



# **Avaya Aura<sup>®</sup> Contact Center CCMA Open Interfaces**

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# Chapter 1: Revision History

Date	Revision #	Summary of Changes
January 2013	<i>Version 1.0</i>	Initial Avaya Aura® Contact Center Release 6.2
December 2015	<i>Version 2.0</i>	Avaya Aura® Contact Center 7.0 Release
June 2016	<i>Version 3.0</i>	Updates for Avaya Aura® Contact Center 7.0 Release

# Chapter 2: Overview

Contact Center Manager Administration (CCMA) is a Web browser-based configuration and reporting interface for Avaya Aura Contact Center. Contact Center supervisors use CCMA to configure contact center resources, agents, skillsets, contact flows, components, and activities. CCMA provides historical and real-time reporting about the contact center.

The CCMA Open Interfaces are a set of Web Services that provide access to the following subset of the CCMA operations:

- Add an agent
- Add a supervisor
- Get a list of all agents
- Get a list of all supervisors
- Get agent details (including assigned skillsets)
- Get supervisor details (including assigned agents)
- Get a list of all skillsets
- Get the agents assigned to a specific skillset
- Assign a skillset to an agent
- Remove a skillset from an agent
- Full User Management
  - View, create, update and delete agents, supervisors and supervisor agents.
  - Assign contact types to agents
- Full Skillset Management,
  - Ability to view, create update and delete skillsets
- Configuration
  - Get a list of the configured servers
  - Get a list of the Call Presentation Classes
  - Get a list of the Multiplicity Presentation Classes
  - Get a list of the Activity Codes
  - Get a list of the Contact Types
  - Get a list of the Agent Threshold Classes
  - Get a list of all Skillsets

- Get a list of all the Skillset Threshold Classes
- Get a list of the configured Communication Manager Servers

This CCMA Open Interface Web Services are hosted on the CCMA server and are part of the standard installation.

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## SOAP Style

When the service is configured without security, the WSDL for the SOAP endpoint can be found at the following URL, where <CCMA FQDN> should be replaced with the fully qualified domain name of the CCMA server.

**https://<CCMA FQDN>/WebServices/OpenInterfaces/soap.svc?wsdl**

This WSDL (Web Service Definition Language) is a machine-readable description of the functionality being offered by this web service. Various technologies can use a WSDL service description to create the relevant proxies to send and receive SOAP messages with the web service.

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## REST Style

REST is an alternative style of accessing web service interfaces through the sending of simple messages over HTTPS. The REST principle relies on each logical entity being accessible by a URL. Operations that retrieve data use the HTTP GET verb while operations that add or update data use the HTTP POST verb.

The URLs for accessing the CCMA Open Interfaces through REST are summarized in the following table.

Operation	REST URL	HTTP Verb
Add an agent	https://<CCMA hostname>/WebServices/OpenInterfaces/rest.svc/agents/<CCMS IP Address>/firstName/<firstName>/lastName/<lastName>	POST
Add a supervisor	https://<CCMA hostname>/WebServices/OpenInterfaces/rest.svc/supervisors/<CCMS IP Address>/firstName/<firstName>/lastName/<lastName>	POST
Get agents	https://<CCMA hostname>/WebServices/OpenInterfaces/rest.svc/agents/<CCMS IP Address>	GET
Get supervisors	https://<CCMA hostname>/WebServices/OpenInterfaces/rest.svc/supervisors/<CCMS IP Address>	GET

Get agent	https://<CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/agents/ <CCMS IP Address>/<AgentLocalUserID>	GET
Get supervisor	https://<CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/supervisors/ <CCMS IP Address>/<SupervisorLocalUserID>	GET
Get the list of skillsets	https://<CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/skillsets/<CCMS IP Address>	GET
Get agents assigned to a skillset	https://<CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/agents/<CCMS IP Address>/ skillsets/<SkillsetID>	GET
Assign an agent to a skillset	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/agents/<CCMS IP Address>/ <AgentLocalUserID>/skillsets/<SkillsetID>/priority/<priority>	POST
Remove an agent from a skillset	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/agents/<CCMS IP Address>/ <AgentLocalUserID>/skillsets/<SkillsetID>	POST
Add a user	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/users/<CCMS IP Address> /users/{ccmsIPAddress}	POST
Update a user	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/users/{ccmsIPAddress}/{us erLoginID}	POST
Delete a user	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc /users/{ccmsIPAddress}/{userLoginID}	DELE TE
Update agents skillsets	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc /users/{ccmsIPAddress}/{userLoginID}/skillsets	POST
Get User Details	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/users/<CCMS IP Address> /{userLoginID}	GET
Get Server List	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/configuration/servers	GET
Get list of Call Presentation Classes	https:// <CCMA hostname>/ WebServices/OpenInterfaces/rest.svc/configuration/callPresentati onClasses/{ccmsIPAddress}	GET
Get list of	https:// <CCMA hostname>/	GET

Contact Types	WebServices/OpenInterfaces/rest.svc/configuration/contactTypes/{ccmsIPAddress}	
Get list of Agent Threshold Classes	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/agentThresholdClasses/{ccmsIPAddress}	GET
Get list of Skillset Threshold Classes	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/skillsetThresholdClasses/{ccmsIPAddress}	GET
Get list of Activity Codes	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/activityCodes/{ccmsIPAddress}	GET
Get list of Multiplicity Presentation Classes	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/multiplicityPresentationClasses/{ccmsIPAddress}	GET
Get list of Communication Manager servers	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/cm/{CCMSName}	GET
<b>Skillset Management</b>		
Get the Configured Skillset Details	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/skillsets/{ccmsIPAddress}	GET
Add a skillset	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/skillsets/{ccmsIPAddress}	POST
Delete a skillset	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/skillsets/{ccmsIPAddress}/{skillsetID}	DELETE
Update a skillset	https:// <CCMA hostname>/WebServices/OpenInterfaces/rest.svc/configuration/skillsets/{ccmsIPAddress}/{skillsetID}	POST

