



Web Services Reference for Cisco Unified Contact Center Management Portal, Release 12.0(1)

For Unified Contact Center Enterprise

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Preface

About This Guide

This document describes the Web Service APIs that Unified CCMP exposes and explains how to use them. The Web Services APIs allow resource and hierarchy management operations to be performed remotely from a third party client application. The Web Services APIs also allow the client to subscribe to notifications about state changes in contact center resources.

Who Should Read This Document

This document is intended for web developers who are writing applications that need to use the Unified CCMP Web Service APIs. The reader should be familiar with web service integration, and also have a basic understanding of Unified CCMP and how it interacts with the contact center environment.

Product Naming Conventions

In this release, the product names defined in the table below have changed. The New Name (long version) is reserved for the first instance of that product name and in all headings. The New Name (short version) is used for subsequent instances of the product name.

Note: This document uses the naming conventions provided in each GUI, which means that in some cases the old product name is in use.

| Old Product Name | New Name (long version) | New Name (short version) |
|-------------------------------|---|---------------------------------|
| Cisco IPCC Enterprise Edition | Cisco Unified Contact Center Enterprise | Unified CCE |
| Cisco IPCC Hosted Edition | Cisco Unified Contact Center Hosted | Unified CCH |

| | | |
|---|---|-------------|
| Cisco Intelligent Contact Management (ICM) Enterprise Edition | Cisco Unified Intelligent Contact Management (ICM) Enterprise | Unified ICM |
| Cisco Intelligent Contact Management (ICM) Hosted Edition | Cisco Intelligent Contact Management (ICM) Hosted | |

Related Documentation

Documentation for Cisco Unified ICM/Contact Center Enterprise & Hosted, as well as related documentation, is accessible from Cisco.com at:

<https://www.cisco.com/cisco/web/psa/default.html>.

Related documentation includes the documentation sets for:

- Cisco CTI Object Server (CTIOS), Cisco Agent Desktop (CAD)
- Cisco Agent Desktop - Browser Edition (CAD-BE)
- Cisco Unified Contact Center Domain Manager
- Cisco Unified Customer Voice Portal (CVP)
- Cisco Unified IP IVR, Cisco Unified Intelligence Center
- Cisco Support Tools

For documentation for these Cisco Unified Contact Center products, go to

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Documentation for Cisco Unified Communications Manager is accessible from:

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The Product Alert tool is accessible from (sign in required): <https://www.cisco.com/cgi-bin/Support/FieldNoticeTool/field-notice>.

For information on the Cisco software support methodology, refer to Software Release and Support Methodology: ICM/IPCC available at (sign in required):

https://www.cisco.com/en/US/partner/products/sw/custcosw/ps1844/prod_bulletins_list.html.

For a detailed list of language localizations, refer to the *Cisco Unified ICM/Contact Center Product and System Localization Matrix* available at the bottom of the following page:

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Log into www.cisco.com and then access the tool at <https://www.cisco.com/cisco/support/notifications.html>

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Document Conventions

This document uses the following conventions:

| Convention | Description |
|----------------------|--|
| boldface font | Boldface font is used to indicate commands, such as entries, keys, buttons, folders and submenu names. For example: <ul style="list-style-type: none">• Choose Edit > Find• Click Finish |
| <i>italic</i> font | Italic font is used to indicate the following: <ul style="list-style-type: none">• To introduce a new term; for example: <i>A skill group</i> is a collection of agents who share similar skills• For emphasis; for example: <i>Do not</i> use the numerical naming convention• A syntax value that the user must replace; for example: IF (<i>condition, true-value, false-value</i>)• A title of a publication; for example: Refer to the <i>Cisco CRS Installation Guide</i> |
| window font | Window font, such as Courier, is used for the following: <ul style="list-style-type: none">• Text as it appears in code or that the window displays; for example: <code><html><title>Cisco Systems, Inc. </title></html></code> |
| < > | Angle brackets are used to indicate the following: <ul style="list-style-type: none">• For arguments where the context does not allow italic, such as ASCII output• A character string that the user enters but that does not appear on the window, such as a password |

Getting Started

Unified CCMP Web Services

About Unified CCMP Web Services

Unified CCMP exposes Web Services APIs that can be called by third party client applications. This document describes the Web Services APIs that Unified CCMP exposes and how to use them.

Table 3.1 Unified CCMP Web Services

| Web Service | Description |
|---------------------|---|
| Resource Management | Enables the client to provision and manage contact center resources (see Chapter "Resource Management Web Service"). |
| Subscriptions | Enables the client to subscribe to notifications about state changes to contact center resources (see Chapter "Subscriptions Web Service"). |

For a technical overview of Unified CCMP, including architecture, design concepts and performance tips, see section "Dialed Number From Unallocated folder".

About Web Service Protocols

The Unified CCMP Web Services support two protocols:

- Simple Object Access Protocol, or SOAP (see <http://en.wikipedia.org/wiki/SOAP>)
- Representational state transfer, or REST (see <http://en.wikipedia.org/wiki/REST>)

Typically, inter-platform interactions, such as an Enterprise Service Bus, use SOAP because of its excellent standards-based interoperability, ease of multi-firewall traversal and existing engineering skill sets, whereas thin client and mobile applications typically use REST because of its low footprint and ease of coding.

All the Unified CCMP Web Services support SOAP as a default protocol. In addition, the Resource Management Web Service also supports the REST protocol with the same payload types (using both XML and JSON content types). The SOAP implementation is also built on architectural REST principles but within the SOAP envelope.

This simultaneous support of both SOAP and REST allows for maximum interoperability and extends the traditional Unified CCMP API use to client gadgets.

The following table shows the typical usages of the Unified CCMP Web Services.

Table 3.2 Typical Unified CCMP Web Services Usage

| Web Service | SOAP | REST XML | REST JSON |
|---------------------|---------------------------------------|---------------------------|---------------------------------------|
| Resource Management | Enterprise Service Bus / Thick client | Java or other thin client | JavaScript gadgets/widgets and mobile |
| Subscriptions | Enterprise Service Bus/ Thick client | N/A, SOAP only concept | N/A, SOAP only concept |

SOAP

The Unified CCMP SOAP web service design concepts are:

- The technology base is built on a SOAP 1.2 web service stack to address the widest market at present.
- For all Unified CCMP Web Services, the WS-Security and WS-Addressing standards are implemented.
- The WS-Eventing and Subscription services have been implemented to allow for asynchronous notification of changes of resources.
- The Unified CCMP Resource Management Web Service has combined elements of WS-Resourcing and WS-Management (these could not be used directly since both contain proprietary elements).

REST

The provisioning resources are organized into collections to allow clients and the Unified CCMP server to perform queries on the collections and to use the collection as a factory for creating new resources. Since they are collection resources they are plural nouns with a URI path that indicates the hierarchy. Unified CCMP supports three types of resource addressing:

1. Classic resource addressing. This is the usual REST collection resource paradigm where one or more resources of the same type may be contained in a path. The URI is hierarchical and contains:
 - the resource type as part of the path
 - a single identifier to get, put or delete a resource of that type.

For example

```
GET /resources/agents/1006
```

where 1006 is the entity id and agents is the type of resource.

2. Composite resource collection. This is a collection URI where the identifier is a composite key made up of the entity id and the entity type. Resources of all types may be addressed under a common resources path. This is typically used where provisioning resources of all types may be held.

For example

```
GET /resources/1006,Agent
```

- Anonymous collections. These are an extension of both classic and composite resource addressing and use multiple ids to provide bulk operation capability. The key to understanding this extension is that a sub-collection of resources is itself a collection which can be cached. The sub-collection identifier is the concatenation of entity ids (and possible types). Both classic and composite addressing modes are supported:

For example

```
GET /resources/agents/1006,1007,1008GET /resources/1006,Agent|3412,Label
```

Table 3.3 Supported Addressing Modes

| | Create | Update | Describe / Search | Retrieve | Delete | Audit |
|--|---------------|---------------|--------------------------|-----------------|---------------|--------------|
| REST Verb | POST | PUT | GET | GET | DELETE | GET |
| Collection Type: | | | | | | |
| Classic Addressing resource/{type}/{id} | Yes | Yes | No | Yes | Yes | Yes |
| Composite Addressing resource/{id,type} | Yes | Yes | No | Yes | Yes | No |
| Batch Classic Addressing resource/{type}/{id},{id}, {id},... | Yes | Yes | No | Yes | Yes | No |
| Batch Composite Addressing resource/{id,type} {id,type}... | Yes | Yes | No | Yes | Yes | No |

Security

The Unified CCMP Web Services use Unified CCMP's role-based access control system to secure and restrict what the client can do or see. The authentication mode depends on the protocol being used.

The Unified CCMP Web Services are secured using WS-Security user name tokens. You must pass a valid Unified CCMP user name and password to access the service methods.

SOAP

Tip

You can use the SoapUI tool, Project Settings window, Security Configuration tab to configure a security profile. This profile can then be selected for each request using the pop-up Auth tab on the request editor window.

Figure 3.1 "Configuring a Security profile using SOAP UI" shows how to configure a security profile using SOAP UI.

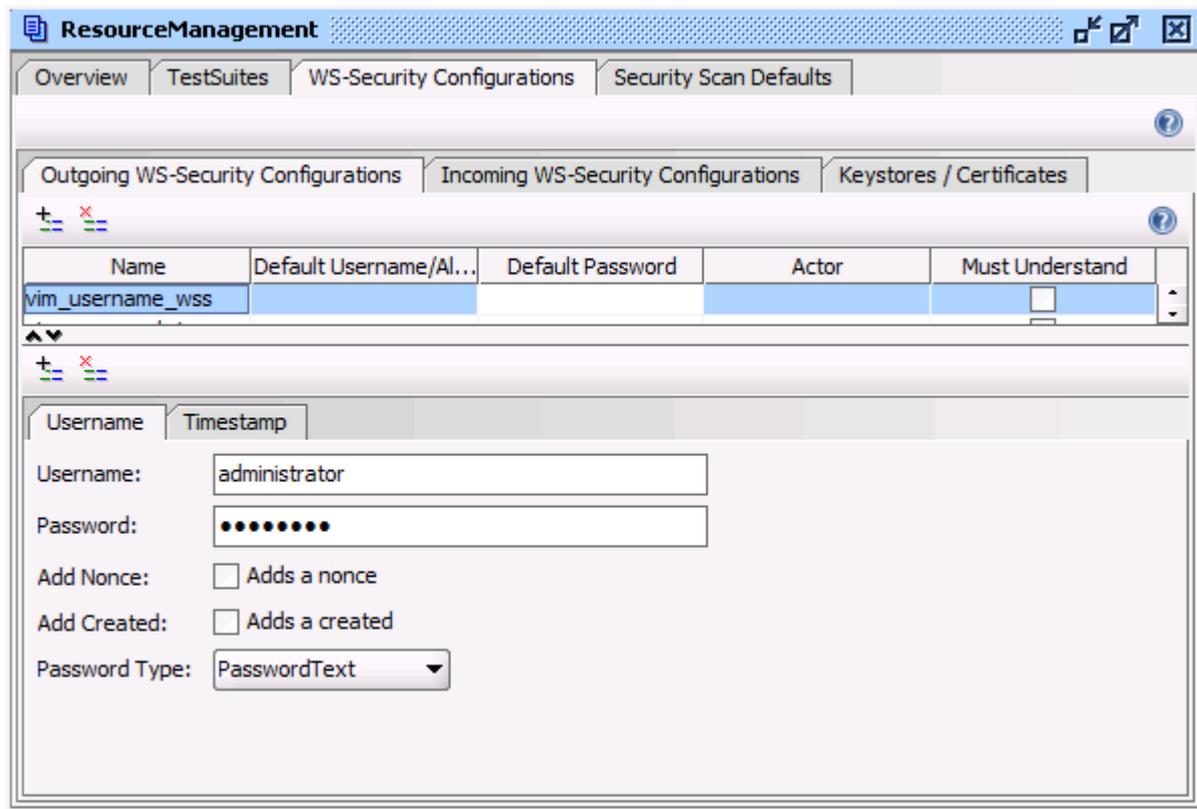


Figure 3.1 Configuring a Security profile using SOAP UI

Figure 3.2 "A WS-Security section in a SOAP Header" shows how to add a WS-Security section to the SOAP header sent to the Unified CCMP Server.

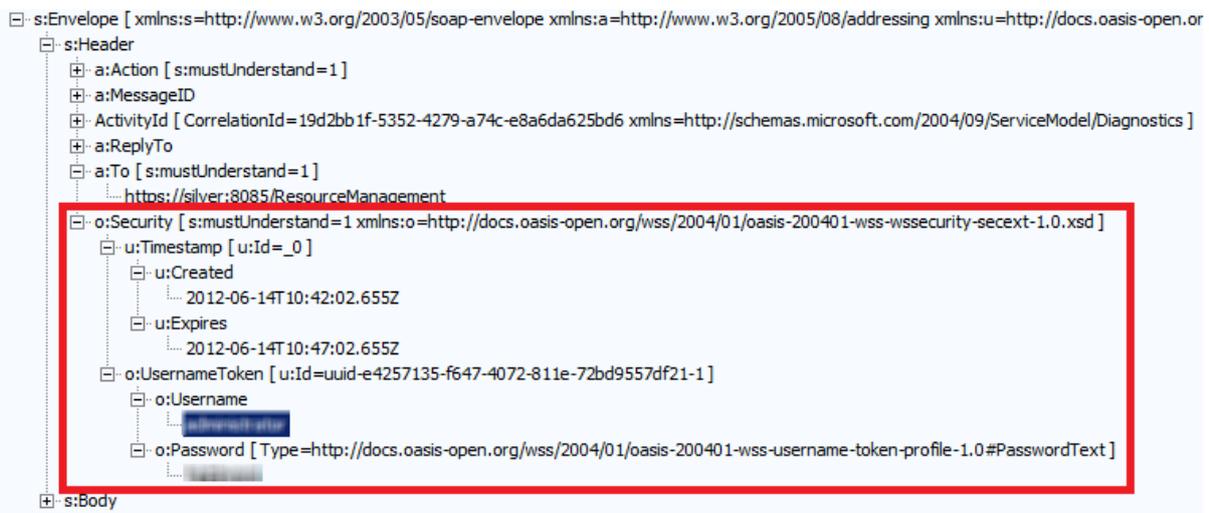


Figure 3.2 A WS-Security section in a SOAP Header

REST

The Resource Management Web Service uses Basic Authentication with the REST protocol. In this case, the client encodes the user name and password in Base-64 and adds it to the HTTP header.

An example is

```
GET /private/index.html HTTP/1.1
Host: local host
Authorization: Basic QWxhZGRpbjpvYVUyIHNlc2FtZQ==
```

Note

The implementation does not support challenge and response and so the responses cannot be viewed using a browser.

Notifications

Notifications sent to clients who have subscribed for them using the Subscriptions Web Service are secured using mutual certificates.

For more information about configuring security for notifications, see section "Securing Notifications with SSL".

Common Data Types

Remote Resource Types

About Remote Resource Types

These types correspond directly to the remote resources in the Contact Center environment in which Unified CCMP operates. These types can be used with the Resource Management Web Service APIs (see Chapter "Resource Management Web Service") to allow client utilities and a mid-tier interface to perform adds, updates and deletes.

Provisionable Remote Resource Types

These remote resource types are fully supported by the Resource Management Web Service.

| Resource Type | Internal Name | REST Parameter |
|-------------------------------------|---------------------------|------------------------|
| Agent | IT_AGENT | agent |
| Agent Desktop | IT_AGENT_DESKTOP | agent-desktop |
| Agent Team | IT_AGENT_TEAM | agent-team |
| Call Type | IT_CALL_TYPE | call-type |
| Calling Search Space | IT_CALLING_SEARCH_SPACE | calling-search-space |
| Department | IT_DEPARTMENT | department |
| Device Profile | IT_DEVICE_PROFILE | device-profile |
| Dialed Number | IT_DIALED_NUMBER | dialed-number |
| Directory Number | IT_DIRECTORY_NUMBER | directory-number |
| Enterprise Skill Group | IT_ENTERPRISE_SKILLGROUP | enterprise-skill-group |
| Expanded Call Variable | IT_EXPANDED_CALL_VARIABLE | expanded-call-variable |
| IP Endpoint | IT_IP_ENDPOINT | ip-endpoint |
| IVR Script (or VXML Application) | IT_IVR_SCRIPT | ivr-script |
| Label | IT_LABEL | label |
| Media file | IT_MEDIAFILE | mediafile |

| Resource Type | Internal Name | REST Parameter |
|----------------------|-------------------------|----------------------|
| Network VRU Script | IT_NETWORK_VRU_SCRIPT | network-vru-script |
| Person | IT_PERSON | person |
| Precision Attribute | IT_PRECISION_ATTRIBUTE | precision-attribute |
| Precision Queue | IT_PRECISION_QUEUE | precision-queue |
| Precision Queue Step | IT_PRECISION_QUEUE_STEP | precision-queue-step |
| Route | IT_ROUTE | route |
| Route Partition | IT_ROUTE_PARTITION | route-partition |
| Service | IT_SERVICE | service |
| Skill Group | IT_SKILLGROUP | skill-group |
| Tenant | IT_TENANT | tenant |
| User Variable | IT_USER_VARIABLE | user-variable |

Non Provisionable Remote Resource Types

These remote resource types are supported by the Resource Management Web Services for searching only.

| Resource Type | Internal Name |
|----------------------|-------------------------|
| Announcement | IT_ANNOUNCEMENT |
| Application Gateway | IT_APPLICATION_GATEWAY |
| Application Instance | IT_APPLICATION_INSTANCE |
| Bucket Interval | IT_BUCKET_INTERVAL |
| Call Source | IT_CALL_SOURCE |
| Campaign | IT_CAMPAIGN |
| Chargeband | IT_CHARGE BAND |
| Cli | IT_CLI |
| Custom Entry | IT_CUSTOM_ENTRY |
| Date Time Setting | IT_DATE_TIME_SETTING |
| Device Target | IT_DEVICE_TARGET |

| Resource Type | Internal Name |
|-------------------------------|----------------------------------|
| Dialer | IT_DIALER |
| Dial Number Plan | IT_DIAL_NUMBER_PLAN |
| Enterprise Route | IT_ENTERPRISE_ROUTE |
| Enterprise Service | IT_ENTERPRISE_SERVICE |
| Gateway Function | IT_GATEWAY_FUNCTION |
| Gateway Result | IT_GATEWAY_RESULT |
| Gateway Server | IT_GATEWAY_SERVER |
| ICR Instance | IT_ICR_INSTANCE |
| Import Rule | IT_IMPORT_RULE |
| IP Endpoint Button Template | IT_IP_ENDPOINT_BUTTON_TEMPLATE |
| IP Endpoint Model | IT_IP_ENDPOINT_MODEL |
| IVR Entry Point | IT_IVR_ENTRY_POINT |
| IVR Module | IT_IVR_MODULE |
| IVR Routing Target | IT_IVR_ROUTING_TARGET |
| IVR Script Node | IT_IVR_SCRIPT_NODE |
| Logical Interface Controller | IT_LOGICAL_INTERFACE_CONTROLLER |
| Media Class | IT_MEDIA_CLASS |
| Media File Server | IT_MEDIAFILE_SERVER |
| Media Routing Domain | IT_MEDIA_ROUTING_DOMAIN |
| Network Trunk Group | IT_NETWORK_TRUNK_GROUP |
| Network Vru | IT_NETWORK_VRU |
| Object Type | IT_OBJECT_TYPE |
| Peripheral | IT_PERIPHERAL |
| Physical Interface Controller | IT_PHYSICAL_INTERFACE_CONTROLLER |
| Port | IT_PORT |

| Resource Type | Internal Name |
|--|---------------------------|
| Query Rule | IT_QUERY_RULE |
| Rating Period | IT_RATING_PERIOD |
| Reason Code | IT_REASON_CODE |
| Region | IT_REGION |
| Route Partition | IT_ROUTE_PARTITION |
| Routing Client | IT_ROUTING_CLIENT |
| Routing Script | IT_ROUTING_SCRIPT |
| Schedule | IT_SCHEDULE |
| Scheduled Target | IT_SCHEDULED_TARGET |
| Script | IT_SCRIPT |
| Script Node | IT_SCRIPT_NODE |
| Strategy | IT_STRATEGY |
| Timeband | IT_TIMEBAND |
| Tli | IT_TLI |
| Trunk | IT_TRUNK |
| Trunk Group | IT_TRUNK_GROUP |
| VXML Application Server (sometimes called IVR Script Server) | IT_VXMLAPPLICATION_SERVER |
| Wrapup Code | IT_WRAPUP_CODE |

System Resource Types

About System Resource Types

System Resource types are contained in the Unified CCMP database. They are not provisioned to remote contact center equipment, but are Unified CCMP-specific items used for organizing and accessing other resource types.

Editable System Resource Types

These system resource types are fully supported by the Resource Management Web Services.

| Resource Type | Internal Name | REST Parameter |
|---------------|---------------|----------------|
| Document | IT_DOCUMENT | document |
| Folder | IT_FOLDER | folder |
| Group | IT_GROUP | group |
| User | IT_USER | user |

Read-Only System Resource Types

These system resource types are supported by the Resource Management Web Services for searching only.

| Resource Type | Internal Name |
|--|---|
| Date | IT_DATE |
| NNG | IT_NNG |
| Time | IT_TIME |
| Cluster Connection | IT_CLUSTER_CONNECTION |
| Cluster Connection Type | IT_CLUSTER_CONNECTION_TYPE |
| Cluster Resource | IT_CLUSTER_RESOURCE |
| Cluster Resource Instance | IT_CLUSTER_RESOURCE_INSTANCE |
| Cluster Resource Instance Component | IT_CLUSTER_RESOURCE_INSTANCE_COMPONENT |
| Cluster Resource Instance Component Type | IT_CLUSTER_RESOURCE_INSTANCE_COMPONENT_TYPE |
| Cluster Resource Type | IT_CLUSTER_RESOURCE_TYPE |

| Resource Type | Internal Name |
|-----------------------------|--------------------------------|
| Cluster Resource Type Group | IT_CLUSTER_RESOURCE_TYPE_GROUP |
| Cluster Server | IT_CLUSTER_SERVER |
| Code Constraint Type | IT_CODE_CONSTRAINT_TYPE |
| Custom 0 | IT_CUSTOM0 |
| Custom 1 | IT_CUSTOM1 |
| Custom 2 | IT_CUSTOM2 |
| Custom 3 | IT_CUSTOM3 |
| Custom 4 | IT_CUSTOM4 |
| Custom 5 | IT_CUSTOM5 |
| Custom 6 | IT_CUSTOM6 |
| Custom 7 | IT_CUSTOM7 |
| Custom 8 | IT_CUSTOM8 |
| Custom 9 | IT_CUSTOM9 |
| Fileshare | IT_FILESHARE |
| Email | IT_EMAIL |
| Form Template | IT_FORM_TEMPLATE |
| Hierarchy | IT_HIERARCHY |
| Hierarchy Node | IT_HIERARCHY_NODE |
| Managerial Role | IT_MANAGERIAL_ROLE |
| Organisation | IT_ORGANISATION |
| Printer | IT_PRINTER |
| Product | IT_PRODUCT |
| Question | IT_QUESTION |
| Speciality | IT_SPECIALITY |

About Resources and SCD Effective Dating

Remote resource types and their memberships are modeled as type-2 Slowly Changing Dimension (SCD) properties. The full resource history is maintained by creating new time-bounded records for each significant change (see http://en.wikipedia.org/wiki/Slowly_changing_dimension for more information).

- The Resource Management Web Service uses SCDs for memberships only, but not items. For instance, re-skilling an agent from one skill group to another will result in an SCD change for the agent-skill group member whereas changing the details of the agent or the skill group will not.

Tip

Item effective dating can be used to schedule a provisioning operation to occur in the future, that is, setting the `EffectiveFrom` field to be a future date.

The resource fields used to maintain SCD properties are `EffectiveFrom`, `EffectiveTo` and `Latest`. Together, these fields define the life cycle of the resource items and memberships.

For example, a remote resource may have the following values.

| Identifier | Surrogate | EffectiveFrom | EffectiveTo | Latest |
|------------|-----------|---------------|-------------|--------|
| 1000 | 1000 | 01/01/2012 | 06/06/2079 | 1 |

After a SCD event the resource may have the following values.

| Identifier | Surrogate | EffectiveFrom | EffectiveTo | Latest |
|------------|-----------|---------------|-------------|--------|
| 1000 | 1000 | 01/01/2012 | 02/02/2012 | 0 |
| 1000 | 1001 | 02/02/2012 | 06/06/2079 | 1 |

The surrogate key field is used to track the change.

Resource Management Web Service

About the Resource Management Web Service

Description

The Resource Management Web Service provides APIs that allow third party client applications to invoke provisioning operations on the underlying equipment and to create system resources.

Concepts

The Resource Management Web Service APIs have the following high level concepts:

- Provisioning operations are based on:
 - *Resources*, such as Agents and Call Types
 - *Resource Memberships* which define the relationship between these Resources.
- Most resources memberships are many-to-many associations. This model is loosely based on the Framework Shared Information/Data model (SID), with extensions to support full multi-tenancy and type-2 SCD life-cycle management. See <http://www.tmforum.org/TMForumFramework/1911/home.html> for more information about the Framework SID model.
- Resources are organized in a folder tree, where each top-level folder is either owned by a tenant or is one of the special folders (for example **/Unallocated**, **/Shared** or **/Search**).
- Each resource is dated with a common header which uniquely identifies it so its life-cycle can be tracked. Type-2 SCD life-cycle tracking is used, so there is the concept of a latest resource and previous resources, each of which has its own identifier.
- Each resource or resource member has a common header which uniquely identifies the resource, and a loosely-coupled data structure body. This structure has two advantages:
 - New resource types can be added without needing to regenerate the WSDL (SOAP) or to change existing clients (REST).
 - Versioning can be performed at the resource or resource member level and not at the API level, which reduces upgrade costs.
- Transactions are coarse grained, and each create, update, save, move or retrieve web service call supports an array of up to 100 operations to minimize API chatter.
- Provisioning transactions may be synchronous or asynchronous:
 - Provisioning transactions for system resources (for example, a request to create a Folder) use a synchronous request and a synchronous response.

- Provisioning transactions for remote resources (for example, a request to create an Agent) use a synchronous request and an asynchronous response for maximum scaling. This means that a remote resource will go through a Pending state (accepted, but queued) before it is successfully provisioned and enters the Ready state (exists on underlying equipment and can be used).
- A change to a remote resource or one of its associated members makes that resource unavailable for any other changes until that change has propagated through the underlying equipment. This avoids race conditions and other system complexities.
- Provisioning requests are built around a number of simple verbs; create, update, delete, save, move, describe, retrieve, search and audit.
- If the client is using the SOAP protocol, the client can subscribe to be notified whenever changes to resources are detected. This is particularly important when local native interfaces can be used to change the underlying equipment, thus rendering any overlaying data model as out-of-date.

Item Types

The Unified CCMP Resource Management Web Service API has a class hierarchy that represents the resources and memberships available on the system. The following item types are supported:

- provisionable remote resource types (see section "Provisionable Remote Resource Types")
- non-provisionable remote resource types (see section "Non Provisionable Remote Resource Types")
- provisionable system resource types (see section "Editable System Resource Types")
- non-provisionable system resource types (see section "Read-Only System Resource Types")
- membership types (see section "Resource Management Web Service Member Types").

Pkey Map Classes

The Unified CCMP Resource Management Web Service API also provides a *pkey map* class that links a resource with its corresponding resource on the remote equipment. For example, an Agent pkey map links the agent details in Unified CCMP with the agent details on the remote equipment.

The following resource types can have pkey maps:

- provisionable resources (for example, Agents, Agent Teams, Dialed Numbers)
- non-provisionable resources (for example, Announcements, Application Gateways, Bucket Intervals)
- member types (for example, Agent Agent Team Members, Agent Skill Group Members, Dialed Number Call Type Members)

Pkey maps can be used to link remote resources to multiple remote equipment instances with different details on each. For example, a single Agent resource may be located on both a Unified CCE and a Unified Communications Manager, with different login details on each. The agent pkey map links the Unified CCMP agent with the remote agent on each equipment instance and stores the different login details for each.

Pkey maps are also used to link resource memberships to the corresponding relationships on remote equipment. For example, if an Agent is in an Agent Team then the Agent Agent Team Member pkey map links the Unified CCMP membership with the corresponding agent to agent team relationship on the remote equipment.

Note

If you do not need to map resources to multiple equipment instances then you can ignore the pkey map resource and member classes although they are still present internally. All the information about a single equipment mapping is available directly from the resource or member class.

The exception is the `Describe()` method, since, if a field may be specified in a pkey map, the metadata about that field is returned against the pkey map type, not the corresponding resource type.

System resources (for example, Folders, Users, Groups) do not have pkey maps, as they do not exist on the remote equipment.

Methods

The Unified CCMP Resource Management Web Service API exposes the following methods:

- `Create()`
- `Update()`
- `Delete()`
- `Save()`
- `Move()`
- `Retrieve()`
- `Search()`
- `Describe()`
- `Audit()`

Depending on the requirements of the client these methods may be used together to provide required functionality. For example, to select from a list of Agent Team resources and then display the list of Agents within the selected Agent Team, you may:

1. Retrieve - Items of type Agent Team
2. <await user selection>

3. Retrieve - Agent Members of the selected Agent Team.

About Enterprise-Level Caching

Due to the distributed environment in which the Unified CCMP is deployed, some APIs rely on an enterprise level caching mechanism to provide enhanced scalability and response times. This behavior may mean that when polling services in quick succession data may take some time to update across all servers in the cluster and between the result sets of each API.

Table 5.1 shows which APIs provide direct database level access and which APIs rely on cached data from the enterprise level cache.

Table 5.1 Direct and Cached APIs

| API | Direct Database Access | Enterprise Level Cache |
|------------|------------------------|------------------------|
| Create() | Yes | |
| Update() | Yes | |
| Delete() | Yes | |
| Save() | Yes | |
| Move() | Yes | |
| Retrieve() | | Yes |
| Search() | | Yes |
| Describe() | | Yes |
| Audit() | | Yes |

Notifications sent from the Unified CCMP application server also rely on updates from the enterprise level cache so will only be sent when this cache is updated.

Resource Management Web Service Specification

SOAP

The WSDL file for the Resource Management Web Service is located on the Web/Application server here:

`https://<server>:8085/ResourceManagement?wsdl`

where **<server>** is the name of the Web/Application server.

REST

The REST protocol for each type and API is given in the section describing the type or API.

Errors

Table 5.2 Unified CCMP Resource Management Web Service API Errors

| Error Code | Identifier | Description |
|------------|-------------------------------|--|
| 1 | Exception | General exception; represents an Operating System fault, for example, a Microsoft WCF web service internal error. |
| 2 | ApplicationException | General catch all application error; typically represents an unspecified fault in third party libraries if not explicitly trapped. |
| 40 | ArgumentException | Error(s) detected in the parameters passed in the web service request. |
| 50 | SerializationException | Error(s) detected in the data structure passed in the web service request. This can either be missing or erroneous fields or a data type conversion in the contents of a field(s). |
| 100 | ConcurrencyConflict Exception | The resource to be updated has already been updated by another process, that is, its ChangeStamp field is too old. |
| 101 | ServiceNotReady Exception | The system service(s) are not yet ready to accept web service requests. |
| 500 | InvalidKeywordException | Search request error: the system does not recognize the supplied search keyword term, for example, specifying tipe rather than type. |
| 501 | InvalidCondition Exception | Search request error: the system could not parse the supplied search term condition, for example, specifying type:Aggent rather than type:Agent. |
| 502 | FieldConversion Exception | System could not parse the contents of a field. This is an application level error related to the system <code>SerializationException</code> and means that although the data type is correct, its value is incorrect in that context. For example, in: Agent.PeripheralName : 12~@FG 12~@FG is a valid string but an invalid value for this field type. |

| Error Code | Identifier | Description |
|------------|-----------------------------------|---|
| Various | EntityValidationException | The system has detected an error in the information supplied in the web service call. This is not an OS or field type error but an error in the composite data making up the whole request. |
| Various | ExonyApplicationException | Last try application exception. |
| 50150 | NoMembershipEffectivenessOverlap | A type of EntityValidationException error. Indicates that there is an error in the supplied member effective date-time range where the effective_from is newer than the effective_to. |
| 50159 | RequiredFieldNotSpecified | A type of EntityValidationException error. Indicates that the contents of a field have been incorrectly sent as empty. For example, an Person.LoginName field has been supplied as an empty string. |
| 50160 | RegularExpressionValidationFailed | A type of EntityValidationException error. Indicates that the contents of a field have failed a check against the regular expression mask used to validate its contents. For example, an Agent.PeripheralName field does not match the mask needed for MAC addresses. |
| 50161 | FieldValueOutOfRange | A type of EntityValidationException error. Indicates that the contents of a field are outside the boundary limits. |
| 100000 | MissingMember | Future use. Indicates that a mandatory member was not supplied in the web service. |
| 100001 | AgentMultiplePersonality | Future use. |
| 100002 | PeripheralRequired | Future use. |
| 100003 | RoutingClientRequired | Future use. |
| 100004 | IPEndpointMultipleLines | A type of EntityValidationException error. Indicates that an attempt has been made to provision more than one line on a device. |
| 100005 | UnknownClusterResource | A type of ExonyApplicationException error. Indicates that the supplied cluster resource type is not a supported type. |
| 100006 | AgentsInTeamCapacityExceeded | Future use. |
| 100007 | SkillgroupIPTA | A type of EntityValidationException error. Indicates that for voice, skill groups must let the system pick the agent. |

| Error Code | Identifier | Description |
|------------|--|---|
| 100039 | CannotFindDefaultRoutingClient | A type of EntityValidationException error. Indicates that the tenant referred to by the supplied folder id does not have access to the correct type of routing client needed for this type of request. |
| 100040 | CannotFindDefaultPeripheral | A type of EntityValidationException error. Indicates that the tenant referred to by the supplied folder id does not have access to the correct type of peripheral needed for this type of request. |
| 100041 | CannotFindDefaultOutboundRoutingClient | A type of EntityValidationException error. Indicates that the tenant referred to by the supplied folder id does not have access to the correct type of outbound routing client needed for this type of request. |
| 100050 | CantUpdateMaxAttempts | A type of EntityValidationException error. Indicates that the system has rejected an attempt to update a campaign when it is running. |
| 100054 | TooLongSkillGroupName | A type of EntityValidationException error. A special case of InternalName validation failure, where the associated Peripheral has a sub-skill group configured in which case the usual limit is reduced to 28 characters. |
| 100058 | LoginNameChangeNotSupported | A type of EntityValidationException error. Indicates that the supplied equipment login name cannot be provisioned at this time, typically due to configuration on the equipment. |
| 100074 | NoEquipmentMappedToTenant | A type of EntityValidationException error. Indicates that the system has not found a cluster resource or resources of the correct type to match the supplied web request. For example, a create call type request has been supplied but a Unified CCE matching that request has not been found. This can happen if the cluster type instance has not been added by the ICE tool (See <i>Administration Guide for Cisco Unified Contact Center Management Portal</i>) or the user does not have the correct security permissions to get access to it. |
| 100097 | BadRequestException | The requested action will cause a Precision Queue to have no Precision Queue Steps. A Precision Queue must have at least one Precision Queue Step. |
| 250000 | EnterpriseNameAlreadyExistsException | The system has detected that a resource.InternalName for this resource type and equipment cluster already exists. This is an alternative primary key that must be unique. |
| 250001 | LoginNameAlreadyExistsException | The system has detected that a User.LoginName already exists. The LoginName must be globally unique across the installation. |

Restrictions

Array Limits

The Unified CCMP Resource Management Web Service APIs impose limits on the size of the array parameters that can be passed to protect the server and the clients. These limits are:

Table 5.3 Resource Limits

| Method | Input Limit | Output Limit |
|------------|-----------------------------------|---------------------|
| Audit() | 255 Resource Keys | 255 Resource Audits |
| Create() | 100 Resources or Resource Members | 255 Request Results |
| Update() | 100 Resources or Resource Members | 255 Request Results |
| Delete() | 255 Resource Keys | 255 Request Results |
| Save() | 100 Resources or Resource Members | 255 Request Results |
| Move() | 100 Resource Keys | 255 Request Results |
| Describe() | None | None |
| Retrieve() | 255 Resource Keys | 255 Resources |
| Search() | None | 10000 Resources |

REST URI Segment Limit

In a REST URI, no individual segment between adjacent forward slash (/) delimiters can contain more than 255 characters. Query parameters are included in the character count, so this limit is most likely to be a consideration for the final segment which may contain several query parameters.

If the segment character limit is exceeded, the Web Service stack will return an HTML error page containing an Endpoint not Found error.

Field Validation

The Resource Management Web Service validates all supplied fields for correctness in terms of legal characters and length. However, validating these fields on the client before making the API call will improve the end customer experience and avoid round tripping for errors. The following table shows the common fields and their validation criteria.

