



# Contact Center Express Solutions Overview

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## Overview

Cisco Unified Contact Center Express provides a secure, highly available, and easy to deploy customer interaction management solution for up to 400 agents. This integrated “contact center in a box” is intended for both formal and informal contact centers.

Unified CCX provides options to address multiple contact center functional areas such as:

- Inbound voice
- Outbound campaign
- Agent email
- Web chat
- Social forum activity monitoring and follow-up using SocialMiner are enabled by premium agent license.

Other components included are:

- Historical and Real Time Reporting.
- Browser-based Cisco Finesse Desktops
- Finesse IP Phone Agent (IPPA) for support of phone-based agents

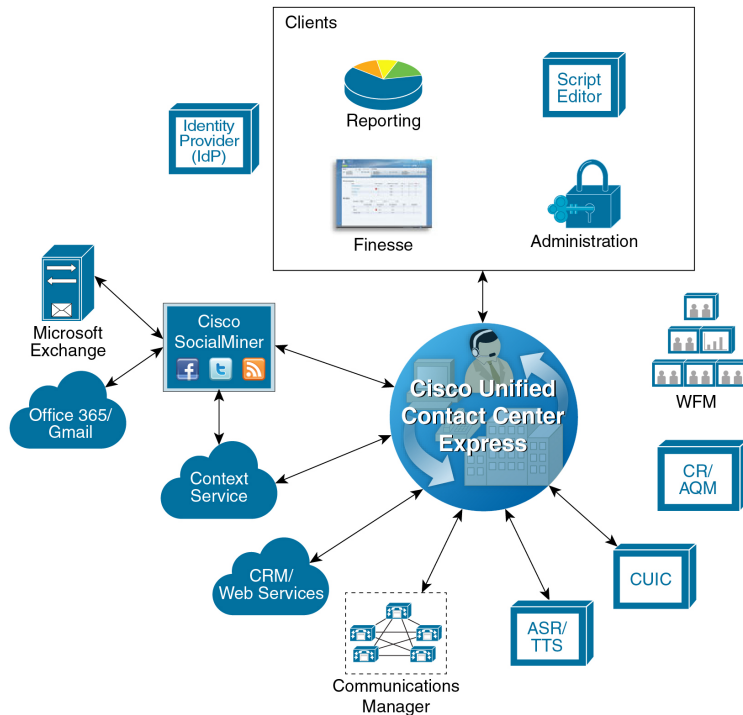
You can deploy these options on Cisco Unified Computing Systems (UCSs) or any other equivalent specification-based third-party virtual servers with the supported reference designs. For more information, see the Unified CCX Virtualization related information located at:

[http://www.cisco.com/c/dam/en/us/td/docs/voice\\_ip\\_comm/uc\\_system/virtualization/virtualization-cisco-unified-contact-center-express.html](http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/virtualization-cisco-unified-contact-center-express.html)

# Unified CCX Components

The following diagram depicts the components of Unified CCX:

**Figure 1: Unified CCX Components**



## Unified CCX Licensing

## Features

## Agent Interfaces

Cisco Finesse provides the following agent interfaces:

- Cisco Finesse agent desktop and IP Phone Agent (IPPA) for agent use.
- Cisco Finesse supervisor desktop for supervisor use.
- Cisco Finesse administrator console for administrator use.

The following Cisco Finesse agent interface services are available with Unified CCX:

<b>Agent Interfaces</b>
Cisco Finesse Agent and Supervisor desktops
Cisco Finesse IP Phone Agent
Cisco Finesse administrator console

## Cisco Finesse Agent Desktop Features

The following table describes the Cisco Finesse Agent Desktop features that are available in Unified CCX.

*Table 1: Cisco Finesse Agent Desktop Features Available in Unified CCX*

Feature
<b>Agent State Control.</b> From the agent desktop, agents log in, log out, and make themselves ready and not ready.
<b>Call Control.</b> From the agent desktop, agents can answer, release, hold, retrieve, conference, consult, and direct transfer the calls.
<b>Dynamic Regrouping.</b> Change of agent association with a resource group is applied immediately.
<b>Live Data Gadgets.</b> Agents have access to Live Data Gadgets for themselves and the queues to which they are associated. For example, from the Finesse Gadgets, agents can see how many calls they have handled today and how many calls are currently in queue for their CSQ.
<b>Reason.</b> Agents can select reason for Not Ready and Logout that are configured by the administrator.
<b>Basic CTI.</b> The agent desktop supports one variable in the header of the call control gadget and up to a total of 20 variables in two columns below the header (up to 10 in each column). You can use call variables, Extended Call Context (ECC) variables, or the following Outbound Option ECC variables: <ul style="list-style-type: none"> <li>• BACampaign</li> <li>• BAAccountNumber</li> <li>• BAResponse</li> <li>• BASTatus</li> <li>• BADialedListID</li> <li>• BATimeZone</li> <li>• BABuddyName</li> </ul>

Feature
<p><b>Telephony Support.</b> Finesse can be deployed with select Cisco Unified IP Phone models, as described in the Unified CCX Compatibility related information located at: <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html</a>. However, there are different features available on different phones.</p> <p>An agent ACD (Unified CCX) extension cannot be shared across multiple devices. It is valid only with a single line.</p> <p>You can set the agent ACD extension for Call Forward No Answer (to voicemail or any other endpoint) as long as the value for the Ring No Answer timer on that device (or in Cisco Unified Communications Manager if the default is chosen) is greater than the value for the Select Resource Timeout in the Select Resource step of the script.</p> <p>Unified CCX monitors and reports on activities of the first four configured lines on a phone, including non-ACD lines.</p> <p>Agents are associated with a specific Cisco Unified Communications Manager extension (directory number).</p> <p>When an agent is busy on the secondary Non-ACD line, the agent state is changed to Not Ready if it is configured by Administrator. Agent can also make a call from the Ready state.</p>
<p><b>Hot Desking.</b> Hot desking allows agents to log in using Finesse and any Cisco Unified IP Phone that is registered with the same Cisco Unified Communications Manager cluster. This capability allows multiple agents to use the same phone, but only one at a time. For example, different agents on different shifts may use the same workstation and phone.</p> <p>Extension Mobility brings a user-specific phone profile (including configured extensions for that user) to the phone being logged in from. After logging in to Cisco Unified Communications Manager with Extension Mobility, agents can log in to Unified CCX using Finesse.</p>
<p><b>Desktop Workflows.</b> The workflows allow to automate common repetitive agent tasks. A workflow has a unique name and a helpful description. Use the Manage Workflows and Manage Workflow Actions gadgets in Cisco Finesse to view, add, edit, or delete workflows and workflow actions. All workflows are team-level workflows. You cannot create a global workflow. If you need a global workflow, create a team workflow and assign it to all teams.</p>
<p><b>Application Integration - HTTP.</b> Finesse can be configured using desktop workflows to allow call data to be passed to other desktop applications (for example, CRM applications) for an application window. Passing data to other applications is performed through HTTP put/get commands that are then associated with specific call events such as call ringing. No programming is required to develop a screen pop. Application integration can also be done upon call release to pop open a wrap-up application on the agent workstation.</p>
<p><b>Workflow-Initiated Call Recording.</b> Finesse can be configured to automatically start recording on calls that meet conditions defined in the application script and voice contact workflow.</p>
<p><b>Automatic Failover.</b> Upon failure of the active Unified CCX server, Finesse will automatically log agents back in, and the agent will be placed into a Not Ready state. Upon failure of the active Unified CCX server, active calls on agents phones will survive. However, the call duration and other information that is associated with the call in the historical reporting database may be affected. Historical reports generated for time periods in which a failover occurred will have missing or incorrect data. It can be viewed in the report that a failover occurred.</p>
<p><b>Wrap-Up Reasons.</b> The Wrap-Up Reason selection is available to the agent.</p>

Feature
<b>Agent Email.</b> Queues and routes email messages to staffed and skilled agents, helps the agent to respond easily, and provides a collection of historical reports that help measure email performance accurately.
<b>Web Chat .</b> The web chat with premium provides the facility for customers to initiate a chat session with the agent.
<b>Workforce Optimization.</b> Cisco Unified Workforce Optimization (WFO) for Unified CCX is a full-featured solution for optimizing performance and quality and is an integral component of the Cisco Unified Communications System. The WFO suite provides two solutions: Workforce Management (WFM) and Call Recording and Advanced Quality Management (AQM).
<b>Outbound Preview Dialer.</b> Finesse includes buttons to control an agent response to an outbound contact offering by the system. If the agent clicks the Accept button, the system places the outbound call to the customer from the agent phone.
<b>Context Service Gadget.</b> Agents can view the customer data with rich contextual information about the interactions.

## Cisco Finesse IP Phone Agent Features

The following table describes the Finesse IP Phone Agent (FIPPA) features that are available in Cisco Unified CCX.

**Table 2: FIPPA Features Available in Cisco Unified CCX**

Feature
<b>Agent State Control.</b> From the FIPPA XML application, agents log in, log out, and make themselves ready or not ready.
<b>Call Control.</b> The Cisco Unified IP Phone provides call control.
<b>Queue Statistics.</b> Agents can view the number of calls waiting in the queue and the longest call waiting in the queue.
<b>Dynamic Regrouping.</b> Change of agent association with a resource group is applied immediately.
<b>Reason.</b> Agents can be configured to select reasons for Not Ready and Logout.
<b>Basic CTI.</b> FIPPA allows for call data to be popped onto the IP Phone display upon call ringing.
<b>Telephony Support.</b> Finesse can be deployed with select Cisco Included Unified IP Phone models, as described in the Unified CCX Compatibility related information located at: <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html</a> .

Feature
<p><b>Hot Desking.</b> Hot desking allows agents to log in using any Cisco Unified IP Phone that is registered with the same Cisco Unified Communications Manager cluster. Agents using Cisco IP Communicator can also use Extension Mobility. This capability allows multiple agents to use the same phone, but only one at a time. For example, different agents on different shifts may use the same workstation and phone.</p> <p>Extension Mobility brings a user-specific phone profile (including configured extensions for that user) to the phone being logged in from. After logging in to Cisco Unified Communications Manager with Extension Mobility, agents can log in to Cisco Unified CCX using Finesse.</p>



**Note** Finesse IP Phone Agent (FIPPA) is not supported for Blended (inbound and outbound) users and users configured for Outbound only.

## Cisco Finesse Supervisor Desktop Features

The following table lists the Cisco Finesse Supervisor Desktop features that are available in Cisco Unified CCX.

**Table 3: Cisco Finesse Supervisor Desktop Features Available in Cisco Unified CCX**

Feature
<p><b>View / Change Agent State.</b> Supervisors can view the current state of all agents that are part of their team. The supervisor desktop allows the supervisors to change an agent state to Ready, Not Ready, or Logout.</p>
<p><b>Live Data Gadgets.</b> Supervisors can view statistics of all agents and queues that are associated with their team.</p>
<p><b>Silent Monitoring.</b> Supervisors can silently monitor agent calls and manual outbound calls made by the agent. Supervisor can only monitor one agent at a time. To monitor another agent, supervisor must end the silent monitoring call, and then select a new agent who is in Talking state.</p> <p>When an agent makes a manual outbound call from Not Ready state on the ACD line, the silent monitoring button on the team performance gadget will show enabled on the supervisor desktop. Supervisor can silent monitor the agent's call, however, the supervisor cannot change the state of the agent to Ready or Not Ready.</p>
<p><b>Barge-in.</b> Supervisors can barge in on an agent call that they are silently monitoring. The Barge-in feature brings the supervisor, the agent, and the caller into a three-way conference. The agent is aware when the supervisor barges in. Barge-in is supported with Finesse using supported phones, or FIPPA.</p>
<p><b>Intercept.</b> Supervisors can intercept an agent call. The intercept feature transfers the call to the supervisor and the agent is available to take another call. Intercept is supported with Finesse using supported phones, or FIPPA.</p>
<p><b>Search and Play Gadget.</b> Cisco MediaSense provides Search and Play gadget, a web interface, which allows to search and filter active and completed call recordings.</p>
<p><b>Automatic Failover and Re-login.</b> Upon Cisco Unified CCX Engine failover, Finesse automatically fails over to the secondary Unified CCX Engine. The supervisor is logged in again and set to "Not Ready" state, but the call will continue to progress.</p>

## Inbound Voice

Cisco Unified CCX Standard, Enhanced, and Premium each provide varying levels of inbound voice ACD, IVR, CTI, agent and supervisor desktops, desktop administration, real-time and historical reporting, and web-based administration features.

Each user license is for a concurrent user. For example, a contact center with three shifts of 100 agents and supervisors requires 100 concurrent user licenses. Each shift of 100 users would reuse these licenses during their shifts.

The following table lists the inbound voice licensed features:

**Table 4: Inbound Voice Licensed Features**

Feature
<p><b>Concurrent inbound voice seat with FIPPA</b></p> <p>Each concurrent inbound voice user (agent or supervisor) requires a concurrent seat license. Each quantity of one seat license provides one quantity of Cisco Finesse IP Phone Agent (FIPPA).</p>
<p><b>Concurrent inbound voice seat with Finesse Desktop</b></p> <p>Each concurrent inbound voice user (agent or supervisor) requires a concurrent seat license.</p>
<p><b>Basic Prompt and Collect IVR port</b></p>
<p><b>Advanced IVR port</b></p>
<p><b>High Availability (HA) option</b></p> <p>HA provides licensing for mirrored, warm standby server software.</p>

The following table lists the inbound voice features:

**Table 5: Inbound Voice Features**

Feature
<p><b>System Features</b></p>
Inbound voice redundancy support
Maximum number of ACD lines per agent is one (1).
Maximum number of secondary lines with Finesse is three (3).
Call conferencing
Agent inter-dialing support
Direct-outward-dialing (DOD) support
<p><b>Inbound Voice Seats</b></p>
Maximum number of configurable inbound agents supported is 2000.

<b>Feature</b>
Maximum number of active inbound agents supported (including supervisor seats) is 400.
Maximum number of inbound supervisor positions supported is 42.
Inbound seat license type is Concurrent user type.
<b>Integrated ACD Features with Server Software</b>
Custom scripting with Cisco Unified Contact Center Express Drag and Drop Editor
Maximum number of agent groups supported is 150.
Maximum number of agents per team is 50.
Automatic Number Identification (ANI) support
Dialed Number Identification Service (DNIS) support
Route on Skill
Route on Skill competency
Conditional routing (time of day, day of week, and custom variables)
Custom routing based on data from database access (for example, data-directed priority routing)
Dynamic priority queuing
Maximum number of definable skill groups is 150.
Maximum number of skills per agent is 50.
<b>Recording</b>
Workflow-based recording with Cisco Finesse is available with MediaSense or WFO license.

## IVR Ports

IVR ports are packaged as either Basic or Advanced IVR ports.

- Basic IVR ports licensing—Basic IVR ports are not licensed. You must use the Cisco Collaboration Sizing Tool to determine the maximum number of Basic IVR ports that are supported on a per-configuration basis.
- Advanced IVR ports licensing—Advanced IVR ports are licensed on a per-inbound voice seat basis and are available only with the Premium package. Each inbound voice seat provides two Advanced IVR port licenses. For example, a 100-seat inbound voice deployment provides 200 Advanced IVR port licenses. Advanced IVR port licenses counts are checked at run-time. In the example given here, the 201<sup>st</sup> simultaneously active request for an Advanced IVR port to handle an incoming call would be denied. Deployments that require additional advanced IVR ports need to purchase add-on Unified CCX Premium seats. Each Premium seat provides two advanced IVR ports.



## Inbound Voice Packaged Components

The following sections describe the primary components that are provided with inbound voice. These sections provide high-level descriptions of the features and functions provided for these components. For more specific information, see the Cisco Unified CCX user documentation.

### Automatic Call Distribution

The following table describes the Automatic Call Distribution (ACD) features that are available in a Unified CCX package.

