Recording

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Recording Overview

Call recording is a Unified Communications Manager feature that enables a recording server to archive agent conversations. Call recording is one of the essential features in call centers, financial institutions and other enterprises. The call recording feature sends copies of the agent and the end-user media streams to the recording server over a SIP trunk. Each media stream is sent separately in an effort to best support a wide range of voice analytic applications.

Unified Communications Manager offers IP phone-based or network-based recording.

- In IP phone based recording, recording media is sourced from the phone. The phone forks two media streams to the recording server.
- In network-based recording, recording media can be sourced from either the phone or the gateway. When you implement network-based recording, the gateway in your network must connect to Unified Communications Manager over a SIP trunk.

Unified Communications Manager supports call recording in both single cluster and multi-cluster environments and offers three different recording modes:

- **Automatic Silent Recording**—Automatic silent recording records all calls on a line appearance automatically. Unified Communications Manager invokes the recording session automatically with no visual indication on the phone that an active recording session is established.
- **Selective Silent Recording**—A supervisor can start or stop the recording session via CTI-enabled desktop. Alternatively, a recording server can invoke the session based on predefined business rules and events. There is no visual indication on the phone that an active recording session is established.
- **Selective User Call Recording**—An agent can choose which calls to record. The agent invokes the recording session through CTI-enabled desktop, or by a softkey or programmable line key. When selective user call recording is used, the Cisco IP phone displays recording session status messages.

Unified Communications Manager supports recording to a single recording server and can be deployed with CUBE as media proxy to record to more than one recording server.

- In multi-fork recording, Unified Communications Manager is connected to CUBE Media Proxy server through SIP trunk. The CUBE Media Proxy server receives two media streams from phone or gateway and it forks the media streams to one or more recording servers simultaneously.
- In recording to single recording servers, Unified Communications Manager is directly connected to recording server through SIP trunk. The phone or the gateway forks two media streams to the recording server.

Multi-Fork Recording

Unified Communications Manager supports simultaneous, multiple stream recordings through Cisco Unified Border Element (CUBE) as Media Proxy. In Multi-fork recording, the recording stream is sent to a CUBE Media Proxy server, which relays the media stream to up to five recording servers simultaneously. This is supported for both phone-based and network-based recording, and for both automatic and selective recording.

The multi-forking feature provides the following benefits:

- Adds redundancy and failover to your recording deployment.
- Provides additional media streams for speech analysis and monitoring.
- Helps organization, such as financial industry, to be compliant to MiFID requirements, that mandate recording of customer calls to multiple recording servers for redundancy.

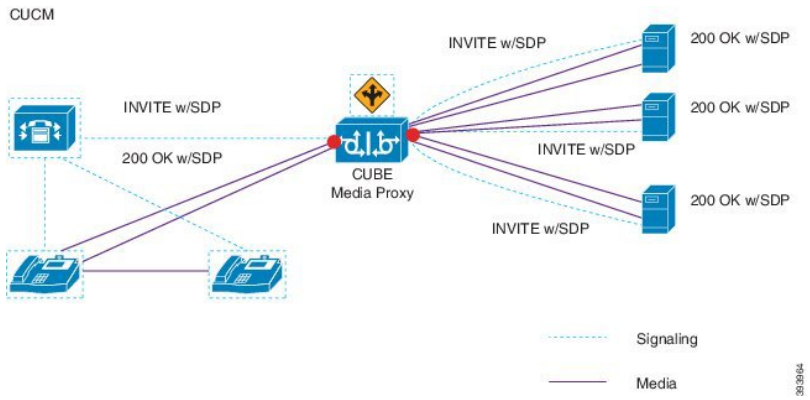
When you implement multi-fork recording, you must configure the CUBE Media Proxy server in your network which connects to Unified Communications Manager over a SIP trunk.

For more information on *CUBE Media Proxy*, see Cisco Unified Border Element Configuration Guide.