Table 5.4 Common Field Validation

| Resource | Field | Regular Expression | Length |
|--|-----------------------|--|--------|
| Various | Internal Name | ^[a-zA-Z0-9][a-zA-Z0-9_-\.\s]*\$ | 32 |
| Agent | Extension | ^[a-zA-Z0-9]+\$ | 32 |
| Agent | Peripheral Name | ^[a-zA-Z0-9][a-zA-Z0-9_-\.\s]*\$ | 32 |
| Agent Desk Top | Device Port Address | ^[a-zA-Z0-9][a-zA-Z0-9_-\.\s]*\$ | 32 |
| Dialed Number | Dialed Number String | .* | 32 |
| Directory Number | Number Pattern | ^[X0-9\?\[\]\+\-*\^\#\!]+\$ | 32 |
| IP Endpoint | Description | ^[\\]a-zA-Z0-9\s#\\$\'\\(\)*\+,\./:;=\?@\[\^_`{\ \}\~\~]*\$ | 32 |
| Various | MAC Address | ^([0-9a-fA-F][0-9a-fA-F]){5}([0-9a-fA-F][0-9a-fA-F])\$ | 12 |
| Person | First/Last Name | ^[a-zA-Z0-9][a-zA-Z0-9_-\.\s]*\$ | 32 |
| Person | Peripheral Login Name | ^[a-zA-Z0-9][a-zA-Z0-9_-\.\s]*\$ | 32 |
| Expanded Call Variable / User Variable | Name/Internal Name | ^[a-zA-Z0-9][a-zA-Z0-9_-\.\s]*\$ | 27 |

Resource Management Web Service Data Types

This section lists common data types used in the Resource Management Web Service APIs. The data types in this section provide type-safe constructs for standard entities.

The Resource Hierarchy

The item and member types are represented by the resource class hierarchy shown in Figure 5.1 "Resource Class Hierarchy".

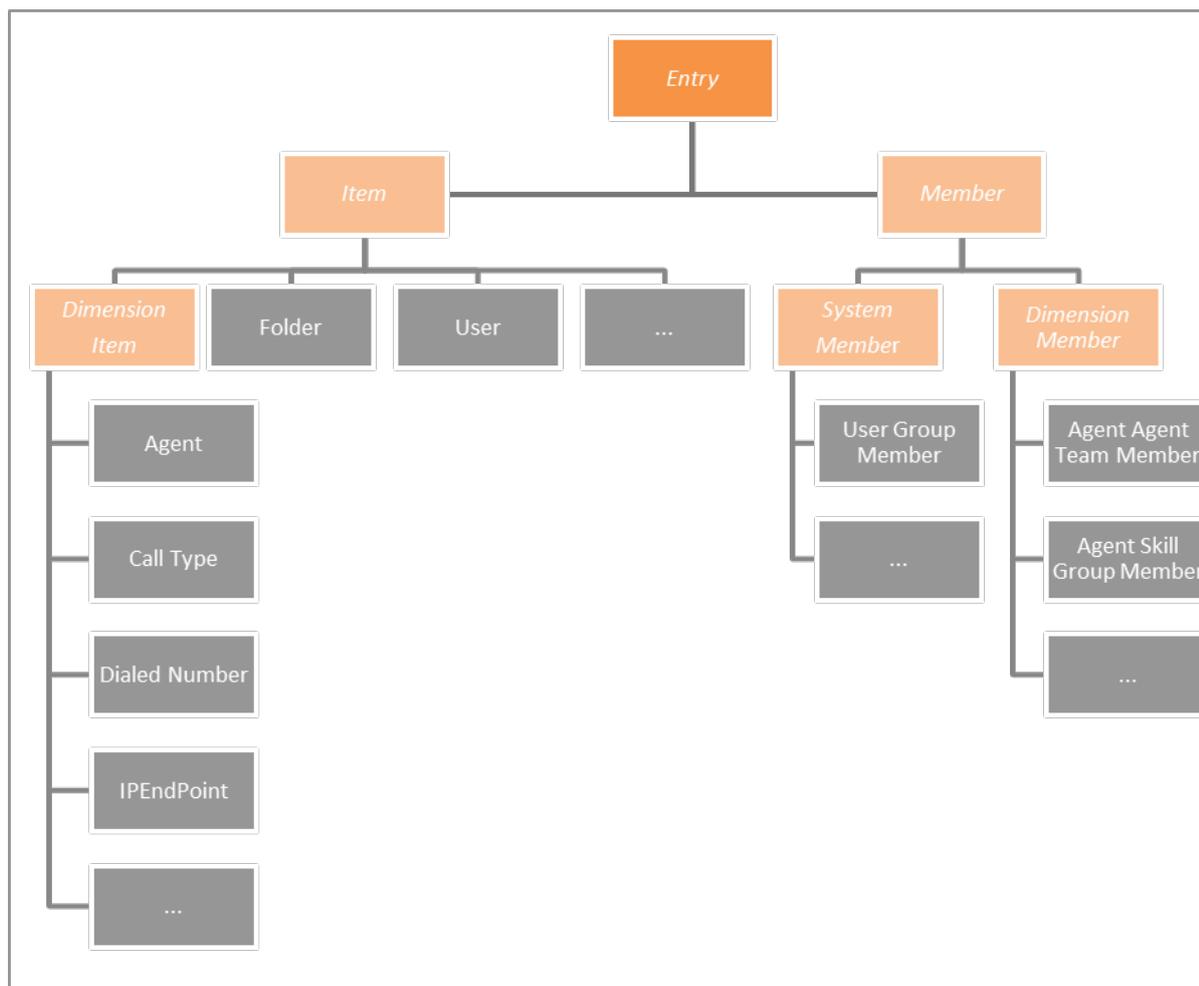


Figure 5.1 Resource Class Hierarchy

The top level abstract class, `Entry`, provides a simple-type definition for an entity. Requests to retrieve contact center objects such as Agents and Skill Groups take the form of these common objects.

An entity can be:

- an `Item`
- a `Member` which represents a membership between two items, and is one of:
 - a physical many-to-many relationship: for example, an Agent may be skilled in one or more Skill Groups
 - a type-2 SCD relationship, for example, an Agent may be part of an Agent Team during May 2010 and be part of a different Agent Team from June 2010 to Feb 2011.

Tip

Type-2 SCD relationships are rarely used in provisioning and should usually be filtered from search queries using the `latest:1` search term.

Common Fields and Classes

Name-Value Pair

The `NameValuePair` class is used to provide type-safe collections of information to be communicated to and from the server.

In the class descriptions in the rest of this chapter, items that are encoded as name-value pairs rather than named elements are denoted by (n-v) after the data type.

Properties

The exposed properties on the `NameValuePair` class are:

Table 5.5 Name-Value Pair Fields

| Element Name | Data Type | Description | Required? |
|--------------|-----------|--|-----------|
| Name | String | The name field for the name-value pair. | Yes |
| Value | String | The value field for the name-value pair. To remove a name-value pair that was defined with a Custom storage type, set this field to the string ###REMOVE## . | Yes |

| Element Name | Data Type | Description | Required? |
|--------------|------------------------------|--|---|
| StorageType | NameValuePair StorageType | The storage type for this name-value pair. One of: <ul style="list-style-type: none"> • Standard. Used by Unified CCMP • Custom. Used by the client application to store additional custom properties, for example, a custom property may be used to store an employee number for an Agent resource. | No (defaults to storage type Standard). |

Note

The order of the elements in the NameValuePair class is significant. The elements must be supplied to the Web Service APIs in the order above, for both SOAP and REST protocols.

Status

Remote Resources

The status field is used to report the status of a remote resource. Figure 5.2 "Remote Resource State Transitions" shows the state transitions for a remote resource.

Figure 5.2 Remote Resource State Transitions

The valid status values are:

| Status | Code | Description |
|-------------------|------|--|
| Ready | R | The item is ready for use, both locally and on the remote system (for example, on Unified CCE). |
| Pending Active | S | (Or Synchronizing). A change has been made locally to this item that has not yet been reflected on the remote system. Newly created items start this state, before changing to Ready when they have been created on the remote system (for example, on Unified CCE). |
| Pending Delete | P | The item has been deleted from Unified CCMP but has not yet been removed from the remote system. Once the delete operation is complete on the remote system, the status changes to Deleted. |
| Deleted | D | The item has been deleted on the remote system. |
| Error | E | An error has occurred while changing the item on the remote system. The current state in Unified CCMP does not reflect the state on the remote system. Errors should be corrected and the item re-submitted if required. |

System Resources

The `status` field also applies to system resources, but system resources are not provisioned to a remote system, so do not have Pending Active, Pending Deleted or Error states. Figure 5.3 "System Resource State Transitions" shows the state transitions for system resources.

Figure 5.3 System Resource State Transitions

Note

ISE-enabled users are different. They follow the state transitions shown in Figure 5.2 "Remote Resource State Transitions" because changes to the linked Unified CCE user need to be provisioned. These additional state transitions apply when the ISE-enabled option is set or cleared, and when certain other changes are made to an ISE-enabled user.

Resource Hierarchy Classes

This section describes the classes that make up the resource hierarchy.

Entry

The Entry class represents a primary Unified CCMP entity or membership.

Properties

The exposed properties on the Entry class are:

Table 5.6 Entry Fields

| Element Name | Data Type | Description | Required? |
|---------------|------------------|---|--------------------|
| Identity | String | The identity of the related entity. An integer value for dimension entities or a GUID value for system entities. When creating a new resource, set this to -1. | Yes |
| Type | String | A string identifying the item type. One of the following: <ul style="list-style-type: none"> • a remote resource type from section "Remote Resource Types" • a system resource type from section "System Resource Types" • a member type from section "Member Types and Identifiers" • a pkey type from section "Provisionable Remote Resource Pkey Map Types" or section "Non Provisionable Remote Resource Pkey Map Types" • a pkey member type from section "Pkey Map Classes". | Yes |
| EffectiveFrom | DateTime | The UTC date that the entity will become effective or has become effective in the contact center environment. | Yes |
| EffectiveTo | DateTime | The UTC date that the entity will expire or has expired and been removed or deactivated in the contact center environment. | Yes |
| Status | String | The provisioning status of the resource. See section "Status". | Yes |
| Changestamp | Int | The concurrency change stamp for this resource. For provisionable resources, the system checks the value of this field to determine whether the provisioning request is allowed, that is, whether another client has updated the resource since it was retrieved or searched for. Not required for Create(), but must be supplied for Update(). | Yes (for Update()) |
| Fields | NameValuePair [] | A collection of the fields that have been set or may be set on the current resource. | Yes |

| Element Name | Data Type | Description | Required? |
|------------------|------------------------|--|-----------|
| EquipmentMapping | Resource[] | An array containing either ItemPkey or MemberPkey elements, specifying resource details that are specific to an equipment instance. Only required if one of the following is true: <ul style="list-style-type: none"> Type is one of the resource types listed in section "Remote Resource Types" and the resource is mapped to more than one equipment instance. Type is one of the resource membership types listed in section "Member Types and Identifiers" and the membership is mapped to more than one equipment instance. For more information about the use of this field when creating resources and memberships, see section "Creating Items with Pkey Maps". For more information about the use of this field when retrieving resources and memberships, see section "Retrieving Items with Pkey Maps". | No |
| Custom | Int | User-defined custom data. | No |
| CreatedById | Guid (n-v pair) | Read-only id of the user that created this item, returned on retrieve or search responses. | n/a |
| ModifiedById | Guid (n-v pair) | Read-only id of the user that last modified this item, returned on retrieve or search responses. | n/a |
| CreationDate | DateTime (n-v pair) | Read-only creation date for this item, returned on retrieve or search responses. | n/a |
| ModifiedDate | DateTime (n-v pair) | Read-only last modified date for this item, returned on retrieve or search responses. | n/a |
| Deleted | Bool (n-v pair) | Read-only flag indicating whether the item has been deleted. | n/a |
| Hidden | Bool (n-v pair) | Read-only flag indicating whether the item has been hidden. | n/a |
| Latest | Bool (n-v pair) | Read-only flag indicating whether this resource is the latest in a type-2 sequence. | n/a |
| System | Bool (n-v pair) | Read-only flag indicating whether the item is owned by the system. | n/a |

Note

The order is significant for the elements in the Entry class that are not supplied as name-value pairs. These elements must be supplied to the Web Service APIs in the order above, for both SOAP and REST protocols.

Item

The `Item` class represents an entity that can be created in Unified CCMP or imported into Unified CCMP. An `Item` is always has a name, and a location in the security folder tree.

Properties

The exposed properties on the `Item` class are:

Table 5.7 Item Fields

| Element Name | Data Type | Description | Required? |
|------------------------------|-------------------|---|-----------|
| Inherits from Entry | | | |
| FolderId | Guid (n-v pair) | The identity of the related folder. | Yes |
| Name | String (n-v pair) | This is the friendly name for this resource, typically used for reporting processes. | Yes |
| InternalName | String (n-v pair) | The name of the entity on underlying equipment. For example, in Unified CCE this represents the Cisco EnterpriseName field. If the resource exists on multiple equipment instances, this is the name of the entity on the primary cluster resource (defined as the first cluster on which the item is provisioned). | No |
| Description | String (n-v pair) | The description of this instance of the resource. | No |
| MappedClusterResources | String (n-v pair) | The identifier of the underlying equipment on which the resource exists. If the resource exists on multiple equipment instances, this is a comma-separated list of the equipment instances. Default: System will select based on Tenant. | No |
| MappedClusterResourceDetails | String (n-v pair) | The details of the underlying equipment on which the resource exists. If the resource exists on multiple equipment instances, this is a comma-separated list of the details for each equipment instance. | No |

Dimension Item

The `DimensionItem` class represents a reporting dimension or a provisionable entity. It may be created in Unified CCMP or imported into Unified CCMP.

The exposed properties on the `DimensionItem` class are:

Table 5.8 Dimension Item Fields

| Element Name | Data Type | Description | Required? |
|---|-----------------|--|-----------|
| Inherits From: <code>Item</code> | | | |
| <code>HierarchyParentUrn</code> | Int (n-v pair) | Read-only. The type-1 Hierarchy for this dimension item. | No |
| <code>ItemBusinessUrn</code> | Int (n-v pair) | Read-only. Type-2 Business id for this dimension item. Default: -1. | No |
| <code>OwnerId</code> | Guid (n-v pair) | Read-only. The GUID of the tenant dimension folder that contains this dimension. | No |
| <code>TenantBizUrn</code> | Int (n-v pair) | Read-only. Item Business Urn of the tenant dimension associated with this dimension. | No |
| <code>TimeZoneUrn</code> | Int (n-v pair) | Read only. The time zone in which the resource is located. | No |

Member

The `Member` class represents a membership between two entities. One of the entities in the membership will be designated the parent entity, and the other the child. Often, the relationship will be many-many, but typically, the parent member will have many more children than the child member has parents. For example, in a Skill Group to Agent relationship, the Skill Group is the parent and the Agent the child. A Skill Group can contain a number of Agents, and an Agent can belong to a number of Skill Groups, but typically, a Skill Group will contain many Agents, whereas an Agent will belong to a just a few Skill Groups,

Properties

The exposed properties of the `Member` class are:

Table 5.9 Member Fields

| Element Name | Data Type | Description | Required? |
|-----------------------------|----------------------|---|-----------|
| Inherits From: Entry | | | |
| ParentId | Int (n-v pair) | This is the id of the resource which is the parent resource for the membership. | Yes |
| ChildId | Int (n-v pair) | This is the id of the resource which is the child resource for the membership. | Yes |

Dimension Member

The DimensionMember class inherits from the Member class and represents a membership between Dimensionitem (or remote resource) entities. A key characteristic is that these memberships normally have type-2 effective dating enabled.

Properties

The exposed properties on the DimensionMember class are:

Table 5.10 Dimension Member Fields

| Element Name | Data Type | Description | Required? |
|------------------------------|----------------------|---|-----------|
| Inherits From: Member | | | |
| LatestParentItemUrn | Int (n-v pair) | This is the id of the resource which is the most recent parent resource for the membership. | Yes |
| LatestChildItemUrn | Int (n-v pair) | This is the id of the resource which is the most recent child resource for the membership. | Yes |

System Member

The SystemMember class inherits from the Member class and represents the membership between system resource entities.

The exposed properties on the SystemMember class are:

Table 5.11 System Member Fields

| Property | Data Type | Description | Required |
|------------------------------|-------------------|---|----------|
| Inherits From: Member | | | |
| LatestParentItemUrn | Int (n-v pair) | This is the id of the resource which is the most recent parent resource for the membership. | Yes |
| LatestChildItemUrn | Int (n-v pair) | This is the id of the resource which is the most recent child resource for the membership. | Yes |

Other Common Classes

This section describes other common classes used by the Resource Management Web Service APIs.

Resource Meta

The ResourceMeta class describes a field for an entity of a given type.

Properties

The exposed properties on the ResourceMeta class are:

Table 5.12 Resource Meta Properties

| Property | Data Type | Description |
|--------------|-----------|--|
| Name | String | The name of the field that may be set/read on the entity |
| DataType | String | The data type of the field that may be set/read on the entity |
| Length | Int | The length of the data type. |
| Required | Bool | States if the field described is required or optional |
| DefaultValue | String | The default value as a string for the field that has been specified |
| CanCreate | Bool | Determines whether this field is required or valid for a create operation. |
| CanEdit | Bool | Determines if the field can be changed as part of an update operation. |

| Property | Data Type | Description |
|---------------|-----------|---|
| FieldGrouping | String | Indicates how this field can be grouped for client UIs or workflows. One of: Common. The field is common to all resource types Specific. The field is specific to this resource type. |
| FieldType | String | Indicates the usage of this field for automated workflow clients. One of: Key. Field contains an Id or Urn to another resource instance. Field. The field is an attribute of this type of resource. Virtual. The field is defined by a calculation or algorithm. Xml. The field contains an XML data block specific to this resource type. Equipment. The field contains equipment cluster reference. |
| HelpText | String | A description of the use of this field. |

Resource Field Meta

The ResourceFieldMeta class describes the associated fields for an entity of a given type.

Properties

The exposed properties on the ResourceFieldMeta class are:

Table 5.13 Resource Field Meta Properties.

| Property | Data Type | Description |
|-----------|-----------|--|
| Type | String | The resource type to which this metadata description applies. One of the following resource types: <ul style="list-style-type: none"> • a remote resource type from section "Remote Resource Types" • a system resource type from section "System Resource Types" • a member type from section "Member Types and Identifiers" • a pkey type from section "Provisionable Remote Resource Pkey Map Types" or section "Non Provisionable Remote Resource Pkey Map Types" • a pkey member type from section "Pkey Map Classes". |
| CanCreate | Bool | An instance of this resource may be created in the Unified CCMP database. |
| CanEdit | Bool | An instance of this resource may be edited. |

| Property | Data Type | Description |
|----------------------|--------------------|--|
| CanDelete | Bool | An instance of this resource may be deleted from the Unified CCMP database. |
| CanProvision | Bool | An instance of this resource will be provisioned into one or more equipment native objects on the underlying CC equipment. |
| IsHidden | Bool | An instance of this class may be hidden, that is, reserved for internal use by Unified CCMP only. |
| IsSystem | Bool | An instance of this class may be manipulated only by user accounts of Host Administrator only. |
| ClusterResourceTypes | String | A comma separated string of the underlying equipment types supported by this resource. |
| Fields | ResourceMeta [] | The description of all the fields that make up this entity type. |

Resource Key

The ResourceKey class represents the entity identity when performing a delete, retrieve, search or audit operation.

Properties

The exposed properties on the ResourceKey class are:

Table 5.14 Resource Key Properties

| Property | Data Type | Description |
|--------------|-----------|---|
| Identity | String | The identity of the related item. May be an integer value for dimension entities or a GUID value for system entities. |
| ResourceType | String | The item type. |

Resource Audit

The ResourceAudit class describes an audit record that has been logged as part of a provisioning request.

Properties

The exposed properties on the ResourceAudit class are:

Table 5.15 Resource Audit Properties

| Property | Data Type | Description |
|-----------------------|------------|---|
| AuditType | String | The type of audit (one of “System” or “Resource”). |
| EventDateTime | String | The UTC Date Time at which the audited event was entered into the system. |
| EventOutcome | String | The outcome of the audited operation. One of: S: Success, F: Failure, N: Not applicable, U: Unknown. |
| UserName | String | The name of the user that caused the creation of the audit. May be System if the audit operation was performed by anUnified CCMP scheduled process such as Data Importer. |
| Description | String | The text indicating which provisioning operation took place. |
| ResourceIdentity | String | The identifier of the resource that is the subject of the audit. Together with the ResourceType is the unique composite identifier of the resource. |
| ResourceType | String | The type of the resource that is the subject of the audit. Together with the ResourceIdentity, this is the unique composite identifier of the resource. |
| ResourceName | String | The name of the resource that is the subject of the audit. |
| Detail fields: | | |
| UserAgentName | String | The name of the user agent that invoked the request that caused the audited provisioning request. |
| ClusterResource | String | The remote cluster(s) on which the provisioning operation occurred. |
| ChangedFields | XmlElement | The fields that were modified during the provisioning request. |
| AdditionalData | XmlElement | Any additional supporting data for this audited event. |

Request Result

The RequestResult class holds the status and identity information for a given change. This object contains the identity of any item that was created, deleted or updated, the new status of the item and a collection of error messages if exceptions occurred when the item was changed.

Properties

The exposed properties on the RequestResult class are:

Table 5.16 Request Result Properties

| Property | Data Type | Description |
|----------|--------------|---|
| Identity | String | The identity of the item that was created or changed. |
| Type | String | The item type. |
| Name | String | The name of the resource. Only valid if Type is not a member type. |
| Status | String | The status of the resource that has been changed. See section "Status" |
| Errors | String [] | The error messages returned as a result of changing this item. If no errors occurred, this is an empty array. |

Resource Fault Detail

The ResourceFaultDetail class is returned when any method fails and represents the details logged by an exception or other error detected by the server.

Properties

The exposed properties on the ResourceFaultDetail class are:

Table 5.17 Resource Fault Detail Properties

| Property | Data Type | Description |
|-----------|-----------|---|
| Message | String | A message describing the error that occurred. |
| ErrorType | String | The error type. One of: <ul style="list-style-type: none"> • Validation: the request is invalid. • Format: the request format is invalid. • System: the system state is invalid. • General: another error has occurred. |
| ErrorCode | Int | One of the error codes listed in section "Errors". |

Additional Data

The AdditionalData class is used by some APIs to send additional name-value fields.

Properties

The exposed properties on the AdditionalData class are:

Table 5.18 Additional Data Properties

| Property | Data Type | Description |
|----------|-----------------|--------------------------------|
| Fields | NameValuePair[] | An array of name-value fields. |

Page Info

The PageInfo class is used by the Audit() API to hold paging information about the audit results being returned.

Properties

The exposed properties on the PageInfo class are:

Table 5.19 Page Info Properties

| Property | Data Type | Description |
|----------------|-----------|---|
| ResultsPerPage | Int | The number of results to be returned in each page of results. |
| StartIndex | Int | The index of the first element to be returned. |
| TotalResults | Int | The total number of audit results available to be returned. |

Resource Audit Results

The ResourceAuditResults class is used by the Audit() API to return audit results.

Properties

The exposed properties on the ResourceAuditResults class are:

Table 5.20 Resource Audit Results Properties

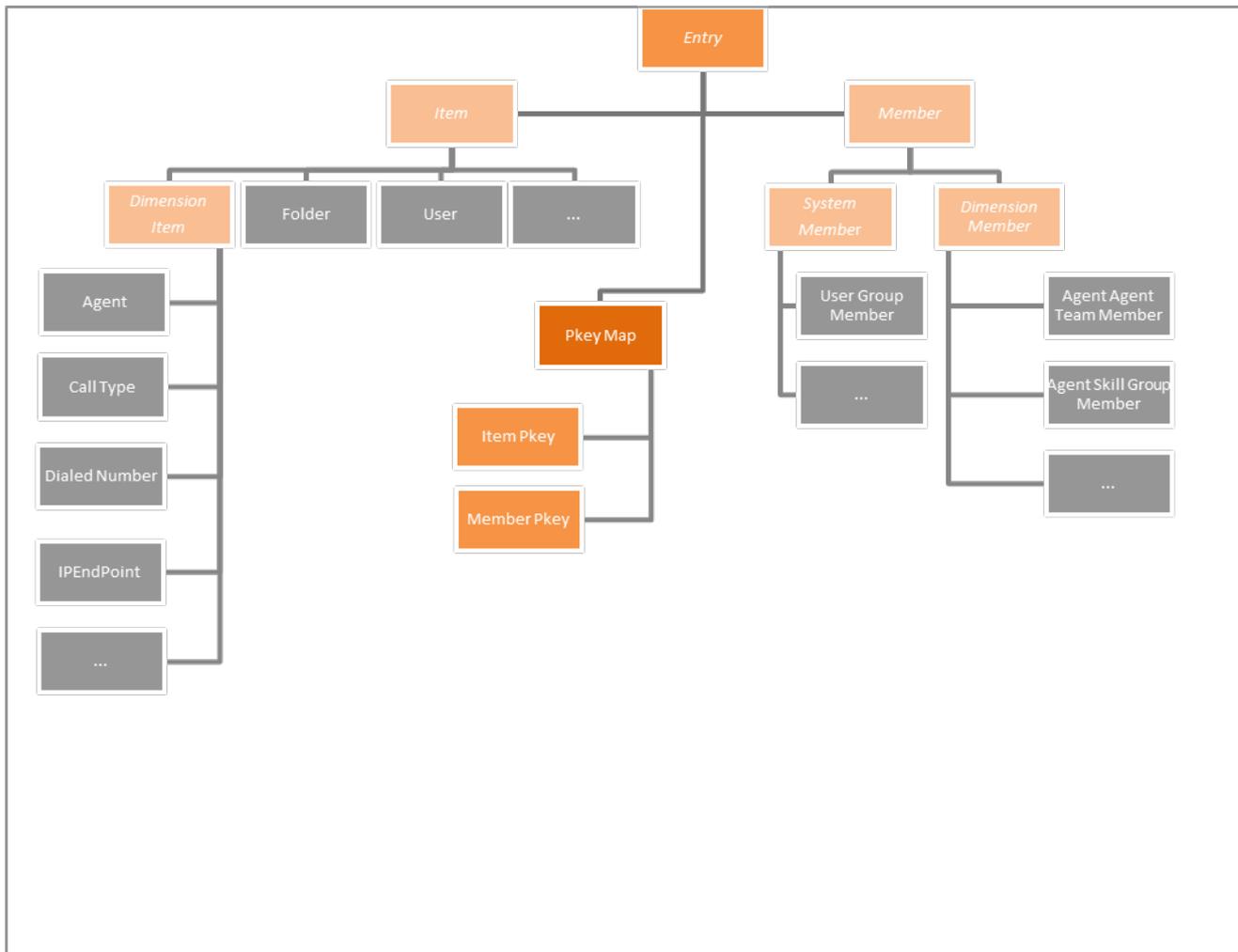
| Property | Data Type | Description |
|----------|---------------------|---|
| PageInfo | PageInfo | Information about the collection of audit results being returned (see section "Page Info"). |
| Audits | ResourceAudit [] | A collection of ResourceAudit objects containing audit data for the resource id passed in (see section "Resource Audit"). |

Pkey Map Classes**About Pkey Map Classes**

A pkey map links a resource or membership with its corresponding resource or membership on the remote equipment. Pkey maps can be used to link remote resources and memberships to multiple remote equipment instances with different details on each.

You do not need to use the pkey map classes unless you need to map resources to multiple equipment instances. All the information about a single equipment mapping is available directly from the resource or member class.

Resource Hierarchy Including Pkey Maps



Provisionable Remote Resource Pkey Map Types

These remote resource pkey map types are fully supported by the Resource Management Web Services.

| Resource Pkey Map Type | Internal Name | REST Parameter |
|-----------------------------|--------------------------------|-----------------------------|
| Agent Pkey | PK_AGENT_PKEY | agent-pkey |
| Agent Desktop Pkey | PK_AGENT_DESKTOP_PKEY | agent-desktop-pkey |
| Agent Team Pkey | PK_AGENT_TEAM_PKEY | agent-team-pkey |
| Call Type Pkey | PK_CALL_TYPE_PKEY | call-type-pkey |
| Calling Search Space Pkey | PK_CALLING_SEARCH_SPACE_PKEY | calling-search-space-pkey |
| Department Pkey | PK_DEPARTMENT_PKEY | department-pkey |
| Device Profile Pkey | PK_DEVICE_PROFILE_PKEY | device-profile-pkey |
| Dialed Number Pkey | PK_DIALED_NUMBER_PKEY | dialed-number-pkey |
| Directory Number Pkey | PK_DIRECTORY_NUMBER_PKEY | directory-number-pkey |
| Enterprise Skill Group Pkey | PK_ENTERPRISE_SKILLGROUP_PKEY | enterprise-skill-group-pkey |
| Expanded Call Variable Pkey | PK_EXPANDED_CALL_VARIABLE_PKEY | expanded-call-variable-pkey |
| IP Endpoint Pkey | PK_IP_ENDPOINT_PKEY | ip-endpoint-pkey |
| Label Pkey | PK_LABEL_PKEY | label-pkey |
| Network VRU Script Pkey | PK_NETWORK_VRU_SCRIPT_PKEY | network-vru-script-pkey |
| Person Pkey | PK_PERSON_PKEY | person-pkey |
| Precision Attribute Pkey | PK_PRECISION_ATTRIBUTE_PKEY | precision-attribute-pkey |
| Precision Queue Pkey | PK_PRECISION_QUEUE_PKEY | precision-queue-pkey |
| Precision Queue Step Pkey | PK_PRECISION_QUEUE_STEP_PKEY | precision-queue-step |
| Route Pkey | PK_ROUTE_PKEY | route-pkey |
| Route Partition Pkey | PK_ROUTE_PARTITION_PKEY | route-partition-pkey |
| Service Pkey | PK_SERVICE_PKEY | service-pkey |
| Skill Group Pkey | PK_SKILLGROUP_PKEY | skill-group-pkey |
| Tenant Pkey | PK_TENANT_PKEY | tenant-pkey |
| User Variable Pkey | PK_USER_VARIABLE_PKEY | user-variable-pkey |

Non Provisionable Remote Resource Pkey Map Types

These remote resource pkey map types are supported by the Resource Management Web Services for searching only.

| Resource Pkey Map Type | Internal Name |
|----------------------------------|-------------------------------------|
| Announcement Pkey | PK_ANNOUNCEMENT_PKEY |
| Application Gateway Pkey | PK_APPLICATION_GATEWAY_PKEY |
| Application Instance Pkey | PK_APPLICATION_INSTANCE_PKEY |
| Bucket Interval Pkey | PK_BUCKET_INTERVAL_PKEY |
| Call Source Pkey | PK_CALL_SOURCE_PKEY |
| Campaign Pkey | PK_CAMPAGN_PKEY |
| Category Pkey | PK_CATEGORY_PKEY |
| Chargeband Pkey | PK_CHARGEBAND_PKEY |
| Cli Pkey | PK_CLI_PKEY |
| Custom Entry Pkey | PK_CUSTOM_ENTRY_PKEY |
| Date Time Setting Pkey | PK_DATE_TIME_SETTING_PKEY |
| Device Target Pkey | PK_DEVICE_TARGET_PKEY |
| Dialer Pkey | PK_DIALER_PKEY |
| Dial Number Plan Pkey | PK_DIAL_NUMBER_PLAN_PKEY |
| Enterprise Route Pkey | PK_ENTERPRISE_ROUTE_PKEY |
| Enterprise Service Pkey | PK_ENTERPRISE_SERVICE_PKEY |
| Gateway Function Pkey | PK_GATEWAY_FUNCTION_PKEY |
| Gateway Result Pkey | PK_GATEWAY_RESULT_PKEY |
| Gateway Server Pkey | PK_GATEWAY_SERVER_PKEY |
| ICR Instance Pkey | PK_ICR_INSTANCE_PKEY |
| Import Rule Pkey | PK_IMPORT_RULE_PKEY |
| IP Endpoint Button Template Pkey | PK_IP_ENDPOINT_BUTTON_TEMPLATE_PKEY |
| IP Endpoint Model Pkey | PK_IP_ENDPOINT_MODEL_PKEY |
| IVR Entry Point Pkey | PK_IVR_ENTRY_POINT_PKEY |
| IVR Module Pkey | PK_IVR_MODULE_PKEY |
| IVR Routing Target Pkey | PK_IVR_ROUTING_TARGET_PKEY |

| Resource Pkey Map Type | Internal Name |
|------------------------------------|---------------------------------------|
| IVR Script Pkey | PK_IVR_SCRIPT_PKEY |
| IVR Script Node Pkey | PK_IVR_SCRIPT_NODE_PKEY |
| Logical Interface Controller Pkey | PK_LOGICAL_INTERFACE_CONTROLLER_PKEY |
| Media Class Pkey | PK_MEDIA_CLASS_PKEY |
| Media Routing Domain Pkey | PK_MEDIA_ROUTING_DOMAIN_PKEY |
| Network Trunk Group Pkey | PK_NETWORK_TRUNK_GROUP_PKEY |
| Network Vru Pkey | PK_NETWORK_VRU_PKEY |
| Object Type Pkey | PK_OBJECT_TYPE_PKEY |
| Peripheral Pkey | PK_PERIPHERAL_PKEY |
| Physical Interface Controller Pkey | PK_PHYSICAL_INTERFACE_CONTROLLER_PKEY |
| Port Pkey | PK_PORT_PKEY |
| Query Rule Pkey | PK_QUERY_RULE_PKEY |
| Rating Period Pkey | PK_RATING_PERIOD_PKEY |
| Reason Code Pkey | PK_REASON_CODE_PKEY |
| Region Pkey | PK_REGION_PKEY |
| Route Partition Pkey | PK_ROUTE_PARTITION_PKEY |
| Routing Client Pkey | PK_ROUTING_CLIENT_PKEY |
| Routing Script Pkey | PK_ROUTING_SCRIPT_PKEY |
| Schedule Pkey | PK_SCHEDULE_PKEY |
| Scheduled Target Pkey | PK_SCHEDULED_TARGET_PKEY |
| Script Pkey | PK_SCRIPT_PKEY |
| Script Node Pkey | PK_SCRIPT_NODE_PKEY |
| Strategy Pkey | PK_STRATEGY_PKEY |
| Timeband Pkey | PK_TIMEBAND_PKEY |
| Tli Pkey | PK_TLI_PKEY |
| Trunk Pkey | PK_TRUNK_PKEY |

| Resource Pkey Map Type | Internal Name |
|------------------------|---------------------|
| Trunk Group Pkey | PK_TRUNK_GROUP_PKEY |
| Wrapup Code Pkey | PK_WRAPUP_CODE_PKEY |

Member Pkey Map Types

These member pkey map types are fully supported by the Resource Management Web Services.

| Member Pkey Map Type | Internal Name | REST Parameter |
|---|--|---|
| Agent Agent Team Member Pkey | PK_AGENT_AGENT_TEAM_MEMBER_PKEY | agent-agent-team-member-pkey |
| Agent Peripheral Member Pkey | PK_AGENT_PERIPHERAL_MEMBER_PKEY | agent-peripheral-member-pkey |
| Agent Precision Attribute Member Pkey | PK_AGENT_PRECISION_ATTRIBUTE_MEMBER_PKEY | agent-precision-attribute-member-pkey |
| Agent Skill Group Member Pkey | PK_AGENT_SKILLGROUP_MEMBER_PKEY | agent-skill-group-member-pkey |
| Call Type Routing Script Member Pkey | PK_CALL_TYPE_ROUTING_SCRIPT_MEMBER_PKEY | call-type-routing-script-member-pkey |
| Device Profile Directory Number Member Pkey | PK_DEVICE_PROFILE_DIRECTORY_NUMBER_MEMBER_PKEY | device-profile-directory_number-member-pkey |
| Dialed Number Call Type Member Pkey | PK_DIALED_NUMBER_CALL_TYPE_MEMBER_PKEY | dialed-number-call-type-member-pkey |
| IP Endpoint Directory Number Member Pkey | PK_IP_ENDPOINT_DIRECTORY_NUMBER_MEMBER_PKEY | ip-endpoint-directory-number-member-pkey |

| Member Pkey Map Type | Internal Name | REST Parameter |
|--|---|--|
| Precision Queue Step Precision Attribute Member Pkey | PK_PRECISION_QUEUE_STEP_PRECISION_ATTRIBUTE_MEMBER_PKEY | precision-queue-step-precision-queue-attribute-member-pkey |
| Query Rule Campaign Member Pkey | PK_QUERY_RULE_CAMPAIGN_MEMBER_PKEY | query-rule-campaign-member-pkey |
| Route Partition Calling Search Space Member Pkey | PK_ROUTE_PARTITION_CALLING_SEARCH_SPACE_MEMBER_PKEY | route-partition-calling-search-space-member-pkey |
| Skill Group Campaign Member Pkey | PK_SKILLGROUP_CAMPAIGN_MEMBER_PKEY | skill-group-campaign-member-pkey |
| Skill Group Service Member Pkey | PK_SKILLGROUP_SERVICE_MEMBER_PKEY | skill-group-service-member-pkey |

Pkey Map Class

The PkeyMap class is used to map items to more than one equipment instance. If an item is associated with multiple equipment instances, there will be a pkey map associated with each equipment instance.