**Table 6: ACD Features Available in a Unified CCX Package**

Feature
<b>Conditional Routing.</b> Unified CCX supports routing based on caller input to menus, real-time queue statistics, time of day, day of week, ANI, dialed number, and processing of data from XML text files.
<b>Agent Selection.</b> Unified CCX supports the longest available, linear, most handled contacts, the shortest average handle time, and circular agent selection algorithms. With Basic ACD functionality, agents are associated with one resource group only.
<b>Customizable Queuing Announcements.</b> Unified CCX supports the playing of customizable queuing announcements based on the skill group that the call is being queued to, including announcements related to position in queue and expected delay.
<b>Re-route on Ring No Answer.</b> If the selected agent does not answer within the allowed time limit, the caller retains the position in queue. Any screen pop data is also preserved.
<b>Data driven routing for HTML and XML data sources.</b> The ability to use data obtained from HTML or XML documents to make routing decisions. XML document processing can also be used as a data store to access system-wide static data, such as a list of holidays, hours of operation, or a short list of hot customer accounts.
<b>Agent Skill and Competency-Based Routing.</b> Agents can be configured with specific number of skills, each with up to 10 different competency levels. Contact Service Queues (also known as skill groups) can be configured as requiring up to specific number of skills, each with up to 10 minimum skill competency levels. The Unified CCX routing logic then matches the caller and contact requirements with agent skills to find the optimum match using one of the following agent selection criteria: <ul style="list-style-type: none"> <li>• Longest available, most handled contacts, or shortest average handle time</li> <li>• Most skilled, most skilled by weight, or most skilled by order</li> <li>• Least skilled, least skilled by weight, or least skilled by order</li> </ul>
<b>High Availability Failover.</b> With HA failure of the active server can be detected and the ACD subsystem can automatically fail over from the active to the standby server.
<b>Dynamic Re-skilling by Administrator or Supervisor.</b> Changes to CSQ skills and competencies and agent skills and competencies are applied immediately.
<b>Prioritized Queuing.</b> Up to 10 levels of customer contacts can be prioritized based on call or customer data, and calls may be moved within or among queues under workflow control using priority information.

<b>Feature</b>
<b>Agent Routing.</b> Unified CCX routing applications can select a specific agent if that agent is in Ready state. (Queuing on a per agent basis is not supported.)
<b>Data-driven routing based on JDBC database sources via SQL.</b> The ability to use data obtained from a JDBC compatible database via a SQL query to make routing decisions.
<b>Wrap-Up and Work Modes.</b> After call completion, an agent can be configured to be automatically placed into Work state, on a per CSQ basis. The agent can also choose to enter work state if that option is provided by the agent desktop administrator. A wrap-up timer is also configurable on a per CSQ basis.
<b>Wrap-Up Reasons.</b> Agents may select Wrap-Up Reasons configured by the administrator.

## Interactive Voice Response

The following table describes the Interactive Voice Response (IVR) features that are available in each Unified CCX package.

**Table 7: IVR Features Available in Each Unified CCX Package**

Feature	Premium	Enhanced	IVR License
<p><b>Basic Prompt and Collect IVR.</b> Basic IVR ports provide a queue point, custom messaging and prompting, caller input collection, and processing via DTMF decoding. Decoded DTMF input may be used for both routing and screen pop purposes. Basic call controls such as terminate, transfer, and place call are also supported as part of the basic IVR functionality.</p> <p><b>Note</b> Basic IVR port and Advanced IVR port cannot be mixed in the same configuration. Advanced IVR port includes all features available in Basic IVR port.</p>	Included as a part of advanced IVR port	Included	Included
<p><b>High Availability Failover.</b> With HA, failure of the active server can be detected and the IVR subsystem can automatically fail over from the active to the standby server. All IVR functions will be restored on the standby server.</p> <p><b>Note</b> All calls in queue and calls receiving IVR call treatment will be lost. Calls already transferred to the agent will be preserved.</p>	Optional with HA license	Optional with HA license	Optional with HA license

Feature	Premium	Enhanced	IVR License
<p><b>Advanced IVR Port Database Integration.</b> The Unified CCX server can interoperate with any JDBC-compliant database. Databases tested and supported by Cisco are listed in <i>Cisco Unified CCX Software and Hardware Compatibility Guide</i>, which is available at: <a href="http://docwiki.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCX">http://docwiki.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCX</a>.</p> <p>Data retrieved from databases can be used with the conditional routing capabilities to provide customer profile-based routing and queuing. Database integration also provides the ability to offer complete self-service applications to callers. Database views are not supported using the Unified CCX Editor database steps, but database views can be accessed using Voice XML or Java logic modules.</p>	Included	Not available	Included
<p><b>Advanced IVR Ports HTTP Triggers (the web analog to Unified CM Telephony) to invoke and run a workflow.</b> HTTP triggers enable a Unified CCX to receive a customer contact request through an HTTP request. This approach allows web users to be offered service through a “click to talk to an agent” button. Information collected using the web (a customer call back number, account number, shopping cart content, and so on) can be passed to the Unified CCX script to allow customer profile-based routing and a data-rich window. These contacts can be prioritized and routed using the same methods available to normal inbound voice callers.</p>	Included	Not available	Included
<p><b>Advanced IVR Port SMTP outbound mail subsystem that may be used at run time under workflow control to send an email message.</b> Third-party paging or fax products that accept an incoming email message to invoke a page or fax service may use this subsystem to provide real-time paging and fax responses in addition to email responses.</p>	Included	Not available	Included

Feature	Premium	Enhanced	IVR License
<p><b>Advanced IVR Port VoiceXML 2.0 Support</b></p> <p>Unified CCX supports executing application logic developed with the VoiceXML (VXML) standard. VXML is required for certain complex grammar ASR and TTS interactions and is optional for a DTMF or simple ASR or TTS voice interaction service. VXML allows organizations to reuse application logic from other applications, such as a transaction server to a mainframe database.</p> <p><b>Note</b> Unified CCX uses MRCP v1 for communicating with third-party ASR-TTS servers. For information on compatible versions of the ASR-TTS see, <i>Compatibility Matrix for Unified CCX</i> at: <a href="http://docwiki-dev.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCX">http://docwiki-dev.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCX</a></p>	Included	Not available	Included
<p><b>Advanced IVR Port Java Support.</b> The Unified CCX server can support the defined logic using Java. Java support allows the reuse of logic from the existing web and Java applications.</p>	Included	Not available	Included
<p><b>Advanced IVR Port Automatic Speech Recognition via MRCP.</b> ASR provides the ability to use natural human speech to replace DTMF keypad presses as a way to interact with IVR applications.</p>	Optional with purchase of compatible ASR product	Not available	Optional with purchase of compatible ASR product
<p><b>Advanced IVR Port Text to Speech via MRCP.</b> TTS provides the ability to use flat text files as input to a computer-generated speech engine. TTS can replace prerecorded human speech in IVR applications.</p>	Optional with purchase of compatible TTS product	Not available	Optional with purchase of compatible TTS product
<b>General IVR Features</b>			
Play messages to callers: Music on hold	Included through Cisco Unified Communications Manager Music on Hold server or .wav file	Included through Cisco Unified Communications Manager Music on Hold server or .wav file	Included through Cisco Unified Communications Manager Music on Hold server or .wav file
Play messages to callers: Prompts	Included through .wav file	Included through .wav file	Included through .wav file

Feature	Premium	Enhanced	IVR License
Play messages to callers: Combine prompts, music, and messages	Included and fully customizable	Included and fully customizable	Included and fully customizable
Capture and process caller DTMF input	Included	Included	Included
Automated-Attendant support	Included and fully customizable	Included and fully customizable	Included
Database integration	Included	Not available	Included
Automatic Speech Recognition (ASR)	Optional through Media Resource Control Protocol (MRCP)	Not available	Through Media Resource Control Protocol (MRCP)
Text to Speech (TTS)	Optional through MRCP	Not available	Optional through MRCP
Real-time notification services (email; support for paging and fax)	Included (paging and fax require integration with third-party services)	Not available	Included (paging and fax require integration with third-party services)
VoiceXML for ASR, TTS, and DTMF	Included	Not available	Included
Read data from HTTP/S and XML pages	Included	Included	Included
Run workflows through HTTP/S request	Included	Not available	Included
Integrated self-service application support	Included	Not available	Included
Retrieve XML data using HTTP/S mechanism	Included	Not available	Included
Retrieve XML/JSON based data using generic REST API call	Included	Not available	Included

The following table describes the Outbound IVR features that are available with a premium package and separate Outbound IVR license which provides both predictive and progressive.

**Table 8: Outbound Features (IVR and Agent) Available with a Premium Package**

Feature	Premium
<b>System Features</b>	
Hardware configuration	Outbound (IVR and Agent deployed in the same VM) Dialer is deployed co-loaded on the same virtual machine (VM) as the inbound voice server.

Feature	Premium
<b>Outbound IVR Ports and Agent Seats</b>	
Maximum number of Outbound IVR ports and Agent seats supported	150
Outbound IVR Port license type	Concurrent
Outbound Agent Seat license type	Concurrent
<b>Outbound IVR and Agent Features (Progressive and Predictive)</b>	
Maximum number of active outbound campaigns	15
Maximum number of active contacts per outbound campaign <b>Note</b> Import contacts in chunks of 10,000 at a time.	1 million
Ability to automatically detect voice answer, answering machine, fax/modem, special information tones (all of these available with all the supported gateways)	Included
<b>Administration</b>	
Ability for administrator to create and configure campaigns	Included
Ability for administrator to create non-North American area code to time-zone mappings	Included

The summary overview of system maximums for inbound and outbound voice in the tables are for reference only.

## Multiline Support

Unified CCX supports the use of multiple lines on agent phones. You can configure one or more secondary lines on an agent phone. Unified CCX monitors first four configured lines. The agent's ACD line must be in button positions 1 - 4. Any calls on the observed lines are reported in the historical reports. Agent going Off-hook on the Non-ACD line will make the agent to Not Ready State if it is configured by the Administrator.

For example, if Agent A uses his non-ACD line to call Agent B (on Agent B's primary/ACD extension), the agent A is moved to Not Ready State and the call does not appear on Agent A's desktop. The call appears on Agent B's desktop because Agent B received the call on the primary/ACD extension.

Direct Transfer Across Line (DTAL) and Join Across Line (JAL) are not supported.

## Codec Support

Unified CCX supports the following codecs:

- G.711 a-law and  $\mu$ -law
- G.729

## Unified CCX Outbound Dialer

Unified CCX supports the following outbound dialers:

**Unified CCX Outbound Preview Dialer**—Allows agents to participate in outbound campaigns in addition to handling inbound calls, which maintains a high level of agent productivity.

**Unified CCX Outbound IVR Dialer (Progressive and Predictive)**—Allows for outbound calls to be placed to contacts in a campaign and subsequently for live contacts to be serviced by an IVR application. Call Progress Analysis (CPA) capabilities of the SIP Voice gateway are used to filter non-live contacts (which could be fax and no answer). Live calls are transferred to a CTI route point to be serviced by an associated IVR application. If the live call is answered by an answering machine the call is either routed to an IVR application or the call can be ended. An outbound IVR call that is answered by a customer contact but cannot be serviced due to unavailability of an IVR port is said to be abandoned.

**Unified CCX Outbound Agent Dialer (Progressive and Predictive)**—Allows for outbound calls to be placed to contacts in a campaign and subsequently for live contacts to be serviced by agents. Call Progress Analysis (CPA) capabilities of the SIP Voice gateway are used to filter non-live contacts (such as fax and no answer). Calls that are answered by a customer are transferred to an agent. An outbound call that is answered by a contact but cannot be serviced due to unavailability of an agent can be transferred to a CTI route point to be serviced by an associated IVR application.

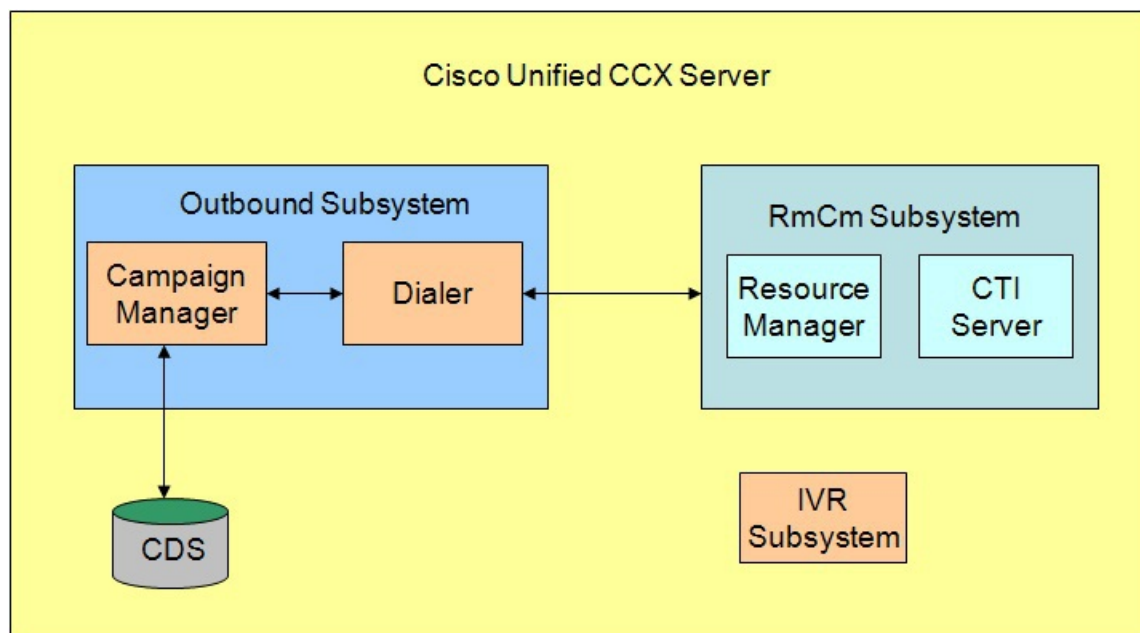


**Note** Unified CCX dialer will dial outbound contacts only when the **Cisco Unified CCX Database** service on publisher node is up and running.

## High Level Components

This figure and the following table describe the components deployed in Cisco Unified CCX for Outbound:

*Figure 2: Cisco Unified Outbound Components*



Campaign Manager	Responsible for starting and stopping each campaign and retrieving and updating contact records from and to the database.
Dialer	Receives contacts from the Campaign Manager and initiates the outbound calls. Notifies the Campaign Manager of the call status and call result after the call is answered. The dialer software is IP based and does not require any telephony cards for making outbound calls. In Outbound Preview, the dialer uses the Finesse agent IP phone to place outbound calls through a voice gateway configured in Unified CM. In Outbound IVR, the dialer uses the SIP protocol to place outbound calls through the SIP gateway configured for the Outbound IVR feature.
Resource Manager	Monitors agent states, reserves agents and receives instructions from the Dialer to place the outbound call. This component is used for Outbound Preview, Agent Predictive, and Agent Progressive features.
CTI Server	Handles requests and responses from and to the Finesse and passes the customer data to the Finesse for screen pop. This component is used for Outbound Preview, Agent Predictive, and Agent Progressive features.
IVR Subsystem	Responsible for execution of the IVR application associated with the campaign when a live contact has been detected by the SIP gateway and transferred to the configured CTI Route Point on the Unified CM. This component is used only in the Outbound IVR feature.
Config Datastore (CDS)	Contains the customer contacts information.

All of these components run as part of the Unified CCX Engine and cannot be installed separately.

## Functional Description

There are three types of dialing modes in outbound: Direct Preview, Progressive, and Predictive.

### Outbound Preview

The Outbound Preview feature supports only the direct preview dialing mode. It uses a 3-stage process for making an outbound call. The first stage is to find an available agent and retrieve the customer information for making the outbound call. The second stage is the reservation call, and its purpose is to reserve an agent and send customer data to the agent desktop. During this stage, the agent is reserved and the data appears on the desktop so that the agent can review the data and decide whether to accept the call by pressing the corresponding button on the agent desktop. If the agent does not accept the call, the call is handled by other outbound agents or closed for the campaign. If the agent does accept the call, Outbound Preview kicks in the last stage where Unified CM is instructed to place the outbound call using the agent's phone. When the outbound call is answered, Outbound Preview updates the customer contact in the database with the call status and call result.

When the outbound call connects with the customer, the agent can perform all call control operations that are normally supported on inbound calls (transfer, conference, hold, retrieve, and so on). Ensure that the agent transfers or conferences the outbound call, only if the call is answered by a person but not through other media such as an answering machine or a fax machine.





**Note** CUBE is supported with the Outbound Predictive and Progressive dialers for agent and IVR with CPA (Call Progress Analysis).

## Direct Preview Outbound

The Direct Preview Outbound Dialer provides campaign-based outbound preview dialer support. Each inbound Premium seat provides one outbound seat. If you have 100 agent licenses, you can have up to 100 agents logged in and up to 100 agents handling inbound and outbound calls at the same time.

The following table describes the Outbound Preview Dialer features that are available in premium Unified CCX package:



**Note** For the Outbound feature, the maximum number of campaigns supported is 15 and the maximum number of supervisor positions supported is 42.