**Table 1 Summary of REST URLs**

The URLs in Table 1 contain markers for the input variables for the web service calls. The allowed input values are described in the detail of the interfaces described in the *CCMA Overview* section below. These are:

<b>&lt;CCMA hostname&gt;</b>	The host name or IP address of the CCMA server
<b>&lt;CCMS IP Address&gt;</b>	The IP address of the CCMS server
<b>&lt;CCMSName&gt;</b>	The CCMS server name as configured in CCMA
<b>&lt;firstName&gt;</b>	The first name of a supervisor or agent
<b>&lt;lastName&gt;</b>	The last name of a supervisor or agent
<b>&lt;SkillsetID&gt;</b>	The ID of a CCMA skillset
<b>&lt;AgentLocalUserID&gt;</b>	The local CCMA ID of an agent.
<b>&lt;SupervisorLocalUserID&gt;</b>	The local CCMA ID of a supervisor.
<b>&lt;Priority&gt;</b>	The priority to assign to the skillset for a particular agent.
<b>&lt;userLoginID&gt;</b>	The user's phoneset login ID

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## Web Service Security

In AACC 7.0, security is enabled by default, so this interface is https enabled on a new install.

For more information about configuring CCMA security and certification, refer to the following Avaya Aura Contact Center documents:

- Avaya Aura Contact Center Commissioning for Avaya Aura Unified Communications
- Avaya Aura Contact Center Commissioning for Avaya Communication Server 1000

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## What is the SDK

The Avaya Aura® Contact Center CCMA Open Interfaces SDK can be downloaded to your client machine and contains information on how Third Party Applications can call the CCMA Open Interfaces web services.

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## SDK contents

The SDK contains the following elements:

- Application programming interface documentation
- Reference client
- Source code for reference client implementations
- Simple tutorial for creating a client using the open-source soapUI product

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## SDK support

Support for the SDK APIs is supplied by through your Developer Partner Program.

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## Related Avaya Aura Contact Center documents

For more information about configuring CCMA Open Interfaces, https, security and certification, refer to the following Avaya Aura Contact Center documents:

- Avaya Aura Contact Center Overview and Specification
- Avaya Aura Contact Center Commissioning for Avaya Aura Unified Communications
- Avaya Aura Contact Center Commissioning for Avaya Communication Server 1000
- Avaya Aura Contact Center Server Administration

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## Backward & Forward Compatibility

The open interface provided by CCMA is intended to be backward compatible meaning that a client using the updated interface should still be able to communicate correctly with a CCMA server hosting an older version of the interface.

The CCMA open interfaces in AACC 7.0 are backward compatible with the interface in AACC 6.4 SP15 and SP14.

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## Backward & Forward Compatibility History

In 6.4.1 (SP13) some of the AACC objects had enumerations extended (new enums added) which resulted in new properties being added to existing objects. Older clients can continue to use the older properties while new clients need to use the “extended” properties to align with 6.4.1 functionality. (E.g. “ContactType.prefix and ContactType.prefix\_Ex. The new 6.4.1 contact types are only available on the prefix\_Ex property.)

The open interface also supports limited “Forward Compatibility” meaning that an old client can interact with a CCMA server hosting the newer interface, but it will not be able to use the new methods or data that is exposed by the new interface.

The server has a “version tolerant” interface and the client is expected to have a similar approach to versioning. This means that the server may introduce new properties into existing objects between versions or introduce new methods on the interface but it will not modify enums, remove methods or existing mandatory fields.

The XML serializer at the client should allow missing, non-required data and ignore superfluous data when handling the web service responses.

# Chapter 3: CCMA Open Interfaces

## Introduction

CCMA Open Interface web service operations allow third party applications to retrieve information about agents, supervisors and skillsets from the Contact Center and to add new agents and new supervisors. Both the REST and SOAP styles of interaction are supported.

Before the service can be used the application must first receive a Single Sign On (SSO) token that will be used for all subsequent calls to the service. This token is acquired by a call to the CCMA Authentication web service AuthenticateUser method. To receive this token the developer must supply the required authentication details;

- Username – Any valid CCMA User ID with appropriate privileges
- Password – a password associated with the supplied username.

Once the token is acquired, it must be embedded in a cookie in the HTTP header of each web service invocation. The cookie is a simple key-value pair. The Cookie name must be retrieved by calling the CCMA Authentication web service GetSSOCookieName method.

- Cookie name: The value returned by the GetSSOCookieName method
- Cookie value: The value returned by the CCMA Authentication web service

The retrieval of details for an agent or supervisor is based on the value of their respective Contact Center Local ID. This value is assigned when an agent or supervisor is added to the Contact Center. The Local IDs of all agents or supervisors can be retrieved using the operations for getting the list of agents or the list of supervisors.

# User Management

## AddAgent

Add a new agent to the Contact Center. The agent is added to the built-in Default Supervisor in CCMS. Each agent is assigned to a default skillset and contact type.