Properties

The exposed properties on the PkeyMap class are:

Table 5.21 Pkey Map Fields

| Element Name | Data Type | Description | Required? |
|---|--------------------|---|-----------|
| Inherits from Entry where Type is a pkey type (section "Provisionable Remote Resource Pkey Map Types" or section "Non Provisionable Remote Resource Pkey Map Types" or a member pkey type (section "Pkey Map Classes")) | | | |
| Purged | Bool (n-v pair) | Read-only flag indicating whether the Pkey item has been purged. | n/a |
| Pkey1 | Guid (n-v pair) | Read-only flag containing the primary identifier of the item on the specified source. | n/a |

| Element Name | Data Type | Description | Required? |
|---------------------|----------------------|---|-----------|
| Pkey2 | Guid (n-v pair) | Read-only flag containing the secondary identifier of the item on the specified source. | n/a |
| ClusterResourceId | String (n-v pair) | The identifier of the equipment instance which this pkey map relates to. | No |
| ClusterResourceType | String (n-v pair) | The type of cluster resource, eg. CRT_CISCO_CICM. | No |

Item Pkey Class

The `ItemPkey` class applies to resources that are mapped to more than one equipment instance. It represents resource information from the equipment instances that this resource is mapped to. It may be created in Unified CCMP or imported into Unified CCMP.

Properties

The exposed properties on the `ItemPkey` class are:

Table 5.22 Item Pkey Fields

| Element Name | Data Type | Description | Required? |
|--|----------------------|---|-----------|
| Inherits from <code>PkeyMap</code> where <code>Type</code> is a pkey type (section "Provisionable Remote Resource Pkey Map Types" or section "Non Provisionable Remote Resource Pkey Map Types") | | | |
| InternalName | String (n-v pair) | The name of the entity on the equipment instance which this pkey map relates to. | Yes |
| Description | String (n-v pair) | The description of the entity on the equipment instance which this pkey map relates to. | No |

Member Pkey Class

The `MemberPkey` class applies to memberships that that are mapped to more than one equipment instance. It represents membership information from the equipment instances that this membership is mapped to. It may be created in Unified CCMP or imported into Unified CCMP.

Properties

The exposed properties of the `MemberPkey` class are:

Table 5.23 Member Pkey Fields

| Element Name | Data Type | Description | Required? |
|---|-------------------|--|------------------|
| Inherits From: PkeyMap where Type is a member pkey type (section "Pkey Map Classes") | | | |
| ParentId | Int (n-v pair) | This is the id of the resource which is the parent resource for the member pkey. | Yes |
| ChildId | Int (n-v pair) | This is the id of the resource which is the child resource for the member pkey. | Yes |

More Information

Specific information about using the pkey map classes is available as follows:

- Each of the provisionable resource types described in section "Provisionable Remote Resource Types" includes information about the fields that may be located on pkey items.
- Each of the APIs described in section "Resource Management Web Service APIs" explains how to use pkey maps with that API.

Editable System Resource Types

Folder Resource Item

Description

The `Folder` resource describes a location in the folder hierarchy that is a container for other system resources or remote resources.

Fields

For folders only the default Resource level fields can be specified. The `FolderId` field represents the identity of the parent folder. For example the path `/Tenant1/Folder1` is identified by a name of `Folder1` and a `FolderId` of the `Tenant1` folder.

Table 5.24 Folder Resource Item Fields

| Element Name | Data Type | Description | Required? |
|----------------------------|----------------------|---|-----------|
| Inherits From: Item | | | |
| Path | String (n-v pair) | The path defining the location of this folder. This is a read-only field set by Unified CCMP on Retrieve or Search operations only. | Yes |
| ParentId | Guid (n-v pair) | The identifier of the folder that is the immediate parent of this folder. This is a read-only field set by Unified CCMP on Retrieve or Search operations only. | Yes |
| PolicyId | Guid (n-v pair) | The id of the security policy associated with the folder. This is a read-only field set by Unified CCMP on Retrieve or Search operations only. | Yes |
| FolderType | String (n-v pair) | The type of folder represented by this instance. One of 'F' for folder or 'T' for tenant folder. Folders of type 'T' are created by the Create Tenant use case only. | Yes |
| PolicyRoot | Bool (n-v pair) | A flag indicating whether the security policy associated with the folder is the policy root. A value of 1 indicates root policy. This is a read-only field set by Unified CCMP on Retrieve or Search operations only. | Yes |

Note

The `Folder` resource does not use the following `Item` elements: `InternalName`, `MappedClusterResources` and `MappedClusterResourceDetails`.

Associated Name Fields for Folders

As well as the fields above, the following associated name fields can also be used to sort Folder resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.25 Associated Name Fields for Sorting Folders

| Associated Name Field | Related Element |
|--------------------------|-------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |

Model

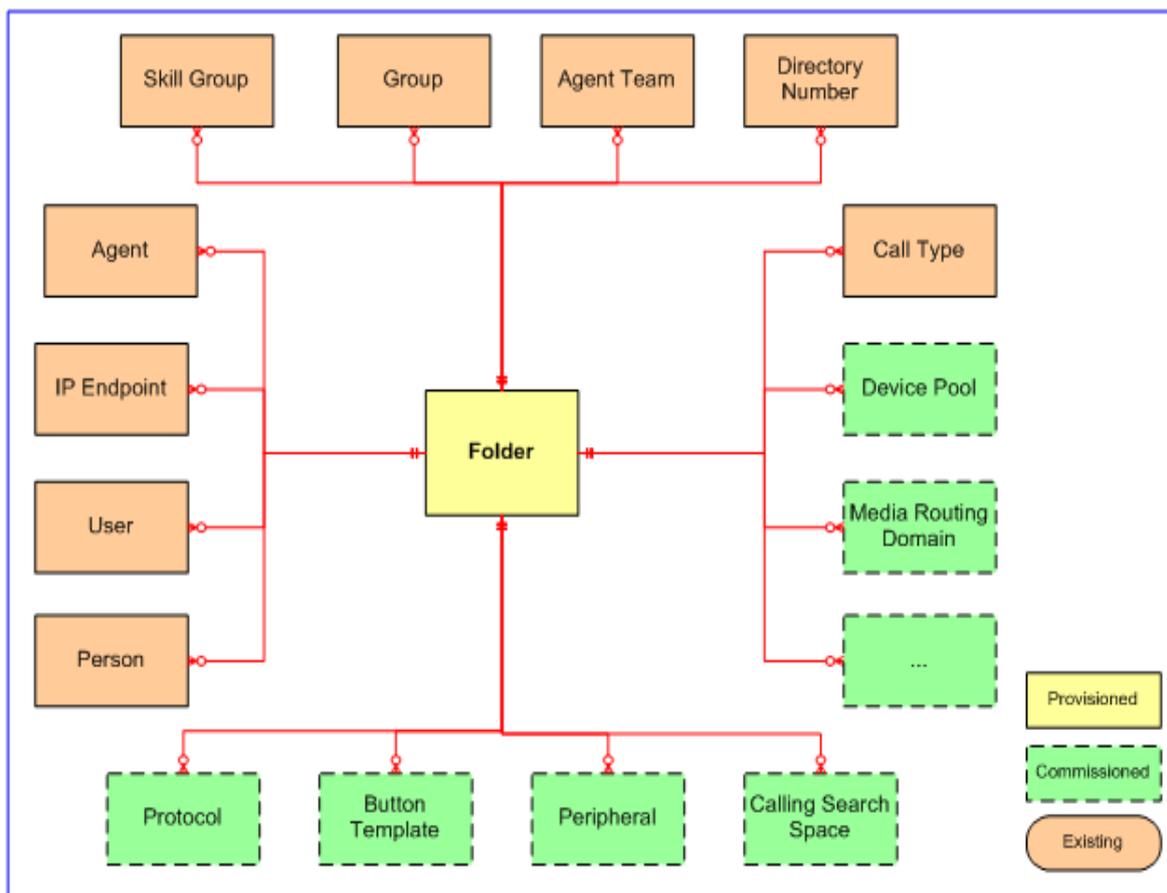


Figure 5.4 Folder Relationships

REST Protocol

| Folder REST API Summary | | | | |
|--------------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /folders/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Sync. | POST | 200 OK | [Base URL]/folders |
| Delete | Sync. | DELETE | 202 Accepted | [Base URL]/folders/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/folder |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/folders/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/folders |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_FOLDER&max%3a10 |
| Update | Sync. | PUT | 202 Accepted | [Base URL]/folders/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/folders | | | |

Group Resource Item**Description**

The Group resource is used to group users to apply role based security. Groups can contain other groups.

Fields

Only the default Resource level fields can be set or read on a group resource.

Table 5.26 Group Resource Item Fields

| Element Name | Data Type | Description | Required? |
|----------------------------|-----------------|---|-----------|
| Inherits From: Item | | | |
| Enabled | Bool (n-v pair) | Flag indicating whether the group is enabled. Used to disable a security group. | No |
| Hidden | Bool (n-v pair) | Flag indicating whether the group is hidden. Used for system security groups that are not visible to tenants. | No |

Note

The Group resource does not use the following Item elements: InternalName, MappedClusterResources and MappedClusterResourceDetails.

Associated Name Fields for Groups

As well as the fields above, the following associated name fields can also be used to sort Group resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.27 Associated Name Fields for Sorting Groups

| Associated Name Field | Related Element |
|--------------------------|-------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |

Model

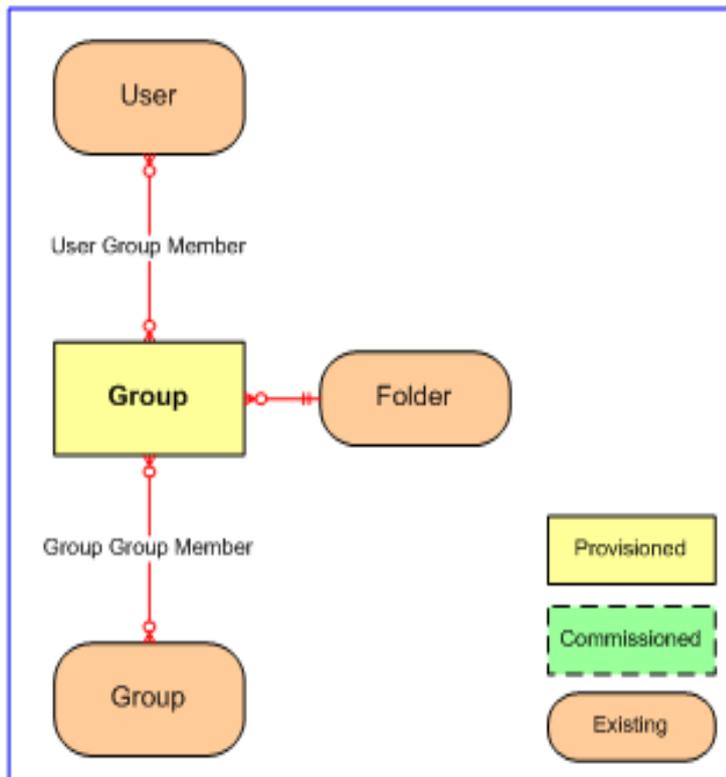


Figure 5.5 Group Relationships

REST Protocol

| Group REST API Summary | | | | |
|-------------------------------|---|---------------|---------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /groups/<id>,<id>/audits? fromDate=<fromdate>& toDate=<toDate>... |
| Create | Sync. | POST | 200 OK | [Base URL]/groups |

| Group REST API Summary | | | | |
|-------------------------------|--|--------|--------------|---|
| Delete | Sync. | DELETE | 202 Accepted | [Base URL]/groups/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/group |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/groups/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/groups |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_GROUP&max%3a10 |
| Update | Sync. | PUT | 202 Accepted | [Base URL]/groups/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/groups | | | |

User Resource Item

Description

The User resource is the login record for an Unified CCMP user. It defines the user's association with roles, tasks and groups and determines what they are allowed to see and do. There are typically three classes of users:

- Host Administrator - can view and amend all resources on the complete platform.
- Tenant Administrator - can view and amend all resources that are owned by that tenant. This is the typical user account that calls the Unified CCMP Web Services.
- Agent or Supervisor - can view and amend all resources to which the tenant folder structure allows them, for example, Baltimore agents can only view resources in the Baltimore folder.

Fields

The following fields can be read or set for a user resource.

Table 5.28 Fields in User Resource Item

| Element Name | Data Type | Description | Required? |
|----------------------------|-------------------------------|--|------------------------------|
| Inherits From: Item | | | |
| LoginName | String (70) (n-v pair) | The login name for an Unified CCMP user. Additionally, for ISE-enabled users, and all users in installations that use SSO, the following applies. The login name must correspond to an existing Windows Active Directory user, and must be formatted as <username>@<domain-name>, where <username> is the Windows user name and <domain-name> is the fully qualified Windows domain name. An example is user1@testdomain.local . The login name must exactly match the details in the corresponding Active Directory entry. | Yes |
| PassPhrase | String (100) (n-v pair) | The passphrase for the normal user. This is not required when operating with an external security provider. | Depends on ICM configuration |
| NewPassPhrase | String (100) (n-v pair) | The new passphrase for the user. Only required when the passphrase is being changed. | No |
| Description | String (500) (n-v pair) | The description of this instance of the resource. | No |
| FailedAttempts | Int (n-v pair) | This the number of failed login attempts by the user. This is a read-only field only set on Retrieve or Search operations. | No |
| AccountLocked | Bool (n-v pair) | A flag indicating whether the user's account has been locked or not. This is a read-only field only set on Retrieve or Search operations. A value of True indicates the account is locked. The default is False. | No |
| PassPhraseExpired | Bool (n-v pair) | A flag indicating whether the user's passphrase has expired or not. Value of true indicated pass phrase expired. Default is false. | No |
| PassPhraseNeverExpires | Bool (n-v pair) | A flag indicating whether the user's passphrase will never expire. A value of true indicates that the passphrase never expires. Default is false. | No |

| Element Name | Data Type | Description | Required? |
|-------------------------|------------------------------|--|-----------|
| PassPhraseChangeEnabled | Bool (n-v pair) | A flag indicating whether the user can change their passphrase or not. A value of true indicates that the user can change their passphrase. Default is true. | No |
| CreateHomeFolder | Bool (n-v pair) | Used on create only, to indicate whether a home folder should be created automatically for this user. If this is true, a home folder for the user will be created directly below the folder where the user is being created. The folder name will be the same as the user name, followed by the user folder suffix, as set in the Web UI, using Settings > Security > User Folder Suffix . | No |
| HomeFolder | String (n-v pair) | The folder where the user is taken to when they log in. Basic users will be unable to navigate out of this folder. This field is optional, but if specified, the folder must already exist. On create, this value is only used if CreateHomeFolder is not true. On create, if this is not set and CreateHomeFolder is not true, the user's home folder will be set to the folder where the user is being created. On edit, this specifies the new folder to use as the user's home folder. <i>Note. When creating a user, do not set this field if you have also set CreateHomeFolder to true.</i> | No |
| FirstName | String (36) (n-v pair) | The first name of the user. | No |
| LastName | String (50) (n-v pair) | The last name of the user. | No |
| EMail | String (50) (n-v pair) | The email address associated with the user. On some external security providers, this acts as an alternative primary key. | No |

| Element Name | Data Type | Description | Required? |
|--------------|----------------------|--|-----------|
| Expert | String (n-v pair) | A flag indicating when the user has expert mode enabled. A value of 1 indicates that expert mode is enabled. | No |
| TimeZone | String (n-v pair) | The time-zone in which the user is located. See section "Valid Time Zones" for the list of valid time zones. | No |

Note

The User resource does not use the following Item elements: InternalName, MappedClusterResources and MappedClusterResourceDetails.

Associated Name Fields for Users

As well as the fields above, the following associated name fields can also be used to sort User resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.29 Associated Name Fields for Sorting Users

| Associated Name Field | Related Element |
|--------------------------|-------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |

Model

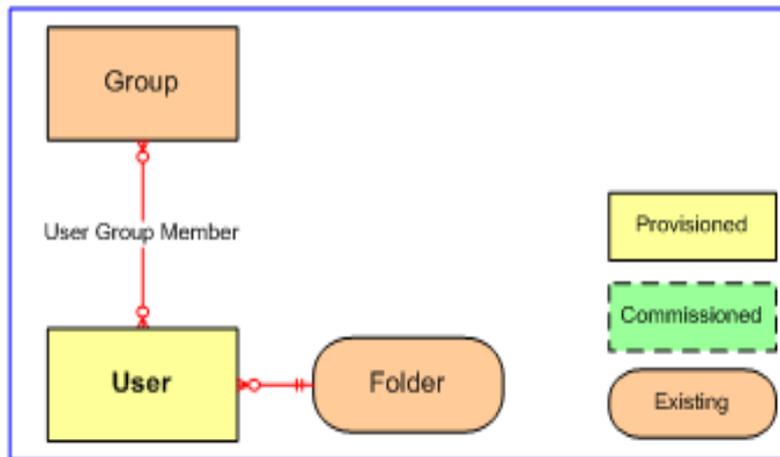


Figure 5.6 User Relationships

REST Protocol

| Folder REST API Summary | | | | |
|-------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /folders/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Sync. | POST | 200 OK | [Base URL]/users |
| Delete | Sync. | DELETE | 202 Accepted | [Base URL]/users/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/user |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/users/<id>,<id> |

| Folder REST API Summary | | | | |
|--------------------------------|---|------|--------------|---|
| Save | Sync. | POST | 200 OK | [Base URL]/members/users |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_USER&max%3a10 |
| Update | Sync. | PUT | 202 Accepted | [Base URL]/users/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/users | | | |

Provisionable Remote Resource Types

Agent Resource Item

Description

The Agent resource represents a customer service representative on a specific equipment instance (Peripheral) and contains the information for that agent specific to that equipment. A particular customer service representative may correspond to more than one agent resource. For example, John Smith the person has an agent record for a Voice Peripheral on which he answers phone calls and an agent record on an E-Mail Peripheral on which he answers emails.

Fields

The following fields can be read or set for Agent resource objects.

Table 5.30 Agent Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|---------------------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| PeripheralUrn | String (10) (n-v pair) | The peripheral or equipment identifier on which the agent will be located. If -1 is supplied then Unified CCMP will pick the Peripheral automatically. Note: cannot be updated after the Create. Default: -1 | Yes | No |
| AgentDesktopUrn | String (10) (n-v pair) | The desktop profile to be used by this agent. Default to -1 if not set. Note: can be modified using the Update call. Default: -1 | No | No |
| PersonUrn | String (10) (n-v pair) | The Person resource to which this agent will be associated. A Person can only have one Agent representation on any one Peripheral but can have a representation on all the relevant underlying Peripherals. For example, a Person can have an Agent Resource on a Voice Peripheral and an Agent Resource on an E-Mail Peripheral. Default: -1 | Yes | No |

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------|----------------------------------|---|-----------|-------|
| PeripheralNumber | String (50) (n-v pair) | This is the agents login ID at the switch. | No | Yes |
| PeripheralName | String (50) (n-v pair) | This is the name of the agent as known to the peripheral. | No | Yes |
| Supervisor | Bool (n-v pair) | This is a flag indicating whether the agent can be a supervisor of agent teams or not. Default: false. | No | Yes |
| AgentStateTrace | Bool (n-v pair) | This is a flag indicating whether the agent state trace data needs to be collected or not. Default: false. | No | Yes |
| DomainUserName | String (255) (n-v pair) | This is the user name. This is populated only if the agent is set as a supervisor. | No | Yes |
| DomainUserGuid | String (36) (n-v pair) | This is the unique identifier of the user in the active directory. This is populated only if the agent is set as a supervisor. | No | Yes |
| DomainPassPhrase | String (50) (n-v pair) | For future use. This is the pass phrase for the user on the Active Directory | No | Yes |
| UserDeletable | Bool (n-v pair) | Indicates if the item can be deleted by end users as opposed to the Unified CCMP background processes. Note: used for Unified CCE parent/child configurations only. | No | Yes |
| UserGroupId | String (n-v pair) | The User Group ID for this Agent on Unified CCE. | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Fields for Agents

As well as the fields above, the following associated name fields can also be used to sort Agent resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.31 Associated Name Fields for Sorting Agents

| Associated Name Field | Related Element |
|-------------------------------|------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentAgentDesktopDisplayName | Agent.AgentDesktopUrn |
| ParentDepartmentDisplayName | Agent.DepartmentBizUrn |
| ParentPeripheralDisplayName | Agent.PeripheralUrn |
| ParentPersonDisplayName | Agent.PersonUrn |
| ParentPersonFirstName | Agent.PersonUrn |
| ParentPersonLastName | Agent.PersonUrn |
| ParentPersonLoginName | Agent.PersonUrn |
| ParentPersonLoginEnabled | Agent.PersonUrn |

Model

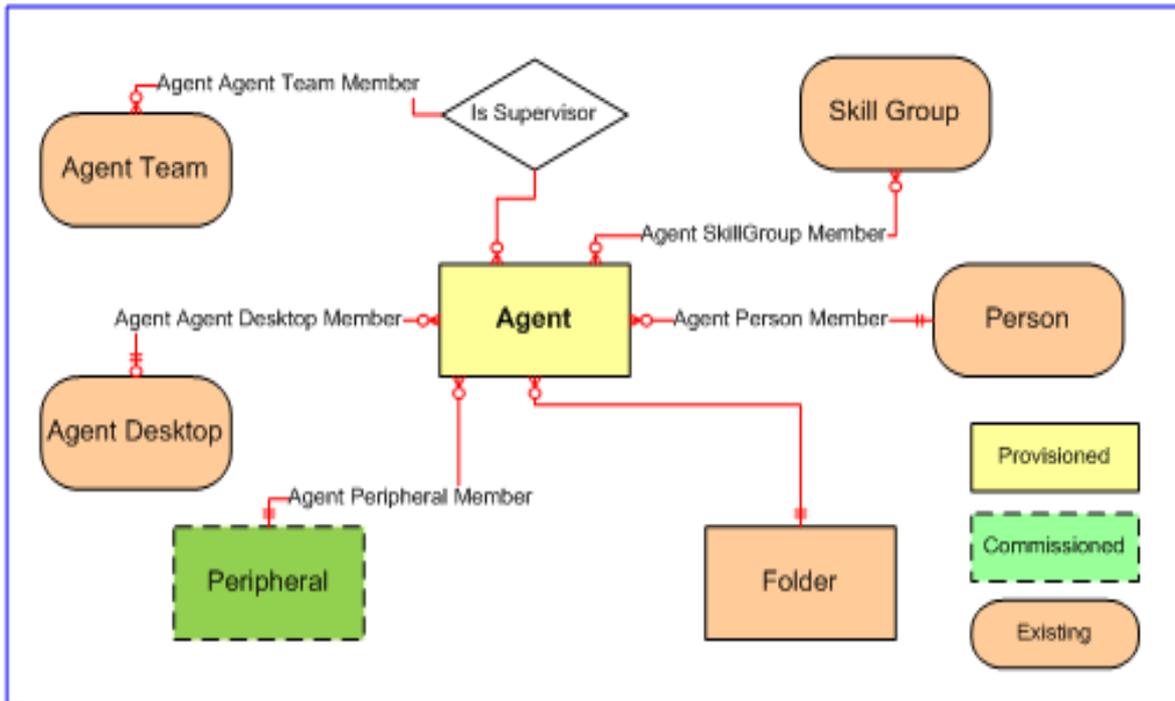


Figure 5.7 Agent Relationships

REST Protocol

| Agent REST API Summary | | | | |
|-------------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /agents/<id>,<id>/audits? fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/agents |

| Agent REST API Summary | | | | |
|------------------------|--|--------|--------------|---|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/agents/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/agent |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/agents/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/agents |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_AGENT&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/agents/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/agents | | | |

Agent Desktop Resource Item

Description

The AgentDesktop resource represents the options available to an agent, typically via their CTI desktop.

This resource has an optional resource membership to a dialed number which represents the Ring No Answer Dialed Number.

Fields

The following fields can be read or set for Agent Desktop resources.

Table 5.32 Agent Desktop Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-----------------|---|-----------|-------|
| Inherits From: DimensionItem | | | | |
| AvailableAfterIncoming | Bool (n-v pair) | A flag indicating whether to consider an agent to be available after handling an incoming call. | No | Yes |
| AvailableAfterOutgoing | Bool (n-v pair) | A flag indicating whether to consider an agent to be available after handling an outbound call. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|-----------------------------|-----------------|---|-----------|-------|
| WrapupDataIncomingMode | Int (n-v pair) | A flag indicating whether the agent is allowed or required to enter wrap-up data after handling an incoming call. This takes the values 0: Required; 1: Optional; 2: Not allowed. | No | Yes |
| WrapupDataOutgoingMode | Int (n-v pair) | A flag indicating whether the agent is allowed or required to enter wrap-up data after handling an outbound call. This takes the values 0: Required; 1: Optional; 2: Not allowed. | No | Yes |
| AutoAnswerEnabled | Bool (n-v pair) | A flag indicating whether the calls to the agent are automatically answered. | No | Yes |
| IdleReasonRequired | Bool (n-v pair) | A flag indicating whether the agent should enter a reason before entering the Idle state. | No | Yes |
| LogoutNonActivityTime | Int (n-v pair) | The number of seconds after which the agent will be logged out automatically if there is no activity at the agent desktop. This value is between 10 and 7200. | No | Yes |
| LogoutReasonRequired | Bool (n-v pair) | A flag indicating whether the agent is required to enter a reason before logging out. | No | Yes |
| SupervisorCallsAllowed | Bool (n-v pair) | A flag indicating whether the agent can initiate supervisor assisted calls. | No | Yes |
| SupervisorAssistCall Method | Int (n-v pair) | A value that indicates whether system would create a consultative or a blind conference call for the supervisor assistance request. This takes the values 0: Consultative; 1: Blind conference. | No | Yes |
| EmergencyCallMethod | Int (n-v pair) | A value that indicates whether system would create a consultative or a blind conference call for the emergency call request. This takes the values 0: Consultative; 1: Blind conference. | No | Yes |
| AutoRecordOnEmergency | Bool (n-v pair) | A flag indicating whether to automatically record or not to record when an emergency call request is started. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------|-----------------|--|-----------|-------|
| AgentToAgentCalls Allowed | Bool (n-v pair) | A flag indicating whether calls to other agents are allowed. | No | Yes |
| OutboundAccess International | Bool (n-v pair) | A flag indicating whether the agent can initiate international calls. | No | Yes |
| OutboundAccessPublic Network | Bool (n-v pair) | A flag indicating whether the agent can initiate calls through public network. | Yes | Yes |
| OutboundAccessPrivate Network | Bool (n-v pair) | A flag indicating whether the agent can initiate calls through private network. | Yes | Yes |
| OutboundAccessOperator Assisted | Bool (n-v pair) | A flag indicating whether the agent can initiate operator assisted calls. | No | Yes |
| OutboundAccessPBX | Bool (n-v pair) | A flag indicating whether the agent can initiate outbound PBX calls. | No | Yes |
| NonACDCallsAllowed | Bool (n-v pair) | A flag indicating whether the agent can place or handle non-ACD calls. | No | Yes |
| QualityRecordingRate | Int (n-v pair) | A value in seconds indicating how frequently calls to the agent are recorded. | No | Yes |
| RecordingMode | Int (n-v pair) | A value that indicates whether the call requests are routed through Unified Communications Manager. Value 0 indicates that the calls do not get routed through Unified Communications Manager. | No | Yes |
| WorkModeTimer | Int (n-v pair) | A value indicating the wrap-up time out in seconds. This value is between 1 and 7200. | No | Yes |
| RingNoAnswerTime | Int (n-v pair) | A value indicating the number of seconds a call may ring at the agent's station before it is redirected. This value is between 1 and 120. | No | Yes |
| SilentMonitorWarning Message | Bool (n-v pair) | A flag indicating whether a warning message will appear on the agent's desktop when silent monitoring is started. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|--------------------------------|-------------------|---|-----------|-------|
| SilentMonitorAudibleIndication | Bool (n-v pair) | A flag indicating whether an audio click will sound when silent monitoring is started. | No | Yes |
| DefaultDevicePortAddress | String (n-v pair) | A value to override the default port address of the agent's telephony device. | No | Yes |
| AgentCanSelectGroup | Bool (n-v pair) | A flag indicating whether the agent can select which group they are logged in to. | No | Yes |
| RemoteAgentType | Int (n-v pair) | A value indicating how mobile agents who use this dial plan are handled. This takes the values 0: Local agent, no remote access; 1: Use call by call mobile agent routing; 2: Use nailed connection for mobile agents; 3: Agent chooses at login. | No | Yes |
| RemoteLoginWithoutDesktop | Bool (n-v pair) | A flag indicating whether mobile agents are allowed to login without a desktop. | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Agent Desktops

As well as the fields above, the following associated name fields can also be used to sort Agent Desktop resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.33 Associated Name Fields for Sorting Agent Desktops

| Associated Name Field | Related Element |
|-----------------------------|-------------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | AgentDesktop.DepartmentBizUrn |

Model

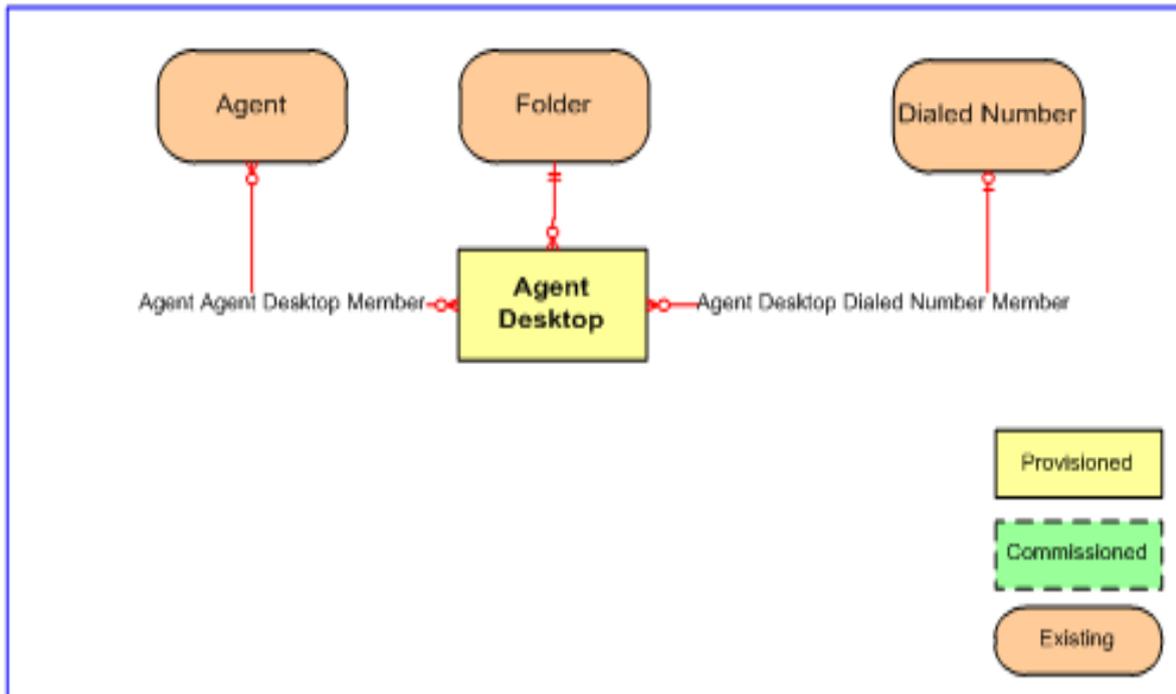


Figure 5.8 Agent Desktop Relationships

REST Protocol

| Agent REST API Summary | | | | |
|------------------------|---|--------|--------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/agent-desktops/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/agent-desktops |

| Agent REST API Summary | | | | |
|-------------------------------|--|--------|--------------|--|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/agent-desktops/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/agent-desktop |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/agent-desktops/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/agent-desktops |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_AGENT_DESKTOP&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/agent-desktops/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/agent-desktops | | | |

Agent Team Resource Item

Description

The AgentTeam resource represents a specific collection of agent resources, usually with an assigned supervisor. Call routing does not use this resource type. It is used for line management. The Agent team is linked to a specific equipment peripheral to ensure that agents on an equipment instance are grouped together. For other grouping types use a folder resource or hierarchy. For the Cisco UCCE call routing platform an agent is typically only a member of one agent team.

Fields

The following fields can be read or set for Agent Team resources:

Table 5.34 Agent Team Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|---------------------------------|---|-----------|-------|
| Inherits From: DimensionItem | | | | |
| PeripheralUrn | String (10) (n-v pair) | The peripheral or equipment identifier on which the agent team will be located. If -1 is supplied then Unified CCMP will pick the Peripheral automatically. Note: cannot be updated after the Create. | Yes | No |
| DialedNumberUrn | String (10) (n-v pair) | The default dialed number associated with this agent team. | No | No |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Agent Teams

As well as the fields above, the following associated name fields can also be used to sort Agent Team resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.35 Associated Name Fields for Sorting Agent Teams

| Associated Name Field | Related Element |
|-------------------------------|----------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | AgentTeam.DepartmentBizUrn |
| ParentDialedNumberDisplayName | AgentTeam.DialedNumberUrn |
| ParentPeripheralDisplayName | AgentTeam.PeripheralUrn |

Model

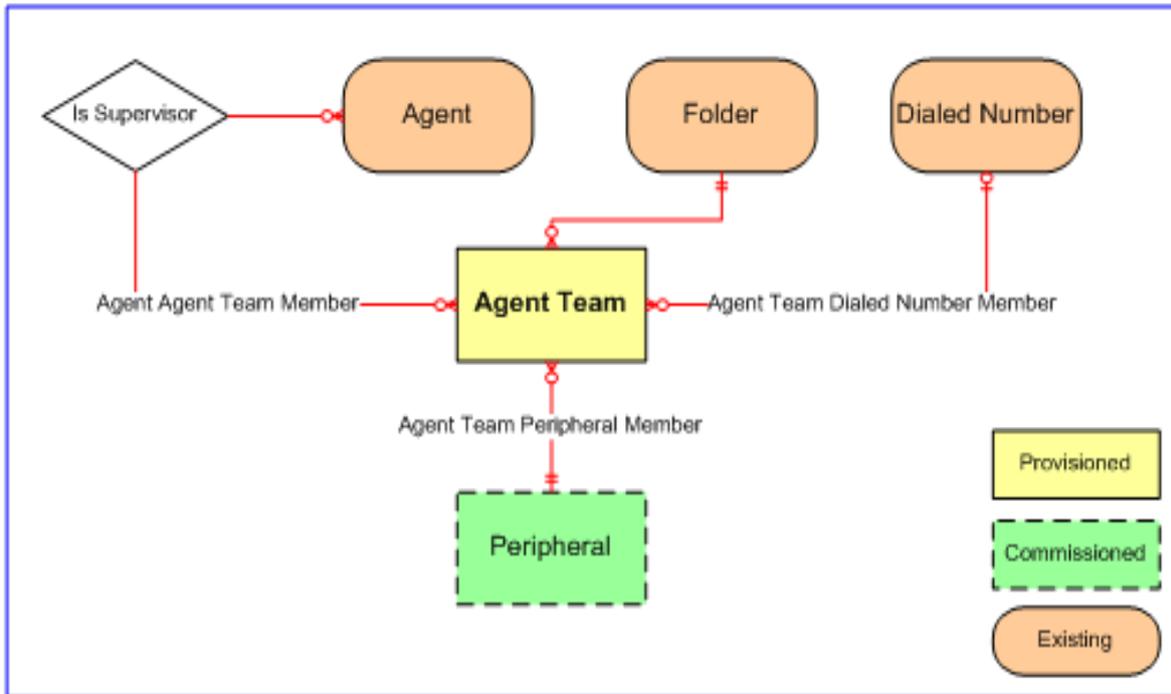


Figure 5.9 Agent Team Relationships

REST Protocol

| Agent Team REST API Summary | | | | |
|-----------------------------|---|--------|--------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/agent-teams/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/agent-teams |

| Agent Team REST API Summary | | | | |
|------------------------------------|---|--------|--------------|---|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/agent-teams/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/agent-team |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/agent-teams/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/agent-teams |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_AGENT_TEAM&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/agent-teams/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/agent-teams | | | |

Call Type Resource Item

Description

The `CallType` resource represents a classifier applied to a specific class of calls. This enables the treatment of calls to be handled by a specific routing script; typically after the call has been segmented by IVR treatment or simple caller enter digits.

