

Service Center Manager SCM v19

Design Guide

November 2019

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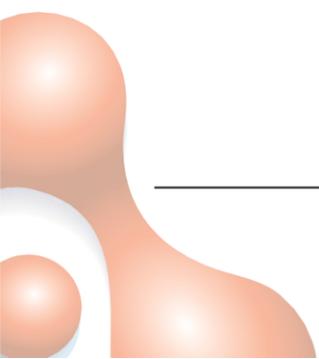
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Document History

Date	Author	Version	Summary
22 Oct 2014	Andrew Murray	0.3	SCM version 1 updates
24 Jul 2015	Murray Lum	2.1a	Added version 2.1 features – agents are now jabber or IP phone users, update wallboard “not-ready” thresholds, apply logo to supervisor screens.
4 Aug 2015	Murray Lum	2.1b	Revised section: not-ready reason codes
5 Aug 2015	Murray Lum	2.1c	Added design checklist & summary CUCM settings. Jabber DND incompatibility.
27 Aug 2016	Murray Lum	2.1d	Corrected typos, expanded backup section, updated VM disk to 150MB from 80MB
17 July 2017	Murray Lum	3.0a	Added CTI settings, settings for 88xx phones, IP phone idle URL now includes line 1 to make external calls when in queue, added Jabber idle URL’s
17 July 2017	Murray Lum	3.0b	Added Jabber idle URL for Mac
17 Dec 2017	Murray Lum	3.0c	Amended formatting for idle URL’s
19 Feb 2018	Murray Lum	3.0d	Added role to account Atea_SCM_API “Standard CTI Allow of Phones supporting...” updated SCM picture and software versions
Oct 2018	Murray Lum	3.1a	Recording no longer uses SIP trunk and recording files are saved as .wav instead of .au Optional feature to whisper to agent
Nov 2019	Murray Lum	19a	SCM queuing feature simplifying the hunt pilot configuration and providing better real-time reports. Jabber includes after-call wait timer. Removal of PerfMon and system performance query adjustment.
Nov 2019	Murray Lum	19b	Updated pictures, jabber URL and description, added minimum versions for Cisco software. Updated resilience.

Related Documents

Document	Description
SCM Supervisor Guide	Day-to-day operations guide for Agent Supervisors using the Atea Service Centre Manager
SCM Administrator Guide	Guide to add/remove Queues, Supervisors and Agents. Set recording. Set “not ready” reason codes, update screen logos.

1 Purpose of this guide

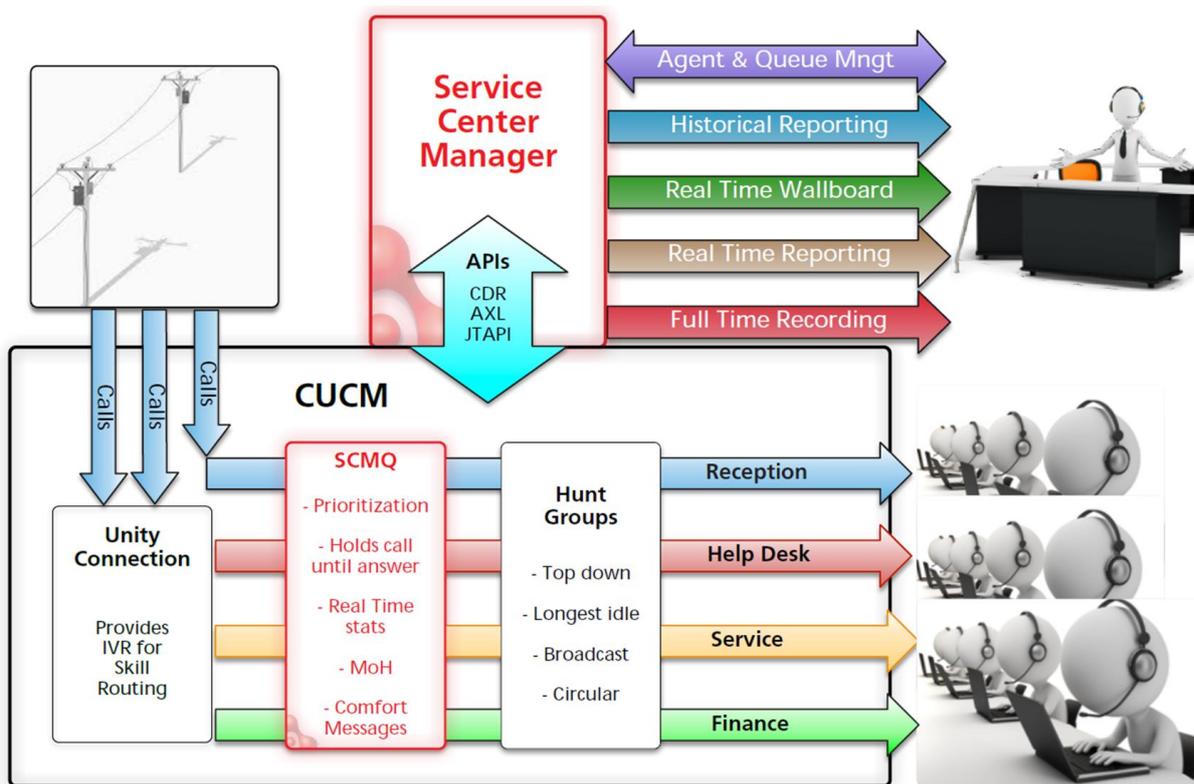
This guide provides information, so you can plan and design a solution using the Atea Service Center Manager (SCM). This document covers:

- Overview of the SCM features
- How the SCM appliance fits in with the rest of the CUCM infrastructure
- Basic requirements of the CUCM setup
- Requirements for setting up users
- Network and compute considerations

This guide is intended for solution architects, network architects and designers.

2 SCM Overview

The SCM works with your Cisco UCM phone system to provide additional features suitable for a small contact centre.



The key functions of the SCM are:

Administration: An administrator sets up SCM users, Supervisors and hunt group Pilots. This includes items like alias display names, thresholds and Grade of Service (GOS) settings.

Queue and agent management: Supervisors use a dashboard to add or remove their agents to any queues the supervisor has access to.

Realtime Reporting: Live statistics are presented via Wallboards and the Supervisor Dashboard. These are web pages that display information about one or more queues, and update in close to

real time. Atea wallboards also highlight when thresholds are exceeded. The thresholds are configurable for statistics like:

- Calls Waiting
- Longest Wait
- Calls Active
- Calls in-progress
- Agents Available

Historical Reporting: The Supervisor Dashboard has reports for the supervisor's queues and agents. These include calling statistics, individual call details and activity information.