**Table 9: Direct Outbound Preview Features Available for Unified CCX Premium Package**

Feature
<b>System Features</b>
<b>Note</b> These features are the same as for inbound voice with the exception of redundancy.
Hardware configuration Deploys and executes co-loaded on the same virtual machine as the inbound voice server.
<b>Outbound Voice Seats</b>
Maximum number of active outbound agents supported: 150
Outbound license type: Concurrent user
<b>Outbound Preview Dialer Features</b>
Maximum number of active outbound campaigns: 15
Maximum number of active contacts per outbound campaign: 1 million Import contacts in chunks of 10,000 at a time
<b>Integrated CTI and Screen Pop Features with Cisco Unified Contact Center Express Seat License</b>
Populates customer's name, account number, and phone number dialed
<b>Cisco Finesse Features for Agent with Cisco Unified Contact Center Express Seat License</b>
Workflow-based recording
Ability for supervisor to use Silent Monitor, Barge-In, and Intercept

Ability for agent to accept or reject outbound contact. Agent can reclassify call to anyone of many call results, such as busy, fax, and answering machine.
<b>Cisco Finesse Features for Supervisor with Cisco Unified Contact Center Express Seat License</b>
Live Data Gadgets
Silent Monitor: Listen in on an agent's call
Barge-In: Join in on an agent's conversation
Intercept: Take a call from an agent
Record
Optional with MediaSense, Cisco WFO, or WFO Solutions Plus
Integrated Historical Reporting with Cisco Unified Contact Center Express Seat License
<b>Administration</b>
Campaign Management: Administrators can create and configure campaigns. They can specify a daily time range during which outbound calls are made and a set of CSQ to specify whose agents make the outbound calls, They can also specify and import a list of customer contacts to be called.
Area Code Management: Administrators can add mappings from area-code to time zone for non-North American locations. This information is used to determine the customer contact current time before placing an outbound call.

## Outbound Progressive and Predictive Dialer

The Unified CCX Outbound Progressive and Predictive Dialer provides campaign-based agent outbound progressive and predictive dialer support. The number of agent seats depends on the number of outbound licenses available. If you have 10 outbound licenses, you can have up to 10 concurrent agent seats to handle outbound calls and 10 concurrent outbound IVR calls.

The following table describes the Outbound Progressive and Predictive features that are available for the Outbound License with the premium package.



**Note** For the Outbound feature, the maximum number of campaigns supported is 15 and the maximum number of supervisor positions supported is 42.

**Table 10: Outbound Progressive and Predictive Dialer Availability with Premium Package and an Additional Outbound License**

<b>Feature</b>
<b>System Features</b>
<b>Note</b> These features are the same as for inbound voice with the exception of redundancy.

Hardware configuration Deploys and executes co-loaded on the same virtual machine as the inbound voice server.
<b>Outbound Voice Seats</b>
Maximum number of active concurrent agents supported: 150
Outbound license type: Concurrent user
<b>Outbound Progressive and Predictive Dialer Features</b>
Maximum number of CSQs per outbound campaign: 10
Maximum number of active contacts per outbound campaign: 1 million Import contacts in chunks of 10,000 at a time
<b>Cisco Finesse Features with Cisco Unified Contact Center Express Seat License</b>
Workflow-based recording
View agent activity in real time
<b>Cisco Finesse Features for Supervisor with Cisco Unified Contact Center Express Seat License</b>
Silent Monitor: Listen in on an agent's call
Barge-In: Join in on an agent's call
Intercept: Take a call from an agent
<b>Integrated Historical Reporting with Cisco Unified Contact Center Express Seat License</b>
See the Cisco Unified Contact Center Express Reporting Guide at: <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list</a>
<b>Integrated Live Data Reporting with Cisco Unified Contact Center Express Seat License</b>
See the Cisco Unified Contact Center Express Reporting Guide at: <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list</a>
<b>Administration</b>
Campaign Management: Administrators can create and configure campaigns using Unified CCX Administration web interface and REST APIs

## Outbound IVR and Agent

The Outbound IVR feature supports two types of dialing modes namely progressive and predictive. Each dialer dials an appropriate number of contacts to make efficient use on the available system resources (IVR Ports). Both algorithms use a ratio called lines per port (LPP) to determine the number of outbound calls to place per available IVR port.

Progressive algorithm uses an LPP value configured by the administrator through Unified CCX Administration.

Predictive algorithm dynamically varies the LPP to ensure that the abandon rate does not exceed the threshold configured through Unified CCX Administration (abandon rate is the percentage of live calls that had to be dropped due to the unavailability of an IVR port).

Outbound IVR uses the Call Progress Analysis (CPA) capability of the SIP gateway to place and filter outbound calls. The SIP gateway filters out non-live contacts such as fax, invalid number, and no answer and forwards only the live calls answered by a customer contact and answering machine to a CTI Route Point on the Unified CM. This operation in turn triggers execution of an IVR application associated with the campaign at Unified CCX.



**Note** You can use the IVR campaign only with service providers that work with TDM, because such gateways support CPA capability, which is an IVR feature. Gateways using SIP or H323 trunks does not support CPA; the IVR campaign does not work with these service providers.

The following table describes the Outbound IVR features that are available with a premium package and separate Outbound IVR license which provides both predictive and progressive.

**Table 11: Outbound Features (IVR and Agent) Available with a Premium Package**

<b>Feature</b>
Hardware configuration
Outbound (IVR and Agent) Dialer is deployed on the same virtual machine (VM) as the inbound voice server. Dialer is required and an external gateway is required for the same.
<b>System Features</b>
<b>Outbound IVR Ports and Agent Seats</b>
Maximum number of Outbound IVR ports and Agent seats supported: 150
Outbound IVR Port license type: Concurrent
Outbound Agent Seat license type: Concurrent
<b>Outbound IVR and Agent Features (Progressive and Predictive)</b>
Maximum number of active outbound campaigns: 15
Maximum number of active contacts per outbound campaign: 1 million
Import contacts in chunks of 10,000 at a time
Ability to automatically detect voice answer, answering machine, fax/modem, special information tones (all of these available with all the supported gateways)
<b>Administration</b>
Ability for administrator to create and configure campaigns
Ability for administrator to create non-North American area code to time-zone mappings

## Scalability

These capacities and limits are supported for outbound:

- Preview outbound supports a maximum of 150 agents.
- Progressive and predictive agent-based outbound supports a maximum of 150 agents.
- Progressive and predictive IVR-based outbound supports a maximum of 150 IVR ports. The number of active outbound IVR ports is limited by the maximum number of outbound IVR ports that are supported for a given platform. Because IVR for inbound and outbound compete for the same set of IVR ports, the actual number of active IVR ports in use for inbound and outbound depends on multiple parameters:
  - Number of licensed inbound ports
  - Number of licensed outbound ports
  - Sum of the number of ports dedicated across outbound IVR campaigns

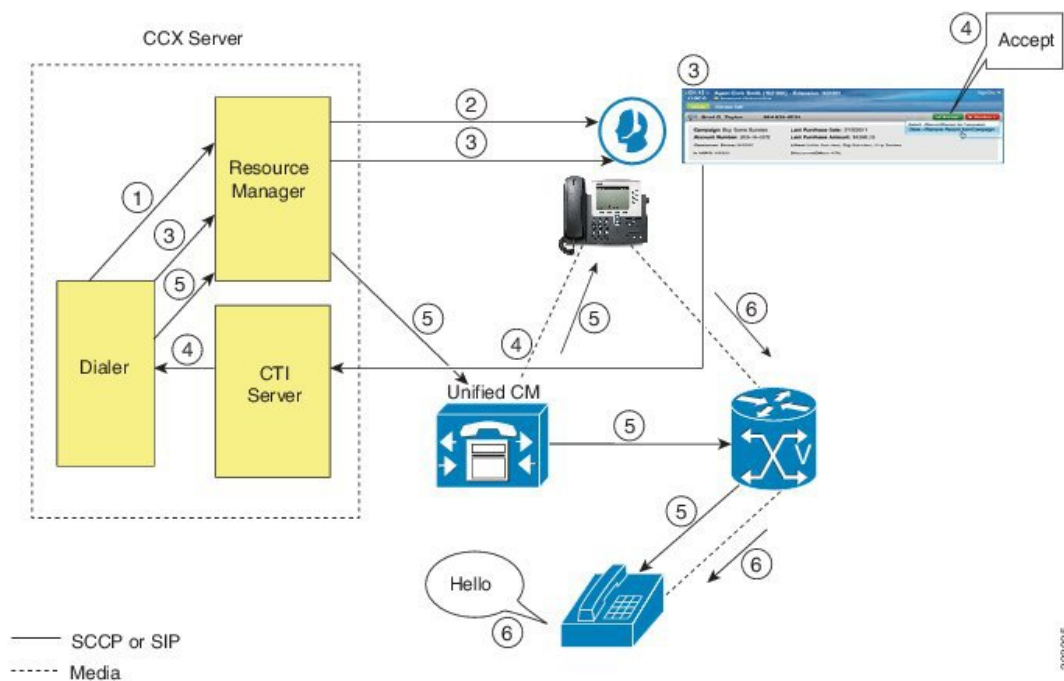
Refer to the “Configuring Unified CCX Dialer” chapter of the *Unified CCX Administration Guide* for details on how the numbers of active IVR ports for inbound and outbound are determined by these parameters.

## Call Flow Description

### Direct Preview Mode

In the direct preview mode, the agent hears the ring-out on the agent phone. The direct preview call flow proceeds as illustrated in this figure and the description that follows:

**Figure 3: Call Flow for Direct Preview Mode**



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1. An agent in Ready state is available and the Dialer has retrieved contact records from the Campaign Manager. The Dialer requests the Resource Manager to reserve the agent.
2. The Resource Manager reserves the agent by moving the agent to Reserved state.
3. The Dialer sends a reservation call to the agent desktop and, at the same time, a screen pops that contains the customer information and is presented to the agent. The agent reviews the customer data and decides whether to take the call.
4. The agent can choose to accept, skip, or cancel this reservation call. If the agent chooses to accept it, the agent clicks the Accept button on the desktop.
5. The Dialer instructs the Resource Manager to place an outbound call from the agent phone through Unified CM out to the voice gateway. Because this call is a direct preview call, the agent immediately hears the ringback of the customer phone.
6. As soon as the call is answered, the Dialer closes the contact, classifies it as a voice call and sends the result to the Campaign Manager. If an answering machine answers the call, the number is invalid, or the customer requests a callback, and the agent can reclassify the call from the desktop accordingly. If the customer requests a callback and the agent reclassifies the call, the customer is called back using the same number, an alternate number, or a callback number specified by the customer.

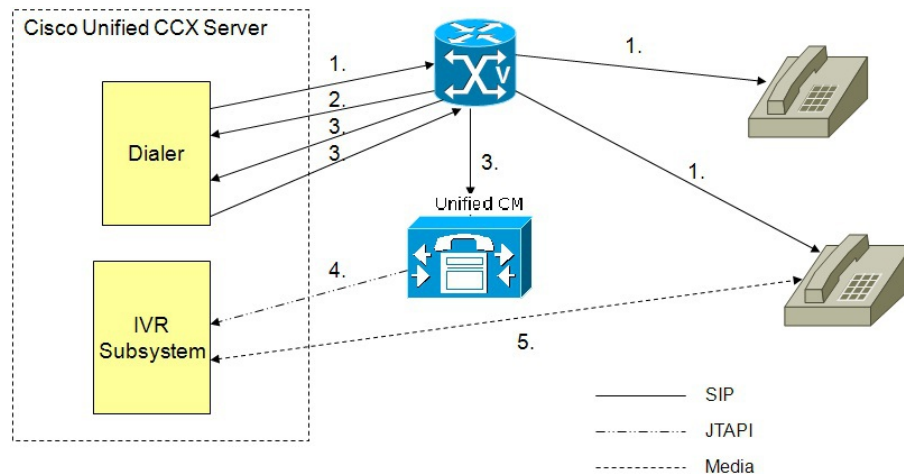


**Note** A CTI Port is not required to place the outbound call.

## IVR Mode

The call flow description for Outbound IVR is illustrated in this figure and the description that follows.

**Figure 4: Call Flow for IVR Mode**



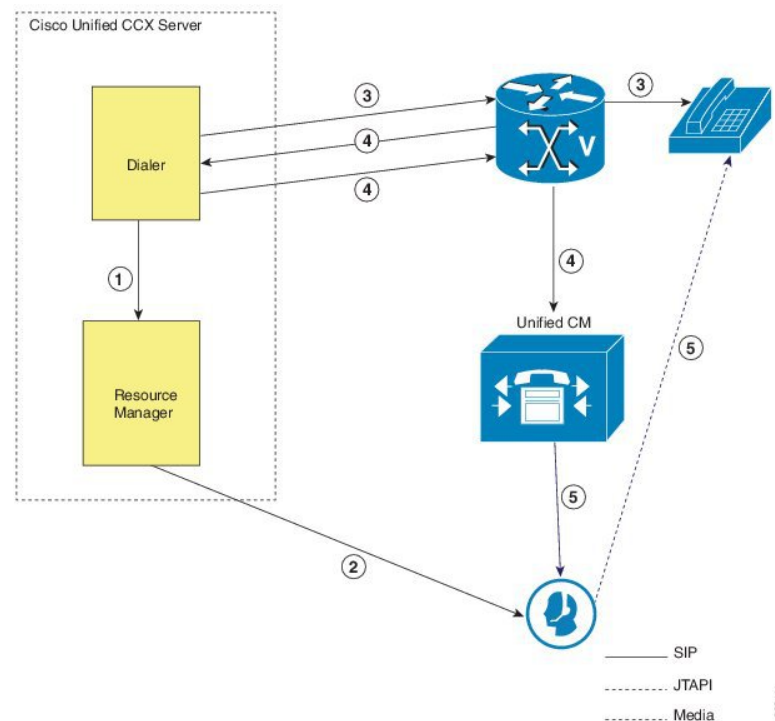
1. Outbound IVR dialer determines the number of contacts to dial per the configured algorithm (progressive or predictive) and places outbound calls using SIP through the voice gateway.
2. Voice gateway detects non-live contact through its CPA capabilities and sends status of non-live contact to the dialer. The dialer uses this to update contact status information in the configuration database.

3. Voice gateway detects live contact through its CPA capabilities and sends status of live contact to the dialer. The dialer uses this to update contact status information in the configuration database and also sends a SIP refer message to the SIP gateway which in turn transfers the call to the configured CTI Route Point on Cisco Unified CM.
4. Cisco Unified CM transfers the call to a IVR port on Cisco Unified CCX server.
5. The IVR subsystem then associates the call with the IVR application associated with the campaign. The engine starts execution of the application and an IVR session takes place between the IVR application for the campaign on Cisco Unified CCX and the customer contact.

## Agent Mode

The call flow description for Agent Outbound is illustrated in this figure and the description that follows.

**Figure 5: Call Flow for Agent Mode**



1. The dialer requests the Resource Manager to reserve the agent.
2. The Resource Manager reserves the agent by moving the agent to Reserved state.
3. Outbound dialer determines the number of contacts to dial as per the configured algorithm (progressive or predictive) and places outbound calls using SIP through the voice gateway.
4. The voice gateway detects live contact through its CPA capabilities and sends status of live contact to the dialer. The dialer uses this information to update contact status information in the configuration database and also sends a SIP refer message to the SIP gateway, which then transfers the call to the Cisco Unified CM.
5. Cisco Unified CM transfers the call to the reserved agent on Cisco Unified CCX server. The Outbound subsystem then associates the call to the reserved agent.

## Deployment Guidelines

The following guidelines should be followed when deploying outbound:

- Outbound supports a maximum of 15 active campaigns and a maximum of 1 million active outbound records for each campaign.
- Outbound does not come preinstalled with any Do Not Call lists. The system administrator should manually filter the contact list against the Do Not Call list prior to importing contacts.

The following guidelines are specific to outbound:

- Outbound supports a maximum of 10 CSQs for each campaign.
- Finesse IPPA agents are not supported.
- Direct preview outbound cannot detect an answering machine, fax, or modem. The agent should manually reclassify the call to “answer machine” or “fax” from the desktop. The contact will be called again using the same number (in the case of “answer machine”) or using an alternate number (in the case of “fax”).
- For direct preview outbound, agents should not transfer or conference the outbound call if the call is answered by the media other than a person, such as an answering machine or fax machine.
- For progressive and predictive outbound, the SIP gateway performs call progressive analysis which determines whether the outcome of a call is an answering machine, live voice, fax, or beep tone and presents only the live voice calls to the agents. The contact will be called again using the same number in case of no answer and busy tone or using an alternate number in case of a fax, modem or an invalid number.
- When Phone 1 of a contact is dialed and the CPA marks it as Busy or Unanswered the same number is retried based on the retry count and delay configured in the campaign. When the retry count reaches the maximum value, the contact is marked as closed. The other phone number for a given contact is dialed only when the called number is classified as Modem, Fax or Invalid.

The following guidelines are specific to IVR and agent-based progressive and predictive outbound:

- It is possible to only have a single instance of the SIP gateway in the deployment.
- Install the SIP gateway on the same site (that is, the same campus LAN) as the Unified CCX primary engine. The SIP gateway can be installed across the LAN or WAN. The maximum delay over the WAN should not exceed 80 milliseconds.




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**Note** The primary engine is always the first node that was installed in the Unified CCX cluster and cannot be changed.