AddAgent requires three base input parameters:

- First name
- Last name
- The IP address of the Contact Center's CCMS server

When an agent is added via the CCMA Open Interface, a CCT user is also added. The following additional CCT specific input parameters are required:

- CCTLogin
- CCTServerName
- Domain
- Enabled: indicate if the new CCT user should be enabled or not
- Password
- Username: the username for the new CCT user including the domain name

It returns one parameter

- The CCMS Local ID of the new agent

The input and output parameters are:

Parameter	Data Type	Direction	min length	max length	Expected values
First name	String	In	1	30	Unicode characters with the exception of <> & " : @ w z C c k k l I m n n o o p p r r s s w w z z C c G g h j j w w y y E e i i r r u u v v y y and excluding Japanese and Chinese characters This is because the underlying database does not support these characters.
Last name	String	In	1	30	Unicode characters with the exception of <> & " : @ w z C c k k l I m n n o o p p r r s s w w z z C c G g h j j w w y y E e i i r r u u v v y y and excluding Japanese and Chinese characters This is because the underlying database

					does not support these characters.
CCMS IP address	String	In	7	15	Any valid IP address
agentLocalID	Int	Out			The localID returned by the server.

## AddSupervisor

Adds a new supervisor to the Contact Center. It takes the same inputs as AddAgent . The output is the CCMS Local ID of the new supervisor.

The input and output parameters are:

Parameter	Data Type	Direction	min length	max length	Expected values
First name	String	In	1	30	Unicode characters with the exception of <>&":@wzCcKkLlMmNnOoPpRrSsVvWwZz CcGghJjVwYyEeIiUuVvYy and excluding Japanese and Chinese characters This is because the underlying database does not support these characters.
Last name	String	In	1	30	Unicode characters with the exception of <>&":@wzCcKkLlMmNnOoPpRrSsVvWwZz CcGghJjVwYyEeIiUuVvYy and excluding Japanese and Chinese characters This is because the underlying database does not support these characters.
CCMS IP address	String	In	7	15	Any valid IP address
agentLocalID	Int	Out			The localID returned by the server.

## AddUser

Add the details of a Contact Center user (i.e. Agent, Supervisor or Supervisor\Agent). This interface allows you to add the user's basic details (i.e. first name last name etc). If updating an agent this interface also supports the updating of the agent's contact types, skillsets, primary supervisor, call presentation class, threshold class, multiplicity presentation class, agent greeting details and their CCT account details. For supervisor their CCMA and CCT account details can be updated through this interface

It takes three parameters:

- The IP address of the CCMS server
- The phone set login ID of the user to be updated
- The UserDetails object containing the user updates to be applied.

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
User Login ID	String	In	1	16	The phoneset login ID of the user to be updated
User	UserDetails	in			The user details to be updated

### AACC 6.4.1 Changes

The UserDetails object contains an array of ContactTypeAndRelatedSkillsets objects. Each of the ContactTypeAndRelatedSkillsets contains the ContactType attributes including a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The ContactType object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property. The “*prefix\_Ex*” property should be used when interacting with a 6.4.1 or later CCMA server. The “prefix” property should be populated for all older servers.

The ContactTypeAndRelatedSkillsets contains an array of SkillsetFullDetails objects with a record for each skillset of a given contact type. The SkillsetFullDetails object contains a ContactTypeID property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

### AACC 6.4.2 Changes

The UserDetails object contains the following additional properties:

<i>Type</i>	<i>Name</i>	<i>Description</i>
<i>Int</i>	dnBargeInEnabled	Allow a Supervisor/Agent to barge into a reporting agents DN call. (0=Disabled, 1=Enabled)
<i>Int</i>	dnObserveEnabled	Allow a Supervisor/Agent to observe a reporting agents DN call. (0=Disabled, 1=Enabled)
<i>Int</i>	sipSoftPhoneEnabled	Reserved for future use

The dnBargeInEnabled and dnObserveEnabled fields are only applicable to Supervisor/Agents.

---

## GetAgentsList

Get a list of all agents and supervisors and supervisor agents for a specific CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document containing details of all agents for that CCMS. These details contain (for each agent):

- Local ID
- Phone set login ID
- First and last name
- Logged in status
- ID of supervisor
- Contact type ID and name
- For each assigned skillset for a contact type, the status and priority

The input and output parameters are:

Parameter	Data Type	Direction	Expected values
CCMS IP address	String	In	Any valid IP address
Agents	Array of AgentFull Details	Out	An array of agent objects

## AACC 6.4.1 Changes

The AgentFullDetails contains a new property “*offsiteAllowed*” of type integer (0 = Disabled, 1 = Enabled).

The AgentFullDetails object contains an array of ContactTypeAndRelatedSkillsets objects. Each of the ContactTypeAndRelatedSkillsets contains the ContactType attributes including a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The ContactType object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property. The “*prefix\_Ex*” property should be used when interacting with a 6.4.1 or later CCMA server. The “*prefix*” property should be used for all older servers.

The ContactTypeAndRelatedSkillsets contains an array of SkillsetFullDetails objects with a record for each skillset of a given contact type. The SkillsetFullDetails object contains a ContactTypeID property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

---

## GetSupervisorsList

Get a list of all supervisors for a specific CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document containing details of all agents for that CCMS. These details contain (for each agent):

- Local ID
- Phone set login ID
- First and last name

The input and output parameters are:

Parameter	Data Type	Direction	Expected values
CCMS IP address	String	In	Any valid IP address
Agents	Array of AgentBasic Details	Out	An array of agent objects

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address

---

## GetAgentDetails

Get the details of a Contact Center agent identified using the agent's CCMS Local ID

It takes two parameters:

- CCMS Local ID of the agent
- The IP address of the CCMS server

It returns an XML document containing details of the agent. This contains:

- Local ID
- Phone set login ID
- First and last name
- Logged in status
- ID of supervisor
- Contact type ID and name
- For each assigned skillset for a contact type, the status and priority

The input and output parameters for GetAgentDetails are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
agentLocalID	String	In	1	16	A local ID is created for each agent when it is added to the CCMS server. It's a numeric value with a range depending on the server type.  min=1, max = 9999999999999999 (16 digits)
AgentFullDetails	AgentFullDetails	Out			This is a serializable class representing an agent. WCF converts this to an XML fragment that corresponds to the XML schema definition in the WSDL description for the Web service operation.