The Queue Reports have call statistics like:

- Call volumes – Queue calls, handled, abandoned, abandoned early
- Grade of Service (GOS) met and abandonment rate
- Wait time – average, maximum, total (aggregate)
- Average call time, handle time, after call work

The Agent Reports include their outgoing calls. There is information like:

- Call details, duration, queue, wrap up time
- Call volumes

For each agent, there are individual reports showing all their calls.

For each call, you can view the individual call legs that make up the call.

Full-Time Call Recording: Supervisors can access recordings of their agent's calls. You can listen to the recordings online from your browser or download the file.

Monitoring calls live – plus whisper or barge: Supervisors can listen to calls in progress from their web-browser dashboard. This is transparent to both parties in the call. There is also an optional feature to talk to the agent only (whisper) or join the call (barge).

3 SCM Roles

There are three main roles.

SCM Administrator – set up and control the SCM

The administrator manages the operation of the SCM. They are responsible for:

- Adding and removing Cisco hunt pilot numbers that match the SCM queues
- Adding users to the SCM (users will be agents or supervisors)
- Assigning who will be supervisors
- Assigning supervisors to queues
- Assigning agents to supervisors
- Setting up friendly display names (aliases) for queues and users.

The administrator can also adjust some SCM system settings including:

- Adding a logo to the supervisor page display
- Whether the abandonment rate is visible
- Create the reason codes available when agent goes “not-ready”
- Access to the wallboard administration (separate account).

The SCM Administrator may also be a supervisor.

The SCM administrator uses a browser to access the SCM admin console screen, and optionally the Wallboard administration screen (using a separate account).

Some organisations use their ICT service desk to fulfil the SCM administration function.

Supervisors – Manage queues and agents

The supervisor is responsible for one or more queues and setting which of their agents are assigned to each queue. Supervisors are presented with a dashboard that allows them to:

- Manage their queues
- Monitor the status of queues and agents
- Allocate agents to the queues
- Listen to recordings
- Listen to live conversations with option to whisper to agent [whisper is an additional feature]
- View reports on queue and agent performance
- View a wallboard with status and statistics of all their queues and agents

Supervisors require:

- Browser access to the Supervisor dashboard and reporting screens
- A headset on their computer for listening to recordings, live monitoring or whisper features
- Browser access to their wallboard (which can also be displayed by other users)
- An IP phone or device profile and a standard user account on the CUCM
- To be included in the CUCM user directory

Telephone agents – answer calls

Agents are phone users that answer calls presented to them from the queues. In the CUCM, these are normal telephone users.

Agent requirements:

- Configured as a standard user in the CUCM
- Included in the CUCM user directory
- An IP phone with the built-in bridge feature, or a windows jabber phone, to allow for recording or live monitoring. Jabber has more SCM features over a traditional IP desk phone.
- CTI control allowed for the user and device
- Browser access to the wallboard (optional)

In the SCM, agents are configured as having either an IP phone, jabber or jabber controlled phone. We recommend using jabber as there are more features.

Agents with jabber get a “SCM” tab on the softphone (you can choose what you name this tab). It’s a custom jabber tab that shows the queue status, and has controls for “ready”, “not-ready reason” and after call work timers (wrap-up) features. You can also use the jabber tab to control a desk phone.

Agents with an IP desk phone only are automatically configured with soft-key buttons to allow them to toggle between being ready or not-ready to take calls. The buttons are provided using an idle URL for the phone display and show only if they are joined to a queue. They’re removed if they are no longer part of a queue. The queue idle URL includes a Line1 soft key which the agent can use to make calls without leaving the queue.

4 Solution Design

4.1 Solution Topology

The SCM runs on the Atea TSP server appliance. This is a virtual server appliance using Oracle Linux. This includes an Oracle database and application environment, the Tomcat web server, an Open LDAP directory and other supporting applications such as the open Java run time environment, SFTP and SSH. The Atea applications are written in the open Java environment.

The SCM interacts with the CUCM, IP phones and user computer. Recordings are played back either from the SCM appliance or from the network location where the recordings are stored.

Here's how the SCM communicates with other solution components.

SCM and CUCM

The SCM and CUCM have several communication streams. These are:

- AXL for user information and user settings
- CDR delivery of call information from the CUCM
- CTI with a Route Point for call queuing, call status and control of monitoring calls
- CTI route point and CTI ports for the recording calls

SCM and the Administrator computer

Administrators use a browser to access the SCM admin console screen.

SCM and Supervisor computer

Supervisors use a browser to access the Supervisor dashboard, reports and the wallboard. Recordings are played back directly from where the recordings are stored, or you can download the files to your computer. Playback uses any common media player on the Supervisor's computer (wave files). The Supervisor may want a headset for listening and to talk to a user using barge/whisper (where provisioned).

SCM and Agent phones (IP desk phone or windows Jabber phone)

Agent IP phones stream the conversation to the SCM for recordings. When the agent is on a call, the phone built-in-bridge (BIB) feature relays the audio (RTP stream) to the SCM.

When an agent's phone is added to a queue by a supervisor, the SCM adds their extension to the appropriate Line Group in the CUCM. Additionally, for IP desk phone users only, an idle URL is set on the phone to allow them to indicate whether they ready to take calls. For Jabber phone users, the custom Jabber tab includes ready / not-ready buttons. The jabber tab includes a

special “Not Ready – logout” option which removes the icon from displaying on the dashboard or wallboard. The custom jabber tab is a URL that points to SCM server.

Other SCM connections

Email – we’ll need a connection to an SMTP gateway if using automatic email alerts.

Remote Access - We recommend that you arrange remote access to the SCM appliance for Atea Support to carry out troubleshooting and upgrades.

The SCM server will need other normal infrastructure services such as NTP, DNS and DHCP.

4.2 Agent not-ready reason codes

We can disable this feature as a system setting if you don’t need it, but it’s normally on.

When agents are unavailable to take calls, they have a status of “not-ready”. This status includes a time counter and it appears in two places:

- On the wallboard
- On the agent Jabber phone

Agents that go “not-ready” from a Jabber soft phone must choose one of the “not-ready” options. “Not-ready – logout” will also remove the agent from wallboard.