Note Connection from Unified Communications Manager to CUBE Media Proxy server over a SIP trunk must be configured with Early Offer.

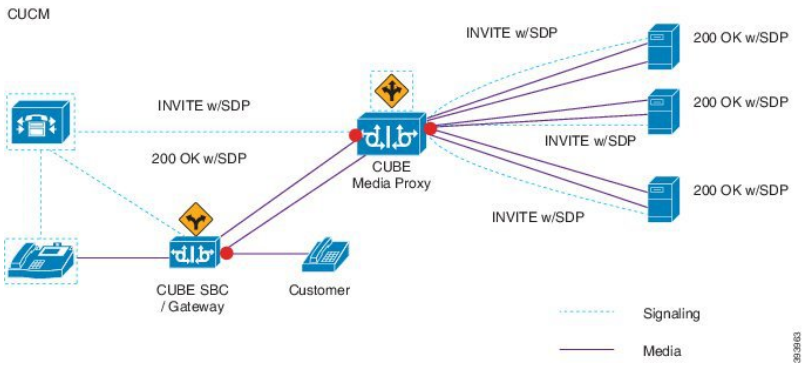
The following example illustrates the phone-based recording of multi-fork recording through CUBE Media Proxy.

Figure 1: Phone-based recording



The following example illustrates the network-based recording of multi-fork recording through CUBE Media Proxy.

Figure 2: Network-based recording



For more information on method summary, see "*Cisco Device-Specific Extensions*" section of Cisco Unified JTAPI Developers Guide for Cisco Unified Communications Manager Release 12.5(1).

Supported Platforms

Multi-fork recording through CUBE Media Proxy server is supported on the following Cisco Router Platforms running on Cisco IOS XE Gibraltar Release 16.10.1:

- Cisco 4000 Series-Integrated Services Routers (ISR G3 - ISR4331, ISR4351, ISR4431, ISR4451).
- Cisco Aggregated Services Routers (ASR - ASR1001-X, ASR1002-X, ASR1004 with RP2, ASR1006 with RP2).
- Cisco Cloud Services Routers (CSR1000V series).

Restrictions for Multi-fork recording through CUBE Media Proxy

Multi-fork recording through CUBE Media Proxy server does not support the following:

- Video recording.
- Secure media (SRTP) forking of non secure calls.
- SRTP fall back.
- Midcall block.

Recording Media Source Selection

When you configure network-based recording, you must configure either the phone or the gateway as your preferred source of recording media for the agent phone line. However, depending on your deployment, Unified Communications Manager may not select your preferred choice as the recording media source. The following table displays the logic Unified Communications Manager uses to select the recording media source.

Table 1: Recording Media Source Selection

Preferred Media Source	Media Type	Gateway in call path?	Selected Media Source
Gateway	Unsecure (RTP)	Yes	Gateway
		No	Phone
	Secure (sRTP)	Yes	Phone
		No	Phone
Phone	Unsecure (RTP)	Yes	Phone
		No	Phone
	Secure (sRTP)	Yes	Phone
		No	Phone

Alternate Recording Media Source if the First Choice is Unavailable

If the recording media source that Unified Communications Manager selects is unavailable, Unified Communications Manager attempts to use an alternate source. The following table shows the logic Unified Communications Manager uses to select an alternate source for recording media.

Table 2: Alternate Recording Media Source if First Choice is Unavailable

Selected Media Source	Gateway Preferred	Phone Preferred
First attempt	First gateway in call path	Phone
Second attempt	Last gateway in call path	First gateway in call path
Third attempt	Phone	Last gateway in call path

Recording Prerequisites

- Cisco Unified IP Phone support—To view a list of the Cisco Unified IP Phone that support recording, log in to Cisco Unified Reporting and run the Unified CM Phone Feature List report, selecting **Record** as the feature. For a detailed procedure, see Generate a Phone Feature List.
- Gateway support—For details on which gateways support recording, see https://developer.cisco.com/web/sip/wiki/-/wiki/Main/Unified+CM+Recording+Gateway+Requirements.
- If you are configuring multiple-stream recording, deploy and configure a CUBE Media Proxy. For details, see the section *CUBE Media Proxy* in the Cisco Unified Border Element Configuration Guide.