### AACC 6.4.1 Changes

The AgentFullDetails contains a new property *“offsiteAllowed”* of type integer (0 = Disabled, 1 = Enabled).

The AgentFullDetails object contains an array of ContactTypeAndRelatedSkillsets objects. Each of the ContactTypeAndRelatedSkillsets contains the ContactType attributes including a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The ContactType object has been extended to contain a *“prefix\_Ex”* property in addition to the “prefix” property. The “prefix\_Ex” property should be used when interacting with a 6.4.1 or later CCMA server. The “prefix” property should be used for all older servers.

The ContactTypeAndRelatedSkillsets contains an array of SkillsetFullDetails objects with a record for each skillset of a given contact type. The SkillsetFullDetails object contains a ContactTypeID

property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (*NOTE: This is defined but never used*)

Social\_Networking = 10015

---

## GetSupervisorDetails

Get the details of a Contact Center agent identified using the supervisor's CCMS Local ID.

It takes two parameters:

- CCMS Local ID of the supervisor
- The IP address of the CCMS server

It returns an XML document containing details for the supervisor including:

- Local ID
- Phone set login ID
- First and last name
- Logged in status
- Local IDs of assigned agents
- The number of assigned agents

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
agentLocalID	String	In	1	16	A local ID is created for each agent when it is added to the CCMS server. It's a numeric value with a range depending on the server type.  min=1, max = 9999999999999999 (16 digits)
SupervisorFullDetails	Supervisor FullDetails	Out			This is a serializable class representing an agent. WCF converts this to an XML fragment that corresponds to the XML schema definition in the WSDL description for the Web service operation.

---

## GetSkillsetsList

Get a list of all skillsets defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of skillsets. This contains:

- Skillset ID
- Skillset Name

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
Skillset array	Array of skillsets	Out			An array of skillsets defined for this CCMS server

## AACC 6.4.1 Changes

The Skillset object contains a ContactTypeID property of type int. The range of values that can be returned in this property has been extended.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

---

## GetAgentsAssignedToSkillset

Get a list of all agents assigned to a skillset.

It takes two parameters:

- The Local ID of the agent
- The IP address of the CCMS server

It returns an XML document detailing a set of agents. This contains (for each agent):

- Local ID
- Phone set login ID
- First and last name
- Logged in status
- ID of supervisor
- Contact type ID and name
- For each assigned skillset for a contact type, the status and priority

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
skillsetID	String	In	1	9	A numeric value between 0 and 999999999
agents	Array of Agent FullDetails	Out			This is a serializable class representing an array of AgentFullDetail objects. WCF converts this to an XML fragment that corresponds to the XML schema definition in the WSDL description for the Web service operation.

### AACC 6.4.1 Changes

The AgentFullDetails contains a new property *“offsiteAllowed”* of type integer (0 = Disabled, 1 = Enabled).

The AgentFullDetails object contains an array of ContactTypeAndRelatedSkillsets objects. Each of the ContactTypeAndRelatedSkillsets contains the ContactType attributes including a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACCC.

The ContactType object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property. The “*prefix\_Ex*” property should be used when interacting with a 6.4.1 or later CCMA server. The “prefix” property should be used for all older servers.

The ContactTypeAndRelatedSkillsets contains an array of SkillsetFullDetails objects with a record for each skillset of a given contact type. The SkillsetFullDetails object contains a ContactTypeID property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

---

## AddAgentSkillset

Assign a skillset with a specified priority to an agent.

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	A valid IP address for a CCMS server
agentLocalID	String	In	1	16	Local ID of the agent provided by CCMS. It's a numeric value with a range depending on the server type. range=1 -- 9999999999999999 (16 digits)
skillsetID	String	In	1	9	The ID of the skillset to be assigned. A numeric value between 0 and 999999999
Priority	String	In	1	2	Priority value Valid range for assign is: 0 – 48 0 means the skillset priority is unassigned.

---

## RemoveAgentSkillset

Remove a skillset from an agent

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	A valid IP address for a CCMS server
agentLocalID	String	In	1	16	Local ID of the agent provided by CCMS. It's a numeric value with a range depending on the server type. range=1 -- 9999999999999999 (16 digits)
skillsetID	String	In	1	9	The ID of the skillset to be removed. A numeric value between 0 and 999999999

---

## GetServerList

Get a list of all servers configured on the CCMA server.

It returns an XML document detailing a set of server. This contains:

- The logged in users access privileges
- CCMA logged in user ID
- CCMA logged in user name
- The servers display name within CCMA
- The servers IP Address
- Boolean value indicating if Basic IVR is enabled
- Boolean value indicating if Hetero Networking is enabled
- Boolean value indicating if the server is a networked
- Boolean value indicating if Open Queue is enabled
- Boolean value indicating if Security is enabled on the CCMA server
- The Server name as configured in CCMA

- The Password used to access the server
- The server type i.e. SIP, Multimedia, CCT etc
- The Server version, only applies to CCMS servers

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS Server array	Array of servers	Out			Array of servers configured on the CCMA server.

### AACC 6.4.1 Changes

This method returns an array of *CCMS*Server objects. Each *CCMS*Server object contains a *ServerType* object which in turn contains a *Name* property. The *Name* property is of type *serverTypeName* which is an enumerated list.

New server types have been added in 6.4.1 so a new enum is required: *serverTypeName\_Ex*. The new server types and id's are:

CCPO (1005)

AMS (1006)

IPO (1007)

The *ServerType* object now contains a new property *Name\_Ex* of type *serverTypeName\_Ex*. This will be populated by 6.4.1 and later servers.