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- No voice gateway based redundancy of the SIP gateway is supported.
- The protocol supported between the SIP Gateway and Unified CM for transferring the outbound call to an IVR application or to an available agent includes SIP and H323.
- It is possible to use the same gateway for both inbound and outbound voice.



# Unified CCX Web Chat

As part of the Premium license, Unified CCX agents can service customer chat requests using the Agent Web Chat gadget in Cisco Finesse.

This feature requires a SocialMiner deployment to accept and relay the contact requests from a customer website. One SocialMiner deployment can serve only one Unified CCX deployment (single node or high availability deployment). SocialMiner does not support redundancy.

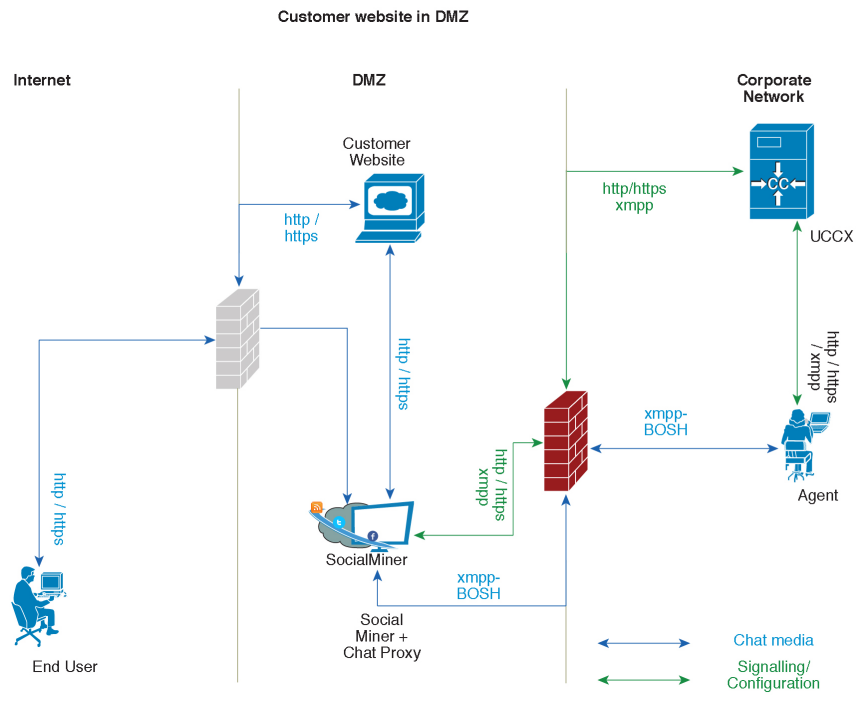


**Note** The Chat Web Form that is generated uses JavaScript. The web page where this is loaded must be accessed using a JavaScript enabled browser. The default Chat Web Form displays a message to the user if JavaScript is not enabled on the browser where it is loaded.

An audio alert is played when the agent receives a new chat request or when there is a new message on an inactive chat session tab. With multiple chat session tabs, the selected chat session tab is considered as active. All other chat session tabs are considered as inactive.

## Deployment Scenario 1: Customer Web Site in Demilitarized Zone (DMZ)

Figure 6: Customer Web Site in DMZ



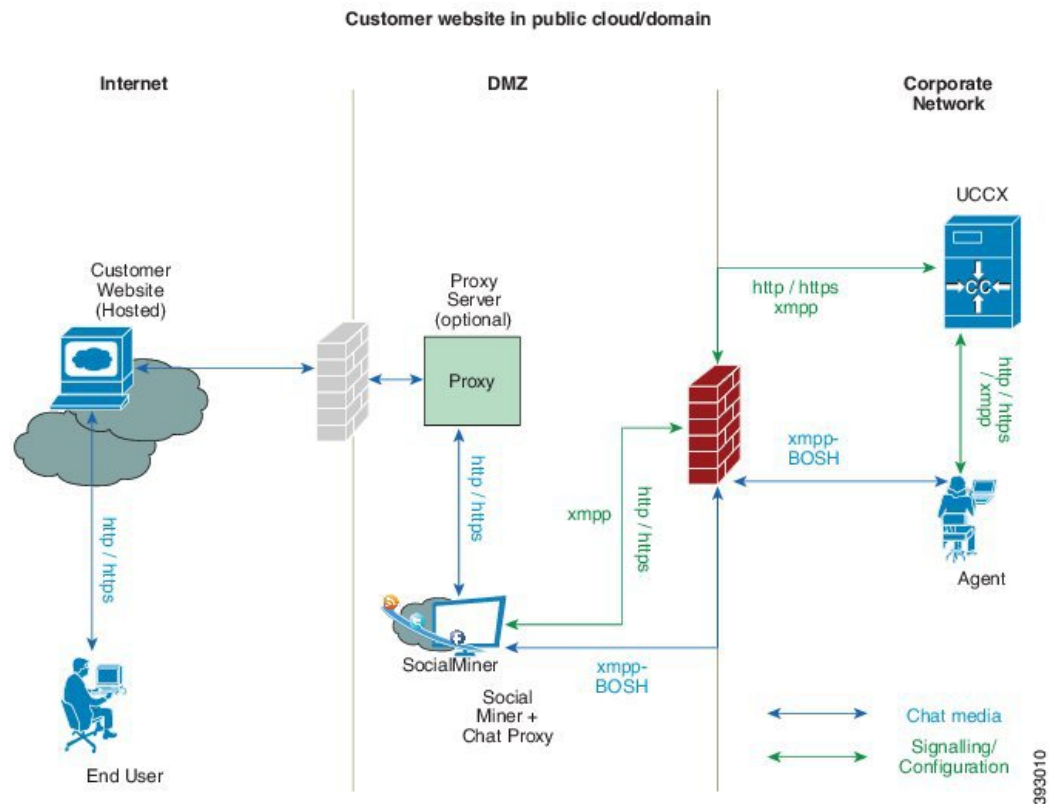
The Cisco Unified CCX is deployed inside the enterprise firewall and SocialMiner is deployed inside company premises in the DMZ along with the customer website. The DMZ is open to all HTTP/HTTPS traffic from the Internet. For Unified CCX Web Chat deployment to work, allow bidirectional HTTPS traffic between End User and SocialMiner. Allow bidirectional HTTPS and XMPP traffic between SocialMiner in the DMZ and Unified CCX on ports HTTPS (443) and XMPP (5222). Allow bidirectional BOSH traffic between SM

and the agent on port BOSH (7443). For more information on the ports utilized, see the *Port Utilization in SocialMiner* section in the [Port Utilization Guide for Cisco Unified Contact Center Express Solutions](#).

The Unified CCX is shielded from all outside traffic except the traffic coming from the DMZ zone. All web chat communications occur over HTTP/HTTPS and BOSH ports irrespective of where SocialMiner is deployed.

## Deployment Scenario 2: Customer Web Site in Public Cloud or Domain

Figure 7: Customer Web Site in Public Cloud or Domain



One variation of the preceding scenario can be an addition of a proxy server that can intercept and relay all interactions going to SocialMiner.



**Note** SocialMiner should only need to access a proxy server if it sits behind a corporate network firewall and has to use an http or https proxy server for accessing an outside network. Configuration of private NAT address is not supported.

## Web Chat Features

The following table describes the web chat features in addition to the chat features that are available in premium package.

Table 12: Web Chat Features Available in Premium Package

Feature
<b>Agent Alias.</b> During a chat session, the customer sees the alias that has been configured for the agent by the administrator. The Agent Alias now supports the character, Space.
<b>Auto chat reject.</b> If no agent is available, the chat request is rejected.
<b>Chat Timeouts.</b> Session timeouts for chat inactivity and maximum wait period.
<b>Typing Indicator.</b> The agent or customer can see when the customer or agent is typing a message.
<b>Audible Alert.</b> An alert is played when the agent receives a new chat request or when there is a new message on an inactive chat session tab.
<b>Toaster Notification.</b> When the Cisco Finesse Desktop session is inactive, the agent receives a toaster notification for a new chat.
<b>Multiple Chat Sessions.</b> Administrators can configure up to a maximum of five concurrent chat sessions per agent.
<b>Predefined Responses.</b> Administrator can configure up to 500 Predefined Responses across chat and email. These Predefined Responses can be tagged Global or with up to 10 CSQ tags.
<b>Chat Transcript.</b> Chat transcripts can be downloaded by the customer after the chat session. Administrators can login to SocialMiner to retrieve chat transcripts.
<b>Live Data and Historical Reports.</b> See the Cisco Unified Contact Center Express Reporting Guide available at: <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list.html">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list.html</a>
<b>Supervisor Reports.</b> Team report for CSQ and agents. Agent statistics and CSQ statistics for chat.
<b>Integrated Web Chat General System Features with Cisco Finesse Agent Desktop.</b>
<b>Multiple skills per chat agent.</b> Multiple skills can be assigned to agents handling chat.
<b>Blended voice, chat, and email agents.</b> Agents can be configured for blended voice, chat, and email.
<b>Offer voice calls when on chat.</b> Agents can be offered voice calls when on voice chat.
<b>Offer chat when on voice calls.</b> Agents can be offered chat when on voice calls.
<b>Wrap-Up Reasons.</b> Agent can apply a maximum of five (5) Wrap-Up Reasons to the chats.
<b>Group Chat.</b> Agent can involve another agent in an ongoing chat session to support the customer.
<b>Dedicated chat agents.</b> Agents can be configured to handle only chat.
<b>Separate voice and non-voice state model .</b> Ability to set the Agent State for Voice, Email and Chat.
<b>Visual Customization of the Chat Form.</b> A customizable customer chat form.

Feature
<b>Business Hours Setting.</b> The Administrator can configure a schedule for the chat web form based on the business days, working hours, and holidays.
<b>Web Chat Routing.</b> Supports Agent skill and competency-based routing. <ul style="list-style-type: none"> <li>• Longest available</li> <li>• Most skilled</li> <li>• Agent skill based routing</li> </ul>
<b>Dynamic reskilling by administrator.</b> Changes to CSQ skills and competencies and agent skills and competencies are applied immediately.
<b>Conditional routing.</b> Web Chat is queued to the appropriate CSQ based on the problem statement selected by the customer.
<b>Rerouting the chats that were not accepted.</b> If the allocated agent does not accept chat within the allowed time limit, the contact is presented to another agent.
<b>Customizable queuing messages.</b> Customizable messages.
<b>High Availability (HA) failover.</b> With Unified CCX in HA, failure of the active server can be detected and the nonvoice subsystem can automatically fail over from the active to the standby server. However, SocialMiner is not supported in HA.
<b>Plain text.</b> Only plaintext chat and predefined responses are supported.

## Group Chat

The group chat feature is used when the agent would like to involve another agent in an ongoing chat session to support the customer. This can be used for seeking further information or support for the ongoing chat. A group chat enables an agent to:

- Send a chat invite to an available agent of the selected CSQ.
- Enter the summary of the ongoing chat for the other agent. This helps the agent to understand the background of the ongoing chat.
- Accept or decline the incoming group chat invitation.

Few reporting considerations for the Group Chat feature are:

- The Historical reports, **Chat Agent Details Report** and **Chat Agent Summary Report** reflect the chat session information handled by the agents only after the contact is ended.
- In Chat Agent Details Historical report (in the case of group chat):
  - **Chat Routed CSQ** column will show the name of the csq to which the chat contact was initially injected to the agents.
  - **Chat Type** column will show as 'group chat' for the agents whoever is involved in a group chat.

- Contacts Abandoned count will now also include the Group Chat contacts which the customer ends while it is being offered to the second Agent.

## Unified CCX Agent Email

As part of the Unified CCX Premium license, Unified CCX supports agent email with Finesse.

Administrators should edit the Cisco Finesse Desktop Layout to enable the gadgets to appear on the agent desktop.

As part of the Premium license, Unified CCX agents can service customer email requests using the Agent Email gadget in Cisco Finesse

For more information, see “Cisco Finesse” section in the *Cisco Unified Contact Center Express Administration and Operations Guide* at :

<https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-maintenance-guides-list.html>.

The Agent Email feature requires the deployment of Cisco SocialMiner to handle the email and relay the contact requests from a mail server. One SocialMiner deployment can serve only one Unified CCX deployment (single-node or high-availability deployment), and vice versa.

The Agent Email feature requires the use of an external mail server (Microsoft Exchange 2010, 2013, 2016, Office 365, and Gmail are supported ). This mail server is not provided, installed, or configured as part of the Unified CCX installation. To communicate with the Exchange Server, SocialMiner uses secure IMAPS (for message retrieval) and secure SMTP (for message sending). On the Exchange Server, enable IMAPS (SMTP is enabled by default).

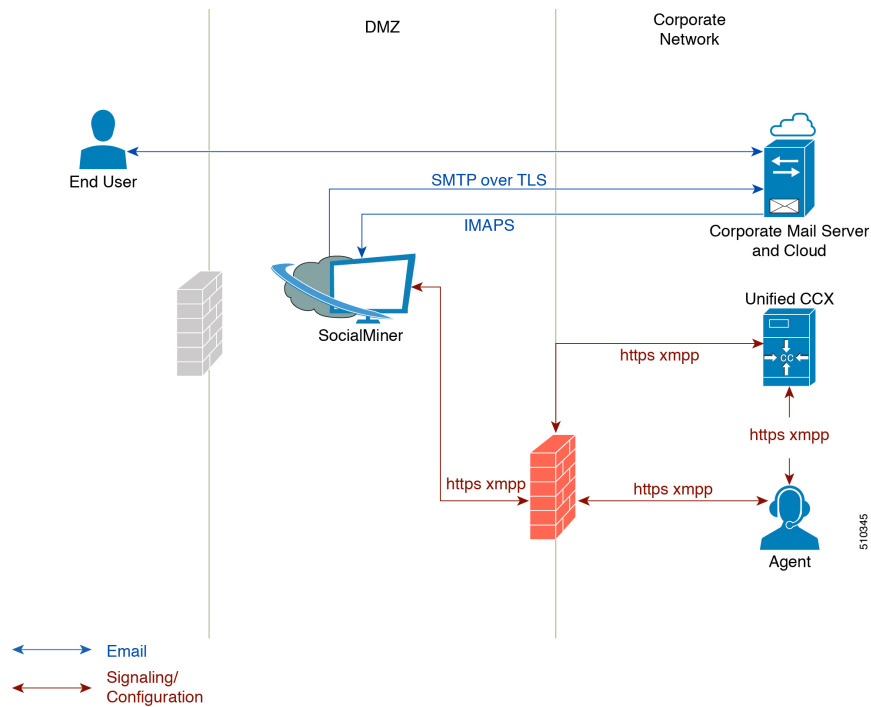
For more information about enabling IMAPS, see section “Mail Server Configuration” in *Cisco Unified Contact Center Express Administration and Operations Guide* at:

<https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-maintenance-guides-list.html>.

For details on the integration of Unified CCX with SocialMiner for Agent Email see, <https://www.cisco.com/c/en/us/support/docs/customer-collaboration/socialminer/200892-Integrate-UCCX-with-SocialMiner-for-Gen.html>.

For details on the unsupported configurations in integration of Unified CCX with SocialMiner see, <https://www.cisco.com/c/en/us/support/docs/customer-collaboration/unified-contact-center-express/211530-Unsupported-configurations-for-UCCX-and.html>.

Figure 8: Customer Web Site in DMZ



Unified CCX allows email contacts to be routed to agents based on the email addresses to which they are sent by the customers. Cisco Finesse Agent Email feature uses skill-based routing and last-agent email routing.

Separate CSQs are required for Email. You must associate each Email CSQ with a separate email account on the mail server. This account must be dedicated to the Email CSQ feature and must not be used for other purposes. Agent association with Email CSQs is configured in the same manner as Voice CSQs by assigning skills and competency levels to the CSQ.

Cisco Finesse provides a common chat and email state, separate from voice state. Blending ensures that agents can handle voice, email, and chat contacts from the same desktop.

When an agent replies to the customer's email, the reply email address depends on the information in the customer's email. If the customer's email contains the Reply-to header field, the agent's reply email is sent to the email address in the Reply-to header. If the Reply-to header is missing in the customer's email, the agent's reply email is sent to the From address in the customer's email. The sender address of agent's email is the email account associated with the Email CSQ on which the reply is being sent. Upon requeue, Unified CCX ensures that the response is sent with the email address of the requeued CSQ as the From address.

## Agent Email Features

The following table describes the email features that are available with the premium package.

Finesse Email is available with Microsoft Exchange, Office 365, and Gmail with a Cisco SocialMiner configured within Unified CCX.