Fields

The following fields can be read or set for Call Type resources:

Table 5.36 Call Type Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|----------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| ServiceLevelThreshold | Int (n-v pair) | The service level threshold for the Call Type. Possible values are: 0: None (default) 1: Use global settings 2 or greater: Threshold value in seconds | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------|---------------------|--|-----------|-------|
| ServiceLevelType | Short (n-v pair) | This is the type that defines how service levels are calculated for the Call Type. Defaults to 0. This takes the values: 0: Default 1: Ignore abandoned calls 2: Abandoned calls have negative impact 3: Abandoned calls have positive impact. | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Call Types

As well as the fields above, the following associated name fields can also be used to sort Call Type resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.37 Associated Name Fields for Sorting Call Types

| Associated Name Field | Related Element |
|-----------------------------|---------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | CallType.DepartmentBizUrn |

Model

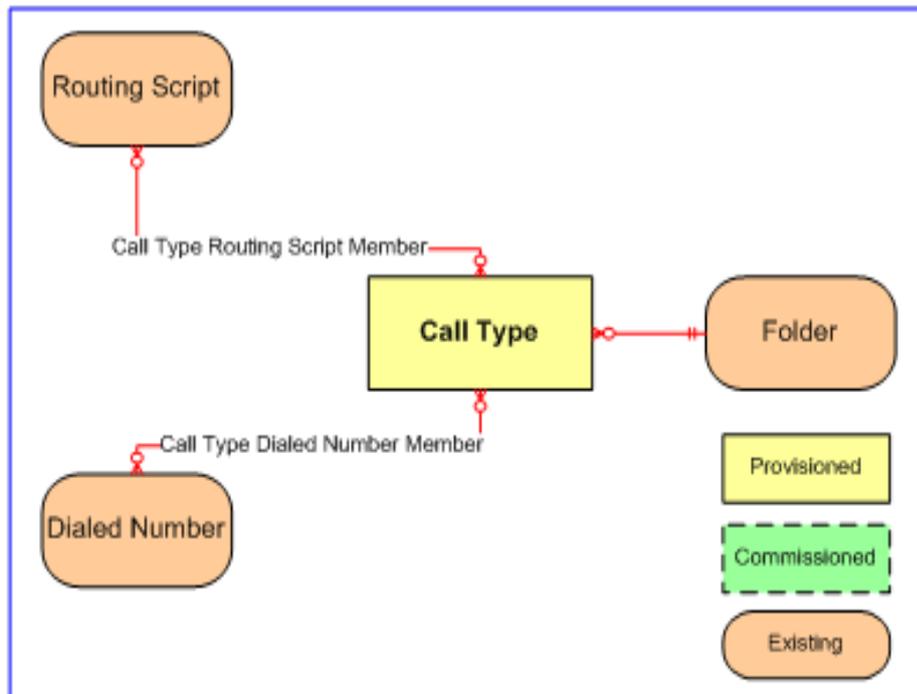


Figure 5.10 Call Type Relationships

REST Protocol

| Call Type REST API Summary | | | | |
|----------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/call-types/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/call-types |

| Call Type REST API Summary | | | | |
|----------------------------|--|--------|--------------|--|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/call-types/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/call-type |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/call-types/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/call-types |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_CALL_TYPE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/call-types/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/call-types | | | |

Calling Search Space Resource Item

Description

The `CallingSearchSpace` resource represents a specific collection of Route Partitions that are considered before an IP call can be made.

Fields

The following fields can be read or set for Calling Search Space resources:

Table 5.38 Calling Search Space Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|---------------------------|---------------------------------|-----------|-------|
| Inherits From: DimensionItem | | | | |
| Clause | String(500) (n-v pair) | CSV list of Route Partition Ids | Yes | Yes |

Associated Name Fields for Calling Search Spaces

As well as the fields above, the following associated name fields can also be used to sort Calling Search Space resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.39 Associated Name Fields for Sorting Calling Search Spaces

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

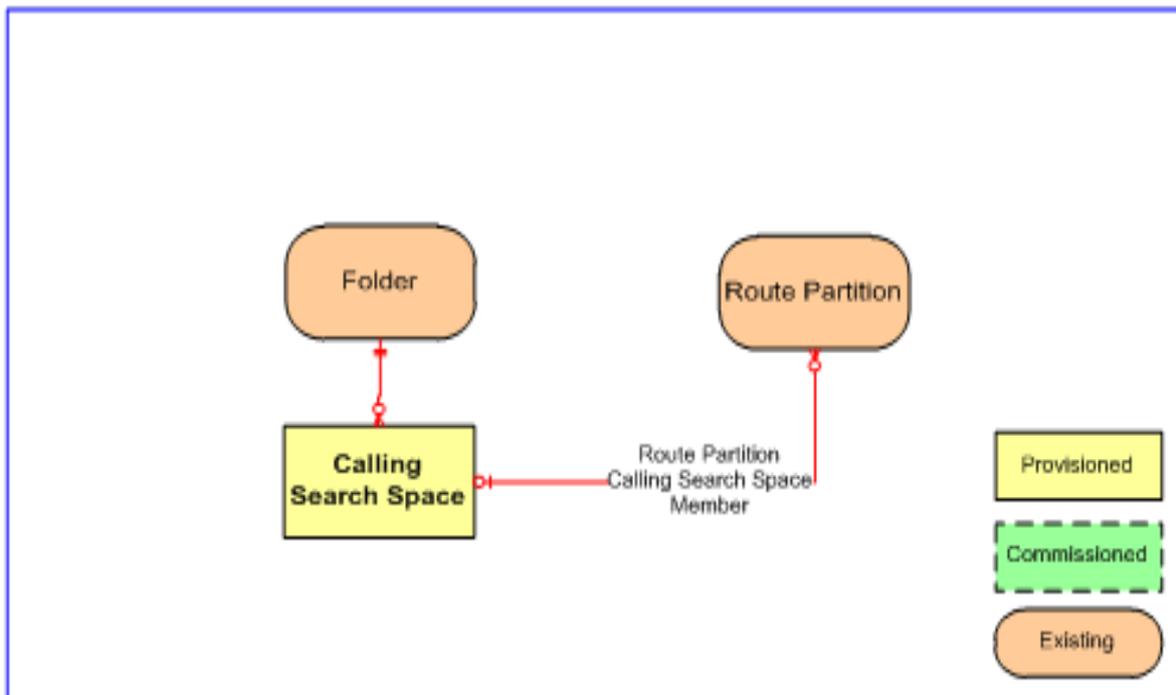


Figure 5.11 Calling Search Space Relationships

REST Protocol

| Calling Search Space REST API Summary | | | | |
|--|---|---------------|---------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/calling-search-spaces/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/calling-search-spaces |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/calling-search-spaces/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/calling-search-space |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/calling-search-spaces/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/calling-search-spaces/ |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_CALLLING_SEARCH_SPACE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/calling-search-spaces/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/calling-search-spaces | | | |

Department Resource Item**Description**

The Department resource is a way of grouping resources according to a business need.

Fields

The following fields can be read or set for Department resources:

Table 5.40 Department Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionItem | | | | |
| No further fields. | | | | |

Associated Name Fields for Departments

As well as the fields above, the following associated name fields can also be used to sort Department resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.41 Associated Name Fields for Departments

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

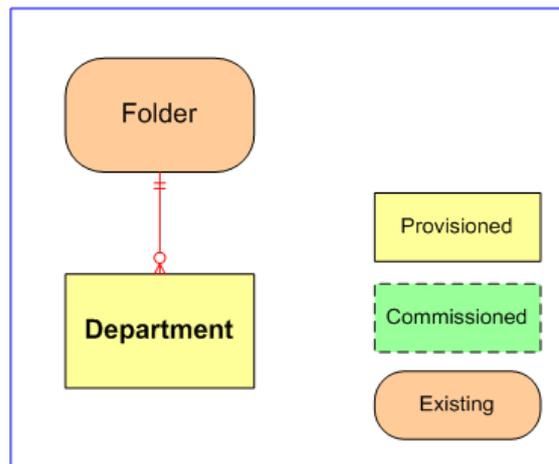


Figure 5.12 Department Relationships

REST Protocol

| Department REST API Summary | | | | |
|-----------------------------|---|--------|--------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/department/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/departments |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/departments/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/department |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |

| Department REST API Summary | | | | |
|-----------------------------|---|------|--------------|---|
| Retrieve | Sync. | GET | 200 OK | [Base URL]/departments/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/departments |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_DEPARTMENT&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/departments/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/departments | | | |

Device Profile Resource Item

Description

The DeviceProfile represents a collection of fields that are associated with a particular device.

Fields

The following fields can be read or set for Device Profile resources:

Table 5.42 Device Profile Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-------------------|---|---|-------|
| Inherits From: DimensionItem | | | | |
| IPEndpointButtonTemplateUrn | String (n-v pair) | Parent resource that must be supplied during the create process. Note: this is only applicable to devices which support button templates. | Yes, if the device supports button templates, otherwise no. | No |
| ProductCodeBizUrn | Int (n-v pair) | Foreign key to a product code. Code type: CG_DEVICE_PRODUCT | No | No |
| ProtocolCodeBizUrn | Int (n-v pair) | Foreign key to a protocol code. Code type: CG_DEVICE_PROTOCOL | No | No |
| TemplateData | Xml (n-v pair) | The template attributes that will be used as a default for any IP Endpoint Creation | No | No |

Associated Name Fields for Device Profiles

As well as the fields above, the following associated name fields can also be used to sort Device Profile resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.43 Associated Name Fields for Device Profiles

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

Figure 5.13 Device Profile Relationships

REST Protocol

| Device Profile REST API Summary | | | | |
|---------------------------------|---|---------------|---------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/device-profiles/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/device-profiles |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/device-profiles/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/device-profile |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |

| Device Profile REST API Summary | | | | |
|---------------------------------|---|------|--------------|---|
| Retrieve | Sync. | GET | 200 OK | [Base URL]/device-profiles/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/device-profiles |
| | Sync. | GET | 200 OK | [Base URL]? queryString=type%3aIT_DEVICE_PROFILE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/device-profiles/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/device-profiles | | | |

Dialed Number Resource Item

Description

The DialedNumber resource represents the entry point into the contact center product set. The call can be pre-screened and segmented using IVR or go straight through to an agent queuing solution or a combination of both. Care is needed with this resource type since many organizations have only a single 01800 dialed number entry point and invalid removal of this can make many agents idle.

Fields

The following fields can be read or set for Dialed Number resources:

Table 5.44 Dialed Number Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|------------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| RoutingClientUrn | String (10) (n-v pair) | The routing client that services this dialed number. | Yes | No |
| MediaRoutingDomainUrn | String (10) (n-v pair) | The media routing domain that services this dialed number. | Yes | No |

| Element Name | Data Type | Description | Required? | Pkey? |
|--------------------------|------------------------|--|-----------|-------|
| DialedNumber | String (32) (n-v pair) | This is a string indicating the dialable number for the directory number. This can be the actual numeric number or a route pattern with wildcards. | No | No |
| PermitApplicationRouting | Bool (n-v pair) | Flag determining whether application routing is allowed on this dialed number. | No | Yes |
| SelfCareEnabled | Bool (n-v pair) | Flag indicating whether self-care is enabled for this dialed number. | No | No |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Dialed Numbers

As well as the fields above, the following associated name fields can also be used to sort Dialed Number resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.45 Associated Name Fields for Sorting Dialed Numbers

| Associated Name Field | Related Element |
|-----------------------------|-------------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | DialedNumber.DepartmentBizUrn |

Model

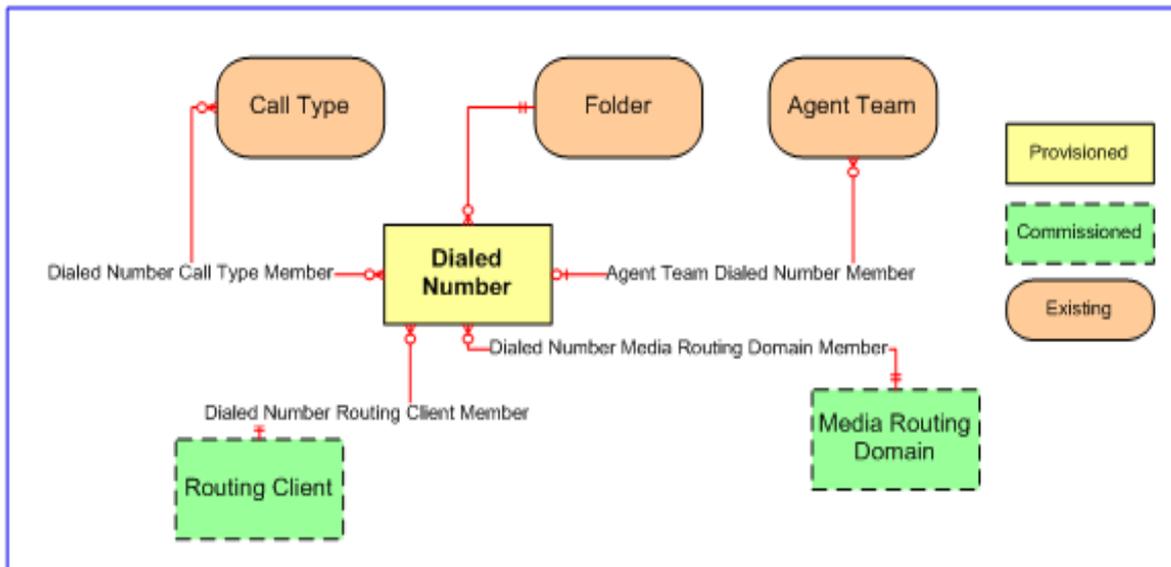


Figure 5.14 Dialed Number Relationships

REST Protocol

| Dialed Number REST API Summary | | | | |
|--------------------------------|---|--------|--------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/dialled-numbers/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/dialled-numbers |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/dialled-numbers/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/dialled-number |

| Dialed Number REST API Summary | | | | |
|--------------------------------|--|------|--------------|---|
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/dialed-numbers/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/dialed-numbers |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_DIALED_NUMBER&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/dialed-numbers/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/dialed-numbers | | | |

Directory Number Resource Item

Description

The `DirectoryNumber` resource represents an extension number or number pattern on a switch. This type is only created by Unified CCMP when Unified CCMP is the only provisioning tool. When other provisioning tools are used then Unified CCMP detects new instances of this type by reading the switch directly as part of the import process.

Fields

The following fields can be read or set for Directory Number resources:

Table 5.46 Directory Number Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|------------------------|---|-----------|-------|
| Inherits From: DimensionItem | | | | |
| DirectoryNumberOrPattern | String (50 (n-v pair)) | This is a string indicating the dial-able number for the directory number. This can be the actual numeric number or a route pattern with wildcards. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|----------------------|-----------------------|---|-----------|-------|
| IPCCEnabled | Bool (n-v pair) | This is a flag indicating whether the directory number is IPCC enabled. For example; in a Cisco UCCE deployment model this value is set if there is a matching device target on the Unified CCE associated with the Unified Communications Manager to which this directory number belongs. This matching is done based on the value in the CONFIG_PARAM column in TB_DIM_DIRECTORY_NUMBER and the DIRECTORY_NUMBER_OR_PATTERN in for this record. The default value is false (the directory number is not IPCC-enabled). | No | Yes |
| RoutePartitionBizUrn | Int (n-v pair) | This is the route partition associated with the directory number. | No | No |

Associated Name Fields for Directory Numbers

As well as the fields above, the following associated name fields can also be used to sort Directory Number resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.47 Associated Name Fields for Directory Numbers

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

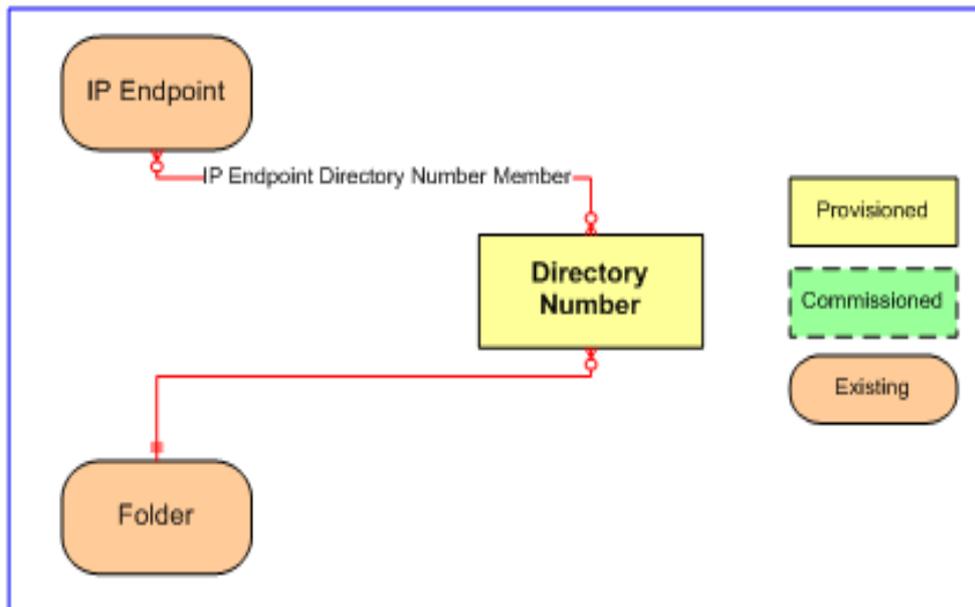


Figure 5.15 Directory Number Relationships

REST Protocol

| Directory Number REST API Summary | | | | |
|-----------------------------------|---|--------|--------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/directory-numbers/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/directory-numbers |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/directory-numbers/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/directory-numbers |

| Directory Number REST API Summary | | | | |
|-----------------------------------|---|------|--------------|--|
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/directory-numbers/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/directory-numbers/ |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_DIRECTORY_NUMBER&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/directory-numbers/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/directory-numbers | | | |

Enterprise Skillgroup Resource Item

Description

The EnterpriseSkillgroup represents a specific collection of skillgroups.

Fields

The following fields can be read or set for Enterprise Skillgroup resources:

Table 5.48 Enterprise Skill Group Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|----------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Enterprise Skillgroups

As well as the fields above, the following associated name fields can also be used to sort Enterprise Skillgroup resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.49 Associated Name Fields for Sorting Enterprise Skillgroups

| Associated Name Field | Related Element |
|-----------------------------|---------------------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | EnterpriseSkillGroup.DepartmentBizUrn |

Model

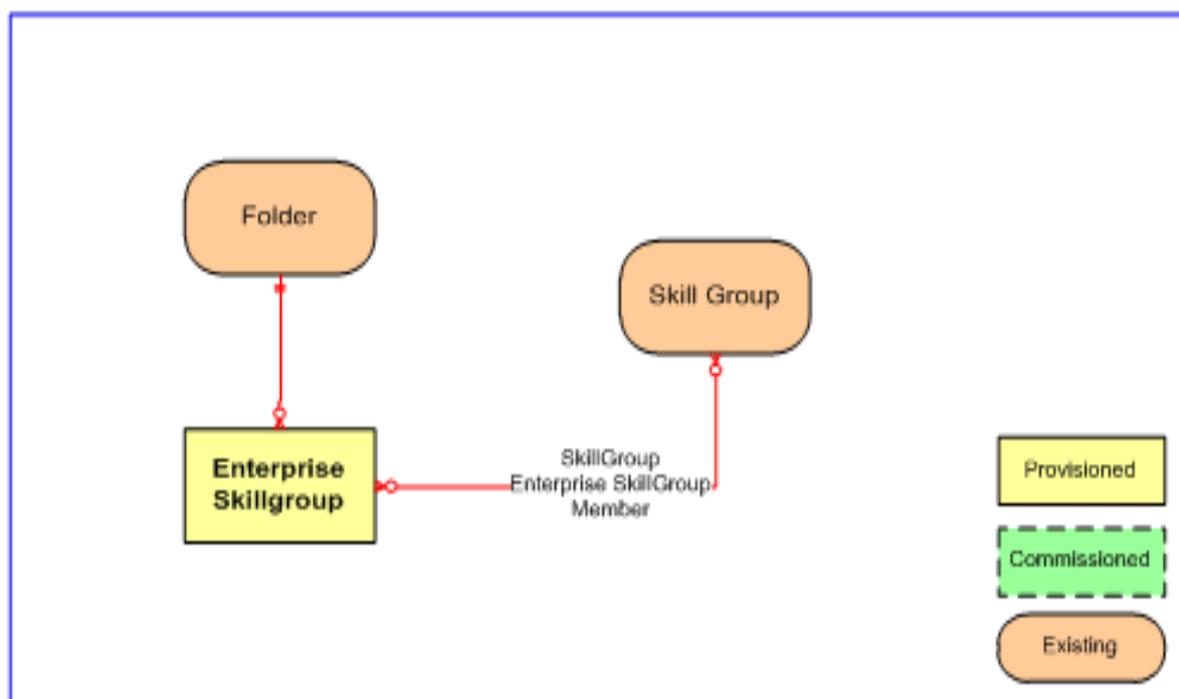


Figure 5.16 Enterprise Skillgroup Relationships

REST Protocol

| Enterprise Skillgroup REST API Summary | | | | |
|---|--|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/enterprise-skillgroups/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/enterprise-skillgroups |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/enterprise-skillgroups/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/enterprise-skillgroup |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/enterprise-skillgroups/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/enterprise-skillgroups/ |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_ENTERPRISE_SKILLGROUP&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/enterprise-skillgroups/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/enterprise-skillgroups | | | |

Expanded Call Variable Resource Item

Description

The ExpandedCallVariable resource is used to hold scripting and other data variables.

Fields

The following fields can be read or set for Expanded Call Variable resources:

Table 5.50 Expanded Call Variable Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|---------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| ECCArray | Bool (n-v pair) | This is a flag indicating whether the call variable is an array. Default: false. | No | Yes |
| VariableEnabled | Bool (n-v pair) | This is a flag indicating whether the call variable is enabled. Default: false. | No | Yes |
| GeoTelProvided | Bool (n-v pair) | This is a flag indicating whether the call variable is provided by Cisco. Default: false. | No | Yes |
| MaximumArraySize | Short (n-v pair) | This value indicates the number of elements in the array if the call variable is set as an array. The values are between 1 and 255. Default: 0 | No | Yes |
| MaximumLength | Short (n-v pair) | This value indicates the maximum length for the call variable. This value is between 1 and 210. Default: 1 | No | Yes |
| Persistent | Bool (n-v pair) | This is a flag indicating whether the call variable is persistent or not. Default: true. | No | Yes |

Associated Name Fields for Expanded Call Variables

As well as the fields above, the following associated name fields can also be used to sort Expanded Call Variable resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.51 Associated Name Fields for Sorting Expanded Call Variables

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

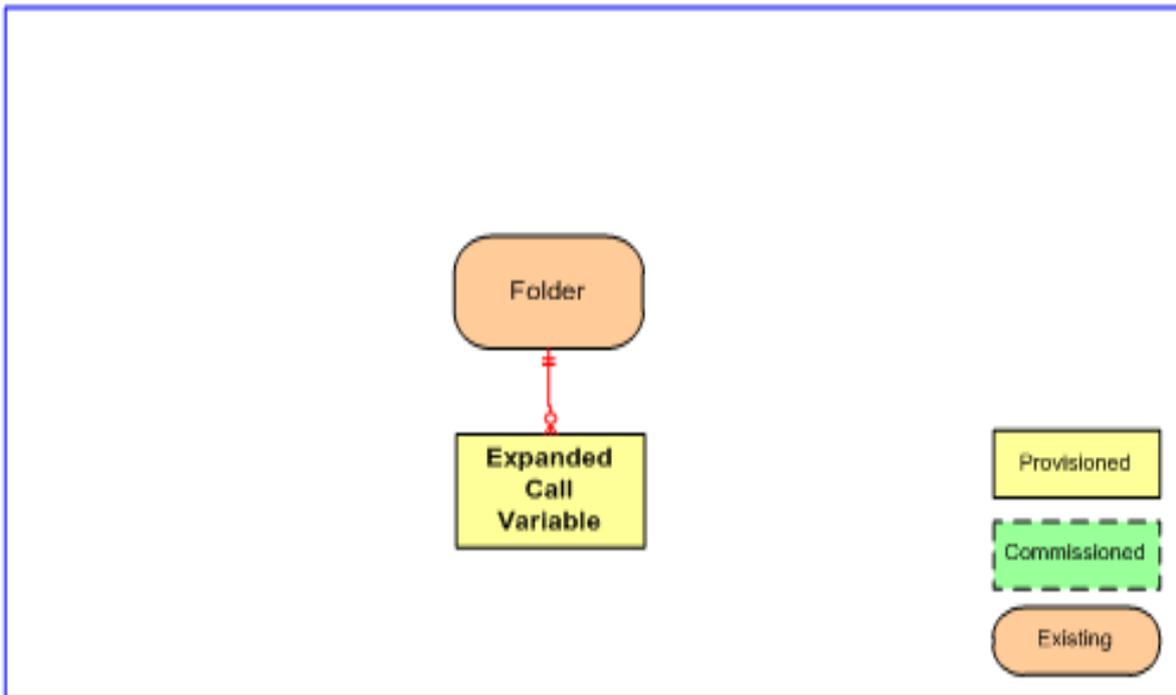


Figure 5.17 Expanded Call Variable Relationships

REST Protocol

| Expanded Call Variable REST API Summary | |
|---|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources |
| IO Format | XML or JSON |

| Expanded Call Variable REST API Summary | | | | |
|--|---|---------------|---------------|--|
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/expanded-call-variables/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/expanded-call-variables |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/expanded-call-variables/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/label |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/expanded-call-variables/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/expanded-call-variables |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_EXPANDED_CALL_VARIABLE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/expanded-call-variables/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/expanded-call-variables | | | |

IP Endpoint Resource Item

Description

The IPEndpoint resource represents the termination point of any IP stream. This includes devices such as phones as well as other IP sinks. This API is only used when Unified CCMP is the only provisioning tool; when there are other provisioning tools, Unified CCMP detects this type by reading the switch directly.

Fields

The following fields can be read or set on IP Endpoint Resource objects.

Table 5.52 IP Endpoint Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|---------------------------------|---|---|-------|
| Inherits From: DimensionItem | | | | |
| PeripheralUrn | String (10) (n-v pair) | The peripheral or equipment identifier on which the IP Endpoint will be located. Note: cannot be updated after the Create. | Yes | No |
| DevicePoolUrn | String (10) (n-v pair) | The device pool in which this IP Endpoint will be located. Note: cannot be modified using the Update call. | Yes | No |
| CallingSearchSpaceUrn | String (10) (n-v pair) | The Calling Search Space in which this IP Device will be located. | No | No |
| IPEndPointButtonTemplateUrn | String (10) (n-v pair) | The button template to be associated with this device. Note: this is only applicable to devices which support button templates. | Yes, if the device supports button templates, no otherwise. | No |
| ProductCodeBizUrn | String (10) (n-v pair) | Foreign key to a product code. Code type: CG_DEVICE_PRODUCT. Cannot be updated after creation. | No | No |
| ProtocolCodeBizUrn | String (10) (n-v pair) | Foreign key to a protocol code. Code type: CG_DEVICE_PROTOCOL. Cannot be updated after creation. | No | No |
| MACAddress | String (17) (n-v pair) | The MAC address of the device. | Yes | No |

| Element Name | Data Type | Description | Required? | Pkey? |
|--------------------------|-----------------------|--|-----------|-------|
| TemplateData | Xml (n-v pair) | The template data to be used when creating this IP device. Cannot be updated after creation. | Yes | No |
| ExtensionMobilityEnabled | Bool (n-v pair) | Flag indicating whether the extension mobility is to be used with this IP Device. | No | No |

Associated Name Fields for IP Endpoints

As well as the fields above, the following associated name fields can also be used to sort IP Endpoint resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.53 Associated Name Fields for Sorting IP Endpoints

| Associated Name Field | Related Element |
|-----------------------------|--------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentPeripheralDisplayName | IPEndpoint.PeripheralUrn |

Model

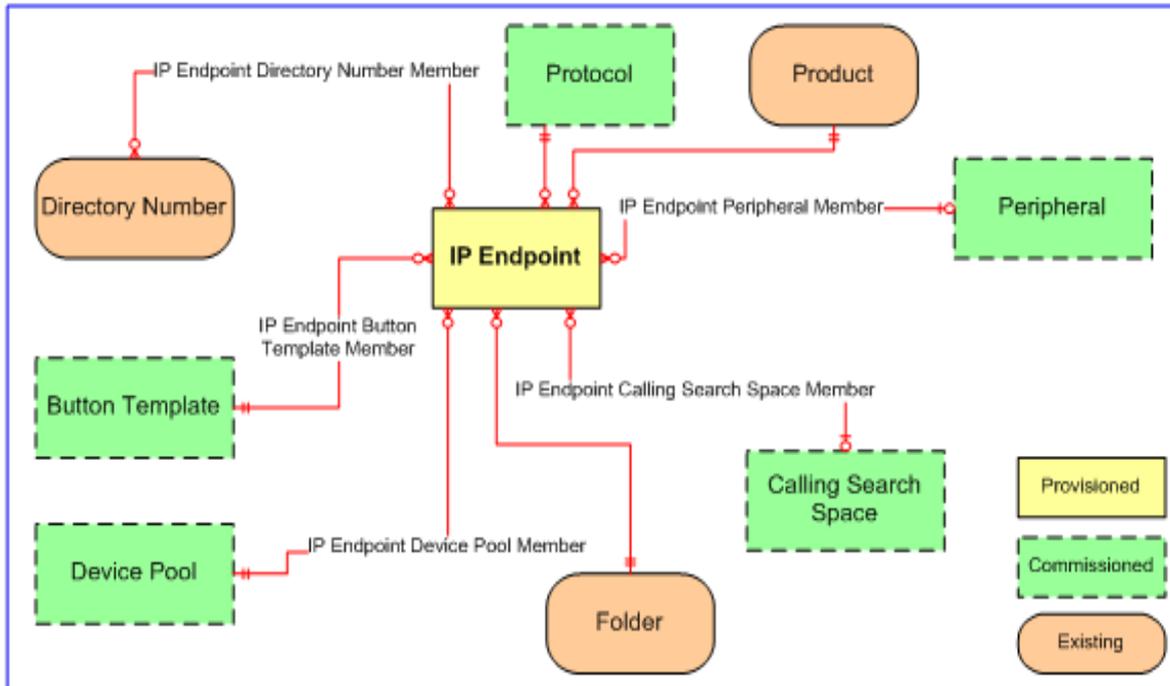


Figure 5.18 IP Endpoint Relationships

REST Protocol

| IP Endpoint REST API Summary | | | | |
|------------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/ip-endpoints/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/ip-endpoints |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/ip-endpoints/<id>,<id> |

| IP Endpoint REST API Summary | | | | |
|------------------------------|--|------|--------------|---|
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/ip-endpoint |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/ip-endpoints/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/ip-endpoints |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_IP_ENDPOINT&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/ip-endpoints/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/ip-endpoints | | | |

Auto Selection of Device Pool

When creating a phone through the web service and -1 is specified for the DevicePoolUrn, Unified CCMP uses the following logic to automatically select a device pool to associate with the new phone:

1. Lookup the call manager time group to find a time group that corresponds to the user's time zone. This lookup is performed first using the standard name for the time zone, otherwise the time zone offset and daylight savings information is used.
2. Lookup the call manager group as follows:
 - a. If a phone already exists that is associated (via the device pool) to a call manager group with spare capacity (observing the 250 phone capacity limit), then select the call manager group of the existing phone.
 - b. Otherwise, select the call manager group with the lowest available capacity but with enough space for a further 20 (configurable) phones.
3. Select the Device Pool associated with the chosen call manager group and time group.

The following errors may be reported:

- Unable to locate a call manager group with spare capacity.
- Unable to find a time group for the user's time zone.

The capacity limit of 250 phones per call manager group is configured by the data stored in TB_ADM_CAPACITY.

IVR Script Resource Item

Description

The `IVRScript` resource represents the IVR script on the Customer Voice Portal (CVP). It is used to control call routing. IVR scripts can be created using Cisco Unified Call Studio.

Note. In the *Unified CCMP* web application, IVR scripts are called *IVR apps*.

Fields

The following fields can be read or set on IVR script resource objects.

Table 5.54 IVR Script Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|--|-------------------------|--|-----------|-------|
| Inherits From: <code>DimensionItem</code> | | | | |
| <code>ScriptName</code> | String (100) (n-v pair) | The name of the IVR script on the IVR app server. | Yes | Yes |
| <code>Description</code> | String (255) (n-v pair) | The description of the IVR script on the IVR app server. | No | Yes |

Associated Name Fields for IVR Scripts

As well as the fields above, the following associated name fields can also be used to sort IVR script resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.55 Associated Name Fields for Sorting IVR Script

| Associated Name Field | Related Element |
|---------------------------------------|------------------------------------|
| <code>ParentCreatedByLoginName</code> | <code>Entry.CreatedById</code> |
| <code>ParentFolderPath</code> | <code>Item.FolderId</code> |
| <code>ParentOwnerName</code> | <code>DimensionItem.OwnerId</code> |

Model

Figure 5.19 IVR Script Relationships

REST Protocol

| IVR Scripts REST API Summary | | | | |
|-------------------------------------|---|---------------|----------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/ivr-scripts/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async | [POST] | [202 Accepted] | [Base URL]/ivr-scripts |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/ivr-scripts/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/ivr-script |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/ivr-scripts/<id>,<id> |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_IVR_SCRIPT&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/ivr-scripts/<id>,<id> |
| Deploy | Async. | [POST] | [202 Accepted] | Base URL/ivr-scripts/deploy?contentType=application/zip |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/ivr-scripts | | | |

Label Resource Item**Description**

The Label resource represents a string that is passed to a routing client for each network target.

Fields

The following fields can be read or set for Label resources:

Table 5.56 Label Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| RoutingClientUrn | String (n-v pair) | Parent resource that must be supplied during the create process. | Yes | No |
| LabelType | Short (n-v pair) | This value indicates the type of the label. This takes the values 0: Normal; 1: DNIS override; 2: Busy; 3: Ring; 4: Post-Query; 5: Resource. | Yes | Yes |

Associated Name Fields for Labels

As well as the fields above, the following associated name fields can also be used to sort Label resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.57 Associated Name Fields for Sorting Labels

| Associated Name Field | Related Element |
|--------------------------------|------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentRoutingClientDisplayName | Label.RoutingClientUrn |

Model

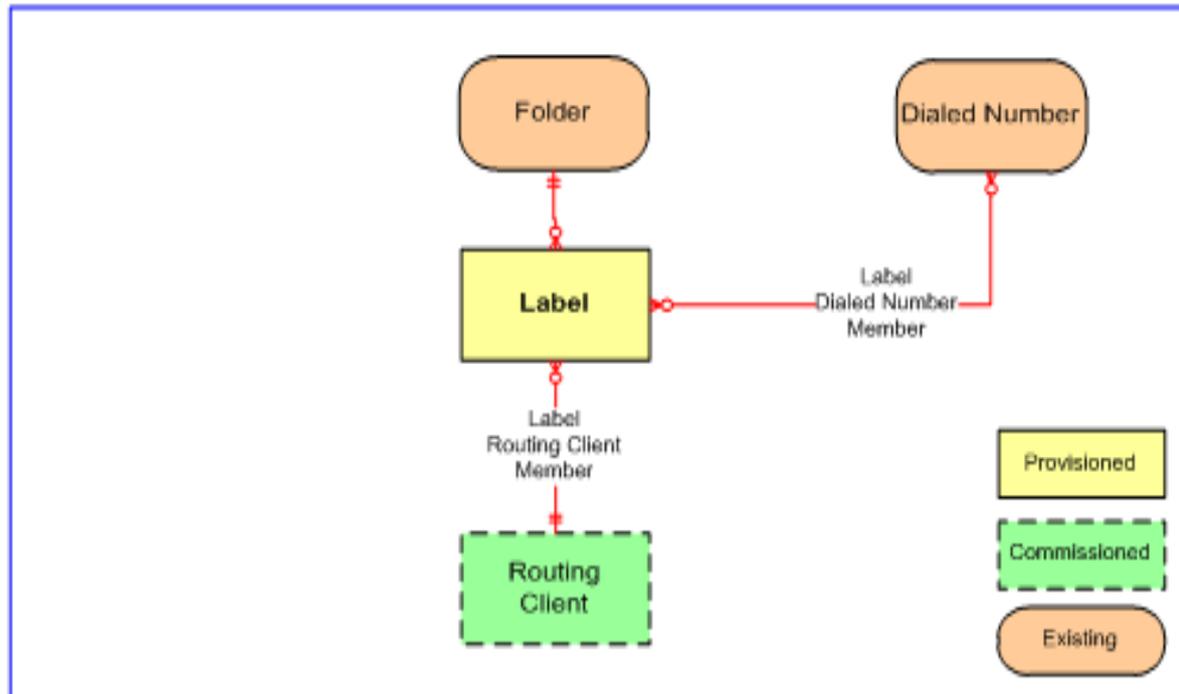


Figure 5.20 Label Relationships

REST Protocol

| Label REST API Summary | | | | |
|------------------------|---|--------|--------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /labels/<id>,<id>/audits? fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/labels |

| Label REST API Summary | | | | |
|-------------------------------|--|--------|--------------|---|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/labels/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/label |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/labels/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/labels |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_LABEL&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/labels/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/labels | | | |

Media File Resource Item

Description

The MediaFile resource represents a media file on CVP servers. This is a .wav file used by IVR to play back prompts and messages to callers.

Fields

The following fields can be read or set on media file resource objects.

Table 5.58 Media File Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|------------------|--|------------------|--------------|
| Inherits From: DimensionItem | | | | |
| Filename | | The name of the media file on the media file server. | Yes | Yes |
| Path | | The file path of the media file on the media file server. This field cannot be edited. | Yes | Yes |
| Size | | The size of the item. This field cannot be created or edited. | N/A | Yes |
| Checksum | | The check-sum of the item. This field cannot be created or edited. | N/A | Yes |

Associated Name Fields for Media Files

As well as the fields above, the following associated name fields can also be used to sort media file resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.59 Associated Name Fields for Sorting Media Files

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

Figure 5.21 Media File Relationships

REST Protocol

| Media files REST API Summary | | | | |
|------------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/mediafiles/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/mediafiles |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/mediafiles/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/mediafile |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/mediafiles/<id>,<id> |

| Media files REST API Summary | | | | |
|------------------------------|--|------|--------------|--|
| Save | Sync. | POST | 200 OK | [Base URL]/members/mediafiles |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_MEDIAFILE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/mediafiles/<id>,<id> |
| Upload | Async | PUT | [200 OK] | Base URL/mediafiles/3565/content?contentType=audio/wav |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/mediafiles | | | |

Network VRU Script Resource Item

Description

The NetworkVruScript resource represents a script run on a Network VRU to handle a call.