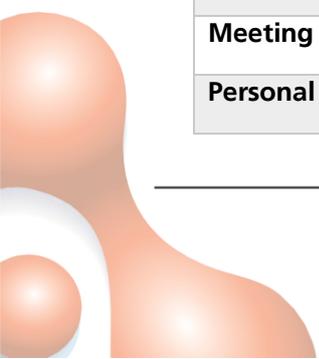
Not-ready reason codes for the SCM can be global or for a group

The SCM reason codes can be system wide or customised for individual groups. To customise the reason codes for a group, the revised list of reasons is included in the Jabber tab URL. This overrides the system reason codes.

Alternatively, we can disable the reason codes from the system properties.

Pre-configured system reason codes

Code (system parameter)	Description (display text)	Comment
Logout	Logout	Not Ready – logout will remove you from the wall board as well as the queue
Coffee Break	Coffee Break	Can be changed to suit
Lunch	Lunch	Can be changed to suit
Meeting	Meeting	Can be changed to suit
Personal time	Personal time	Can be changed to suit

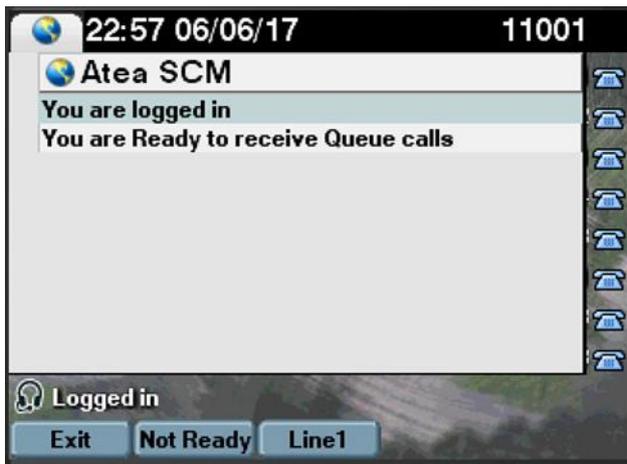


Code (system parameter)	Description (display text)	Comment
Sick	Sick	Can be changed to suit
Training	Training	Can be changed to suit
99992	Unregistered	Appears on wallboard only (not jabber phone) when an agent is not logged into a phone.
99993	Agent Init	Appears on wallboard only if agent goes not-ready from an IP phone (non-jabber user).

The SCM administrator can change, add or remove these using the Administrator Console and likewise adjust the Wallboards. These items also show on the agent jabber phone except where the jabber phone is configured with a custom list.

IP phone agents do not have reason codes

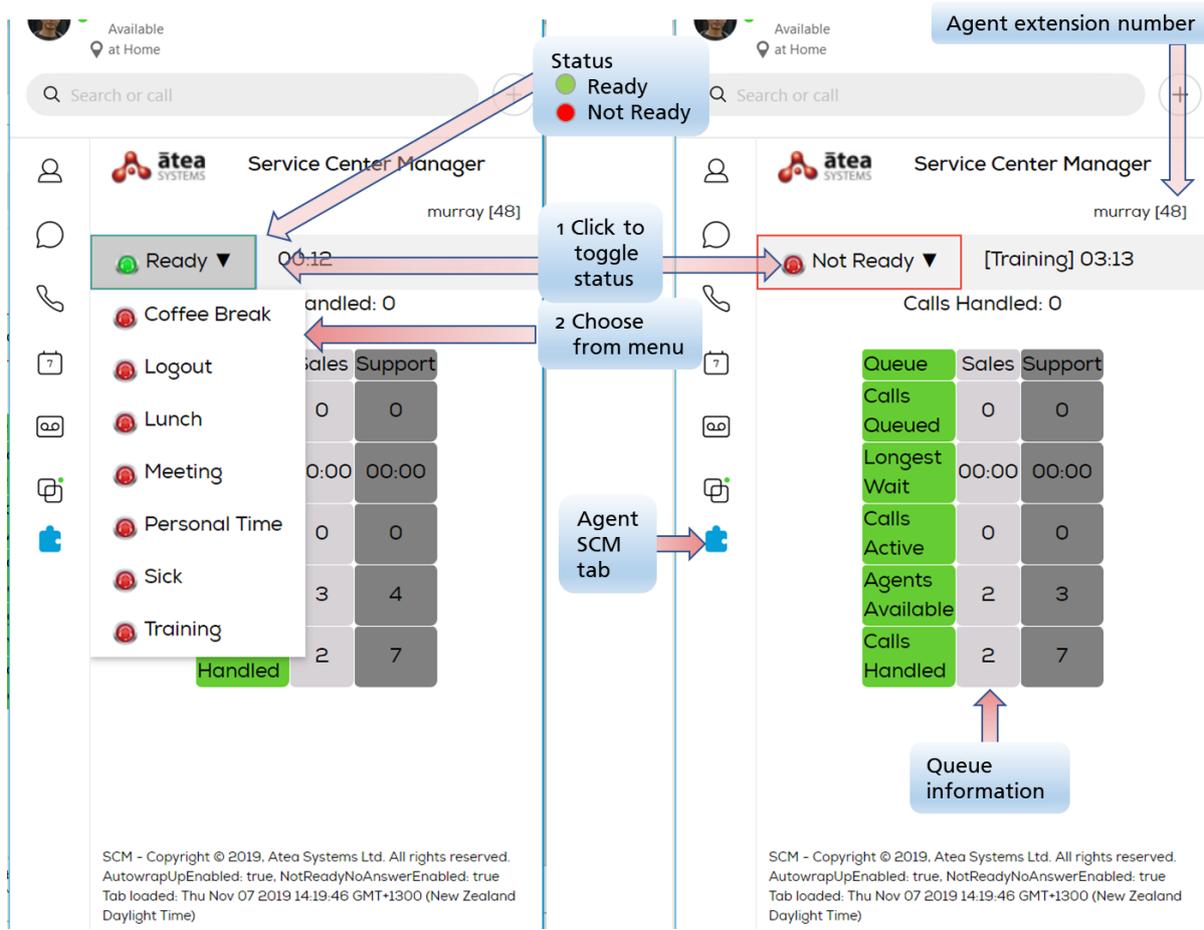
Agents with an IP phone rather than a jabber softphone do not have not-ready reason codes. They can only toggle between being ready or not-ready.



IP phone agents will also see a “Line1” softkey on their phone to use for making calls without leaving the queue.

4.3 Jabber integration

Here’s what the SCM custom jabber tab looks like.