---

### GetCallPresentationClassList

Get a list of all call presentation classes defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of call presentation classes. This contains:

- Call Presentation Class ID
- Call Presentation Class Name

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
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CCMS IP address	String	In	7	15	Any valid IP address
CallPresentationClass array	Array of call presentation classes	Out			An array of call presentation classes defined for this CCMS server

---

## GetContactTypeList

Get a list of all contact types defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of contact types. This contains:

- Contact Type ID
- Contact Type Name
- Contact Type Prefix

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
ContactType array	Array of contact types	Out			An array of contact types defined for this CCMS server

## AACC 6.4.1 Changes

New contact types have been introduced in 6.4.1 to support POM outbound and Social Networking. This method returns an array of *ContactType* objects. The *ContactType* object contains a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. "EM\_" for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

"PO\_"

"EV\_"

"SN\_"

NOTE: The "EV\_" value is not used by AACC.

The *ContactType* object has been extended to contain a "*prefix\_Ex*" property in addition to the "Prefix" property.

Clients interacting with 6.4.1 servers should use the "*prefix\_Ex*" property. Clients should continue to use the "prefix" property in order to remain backward compatible with older AACC servers.

Older clients interacting with a 6.4.1 server will receive the new contact types in the ContactType array however the “prefix” property will be set to UNDEFINED. These clients must be updated to use the new “prefix\_Ex” property.

---

## GetAgentThresholdClassList

Get a list of all agent threshold classes defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of contact types. This contains:

- Threshold Class ID
- Threshold Class Name

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
Threshold Class array	Array of agent threshold classes	Out			An array of agent threshold classes defined for this CCMS server

---

## GetSkillsetThresholdClassList

Get a list of all skillset threshold classes defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of contact types. This contains:

- Threshold Class ID
- Threshold Class Name

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
Threshold	Array of	Out			An array of skillset threshold classes

Class array	skillset threshold classes				defined for this CCMS server
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---

## GetActivityCodeList

Get a list of all activity codes defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of contact types. This contains:

- Activity Code ID
- Activity Code Name

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
ActivityCode array	Array of activity codes	Out			An array of activity codes defined for this CCMS server

---

## GetMultiplicityPresentationClassList

Get a list of all multiplicity presentation classes defined for the specified CCMS.

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document detailing a set of multiplicity presentation classes. This contains:

- Multiplicity Presentation Class ID
- Multiplicity Presentation Class Name
- Multiplicity Presentation Class Delay
- Multiplicity Presentation Class Boolean value indicating if MM can Interrupt Voice
- Multiplicity Presentation Class Boolean value indicating if Voice can Interrupt MM

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP address	String	In	7	15	Any valid IP address
Multiplicity Presentation Class array	Array of Multiplicity Presentation Classes	Out			An array of Multiplicity Presentation Classes defined for this CCMS server

---

## GetCommunicationManagerServerList

Get a list of all communication manager servers defined for the specified CCMS.

It takes one parameter:

- The Name of the CCMS server

It returns an XML document detailing a set of Communication Manager Server types. This contains:

- The CCMS servers associated with this CM server
- The Communication Manager (CM) Server ID
- The logged in users access privileges
- CCMA logged in user ID
- CCMA logged in user name
- The servers display name within CCMA
- The servers IP Address
- Boolean value indicating if Basic IVR is enabled (CCMS Only)
- Boolean value indicating if Hetero Networking is enabled (CCMS Only)
- Boolean value indicating if the server is a networked (CCMS Only)
- Boolean value indicating if Open Queue is enabled (CCMS Only)
- Boolean value indicating if Security is enabled on the CCMA server
- The Server name as configured in CCMA
- The Password used to access the server
- The server type i.e. CM
- The Server version, (CCMS Only)

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS Name	String	In	1	30	Any valid name
ServerDetails array	Array of ServerDetails	Out			An array of Communication Manager Serverdefined for this CCMS server

---

## GetUserDetails

Get the details of a Contact Center user (i.e. Agent, Supervisor or Supervisor\Agent) identified using the user's CCMS phone set login ID

It takes two parameters:

- The IP address of the CCMS server
- The user phone set login ID

It returns an XML document detailing the user's details. This contains:

- The internal system user ID
- The internal system Local ID
- The user's Phoneset Login ID
- The user type (i.e. Agent, Supervisor or Supervisor Agent)
- The Communication Manager server ID the agent is associated with if any.
- The Communication Manager agent ID associated to this user if any
- The user's first and last name
- The user's personal DN
- The logged in status of the user. Set for agents and supervisor agents only.
- The user's position ID
- The user's language. Default is English.
- The user's assigned call presentation class ID (Applies to agents only)
- The user's assigned multiplicity call presentation class ID (Applies to agents only)
- The user's assigned threshold class ID (Applies to agents only)
- A Boolean identifying if the user is a supervisor
- The agents assigned supervisor ID
- The users title, comment and department details

- The user’s user name. This field represents the user’s CCMA\CCT user name
- The domain details for the user if the user account is a domain account.
- The user account password.
- The Voice and IM Uri’s. Applies to SIP systems only.
- A list of the user’s assigned contact types and corresponding skillsets. (Set for agents and supervisor agents.)
- A list of the users assigned agents. (Set for supervisor and supervisor agents.)
- The user’s agent greeting details (i.e. Agent greeting state, Agent greeting password)
- The offsite user details
  - Boolean value indicating if offsite is allowed for the user
  - The offsite agent mode (i.e. On Demand or Permanent)
  - The agent’s offsite phone numbers
  - Boolean value indicating if an alternative number is used

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
User Login ID	string	In	1	16	The user phoneset login ID
User	UserDetails	Out			The user details

### AACC 6.4.1 Changes

The UserDetails object contains an array of ContactTypeAndRelatedSkillsets objects. Each of the ContactTypeAndRelatedSkillsets contains the ContactType attributes including a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The ContactType object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property. The “*prefix\_Ex*” property should be used when interacting with a 6.4.1 or later CCMA server. The “prefix” property should be used for all older servers.