Fields

The following fields can be read or set for Network VRU Script resources:

Table 5.60 Network VRU Script Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|------------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| VruScriptName | String (n-v pair) | This is the name of the script on the VRU. | Yes | Yes |
| NetworkVruUrn | String (10) (n-v pair) | Foreign key to the Network VRU that this script is associated with. | Yes | No |
| Interruptible | Bool (n-v pair) | This is a flag indicating whether the script can be interrupted. Default: False. | No | Yes |

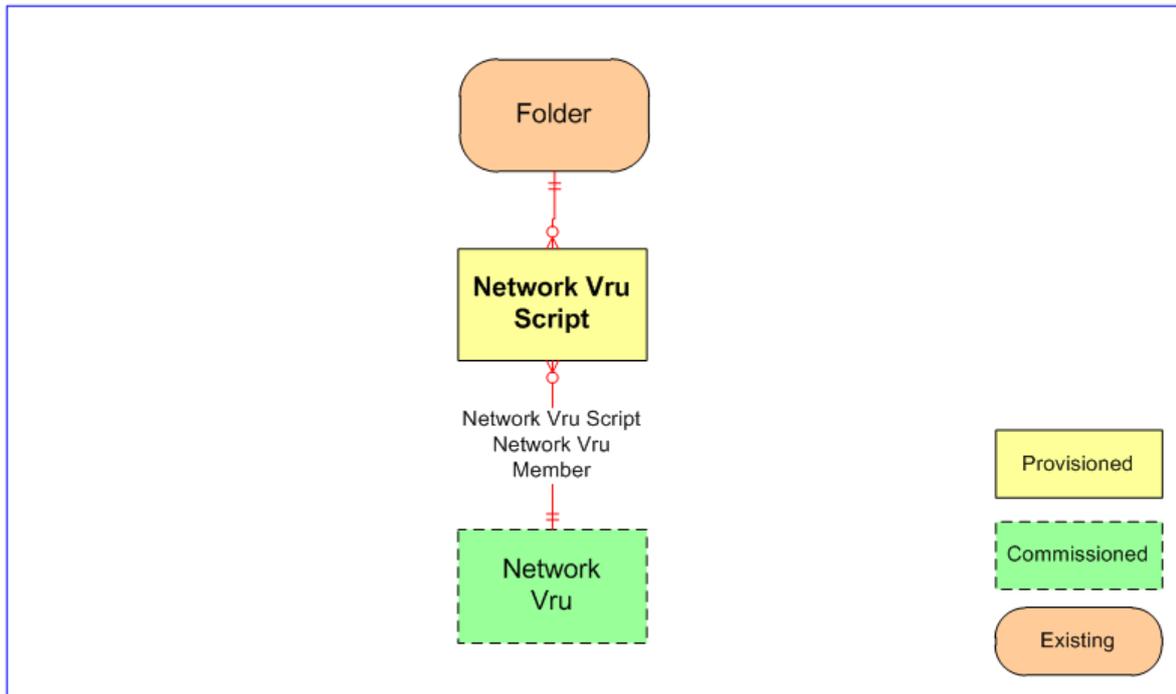
| Element Name | Data Type | Description | Required? | Pkey? |
|------------------|----------------------|---|-----------|-------|
| Overridable | Bool (n-v pair) | This is flag indicating whether the VRU script can override its interruptible flag. Default: False. | No | Yes |
| ConfigParam | String (n-v pair) | This is string that is sent to the VRU for initialization. | No | Yes |
| Timeout | Int (n-v pair) | This is the number of seconds for which the software will wait for a response from the routing client after directing it to run the script. Default: 0. | Yes | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Network VRU Scripts

As well as the fields above, the following associated name fields can also be used to sort Network VRU Script resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.61 Associated Name Fields for Sorting Network VRU Scripts

| Associated Name Field | Related Element |
|-----------------------------|-----------------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | NetworkVruScript.DepartmentBizUrn |
| ParentNetworkVruDisplayName | NetworkVruScript.NetworkVruUrn |

Model**Figure 5.22 Network VRU Script Relationships****REST Protocol**

| Network VRU Script REST API Summary | | | | |
|-------------------------------------|---|---------------|---------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/network-vru-scripts/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/network-vru-scripts |

| Network VRU Script REST API Summary | | | | |
|-------------------------------------|---|--------|--------------|--|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/network-vru-scripts/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/network-vru-script |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/network-vru-scripts/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/network-vru-scripts |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_NETWORK_VRU_SCRIPT&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/network-vru-scripts/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/network-vru-scripts | | | |

Person Resource Item

Description

The Person resource represents any person resource on the system, not only customer service representatives but also managers and end customers (people not registered on switch) It is often used for a high speed data dip for CRM-style data-directed routing and IVR services.

Fields

The following fields can be read or set for Person resources.

Table 5.62 Fields in Person Resource Item

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|------------------------------|---|-----------|-------|
| Inherits From: DimensionItem | | | | |
| Gender | String (20) (n-v pair) | This is the title for the person. This is not a constrained vocabulary. | No | No |

| Element Name | Data Type | Description | Required? | Pkey? |
|--------------|-------------------------------|---|------------------------------|-------|
| DOB | DateTime (n-v pair) | This is the date of birth of the person. | No | No |
| DOD | DateTime (n-v pair) | This is the date of death of the person. | No | No |
| FirstName | String (50) (n-v pair) | This is the first name of the person. | Yes | Yes |
| LastName | String (50) (n-v pair) | This is the last name of the person. | Yes | Yes |
| Address | String (255) (n-v pair) | This is the communication address of the person if specified. | No | No |
| EmployeeType | String (20) (n-v pair) | The tenant specific classification if this person is an employee. This is not a constrained vocabulary. | No | No |
| GovernmentID | String (50) (n-v pair) | The country specific identifier for this person for example, Social Security number. | No | No |
| EmployeeID | String (50) (n-v pair) | The company specific identifier for this person for example, payroll number. | No | No |
| Grade | Short (n-v pair) | The grade or rank of this person within the company. | No | No |
| Competence | Short (n-v pair) | The competence level of this person within the specified grade. | No | No |
| UserID | Guid (n-v pair) | The primary identifier of this user | No | No |
| LoginName | String (50) (n-v pair) | This is the login name associated with the person. This is unique | Yes | Yes |
| PassPhrase | String (50) (n-v pair) | This is the pass phrase used by the person with the associated login name. | Depends on ICM configuration | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------|--------------------|--|-----------|-------|
| LoginEnabled | Bool (n-v pair) | This field indicates whether login for the person is enabled or not. | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Persons

As well as the fields above, the following associated name fields can also be used to sort Person resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.63 Associated Name Fields for Sorting Persons

| Associated Name Field | Related Element |
|-----------------------------|-------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentUserLoginName | Person.UserID |
| ParentDepartmentDisplayName | Person.DepartmentBizUrn |

Model

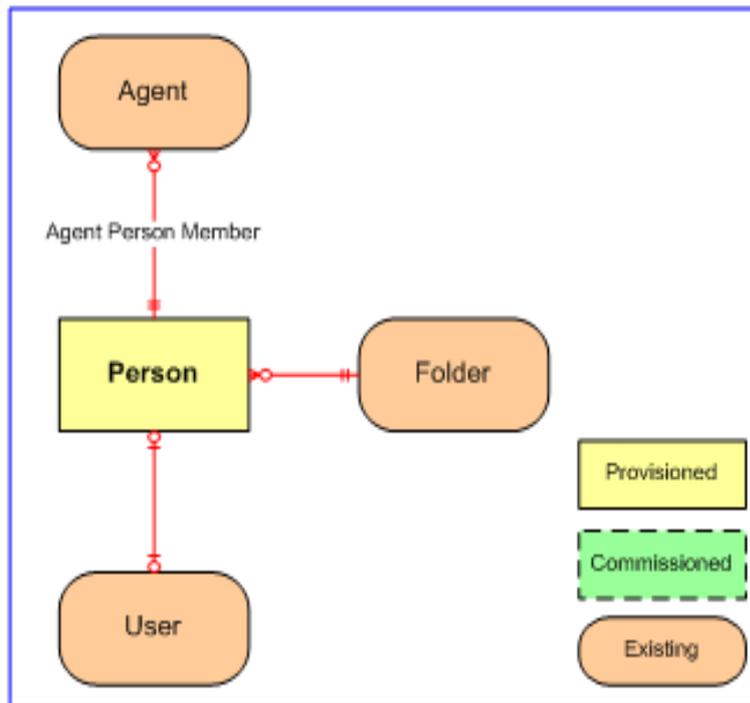


Figure 5.23 Person Relationships

REST Protocol

| Person REST API Summary | | | | |
|-------------------------|---|---------------|---------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /persons/<id>,<id>/audits? fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/persons |

| Person REST API Summary | | | | |
|-------------------------|---|--------|--------------|--|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/persons/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/person |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/persons/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/persons |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_PERSON&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/persons/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/persons | | | |

Precision Attribute Resource Item

Description

The `PrecisionAttribute` resource represents the attributes that may belong to an Agent. It is used for precision queue based call routing.

Fields

The following fields can be read or set for Precision Attribute resources:

Table 5.64 Precision Attribute Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| AttributeDataType | Int (n-v pair) | Use this parameter to assign a data type to the attribute using the following values: 3 = Boolean, 4 = Proficiency (special form of Integer) | Yes | Yes |
| MinimumValue | String (n-v pair) | Used only for Proficiency Data Types, and default value is 1. | No | Yes |
| MaximumValue | String (n-v pair) | Used only for Proficiency data types, and default value is 10. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------|----------------------|--|-----------|-------|
| DefaultValue | String (n-v pair) | Use this parameter to specify a default value for the attribute when assigned to an agent if no explicit value is provided. For Boolean data types, valid default values are True and False. For Proficiency data types, valid default values are 1-10 | Yes | Yes |
| AppearsOnDesktop | Bool (n-v pair) | For future use. | No | Yes |
| SettableByAgent | Bool (n-v pair) | For future use. | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Precision Attributes

As well as the fields above, the following associated name fields can also be used to sort Precision Attribute resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.65 Associated Name Fields for Sorting Precision Attributes

| Associated Name Field | Related Element |
|-----------------------------|---|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | PrecisionAttribute. DepartmentBizUrn |

Model

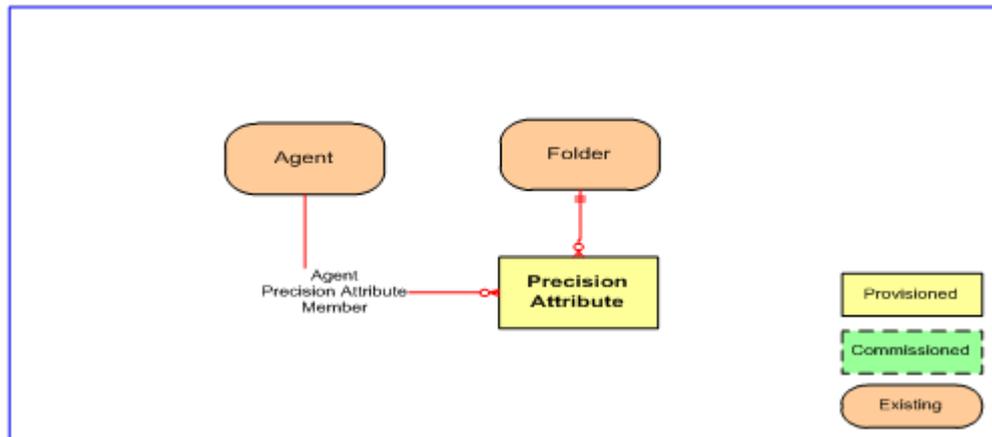


Figure 5.24 Precision Attribute Relationships

REST Protocol

| Precision Attribute Resource REST API Summary | | | | |
|---|---|--------|--------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Create | Async. | POST | 202 Accepted | [Base URL]/precision-attributes |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/precision-attributes/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/precision-attribute |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/precision-attributes/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/precision-attributes |

| Precision Attribute Resource REST API Summary | | | | |
|---|--|-----|--------------|---|
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_PRECISION_ATTRIBUTE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/precision-attributes/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/precision-attributes | | | |

Precision Queue Step Resource Item

Description

The PrecisionQueueStep resource is a set of ordered steps that apply to a Precision Queue.

Note

A Precision Queue Step cannot exist on its own: it is always associated with a single Precision Queue. A Precision Queue Step must also be associated with at least one Precision Attribute.

Creating Precision Queue Steps

When a Precision Queue is first created, at least one Precision Queue Step and the associated memberships must be specified and created at the same time (see section "Precision Queue Resource Item").

When you create a Precision Queue Step independently of a Precision Queue, you must also:

- specify an existing parent Precision Queue for the Precision Queue Step (the Precision Queue Step Precision Queue Member item that links the queue and the step will be created automatically when the step is created)
- create one or more Precision Queue Step Precision Attribute Member items that link the step that you are creating with the required attributes.

Depending on the position in the queue where you have added the step, you may also need to adjust the properties of the existing steps to maintain the correct numbering sequence and contents.

Deleting Precision Queue Steps

When you delete a Precision Queue Step independently of a Precision Queue, the following related items are deleted automatically:

- the member item that links the step with the queue

- any member items that link attributes with the step that you are about to delete.

Depending on the position in the queue from where you have deleted the step, you may also need to adjust the properties of the remaining steps to maintain the correct numbering sequence.

Note

You cannot delete the last Precision Queue Step in a Precision Queue unless you are also deleting the Precision Queue itself.

Updating Precision Queue Steps

You can use the `Update()` method to update a Precision Queue Step, but note that you cannot change the value specified in the `PrecisionQueueUrn` field. If you want to move a step to a different queue, you must delete the original step and recreate it in the new queue.

Adding Precision Attributes to Precision Queue Steps

To add a Precision Attribute to a Precision Queue Step, create a Precision Queue Step Precision Attribute Member item that links the step to the required attribute. A step can have up to 10 associated attributes.

Deleting Attributes from Precision Queue Steps

To delete a Precision Attribute from a Precision Queue Step, delete the Precision Queue Step Precision Attribute Member item that links the step to the attribute.

Note

You cannot delete the last Precision Queue Step Precision Attribute Member in a Precision Queue Step unless you delete the step itself.

Fields

The following fields can be read or set for Precision Queue Step resources:

Table 5.66 Precision Queue Step Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|----------------------|---|-----------|-------|
| Inherits From: DimensionItem | | | | |
| StepOrder | Int (n-v pair) | The order of rows for a Precision Queue Step. This value must start at 1 (zero is invalid) and increment by 1 for each subsequent step. | Yes | Yes |
| PrecisionQueueUrn | String (n-v pair) | The id of the parent Precision Queue. | Yes | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|--------------|----------------------|--|-----------|-------|
| WaitTime | Int (n-v pair) | A Wait time to apply before proceeding to the next step (in seconds). The value must be 0 or greater for all steps, excluding the last step. The value for the last step defaults to -1. With a value of -1, the system waits until an agent is available to take the call | No | Yes |
| ConsiderIf | String (n-v pair) | Consider If expression which must be met in order to execute a particular step. The length of this field is 255 characters. Objects used in the expression are case-sensitive. This field must be null for the last step in a Precision Queue. | No | Yes |

Associated Name Fields for Precision Queue Steps

As well as the fields above, the following associated name fields can also be used to sort Precision Queue Step resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.67 Associated Name Fields for Sorting Precision Queue Steps

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

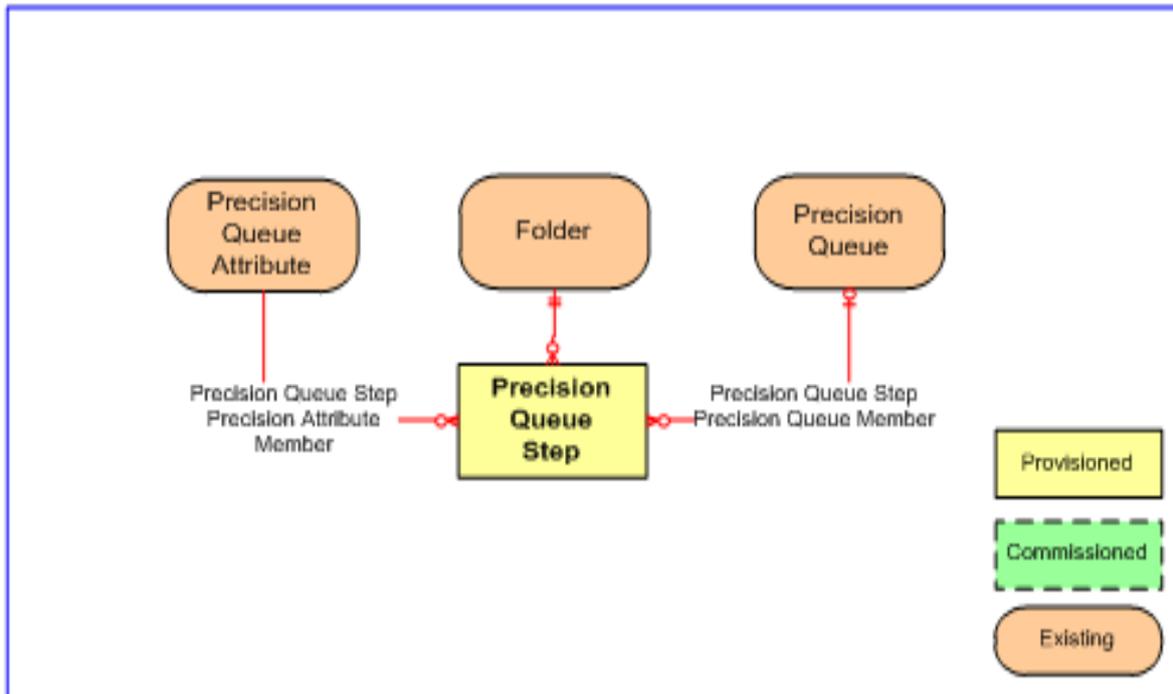


Figure 5.25 Precision Queue Step Relationships

REST Protocol

| Precision Queue Step Resource REST API Summary | | | | |
|--|---|---------------|---------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/precision-queue-steps/<id>,<id>/audits?FromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/precision-queue-steps |

| Precision Queue Step Resource REST API Summary | | | | |
|--|---|--------|--------------|--|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/precision-queue-steps/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/precision-queue-step |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/precision-queue-steps/<id>,<id> |
| Save | Sync. | POST | 200 OK | Base URL]/members/precision-queue-steps |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_PRECISION_QUEUE_STEP&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/precision-attributes/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/precision-queue-steps | | | |

Precision Queue Resource Item

Description

The PrecisionQueue resource defines a queue used for precision routing.

A Precision Queue cannot exist on its own: it is always associated with at least one Precision Queue Step. When you create a queue, you also have to specify at least one step, and a membership between the step and at least one attribute. When the queue is created, the system also creates the specified step or steps and the associated membership items. When you delete a queue, you must also identify and specify the associated steps. The system will also delete these steps and the associated memberships.

Creating Precision Queues

When you create a Precision Queue, you must specify a composite object that includes:

- the Precision Queue,
- at least one Precision Queue Step,
- for each Precision Queue Step that you specify, at least one Precision Queue Step Precision Attribute Member that links the step to an existing attribute.

Optionally, you can specify more than one step and one or more attribute members for each step. The composite object is passed to the `Create()` method as an ordered array.

Table 5.68 Precision Queue Resource Objects Required by Create()

| Resource Type | Resource Id | Description |
|--|-------------|---|
| PrecisionQueue | -1 | The Precision Queue to be created. |
| PrecisionQueueStep | -1 | The first Precision Queue step to be created and associated with this Precision Queue. |
| PrecisionQueueStep PrecisionAttribute Member | -3 | The membership that links this Precision Queue Step to the first Precision Attribute in the step. The resource ID of -3 indicates to the server that this should be created at the same as the parent queue step. |
| (PrecisionQueueStep PrecisionAttribute Member) | -3 | (Optional) Up to nine additional member items linking the step to any remaining attributes in the step. |
| (Additional Precision Queue Steps and Precision Queue Step Precision Attribute Members) | Various | (Optional) Up to nine additional steps, each followed by between one and ten member items linking the step to the attributes in the step. |

When the Precision Queue resource is created, the following items are also created:

- the specified Precision Queue Steps
- for each step, the member that links the step to the queue
- for each step, the specified members or members linking the step to the attributes.

The `Create()` method returns a resource array containing the Precision Queue and the associated child resources with their attributes. The array elements are presented in the same order as they were specified in the call to the `Create()` method. Note that Precision Queue Step Precision Queue Member items are created as required, but are not returned in the resource array.

Deleting Precision Queues

When you delete a Precision Queue you must delete a composite object that includes all the Precision Queue Steps as well as the Precision Queue itself.

The composite object is passed to the `Delete()` method as an ordered array. The `Delete()` method deletes the specified steps and the queue resource. All associated Precision Queue Step Precision Attribute Members and Precision Queue Step Precision Queue Members are also deleted. The following table shows the resource objects required by `Delete()`.

Table 5.69 Precision Queue Resource Objects Required by Delete()

| Resource Type | Resource Id | Description |
|--------------------|-------------|--|
| PrecisionQueueStep | <id> | The Precision Queue Step(s) to be deleted. |
| PrecisionQueue | <id> | The Precision Queue to be deleted. |

Deleting a Precision Queue: Example

We recommend using the following steps to delete a Precision Queue resource.

1. Select the Precision Queue to be deleted and find its resource key.
2. Find the Precision Queue Steps associated with the Precision Queue using the search query: `childof:"Precision Queue",<resourceId> type:"Precision Queue Step" -status:D latest:1`
3. Create a resource array containing the resource keys of the returned Precision Queue Steps.
4. Add the Precision Queue resource key to the end of the resource array.
5. Call the `Delete()` method, passing the resource array.

Adding Precision Queue Steps to Precision Queues

To add a Precision Queue Step to a Precision Queue, create a new Precision Queue Step and specify the id of the Precision Queue in the `PrecisionQueueUrn` field. The member item that links the Precision Queue Step to the required Precision Queue will be created automatically when the Precision Queue Step is created. A Precision Queue can have up to 10 associated Precision Queue Steps.

Deleting Precision Queue Steps from Precision Queues

To delete a Precision Queue Step from a Precision Queue, specify the id of the required Precision Queue Step.

The member item that links the step to the queue will be deleted automatically. All member items linking attributes to the step will also be deleted automatically.

Note

You cannot delete the last Precision Queue Step in a Precision Queue Step unless you delete the Precision Queue itself.

Fields

The following fields can be read or set for Precision Queue resources.

Table 5.70 Precision Queue Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------------------|------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| AgentOrdering | Int (n-v pair) | Determines the order of agents in a precision queue sub-queue using the following values: 1 = LAA (agent availability time), 2 = Most skilled agent, 3 = Least skilled agent | Yes | Yes |
| CallOrdering | Int (n-v pair) | Determines the order of calls in this precision queue using the following value: 1 = Priority, then time in queue | No | Yes |
| ServiceLevelThreshold | Int (n-v pair) | The service level threshold in seconds for this precision queue | Yes | Yes |
| ServiceLevelType | Short (n-v pair) | Determines how to calculate the service level for the precision queue using the following values: 1 = ignore abandoned calls, 2 = abandoned call has negative impact, 3 = abandoned call has positive impact | Yes | Yes |
| ForceExpandingQueue | Bool (n-v pair) | For future use | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

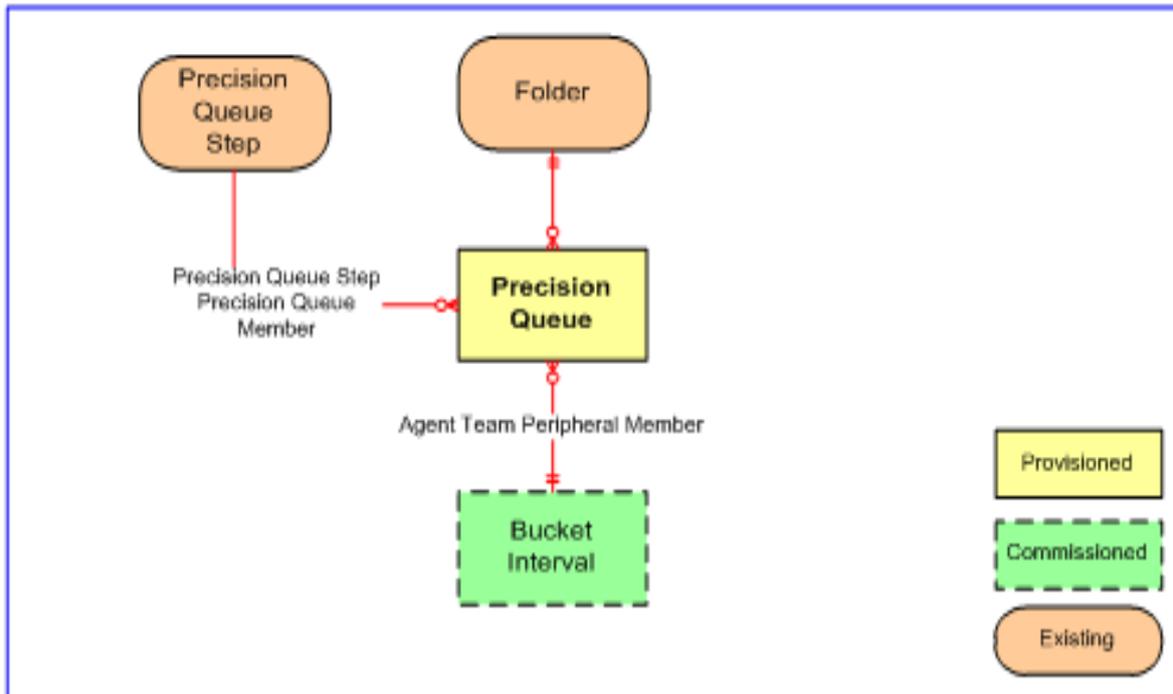
Associated Name Fields for Precision Queues

As well as the fields above, the following associated name fields can also be used to sort Precision Queue resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.71 Associated Name Fields for Sorting Precision Queues

| Associated Name Field | Related Element |
|-----------------------------|---------------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | PrecisionQueue.DepartmentBizUrn |

Model



REST Protocol

| Precision Queue Resource REST API Summary | | | | |
|---|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/precision-queues/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/precision-queues |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/precision-queues/<id>,<id> |

| Precision Queue Resource REST API Summary | | | | |
|---|--|------|--------------|---|
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/precision-queue |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/precision-queues/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/precision-queues |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_PRECISION_QUEUEEmax%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/precision-queues/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/precision-queues | | | |

Route Resource Item

Description

The Route resource represents any possible destination for a call.

Fields

The following fields can be read or set for Route resources.

Table 5.72 Fields in Route Resource Item

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------------------|-------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| SkillGroupUrn | String (n-v pair) | The parent skill group for this route. | | No |

Associated Name Fields for Routes

As well as the fields above, the following associated name fields can also be used to sort Route resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.73 Associated Name Fields for Sorting Routes

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

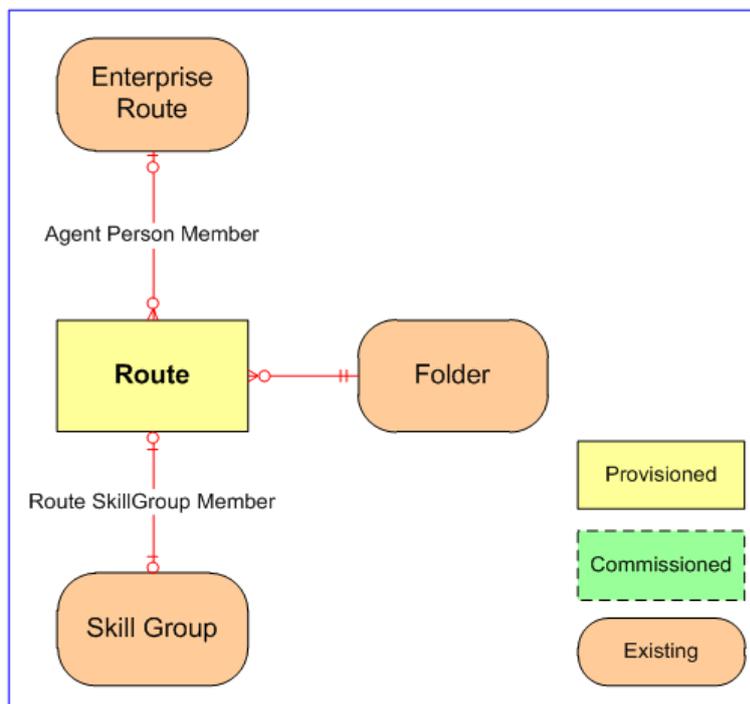


Figure 5.26 Route Relationships

REST Protocol

| Route Resource REST API Summary | |
|---------------------------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources |
| IO Format | XML or JSON |

| Route Resource REST API Summary | | | | |
|---------------------------------|--|--------|--------------|---|
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /routes/<id>,<id>/audits? fromDate=<fromdate> &toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/routes |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/routes/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/route |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/routes/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/routes |
| | Sync. | GET | 200 OK | [Base URL]?queryString= type%3aIT_ROUTE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/routes/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/routes | | | |

Route Partition Resource Item

Description

The RoutePartition is a collection of route patterns that facilitate call routing by dividing the route plan into logical subsets that are based on organization, location, and call type.

Fields

The following fields can be read or set for Route Partition resources:

Table 5.74 Route Partition Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionItem | | | | |
| No further fields. | | | | |

Associated Name Fields for Route Partitions

As well as the fields above, the following associated name fields can also be used to sort Route Partition resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.75 Associated Name Fields for Sorting Route Partitions

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

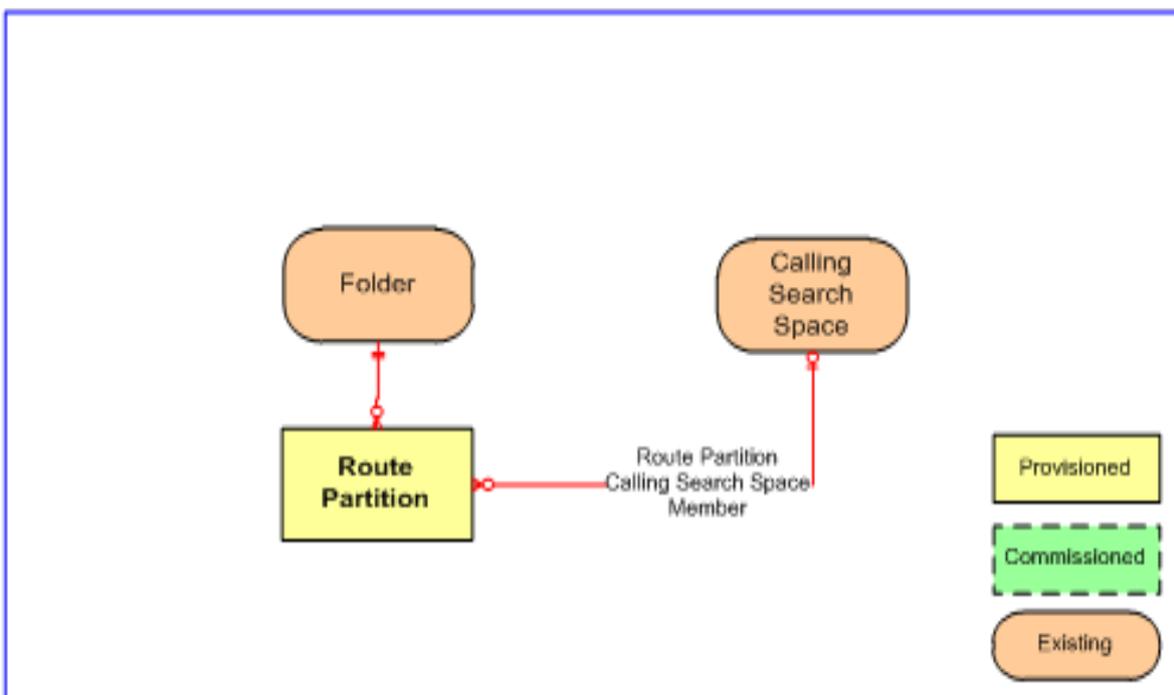


Figure 5.27 Route Partition Relationships

REST Protocol

| Route Partition Resource REST API Summary | | | | |
|--|--|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/route-partitions/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/route-partitions |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/route-partitions/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/route-partition |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/route-partitions/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/route-partitions |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_ROUTE_PARTITION&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/route-partitions/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/route-partitions | | | |

Service Resource Item**Description**

The Service resource represents a service on a peripheral.

Fields

The following fields can be read or set for Service resources:

Table 5.76 Service Resource Item Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|---------------------------|--|-----------|-------|
| Inherits From: DimensionItem | | | | |
| PeripheralUrn | String (10) (n-v pair) | The peripheral or equipment identifier on which the service will be located. If -1 is supplied then Unified CCMP will pick the Peripheral automatically. Note: cannot be updated after the Create. | Yes | No |
| MediaRoutingDomainUrn | String (10) (n-v pair) | The media routing domain that services this service. | Yes | No |
| PeripheralNumber | Int (n-v pair) | This is the number for the service as known to the peripheral it is associated with. | No | Yes |
| PeripheralName | String (n-v pair) | This is the name of the service as known to the peripheral it is associated with. | Yes | Yes |
| PeripheralServiceLevelType | Short (n-v pair) | This is the type of service level used for the service on the peripheral. | Yes | Yes |
| ServiceLevelType | Short (n-v pair) | This is the type that defines how service levels are calculated for the service. This take the values 0: Default; 1: Ignore abandoned calls; 2: Abandoned calls have negative impact; 3: Abandoned calls have positive impact. | Yes | Yes |
| ServiceLevelThreshold | Int (n-v pair) | This is the threshold in seconds for the service. | Yes | Yes |
| Extension | String | This is the extension number for the skill group. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------|----------------|--|-----------|-------|
| UserDeletable | Bool | Indicates if the item can be deleted (used for parent/child configurations) | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Services

As well as the fields above, the following associated name fields can also be used to sort Service resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.77 Associated Name Fields for Sorting Services

| Associated Name Field | Related Element |
|-----------------------------|--------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | Service.DepartmentBizUrn |
| ParentPeripheralDisplayName | Service.PeripheralUrn |

Model

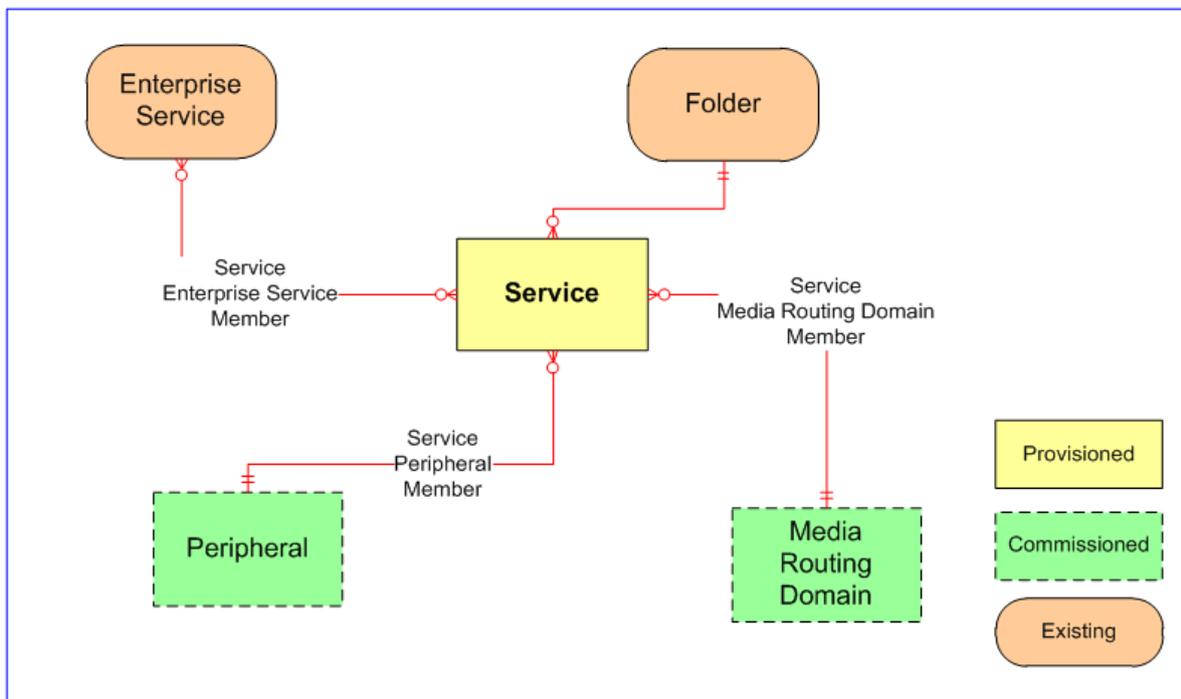


Figure 5.28 Service Relationships

REST Protocol

| Service Resource REST API Summary | | | | |
|-----------------------------------|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /services/<id>,<id>/audits? fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/services |

| Service Resource REST API Summary | | | | |
|-----------------------------------|--|--------|--------------|---|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/services/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/services |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/services/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/services |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_SERVICE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/services/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/services | | | |

Skill Group Resource Item

Description

The SkillGroup resource represents a queue point in the contact routing solution to which agents are added for the purpose of dealing with the work items, for example, inbound voice calls, emails tasks etc.