Recording Configuration Task Flow

Before you begin

Procedure

	Command or Action	Purpose
Step 1	Create a Recording Profile, on page 5	Create a recording profile.
Step 2	Configure SIP Profile for Recording, on page 6	**Optional**. Configure the SIP Profile if you want to deliver the Conference Bridge Identifier to the recorder.
Step 3	Configure SIP Trunks for Recording, on page 6	Configure the recorder server or CUBE Media Proxy as a SIP trunk device.
Step 4	Configure Route Pattern for Recording, on page 7	Create a route pattern that routes to the recorder server or CUBE Media Proxy.
Step 5	Configure Agent Phone Line for Recording, on page 7	Configure the agent phone line for recording.
Step 6	Enable the built in bridge for your agent phones. Perform one of the following tasks to enable the built-in-bridge for recording: • Enable Built in Bridge for Cluster , on page 8 • Enable Built in Bridge for a Phone, on page 8	To use the agent phone as the recording media source you must enable the phone's built in bridge for recording. You can use a service parameter to set the built in bridge defaults across the cluster, or enable the built in bridge on an individual phone. **Note** The Built in Bridge setting on individual phones overrides the clusterwide defaults.
Step 7	Enable Gateway for Recording, on page 9	Configure Unified Communications services on the gateway.
Step 8	Configure Recording Notification Tones, on page 10	Configure whether you want a notification tone to play when calls are recorded.
Step 9	Perform one of the following procedures, depending on whether your phone uses feature buttons or softkeys: • Configure a Record Feature Button, on page 10 • Configure a Record Softkey, on page 11	Configure a Record feature button or softkey for your phone.

Create a Recording Profile

Use this procedure to create a recording profile.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Device Settings** > **Recording Profile**.

Step 2 Click **Add New**.

Step 3 In the **Name** field, enter a name for your recording profile.

Step 4 In the **Recording Calling Search Space** field, select the calling search space that contains the partition with the route pattern that is configured for the recording server.

Step 5 In the **Recording Destination Address** field, enter the directory number or the URL of the recording server or the URL of the CUBE Media Proxy server.

Step 6 Click **Save**.

Configure SIP Profile for Recording

Use this procedure to deliver the conference bridge identifier to the recorder and configure the SIP Profile.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Device Settings** > **SIP Profile**.

Step 2 Select the SIP profile that you want to use for your network.

Step 3 Set a value for the **Early Offer Support for Voice and Video** calls field. SIP trunk from Unified Communications Manager to CUBE Media Proxy server must be enabled for an Early Offer support and configuration options are **Best Effort (no MTP inserted)** and **Mandatory (insert MTP if needed)**.

Note
We recommend that you enable SIP trunk for Mandatory (insert MTP if needed).

Step 4 Check the **Deliver Conference Bridge Identifier** check box.

Step 5 Click **Save**.

Configure SIP Trunks for Recording

Use this procedure to assign the recording server information in the **SIP Trunk Configuration** window.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Trunk**.

Step 2 Click **Add New**.

Step 3 From the **Trunk Type** drop-down list, choose **SIP Trunk**.

Device Protocol is auto-populated to **SIP**, which is the only available option.

Step 4 From the **Trunk Service Type** drop-down list, choose the service type that you want to use in your network. The default value is **None**.

Step 5 Click **Next**.

Step 6 In the **Destination Address** field of the **SIP Information** pane, enter an IP address, fully qualified domain name, or DNS SRV of the recording server or CUBE Media proxy.

Step 7 From the **SIP Profile** drop-down list in the **SIP Information** pane, choose the SIP profile that you want to use in your network.