Jabber advanced features – figure out which ones you’ll need

SCM integrates with Jabber as a custom tab. As well as queue information, it offers several features unavailable on a standard IP desk phone. These include:

- Not-ready reasons – either the system list or a customised list for that user. This allows you to set the reason codes for teams or individuals.
- Optional after-call-wait or “wrap-up” settings to give the agent time before they are presented with the next call
- Automatically changing the agent status to “not-ready” if they miss answering a call

These features are enabled through the URL used to create the custom jabber tab. Here’s an example URL.

```
https://scm-server-ip-address/LineGroupMember/servlet/LineGroupManager?action=idlejabber&autoWrapup=true&wrapupToReadyTimer=120&notReadyNoAnswer=true&noAnswerTimer=8&jabberuser=${UserID}&customReason=
```

Jabber URL parameters

Parameter	Description
autoWrapup=true	The wrap-up timer is automatically applied upon answering an incoming call
wrapupToReadyTimer=120	The wrap-up time in seconds before the user returns to ready after the end of the call
notReadyNoAnswer=true	To enable the automatic change of state to Not Ready – No Answer when a call is missed or not answered
noAnswerTimer=8	How many seconds the phone must ring to count as a “no answer”
customReason=	A comma separated list of reason-codes that can be used from this jabber tab instead of the system list

Deploying the custom Jabber tab - suggestion

Here’s a way to deploy the custom tab. Add the URL to the Jabber config.xml file and put the file on the TFTP server. Add a reference to this when configuring jabber devices on the CUCM. This avoids manually adding the custom tab to each device.

4.4 Wallboard displays

A wallboard is automatically created for each supervisor, displaying their queues and agent status and performance. The wallboard information is close to real-time although there is a small delay. The wallboard opens in a separate browser window.

To start a wallboard, click the link on the top right of the Supervisor Dashboard, or save the URL as a shortcut. There’s a couple of different layouts to choose from.

To1 layout

Queue	Calls Queued	Longest Wait	Calls Active/Ringing	Agents Available	Handled/Abandoned Today	Avg Wait Today	Longest Wait Today
HP 970	0	0:00	0 / 0	0	0 / 0	0:00	0:00
HP 971	0	0:00	0 / 0	1	1 / 1	0:04	0:07
HP 972	0	0:00	0 / 0	2	0 / 0	0:00	0:00
HP +973	0	0:00	0 / 0	0	0 / 0	0:00	0:00
 Scm User6 (0) +1001 Not Ready Unregistered	 Scm User1 (0) +1101 Ready	 Scm User2 (1) 1102 Ready	 Scm User3 (0) 1103 Not Ready (1:14:48) Meeting	 Scm User4 (0) 1104 Not Ready Unregistered	 - SCMUser 1 (0) 1111 Not Ready Unregistered		

This layout is optimised for a full HD monitor (1920 x 1080 pixels), with the browser set the full screen mode. You can use the browser zoom function if a different size window is required.

This wallboard is pre-configured to change the colour of the agent background if they are in a not ready state beyond a set time threshold. To adjust the threshold and the colour, please see the instructions in the SCM Administration Guide.

T98 layout

The sections in this layout can be customised with different content. It will also scale to different window sizes.



Tips to make the wallboard look good.

1. Use short aliases that fit within allowed screen real estate (SCM Administrator task)
2. Make the browser full screen (usually F11 on a windows computer)
3. Zoom the browser window (such as ctrl-mouse wheel, or browser settings)
4. Use short not-ready reason-codes. (Wallboard administrator task).

Check-out the how-to articles on the website for more tips.

5 CUCM - Cisco UCM considerations

5.1 Design aspects – Differences from SCM3

If you are migrating from older versions of SCM, several design aspects have changed.

Queuing has changed

SCM19 has its own queuing mechanism, allowing you to retain simple hunt groups for the team that answer calls.

- SCM3 / SCM3.1 – uses Cisco hunt groups and is compatible with Native Call Queuing
- SCM19 – Uses SCM queuing and simple Cisco hunt groups

Cisco native call queuing is not required for SCM19 queues. You can continue to use this for any hunt groups that you use outside of the SCM.

IVR uses Unity Connect for now

You can continue to use Unity Connect for IVR routing of calls to specific queues. However, the SCM queues already include a feature to divert the call to another number upon pressing a digit. Other IVR features are on the roadmap.

Updated dashboards and wallboards

These have revised layouts with near real-time updates. SCM19 now no longer uses Perfmon on the CUCM to get this information.

Recording uses CTI

Recording uses a CTI port on the SCM. The phones being recorded must have the BIB (built-in bridge) feature enabled. There are some CTI control setting changes to ensure this works.

Whisper and Barge for Supervisors (Feature option)

When monitoring a call from the browser dashboard, Supervisors can either whisper to the agent, or barge (join) a conversation. These are additional licensed features.

Browser recommendations have changed

The browser requirements are evolving to support the new features. We've tested it using Chrome and it usually works fine on Microsoft Edge.

5.2 SCM Call flows – Queuing the calls

The SCM has call queues which are used with the CUCM hunt pilots. When an agent is presented with a call, they see the corresponding name of the hunt pilot.

The SCM queues calls prior to presenting them to a hunt group member (i.e. an agent). The caller is played an audio file while they wait to be connected to an agent. The caller is only connected to the agent once the agent has responded to the call.

Basic call flow

1. The incoming call is presented to the queue
2. The caller hears an audio file, whilst the SCM calls the hunt group (pilot) for that queue
 - a. The caller can press a digit (usually 1) to escape the queue and be transferred to another number, such as voicemail or a message service
 - b. The SCM keeps retrying agents even if there is no-answer or all agents are busy.
3. When an agent answers the phone, the SCM connects the caller and the agent together, and starts the recording.

Queues and hunt groups

Each queue is associated with a hunt group pilot whose members will be connected to a caller.

The queues can be for different purposes, with audio to match. Each queue will call a hunt group until an agent picks up to handle the call.