Fields

The following fields may be read or set on skill group resource objects.

Table 5.78 Fields in Skill Group Resource Item

| Element Name | Data Type | Description | Required | Pkey |
|-------------------------------------|------------------------|--|----------|------|
| Inherits From: DimensionItem | | | | |
| PeripheralUrn | String (10) (n-v pair) | The peripheral or equipment identifier on which the skill group will be located. If -l -s supplied then Unified CCMP will pick the Peripheral automatically. Note: cannot be updated after the Create. | Yes | No |

| Element Name | Data Type | Description | Required | Pkey |
|---------------------------|---------------------------------|--|----------|------|
| MediaRoutingDomainUrn | String (10) (n-v pair) | The media routing domain to be used by this skillgroup. Note: cannot be modified using the Update call. | Yes | No |
| PeripheralNumber | String (50) (n-v pair) | This is the number for the skillgroup as known to the peripheral it is associated with. | No | Yes |
| PeripheralName | String (50) (n-v pair) | This is the name for the skillgroup as known to the peripheral it is associated with | No | Yes |
| AvailableHoldoff Delay | Short (n-v pair) | This is the number of seconds before an agent becomes available after a call is terminated. Defaults to 0. | Yes | Yes |
| Priority | Short (n-v pair) | This is the routing priority for the skillgroup. This can take the values 1: Primary; 2: Secondary; 3: Tertiary | Yes | Yes |
| Extension | String (50) (n-v pair) | This is the extension number for the service | No | Yes |
| IPTA | Char (n-v pair) | This is a character flag (Y or N) indicating whether for this skill group the routing platform picks the agent. Defaults to N. Note: Only supported on Unified CCE. | No | Yes |
| ServiceLevelThreshold | Int (n-v pair) | This is the service level threshold for the skill group. Defaults to -1 meaning that if not set the value defaults to that set by the peripheral. | No | Yes |
| ServiceLevelType | Short (n-v pair) | This is the type that defines how service levels are calculated for the skillgroup. Defaults to 0. This takes the values: 0: Default; 1: Ignore abandoned calls; 2: Abandoned calls have negative impact; 3: Abandoned calls have positive impact. | No | Yes |
| DefaultEntry | String (50) (n-v pair) | This is the default entry for the skillgroup | No | Yes |

| Element Name | Data Type | Description | Required | Pkey |
|-------------------|------------------------|--|----------|------|
| SubSkillGroupMask | String (64) (n-v pair) | A series of characters (Y and N) indicating which sub-skillgroups to create for the skillgroup. | No | Yes |
| UserDeletable | Bool (n-v pair) | Indicates if the item can be deleted by end users as opposed to the Unified CCMP background processed. Note: used only for Unified CCE parent/child configurations only) | No | Yes |
| IsPRSkill | Boolean (n-v pair) | (Read only). Indicates whether this skill group is a precision routing skill group. | No | Yes |
| DepartmentBizUrn | Int (n-v pair) | Foreign key to the department that this resource is associated with, or -1 if there is no associated department. | No | No |

Associated Name Fields for Skill Groups

As well as the fields above, the following associated name fields can also be used to sort Skill Group resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.79 Associated Name Fields for Sorting Skill Groups

| Associated Name Field | Related Element |
|-----------------------------|-----------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |
| ParentDepartmentDisplayName | SkillGroup.DepartmentBizUrn |
| ParentPeripheralDisplayName | SkillGroup.PeripheralUrn |

Model

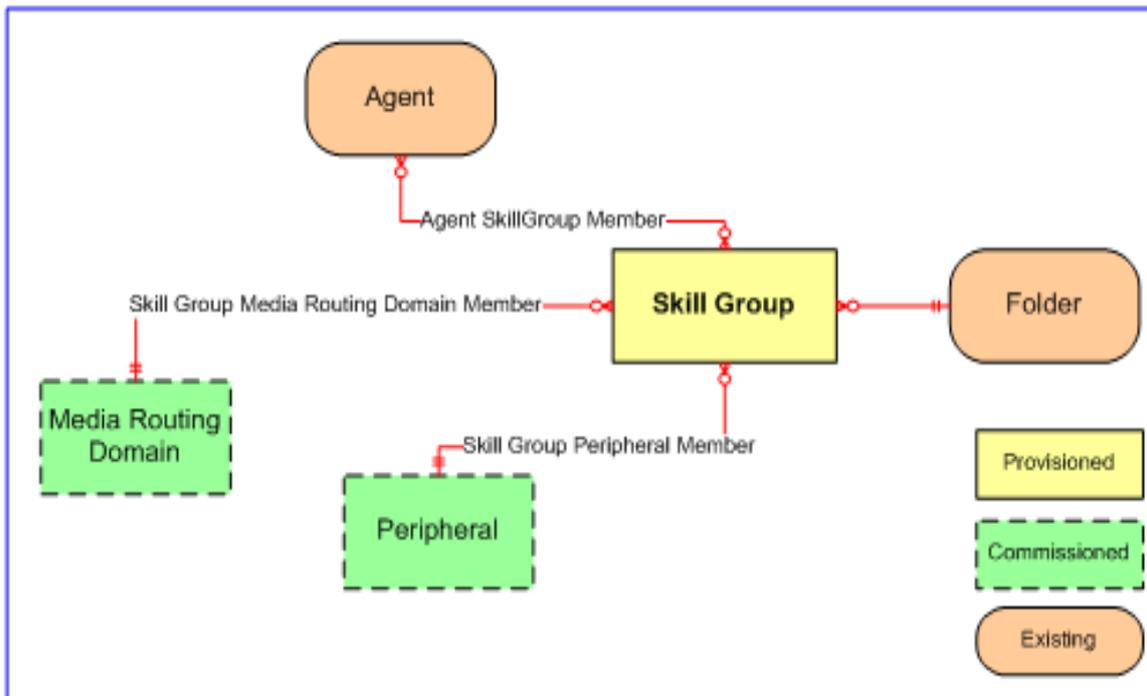


Figure 5.29 Skill Group Relationships

REST Protocol

| Skill Group Resource REST API Summary | | | | |
|---------------------------------------|---|--------|--------------|--|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /tenants/<id>,<id>/audits? fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/skillgroups |

| Skill Group Resource REST API Summary | | | | |
|--|---|--------|--------------|--|
| Delete | Async. | DELETE | 202 Accepted | [Base URL] /skillgroups/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/tenant |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL] /skillgroups/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/skillgroups |
| | Sync. | GET | 200 OK | [Base URL]?queryString= type%3aIT_SKILLGROUP&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL] /skillgroups/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/skillgroups | | | |

Tenant Resource Item

Description

The Tenant resource represents a company or organization. A tenant may exist on dedicated equipment, for example, a dedicated physical or virtualized stack, or may share a portion of an equipment stack. The key definition of a tenant is that it must have telephony/CTI isolation from other tenants on the same equipment stack. For example, in a Cisco UCCE environment, the use of Calling Search Spaces and Route Partitions enforce that Tenant A extensions can't be reached by Tenant B.

Fields

Fields that may be set or read on a Tenant resource item are:

Table 5.80 Fields in Tenant Resource Item

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionItem | | | | |
| No further fields. | | | | |

Associated Name Fields for Tenants

As well as the fields above, the following associated name fields can also be used to sort Tenant resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.81 Associated Name Fields for Sorting Tenants

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model

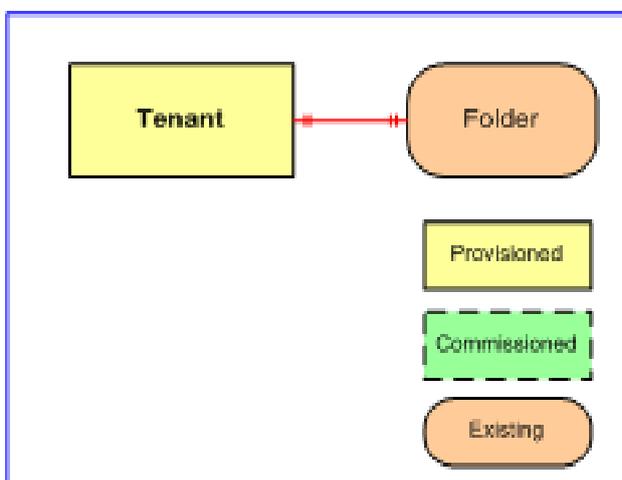


Figure 5.30 Tenant Relationships

REST Protocol

| Tenant Resource REST API Summary | |
|----------------------------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources |
| IO Format | XML or JSON |

| Tenant Resource REST API Summary | | | | |
|---|---|---------------|---------------|--|
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL] /tenants/<id>,<id>/audits? fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/tenants |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/tenants/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/tenant |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/tenants/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/tenants |
| | Sync. | GET | 200 OK | [Base URL]?queryString= type%3aIT_TENANT&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/tenants/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourceManagement/rest/resources/tenants | | | |

User Variable Partition Resource Item

Description

The `UserVariable` resource is a user defined variable that can be used in the call routing process.

Fields

The following fields can be read or set for User Variable resources:

Table 5.82 User Variable Resource Item Fields

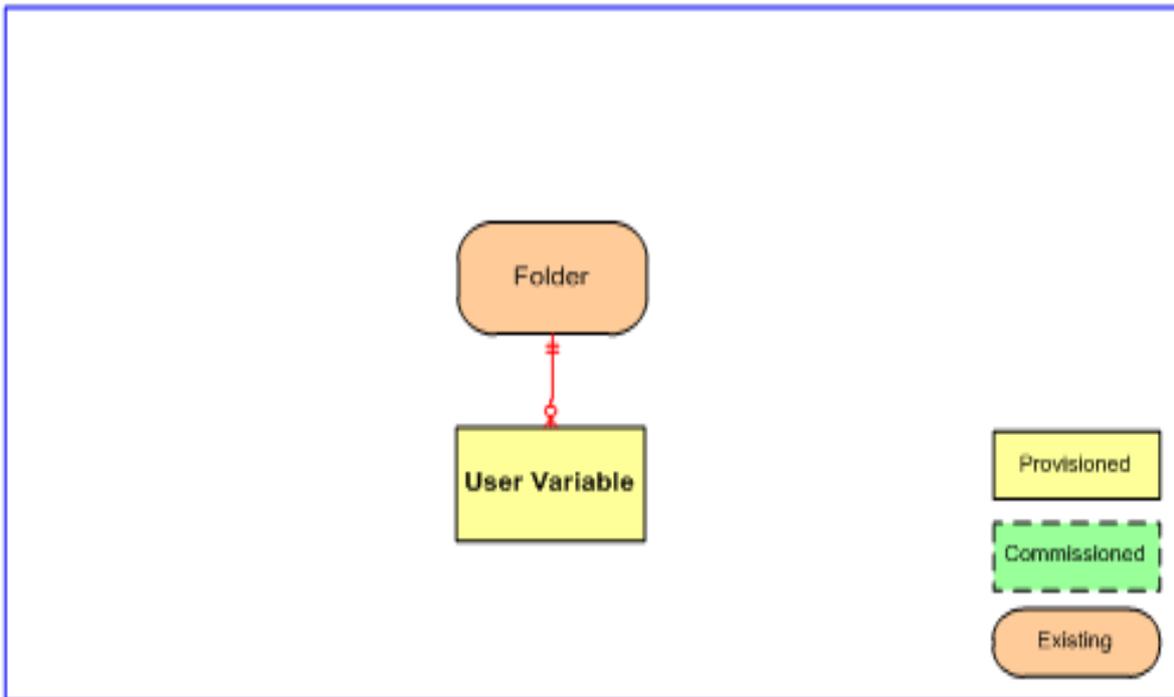
| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------------------------|------------------|---|-----------|-------|
| Inherits From: DimensionItem | | | | |
| ObjectType | Guid (n-v pair) | This is a number that indicates the object associated with the user variable. These objects can be skill groups, services etc. The values correspond to the values in OBJECT_TYPE_CODE in TB_DIM_OBJECT_TYPE. | Yes | Yes |
| DataType | Short (n-v pair) | This a number indicating the data type for the user variable. This can take values 0: Long; 1: Float; 2: Char; 3: Date. | Yes | Yes |
| Persistent | Char (n-v pair) | This is a character flag indicating whether to preserve the value of the user variable between script invocations. Value Y indicates yes. | Yes | Yes |

Associated Name Fields for User Variables

As well as the fields above, the following associated name fields can also be used to sort User Variable resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.83 Associated Name Fields for Sorting User Variables

| Associated Name Field | Related Element |
|--------------------------|-----------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Model**Figure 5.31 User Variable Relationships****REST Protocol**

| User Variable Resource REST API Summary | | | | |
|--|---|---------------|---------------|---|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |
| Audit | Sync. | GET | 200 OK | [Base URL]/user-variables/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 202 Accepted | [Base URL]/user-variables |

| User Variable Resource REST API Summary | | | | |
|--|--|--------|--------------|---|
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/user-variables/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/user-variable |
| Move | Sync. | PUT | 200 OK | [Base URL]/<destinationid> |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/user-variables/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/user-variables |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3aIT_USER_VARIABLE&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/user-variables/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Example | POST https://Web01:8085/resourcemanagement/rest/resources/user-variables | | | |

Non-Provisionable Remote Resource Types

About Non-Provisionable Remote Resources

The non-provisionable remote resource types are listed in section "Non Provisionable Remote Resource Types". These resource types are supported for searching and retrieving only.

Associated Name Fields for Non-Provisionable Remote Resources

The following associated name fields can also be used to sort non-provisionable remote resource items returned by the search API. The table shows the associated name field and the related element that is used to look up the name.

Table 5.84 Associated Name Fields for Sorting Non-Provisionable Remote Resources

| Associated Name Field | Related Element |
|------------------------------|------------------------|
| ParentCreatedByLoginName | Entry.CreatedById |
| ParentFolderPath | Item.FolderId |
| ParentOwnerName | DimensionItem.OwnerId |

Resource Management Web Service Member Types

About Resource Management Web Service Member Types

Description

Member types define memberships between entities.

Member Types and Identifiers

Table 5.85 Member Types and Identifiers

| Member Type | Internal Name | REST Parameter |
|--|---|--|
| Agent Agent Desktop Member | MT_AGENT_AGENT_DESKTOP_MEMBER | agent-agent-desktop-member |
| Agent Agent Team Member | MT_AGENT_AGENT_TEAM_MEMBER | agent-agent-team-member |
| Agent Desktop Dialed Number Member | MT_AGENT_DESKTOP_DIALED_NUMBER_MEMBER | agent-desktop-dialed-number-member |
| Agent Peripheral Member | MT_AGENT_PERIPHERAL_MEMBER | agent-peripheral-member |
| Agent Person Member | MT_AGENT_PERSON_MEMBER | agent-person-member |
| Agent Precision Attribute Member | MT_AGENT_PRECISION_ATTRIBUTE_MEMBER | agent-precision-attribute-member |
| Agent Skill Group Member | MT_AGENT_SKILLGROUP_MEMBER | agent-skill-group-member |
| Agent Team Dialed Number Member | MT_AGENT_TEAM_DIALED_NUMBER_MEMBER | agent-dialed-number-member |
| Call Type Routing Script Member | MT_CALL_TYPE_ROUTING_SCRIPT_MEMBER | call-type-routing-script-member |
| Device Profile Directory Number Member | MT_DEVICE_PROFILE_DIRECTORY_NUMBER_MEMBER | device-profile-directory-number-member |
| Device Profile IP Endpoint Member | MT_DEVICE_PROFILE_IP_ENDPOINT_MEMBER | device-profile-ip-endpoint-member |
| Device Profile Person Member | MT_DEVICE_PROFILE_PERSON_MEMBER | device-profile-person-member |

| Member Type | Internal Name | REST Parameter |
|---|--|---|
| Dialed Number Call Type Member | MT_DIALED_NUMBER_CALL_TYPE_MEMBER | dialed-number-call-type-member |
| Dialed Number Routing Client Member | MT_DIALED_NUMBER_ROUTING_CLIENT_MEMBER | dialed-number-routing-client-member |
| Dialed Number Media Routing Domain Member | MT_DIALED_NUMBER_MEDIA_ROUTING_DOMAIN_MEMBER | dialed-number-media-routing-domain-member |
| Group Group Member | MT_GROUP_GROUP_MEMBER | group-group-member |
| IP Endpoint Button Template Member | MT_IP_ENDPOINT_BUTTON_TEMPLATE_MEMBER | ip-endpoint-button-template-member |
| IP Endpoint Calling Search Space Member | MT_IP_ENDPOINT_CALLING_SEARCH_SPACE_MEMBER | ip-endpoint-calling-search-space-member |
| IP Endpoint Device Pool Member | MT_IP_ENDPOINT_DEVICE_POOL_MEMBER | ip-endpoint-device-pool-member |
| IP Endpoint Directory Number Member | MT_IP_ENDPOINT_DIRECTORY_NUMBER_MEMBER | ip-endpoint-directory-number-member |
| IP Endpoint Peripheral Member | MT_IP_ENDPOINT_PERIPHERAL_MEMBER | ip-endpoint-peripheral-member |
| Item Category Member | MT_ITEM_CATEGORY_MEMBER | item-category-member |
| Label Dialed Number Member | MT_LABEL_DIALED_NUMBER_MEMBER | label-dialed-number-member |
| Label Routing Client Member | MT_LABEL_ROUTING_CLIENT_MEMBER | label-routing-client-member |
| Network Vru Script Network Vru Member | MT_NETWORK_VRU_SCRIPT_NETWORK_VRU_MEMBER | network-vru-script-network-vru-member |
| Precision Queue Bucket Interval Member | MT_PRECISION_QUEUE_BUCKET_INTERVAL_MEMBER | precision-queue-bucket-interval-member |
| Precision Queue Step Precision Attribute Member | MT_PRECISION_QUEUE_STEP_PRECISION_ATTRIBUTE_MEMBER | precision-queue-step-precision-attribute-member |
| Precision Queue Step Precision Queue Member | MT_PRECISION_QUEUE_STEP_PRECISION_QUEUE_MEMBER | precision-queue-step-precision-queue-member |

| Member Type | Internal Name | REST Parameter |
|---|--|---|
| Query Rule Campaign Member | MT_QUERY_RULE_CAMPAIGN_MEMBER | query-rule-campaign-member-member |
| Route Partition Calling Search Space Member | MT_ROUTE_PARTITION_CALLING_SEARCH_SPACE_MEMBER | route-partition-calling-search-space-member |
| Route Skill Group Member | MT_ROUTE_SKILLGROUP_MEMBER | route-skill-group-member |
| Service Enterprise Service Member | MT_SERVICE_ENTERPRISE_SERVICE_MEMBER | service-enterprise-service-member |
| Service Media Routing Domain Member | MT_SERVICE_MEDIA_ROUTING_DOMAIN_MEMBER | service-media-routing-domain-member |
| Service Peripheral Member | MT_SERVICE_PERIPHERAL_MEMBER | service-peripheral-member |
| Skill Group Campaign Member | MT_SKILLGROUP_CAMPAIGN_MEMBER | skill-group-campaign-member |
| Skill Group Enterprise Skill Group Member | MT_SKILLGROUP_ENTERPRISE_SKILLGROUP_MEMBER | skill-group-enterprise-skill-group-member |
| Skill Group Media Routing Domain Member | MT_SKILLGROUP_MEDIA_ROUTING_DOMAIN_MEMBER | skill-group-media-routing-domain-member |
| Skill Group Peripheral Member | MT_SKILLGROUP_PERIPHERAL_MEMBER | skill-group-peripheral-member |
| Skill Group Service Member | MT_SKILLGROUP_SERVICE_MEMBER | skill-group-service-member |
| User Group Member | MT_USER_GROUP_MEMBER | user-group-member |

Member Operations and Relationships

This table lists the supported member types, the operations supported by each member type, and the parent and child items which define each member type.

Table 5.86 Member Operations and Relationships

| Resource Member Type | Create | Edit | Delete | Read | Parent | Child |
|----------------------------|--------|-------|--------|------|---------------|-------|
| Agent Agent Desktop Member | False | False | False | True | Agent Desktop | Agent |
| Agent Agent Team Member | True | True | True | True | Agent Team | Agent |

| Resource Member Type | Create | Edit | Delete | Read | Parent | Child |
|---|---------------|-------------|---------------|-------------|-----------------------------|--------------------|
| Agent Desktop Dialed Number Member | True | True | True | True | Dialed Number | Agent Desktop |
| Agent Peripheral Member | False | False | False | True | Peripheral | Agent |
| Agent Person Member | False | True | False | True | Person | Agent |
| Agent Precision Attribute Member | True | True | True | True | Precision Attribute | Agent |
| Agent Team Dialed Number Member | True | True | True | True | Dialed Number | Agent Team |
| Agent Skill Group Member | True | False | True | True | Skill Group | Agent |
| Call Type Routing Script Member | True | True | True | True | Routing Script | Call Type |
| Device Profile Directory Number Member | True | True | True | True | Directory Number | Device Profile |
| Device Profile IP Endpoint Button Template Member | True | True | True | True | IP Endpoint Button Template | Device Profile |
| Device Profile Person Member | True | True | True | True | Person | Device Profile |
| Dialed Number Call Type Member | True | True | True | True | Call Type | Dialed Number |
| Dialed Number Routing Client Member | False | False | False | True | Routing Client | Dialed Number |
| Dialed Number Media Routing Domain Member | False | False | False | True | Media Routing Domain | Dialed Number |
| Group Group Member | True | True | True | True | Group | Group |
| Item Category Member | True | True | True | True | Category | Any Dimension Item |
| IP Endpoint Button Template Member | True | True | True | True | IP Endpoint Button Template | IP Endpoint |
| IP Endpoint Calling Search Space Member | True | True | True | True | Calling Search Space | IP Endpoint |
| IP Endpoint Device Pool Member | False | False | False | True | Device Pool | IP Endpoint |
| IP Endpoint Directory Number Member | False | False | False | True | Directory Number | IP Endpoint |
| IP Endpoint Peripheral Member | False | False | False | True | Peripheral | IP Endpoint |

| Resource Member Type | Create | Edit | Delete | Read | Parent | Child |
|---|---------------|-------------|---------------|-------------|------------------------|----------------------|
| Label Dialed Number Member | True | True | True | True | Dialed Number | Label |
| Label Routing Client Member | False | False | False | True | Routing Client | Label |
| Network Vru Script Network Vru Member | False | True | False | True | Network Vru | Network Vru Script |
| Precision Queue Bucket Interval Member | True | True | True | True | Bucket Interval | Precision Queue |
| Precision Queue Step Precision Attribute Member | True | True | True | True | Precision Attribute | Precision Queue Step |
| Precision Queue Step Precision Queue Member | False | False | False | True | Precision Queue | Precision Queue Step |
| Route Partition Calling Search Space Member | True | True | True | True | Calling Search Space | Route Partition |
| Route Skill Group Member | True | True | True | True | Skill Group | Route |
| Service Enterprise Service Member | False | False | False | True | Enterprise Service | Service |
| Service Media Routing Domain Member | False | False | False | True | Media Routing Domain | Service |
| Service Peripheral Member | False | False | False | True | Peripheral | Service |
| Skill Group Enterprise Skill Group Member | True | True | True | True | Enterprise Skill Group | Skill Group |
| Skill Group Media Routing Domain Member | False | False | False | True | Media Routing Domain | Skill Group |
| Skill Group Peripheral Member | False | False | False | True | Peripheral | Skill Group |
| Skill Group Service Member | True | True | True | True | Service | Skill Group |
| User Group Member | True | True | True | True | Group | User |

Member Pkey Types

Table 5.87 Pkey Member Types

| Pkey Member Type | Create | Edit | Delete | Read | Parent | Child |
|------------------------------|---------------|-------------|---------------|-------------|---------------|--------------|
| Agent Agent Team Member Pkey | True | True | True | True | Agent Team | Agent |
| Agent Peripheral Member Pkey | True | True | True | True | Peripheral | Agent |

| Pkey Member Type | Create | Edit | Delete | Read | Parent | Child |
|--|---------------|-------------|---------------|-------------|----------------------|-----------------|
| Agent Precision Attribute Member Pkey | True | True | True | True | Precision Attribute | Agent |
| Agent Skill Group Member Pkey | True | True | True | True | Skill Group | Agent |
| Call Type Routing Script Member Pkey | True | True | True | True | Routing Script | Call Type |
| Device Profile Directory Number Member Pkey | True | True | True | True | Directory Number | Device Profile |
| Dialed Number Call Type Member Pkey | True | True | True | True | Call Type | Dialed Number |
| IP Endpoint Directory Number Member Pkey | True | True | True | True | Directory Number | IP Endpoint |
| Precision Queue Step Precision Attribute Member Pkey | True | True | True | True | Precision Attribute | Precision Queue |
| Query Rule Campaign Member Pkey | True | True | True | True | Campaign | Query Rule |
| Route Partition Calling Search Space Member Pkey | True | True | True | True | Calling Search Space | Route Partition |
| Skill Group Campaign Member Pkey | True | True | True | True | Campaign | Skill Group |
| Skill Group Service Member Pkey | True | True | True | True | Service | Skill Group |

REST Protocol

Table 5.88 describes the REST APIs for all member types.

To derive the REST URL for a specific member type, replace `<rest resource>` and `<internal name>` with the corresponding REST parameter and internal name for the member type from Table 5.85 .

See Table 5.86 for the operations that are valid for each member type.

Table 5.88 REST API Specification

| REST API Specification | | | | |
|-------------------------------|---|---------------|---------------|------------|
| Base URL | https://<server>:8085/resourcemanagement/rest/resources | | | |
| IO Format | XML or JSON | | | |
| Operation | Mode | Method | Status | URL |

| REST API Specification | | | | |
|-------------------------------|--|--------|--------------|--|
| Audit | Sync. | GET | 200 OK | [Base URL]/<rest resource>/<id>,<id>/audits?fromDate=<fromdate>&toDate=<toDate>... |
| Create | Async. | POST | 200 OK | [Base URL]/<rest resource>s |
| Delete | Async. | DELETE | 202 Accepted | [Base URL]/<rest resource>s/<id>,<id> |
| Describe | Sync. | GET | 200 OK | [Base URL]/meta/<rest resource> |
| Move | n/a | n/a | n/a | n/a |
| Retrieve | Sync. | GET | 200 OK | [Base URL]/<rest resource>s/<id>,<id> |
| Save | Sync. | POST | 200 OK | [Base URL]/members/<rest resource>s |
| | Sync. | GET | 200 OK | [Base URL]?queryString=type%3a<internal name>&max%3a10 |
| Update | Async. | PUT | 202 Accepted | [Base URL]/<rest resource>s/<id>,<id> |
| Exceptions | See section "Errors" | | | |
| Examples | POST https://Web01:8085/resourcemanagement/rest/resources/gadget-provider-user-mappings GET https://Web01:8085/resourcemanagement/rest/resources/?queryString=type%3aMT_AGENT_AGENT_TEAM_MEMBERmax%3a10 | | | |

Creating New Members

To create a new member, pass a new resource object to the Create() method with the type set to the appropriate ResourceMemberType and with the parent and child ids set accordingly.

Note

Precision Queue Step Precision Queue Members cannot be created explicitly using Create(). They are always created automatically when the corresponding Precision Queue Step is created. This is because each Precision Queue Step must always be associated with a Precision Queue: a Precision Queue Step cannot exist separately from a Precision Queue.

Associated Name Fields for Members

As well as the fields listed below for each member type, the following associated name field can also be used to sort members returned by the search API. The table shows the associated name field and the related member element that is used to look up the name.

Table 5.89 Associated Name Field for Sorting Members

| Associated Name Field | Related Element |
|--------------------------|-------------------|
| ParentCreatedByLoginName | Entry.CreatedById |

Agent Agent Desktop Member

Description

The Agent Agent Desktop Member defines a membership between an Agent and an Agent Desktop. It is a many-one relationship and each Agent can only be associated with one Agent Desktop.

Fields

The AgentAgentDesktopMember class has the following fields:

Table 5.90 Agent Agent Desktop Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Agent Agent Team Member

Description

The Agent Agent Team Member defines a membership between an Agent and an Agent Team. It is a many-many relationship.

Fields

The AgentAgentTeamMember class has the following fields:

Table 5.91 Agent Agent Team Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------------------|--|-----------|-------|
| Inherits From: DimensionMember | | | | |
| Supervisor | Bool (n-v pair) | Indicates whether the agent is a supervisor of the agent team. | No | Yes |
| PrimarySupervisor | Bool (n-v pair) | Indicates whether the agent is the primary supervisor of the agent team. | No | Yes |
| PhysicalMember | Bool (n-v pair) | Indicates whether the agent is a physical member of the agent team (an agent may be associated with an agent team as a supervisor, but may not be a physical team member). | No | Yes |

Note

At least one of Supervisor, PrimarySupervisor and PhysicalMember must be set.

Agent Desktop Dialed Number Member**Description**

The Agent Desktop Dialed Number Member defines a membership between an Agent Desktop and a Dialed Number. It is a many-one relationship and each Agent Desktop can only be associated with one Dialed Number.

Fields

The AgentDesktopDialedNumberMember class has the following fields:

Table 5.92 Agent Desktop Dialed Number Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Agent Peripheral Member**Description**

The Agent Peripheral defines a membership between an Agent and a Peripheral. It is a many-many relationship.

Fields

The AgentPeripheralMember class has the following fields:

Table 5.93 Agent Peripheral Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Agent Person Member**Description**

The Agent Person Member defines a membership between an Agent and a Person. It is a many-one relationship, and each Agent can only be associated with one Person.

Fields

The AgentPersonMember class has the following fields:

Table 5.94 Department Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Agent Precision Attribute Member**Description**

The Agent Precision Attribute Member defines a membership between an Agent and a Precision Attribute. It is a many-many relationship.

Fields

The AgentPrecisionAttributeMember class has the following fields:

Table 5.95 Agent Precision Attribute Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|----------------------------------|---|-----------|-------|
| Inherits From: DimensionMember | | | | |
| AttributeValue | String (255) (n-v pair) | The value of the attribute for the agent. Must be convertible to the data type of the attribute. If not supplied, will that the default value for that attribute. | No | Yes |
| Description | String (255) (n-v pair) | A string containing additional information about the membership. | No | Yes |

Agent Team Dialed Number Member

Description

The Agent Team Dialed Number Member defines a membership between an Agent Team and a Dialed Number. It is a many-one and each Agent Team can only be associated with one Dialed Number.

Fields

The AgentTeamDialedNumberMember class has the following fields:

Table 5.96 Agent Team Dialed Number Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Agent Skill Group Member

Description

The Agent Skill Group Member defines a membership between an Agent and a Skill Group. It is a many-many relationship.

Fields

The AgentSkillgroupMember class has the following fields:

Table 5.97 Agent Skill Group Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|--------------------|---|-----------|-------|
| Inherits From: DimensionMember | | | | |
| DefaultMember | Bool (n-v pair) | Indicates if this is the default skill group for the agent. | No | Yes |

Call Type Routing Script Member

Description

The Call Type Routing Script Member defines a membership between a Call Type and a Routing Script. It is a many-many relationship.

Fields

The CallTypeRoutingMember class has the following fields:

Table 5.98 Call Type Routing Script Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Device Profile Directory Number Member

Description

The Device Profile Directory Number Member defines a membership between a Device Profile and a Directory Number. It is a many-one relationship and each Device Profile can only be associated one Directory Number.

Fields

The DeviceProfileDirectoryNumberMember class has the following fields:

Table 5.99 Device Profile Directory Number Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-------------------------|---|-----------|-------|
| Inherits From: DimensionMember | | | | |
| LineIndex | Int (n-v pair) | This is a 0 based index for the Directory Numbers associated with this Device Profile. This must be unique for a particular Device Profile. | No | Yes |
| MaxNumCalls | Int (n-v pair) | The maximum number of calls to the directory number. | No | Yes |
| BusyTrigger | Int (n-v pair) | The configuration per line appearance and per cluster for a Directory number after which the call to that specific Directory Number is rejected with a cause of busy. | No | Yes |
| RingSetting | String (100) (n-v pair) | A string representing the ring setting. One of the following: <ul style="list-style-type: none"> • Disable • Flash Only • Ring Once • Ring • Beep Only | No | Yes |
| TemplateData | Xml (n-v pair) | The template data to be used. | No | Yes |

Device Profile IP Endpoint Button Template Member

Description

The Device Profile IP Endpoint Button Template Member defines a relationship between a Device Profile and an IP Endpoint Button Template. It is a many-one relationship and each Device Profile can only be associated with one IP Endpoint Button Template.

Fields

The DeviceProfileIPEndpointButtonTemplateMember class has the following fields:

Table 5.100 Device Profile IP Endpoint Button Template Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Device Profile Person Member

Description

The Device Profile Person Member defines a relationship between a Device Profile and Person. It is a many-one relationship and each Device Profile can only be associated with one Person.

Fields

The DeviceProfilePerson Member class has the following fields:

Table 5.101 Device Profile Person Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Dialed Number Call Type Member

Description

The Dialed Number Call Type Member defines a relationship between a Dialed number and Call Type. It is a many-many relationship.

Fields

The DialedNumberCallTypeMember class has the following fields:

Table 5.102 Dialed Number Call Type Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-------------------------|--|-----------|-------|
| Inherits From: DimensionMember | | | | |
| RegionBizUrn | Int (n-v pair) | The URN as in TB_DIM_REGION. | No | No |
| Item | Int (n-v pair) | This is a sequence in which rows for a dialed number are tested against the call qualifiers. | Yes | No |
| CLIWildcard | Int (n-v pair) | A region name or a prefix indicating the leading digits of a telephone number. This can also be a complete telephone number. | No | Yes |
| CLIWildcardType | Int (n-v pair) | The type of the CLI wild card. One of: <ul style="list-style-type: none"> • 0 Unknown • 1 NPA (3 digit match) • 2 NPA-NXX (6 digit match) • 3 Match(all digit match) • 4 Region • 5 All (match all CLIs) • 6 Prefix | No | Yes |
| CEDWildcard | String (60) | A wild card value to be matched with the CED. One of: <ul style="list-style-type: none"> • _A All • _NR Not required • _NE Not entered • _N None required or entered. | No | Yes |
| Description | String (255) (n-v pair) | A string containing any additional information about the membership. | No | Yes |

Dialed Number Routing Client Member

Description

The Dialed Number Routing Client Member defines a relationship between a Dialed Number and a Routing Client. It is a many-one relationship and each Dialed Number can only be associated with one Routing Client.

Fields

The DialedNumberRoutingClientMember class has the following fields:

Table 5.103 Dialed Number Routing Client Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Dialed Number Media Routing Domain Member**Description**

The Dialed Number Media Routing Domain Member defines a relationship between a Dialed Number and a Media Routing Domain. It is a many-one relationship and each Dialed Number can only be associated with one Media Routing Domain.

Fields

The DialedNumberMediaRoutingDomainMember class has the following fields:

Table 5.104 Dialed Number Media Routing Domain Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Group Group Member**Description**

The Group Group Member defines a membership between a child Group and a parent Group . It is a many-many relationship although a Group cannot have a membership with itself, nor can the same Group be both a parent and child of another Group.

Fields

The GroupGroupMember class has the following fields:

Table 5.105 Group Group Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: SystemMember | | | | |
| No further fields. | | | | |

IP Endpoint Button Template Member

Description

The IP Endpoint Button Template Member defines a membership between an IP Endpoint and a Button Template. It is a many-one relationship and each IP Endpoint can only be associated with one Button Template.

Fields

The IPEndpointButtonTemplateMember class has the following fields:

Table 5.106 IP Endpoint Button Template Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

IP Endpoint Calling Search Space Member

Description

The IP Endpoint Calling Search Space Member defines a membership between an IP Endpoint and a Calling Search Space. It is a many-one relationship and each IP Endpoint can only be associated with one Calling Search Space.

Fields

The IPEndpointCallingSearchSpaceMember class has the following fields:

Table 5.107 IP Endpoint Calling Search Space Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

IP Endpoint Device Pool Member

Description

The IP Endpoint Device Pool Member defines a relationship between an IP Endpoint and a Device Pool. It is a many-one relationship and each IP Endpoint can only be associated with one Device Pool.

Fields

The IPEndpointDecivePoolMember class has the following fields:

Table 5.108 IP Endpoint Device Pool Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

IP Endpoint Directory Number Member

Description

The IP Endpoint Directory Number Member defines a relationship between an IP Endpoint and a Directory Number. It is a many-many relationship.