The ContactTypeAndRelatedSkillsets contains an array of SkillsetFullDetails objects with a record for each skillset of a given contact type. The SkillsetFullDetails object contains a ContactTypeID

property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

## AACC 6.4.2 Changes

The UserDetails object contains the following additional properties:

Type	Name	Description
Int	dnBargeInEnabled	Allow a Supervisor/Agent to barge into a reporting agents DN call. (0=Disabled, 1=Enabled)
Int	dnObserveEnabled	Allow a Supervisor/Agent to observe a reporting agents DN call. (0=Disabled, 1=Enabled)
Int	sipSoftPhoneEnabled	Reserved for future use

The dnBargeInEnabled and dnObserveEnabled fields are only applicable to Supervisor/Agents.

## UpdateUser

Update's the details of a Contact Center user (i.e. Agent, Supervisor or Supervisor\Agent). This interface allows you to update the user's basic details (i.e. first name last name etc). If updating an agent this interface also supports the updating of the agent's contact types, skillsets, primary supervisor, call presentation class, threshold class, multiplicity presentation class, agent greeting details and their CCT account details. For supervisor their CCMA and CCT account details can be updated through this interface

It takes three parameters:

- The IP address of the CCMS server
- The phone set login ID of the user to be updated
- The UserDetails object containing the user updates to be applied.

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP	String	In	7	15	Any valid CCMS Server IP address

Address					
User Login ID	string	In	1	16	The phoneset login ID of the user to be updated
User	UserDetails	in			The user details to be updated

### AACC 6.4.1 Changes

The UserDetails object contains an array of ContactTypeAndRelatedSkillsets objects. Each of the ContactTypeAndRelatedSkillsets contains the ContactType attributes including a *prefix* property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The ContactType object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property. The “*prefix\_Ex*” property should be used when interacting with a 6.4.1 or later CCMA server. The “prefix” property should be used for all older servers.

The ContactTypeAndRelatedSkillsets contains an array of SkillsetFullDetails objects with a record for each skillset of a given contact type. The SkillsetFullDetails object contains a ContactTypeID property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

### AACC 6.4.2 Changes

The UserDetails object contains the following additional properties:

Type	Name	Description
<b>Int</b>	dnBargelnEnabled	Allow a Supervisor/Agent to barge into a reporting agents DN call. (0=Disabled, 1=Enabled)
<b>Int</b>	dnObserveEnabled	Allow a Supervisor/Agent to observe a reporting agents DN call. (0=Disabled, 1=Enabled)
<b>Int</b>	sipSoftPhoneEnabled	Reserved for future use

The dnBargelnEnabled and dnObserveEnabled fields are only applicable to Supervisor/Agents.

---

## updateAgentSkillsets

Update's the skillsets assigned to a Contact Center user (i.e. Agent or Supervisor\Agent). It takes three parameters:

- The IP address of the CCMS server
- The phone set login ID of the user to be updated
- The SkillsetFullDetails object containing the skillset changes to be applied.

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
User Login ID	string	In	1	16	The phoneset login ID of the user to be updated
skillsetList	SkillsetFullDetails	in			An array of SkillsetFullDetails objects where each entry constitutes a change to the skillsets assigned to the user.

## AACC 6.4.1 Changes

AACC 6.4.1 supports additional contact types for "POM outbound" and "Social Networking" contacts. The updateAgentSkillsets method returns an array of SkillsetFullDetails objects each of which contains a ContactTypeID property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

---

## DeleteUser

Delete's a user (i.e. agent, supervisor or supervisor agent) from the specified CCMS server. If deleting a supervisor, this interface will delete the CCMA and CCT user account details associated with this user. If deleting an agent the corresponding CCT user account details will be deleted.

It takes two parameters:

- The IP address of the CCMS server
- The phone set login ID of the user to be deleted

The input and output parameters are:

<b>Parameter</b>	<b>Data Type</b>	<b>Direction</b>	<b>Min length</b>	<b>Max length</b>	<b>Expected values</b>
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
User Login ID	string	In	1	16	The phone set login ID of the user to be deleted

---

# Skillset Management

The skillset management interfaces allow you to manage (View, Add, Update, and Delete) the skillsets configured on the CCMS server.

---

## GetSkillsetConfigurationDetails

The GetSkillsetConfigurationDetails interface gets a list of the skillsets configured on a CCMS server. It returns all details for the configured skillsets

It takes one parameter:

- The IP address of the CCMS server

It returns an XML document containing the skillsets details. This contains:

- The skillset ID
- The skillset name
- The skillset prefix value (i.e. EM\_,FX\_ etc)
- The default activity code ID assigned to the skillset
- The skillset threshold class ID
- The skillset type (Local or Networked)
- The skillset call source preference (i.e. None, Local or Networked)
- The skillset call age preference (i.e. First in queue or Oldest)
- The out of service mode (i.e. N/A, Night or Transition)
- The request queue size
- The flow control threshold
- Boolean value include local node (Networking property)
- The skillset comment details
- The network skillset ID
- The target service level value

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
Skillset	SkillsetConfigDetails	out			An array of

Configuration Details array					SkillsetConfigDetails objects containing the configured skillset details.
-----------------------------	--	--	--	--	---

## AACC 6.4.1 Changes

AACC 6.4.1 supports additional contact types for “POM outbound” and “Social Networking” contacts. The *getSkillsetConfigurationDetails* method returns an array of *SkillsetConfigDetails* objects each of which contains a *ContactTypeID* property of type *int*. The range of values that can be returned in this *int* has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

The *SkillsetConfigDetails* object also contains a “prefix” property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The existing enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The *SkillsetConfigDetails* object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property.