Step 8 From the **Recording Information** pane, select one of the following options:

- None—This trunk is not used for recording.
- This trunk connects to a recording-enabled gateway.
- This trunk connects to other clusters with recording-enabled gateways.

Step 9 Click **Save**.

Note
SIP trunk from Unified Communications Manager to Media Proxy must be enabled for Early Offer support in the SIP Profile that is used for this trunk. The configuration options are **Mandatory** (insert MTP if needed) and **Best Effort** (no MTP inserted).

Configure Route Pattern for Recording

Use this procedure to describe the route pattern configurations that are specific to recorders. You must configure a route pattern that routes to the recording server or CUBE Media Proxy server.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Call Routing** > **Route/Hunt** > **Route Pattern**.

Step 2 Click **Add New** to create a new route pattern.

Step 3 Complete the fields in the **Route Pattern Configuration** window.For more information on the fields and their configuration options, see Online Help.

Step 4 For call recording, complete the following fields:

- **Pattern**—Enter a pattern that matches the recording destination address from the recording profile.
- **Gateway/Route List**—Choose the SIP trunk or route list that points to the recording server.

Step 5 Click **Save**.

Configure Agent Phone Line for Recording

Use this procedure to configure the agent phone line for recording.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Phone**.

Step 2 Click **Find**.

Step 3 Select the agent's phone.

Step 4 In the left Association pane, click the phone line for the agent to view the settings.

Step 5 From the **Recording Option** drop-down list, choose one of the following options:

- **Call Recording Disabled**—Calls on this phone line are not recorded.
- **Automatic Call Recording Enabled**—All calls on this phone line are recorded.
- **Selective Call Recording Enabled**—Only selected calls on this phone line are recorded.

Step 6 From the **Recording Profile** drop-down list, choose the recording profile that is configured for the agent.

Step 7 From the **Recording Media Source** drop-down list, choose whether you want to use the gateway or the phone as the preferred source of recording media.

Step 8 Set the **Busy Trigger** field to a minimum of **3** if you also have Multilevel Precedence and Preemption (MLPP) configured.

Step 9 Click **Save**.

Enable Built in Bridge for Cluster

Use this procedure to enable the phone's built in bridge for recording to use the agent phone as the recording media source.

When you set the Built-in-Bridge clusterwide service parameter to enable, the Built-in-Bridge default setting for all phones in the cluster is changed to enabled. However, the Built-in-Bridge setting in the **Phone Configuration** window for an individual phone overrides the clusterwide service parameter setting if the default option is not selected for that phone.

Procedure

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

Step 2 From the **Server** drop-down list, choose the server on which the CallManager service is running.

Step 3 From the **Service** drop-down list, choose **Cisco CallManager**.

Step 4 Set the **Builtin Bridge Enable** service parameter to **On**.

Step 5 Click **Save**.

Enable Built in Bridge for a Phone

Use this procedure to enable the Built in Bridge for an individual phone. If the default option is not selected, the Built in Bridge setting in the **Phone Configuration** window overrides the clusterwide service parameter.

Optionally, use a service parameter to set the Built in Bridge defaults across the cluster. For more information, see Enable Built in Bridge for Cluster , on page 8.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Phone**.

Step 2 Click **Find** to select the agent phone.

Step 3 From the **Built in Bridge** drop-down list, choose one of the following options:

- **On**—The Built in Bridge is enabled.
- **Off**—The Built in Bridge is disabled.
- **Default**—The setting of the clusterwide **Builtin Bridge Enable** service parameter is used.

Note
The recording can fail if the **Built-in-Bridge** is ON and if you check the **Media Termination Point Required** check box.

Step 4 Click **Save**.

Enable Gateway for Recording

Use this procedure to configure the gateway for recording. You must enable Unified Communications Gateway Services. The following task flow contains the high-level process to enable Unified Communications Gateway Services.

Procedure

Step 1 Configure Unified Communications Manager IOS Services on the Device.

Step 2 Configure the XMF Provider.

Step 3 Verify Unified Communications Gateway Services.