Table 13: Agent Email Features Available with Premium Package

Feature
<b>Fully integrated with Cisco Finesse agent desktop.</b>
<b>Visible alert.</b> Email alert along with pending email count.
<b>Toaster Notification.</b> Toaster Notification. Agent receives a notification when a new email is received when the Cisco Finesse Desktop is not active.
<b>Auto accept email.</b> Incoming emails are automatically presented to the agent without any explicit accept (button click).
<b>Email contact handling</b> Agents can be configured to handle up to five email contacts.
<b>Requeue email.</b> Agent can re-queue an email to another CSQ.
<b>Reply To Header.</b> If the Reply To header is present, the agent's response is sent to that address. Otherwise, it uses the From address of that email to respond.
<b>Reply To, Reply All, Cc, Bcc, Forward</b> Agent can respond to the from email address, edit the <b>To</b> field, can add email addresses in the <b>Cc</b> and <b>Bcc</b> fields to mark copy or blind copy to other contacts, do a <b>Reply All</b> to all the email addresses existing in the email, and <b>Forward</b> the email to any other email address.
<b>Save drafts.</b> The system periodically saves the email drafts.
<b>Discard email.</b> Discards email from the agent desktop, but mails are not deleted from the server.
<b>Rich Text.</b> Rich text is available for the email body, predefined response and email signature.
<b>Predefined Responses.</b> Administrator can configure up to 500 Predefined Responses across chat and email. These Predefined Responses can be tagged Global or with up to 10 CSQ tags.
<b>Email Signatures</b> Administrator can configure email signatures for the Global CSQs and Multiple CSQs. The email signatures can be tagged Global or Custom to upto 10 CSQs.
<b>Wrap-Up Reasons.</b> Agents can select Wrap-Up Reasons for the emails handled by them. A maximum number of five (5) Wrap-Up Reasons can be selected. Wrap-Up Reasons are available only after the Administrator has configured the same for the CSQs.
<b>Attachments.</b> Supported.
<b>Attachment size limit</b> The total attachment file size limit in an agent's reply is 20MB. The size limit of a single file attachment is 10 MB. The total size limit of attachments in the incoming email from the customer is 20 MB.
<b>Note</b> The email attachment size limit must be configured on the mail server.
<b>Historical Reports.</b> See the <i>Cisco Unified CCX Reporting Guide</i> for more details on the reports at, <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list.html">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list.html</a> .

Feature
<b>Email Live Data Reports.</b> See the <i>Cisco Unified CCX Reporting Guide</i> for more details on the reports at <a href="http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list.html">http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-user-guide-list.html</a> .
<b>Microsoft Exchange.</b> Supported email service. This must be purchased separately by customer.
<b>Office 365.</b> Supported email service. This must be purchased separately by customer.
<b>Gmail.</b> Supported email service. This must be purchased separately by customer.
<b>Context Service Integration for Chat and Email.</b> Integrates the Context Service with chat and email to store Cisco Contact Center customer data with rich contextual information about interactions, thus resulting in a seamless omni channel experience.
<b>Dedicated or Blended email agents.</b> Agents can be configured to handle emails only or both, email and chat.
<b>Email Routing.</b> <ul style="list-style-type: none"> <li>• Last Agent Email Routing where an attempt is made to route an email to the last agent who handled the email last.</li> <li>• Skill and competency based routing that applies to new emails or when Last Agent Email Routing expires.</li> <li>• The longest available or most skilled agent selection algorithm.</li> </ul>
<b>Dynamic reskilling by administrator.</b> Changes to CSQ skills and competencies and agent skills and competencies are applied immediately. Emails currently being worked by the agents are not affected.
<b>High Availability (HA) failover.</b> HA is supported in Unified CCX. Upon Unified CCX failover, all emails in the system are automatically requeued and rerouted. Emails are presented to the agents after the failover.

## Email Enhancements

Few of the email enhancements that are available with the Cisco Finesse Email feature:

- The agent can add and modify the To, Cc, and Bcc recipients in the email reply and forward.
- The agent has an option to click Reply All to send the email response to all the recipients that were initially included in the email
- The agent has an option to forward the email to any other recipient.
- The agent can send and receive email messages with attachments of maximum size upto 20 MB.
- An administrator can create, modify, delete and view email signatures.

The email signature gets automatically appended to the email response that is sent by the agent.



In the email signature, the agent details are automatically inserted based on the Agent Alias system variable value. If the Agent Alias value is available, the alias name is inserted. If the alias name is not available, then the Agent ID is inserted in the signature.

The email signatures are configured and tagged as Global for all CSQs or Customize for selected CSQs. Following are the important criteria while tagging an email signature to CSQs:

- A CSQ can be tagged with only one email signature.
- Only one email signature can be tagged as Global for all CSQs.
- If there are no email signatures configured for a CSQ, there will not be any email signature that gets appended to the email sent by the contact center agent.

## Reporting

Cisco Unified Intelligence Center is the web-based reporting platform for Cisco Unified CCX. Cisco Unified Intelligence Center Standard license is available with the following Unified CCX packages:

Feature
Co-resident Unified Intelligence Center with Standard license.
Standalone Unified Intelligence Center with Premium license.

## Unified Intelligence Center

Unified Intelligence Center is the reporting solution for Unified CCX that provides access Historical reports and Live Data reports.



### Note

- Historical Reporting Client (HRC) is no longer available with Unified CCX.
- Co-resident CUIC on UCCX does not provide the capability to customize reports or to restrict value list collections without implementing custom report definitions. Implementing custom report definitions requires the system to be integrated with a Standalone CUIC Premium server.
- Standalone CUIC on premise server doesn't provide the access to view Live Data Reports.
- During a manual or nightly Unified CCX synchronization with Unified Intelligence Center, the collections that are manually added to the default stock value lists (UCCX\_AgentID, UCCX\_AgentName, UCCX\_TeamNames, UCCX\_CSQ Names, UCCX\_Voice\_CSQ, UCCX\_Email\_CSQ, UCCX\_Chat\_CSQ\_List) are deleted.

## Unified Intelligence Center Historical Reports

The following table presents the Historical reports that are available for each license package:

Historical reports	Premium	Enhanced	Standard	IP-IVR
Inbound reports				

Historical reports	Premium	Enhanced	Standard	IP-IVR
Abandoned Call Detail Activity Report	Yes	Yes	Yes	Yes
Aborted Rejected Call Detail Report	Yes	Yes	Yes	Yes
Agent Call Summary Report	Yes	Yes	Yes	No
Agent Detail Report	Yes	Yes	Yes	No
Agent Login Logout Activity Report	Yes	Yes	Yes	No
Agent Not Ready Reason Code Summary Report	Yes	Yes	Yes	No
Agent State Detail Report	Yes	Yes	Yes	No
Agent State Summary by Agent Report	Yes	Yes	Yes	No
Agent State Summary by Interval Report	Yes	Yes	Yes	No
Agent Summary Report	Yes	Yes	Yes	No
Agent Wrap-up Data Summary Report	Yes	Yes	No	No
Agent Wrap-up Data Detail Report	Yes	Yes	No	No
Call Custom Variables Report	Yes	Yes	Yes	Yes
Called Number Summary Activity Report	Yes	Yes	Yes	Yes
Common Skill CSQ Activity report	Yes	Yes	Yes	No
Contact Service Queue Activity by CSQ Report	Yes	Yes	Yes	No
Contact Service Queue Activity by Window Duration	yes	Yes	Yes	No
Contact Service Queue Activity Report	Yes	Yes	Yes	No
Contact Service Queue Activity Report by Interval	Yes	Yes	Yes	No
Contact Service Queue Call Distribution Summary	Yes	Yes	Yes	No
Contact Service Queue Priority Summary	Yes	Yes	Yes	No
Contact Service Queue Service Level Priority Summary Report	Yes	Yes	Yes	No
CSQ Agent Summary Report	Yes	Yes	Yes	No
Detailed Call by Call CDR Report	Yes	Yes	Yes	Yes
Detailed Call CSQ Agent Report	Yes	Yes	Yes	No
Priority Summary Activity Report	Yes	Yes	No	No
Traffic Analysis Report	Yes	Yes	Yes	Yes
Agent All Fields Report	Yes	Yes	Yes	No

<b>Historical reports</b>	<b>Premium</b>	<b>Enhanced</b>	<b>Standard</b>	<b>IP-IVR</b>
Contact Service Queue Activity by Window Duration	Yes	Yes	Yes	No
CSQ All Fields Report	Yes	Yes	Yes	No
Reason Code Report by Agent Grouping	Yes	Yes	Yes	No
Reason Code Report by Reason Code Grouping	Yes	Yes	Yes	No
<b>Chat reports</b>				
Chat Agent Detail Report	Yes	No	No	No
Chat Agent Summary Report	Yes	No	No	No
Chat CSQ Activity Report	Yes	No	No	No
Chat CSQ Agent Summary Report	Yes	No	No	No
Chat Traffic Analysis Report	Yes	No	No	No
<b>Email reports</b>				
Email Agent Activity Report	Yes	No	No	No
Email Contact Detail Report	Yes	No	No	No
Email CSQ Activity Report	Yes	No	No	No
Email Traffic Analysis Report	Yes	No	No	No
<b>Outbound reports <sup>1</sup></b>				
Agent Outbound Campaign Summary Report	Yes	Yes	Yes	Yes
Agent Outbound CCDR Report	Yes	Yes	Yes	Yes
Agent Outbound Half Hourly Report	Yes	Yes	Yes	Yes
IVR Outbound Campaign Summary Report	Yes	Yes	Yes	Yes
IVR Outbound CCDR Report	Yes	Yes	Yes	Yes
IVR Outbound Half Hourly Report	Yes	Yes	Yes	Yes
Outbound Agent Detail Performance Report	Yes	Yes	Yes	Yes
Preview Outbound Agent Detail Performance Report	Yes	Yes	Yes	Yes
Preview Outbound Campaign Summary Report	Yes	Yes	Yes	Yes
<b>System reports</b>				
Application Performance Analysis Report	Yes	Yes	Yes	Yes
Application Summary Report	Yes	Yes	Yes	Yes

<b>Historical reports</b>	<b>Premium</b>	<b>Enhanced</b>	<b>Standard</b>	<b>IP-IVR</b>
License Utilization Hourly Report	Yes	Yes	Yes	Yes

<sup>1</sup> Obtain Outbound license that is optional with the Premium license to access IVR and Agent-Outbound reports.

### Unified Intelligence Center Live Data Reports

The following table presents the Live Data reports that are available for each license package:

<b>Live Data Reports</b>	<b>Premium</b>	<b>Enhanced</b>	<b>Standard</b>	<b>IP-IVR</b>
<b>Agent reports</b>				
Agent CSQ Statistics Report	Yes	Yes	No	No
Recent State History	Yes	Yes	No	No
Recent Call History	Yes	Yes	No	No
Agent Statistics Report	Yes	Yes	No	No
Agent Team Summary Report	Yes	Yes	No	No
<b>Supervisor reports</b>				
Agent Outbound Team Summary Report	Yes	Yes	Yes	No
Chat Agent Statistics Report	Yes	No	No	No
Chat CSQ Summary Report	Yes	No	No	No
Team State Report	Yes	Yes	Yes	No
Team Summary Report	Yes	Yes	Yes	No
Voice CSQ Agent Detail Report	Yes	Yes	Yes	No
Voice CSQ Summary Report	Yes	Yes	Yes	No
Email Agent Statistics Report	Yes	No	No	No
Email CSQ Summary Report	Yes	No	No	No

**Note**

- The team that accesses Live Data reports can have a maximum limit of 50 logged in agents at any particular time.
- A maximum number of 42 users are supported to run Live-Data Reports concurrently on Cisco Unified Intelligence Center.
- All the Live Data reports are available as gadgets. For more information to configure gadgets, see the *Cisco Unified Contact Center Express Administration and Operations Guide* located at [http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_installation_and_configuration_guides_list.html).
- Live Data counters in the Unified Intelligence Center reports and the Cisco Finesse gadgets are reset in the following scenarios:
  - Manual reset—Administrator resets the real-time report counters from the Application Administration interface.
  - Automatic reset—Daily purge resets the real-time report counters at midnight (in the local Unified CCX server time zone). The reset of report counters has an impact on the reports of all the agents. However, the impact is prominent in the reports of the agents who are not in server time zone.

If there are active calls at the time of reset, the Contact Service Queue (CSQ) reports display data for the calls, and the agent report counters are set to zero.

- Live Data reports are not updated dynamically if configuration changes are made to CSQ, team, or agents. Refresh the report to see the latest changes.
- Live Data reports do not support team names and CSQ names that have multi-byte characters. Such team names and CSQ names are not synced from Unified CCX to Unified Intelligence Center, but user names are synced.

## Finesse Reports

Agents and supervisors can access Live Data reports that are configured to be displayed as gadgets in the desktops. The following are the default reports that are configured:

### Agent desktop

- Home tab
  - Agent CSQ Statistics Report
  - Agent Team Summary Report
- My Statistics tab
  - Agent Statistics Report
  - Recent Call History

### Supervisor desktop

- Team Data tab

- Team Summary Report—Short and Long Term Average
- Team Summary Report—Since Midnight
- Queue Data tab
  - Voice CSQ Agent Detail Report
  - Voice CSQ Summary Report



**Note** To add or modify the report gadgets, contact your administrator. For more information, see *Cisco Unified Contact Center Express Administration Guide* available here:

[http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_installation_and_configuration_guides_list.html)

## Wallboards

Unified CCX supports wallboard reporting. Obtain the wallboard from a Cisco-approved vendor from Cisco Marketplace:

<https://marketplace.cisco.com>

## Recording

The following recording options are available:

- While using the Finesse workflow recording option with MediaSense, you must purchase the Unified CCX recording license.
- Cisco Finesse workflow-based recording using WFO (Workforce Optimization).



**Note** While using the MediaSense recording option, you must purchase the Unified CCX recording license.

While using the WFO recording option, you must have the Compliance Recording/Advanced Quality Management licenses.

The following table details the various recording features that are supported based on the type of recording options available:

Feature	Recording using WFO	Recording using MediaSense	Recording using MediaSense and WFO Solutions Plus applications
Audio Recording	Supported	Supported	Supported
Video Recording	Not Supported	Supported	Supported

Feature	Recording using WFO	Recording using MediaSense	Recording using MediaSense and WFO Solutions Plus applications
On Demand Recording	Supported	Not Supported	Supported
Advanced Quality Management	Supported	Not Applicable	Supported



**Note** The licenses required for the recording options mentioned in the above table are:

- For recording using WFO, WFO licenses on Unified CCX are required.
- For recording using MediaSense, licenses on Unified CCX for Workflow based recording and Native MediaSense licenses for IPT recording are required.
- For recording using MediaSense and WFO Solutions Plus applications, licenses on Unified CCX for Workflow based recording, Native MediaSense licenses for IPT recording and Solutions Plus WFO licenses are required.

## Advanced Quality Management and Compliance Recording

Each user license is for a named (not concurrent) user. For example, a contact center with three shifts of 100 agents and supervisors needs 300 named user licenses. Each person in a shift of 100 users uses the license associated with them during their shift.

Advanced Quality Management is licensed on a per named user basis and provides all the server software required with the exception of the Windows operating system and database software for the AQM server, which must be purchased off the shelf.

The following table lists the license types and features available:

**Table 14: License and Features**

Feature	Compliance Recording	Advanced Quality Management
Compliance Recording	Included	Included
Endpoint Recording	Included	Included
Server Based Recording (via SPAN port)	Included	Included
Network Based Recording	Included	Included
Cisco CUBE Recording (via SIP)	Included	Included
Network Recording (Built In Bridge)	Included	Included

Feature	Compliance Recording	Advanced Quality Management
Gateway Recording	Included	Included
Role-based Scoping	Included	Included
Users Synchronized with UCCX	Included	Included
Finesse Recording Controls - (Pause, Resume, Delete)	Included	Included
Attach Custom Metadata	Included	Included
Role Based Dashboards	Included	Included
Exporting of Recordings	Included	Included
Monitoring and Notification Service	Included	Included
Recording Monitoring Dashboard	Included	Included
Reporting	Included	Included
Live Audio Monitoring	Included	Included
Quality Evaluation	Not available	Included
Evaluator Comments	Not available	Included
Screen Recording	Not available	Included
Live Screen Monitoring	Not available	Included

## Workforce Management

Cisco Workforce Management allows supervisors and contact center managers to develop schedules for their agents and manage key performance indicators and real-time adherence. Managers can create and manage schedules for an unlimited number of sites, manage scheduling for offices spread out in different time zones, and schedule alternative media sources seamlessly, including email. Cisco Workforce Management also allows agents to view their schedules and performance metrics and request exceptions to those schedules, such as schedule offers and trades and requesting time off. Cisco Workforce Management is available with Unified CCX Enhanced and Premium licenses.

Each user license is for a configured (not concurrent) user. For example, a contact center with three shifts of 100 agents and supervisors needs 300 configured user licenses. Each person in a shift of 100 users uses the license associated with them during their shift.

