changes, which applies any outstanding configuration settings in the least intrusive manner possible. (For example, a reset/restart may not be required on some affected devices.)

Configure CTI Route Points

Add a new, or modify an existing CTI route point.

Procedure

Step 1 From Cisco Unified CM Administration, click **Device** > **CTI Route Point**.

Step 2 Perform one of the following tasks:

- Click **Add New**, to add a new gateway.
- Click **Find** and select a CTI route point from the resulting list to modify the settings for an existing CTI route point, enter search criteria.

Step 3 Configure the fields in the **CTI Route Point Configuration** window. For more information on the fields and their configuration options, see the system Online Help..

Step 4 Click **Save**.

Configure New Call Accept Timer

Configure the New Call Accept Timer so that when a call arrives at a route point, the application will handle (accept, answer, redirect) it within the time specified.

Procedure

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

Step 2 Choose the node from the **Server** drop-down list.

Step 3 Choose **Cisco CallManager (Active)** from the Service drop-down list.

Step 4 In the **CTI New Call Accept Timer** field, specify the time that you want to allow for a call to be answered. The default value is 4.

Step 5 Click **Save**.

Configure Simultaneous Active Calls

Configure the number of simultaneous active calls on the route point.

Note If you are planning to use a TAPI application to control CTI port devices by using the Cisco CallManager Telephony Service Provider (TSP), you may only configure one line per CTI port device.

Procedure

Step 1 From Cisco Unified CM Administration, click **Call Routing** > **Directory Number**.

Step 2 On the Directory Number Configuration window, click **Add New**.

Step 3 Fill in the required fields.

Step 4 Click **Save**.

Synchronize CTI Route Point

Synchronize a CTI route point with the most recent configuration changes, which applies any outstanding configuration settings in the least intrusive manner possible. (For example, a reset/restart may not be required on some affected devices.)

Procedure

Step 1 From Cisco Unified CM Administration, click **Device** > **CTI Route Point**.

Step 2 On the **Find and List CTI Route Points** window, click **Find** to display the list of CTI route points.

Step 3 Check the check boxes next to the CTI route points that you want to synchronize. To choose all CTI route points in the window, check the check box in the matching records title bar.

Step 4 Click **Apply Config to Selected**.

Step 5 Click **OK**.

Configure CTI Device Directory Number

Configure the directory number for the CTI device.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Call Routing** > **Directory Number**.

Step 2 On the **Find and List Directory Numbers** window, click **Add New**.

Step 3 On the **Directory Number Configuration** window, and enter the required fields.

Step 4 Click **Save**.

Associate Devices with Groups

Associate all devices that the application will use for application users and end users with the appropriate Cisco Unified Communications Manager group (via the device pool).

Procedure

Step 1 From Cisco Unified CM Administration, click **User Management** > **Application User**.

Step 2 On the **Find and List Application Users** window, click **Add New**. This brings you to the Application User Configuration window.

Step 3 In the Device Information pane, associate your devices by moving them from the Available Devices list to the Controlled Devices list.

Step 4 Click **Save**.

Step 5 To Associate Devices for end users, click **User Management** > **End User**.

Step 6 Repeat steps 2 - 4.

Add End Users and Application Users

Allow a CTI application to control any CTI-controllable devices that are configured in the Cisco Unified Communications Manager system by adding the end users and application users to the Standard CTI Enabled user group.

Procedure

Step 1 From Cisco Unified CM Administration, click **User Management** > **User Settings** > **Access Control Group**.

Step 2 On the **Find and List Access Control Groups** window, click **Find** to display the current list of access control groups.

Step 3 Click **Standard CTI Enabled**, this brings you to the Access Control Group Configuration window for this group. Ensure all CTI users are in the Standard CTI Enabled user group. See Access Control Group Configuration Options, for a full list of available groups and their capabilities.

Step 4 If you want to add end users, click **Add End Users to Group** or, if you want to add application users, click **Add App Users to Group**.

Step 5 Click **Find**, to display the list of current users.

Step 6 Check the users you want to assign to the Standard CTI Enabled user group.

Step 7 Click **Add Selected**.

Access Control Group Configuration Options

Note The CTI application must support the specified user group to which it is assigned.

Note Cisco recommends that users who are associated with the Standard CTI Allow Control of All Devices user group also be associated with the Standard CTI Secure Connection user group.

Note You must add the particular device under **Controlled Devices** for all the roles, listed in the following table, to work properly.

Field	Description
Standard CTI Allow Call Monitoring	This user group allows an application to monitor calls.
Standard CTI Allow Call Park Monitoring	This user group allows an application to receive a notification when calls are parked/unparked to all Call Park directory numbers.
Standard CTI Allow Call Recording	This user group allows an application to record calls.

Field	Description
Standard CTI Allow Calling Number Modification	This user group allows an application to modify the calling party number in supported CTI applications.
Standard CTI Allow Control of All Devices	This user group allows an application to control or monitor any CTI-controllable device in the system.
Standard CTI Allow Reception of SRTP Key Material	This user group allows an application to receive information that is necessary to decrypt encrypted media streams. This group typically gets used for recording and monitoring purposes.
Standard CTI Enabled	This user group, which is required for all CTI applications, allows an application to connect to Cisco Unified Communications Manager and to access CTI functionality.
Standard CTI Secure Connection	Inclusion into this group requires that the application has a secure (TLS) CTI connection to Cisco Unified Communications Manager and that the Cisco Unified Communications Manager cluster has security enabled.

Configure CTI Redundancy for Application Failure

To define the interval at which CTI Manager expects to receive a message from an application within two consecutive intervals.

Procedure

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

Step 2 Choose the node from the **Server** drop-down list.

Step 3 Choose **Cisco CTIManager (Active)** from the **Service** drop-down list.

Step 4 On the **Service Parameter Configuration** window, click **Advanced**.

Step 5 In the **Application Heartbeat Minimum Interval** field, enter the time for the minimum interval. The default is 5.

Step 6 In the **Application Heartbeat Maximum Interval** field, enter the time for the maximum interval. The default is 3600.

Step 7 Click **Save**.