The queues use a CTI user configured with a CTI route point that has one DN for each queue – plus one more. (e.g. if there are five queues, then we need six DN's)

Each queue has several elements:

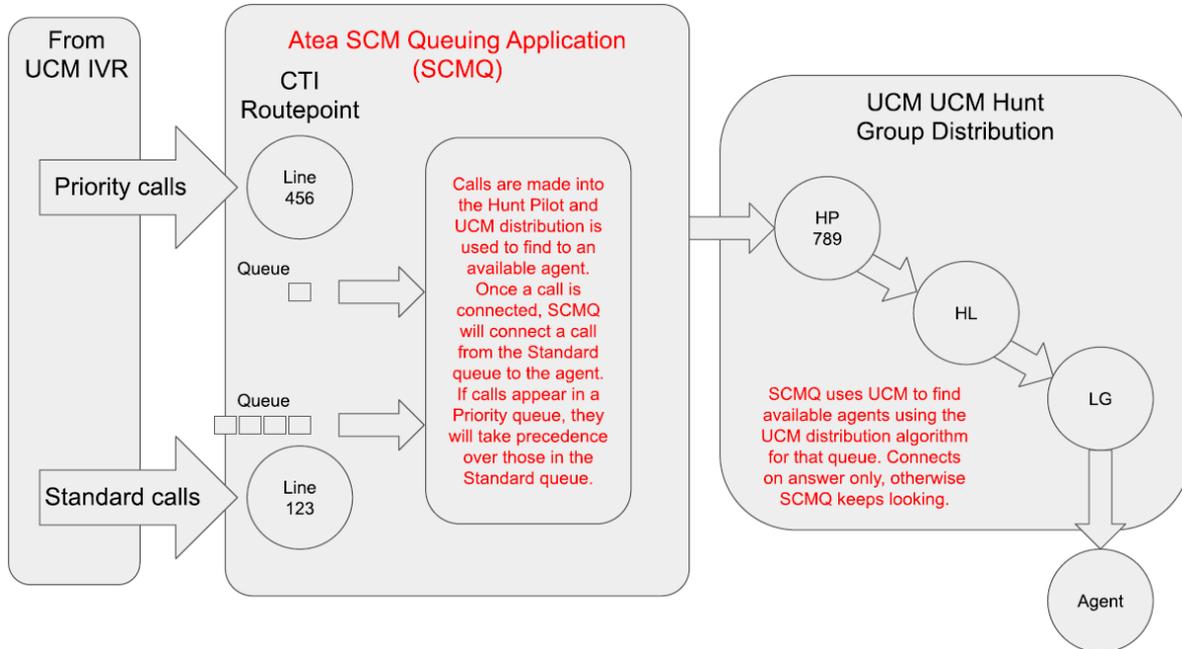
1. A phone number (DN). This is the number on the CUCM for the queue
2. An optional escape digit and number that the call will forward to
3. A priority setting (if required). Calls from a priority 1 queue get connected in preference to other queues, where several queues are using the same hunt pilot.
4. Audio file to be played to the caller whilst they are waiting
5. The hunt group with the agents for that queue.

Usually, your queues will be a one-to-one match with your SCM hunt groups. However, you can have the same hunt group for several queues, particularly if you want to utilise the priority feature.

For resilience of the SCM application, set the Call Forward Unregistered for each queue DN on the route point to forward directly to the hunt pilot. If the route point becomes unregistered, the SCM is bypassed and calls will still arrive with an agent (hunt group member).

Priority queuing

Each queue has a priority setting. Calls from queues with the highest priority are connected to an agent first, even if that agent was initially called for a lower priority call. This setting applies only where several queues use the same hunt group.



Hunt group/pilot settings – no forwarding

The hunt pilots the SCM uses must be setup with these Hunt Call Treatment Settings:

- Forward Hunt No Answer > **Do Not Forward Unanswered Calls**
- Forward Hunt Busy > **Do Not Forward Busy Calls**
- Queueing > **Queue Calls – unchecked** (not selected)

Other Hunt Pilot settings

- **Automatically Logout Hunt Member on No Answer** (CUCM 9.x+) – this must be set to "off".
- **Unique hunt group numbers** - SCM is only compatible with hunt groups numbers that are unique. A hunt group number must appear only once in across all clusters. For example, if you have two clusters and each cluster has a hunt group number 80001, this is incompatible. If one cluster has 80002 and the other 80003, then these two hunt groups are compatible.
- **Native call queueing** – The call queueing features such as announcements, music on hold and maximum wait time are not used with SCM19.

Audio files – WAVE format

Whilst the calls are queued, the caller is played an audio file for that queue, until they are connected to an agent. The file is played in a loop. You'll need to create the file with your choice of content, such as music and comfort announcements.

Each queue can have its own audio file, or several queues can use the same audio file.

The SCM requires two copies of each audio file for compatibility:

- Wave format (.wav) encoded as alaw
- Wave format encoded as ulaw.

Putting it all together - queues

Here's some things to consider when designing the queues.

1. Figure out what queues you'd like for the customers. Consider what audio they should be played whilst waiting, the queue escape phone number and if priority is required.
2. Figure out the hunt groups required to answer the calls. These are the teams answering the calls for the queues. For each hunt group, also consider the distribution algorithm (top-down, circular/round-robin, longest idle, broadcast). A hunt group can be used for several queues.

It might be handy to summarise this in a table, for example:

Queue description	Queue number (DN)	Escape digit / number	Priority	Audio file alaw / ulaw	Hunt group (DN)	Distribution Algorithm
e.g. Loans internal	9001	1 / 999 (voicemail)	1	Music_a.wav Music_u.wav	4001	Longest idle
e.g. Loans external	9002	1 / 900 (answer service)	2	LoanAudio_a.wav LoanAudio_u.wav	4001	Longest idle
e.g. Payments	9003	1 / 900 (answer service)	2	PaymentAudio_a.wav PaymentAudio_u.wav	4002	Longest idle

5.3 Recordings

Agent phone conversations are automatically recorded as .wav files. A supervisor can access these from the Supervisor dashboard using the links in the reports. They may either play them using a media player on their computer or download the recording file. The files are 64-bits per second, so you'll need to plan the storage requirements (28.8MB per hour of recording).

The recordings are stored on the SCM server, or other file location that you specify.

Conversations are relayed to the SCM for recording using the BIB built-in bridge feature in the user device (phone or jabber).

5.4 CUCM Users and Groups

Telephone Users

Each user in the SCM is derived from the CUCM. Phone users must include these settings:

- Standard CCM user
- Included in the CUCM directory
- Primary DN (extension) configured for the user
- Built-in Bridge enabled on device or device-profile settings (if being recorded)
- G.711 uLaw or Alaw codec. Set the CUCM service parameter so that calls to these phones are *always* negotiated to G.711.

For agent users with an IP desk phone (and without a jabber phone), the SCM adds an idle URL on the agent telephone to allow the agent to toggle between being ready or not-ready to take calls.

For Jabber softphone users, the Atea SCM tab on the Jabber phone has the controls for ready and not-ready rather than using an idle URL on the phone.

CUCM groups

We'll need several additional groups on the CUCM. These groups are:

- ATEA_SCM_ADMIN – members of this group get administration access to SCM
- ATEA_SCM_API – this group is for the system account. It must be set with several CUCM roles to enable the API to work.