The following Workforce Management features are available in each Cisco Unified CCX package:

- Forecasting
- Multimedia Scheduling
- Intraday Management



- KPIs and Reporting
- Alerts
- Reporting
- Web Interface
- Desktop Integration

## Home Agent with Extend and Connect

### Definitions

- **CTI Remote Device** — New device type that represents the user's off-cluster phones, which the users plan to use with Cisco Unified Communications applications. The device type is configured with one or more lines (for example, Directory Numbers) and one or more remote destinations.
- **Remote Destinations** — A numerical address that represents the user's other phones (for example, home office line and other PBX phone). The phone can be any off-cluster device such as DVO-R (Dial-via-Office-Reverse).

### Introduction

The Extend and Connect feature can be configured for agents and supervisors on remote devices to accept inbound and outbound calls. This feature works with Cisco Jabber in Extended mode and the new CTI Remote Device type and enables applications to have limited call control capability over third-party devices of an user. Configure all third-party devices or end points of an user as remote destinations on a virtual CTI Remote Device. You can configure third-party devices or end points of an user from Cisco Unified Communications Manager administration console.

If there is an active remote destination set for a remote device, a call to that device is placed only to the active remote destination.



**Note** You cannot perform silent monitoring on Home Agents using this feature.

### Feature Availability by License Package

The following table lists the availability of Extend and Connect feature in the Unified CCX packages.

Feature	Unified CCX Premium	Unified CCX Enhanced	Unified CCX Standard	Unified IP IVR
Extend and Connect	Available	Available	Not available	Not available

### Persistent Connection Call

Persistent connection allows an agent to maintain a dedicated connection with an active remote destination. Persistent connection is supported from Cisco Unified Communications Manager. This connection saves connection establishment time for each call.

A persistent connection call is made to the active remote destination during agent login. The agent answers the persistent connection call only from a configured remote destination. ICD calls are placed over persistent connection. The agent moves to Ready state after answering the persistent connection call. Unified CCX plays an announcement upon answering persistent connection call provided that announcement is configured with the identifier as “UCCX Persistent Connection Prompt”.

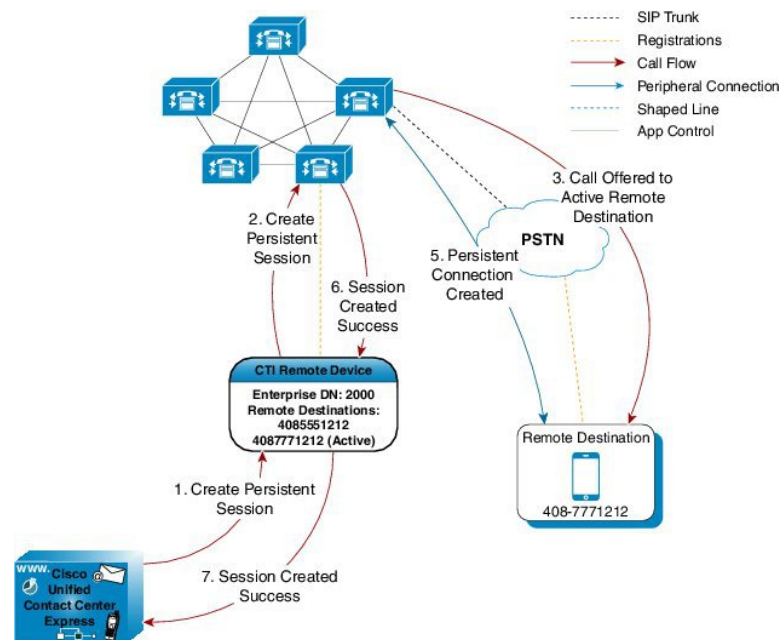
After the persistent connection is established for incoming calls, Unified CCX plays an announcement on persistent connection provided that announcement is configured with identifier as "UCCX Customer Call Prompt". The agent's remote device displays the caller ID during the ICD call provided that the remote device has a provision to display caller information. The caller ID name is displayed as **EC Mode**. The caller information remains displayed until the next call is placed on the persistent connection call. By default, Unified CCX makes a maximum of three attempts to establish a persistent connection call.

The default call duration for a persistent connection is 12 hours. You can change the persistent connection duration using the **Maximum Call Duration Timer** field in Cisco Unified Communications Manager.

When a persistent connection call is not answered, the agent is moved to Not Ready state and is not allowed to move to Ready state until the persistent connection call is established. The persistent connection call is dropped after the agent logs out.

The following figure shows the persistent connection call flow:

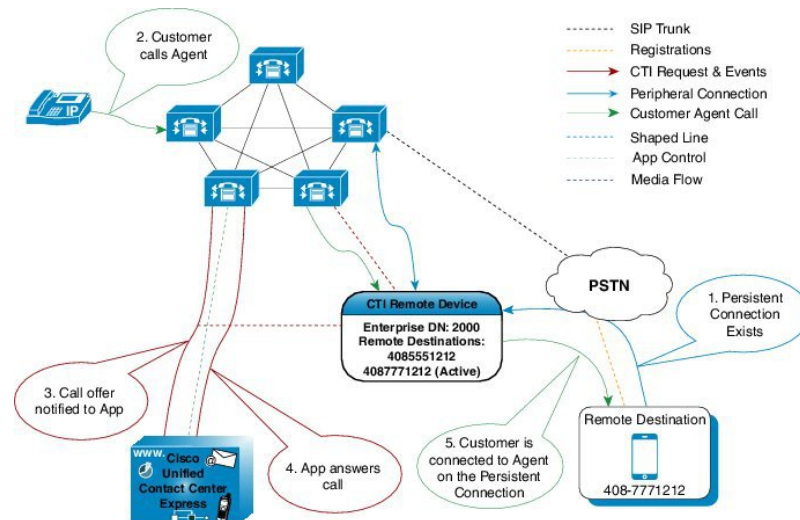
**Figure 9: Persistent Connection Call Flow**



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The following figure shows a persistent connection incoming call:

Figure 10: Persistent Connection Incoming Call



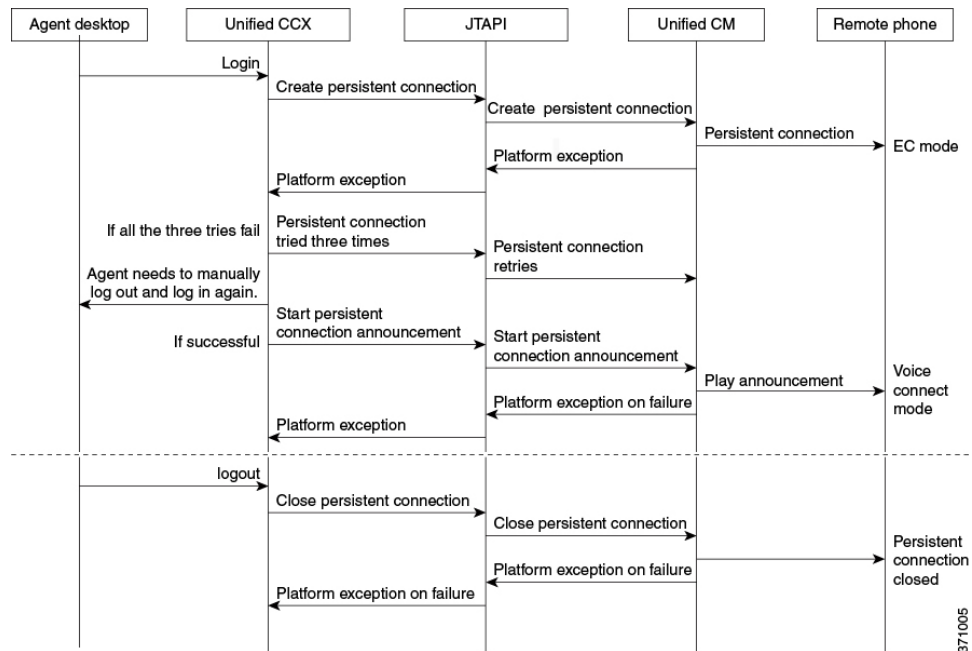
For remote phones that have persistent connection, the following features are not supported:

- Call Hold/Resume is not supported for a persistent connection call.
- Intercept/Barge-In is not supported for persistent connection with Cisco Finesse.
- Live Data and Historical reports do not distinguish the remote agents from the enterprise agents.
- The supervisors cannot initiate recording for remote agents using Cisco MediaSense directly, but recording can be achieved using Gateway forking. For more information about Cisco MediaSense, see the *Cisco Unified Contact Center Express Administration Guide* at: [http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_installation_and_configuration_guides_list.html)
- The maximum number of supported remote agents is 100.
- Extend and Connect is not supported on shared lines.

### Signaling Flow

The following figure shows the signaling flow chart:

Figure 11: Signaling Flow



### Agent and Device Configuration

To use this feature, perform the following configuration:

1. Configure CTI Remote Device, CSF for Cisco Jabber, and Remote Destinations in Cisco Unified Communications Manager Version 10.x.
2. Configure ICT between Cisco Unified Communications Manager Version 10.x and Cisco Unified Presence server Version 10.x.

### Call by Call Mode

Unified CCX administrator can switch off persistent connection using Unified CCX Administration page to enable Call by Call mode. In this mode, every call will be routed independently to the Home Agent as if the agent is using an IP phone. When the call ends, the Home Agent's phone disconnects before it is made ready for the next call.

## Deployment Guidelines

In case of fresh deployments of Cisco Unified Communications Manager and Unified CCX, ensure that the DNS is configured for all the components.

## Remote Agent Over Broadband

Unified CCX supports remote agents (for example, at-home agents) using Cisco Unified IP Phone over a broadband internet connection.

The Cisco VPN Client feature available in select Cisco Unified IP Phones provides another option for remote agents to connect their IP Phones to the enterprise.

The enterprise will need to deploy and set up an appliance which supports SSL VPN connectivity. Connectivity between the remote agent and enterprise must be over broadband/SSL VPN.

The VPN feature needs to be configured on the Cisco Unified Communication Manager as per the *Cisco Unified Communications Manager Security Guide*.

The Cisco Unified IP Phone should then be configured within the enterprise as detailed in the *Cisco Unified IP Phone Administration Guide for Cisco Unified Communications Manager*.

After the IP Phone has been configured in the enterprise, the agent can then take it home and connect it to a regular broadband router to obtain VPN connectivity to the enterprise. The agent will then be able to use the configured extension for receiving and placing calls from home.

## Expressway Support

Unified CCX supports Cisco Expressway as an endpoint for remote agents from 11.5(1) release onward. The agent phones must be registered with the Unified CM. The agents must be logged into Cisco Finesse desktop that is connected over the VPN or the Enterprise must have enabled access to Cisco Finesse over the internet (by enabling NAT). For any caveats and release specific information in Cisco Expressway see, <http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-release-notes-list.html>.

## Reporting

## Configuration APIs

The Cisco Unified Contact Center Express Application Programming Interface (UCCXAPI) provides a platform to integrate provisioning applications similar to what is provided by the Unified CCX Application Administration interface. Cisco Unified CCX exposes sophisticated control of the contact center application management with its Configuration REST APIs. For more information on supported APIs, see *Cisco Unified Contact Center Express Developer Guide* available here:

<https://developer.cisco.com/site/collaboration/contact-center/uccxapi/overview/>

## Remote Expert Mobile

For all information about the Remote Expert Mobile deployment, see the *Cisco Contact Center Solutions and Unified Communications Manager Solution Configuration Guide for Remote Expert Mobile*, available at <http://www.cisco.com/c/en/us/support/customer-collaboration/remote-expert-mobile/tsd-products-support-series-home.html>.

## Post Call Treatment

Post Call Treatment allows Unified CCX to provide treatment to an ICD call once the agent ends the call from the Finesse desktop. The Unified CCX administrator has an option to configure the Post Call Treatment via the Cisco Unified CCX Script Editor. This functionality will not be available if the agent ends the call from the phone or when the customer hangs up before the agent.

## Caller ID Support

Caller ID feature displays the caller's number instead of the CTI port number on the agent's IP phone. Caller ID (CLID) is disabled by default. To enable CLID using a CLI command, see the *Cisco Unified Contact Center Express Operations Guide*, located at [http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_maintenance_guides_list.html).



### Note

- CLID is not supported with Jabber.
- When the CLID screen pops up on the phone screen, the **Answer** key is hidden below the CLID screen. You see two soft keys: **Update** and **Exit**. Press **Exit** to see the **Answer** key.

## E.164 Support

Unified CCX supports E.164 numbering plan for route point directory numbers, and Finesse agent and supervisor extensions. E.164 is supported for the following components:

- CTI port directory numbers
- Contact phone numbers for outbound calls
- Cisco Finesse
- Trigger directory numbers
- Agent extensions
- Display of Incoming calls
- Phonebook and keypad
- Route points
- Configuration APIs for route points
- Script editor



### Note

For CTI port directory numbers:

- Unified CCX doesn't completely support E.164 numbering plan for CTI route point directory numbers (DN).
- This limitation is because of the Unified CM limit on device name length set as 15 characters. The system automatically adds "\_" between the device name prefix and the DN. So a maximum of 13 characters in the DN is supported as device name prefix (which includes the "+" sign) is mandatory and hence at least one character is needed there. For example, (Device name prefix) + '\_' + (length of DN) = 15 ==> [(1 + '\_' + 13) = 15]

For Finesse Agent and Supervisor extensions:

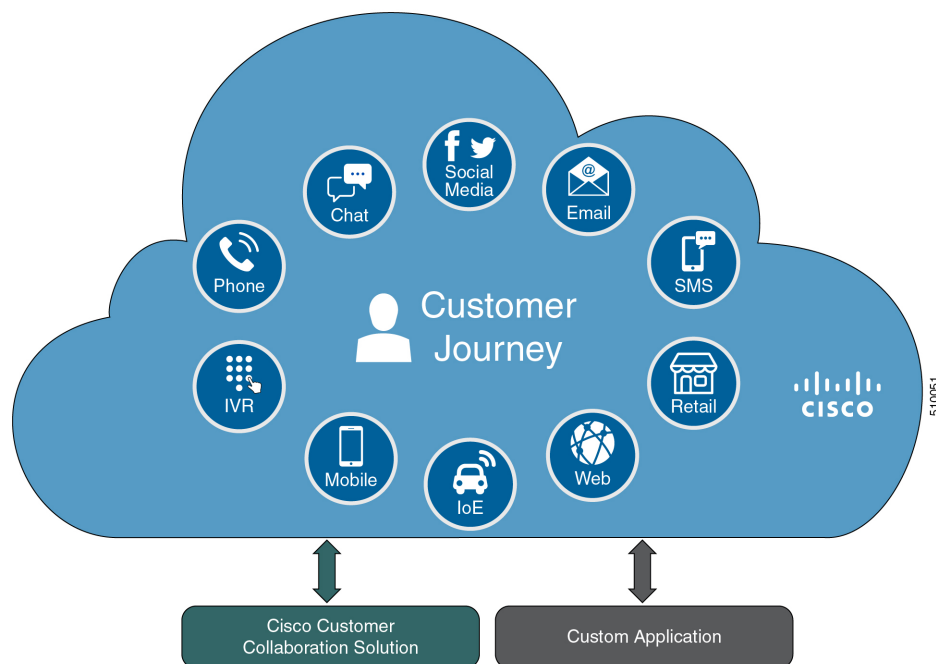
- Unified CCX E.164 numbers support a total of 15 characters. When using the plus sign (+) dialing, the plus sign (+) is followed by up to 14 characters that consist of numerals and the special characters—alphabet X, hash(#), square brackets ([ ]), hyphen (-), and asterisk (\*).

# Context Service

## Context Service Overview

Context Service stores customer interaction data in the cloud, enabling dynamic changes that allow businesses to be flexible in how they store and use data. Often information exists across multiple applications with an ineffectual way to bring it together. Context Service enables you to get a handle on disparate data, and bridge the siloes, while creating a breadcrumb or a map of the data model. Breadcrumbs help your agents to follow a customer journey and provide relevant and immediate assistance, enhancing both the customer and the agent experience.

Context Service enables Cisco Contact Center customers to deliver a seamless omnichannel experience with out-of-the-box integration from Cisco Customer Collaboration products and APIs for third-party integration.



### Key Functionality

- Context Service provides a flexible data store for storing customer interaction data. Businesses can define what customer interaction data they want to store and how to store the data.
- You can use Context Service with these Cisco Contact Center products:
  - Unified Contact Center Enterprise
  - Packaged Contact Center Enterprise
  - Unified Contact Center Express
  - Hosted Collaboration Solution - Contact Center

You can use Context Center out-of-the-box and do not need to install any additional components. Context Service API integrates the front end, back end, retail, and Internet of Things applications to capture the complete customer journey.