Fields

The IPEndpointDirectoryNumberMember class has the following fields:

Table 5.109 IP Endpoint Directory Number Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|----------------|---|-----------|-------|
| Inherits From: DimensionMember | | | | |
| LineIndex | Int (n-v pair) | This is a 0 based index for the Directory Number associated with the IP Endpoint (Phone). This must be unique for a particular IP Endpoint. | No | Yes |
| MaxNumCalls | Int (n-v pair) | The maximum number of calls to the directory number. The default is 2. | No | Yes |

| Element Name | Data Type | Description | Required? | Pkey? |
|--------------|----------------------|---|-----------|-------|
| BusyTrigger | Int (n-v pair) | The configuration per line appearance and per cluster for a Directory number after which the call to that specific Directory Number is rejected with a cause of busy. The default is 1. | No | Yes |
| TemplateData | Xml (n-v pair) | The template data. | No | Yes |

IP Endpoint Peripheral Member

Description

The IP Endpoint Peripheral Member defines a relationship between an IP Endpoint and a Peripheral. It is a many-one relationship and each IP Endpoint can only be associated with one Peripheral.

Fields

The `IPEndpointPeripheralMember` class has the following fields:

Table 5.110 IP Endpoint Peripheral Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|--|-----------|-------------|-----------|-------|
| Inherits From: <code>DimensionMember</code> | | | | |
| No further fields. | | | | |

Label Dialed Number Member

Description

The Label Dialed Number Member defines a relationship between a Label and a Dialed Number. It is a many-many relationship.

Fields

The `LabelDialedNumberMember` class has the following fields:

Table 5.111 Label Dialed Number Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Label Routing Client Member

Description

The Label Routing Client Member defines a relationship between a Label and a Routing Client. It is a many-one relationship and each Label can only be associated with one Routing Client.

Fields

The LabelRoutingClientMember class has the following fields:

Table 5.112 Label Routing Client Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Network Vru Script Network Vru Member

Description

The Network Vru Script Network Vru Member defines a relationship between an Network VRU Script and a Network VRU. It is a many-one relationship and each Network VRU Script can only be associated with one Network VRU.

Fields

The NetworkVruScriptNetworkVruMember class has the following fields:

Table 5.113 Network Vru Script Network Vru Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Precision Queue Bucket Interval Member

Description

The Precision Queue Bucket Interval Member defines a relationship between a Precision Queue and a Bucket Interval. It is a many-one relationship and each Precision Queue can only be associated with one Bucket Interval.

Fields

The PrecisionQueueBucketInterval class has the following fields:

Table 5.114 Precision Queue Bucket Interval Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Precision Queue Step Precision Attribute Member

Description

The Precision Queue Step Precision Attribute Member defines a relationship between an Precision Queue Step and a Precision Queue. It is a many-many relationship.

Fields

The PrecisionQueueStepPrecisionAttributeMember class has the following fields:

Table 5.115 Precision Queue Step Precision Attribute Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|----------------------------------|---|-----------|-------|
| Inherits From: DimensionMember | | | | |
| Value1 | String (255) (n-v pair) | The value that the attribute is tested against. It must be able to be converted to the AttributeDataType specified for the related Precision Attribute. | Yes | Yes |
| TermOrder | Int (n-v pair) | The order of the terms in a Precision Queue Step. This value must start at 1 (zero is invalid) for each new Precision Queue Step and increment by 1 for each subsequent term in the Precision Queue Step. | Yes | No |

| Element Name | Data Type | Description | Required? | Pkey? |
|-------------------|----------------|--|-----------|-------|
| ParenthesesCount | Int (n-v pair) | The number of parenthesis around this term. A positive number indicates open parentheses before the term; a negative number indicates closed parentheses after the term. The total value of ParenthesesCount for all Precision Queue Step Precision Attribute Member entries for a Precision Queue Step must be 0. | Yes | Yes |
| TermRelation | Int (n-v pair) | Indicates the relationship of this term to the preceding term. One of: 0 None (only valid for the first term in the Precision Queue Step) 1 AND 2 OR | Yes | Yes |
| AttributeRelation | Int (n-v pair) | Indicates the kind of comparison to be done on the attribute. One of: 1 equals 2 not equal to 3 less than 4 less than or equal to 5 greater than 6 greater than or equal to | Yes | Yes |

Precision Queue Step Precision Queue Member

Description

The Precision Queue Step Precision Queue defines a relationship between a Precision Queue Step and a Precision Queue. It is a many-one relationship and each Precision Queue Step must be associated with exactly one Precision Queue.

Fields

The PrecisionQueueStepPrecisionQueueMember class has the following fields:

Table 5.116 Precision Queue Step Precision Queue Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Route Partition Calling Search Space Member

Description

The Route Partition Calling Search Space Member defines a relationship between a Route Partition and a Calling Search Space. It is a many-one relationship and each Route Partition can only be associated with one Calling Search Space.

Fields

The RoutePartitionCallingSearchSpaceMember class has the following fields:

Table 5.117 Route Partition Calling Search Space Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Route Skill Group Member

Description

The Route Skill Group Member defines a relationship between a Route and a Skill Group. It is a one-one relationship.

Fields

The RouteSkillGroupMember class has the following fields:

Table 5.118 Route Skill Group Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Service Enterprise Service Member

Description

The Service Enterprise Service Member defines a relationship between a Service and an Enterprise Service. It is a many-many relationship.

Fields

The ServiceEnterpriseServiceMember class has the following fields:

Table 5.119 Service Enterprise Service Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Service Media Routing Domain Member

Description

The Service Media Routing Domain Member defines a relationship between an Service and a Media Routing Domain. It is a many-one relationship and each Service can only be associated with one Media Routing Domain.

Fields

The ServiceMediaRoutingDomain class has the following fields:

Table 5.120 Service Media Routing Domain Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Service Peripheral Member

Description

The Service Peripheral Member defines a relationship between a Service and a Peripheral. It is a many-one relationship and each Service can only be associated with one Peripheral.

Fields

The ServicePeripheralMember class has the following fields:

Table 5.121 0Service Peripheral Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Skill Group Enterprise Skill Group Member

Description

The Skill Group Enterprise Skill Group Member defines a relationship between a Skill Group and an Enterprise Skill Group. It is a many-many relationship.

Fields

The SkillGroupEnterpriseSkillGroup class has the following fields:

Table 5.122 Department Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Skill Group Media Routing Domain Member

Description

The Skill Group Media Routing Domain Member defines a relationship between a Skill Group and a Media Routing Domain. It is a many-one relationship and each Skill Group can only be associated with one Media Routing Domain.

Fields

The SkillGroupMediaRoutingDomainMember class has the following fields:

Table 5.123 Skill Group Media Routing Domain Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Skill Group Peripheral Member

Description

The Skill Group Peripheral Member defines a relationship between a Skill Group and a Peripheral. It is a many-one relationship and each Skill Group can only be associated with one Peripheral.

Fields

The SkillGroupPeripheralMember class has the following fields:

Table 5.124 Skill Group Peripheral Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: DimensionMember | | | | |
| No further fields. | | | | |

Skill Group Service Member**Description**

The Skill Group Service Member defines a relationship between a Skill Group and a Service. It is a many-one relationship and each Skill Group can only be associated with one Service.

Fields

The SkillgroupServiceMember class has the following fields:

Table 5.125 Skillgroup Service Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|---------------------------------------|----------------------|--|-----------|-------|
| Inherits From: DimensionMember | | | | |
| PriorityLevel | Int (n-v pair) | This is the priority level of the specified service for the specified skill group. | No | Yes |

User Group Member**Description**

The User Group Member defines a relationship between a User and a Group. It is a many-many relationship.

Fields

The UserGroupMember class has the following fields:

Table 5.126 User Group Member Fields

| Element Name | Data Type | Description | Required? | Pkey? |
|------------------------------------|-----------|-------------|-----------|-------|
| Inherits From: SystemMember | | | | |
| No further fields. | | | | |

Resource Management Web Service APIs

Create

Description

The Create() API creates a supported provisionable item type. For example, use this API to create an Agent.

In general the provisioning operation is synchronous for system resources such as users and folders and asynchronous for remote resources such as agents. Remote resources are queued for provisioning onto the underlying equipment, based on the effective from date field. They are provisioned when they become effective and when there is bandwidth on the remote equipment.

Parameters

The Create() API expects the following parameters:

Table 5.127 Parameters for Create API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|-------------|---|-----------|
| resources | Resource [] | An array of resources to be provisioned to the Contact Center environment (see section "The Resource Hierarchy"). <i>Note. The Identity field should be set to -1 for each new resource being created.</i> | Yes |

Return Type

The Create() API returns the following objects:

Table 5.128 Return Type for Create API

| Data Type | Description | Required? |
|------------------|--|-----------|
| RequestResult [] | An array of results from the resources to be created (see section "Request Result"). | Yes |

REST Protocol**Table 5.129 REST Protocol URI for Create API**

| Data Type | Description |
|---------------------|--|
| URL | https://<server>:8085/ResourceManagement/rest/resources/ <resource type>s Or, to create multiple resources of different types https://<server>:8085/ResourceManagement/rest/resources |
| HTTP Method | POST |
| Input/Output format | XML or JSON |
| Examples | https://APPSRV01:8085/ResourceManagement/rest/Resources/folders https://APPSRV01:8085/ResourceManagement/rest/Resources |

Sequence Diagram

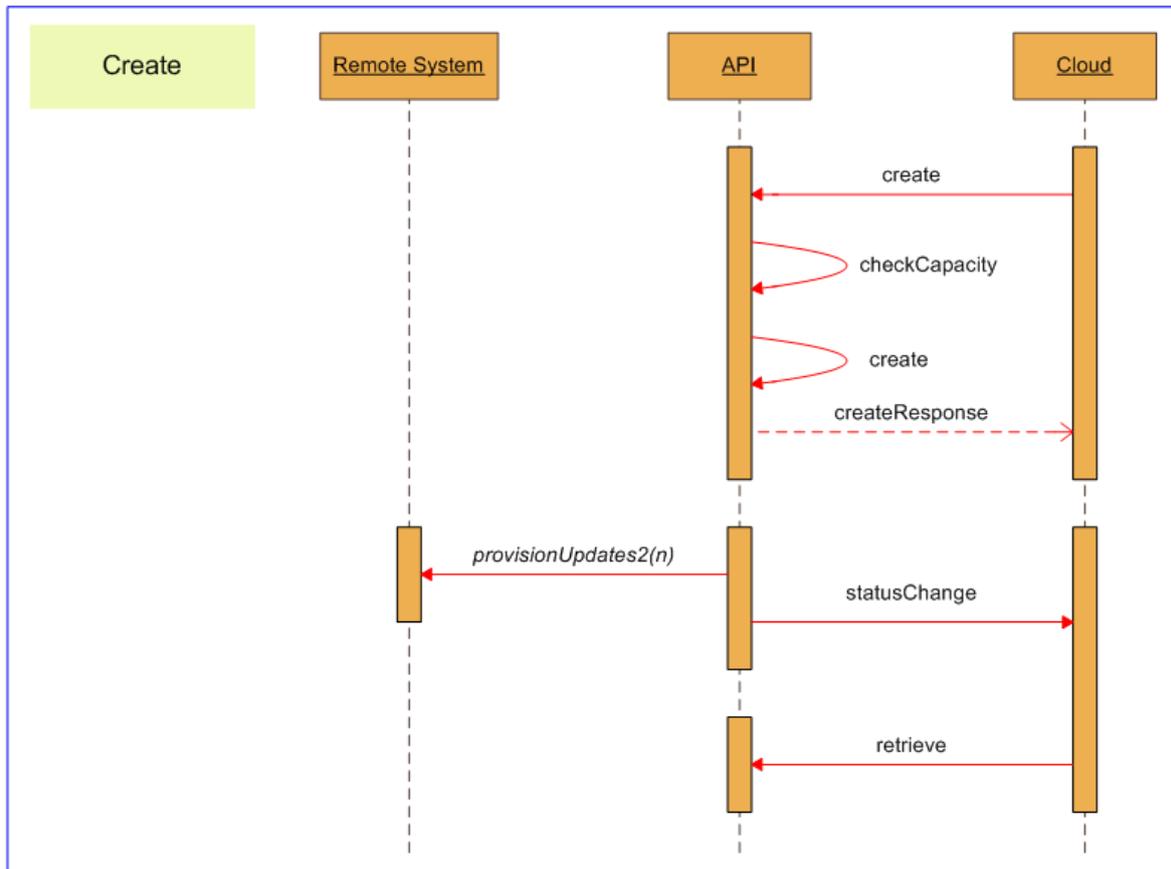


Figure 5.32 Sequence Diagram for Resource Management Create API

Creating Items with Pkey Maps

When you create a resource or membership that is mapped to more than one equipment instance, you need to specify a pkey map in `EquipmentMapping` for each equipment instance. To do this:

- In `Fields` set the item fields that are not equipment-specific, or are common to all equipment instances. These values will be applied to all equipment instances.

- In `EquipmentMapping` create a pkey map resource for each equipment instance (identified by a unique value for `ClusterResourceId`) and populate it with the fields that have equipment-specific values. These values will only apply to the specified equipment instance and, if necessary, will override any common values that were specified in `Fields`.

For example, for an Agent on multiple equipment instances:

- `AgentDesktopUrn` and `PersonUrn` are not specific to any equipment, so will be always be included in `Fields` of the Agent resource.
- A specific Agent may be a Supervisor on all the equipment instances, so the Supervisor flag can be included in `Fields` of the Agent resource if required.
- A specific Agent will need a `AgentPkey` resource in `EquipmentMapping` for each equipment instance, with `ClusterResourceId` set to the unique value for that equipment instance.
- A specific Agent may have one name on one equipment instance and a different name on another equipment instance, so `InternalName` can be set separately for each `AgentPkey` resource in `EquipmentMapping` if required.

Additionally, if you want to create several similar items on different equipment instances, you can specify a comma-separated list of equipment instances in `Fields.MappedClusterResources`. This will automatically create a pkey map resource in `EquipmentMapping` for each item in the list, and populate `EquipmentMapping.ClusterResourceId` with the corresponding value from the list. The values for the other fields will be as specified in `Fields`. If required, you can specify a comma-separated list of equipment instances in `Fields.MappedClusterResources` as well as creating one or more pkey map resources for specific equipment instances with specified `ClusterResourceId` values in `EquipmentMapping`.

For example, you may create an Agent with the same details on two equipment instances:

- Set the `Fields` of the Agent resource to the common values to be applied to both equipment instances.
- Set `Fields.MappedClusterResources` to the unique identifiers for the two equipment instances, separated by a comma.

For a SOAP example that creates an Agent mapped to two equipment instances, see section "Create Agent with Pkey Maps, Method 1 (Explicit Pkey Maps)". This example uses pkey maps to specify two separate equipment mappings.

For a SOAP example that creates an Agent Team mapped to two equipment instances, see section "Create Agent Team with Pkey Maps, Method 2 (Implicit Pkey Maps)". This example specifies a comma-separated list of equipment instances in `Fields.MappedClusterResources`.

For a SOAP example that creates an Agent Agent Team membership see section "Create Agent To Agent Team Membership (Two Remote Equipment Mappings)". This example uses pkey maps to link the agent on each equipment instance with the corresponding agent team on the same equipment instance.

Update

Description

The Update() API updates supported provisionable item types. For example, use this API to add a Skill Group membership to an Agent.

Parameters

The Update() API expects the following parameters:

Table 5.130 Parameters for Update API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|-------------|---|-----------|
| resources | Resource [] | An array of resources to be provisioned to the Contact Center environment (see section "The Resource Hierarchy"). | Yes |

Return Type

The Update() API returns the following objects.

Table 5.131 Return Type for Update API

| Data Type | Description | Required? |
|------------------|---|-----------|
| RequestResult [] | An array of result from the resources to be updated (see section "Request Result"). | Yes |

REST Protocol

Table 5.132 REST Protocol URI for Update API

| Data Type | Description |
|----------------------|--|
| URL | <p>https://<server>:8085/ResourceManagement/rest/resources/<resource type>/<id></p> <p>Or, to update multiple resources of different types</p> <p>https://<server>:8085/ResourceManagement/rest/resources/<resourceKeys></p> |
| HTTP Method | PUT |
| Input/ Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/Resources/agents/315553 |

Sequence Diagram

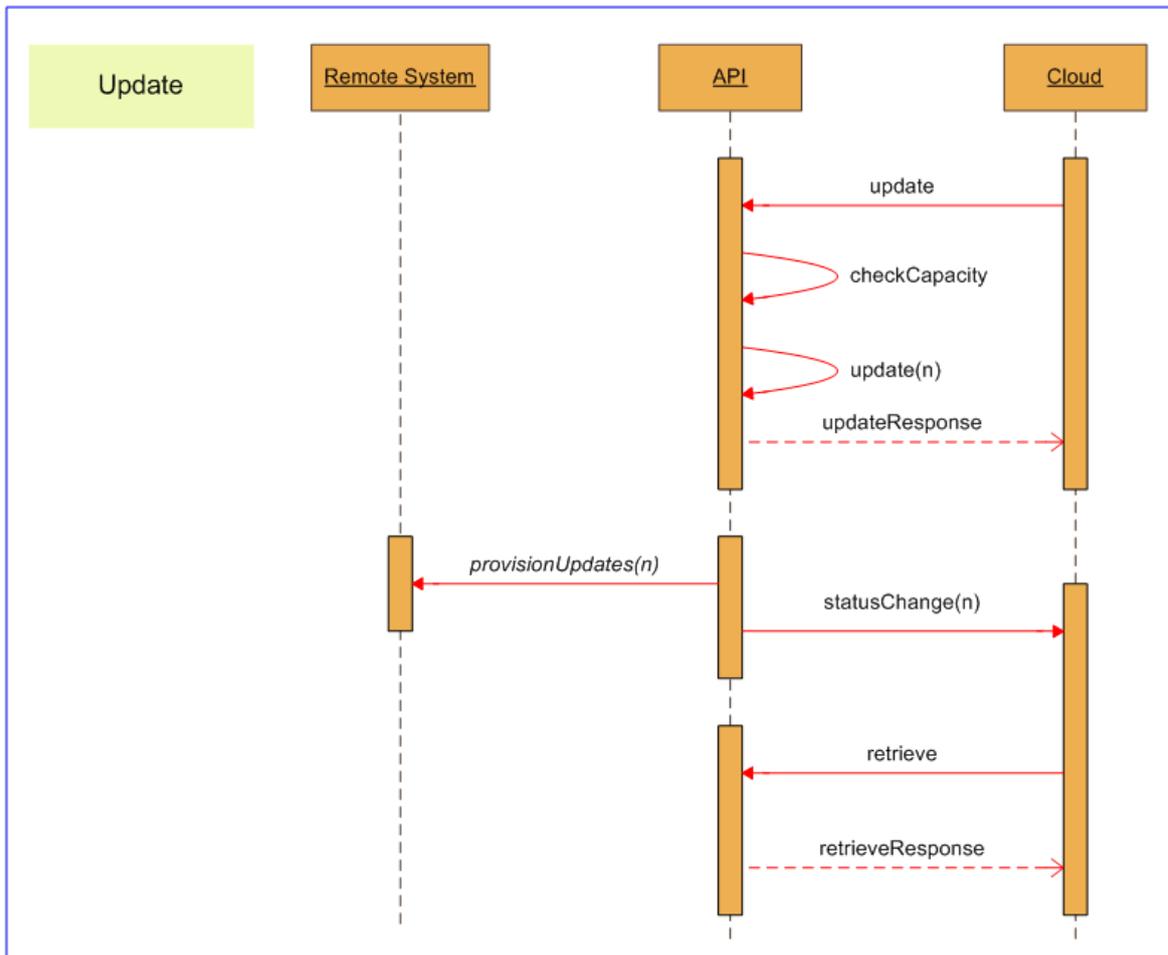


Figure 5.33 Sequence Diagram for Resource Management Update API

Updating Items with Pkey Maps

When you update a resource or membership that is mapped to more than one equipment instance, to access equipment-specific information, you need to specify a pkey map in `EquipmentMapping` for the equipment instance.

Specify the pkey map in the same way as described in section "Creating Items with Pkey Maps".

Note

You can use `Update()` to add a new pkey map, but you cannot use `Update()` to delete an existing pkey map. To delete an existing pkey map from an item, use `Delete()` on the corresponding pkey item.

For a SOAP example that updates an Agent mapped to two equipment instances, where only the details for one equipment instance are to be updated, see section "Create Agent Team with Pkey Maps, Method 2 (Implicit Pkey Maps)". This example specifies the equipment instance in `Fields.ClusterResourceId`.

Delete**Description**

The `Delete()` API deletes supported provisionable item types. For example, use this API to delete a Skill Group.

Parameters

The `Delete()` API expects the following parameters:

Table 5.133 Parameters for Delete API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|---|-----------|
| resourceKeys | ResourceKey [] | An array of resource identities for the items to be deleted (see section "Resource Key"). | Yes |

Return Type

The `Delete()` API returns the following objects:

Table 5.134 Return Type for Delete API

| Data Type | Description | Required? |
|------------------|--|-----------|
| RequestResult [] | An array of results from the resources to be deleted (see section "Request Result"). | Yes |

REST Protocol**Table 5.135 REST Protocol URI for Delete API**

| Data Type | Description |
|-------------------------|--|
| URL | https://<server>:8085/ResourceManagement/rest/resources/ <resource type>s/<id> Or, to delete multiple resources of different types https://<server>:8085/ResourceManagement/rest/resources/<resourcekeys> |
| HTTP Method | DELETE |
| Input/ Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/Resources/agents/315553 |

Sequence Diagram

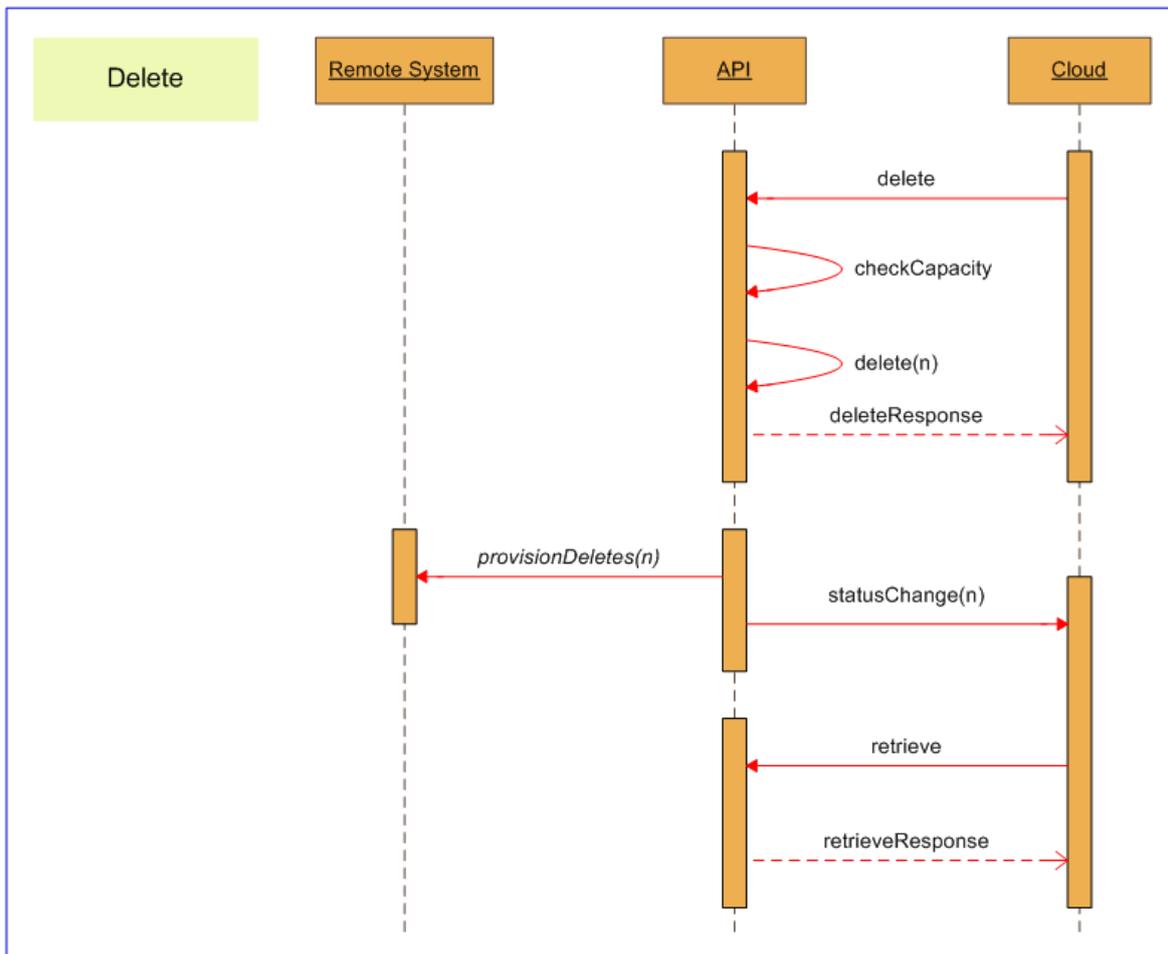


Figure 5.34 Sequence Diagram for Resource Management Delete API

Deleting Items with Pkey Maps

When you delete a resource or membership that is mapped to more than one equipment instance, all pkey maps are deleted with the item.

If you want to delete a resource or membership mapping to a specific equipment instance without deleting the item itself, use the `Update()` method on the parent item, and set the field `status` to `deleted`.

Note

You cannot delete the last pkey map for a resource or membership. You must delete the item itself.

Save**Description**

The Save() API enables you to create, update and delete multiple item and types in a single API call.

Use this API

- for efficiency to avoid provisioning separate create and delete operations for the same item, (for example, when reskilling many agents at the start of a shift, which requires a delete followed by an add)
- when a two different operations have to be performed concurrently to preserve data integrity (for example, when creating a new Precision Queue Step in a Precision Queue and updating an existing Precision Queue Step in the Precision Queue at the same time).

Parameters

The Save() API expects the following parameters:

Table 5.136 Parameters for Save API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|---|-----------|
| resourcesToAdd | Resource [] | An array of resources to be created or updated. Must be supplied, but may be empty. <i>Note. The Identity field should be set to -1 for each new resource being created.</i> | Yes |
| resourcesToDelete | Resource [] | An array of resources to be deleted. Must be supplied, but may be empty. | Yes |

Return Type

The Save() API returns the following objects:

Table 5.137 Return Type for Create API

| Data Type | Description | Required? |
|---------------------|---|-----------|
| RequestResult [] | An array of results from the resources to be created, updated or deleted. | Yes |

REST Protocol**Table 5.138 REST Protocol URI for Save API**

| Data Type | Description |
|----------------------|--|
| URL | If request contains all the same type of resource: https://<server>:8085/ResourceManagement/rest/resources/members/ {resourceMemberTypeCollection} If request contains more than one type of resource: https://<server>:8085/ResourceManagement/rest/resources/members |
| HTTP Method | POST |
| Input/ Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/Resources/members/folders |

Sequence Diagram

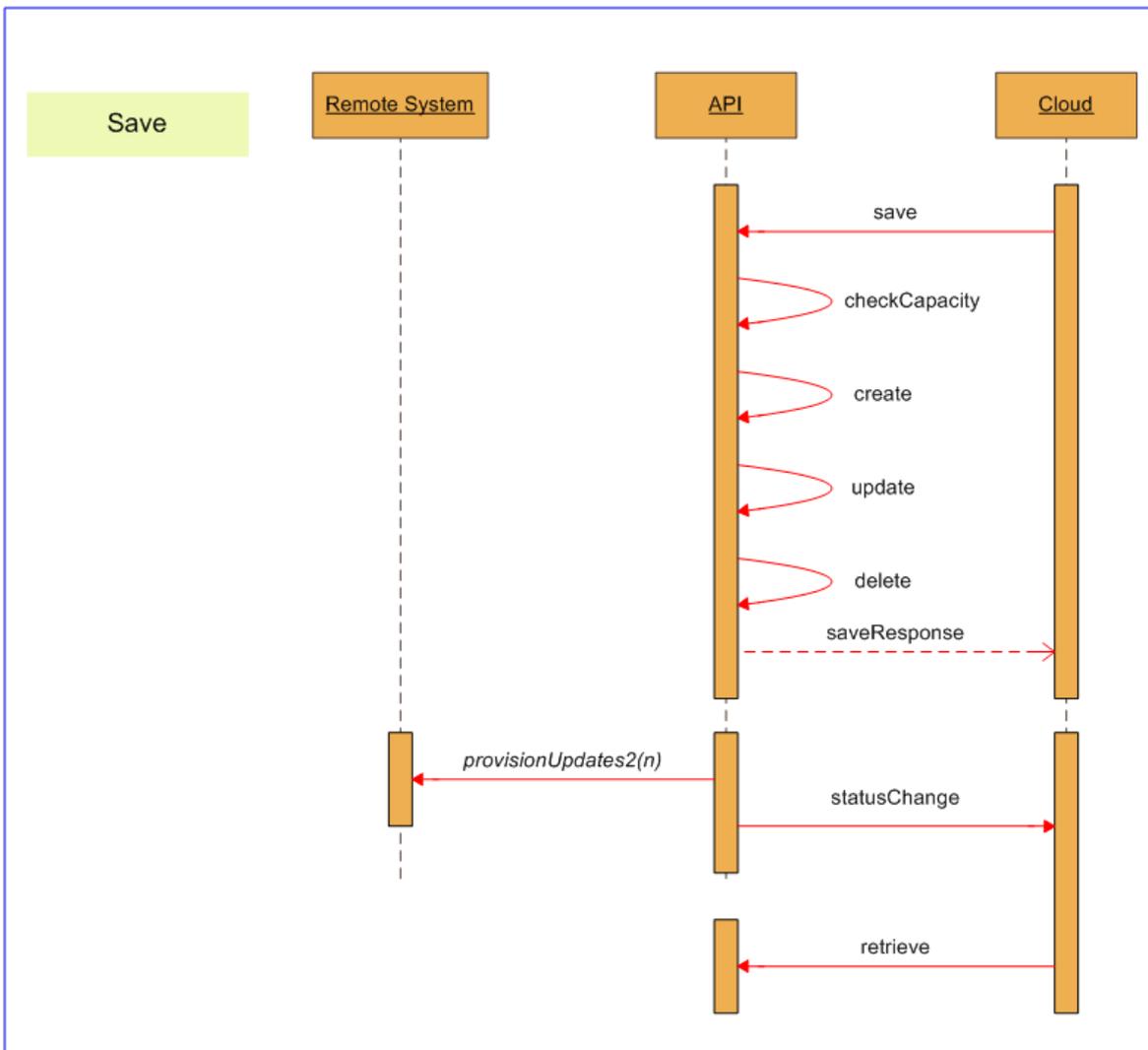


Figure 5.35 Sequence Diagram for Resource Management Save API

Saving Items with Pkey Maps

When you save a resource or membership that is mapped to more than one equipment instance, the pkey map is handled in the same way as for the underlying create, update or delete operation.

Move

Description

The Move() API moves one or more resource items to the specified folder from their current folder location or locations.

For example, you can use this API to move multiple Agents to a new folder in a single action, instead of using Update() and needing to specify the destination folder separately for each Agent.

Parameters

The Move() API expects the following parameters:

Table 5.139 Parameters for Move API

| SOAP Element Name | Data Type | Description | Required? |
|---------------------|----------------|---|-----------|
| destinationFolderId | Int | The identifier of the folder where the resource items will be moved to. | Yes |
| resourceKeys | ResourceKey [] | An array of resource identities for the items to be moved (see section "Resource Key"). | Yes |

Return Type

The Move() API returns the following objects:

Table 5.140 Return Type for Move API

| Data Type | Description | Required? |
|------------------|--|-----------|
| RequestResult [] | An array of results from the resources to be moved (see section "Request Result"). | Yes |

REST Protocol

Table 5.141 REST Protocol URI for Move API

| Data Type | Description |
|-------------|---|
| URL | https://<server>:8085/ResourceManagement/rest/resources/destination/{destinationFolderid} |
| HTTP Method | POST |

| Data Type | Description |
|----------------------|---|
| Input/ Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/Resources/destination/<destinationfolderid> |

Sequence Diagram

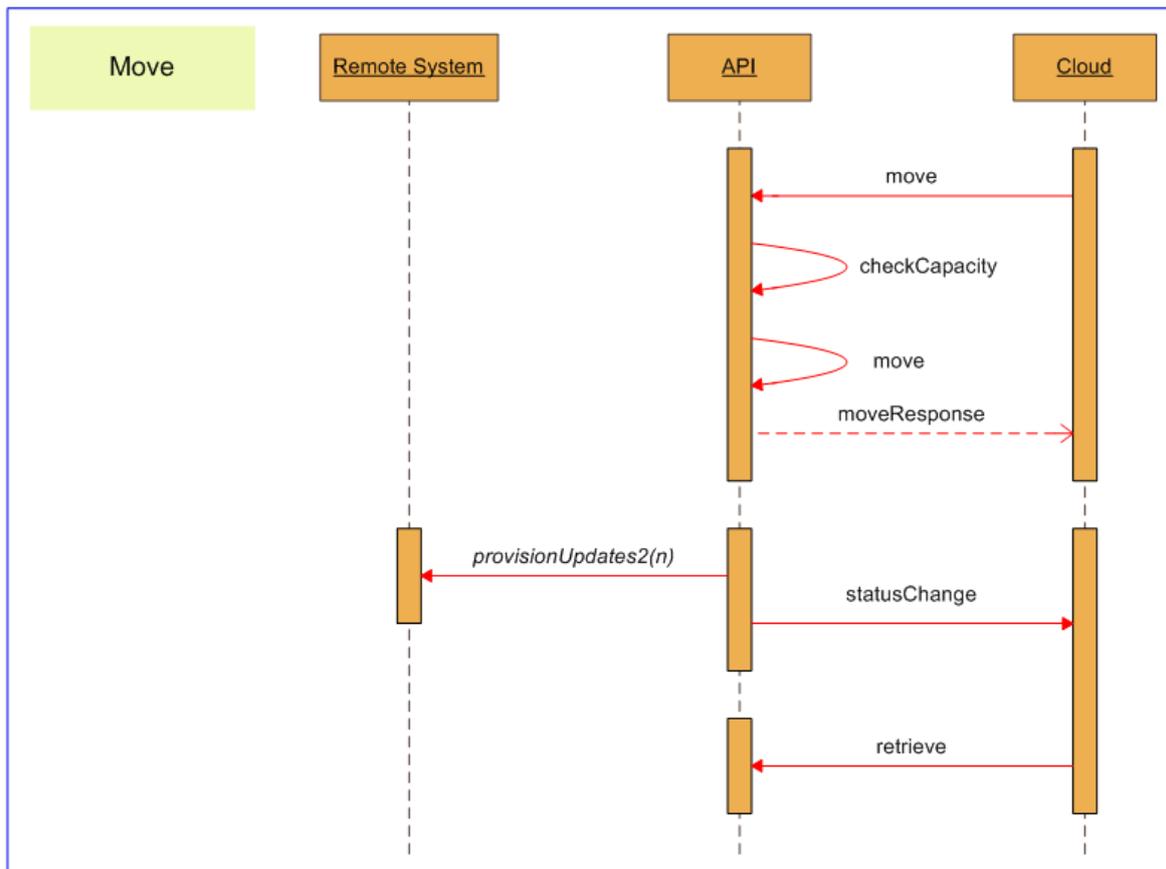


Figure 5.36 Sequence Diagram for Resource Management Move API

Moving Items with Pkey Maps

When you move a resource that is mapped to more than one equipment instance, the pkey map is handled in the same way as for the underlying update operation.

Retrieve

Description

The Retrieve() API returns a collection of Resource objects that relate to the supplied ResourceKey objects.

Use this API to retrieve collections of specific resources for which information is to be displayed, for example, when a Skill Group is selected from a list of Skill Groups and the properties specific to that Skill Group are to be displayed.

Parameters

The Retrieve() API expects the following parameters:

Table 5.142 Parameters for Retrieve API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|--|-----------|
| resourceKeys | ResourceKey [] | An array of resource identities for the items to be retrieved (see section "Resource Key") | Yes |

Return Type

The Retrieve() API returns the following objects:

Table 5.143 Return Type for Retrieve API

| Data Type | Description | Required? |
|-------------|--|-----------|
| Resource [] | An array of resources of the items relating to the identities passed in. Items will be returned in the order of their corresponding identities as passed into the method (see section "Resource Hierarchy Classes"). | Yes |

REST Protocol

Table 5.144 REST Protocol URI for Retrieve API

| Data Type | Description |
|---------------------|---|
| URL | <p>https://<server>:8085/ResourceManagement/rest/resources/<resource type>s/<id></p> <p>Or, to retrieve multiple resources of different types, https://<server>:8085/ResourceManagement/rest/resources/<resourcekeyCollection></p> |
| HTTP Method | GET |
| Input/Output format | XML or JSON |
| Examples | <p>https://APPSRV01:8085/ResourceManagement/rest/Resources/agents/315553</p> <p>https://APPSRV01:8085/ResourceManagement/rest/Resources/1234,IT_AGENT 2345,IT_AGENT_TEAM</p> |

Sequence Diagram

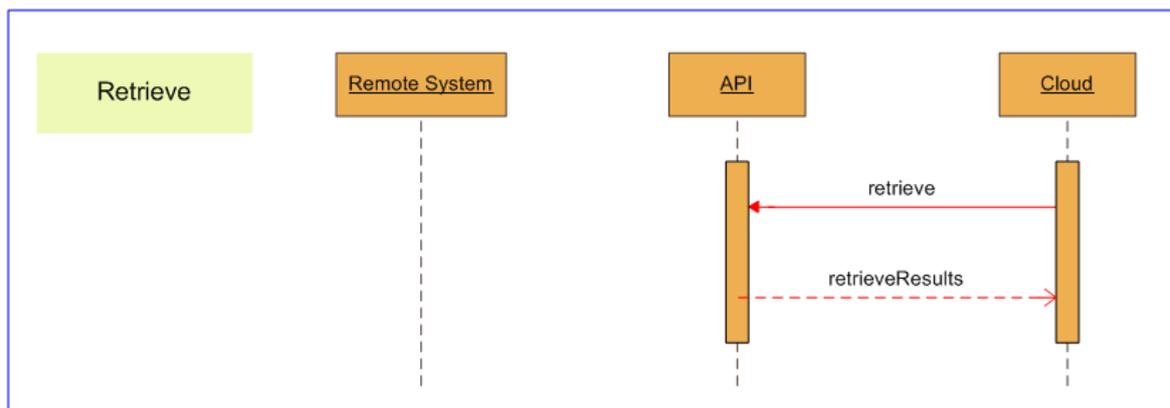


Figure 5.37 Sequence Diagram for Resource Management Retrieve API

Retrieving Items with Pkey Maps

When you retrieve a resource or membership that is mapped to more than one equipment instance, the following applies:

- Fields contains the details for all fields that are not equipment-specific.