For detailed configuration steps, including examples, refer to the Cisco Unified Communications Gateway Services chapter for either of the following documents:

- For more information, see ASR routers Cisco Unified Border Element (Enterprise) Protocol-Independent Features and Setup Configuration Guide. Cisco IOS XE Release 35.
- For more information, see ISR routers Cisco Unified Border Element Protocol-Independent Features and Setup Configuration Guide, Cisco IOS Release 15M&T.

Configure Recording Notification Tones

Use this procedure to configure notification tone to play when calls are recorded. For legal compliance, an explicit notification in the form of a periodic tone can be made audible to the agent, the caller, or both, to indicate that a recording session is in progress. This tone can also be disabled.

Note Recording tone settings override monitoring tone settings when both are enabled for the same call.

Procedure

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

Step 2 From the **Server** drop-down list, choose the server on which the Cisco CallManager service is running.

Step 3 From the **Service** drop-down list, choose **Cisco CallManager**.

Step 4 If you want a notification tone to be played to the agent, set the **Play Recording Notification Tone to Observed Target (agent)** service parameter to **True**.

Step 5 If you want a notification tone to be played to the customer, set the value of the **Play Recording Notification Tone To Observed Connected Parties (customer)** service parameter to **True**.

Step 6 Click **Save**.

Configure a Record Feature Button

Use this procedure to assign the Record feature button to your phone if your phone uses feature buttons.

Procedure

	Command or Action	Purpose
Step 1	Configure a Phone Button Template for Recording, on page 10	Configure a phone button template that includes the Record button.
Step 2	Associate a Phone Button Template with a Phone, on page 11	Associate the phone button template that you set up for recording to the phone.

Configure a Phone Button Template for Recording

Use this procedure to create a phone button template that includes the Record feature button.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Device Settings** > **Phone Button Template**.

Step 2 Click **Find** to display list of supported phone templates.

Step 3 Perform the following steps if you want to create a new phone button template; otherwise, proceed to the next step.

a) Select a default template for the model of phone and click **Copy**.
b) In the **Phone Button Template Information** field, enter a new name for the template.
c) Click **Save**.

Step 4 Perform the following steps if you want to add phone buttons to an existing template.

a) Click **Find** and enter the search criteria.
b) Choose an existing template.

Step 5 From the **Line** drop-down list, choose feature that you want to add to the template.

Step 6 Click **Save**.

Step 7 Perform one of the following tasks:

- Click **Apply Config** if you modified a template that is already associated with devices to restart the devices.
- If you created a new softkey template, associate the template with the devices and then restart them.

Associate a Phone Button Template with a Phone

Use this procedure to associate the phone button template that you created for the Record button of the phone.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Phone**.

Step 2 Click **Find** to display the list of configured phones.

Step 3 Choose the phone to which you want to add the phone button template.

Step 4 In the **Phone Button Template** drop-down list, choose the phone button template that contains the new feature button.

Step 5 Click **Save**.
A dialog box is displayed with a message to press **Reset** to update the phone settings.

Configure a Record Softkey

Use this procedure to add a Record softkey to the phone, if your phone uses softkeys. The Record softkey is only available in the Connected call state for the Cisco Chaperone Phone with Feature Hardkeys template.

Procedure

	Command or Action	Purpose
Step 1	Configure a Softkey Template for Recording, on page 12	Configure a softkey template that includes the Record softkey.

	Command or Action	Purpose
Step 2	Perform one of the following procedure: • Associate a Softkey Template with a Phone, on page 13 • Associate a Softkey Template with a Common Device Configuration, on page 13	Associate the softkey template to a phone directly, or to a Common Device Configuration. You can then associate the Common Device Configuration to a group of phones.

Configure a Softkey Template for Recording

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Device Settings** > **Softkey Template**.

Step 2 Perform the following steps to create a new softkey template; otherwise, proceed to the next step.

a) Click **Add New**.
b) Select a default template and click **Copy**.
c) Enter a new name for the template in the **Softkey Template Name** field.
d) Click **Save**.