- Context Service is compatible with both on-premises and cloud Contact Center deployments. The service provides a complete solution, not just APIs.
- Cisco hosts and manages the service, eliminating the need for businesses to deploy and manage servers.
- The service is channel-agnostic, allowing it to store interaction data from multiple customer care channels including:
  - Voice (including IVR)
  - Chat and email
  - Internet of Things
- The service tags interaction data and correlates the data into a customer journey. Correlated data helps businesses to understand the history and context of their customer engagements.
- The business owns its data, although it is stored in the cloud, and the business owns and controls access to its sensitive data. Cisco partners cannot access the protected data unless the business permits it.

### **Business Benefits**

- The service provides history and context information for all customer interactions to customer service agents. These contextual breadcrumbs allow agents to better understand the customer journey and provide better service.
- The service provides context and history that transforms traditional, isolated multichannel interactions from separate channels, into seamless omnichannel journeys. Contextual customer journeys help businesses better understand and respond to the needs of their customers.
- Out-of-the-box integration with the Cisco Contact Center portfolio adds value to existing investment.
- Open interface allows integration of new customer care channels and other business applications, Cisco, or third party, to capture a complete view of the customer journey.

### **Partner Benefits**

Context Service offers APIs that enable Cisco partners to easily build value-add solutions using the interaction data stored in the cloud. For example, partners can build analytics applications using context data stored in the cloud.

For more information about Context Service features and usage, see [Context Service Collaboration Help](#).

### **Usage Examples**

You can use Context Service support with Cisco Customer Collaboration software and third-party integration. For example:

- Display a gadget in the Cisco Finesse desktop that lists all customer interactions, including voice calls, chat sessions, emails. Interaction can also include activities outside the contact center, such as web self-service interactions or IoT events.



- Identify and react to customers engaged in one or more simultaneous sessions, shopping for the *right* answer.
- Use customer history data to make intelligent routing decisions, such as:
  - Route to same agent on redial, or channel shift.
  - Look up customer sentiment from previous calls and route to the right agent using Precision Routing.
  - Route to a preferred agent.
  - Track calls abandoned in IVR and give customers to bypass when they redial.
- Run targeted outbound campaigns based on calls tagged by agents earlier, such as a hot prospect customer need follow-up call.
- Track IVR path for IVR compliance.
- Transfer large amounts of data with calls between Cisco and third-party applications.
- Pass data across domains, including to outsourcers. Merge customer journey across different functions enabling a single view from a customer perspective. For example, a customer who subscribes to both mobile and cable subscriber from the same provider. Activity from this customer is viewed as multiple functions internally, but is presented as a single function to the customer.

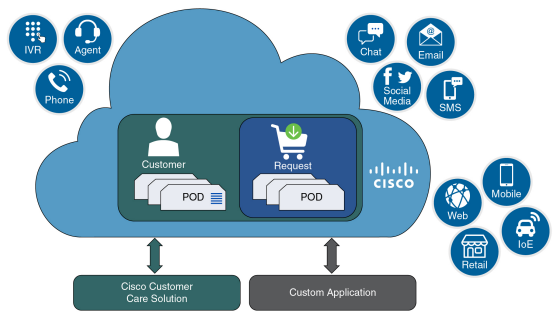
### CCX Component Integration with Context Service

The following contact center components integrate with Context Service:

- **Cisco Finesse**—This enables an agent to view and update the POD or Activity for the tasks that they handle in a gadget.
  - **Fusion Management Connector** - This is the service that allows registration with Context Service. This runs on the primary node in the cluster.
  - **Finesse Auth** - This service is used by the Context Service gadget.
- **Cisco SocialMiner**—This creates the POD or Activity for every chat or email injected into Unified CCX.
- **Unified CCX Engine Service**—This creates the POD or Activity for all the Unified CCX handled voice calls. The Unified CCX call scripts must have the Context Service steps.

### Context Service Data Model, Fields, and Fieldsets

Context Service is a flexible and secure data store in the cloud that connects the customer journey across different media channels. These media channels include voice, email, chat, mobile, and web. Information from different media channels often exists across multiple applications without an effective way to bring it together. Context Service enables you to better understand disparate data by creating a map of customer interactions. Context Service helps your agents follow the customer journey and provide relevant and immediate assistance, enhancing both the customer and the agent experience. Context Service enables Cisco Contact Center customers to deliver a seamless omnichannel experience through an out-of-the-box integration with Cisco Customer Care products and with APIs for third-party integrations.



## Context Service Objects

- **Customer data**—Describes who a specific customer is. For example, this includes information such as name, address, and phone number. The customer object type provides a way of linking personally identifiable information (PII) with a customer ID.
- **Activity data**—Describes a specific customer interaction. Activities are also known as PODs. Each activity reflects one step in the customer journey as the customer seeks to fulfill a request. For example, an activity occurs when a customer interacts with your organization by:
  - Browsing your organization's website.
  - Emailing your organization.
  - Calling your organization and using an IVR menu.
  - Chatting with an agent.

You can associate activities with a customer or a request.

- **Request data**—Describes what the customer wants. Requests are also used to group activities together that are related to a specific customer issue. For example:

A customer goes online to make a credit card payment. The customer runs into an issue making the payment online, and makes a phone call instead. Attempting to make the payment online and making a phone call are two separate activities. These two activities belong to the same request, making a credit card payment.

You must associate each request with a customer.

- **Detail data**—Provides additional information on another object type. For example:
  - Notes made by an agent during an activity.
  - Feedback from the customer about an activity.

You must associate each detail with a request or an activity.

## Context Service Fields and Fieldsets

Fields allow you to define the structure of the context data that is stored in Context Service objects. Fieldsets are logical grouping of fields based on your business needs. For example, you can create a shopping basket fieldset with four fields:

- Items in the cart.
- Items in a wish list.
- Total price.
- Estimated shipping costs.

You can use the Context Service fields and fieldsets to create a flexible data model. You can:

- Use the Cisco base fields and fieldsets or create your own custom fields and fieldsets.
- Add a field to multiple fieldsets.
- Associate multiple fieldsets with a single Context Service object.
- Associate the Cisco base fieldsets and your own custom fieldsets with the same Context Service object.
- Add or remove fields from a fieldset without changing any of the objects that are associated with that fieldset.



**Note** Each Context Service object must have at least one fieldset assigned to it.

For example, you could use different fields for an activity for incoming calls and an activity for Mobile App shopping:

Field Type	Activity for Incoming Calls	Activity for Mobile App Shopping
Cisco base fields	<ul style="list-style-type: none"> <li>• Context_Notes</li> <li>• Context_POD_Activity_Link</li> </ul>	
Custom fields	<ul style="list-style-type: none"> <li>• IVR Menu Selected</li> <li>• Caller Authenticated</li> </ul>	<ul style="list-style-type: none"> <li>• Browsing Information</li> <li>• Cart Items</li> </ul>

Each individual Context Service data object is limited to 256 KB.

**Table 15: Context Service Object Properties**

Object Property	Customer	Request	Activity	Detail
<b>id</b> : Unique object identifier.	✓	✓	✓	✓

Object Property	Customer	Request	Activity	Detail
<b>parentId:</b> Unique identifier representing a parent Context Object.	N/A	N/A	✓ Optional property that links the activity with a request.	✓ Required property that links the detail with either a request or an activity.
<b>customerId:</b> Unique identifier representing a customer.	N/A	✓ Required property that links the request with a customer.	✓ Optional property that links the activity with a customer.	N/A
<b>created:</b> Object creation time stamp.	✓	✓	✓	✓
<b>lastUpdated:</b> Time stamp of when the object was last modified.	✓	✓	✓	✓
<b>state:</b> Indicates if the object is active or closed. For more information, see <a href="#">Object State in the Context Service SDK Guide</a> .	✓	✓	✓	✓
<b>contributors:</b> Users or Machine accounts that created or updated an object.	✓	✓	✓	✓
<b>mediaType:</b> Indicates the type of media in activity. There are eight possible media types: <ul style="list-style-type: none"> <li>• Voice</li> <li>• Video</li> <li>• Chat</li> <li>• Email</li> <li>• Mobile</li> <li>• Social</li> <li>• Web</li> <li>• Event</li> </ul>	N/A	N/A	✓	N/A

Object Property	Customer	Request	Activity	Detail
<b>fieldsets:</b> The fieldsets assigned to the object. Object must have at least one fieldset assigned. Fieldsets define which fields apply to the object.	✓	✓	✓	✓
<b>tags:</b> List of tags for the activity.	N/A	N/A	✓	N/A

The object properties `id`, `created`, `lastUpdated`, `contributors`, and `state` are automatically populated when you create an object.

For a complete list of Cisco base fields and information on creating custom fields, see [Fields and Fieldsets in the Context Service SDK Guide](#).

### Which Data Should Be Stored in Context Service Objects?

Context Service provides a way for you to collect siloed information and creates breadcrumbs that allow you to follow a customer journey. You can design the data stored in the Context Service objects based on your business requirements and workflows. Before you decide about what data to store, consider these questions:

- Which kind of data do you need to help you solve your specific use case?
- Where is the information you need currently stored?
- Who needs access the information to solve your specific use case?

Examine the journey that your customer follows. This helps to not only answer these questions, but also to find the best way of bringing the disparate pieces of information together. For example, the customer starts on online on a website and follows up with a phone call. Does your IVR or agent know about the previous website visit? Can your IVR identify a repeat caller and offer different options? Use these observations to identify application silos or organizational silos in the user journey. Identify the gaps in the information and build a Context Service data model to provide the breadcrumbs required to fill the gaps. For example, an online retail organization who wants to see if customers added items to their cart and did not buy them. The organization also wants to offer alternate suggestions based on the product customers are looking for. The object, an activity here, must have two fields. One that records the items in the customer's cart and one that lists all the products browsed. The data model design is also dynamic, that is, you can choose to add new fieldsets any time. The online retail organization decides after few months, that survey score information adds value. They can then add a survey score field to the design, without impacting existing Context data.

### Context Service Data Privacy Model

Each field is defined by a data type and a security classification.

Context Service provides endpoint encryption so that sensitive data is not stored or transported in plain text. When you define a field, you specify how the field classifies data. You can classify data as:

- **Personally Identifiable Information (PII)**—Information associated with an individual who contacts your support center. PII is stored and transported in an encrypted format and requires a key to access the data. With endpoint encryption, PII can only be decrypted at the client.
- **Non-PII Encrypted**—Information that is not associated with an individual, but is considered confidential. Encrypted data is stored and transported in an encrypted format. Encrypted at endpoint, this data can only be decrypted at the client.
- **Unencrypted**—Information that is not PII and is not confidential. Unencrypted data is stored as plain text, but transported over an encrypted layer (HTTPS).

For example, name, email, and phone-number are personally identifiable. Therefore, the default fields that hold these types of data classified as PII, and are endpoint encrypted. Rewards card balances may not be PII. You can store them as Unencrypted. Non-PII Encrypted fields may be fields such as "Context Title", the title of an activity.




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**Note** Context Service does not prevent you from entering PII or confidential information in unencrypted fields. Ensure that your data is stored in the appropriate field with the correct classification.

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You can also define additional boundaries for your data by using lab mode and production mode. For more information, see [Context Service Modes](#).

## Context Service Modes

You can set the mode when you create the Context Service client connection or register with Context Service. The two modes are Lab and Production.

- **Lab mode:** Use this mode to test, develop, and debug Context Service. Lab mode contains nonproduction data and allows you to delete objects and flush all data. You can continue to test and develop in the Lab mode after you deploy a version to Production mode. You cannot access data created in Production mode while in Lab mode.
- **Production mode:** Use this mode when you deploy Context Service in your application. You cannot delete objects in this mode. Make sure you test Context Service using the Lab mode before you deploy the service in your application. You cannot access data created in Lab mode while in Production mode.

If multiple applications in your organization are using Context Service, make sure all the applications are using the same mode. Data created in one mode cannot be accessed in another mode.




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**Note** Context Service creates strict security boundaries between data created in Production and Lab modes by using separate accounts per workgroup per machine. This model enables you to isolate data between the two modes. When you register your application, both modes are enabled on the registered machine with the same connection data.

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## Task Flow to Enable Context Service

To enable Context Service in your contact center solution, follow this task flow:

Sequence	Task
<b>On board your Organization</b>	
1	For information on how to install and configure the contact center solution see, <a href="#">Cisco Unified Contact Center Express Install and Upgrade Guide</a> .
2	For information on how to configure the firewall to work with Context Service see, <a href="#">Context Service Network Connectivity Requirements, on page 56</a> . If there is no connectivity with the Context Service cloud, configure the proxy parameters to access Context Service through the HTTP proxy in the Cisco Unified Contact Center Express Administration. For details on how to configure see, <a href="https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-maintenance-guides-list.html">https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-maintenance-guides-list.html</a> .
3	For information on how to work with your Cisco Partner to on board your organization see, <a href="#">Enable Context Service for Your Organization, on page 56</a> .
<b>Configure and Register Components</b>	
4	For information on how to register Unified CCX with Context Service see, <a href="#">Register and Configure Context Service, on page 59</a> .
<b>Check Status of Context Service</b>	
5	For information on how to check the status of Context Service for all the components of the Unified CCX solution see, <a href="#">Context Service Status, on page 58</a> .
<b>Create Scripts</b>	
6	For information on how to add Context Service steps to the Unified CCX scripts for the voice-based interactions only see, Cisco Unified Contact Center Express Scripting Guides at <a href="https://developer.cisco.com/site/express-scripting/documentation/">https://developer.cisco.com/site/express-scripting/documentation/</a> .  Two of the most common used Context Service use cases are bundled in the IVR script repository. Some of the most useful use cases from Context Service such as Last Agent routing, Priority customer identification, Route based on previous call outcome, Tag call for follow up and run outbound campaign on all tagged calls.

## Context Service Setup

### Context Service Prerequisites

Before setting up Context Service, install and configure your contact center solution and any components you are integrating with Context Service (Cisco Finesse and SocialMiner).

## Context Service Network Connectivity Requirements

Context Service is a cloud-based service and requires that call center components using Context Service to be able to connect to the public Internet.

Context Service uses port 443 (HTTPS).

The following URLs must be whitelisted in your firewall so that your contact center components can connect to, and receive data from Context Service.

- \*.webex.com
- \*.wbx2.com
- \*.ciscoccservice.com




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**Note** Use wildcard URLs in your allowed list because Context Service is accessed through multiple subdomains. Context Service subdomain names can dynamically change.

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If you register Context Service by enabling the proxy setting option, configure the browser proxy with the URL specified in the Context Service Management Gadget.

## Enable Context Service for Your Organization

Context Service enables you to store and access customer interaction data in the cloud, creating a flexible and seamless omnichannel customer journey experience. To use Context Service:

- Work with your Cisco account partner to enable Context Service for your organization.
- Register Context Service for your organization to use with your contact center application.
- Connect your contact center application to Context Service.




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**Note** You need Java Runtime Environment (JRE) version to 1.8.0\_151 or later to use Context Service.

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### Create a Customer Organization and Enable Context Service

Your Cisco account partner can provide Context Service entitlement to your [Cisco Webex Control Hub](#) account.

This example shows how a partner adds a Context Service subscription to a customer organization. The example assumes that:

- The partner is a full administrator or sales administrator and can add trials.
- The [Cisco Webex Control Hub](#) account or the organization and accounts associated with the organization have been created.

### Example: Add a Trial Service

Context Service is not tied to the trial services, and does not expire when the trial period is complete.



1. Log in with your partner credentials to the [Cisco Webex Control Hub](#).
2. Click **Start Trial** on the Overview page. The **Start New Trial** window opens.

3. Enter details about the trial:

- **Customer Information:** Enter the name of the customer company and an email for the administrator.
- **Trial Services:** Select the trials to add to this customer. To enable Context, select **Message**.
- **Licenses Quantity:** Specify the number of licenses required for this customer trial. This number is usually the number of users who use this service. This option applies only to the Trial Services. Context Service is not bound by the number of licenses specified here.
- **Trial duration** Specify the duration the trial lasts before you must purchase the service. This option applies only to the Trial Services and not Context Service.




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**Note** Context Service entitlement does not expire when the specified trial period ends. The organization can continue to use Context Service beyond the date of the specified Trial Duration.

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**Note** You cannot change the customer name and administrator email after you create the trial. You can modify the other terms of the trial as needed.

Make sure that the email you provide is not already associated with a [Cisco Webex Control Hub](#) account.

4. Scroll down to the **Non Trial Services** section and select **Enable Context Service for Cisco Unified Contact Center**.
5. Click **Next**.
6. A message is displayed that asks if you want to set up the services for the customer. Click **No**.

You now have provided Context Service entitlement to the organization. The customer now receives a welcome email at the specified email address with the subject line **Welcome to Cisco Spark Service**.

Welcome to Cisco Spark

## Your trial starts today

Your 90 day trial powered by Cisco CCBU Test Partner Org has begun and ends on Aug 24,2017

Go to [Cisco Spark Control Hub](#) to begin using your services.