System accounts and connections for CUCM

The SCM requires these accounts on the CUCM:

1. CUCM Application User (e.g. ATEA_SCM) with AXL read / write, CTI permissions and route point settings. This is used to gather information and associate agent users with hunt pilots. A further application user is often configured for Atea support access to the SCM.
2. CUCM Application User (e.g. ATEA_CQ) with CTI permissions, route point and CTI port settings. This is used to for call queuing.
3. CUCM Application User (e.g. ATEA_MCR) with CTI permissions, route point and CTI port settings. This is used for recording and determining user and device state information.

4. CUCM CDR sFTP - this is for the delivery of CDR records (5-minute intervals) used for reporting.

CTI settings – the ATEA_SCM user requires a couple of CTI controlled devices. These are:

- **CTI Route Point** – this must have just one DN
- **CTI Port** – this must be unique. It must have a monitoring CSS that allows it to place a call to any of the recorded devices. It also needs a CSS to transfer calls to the CTI Route Point.

CDR - call detail records

The SCM requires CDR call detail information from the CUCM, using sFTP (secure FTP). The SCM processes the CDR information every 10 minutes. CDR information is used for queue reports, agent reports and some wallboard statistics (such as calls answered and calls per day).

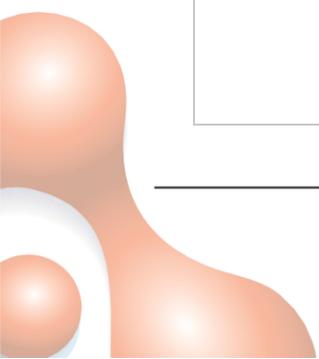
HLog – Coming soon! DO NOT USE FOR NOW

The HLog function is incompatible with all versions of SCM. For all SCM users, remove HLog from the softkey template on the user’s phone. HLog will be included in newer releases of SCM.

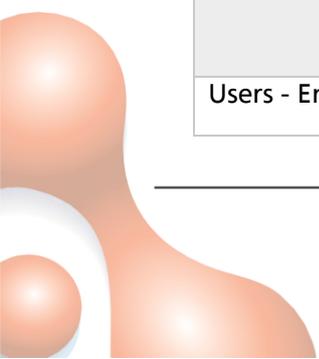
5.5 CUCM settings summary

Setting Page	Setting details
Call Routing - Hunt - Line Group Configuration	Automatically Logout Hunt Member on No Answer = off (cucmg.x+)
Hunt groups	Each SCM hunt group number must be unique across the whole system (even if multi-cluster)
System - Enterprise Parameters	CDR File Time Interval = 1
Service Parameters - Cisco CallManager	CDR Enabled Flag = True (on all servers running CCM) Show Line Group Member DN in finalCalledPartyNumber CDR Field = True Show Line Group Member Non Masked DN in finalCalledPartyNumber CDR Field

Setting Page	Setting details
Device – Phone	<p>All SCM used phones should have "Logged Into Hunt Group = On"</p> <p>IP phone must have built-in bridge (BIB) feature where agent is to be recorded</p> <p>Must use G.711 codec</p>
Device – Phone (Cisco 88XX)	<p>For 88XX phones controlled by jabber, also add this group and role:</p> <p>Standard CTI Allow Control of Phones supporting Connected Xfer</p> <p>Standard CTI Enabled</p>
Device - Device Settings - Softkey Template	<p>Ensure the Softkey layout applied to the Phone/UDP does not have HLog (HLog compatibility is coming soon)</p>
Access Control Group	<p>Create group ATEA_SCM_ADMIN</p> <p>Create group ATEA_SCM_API</p>
Application User e.g. ATEA_SCM_API	<p>Application user account with these roles:</p> <p>Standard AXL API Access</p> <p>Standard CCM Admin Users</p> <p>Standard CTI Enabled</p> <p>Standard CTI Allow Control of Phones supporting Connected Xfer and conf</p> <p>Standard SERVICEABILITY</p> <p>And member of the access control group ATEA_SCM_ADMIN</p> <p>Controlled devices: CTI route point and CTI port</p> <p>The route point should have a single DN</p>
Application user e.g. ATEA_CQ (used for SCM queuing)	<p>Application user account with these roles:</p> <p>Standard CCM Admin Users</p> <p>Standard CTI Enabled</p> <p>Standard CTI Allow Control of Phones supporting Connected Xfer and conf</p> <p>Standard SERVICEABILITY</p> <p>And member of the access control group ATEA_SCM_ADMIN</p>



Setting Page	Setting details
	<p>Controlled devices: CTI route point and CTI port.</p> <p>The CTI route point needs one DN per queue, plus one more. (e.g. if there are five queues, we need six DN's). For resilience, set each DN with Call Forward Unregistered to the respective Hunt Pilot.</p> <p>The CTI port needs one DN with max calls increased to 20 and busy trigger to 19</p>
<p>Application user e.g. ATEA_MCR (used for recording)</p>	<p>Application user account with these roles:</p> <ul style="list-style-type: none"> Standard CTI Enabled Standard CTI Allow Call Monitoring Standard CTI Allow Control of All Devices Standard CTI Allow Control of Phones supporting Connected Xfer and conf <p>And member of the access control group ATEA_SCM_ADMIN</p> <p>Controlled devices: CTI route point and CTI port (see below)</p>
<p>Application user e.g. ATEA_SCM (used for support)</p>	<p>Application user account used for Atea support with these roles:</p> <ul style="list-style-type: none"> Standard SERVICEABILITY Standard CCM Admin Users <p>And member of the access control group ATEA_SCM_ADMIN</p>
<p>CTI Route Point</p>	<p>A single DN except for the ATEA_CQ which is the quantity of queues plus one. For resilience, configure each ATEA_CQ DN to forward to the hunt group DN if the ATEA_CQ DN is unavailable.</p>
<p>CTI Port</p>	<ul style="list-style-type: none"> - Must be unique - Monitoring CSS that allows it to call any recorded phone - CSS that allows it to transfer calls to the CTI route point
<p>Users - End User (SCM agents and supervisors)</p>	<ul style="list-style-type: none"> - standard user in the CUCM - have a primary extension (Agent only) - be included in the CUCM user directory
<p>Users - End User</p>	<ul style="list-style-type: none"> - standard user in the CUCM



Setting Page	Setting details
(SCM administrators)	- member of the group ATEA_SCM_ADMIN
CDR Management	CDR sFTP destination has been set
Service Parameters - Cisco CallManager	Calls are set to G.711 if recording is on (or negotiate to G.711) Both Alaw and ulaw are fine. G.722 Codec Enabled: Disabled (or Enabled for All Devices Except Recording-Enabled Devices)
Jabber URL	See below - Add this as a custom tab to Jabber 12.5 and above.