Step 3 Perform the following steps to add softkeys to an existing template.

a) Click **Find** and enter the search criteria.
b) Select the required existing template.

Step 4 Check the **Default Softkey Template** check box to designate this softkey template as the default softkey template.

Note
If you designate a softkey template as the default softkey template, you cannot delete it unless you first remove the default designation.

Step 5 Choose **Configure Softkey Layout** from the **Related Links** drop-down list in the upper right corner and click **Go**.

Step 6 From the **Select a Call State to Configure** drop-down list, choose the call state for which you want the softkey to display.

Step 7 From the **Unselected Softkeys** list, choose the softkey to add and click the right arrow to move the softkey to the **Selected Softkeys** list. Use the up and down arrows to change the position of the new softkey.

Step 8 Repeat the previous step to display the softkey in additional call states.

Step 9 Click **Save**.

Step 10 Perform one of the following tasks:

- Click **Apply Config** if you modified a template that is already associated with devices to restart the devices.

- If you created a new softkey template, associate the template with the devices and then restart them. For more information, see *Add a Softkey Template to a Common Device Configuration* and *Associate a Softkey Template with a Phone* sections.

Associate a Softkey Template with a Phone

Use this procedure to assign the Record softkey to the phone by associating the softkey template that includes the Record softkey directly to a phone.

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Phone**.

Step 2 Click **Find** to select the phone to add the softkey template.

Step 3 From the **Softkey Template** drop-down list, choose the template that contains the new softkey.

Step 4 Click **Save**.

Step 5 Press **Reset** to update the phone settings.

Associate a Softkey Template with a Common Device Configuration

Use this procedure to add a Record softkey to the phone by associating the softkey template to a Common Device Configuration.

Procedure

	Command or Action	Purpose
Step 1	Add a Softkey Template to the Common Device Configuration, on page 13	
Step 2	Add Common Device Configuration to Phone, on page 14	

Add a Softkey Template to the Common Device Configuration

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Device Settings** > **Common Device Configuration**.

Step 2 Perform the following steps to create a new Common Device Configuration and associate the softkey template with it; otherwise, proceed to the next step.

a) Click **Add New**.
b) Enter a name for the Common Device Configuration in the **Name** field.
c) Click **Save**.

Step 3 Perform the following steps to add the softkey template to an existing Common Device Configuration.

a) Click **Find** and enter the search criteria.
b) Click an existing Common Device Configuration.

Step 4 In the **Softkey Template** drop-down list, choose the softkey template that contains the softkey that you want to make available.

Step 5 Click **Save**.

Step 6 Perform one of the following tasks:

- If you modified a Common Device Configuration that is already associated with devices, click **Apply Config** to restart the devices.
- If you created a new Common Device Configuration, associate the configuration with devices and then restart them.

Add Common Device Configuration to Phone

Procedure

Step 1 From Cisco Unified CM Administration, choose **Device** > **Phone**.

Step 2 Click **Find** and select the phone device to add the softkey template.

Step 3 From the **Common Device Configuration** drop-down list, choose the common device configuration that contains the new softkey template.

Step 4 Click **Save**.

Step 5 Click **Reset** to update the phone settings.

Recording Call Flow Examples

For call flow examples for both network-based call recording and IP phone-based call recording use cases, refer to *Call Recording Examples for Network-Based and Phone-Based Recording* at the following URL:

https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/cucm/configExamples/cucm_b_recording-use-cases.html

Recording Interactions and Restrictions

Feature	Interactions and Restrictions
Monitoring Tones	Recording Tones take precedence over Monitoring Tones for calls that are both recorded and monitored. If you configure both, and a call is both recorded and monitored, only the recording tone plays.
Multilevel Precedence and Preemption	If you also have Multilevel Precedence and Preemption (MLPP) configured, you must set the **Busy Trigger** setting on the agent phone line to a minimum of 3.