[Get Started](#)

The Cisco Spark Team



The customer must click **Get Started** in the email and sign in to [Cisco Webex Control Hub](#) to begin their trial. The customer uses the credentials in the email to sign in and is prompted to create a password.

Your Cisco Context Service is ready. To use the service, connect to Cisco Contact Center with Context Service Enabled. See [Register Context Service](#) for more information.

## Context Service Status

The **Context Service Status** web page from the **Tools** menu in the Cisco Unified CCX Serviceability displays the status of Context Service for all the listed components of the Unified CCX solution.

The Context Service parameters for all the components like, Finesse, SocialMiner, Unified CCX, and Fusion Management Connector (FMC) are displayed.

The following parameters are displayed with their respective values for a particular **Component:Host Name**.

Table 16: Context Service Parameters

Parameter Name	Description
State	The state of the component is displayed. The state can be, <b>Registered</b> or <b>Not Registered</b> or <b>Unknown</b> or <b>Stopped</b> for Context Service.
Status	The status of the component is displayed. The status can be, <b>Online</b> or <b>Offline</b> or <b>Unknown</b> or <b>No Connectivity</b> or <b>Ready to Register</b> .
Mode	This displays whether the component is connected to the Context Service in Lab mode or in Production mode. <b>Note</b> This parameter is not applicable for Fusion Management Connector.
Last Fetched At	The time stamp when the last connectivity status is identified.
Action	This provides an option, <b>Initialize</b> , to reinitialize the Context Service connector of Unified CCX component that is in <b>Stopped</b> state.
Static SDK Version	The static SDK library version used by the component to connect to the Context Service is displayed.
Extension SDK Version	The dynamic SDK library version used by the component to connect to the Context Service is displayed.
Proxy	This displays the HTTP proxy configured in Unified CCX for the connectivity to Context Service.

The possible scenarios for the parameter values are:

- When the state of the component is **Registered** the status can be **Online**, **Offline**, or **No Connectivity**.
- When the state of the component is **Not Registered** the status can be **Offline**, **Ready to Register**, or **No Connectivity**.
- When the state of the component is **Unknown** the status also is **Unknown**.



**Note** When the status is **Online** it indicates that the connectivity of the component with Context Service is successful. When the status is **Offline** it indicates that one or more critical services of Context Service is not working or there is an issue with network connectivity.

For troubleshooting purpose, you may click **Export** to download the data required for troubleshooting that can be shared with Cisco Support.

## Component Configuration and Registration

### Register and Configure Context Service

Registering applications with Context Service is easy if your Cisco Webex Control Hub account has been entitled for Context Service.

For Cisco Context Center on-premise applications, simply use the built-in registration process. A browser window displays and prompts you to log in to Cisco Webex Control Hub. Log in and follow the on-screen instructions to authorize the application to connect to Context Service.

Use the Context Service Management gadget to register Unified CCX with the Context Service.

### Before you begin

Ensure that your web browser allows popups.

When your organization is entitled for Cisco Context Service, you must have received an email requesting a sign-in and a password change. Sign in using the registration email, and change the password. Now your organization is entitled to use Context Service.

If the browser requires a proxy to connect to internet, configure the browser to use proxy. See the browser documentation about configuring proxy.

### Procedure

- 
- Step 1** Verify the Context Service parameters as specified on the **System Parameters Configuration Web Page**. If Unified CCX server has to access Context Service via HTTP proxy, configure the proxy parameters and select proxy type as HTTP .
- Step 2** If you are not already signed in, sign in to the **Cisco Finesse Administration** console.
- Step 3** To register Unified CCX with the Context Service, in the **Context Service Management** gadget, click **Register**. For more information about Context Service registration, see <https://help.webex.com/community/context-service>.
- Note** If the Unified CCX FQDN is not added as an exception in the blocked popup window settings of the browser, the opened registration and deregistration popup windows do not close automatically. You must manually close the popup windows.
- Step 4** You are prompted to log in and enter your Cisco Webex Control Hub admin credentials to complete the registration.
- Note** If you encounter any issues with the Context Service connectivity and would want to reregister or troubleshoot the issue, click **Deregister**.

During the Registration process, at any time if you wish to cancel the registration, click **Cancel**. If registration fails or context service cannot be reached, you can reregister by clicking the **Register** button.

In case of Context Service failures, you will receive RTMT alerts.

**Note** If using Firefox, enable the **dom.allow\_scripts\_to\_close\_windows** config to ensure that any additional tabs opened for context service registration close as expected. To do this:

1. Enter `about:config` in the Firefox browser.
2. Click **I accept the risk**.
3. Search for `dom.allow_scripts_to_close_windows` config.
4. Double click to change the value field to `True`.
5. Restart your browser.

---

### What to do next

If context service registration is done by enabling the proxy setting option, configure the browser proxy with the URL specified in the Context Service Management gadget.

## Deregister Unified CCX Components with Context Service

After registering a server, you can deregister it if you decide to stop using Context Service with that server. For example, suppose that your solution has three Cisco Finesse server pairs, each dedicated to a single group of agents. If Group A stops using Context Service, you can deregister that server pair while the other groups continue to use Context Service.

### Before you begin

Ensure that your web browser allows popups.

### Procedure

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- Step 1** Launch the **Context Service Management** page for the server.
  - Step 2** Click **Deregister**.  
Your browser displays the Cisco Spark sign-in page.
  - Step 3** Sign in with your Cisco Cloud Collaboration Management admin credentials and confirm the removal of your Hybrid Services cluster.
- 

## Scripting for Context Service

For information on how the script designers can lookup Customers and create, update, and retrieve PODs see, *Cisco Unified Contact Center Express Editor Step Reference Guide* located at: <http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-programming-reference-guides-list.html>

## Single Sign-On

Single sign-on (SSO) is an authentication process that allows users to sign in to one application and then securely access other authorized applications without needing to resupply user credentials. SSO permits Cisco supervisors or agents to sign on only once with a username and password to gain access to all of their Cisco browser-based applications and services within a single browser instance. By using SSO, Cisco administrators can manage all users from a common directory and enforce password policies for all users consistently.



### Note

- SSO is an optional feature.
- The implementation requires you to use the HTTPS protocol only to access all the web applications. The HTTP access to web applications is not supported when the SSO is enabled.
- Use Fully Qualified Domain Names and not IP addresses to access the web applications.

## SAML 2.0 Authentication

SSO uses Security Assertion Markup Language (SAML) to exchange authentication details between an Identity Provider (IdP) and a service provider. The identity provider authenticates user credentials and issues SAML assertions, which are pieces of security information transferred from the identity provider to the service provider for user authentication. Each assertion is an XML document that contains trusted statements about a subject including, for example, username and privileges. SAML assertions are usually digitally signed to ensure their authenticity.

A generic SAML authentication flow consists of:

- Client - A browser-based user client used to access a service.
- Service Provider - An application or service the user tries accessing.
- Identity Provider - An entity performing the user authentication.

The identity provider keeps actual credentials and authentication mechanism hidden. Based on the authentication process result, the identity provider issues SAML assertions.

## Elements Used in SAML 2.0

The following is the list of elements that are used in SSO SAML 2.0 authentication:

- Client (the user's client)—A browser-based client or a client that can leverage a browser instance for authentication. For example, a system administrator's browser.
- Lightweight Directory Access Protocol (LDAP) users—Users are integrated with an LDAP directory. For example, Microsoft Active Directory or OpenLDAP.
- Security Assertion Markup Language (SAML) assertion—An assertion is an XML document that contains trusted statements about a subject. For example, a username. SAML assertions are digitally signed to ensure their authenticity. It consists of pieces of security information that are transferred from Identity Providers (IdPs) to the service provider for user authentication.
- Service Provider (SP)—An application or service that trusts the SAML assertion and relies on the IdP to authenticate the users. For example, Cisco Identity Service (IdS).

- An Identity Provider (IdP) server—This is the entity that authenticates user credentials and issues SAML assertions.
- SAML Request—An authentication request that is generated by a Cisco Identity Service (IdS). To authenticate the LDAP user, IdS delegates an authentication request to the IdP.
- Circle of Trust (Co-T)—It consists of the various service providers that share and authenticate against one IdP in common.
- Metadata—An XML file generated by the Cisco IdS (for example, Cisco Identity Service Management) and an IdP. The exchange of SAML metadata builds a trust relationship between the IdP and the service provider.
- Assertion Consumer Service (ACS) URL—A URL that instructs the IdPs where to post SAML assertions.

## Cisco Identity Service (IdS)

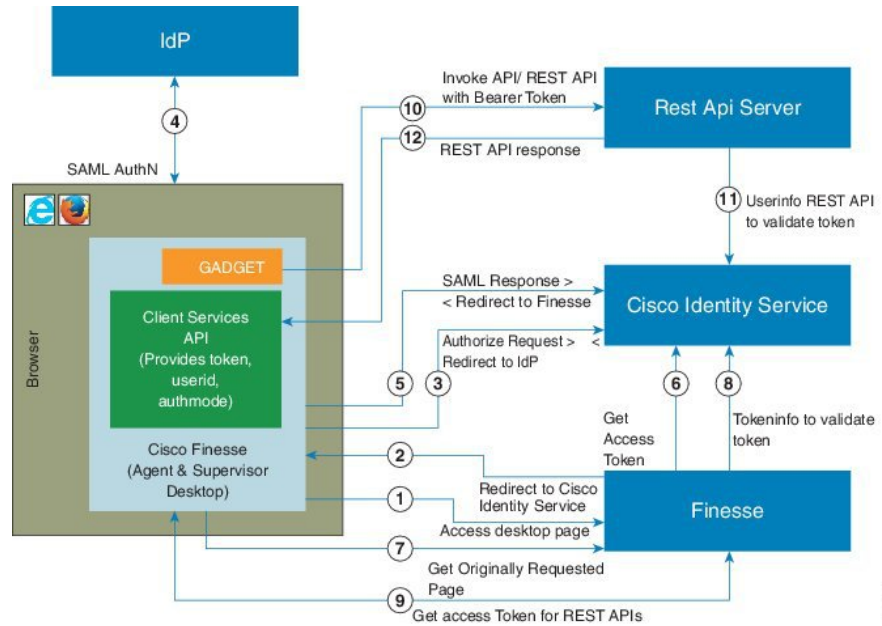
Authentication is managed for the contact center solution by the Cisco Identity Service (Cisco IdS). When an SSO-enabled user signs in, the Cisco IdS interacts first with the customer's Identity Provider (IdP) to authenticate the user. The IdP stores user profiles and provides authentication services to support SSO sign-ins. When the user is authenticated, the Cisco IdS exchanges information with the Cisco service the user is attempting to access to confirm that the user is authorized for the role they are requesting. When the user is both authenticated and authorized, the IdS issues an access token that allows the user to access the application. When the access is established during a particular session, the user can switch among contact center solution applications without presenting credentials again.

## Authentication and Authorization Flow

The complete authentication and authorization flow has been simplified as:

- When you access an application with protected resources, the application will redirect you to the Cisco Identity Service for authentication. Cisco Identity Service leverages SAML and generates a SAMLRequest and redirects the browser to the Identity Provider.
- The browser authenticates directly against the Identity Provider. Applications are not involved in the authentication process and have no access to user credentials.
- The OAuth flow accesses the resource with a token which is then validated.
- Cisco Identity Service sends an authentication request through the browser to the identity provider.
- The user enters the login credentials to the identity provider for authentication. After the assertion is successful and the user attributes are read it will redirect to the original application that was accessed. Cisco Identity Service accompanied by an assertion that confirms successful authentication and includes user information and access rights for the web application.

Figure 12: Authentication and Authorization Flow



## Accessibility

The Finesse desktop supports features that improve accessibility for low-vision and vision-impaired users. The following table shows how to navigate the Finesse desktop using the accessibility features.



**Note** Finesse supports these features only with Internet Explorer 11.0 and only on the agent desktop, not the supervisor desktop.

Desktop Element	To Perform the Following Actions	Use the Following Keys
<b>Address Bar</b>	Move between the address bar and the frames (in Internet Explorer only)	F6
<b>Sign-in Page</b>		
<b>Language Selector Drop-Down</b>	Access the drop-down	Tab and Shift-Tab from the ID field
	Open the drop-down	Alt-Down Arrow or Enter
	Scroll the drop-down	Up and Down Arrows
	Select a language	Enter
	Hide the drop-down	Esc
<b>Mobile Agent Help Tooltips</b>	Access and display a tooltip	Tab and Shift-Tab
	Hide a tooltip	Esc



Desktop Element	To Perform the Following Actions	Use the Following Keys
<b>Call Control Gadget</b>		
<b>Call Control Gadget Navigation</b>	Access the call control gadget, phone book, and keypad	Tab and Shift-Tab
	Open and close the call control gadget	Enter
<b>Phone book</b>	Navigate the phone book contact entries	Arrow keys
<b>Keypad</b>	Navigate the keypad number buttons	Tab
	Make a new call	<ul style="list-style-type: none"> <li>• Press Enter in the number display field</li> <li style="text-align: center;">OR</li> <li>• Navigate to the Call button and press Enter</li> </ul>
<b>Wrap-Up Reason Drop-Down</b>	Access the drop-down	Tab and Shift-Tab
	Open the drop-down	Alt-Down arrow
	Scroll the list of wrap-up reasons	Up and Down Arrows
	Select a wrap-up reason	Enter
	Close the drop-down	Esc
<b>Callback Dialog Box and Reclassify Dialog Box (Outbound Calls)</b>	Access the Callback and Reclassify buttons	Tab and Shift-Tab
	Open the Callback and Reclassify dialog boxes	Enter (on the respective buttons)
	Close dialog boxes	<ul style="list-style-type: none"> <li>• Press Esc</li> <li style="text-align: center;">OR</li> <li>• Navigate away from the dialog boxes using Tab or Shift-Tab</li> </ul>
<b>Reclassify Dialog Box</b>	Navigate the elements	Tab, Shift-Tab, Up and Down Arrows
	Select an option	Enter
	Close the Reclassify dialog box	Esc

Desktop Element	To Perform the Following Actions	Use the Following Keys
<b>Callback Date and Time Calendar</b>	Navigate to and from the Calendar	Tab and Shift-Tab
	Navigate within the Calendar	Arrows
	Select a Calendar date	Enter
	Move to the first or last days of a month	Home and End
	Close the pop-up	Esc
<b>Callback Date and Time Controls</b>	Navigate the elements	Tab and Shift-Tab
	Increase and decrease the Hour and Minute values	Up and Down Arrows
	Toggle the AM/PM button	Enter
	Close the pop-up	Esc
<b>Desktop</b>		
<b>Send Error Report Tooltip</b>	Access and display a tooltip	Tab and Shift-Tab
	Hide a tooltip	Esc
<b>Third-Party Gadget</b>		
<b>Maximize Icon</b>	Access the maximize icon	Tab and Shift-Tab
	Maximize and restore a third-party gadget	Enter

### Screen Reader Support

Cisco Finesse also supports JAWS screen reading software for the following elements:

Page or gadget	Element	Notes
Sign-in Page	Mobile agent help icon	The screen reader reads descriptive text for the help icon.
	Invalid Sign in error	When a sign-in error occurs due to invalid password or username, the screen reader reads the error. <b>Note</b> In Internet Explorer, the message is read 1 to 3 times.
Queue Statistics gadget	Title	The screen reader reads the gadget title (Queue Statistics).

Page or gadget	Element	Notes
Call Control Gadget	Phone Book	<p>The screen reader reads the contents of the phone book.</p> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>• The screen reader is not able to read the summary of this table by using CTRL+INSERT+T. As a workaround, use the heading key instead.</li> <li>• The phone book does not support use of CTRL+ALT+RIGHT/LEFT/UP/DOWN arrow keys to move between cells in the table.</li> <li>• The screen reader does not read the heading of each column in IE11.</li> </ul>
	Keypad	<p>The screen reader reads the number of the keypad and the letters that go with it (ABC, DEF, and so on).</p> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>• In the table summary, if you select the table, the screen reader reads the summary of the table, which is Keypad.</li> <li>• If you press Enter on a Keypad button with JAWS enabled, the digits are not entered or displayed in the edit box on top of the Keypad.</li> <li>• If you use Ctrl+Alt+Right, Left, Up, and Down arrow keys to move between the cells, extra buttons are read on the Keypad.</li> </ul>
	Call row errors	The screen reader reads the call row error messages.
Agent Desktop	Headings	The screen reader reads all the headings on the Agent Desktop (HTML elements <h1> to <h6]>).
	Failover Banner	During failover, the screen reader reads the statement from the red banner. When the Failover is complete, the screen reader reads the statement from the green banner.
	State Change text	Whenever the agent state changes, the screen reader reads the new state.
Desktop	Send clients logs help icon	The screen reader reads descriptive text for the help icon.