Jabber custom tab URL for windows from 2019 onwards

```
https://scm-server-ip-address/
LineGroupMember/servlet/LineGroupManager?action=idlejabber&autoWrapup=true&wrapupTo
ReadyTimer=120&notReadyNoAnswer=true&noAnswerTimer=8&jabberuser=${UserID}&customR
eason=
```

There are several parameters embedded in the URL to allow you to customise the Jabber behaviour (see the section on Jabber Integration).

5.6 Obsolete Settings

These CUCM settings were required prior to SCM 19. They are now no-longer required.

Setting Page	Setting details
System - Enterprise Parameters	<i>Allowed Performance Queries Per Minute = 80 (default is 50).</i> SCM19 – this no longer needs to be increased as SCM19 does not use the PerfMon in the Cisco RTMT.
Perfmon account	SCM19 no longer uses PerfMon.

6 Network and Environment Setup

Network Protocols and Ports

Here are the network requirements for the SCM.

From	To	Parameter	Description
Agent and supervisor computer	SCM	TCP 8088 / 443	Browser access to wallboard
Supervisor and Administrator computer	SCM	TCP 8088 / 443	Browser access to appliance web pages
Agent computer with Jabber	SCM	TCP 443	HTTPS access for the custom Jabber tab
IP phones / Jabber	SCM	UDP 16384 - 32767	Agent and supervisor phones to appliance for recording (RTP)
IP Phones / Jabber	SCM	G.711 ULAW / ALAW	Voice codec for all telephony traffic for agent and supervisor telephones, and the SCM appliance for recording. Other codecs such as G.729 / G.722 cannot be recorded.
IP Phones	SCM	TCP 80	Agent status display on phone screens; Also, READY/NOT READY agent status activation
Atea / customer support	SCM	TCP 22 (SSH)	Access for support by Atea, Integrator and customer
Atea / customer support	SCM	TCP 8088 / 443	Access for support by Atea, Integrator and customer
CUCM	SCM	TCP 22 (sFTP)	CUCM to ATEA SCM Server for CDR records
SCM	CUCM	TCP 8443	ATEA SCM Server to CUCM communications
SCM	SMTTP	TCP 25	Outbound Email alerts and scheduled reports
SCM		TCP 22 (SCP / sFTP)	Optional - backup of appliance data to backup destination
SCM	DNS	UDP 53	DNS lookups
SCM	NTP	UDP 123	Appliance time synchronisation

Email alerts

We find that getting system alerts by email helps us with early warnings if there are system issues. This requires an SMTP gateway. You may need to enable an email relay to send emails to support@ and alerts@ ateam.com.

Scheduled reports

Scheduled reports are emailed to the recipients. This requires an SMTP gateway.

Remote access for support

Remote access for system support by the integrator or directly from Atea is required.

7 Virtual Machine appliance setup

The Atea appliance includes several underlying components. These are provided as part of the virtual appliance that is delivered as an “.OVA” archive export.

- Oracle Linux 7.7 64-bit
- Oracle-18.4XE (64-bit)
- Oracle-APEX 18.2
- ORDS 19.2 (Oracle Rest Data Services)
- Tomcat 8.5.46
- Java OpenJDK JRE 8 update 232 (64bit)

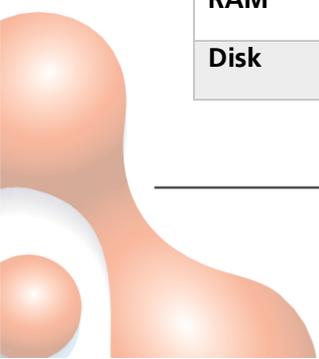
These versions will change as new releases become available (as at Oct 2019).

The standard virtual machine build suits VMWare ESXi 5.5 and OVF 3.0.1. Please contact Atea support if this is unsuitable.

Capacity requirements

The virtual machine minimum requirements for the Atea appliance are:

Item	Item
Processor	2 virtual CPUs
RAM	8GB
Disk	150 GB – resilient data store recommended



Additional disk	X GB – depending on recording retention requirements
------------------------	--

Recordings may be stored in a separate repository if you expect to store lots of recordings. The capacity requirements for recordings are 28.8 MB per hour of recording.

Oracle XE has a limited database size. This is enough for most solutions, unless you plan to keep lots of call records. Usually we set the retention period to 13 months. We don't store the recordings in the database, but we do include a link to the file.

Resilience and service continuity

The appliance is supplied as a single device. The appliance does not have a high availability configuration; however, you can configure the underlying virtual infrastructure with resilience.

We recommend that the CTI route point used for queuing (ATEA_CQ) is configured to redirect calls to the hunt groups upon failure of the server or SCM application. For each queuing DN, set the Call Forward Unregistered to point the respective hunt pilot.

Security

The Atea appliance is supplied pre-configured with good practice security settings. These are adjusted during normal maintenance releases whilst the device is under support.

We suggest that you avoid anti-virus scanning on the database if it affects the performance.

Backup and Restore

We recommend that you implement your own backup strategy for the solution.

The items to backup are:

1. VM server – you can back this up using suitable VM tools (such as cloning) or using other third-party solutions. A server backup will help if the disk or database becomes corrupted (which may happen if the server is not shut down gracefully).
2. Application specific settings, data and Oracle database. The daily backup routine runs at 11pm and automatically saves these items to a folder on the server, overwriting the oldest files. These items are:
 - Linux configuration (7 days kept)
 - Atea applications (7 days kept)
 - Atea application properties (7 days kept)
 - Oracle database (2 days kept)

You can copy these files to a network location using sFTP or simply rely on your server backup. Check the website How-to articles for instructions on backing up the files.

3. Recordings - These are stored either on the server appliance or an alternative network location. You may want to put in place a process to back these up.

Restoring the system.

In general, here's what you do to restore a system:

1. Restore the VM server appliance using your backup.
2. If necessary, retrieve the latest application settings, data and database, to update the server. For assistance on what to restore, contact Atea Support.

Monitoring

We recommend you monitor these items:

Service Name	Service Port
Oracle	1521
Tomcat Web Server	8088
Oracle Web Server	8080

7.1 Details for Atea to create Virtual Machine appliance

Please provide the network details for the virtual machine using the form at:

<https://www.ateasystems.com/virtual-server-config/>

(See screenshot below.)

We'll provide you with a link to download your virtual machine as an OVF archive. You can then import this into your virtual environment.