Feature	Interactions and Restrictions
Secure Tones	If you configure Secure Tones, the secure tone plays to both call participants at the outset of a secure call, irrespective of whether Recording Tones are configured. If you configure both Secure Tones and Recording Tones and the call is secure, the secure tone plays once at the outset of the call followed by the recording tone. If you configure Secure Tones, Recording Tones, and Monitoring Tones, and the call is secured, recorded, and monitored, the secure tone plays once followed by the recording tone. The monitoring tone does not play.
Customer Voice Portal	Agent - customer calls that are routed through the Customer Voice Portal may be recorded using the agent phone as the recording source.
SIP Proxy Servers	If you are using the gateway as your recording source, you cannot place SIP proxy servers between Unified Communications Manager and the gateway.
Busy Hour Call Completion Rate	Each recording session adds two calls to the Busy Hour Call Completion (BHCC) rate with a minimal impact on CTI resources.
Selective Recording with Media Sense	When you configure Selective Recording, the Media Sense server does not record the consult call during a transfer. For example, if a call between an agent and a customer is being recorded and the agent initiates a transfer to a second agent, the consult call that takes place between the two agents, before the call being transferred, is not recorded. To ensure that the consult call is recorded, the agent must press the 'Record' softkey when the consult call starts.
Recording on authenticated phones	To record a call for authenticated phones on the Cisco Unified CM Service Parameter page, set the **Authenticated Phone Recording** field to **Allow Recording**. The default value is **Do Not Allow Recording**. Unified Communications Manager allows call recording for authenticated phones while using a non secure recorder. In case of secure recorder, recording is allowed only if the recorder supports a Secure Real-Time Transport protocol (SRTP) fallback.
Codec locking for auto recording calls in select and join conference	When recording is enabled, the endpoint advertises a single codec and payload, and a select and join conference takes place in the Unified Communications Manager.

Recording Calls Do Not Survive Agent Hold

Recording calls get torn down when the agent puts the call on hold, and they get reestablished when the agent resumes the call.

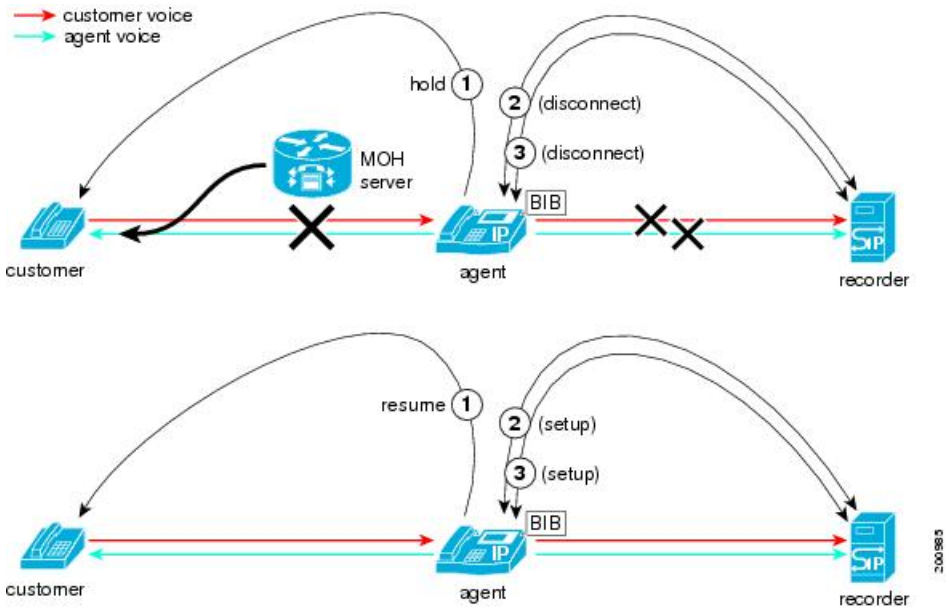



Figure 3: Recording Calls Do Not Survive Agent Hold