Clients interacting with 6.4.1 servers should use the “*prefix\_Ex*” property. Clients should continue to use the “prefix” property in order to remain backward compatible with older AACC servers.

---

## AddSkillset

The add skillset interface adds a skillset to the CCMS server.

It takes two parameters:

- The IP address of the CCMS server
- The skillset configuration details of the skillset to be added

It returns the skillset ID of the skillset added:

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
Skillset Configuration Details array	SkillsetConfigDetails	in			SkillsetConfigDetails objects containing the skillset details to be added.
Skillset ID	String	Out			The ID of the skillset that was added

### AACC 6.4.1 Changes

AACC 6.4.1 supports additional contact types for “POM outbound” and “Social Networking” contacts. The *addSkillset* method takes a *SkillsetConfigDetails* objects which contains a *ContactTypeID* property of type *int*. The range of values that can be returned in this *int* has been extended to handle the new 6.4.1 contact types.

The new values are:

*POM\_Outbound* = 10013

*Elite\_Voice* = 10014 (NOTE: This is defined but never used)

*Social\_Networking* = 10015

The *SkillsetConfigDetails* object also contains a “prefix” property of type *SkillsetPrefix* which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The existing enum cannot be extended so a new enum has been added, *SkillsetPrefix\_Ex*, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The *SkillsetConfigDetails* object has been extended to contain a “*prefix\_Ex*” property in addition to the “Prefix” property.

Clients interacting with 6.4.1 servers should use the “*prefix\_Ex*” property. Clients should continue to use the “prefix” property in order to remain backward compatible with older AACC servers.

NOTE: A skillset added to an AACC server with an unrecognized contact type will result in the skillset being added with type Voice.

---

## UpdateSkillset

The update skillset interface updates the skillset properties on the CCMS server.

It takes three parameters:

- The IP address of the CCMS server
- The skillset configuration details of the skillset to be updated
- The skillset ID to be updated

The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
Skillset Configuration Details array	SkillsetConfigDetails	in			SkillsetConfigDetails objects containing the skillset details to be updated.
Skillset ID	String	Out			The ID of the skillset that was added

### AACC 6.4.1 Changes

AACC 6.4.1 supports additional contact types for “POM outbound” and “Social Networking” contacts. The updateSkillset method takes a SkillsetConfigDetails objects which contains a ContactTypeID property of type int. The range of values that can be returned in this int has been extended to handle the new 6.4.1 contact types.

The new values are:

POM\_Outbound = 10013

Elite\_Voice = 10014 (NOTE: This is defined but never used)

Social\_Networking = 10015

The SkillsetConfigDetails object also contains a “prefix” property of type SkillsetPrefix which is an enumerated list of prefixes for the contact types (e.g. “EM\_” for email). The existing enum cannot be extended so a new enum has been added, SkillsetPrefix\_Ex, which contains the additional values:

“PO\_”

“EV\_”

“SN\_”

NOTE: The “EV\_” value is not used by AACC.

The SkillsetConfigDetails object has been extended to contain a “prefix\_Ex” property in addition to the “Prefix” property.

Clients interacting with 6.4.1 servers should use the “prefix\_Ex” property. Clients should continue to use the “prefix” property in order to remain backward compatible with older AACC servers.

NOTE: A skillset added to an AACC server with an unrecognized contact type will result in the skillset being added with type Voice.

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## DeleteSkillset

The delete skillset interface deletes a skillset from the CCMS server.

It takes two parameters:

- The IP address of the CCMS server
- The skillset ID

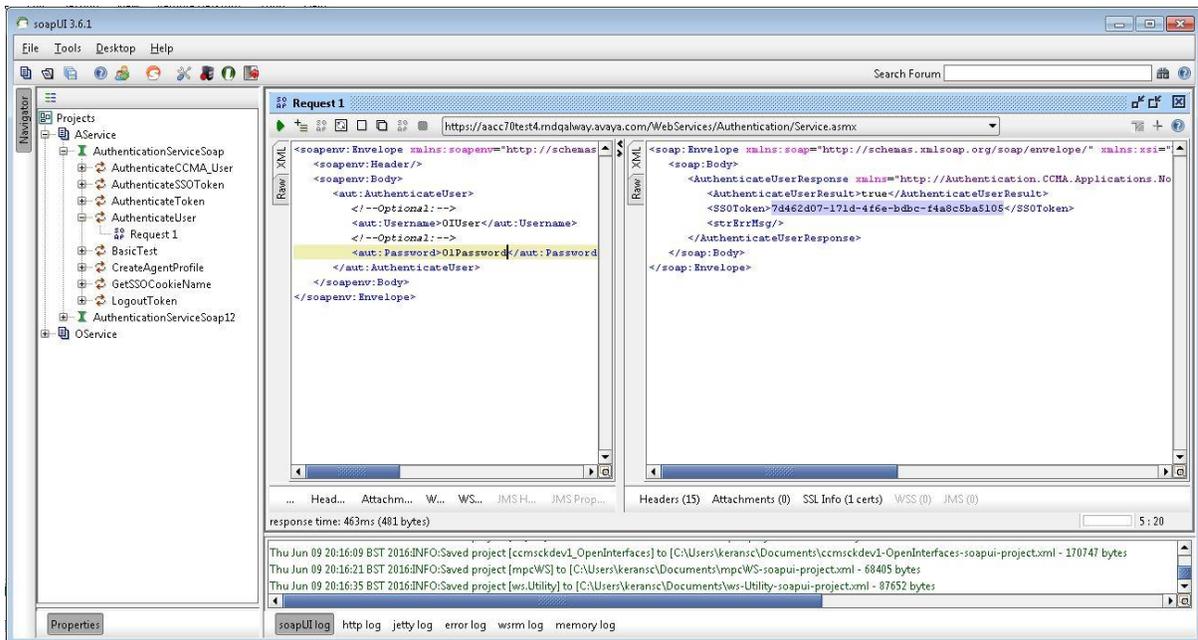
The input and output parameters are:

Parameter	Data Type	Direction	Min length	Max length	Expected values
CCMS IP Address	String	In	7	15	Any valid CCMS Server IP address
Skillset ID	String	in			The ID of the skillset that was added

# Chapter 4: Reference Client

A simple test for the operations in the CCMA Open Interface web service can be carried out using the soapUI <sup>1</sup> open source tool. This provides a GUI that takes the WSDL URL of the CCMA OI service and generates SOAP stubs for all operations. The tool is easy to use and well documented.

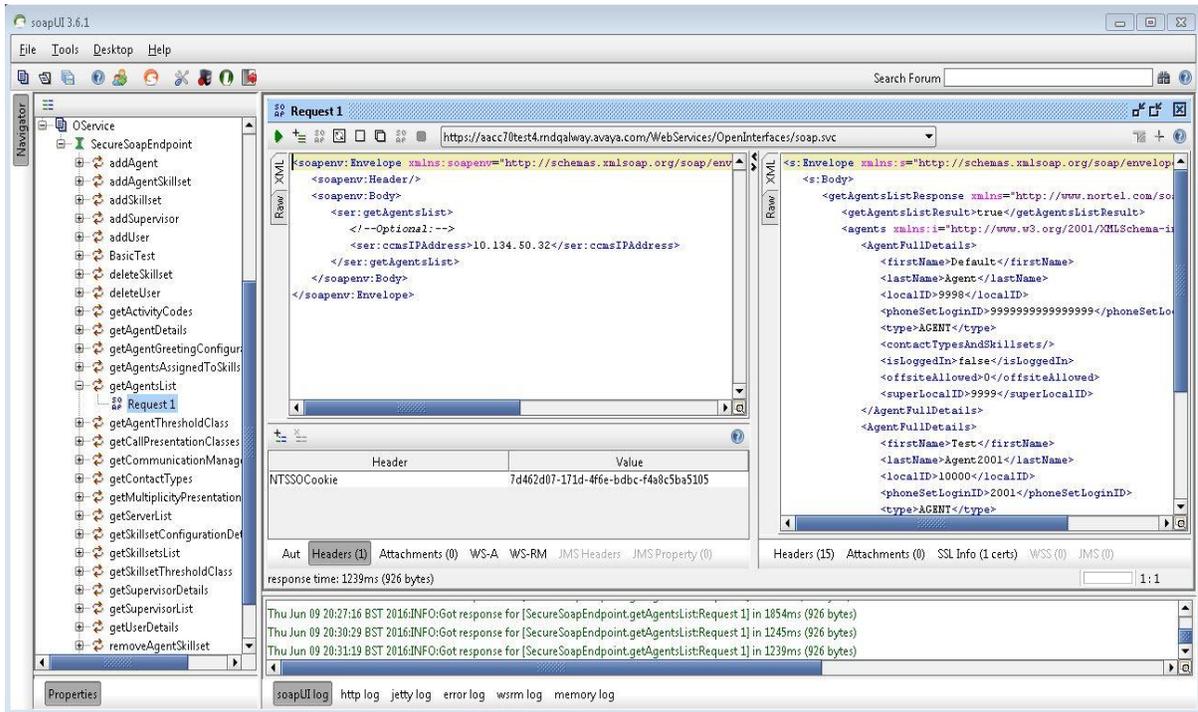
The CCMA OI requires user authentication using the CCMA-provided authentication service and a valid CCMA username and password. The next screenshot shows a sample authentication request. In this case the following user has been created in CCMA (username=OIUser, password=01Password). Any CCMA user could be used.



The screenshot above also shows the response which contains a single sign on (SSO) authentication token which must be inserted as a cookie (named NTSSOCookie) in all subsequent web service calls.

<sup>1</sup> <http://www.soapui.org/>

The next screenshot shows an example of a request to get a list of agents from the CCMA. Note that the SSO token has been added to the HTTP header using the NTSSOCookie.



The above screenshot also shows the response from the web service containing the list of agents retrieved.

A reference client is included with this SDK pack with examples of all the web service features. The reference client is a Microsoft Visual Studio 2008 project.

# Chapter 5: Programming with the CCMA Open Interfaces

The CCMA Open Interfaces provide a powerful SOAP and REST based web service interface that allows Third Party developers to integrate their application with Avaya Contact Center CCMA product.

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## Prerequisites

The following assumptions are made.

1. An AACC 7.0.0 or a later version of CCMA and CCMS are configured and running. Please refer to the section Related Avaya Aura Contact Center documents on how to configure the web services.
2. That the developers are both familiar with their choice of technology and how that technology integrates with web services.

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## AACC 7.0 - CCMA Open Interface API HTML Reference

The following contains a link to the MSDN-style HTML documentation associated with the implementation of the AACC 7.0- CCMA Open Interface web service.

Service Name	WSDL Location	Doc Location
AACC 7.0 - CCMA OI	<a href="http://&lt;CCMA FQDN or hostname&gt;/WebServices/OpenInterfaces/soap.svc?wsdl">http://&lt;CCMA FQDN or hostname&gt;/WebServices/OpenInterfaces/soap.svc?wsdl</a>	Open Interfaces CCMA 7.0 SDK\docs\help_docs

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