Customer Company Name *	Customer Email *
<input type="text"/>	<input type="text"/> (to receive download links)
IP Address*	Hostname *
<input type="text"/> The static IPv4 address of this VM	<input type="text"/> what you want your wallboard host to be called
Subnet Mask *	DefaultGateway *
<input type="text"/> The IP subnet for the VM e.g 255.255.255.0 or /24	<input type="text"/> The Ipv4 address of the router for the subnet
DNS Server IP *	DNS Domain *
<input type="text"/> The IPv4 address of your company DNS server	<input type="text"/> Your companies domain name on your DNS e.g ateasystems.com
NTP Server IP *	Linux Time Zone *
<input type="text"/> The IPv4 address of your companies time server	<input type="text"/> What time zone the server will be in i.e Sydney/AU
SMTP Server IP *	VMWare Version *
<input type="text"/> The IPv4 address of your mail server that allows email relay of noreply@ateasystems.com	<input type="text"/> (i.e. ESXi 5.5)
CUCM Server IP *	CUCM Hostname *
<input type="text"/> The IPv4 address of your Call Manager	<input type="text"/> Name of your Call Manager
Export Format *	CUCM Version *
<input type="text" value="-- Please Select --"/>	<input type="text" value="-- Please Select --"/>

7.2 Completing the VM appliance installation – Atea remote access

The main steps to install the SCM appliance are:

1. Fill out the virtual server configuration form
2. Download the OVF for the appliance
3. Install the appliance as a virtual machine
4. Provide remote access for Atea support, along with the MAC address details for the SCM license.
5. Atea support will complete the configuration of the SCM to integrate with the CUCM and apply the license file to the SCM. You'll need to configure the CUCM appropriately.

8 Licensing considerations

SCM licensing

Atea will add the SCM license onto the VM once it is installed (MAC address required).

Server licensing

The server uses open source licensing including Oracle Linux.

Database licensing

Oracle Express Edition is included with the SCM. As an alternative, we can use Oracle 12g standard two, using your own license or one that we provide.

CUCM licensing

No additional licensing is required for the CUCM.

9 Dependencies and Restrictions

9.1 Supported browsers

The SCM works with recent versions of **Google Chrome**. Some real-time features may be incomplete with other browsers. This may change with newer releases.

Here's the current compatibility information (October 2019).

Browser	Compatibility
Google Chrome	Fully compatible
Microsoft Edge (Chromium)	Provisional compatibility
Microsoft Edge (classic)	Provisional compatibility
Microsoft Internet Explorer 11	Live monitoring icons missing. No compatibility planned.
Firefox	May be missing live streaming controls

9.2 Cisco software versions

Here's the minimum software versions for compatibility SCM19.

Software	Minimum version
CUCM	11.5
Jabber for Windows	12.5

9.3 IP Phone types – BIB, G.711 and no HLog or Jabber DND

Agent phones must have the built-in bridge (SIP forking) feature to allow recording. Windows Jabber is also supported.

All recorded phones and gateways must use the G.711 uLaw or ALaw voice codec. Phones that use the G.722 / G.729 compressed voice codec **cannot be recorded** (these will appear with a recording of zero seconds).

The hunt group HLog feature is incompatible with SCM19 for now. Remove this from the button template of phones that are used with SCM. Compatibility with HLog will be available soon (due in 2020).

The jabber phone do-not-disturb (DND) feature is incompatible with SCM. Jabber users within a queue must avoid this as it presents calls to their phone without any notification (no ringing).

10 Design checklist

Here is a check list of things to consider in your SCM design.

Design items	
<p>User roles and queues</p> <ul style="list-style-type: none"> • CTI DN's for the queues • Hunt group pilots for SCM • CTI control permissions are set • List of SCM administrator(s) • Wallboard administrator(s) • List of Supervisors for each queue • List of Agents for each supervisor • Agent settings for either IP phone or jabber phone 	<p>SCM and Wallboard settings</p> <ul style="list-style-type: none"> • Aliases for queues and agents (keep these short) • Not-ready reason codes defined • Thresholds times and colours for not-ready reason codes
<p>SCM appliance and networking</p> <ul style="list-style-type: none"> • VM resources reserved including storage and IP addresses • Virtual Server configuration form completed • Purging regime for recording files • Backup and alerting for appliance • SMTP gateway for scheduled reports • SMTP relay for emailed alerts • Remote access for Atea support • Network ports and protocols enabled • Browser access to wallboard (TCP8088) • Browser access to supervisor dashboard and administrator console (TCP8080) 	<p>CUCM settings</p> <ul style="list-style-type: none"> • Users (agents) phone and jabber configuration settings including CTI control • Agent phones have BIB and set to use only G.711 codec • HLOG button template removed from agents • SCM administrator group and members are set up • Hunt groups configured • App user accounts with AXL, CTI • CTI permissions are set • CTI route points and CTI ports • CDR delivery enabled

11 Terms

Term	Description
Administrator	User that administers the system by assigning supervisors to queues, and agents to supervisors
Supervisor	User that can assign agents to queues. They can view real time statistics, listen to live calls, generate queue and agent reports and listen to recordings
Agent	End user that takes calls. They are members of a hunt group.
Queue	A phone system entity that distributes incoming calls to a list of contact centre agents. In this context, it relates to the Hunt Group feature of Cisco UCM, and optionally, the Native Queuing feature of UCM v9.1 and later.
Recording	A digital copy of a call that has taken place. It can be replayed by appropriately authorised users.
UCM	Cisco Unified Communications Manager
G.711 ULAW / A-LAW	Standard telephony audio media format or codec
G.729 / G.722	Compressed telephony audio media format or codec – these are incompatible with SCM recording
TSP	Telephony Services Platform, the name for the Atea application environment
Wallboard	A web-based graphical representation of the call statistics and agent status for one or more queues. A wallboard is created for each supervisor.
SLA	Service Level Agreement. In this context, it refers to the target answer time for incoming calls, although may refer to other metrics.
FTR	Full Time Recording
SIP	Session Initiation Protocol, which is the mechanism used to stream live calls from an agent's phone to the TSP for recording.
AXL	One of the APIs used by the system to interact with the Cisco UCM
MOH	Music on Hold, which specifies the audio that queued callers will hear (assuming Native Queuing is enabled)
Perfmon Port	One of the APIs used by the system collect statistics from the Cisco UCM. It's part of Cisco's Real Time Monitoring Tool (RTMT). It's no longer used from SCM19 onwards.
CTI	Computer Telephone Integration (JTAPI)