- Fields also contains the equipment-specific details for the earliest equipment mapping that is still active.
- EquipmentMapping contains a pkey map for each of the other equipment instances. This pkey map only contains the fields that are specific to that equipment instance.

This means that retrieved resources and memberships can be accessed successfully by both legacy clients that do not expect pkey map details and by clients that are aware of the pkey map resource type.

Search

Description

The Search() API retrieves items based on item type, name, relationships etc. The client can specify search terms to control the search. The client can also specify a collection of items to be excluded from the query results, even if they match the specified search terms.

Parameters

The Search() API expects the following parameters:

Table 5.145 Parameters for Search API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|---|-----------|
| queryString | String | The search string containing the search terms that specify the items to be retrieved. (see Table 5.146). | Yes |
| excludeFilter | ResourceKey [] | A collection of ResourceKey objects for items to be excluded from the search results (see section "Common Fields and Classes"). | No |

Search String Syntax

The search string is constructed from one or more of search terms. Table 5.146 lists the available search terms, using the following conventions:

- Text enclosed by {} indicates an expression to be replaced with your own value, for example {Id} must be replaced with an item id.
- An ellipsis (...) indicates that the preceding term or phrase may be repeated as many times as required. For example, the search term syntax

item:{IdOrName},{IdOrName}...

indicates that the item search term requires one value that is an id or name, followed optionally by as many more id or name values as are required, each separated by a comma.

- Double quotes (“”) must be used to delimit strings that contain embedded spaces.

Search terms can be combined or negated to give a powerful and flexible mechanism for retrieving specific items.

Negation

To negate a search term, add a "-" character before the search term. Any items that match the search term following the "-" character will be excluded from the result set.

For example, the search term

```
folder:/cicm -text:"HIDDEN ITEM"
```

gives a result set containing all items in the /**cicm** folder except those containing "HIDDEN ITEM" in their name or description.

Combined Search Expressions

Search terms can be combined using AND and OR operators to build up a search expression. By default, specifying two search terms with a space between the terms is interpreted as an AND operation, and only those results that meet both criteria are returned. OR operators can be applied to expressions but cannot be used to create nested expressions.

For example, the search term

```
folder:/cicm name:"Bob" OR folder:/cicm2 name:"Dave"
```

will return an item called "Dave" in the /**cicm2** folder and an item called "Bob" in the /**cicm** folder but will not return an item called "Dave" in the /**cicm** folder.

Global Search Terms

Global search terms can be defined which apply to the entire search string. Global search terms are marked with a "*" before the search term.

For example, the search string

```
*folder:/cicm name:"Bob" OR name:"Dave"
```

applies the *`folder:/cicm` search filter to the entire search string, and will return an item "Dave" in the /**cicm** folder and an item "Bob" in the /**cicm** folder but will not return an item "Dave" in the /**cicm2** folder.

Modifier Search Terms

The following search terms are modifiers, and are used to modify the result set returned by the other search terms. They cannot be used on their own:

- count
- effective
- effectiverange
- maxmodified

- offset
- owner
- sort

Search Performance

The following search terms are efficient, and can be used to restrict the search results set before applying any specific property-based searches (which are slower):

- deleted
- effective
- effectiverange
- enabled
- hidden
- latest
- modified
- status
- system
- type

For best search performance, where possible, use the search terms in the list above instead of using a property search on the same field, which will be slower. The following search terms use property searches:

- property
- childof (if {MemberOptions} is specified)
- parentof (if {MemberOptions} is specified).

For example, the search string

```
deleted:false
type:"Agent Agent Team Member"
childof:"Agent Team",1234
```

will be more efficient than

```
childof:"Agent Team",1234
[Type="Agent Agent Team Member";Deleted=false]
```

although both search strings will return all non-deleted Agent Agent Team Member items for the Agent Team "1234".

Sorting Search Results

The `sort` search term allows you to specify a field or fields to use to sort the returned results.

As well as the fields available for a particular item type, some items also have associated name fields that can also be used to sort the results. Associated name fields translate item fields that are ids, GUIDs or URNs into name strings. They allow search results to be ordered alphabetically by name, rather than by internal identifier, without requiring extra API calls to reformat the results.

For example, the search string

```
folder:/cicm/mydept
type:"Agent Team"
sort:DialedNumberUrn
```

returns all the agent teams in the specified folder, sorted by the URN of the default dialed number, whereas the search string

```
folder:/cicm/mydept
type:"Agent Team"
sort:ParentDialedNumberDisplayName
```

returns all the agent teams in the specified folder, sorted by the dialed number display name. This allows the web application to display the returned results in a more meaningful order without additional processing.

The associated name fields available for each item are specified with the item specification.

Search Latency

The Search API uses enterprise level caching, which may lead to a delay between create, update or delete operations and their state being reflected in the search results. It is recommend that clients maintain a list of changes that may have not been propagated to the cache at the point the search is called. The SOAP client can use the subscriptions mechanism (see Chapter "Subscriptions Web Service") to subscribe for notifications when items are provisioned, and remove the items from the list as the notifications are received.

Search Terms

Table 5.146 Search Terms for Search API

| Search Term | Description | Syntax and Examples |
|-------------|--|---|
| count | Return the number of items that would be returned by the specified search terms. | <p>Syntax count:</p> <p>Examples cstext:"SkillGroup For Spanish" count: returns the number of resources that match the cstext search term "SkillGroup For Spanish".</p> |
| cstext | <p>Case-sensitive search for items with the specified text in the Name, InternalName or Description fields.</p> <p>This search is much slower than the key search but provides a finer grained search.</p> | <p>Syntax One of: cstext:{SearchString} cstext:{SearchString},{SearchField} {SearchString} specifies the string to search for, and the optional {SearchField} is one of:</p> <ul style="list-style-type: none"> n search for specified text in Name field only i search for specified text in InternalName field only d search for specified text in Description field only <p>Examples cstext:"Spanish" returns items where Name, InternalName or Description contains "Spanish" (but not "SPANISH", or "spanish" etc). cstext:"SkillGroup For Spanish". cstext: "David",i returns items where the internal name contains "David", but not items where the internal name contains "david" or "DAVID".</p> |

| Search Term | Description | Syntax and Examples |
|-------------|---|--|
| childof | <p>Restrict the search to children of the specified parent.</p> <p>Both a type and an id are needed to ensure the parent is identified uniquely. If the type is not supplied, then the children of all items with the specified id will be returned. If the id is not supplied then the children of all items of the specified type will be returned.</p> <p>Where possible, specify both a type and an id as this makes the search more efficient.</p> | <p>Syntax</p> <p>One of:</p> <pre>childof:{Type} childof:{Id} childof:{Type},{Id} childof:{Type}[{MemberOptions}] childof:{Id}[{MemberOptions}] childof:{Type},{Id}[{MemberOptions}]</pre> <p>The optional {MemberOptions} is enclosed in square brackets and specifies one or more property filters to apply to the membership children of the specified parent.</p> <p>Each membership property filter in {MemberOptions} is of the form {PropertyName} {Comparison}{PropertyValue}, where {Comparison} is one of:</p> <ul style="list-style-type: none"> ! is not equal to > is greater than < is less than } is greater than or equal to { is less than or equal to <p>If {MemberOptions} contains more than one membership property filter, each filter must be separated by a semi-colon (;). For example, [Type="Agent Skillgroup Member"; DefaultMember=true], specifies a membership property filter for Agent Skillgroup Members where the membership represents the default skillgroup for that agent.</p> <p>Note: The {MemberOptions} property filter only affects child membership items. It does not affect child resource items, and all child resource items of the specified parent will be returned, even with a {MemberOptions} filter specified. If you want to restrict the result set further, include one of the other search terms, for example, type: or property:.</p> <p>Examples</p> <pre>childof:"Skill Group",1234 returns all child items associated with the Skill Group with id "1234". childof:1234 returns all child items associated with any item with id "1234". childof:Peripheral returns all child items</pre> |

| Search Term | Description | Syntax and Examples |
|-----------------|---|---|
| | | <p>associated with all Peripherals.</p> <p>childof:Peripheral,5678 type:Agent deleted:false enabled:true searches the Peripheral with id "5678" and returns all enabled, non-deleted Agents associated with this Peripheral.</p> <p>childof:"Skillgroup",5555 [Type="Agent Skillgroup Member"; DefaultMember=true] searches Skillgroup "5555" and returns all associated Agent Skillgroup Member items where the membership represents the default skillgroup for an agent.</p> |
| deleted | Specify whether to include deleted items in the search. By default, the search results will include both deleted and non-deleted items. | <p>Syntax</p> <p>deleted:{Flag}</p> <p>{Flag} is one of false, true, 0 (false) or 1 (true)</p> <p>Examples</p> <p>deleted:true returns only deleted items.</p> <p>deleted:false returns only non-deleted items.</p> <p>deleted:0 returns only non-deleted items.</p> |
| effective | Restrict the search to items that were effective at the specified date and time. | <p>Syntax</p> <p>effective:{DateTime}</p> <p>{DateTime} is specified as yyyy-mm-ddThh:mm:ss</p> <p>Examples</p> <p>effective:"2009-09-20T23:00:00" returns only items that were effective at 2300 on 20th September 2009.</p> |
| effective range | Restrict the search to items that were effective during the supplied date and time range. | <p>Syntax</p> <p>effectiverange:{StartDateTime}, {EndDateTime}</p> <p>{StartDateTime} and {EndDateTime} are specified as yyyy-mm-ddThh:mm:ss</p> <p>Examples</p> <p>effectiverange:"2009-09-20T23:00:00", "2009-09-21T23:00:00" returns only items that were effective between 2300 on 20th September 2009 and 2300 on 21th September 2009.</p> |

| Search Term | Description | Syntax and Examples |
|--------------------|--|--|
| enabled | Specify whether to include enabled items in the search. By default, the search results will include both enabled and disabled items. | Syntax enabled:{Flag} {Flag} is one of false, true, 0 (false) or 1 (true) Examples enabled:true returns only enabled items. enabled:false returns only disabled items. enabled:1 returns only enabled items. |

| Search Term | Description | Syntax and Examples |
|-------------|---|---|
| folder | <p>Restrict the search to items in the specified folder, and optionally, subfolders or parent folders.</p> <p>This search filter only returns items that are in the folder tree. It will return remote resources and system resources (including other folders) but not member items.</p> | <p>Syntax One of: folder:{PathOrId} folder:{PathOrId}{Options}</p> <p>The optional {Options} is one of</p> <ul style="list-style-type: none"> * Search folder and subfolders (one level) ** Search folder and subfolders (all levels) /** Search subfolders (all levels) ^ Search parent folders (all levels) <p>If {Options} is not specified, then the search is restricted to the specified folder.</p> <p>Examples folder:/cicm returns items (including subfolders) in /cicm. folder:/cicm/* returns items (including subfolders) in the subfolders of /cicm. folder:/cicm* returns items (including subfolders) in /cicm and also items (including subfolders) in immediate subfolders of /cicm. folder:/cicm** returns items (including subfolders) in /cicm and also items (including subfolders) in all levels of subfolders of /cicm. folder:/cicm/** returns items (including subfolders) in all levels of subfolders of /cicm. folder:/cicm/mydept^ returns items (including subfolders) at the same level as /cicm/mydept, and all levels above, excluding /cicm/mydept itself. folder:{2833BE91-68D3-45E7-94BD-A7F2BC139167} returns items in the folder with the specified id. folder:{2833BE91-68D3-45E7-94BD-A7F2BC139167}/* returns items in the subfolders of the folder with the specified id.</p> |
| hidden | <p>Specify whether to include hidden items in the search. By default, the search results will include both hidden and non-hidden (visible) items.</p> | <p>Syntax hidden:{Flag}</p> <p>{Flag} is one of false, true, 0 (false) or 1 (true)</p> <p>Examples hidden:true returns only hidden items. hidden:0 returns only visible items.</p> |

| Search Term | Description | Syntax and Examples |
|---------------|---|--|
| internal name | Search for items by <code>InternalName</code> (which corresponds to the name of the item on the remote equipment, for example, <i>EnterpriseName</i> in Unified CCE). | <p>Syntax</p> <pre>internalname:{Name}</pre> <p>Examples</p> <pre>internalname:Agent1</pre> returns all resources with internal name "Agent1". <pre>internalname:"Agent 1234"</pre> returns all resources with internal name of "Agent 1234". |
| item | Search for items by id, Name or <code>InternalName</code> . Both a type and an id are needed to ensure the item is identified uniquely. If a <code>type:</code> search term is not specified as well, then all items with the specified id will be returned. | <p>Syntax</p> <p>One of:</p> <pre>item:{IdOrName}</pre> <pre>item:{IdOrName},{IdOrName}...</pre> <p>If more than one <code>{IdOrName}</code> is specified, then each one must be separated by a comma (,).</p> <p>Examples</p> <pre>item:1234</pre> returns all items with an id, name or internal name of "1234". <pre>item:1234,7654</pre> returns all items with an id, name or internal name of "1234" or "7654". <pre>item:1234,7654 type:Agent</pre> returns all Agents with an id, name or internal name of "1234" or "7654". <pre>item:"1234,Bob1"</pre> returns all items with a name or internal name of "1234,Bob1". |
| key | Search for items by the item key. This search term accepts a single item or a list of items, which may be of different types. This search is very efficient. | <p>Syntax</p> <p>One of:</p> <pre>key:{Type},{Id}</pre> <pre>key:{Type},{Id} {Type},{Id}...</pre> <p>If more than one <code>{Type},{Id}</code> pair is specified, then each <code>{Type},{Id}</code> pair must be separated by a vertical bar ().</p> <p>Examples</p> <pre>key:Agent,9474 Peripheral,2917 MT_ITEM_TENANT_MEMBER,2927</pre> returns the Agent with id 9474, the Peripheral with id 2917 and the MT_ITEM_TENANT_MEMBER with id 2927. |

| Search Term | Description | Syntax and Examples |
|-----------------|---|--|
| latest | Specify whether to include current items and items with type-2 changes in the search. By default, the search results will include both current items and items with type-2 changes. | <p>Syntax latest:{Flag}</p> <p>{Flag} is one of false, true, 0 (false) or 1 (true)</p> <p>Examples latest:1 returns only current items. latest:false returns only items with type-2 changes.</p> |
| max | Restrict the number of items returned. Combine this with offset to return paged results. | <p>Syntax max:{Count}</p> <p>Examples max:2000 returns only the first 2000 matching items.</p> |
| member childof | <p>Search for member objects of the specified type which link to the specified parent.</p> <p>Note. This search term is included for legacy use only. New code should use the childof: search term to specify the parent, together with the type: search term to specify the required member type.</p> | <p>Syntax memberchildof:{ParentType},{ParentId}{MemberType}</p> <p>Examples memberchildof:"Agent Team",4567, "Agent Agent Team Member" returns all Agent Agent Team Member objects which have Agent Team 4567 as the parent.</p> |
| member parentof | <p>Search for member objects of the specified type which link to the specified child.</p> <p>Note. This search term is included for legacy use only. New code should use the parentof: search term to specify the child, together with the type: search term to specify the required member type.</p> | <p>Syntax memberparentof:{ChildType},{ChildId}{MemberType}</p> <p>Examples memberparentof:"Agent",3541, "Agent Agent Team Member" returns all Agent Agent Team Member objects which have Agent 3541 as the child.</p> |

| Search Term | Description | Syntax and Examples |
|-------------|---|--|
| modified | Restrict the search to items modified on or after the specified date time. | <p>Syntax</p> <p>One of:</p> <pre>modified:{DateTime} modified:{DeltaTime}</pre> <p>{DateTime} is specified as yyyy-mm-dd hh:mm:ss and the alternative {DeltaTime} is one of: -1second, -1minute, -1hour, -1day, -{n}seconds, -{n}minutes, -{n}hours, -{n}days</p> <p>Examples</p> <p>modified:"2009-09-20 23:00:00" returns only items that were modified on or after 2300 on 20th September 2009.</p> <p>modified:-1hour returns only items that were modified within the last hour.</p> <p>modified:-90seconds returns only items that were modified within the last 90 seconds.</p> <p>modified:-7days returns only items that were modified within the last week.</p> |
| name | <p>Search for items by name, or if Name is blank, by InternalName.</p> <p><i>Note. This search term cannot be used to find items where both the name and the internal name are blank. You can use the property search term to do this, although this may be slow as the property search is not an indexed search.</i></p> | <p>Syntax</p> <pre>name:{Name}</pre> <p>Examples</p> <p>name:Agent1 returns the agent with the name or internal name of "Agent1".</p> <p>name:"Agent 1234" returns the agent with the name or internal name of "Agent 1234".</p> |
| owner | Restrict the items returned to those owned by the specified tenant. | <p>Syntax</p> <p>One of:</p> <pre>owner:{IdOrTenant} owner:{IdOrTenant},{IdOrTenant}...</pre> <p>If more than one {IdOrTenant} is specified, then each one must be separated by a comma (,).</p> <p>Examples</p> <p>owner:/Tenant1 returns only items owned by Tenant1.</p> <pre>owner:{24811131-76E9-4406-9F66-711FD8716955}, {2ADA5C58-839E-4EC8-901E-1692E224B132}</pre> <p>returns only items owned by the tenants with the specified ids.</p> |

| Search Term | Description | Syntax and Examples |
|--------------------|---|---|
| offset | Restrict the items returned to those after the specified position in the results array. Combine this with max to return paged results. If the specified offset is greater than the number of matching results, the results array is empty. | Syntax offset: {OffsetCount} Examples offset:100 max: 50 returns only the 101 st to 150 th matching items. |

| Search Term | Description | Syntax and Examples |
|-------------|--|--|
| parentof | <p>Restrict the search to parents of the specified child.</p> <p>Both a type and an id are needed to ensure the child is identified uniquely. If the type is not supplied, then the parents of all items with the specified id will be returned. If the id is not supplied then the parents of all items of the specified type will be returned.</p> <p>Where possible, specify both a type and an id as this makes the search more efficient.</p> | <p>Syntax</p> <p>One of:</p> <pre>parentof:{Type} parentof:{Id} parentof:{Type},{Id} parentof:{Type}[{MemberOptions}] parentof:{Id}[{MemberOptions}] parentof:{Type},{Id}[{MemberOptions}]</pre> <p>The optional {MemberOptions} is enclosed in square brackets and specifies one or more property filters to apply to the membership parents of the specified child.</p> <p>Each membership property filter in {MemberOptions} is of the form {PropertyName} {Comparison}{PropertyValue}, where {Comparison} is one of:</p> <ul style="list-style-type: none"> ! is not equal to > is greater than < is less than } is greater than or equal to { is less than or equal to <p>If {MemberOptions} contains more than one membership property filter, each property filter must be separated by a semi-colon (;). For example, [Type="Agent Skillgroup Member"; DefaultMember=true], specifies a membership property filter for Agent Skillgroup Members where the membership represents the default skillgroup for that agent.</p> <p>Note: The {MemberOptions} property filter only affects parent membership items. It does not affect parent resource items, and all parent resource items of the specified child will be returned, even with a {MemberOptions} filter specified. If you want to restrict the result set further, include one of the other search terms, for example, type: or property:.</p> <p>Examples</p> <pre>parentof:Agent,1234</pre> <p>returns all parent items associated with the Agent with id "1234".</p> <pre>parentof:1234</pre> <p>returns all parent items associated with any item with the id "1234".</p> <pre>parentof:"Agent"</pre> <p>returns all parent items associated with any Agent.</p> |

| Search Term | Description | Syntax and Examples |
|-------------|--|--|
| | | <p>parentof: "Agent",5555 [Type="Agent Skill Group Member"; DefaultMember=true] searches the Agent with id "5555" and returns the parent Skill Group Member item associated with the Agent where the membership represents the default skillgroup for that Agent.</p> <p>parentof:"Agent",3541 type:"Agent Team" returns all Agent Team items which have Agent 3541 as the child.</p> |
| property | Search for items based on the value of one or more of their properties. This search is case sensitive. | <p>Syntax</p> <p>property:{PropertyName}{Comparison} {PropertyValue}</p> <p>{Comparison} is one of:</p> <ul style="list-style-type: none"> ! is not equal to > is greater than < is less than } is greater than or equal to { is less than or equal to <p>Examples</p> <p>property:FirstName=Bob returns all items where the first name is "Bob".</p> <p>property:LastName!Smith returns all items where the last name is not "Smith".</p> <p>property:WaitTime>20 returns all items where the wait time is greater than 20 seconds.</p> <p>property:Timeout}20 returns all items where the timeout is greater than or equal to 20 seconds.</p> |

| Search Term | Description | Syntax and Examples |
|-------------|---|---|
| sort | Sort the returned items by the specified property. | <p>Syntax One of: sort:{SortTerm}sort:{SortTerm} \${SortTerm}...</p> <p>{SortTerm} is one of:</p> <ul style="list-style-type: none"> • {PropertyName} {AssociatedPropertyName} (an ascending sort on the specified property name or associated property name) • {PropertyName} {AssociatedPropertyName},ASC (an ascending sort on the specified property name or associated property name) • {PropertyName} {AssociatedPropertyName},DESC (a descending sort on the specified property name or associated property name) <p>If more than one {SortTerm} is specified, then each one must be separated by a dollar sign (\$). Note that {propertyName} and {AssociatedPropertyName} are case-sensitive.</p> <p>Examples sort:InternalName returns the matching items, sorted by internal name in ascending order. sort: InternalName,DESC returns the matching items, sorted by internal name, in descending order. sort:Supervisor\$InternalName,DESC returns the matching items, sorted first by supervisor in ascending order, then by internal name, in reverse order. sort:ParentFolderPath,ASC returns the matching items sorted by the folder path name that corresponds to the FolderId of each item.</p> |
| status | Restrict the search to items matching the specified status. | <p>Syntax status:{Status}</p> <p>Examples status:R only returns items that are in the ready state. Status:D only returns items that are in the deleted state.</p> |

| Search Term | Description | Syntax and Examples |
|-------------|---|---|
| system | <p>Specify whether to include items that are owned by the system in the search. By default, the search results will include both system items and non-system items.</p> <p>Items that are owned by the system include the root folder, system search folders, and the users, groups and roles that are created when the system is first installed. These items cannot be edited or deleted.</p> | <p>Syntax system:{Flag}</p> <p>Examples system:true only returns items owned by the system. System:false only returns items not owned by the system. System:0 only returns items not owned by the system.</p> |
| text | <p>Search for items with the specified text in the Name, InternalName or Description fields. This search is not case-sensitive.</p> <p>This search is much slower than the key search but provides a finer grained search.</p> | <p>Syntax One of: text:{SearchString} text:{SearchString},{SearchField}</p> <p>{SearchString} specifies the string to search for, and the optional {SearchField} is one of</p> <ul style="list-style-type: none"> n search for specified text in Name field only i search for specified text in InternalName field only d search for specified text in Description field only <p>Examples text:"Spanish" returns items where Name, InternalName or Description contains "Spanish" (or "SPANISH", or "spanish" etc) text:"SkillGroup For Spanish" text: "David",i returns items where InternalName contains "David", and also items where InternalName contains "david" or "DAVID".</p> |
| type | <p>Restrict the search to items of the specified type.</p> | <p>Syntax type:{Type}</p> <p>Examples type:IT_AGENTtype:"Agent Team" type:Foldertype:Peripheral</p> |
| types | <p>Return the item types supported by Search().</p> <p>Tip: Call Describe() for any of the returned item types to get the fields and data types for that item type.</p> | <p>Syntax types:</p> |

Return Type

The Search() API returns the following objects:

Table 5.147 Return Type for Search API

| Data Type | Description | Required? |
|------------------|---|------------------|
| Resource [] | The results of the search as a collection of Resource objects (see section "The Resource Hierarchy"). | Yes |

REST Protocol**Table 5.148 REST Protocol URI for Search API**

| Data Type | Description |
|----------------------|--|
| URL | https://<server>:8085/ResourceManagement/rest/resources?queryString=<query string>&excludeFilter=<exclude filter> |
| HTTP Method | GET |
| Input/ Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/resources?queryString=type%3aAgent+max%3a1+latest%3a1&excludeFilter= |

Sequence Diagram

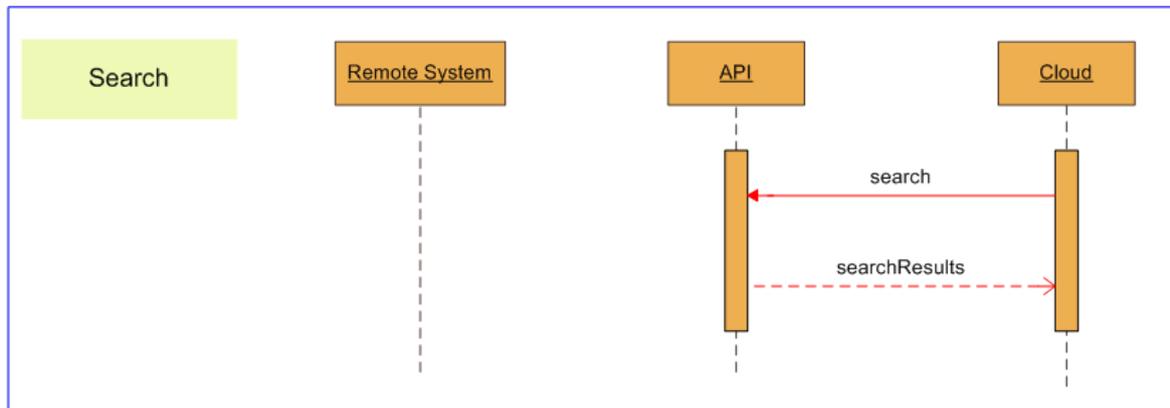


Figure 5.38 Sequence Diagram for Resource Management Search API

Searching and Items with Pkey Maps

If your search returns a resource or membership that is mapped to more than one equipment instance, Fields will include all fields for the earliest active equipment mapping. The pkey maps in EquipmentMapping contain the details for the other equipment instances.

For more details, see section "Retrieving Items with Pkey Maps".

This means that search results can be accessed successfully by both legacy clients that do not expect pkey map details and by clients that are aware of the pkey map resource type.

Note

Pkey maps are implemented internally as memberships, so if you search for all member types, the pkey map memberships will be visible in the search results along with the resource-to-resource memberships.

Describe

Description

The Describe() API is used to return entity metadata for a specified resource type. This meta data can then be used for constraining population of fields when performing edit or create operations on objects of that type.

Parameters

The Describe() API expects the following parameters:

Table 5.149 Parameters for Describe API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|-----------|--|-----------|
| resourceType | String [] | The resource types of the object or objects for which the field metadata is required. One or more of: the remote resource types listed in section "Remote Resource Types", the system resource types listed in section "System Resource Types", the resource member types listed in section "Member Types and Identifiers", or the pkey map types listed in section "Member Pkey Types". | Yes |

Return Type

The Describe() API returns the following objects:

Table 5.150 Return Type for Describe API

| Data Type | Description | Required? |
|----------------------|---|-----------|
| ResourceFieldMeta [] | A collection of ResourceFieldMeta objects containing metadata for the resource type passed in. Note: For the remote resource types listed in section "Remote Resource Types" and the member types listed in section "Member Types and Identifiers", the returned metadata does not include fields that may be in a pkey map. To see these fields, you need to call Describe() and specify the corresponding resource or member pkey type. | Yes |
| ClusterResourceType | Used to return resource meta of supplied type on this cluster. | No |
| ClusterResourceID | Used to return meta data of resource for particular cluster type. If the passed in type is only supported on single type then this field is ignored. | No |
| Path | If supplied the resource meta will return fields supported on the cluster on that path. If no matching cluster is found it will throw an exception | No |

REST Protocol

Table 5.151 REST Protocol URI for Describe API

| Data Type | Description |
|---------------------|---|
| URL | https://<server>:8085/ResourceManagement/rest/resources/meta/<resource type> |
| HTTP Method | GET |
| Input/Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/resources/meta/calling-search-space |

Sequence Diagram

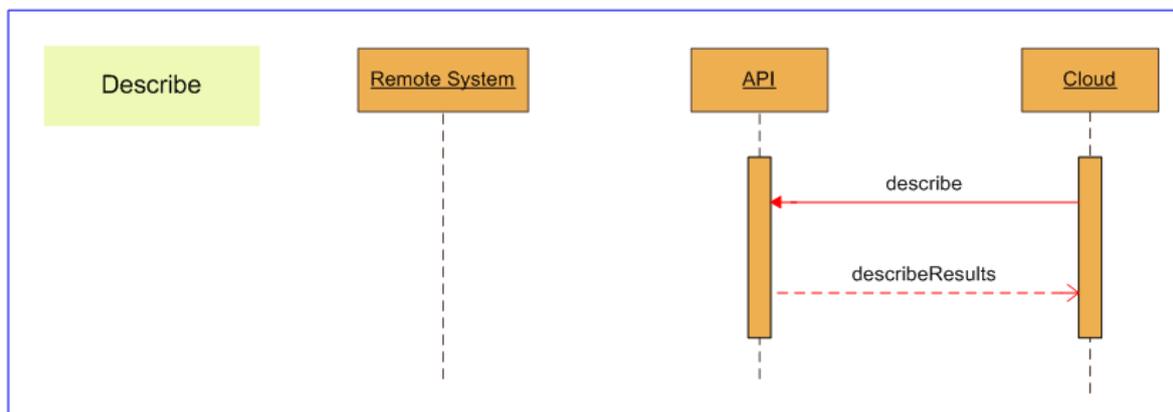


Figure 5.39 Sequence Diagram for Resource Management Describe API

Describing Items with Pkey Maps

If you describe a resource or membership that supports pkey maps, `Describe()` for the main item itself only returns the fields that are associated with the main item. To obtain the descriptions of the fields that may be returned on pkey maps, call `Describe()` for the corresponding resource or membership pkey type.

For example, to get the descriptions of all the fields for an Agent resource you will need to call `Describe (Agent, AgentPkey)`.

Audit

Description

The Audit() API returns the audit records associated with one or more resource entities. This enables the client to display the activity associated with a resource, for example, identifying the reasons for an error status.

Parameters

The Audit() API expects the following parameters:

Table 5.152 Parameters for Audit API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|--|-----------|
| resourceKeys | ResourceKey [] | An array of resource identities for the items whose audits are to be returned. | Yes |
| eventOutcome | String | A filter to reduce the returned audit records to those matching the outcome of the provisioning operation. One of: <ul style="list-style-type: none"> ● S: Success ● F: Failure ● N: Not applicable ● U: Unknown or empty string to match all audit records. | Yes |
| fromDate | DateTime | The start of the date range to filter the returned audit records. Note: for REST this is an 8601 encoded data string. | Yes |
| toDate | DateTime | The end of the date range to filter the returned audit records. Note: for REST this is an 8601 encoded data string. | Yes |
| startIndex | Int | Controls the pagination of audit records, specifies the index of the element at which to start. | Yes |
| resultsPerPage | Int | Controls the pagination of audit records, specifies the number of elements to retrieve. | Yes |
| summary | Bool | Whether the results are a summary or detailed results. If false, fills in the AdditionalData XML field in each of the returned audit records. | Yes |

Return Type

The Audit() API returns the following object:

Table 5.153 Return Type for Audit API

| Data Type | Description | Required? |
|----------------------|--|-----------|
| ResourceAuditResults | The audit data for the resource id passed in (see section "Resource Audit Results"). | Yes |

REST Protocol**Table 5.154 REST Protocol URI for Audit API**

| Data Type | Description |
|----------------------|---|
| URL | <p>https://<server>:8085/ResourceManagement/rest/resources/<resource type>s/<id>/audits?fromDate=<from date>&toDate=<to date>&eventOutcome=S&summary=<true false></p> <p>or, to audit multiple resources of different types,</p> <p>https://<server>:8085/ResourceManagement/rest/resources/<resourceKeys>/audits?fromDate=<from date>&toDate=<to date>&eventOutcome=S&summary=<true false></p> |
| HTTP Method | GET |
| Input/ Output format | XML or JSON |
| Example | https://APPSRV01:8085/ResourceManagement/rest/resources/agents/315553/audits?fromDate=2011-10-04T00%3a00%3a00Z&toDate=2012-06-06T10%3a43%3a57Z |

Sequence Diagram

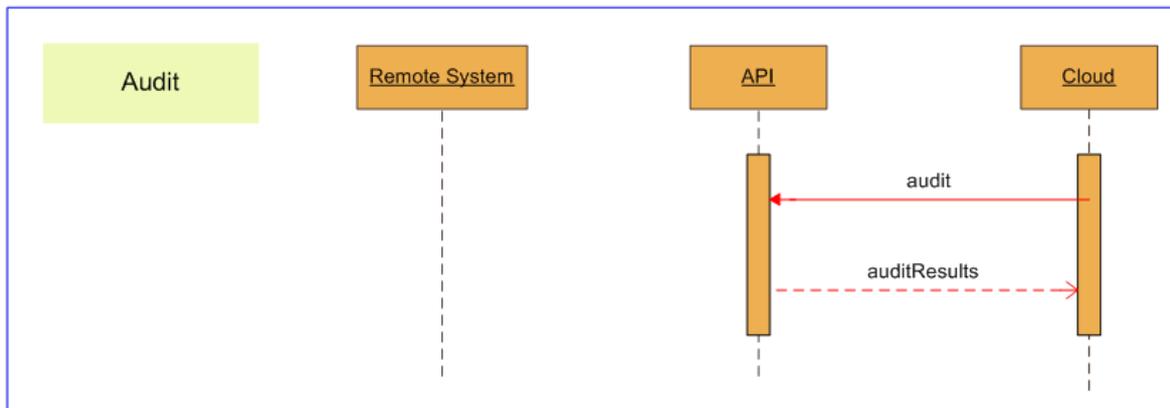


Figure 5.40 Sequence Diagram for Resource Management Audit API

Auditing Resources with Pkey Maps

There are no special considerations when auditing resources or memberships that support pkey maps, since `ResourceAudit` objects do not contain pkey maps.

Upload

Description

The `Upload()` API is a generic API that enables binary data to be associated with an existing resource and uploaded to the appropriate remote system. If there is existing binary data associated with the specified resource, this data is replaced with the new binary data. The type of content being uploaded and any additional data required to specify the upload are determined by the resource type.

The `Upload()` API encodes the additional data and binary data in separate parts of a **multipart/form-data** MIME message (see <http://tools.ietf.org/html/rfc2388>, link checked November 2013).

Parameters

The `Upload()` API expects the following parameters:

Table 5.155 Parameters for Upload API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|--|-----------|
| ResourceKey | ResourceKey | The resource key of the resource to associate the data with. | Yes |
| ContentType | String | The type of data being uploaded. Depends on the resource type (see table below). | Yes |
| AdditionalData | AdditionalData | The additional data required for the upload. Depends on the resource type (see Table 5.156). This parameter is encoded in Part 1 of a MIME message. | Yes |
| Contents | Stream | The binary data to be uploaded and associated with the specified resource. This parameter is encoded in Part 2 of a MIME message. | Yes |

The supported resource types, and the associated content types and additional data required are:

Table 5.156 Supported Resource Types for Upload API

| Resource Type | Content Type | Content Format | Additional Data | | Required? |
|---------------|--------------|---|-----------------|--|-----------|
| | | | Name | Value | |
| Media file | audio/wav | .wav file to be associated with the specified media file resource | Servers | Comma separated list of URNs of the media file servers where the media file is to be uploaded to. If not present, the media file will be uploaded to all media file servers associated with the specified media file resource. | No |

Return Type

The Upload() API returns the following objects:

Table 5.157 Return Type for Upload API

| Data Type | Description | Required? |
|---------------|---------------------------|-----------|
| RequestResult | The result of the upload. | Yes |

REST Protocol

Table 5.158 REST Protocol URI for Upload API

| Data Type | Description |
|----------------------|--|
| URL | https://<server>:8085/ResourceManagement/rest/resources/<resource type>s/<id>/content?contentType=<contentType> |
| HTTP Method | PUT |
| Input/ Output format | XML or JSON |
| Example | https://<server>:8085/ResourceManagement/rest/resources/mediafiles/3565/content?contentType=audio/wav See Table 5.159 for an example MIME message for this URL. |

Table 5.159 Example MIME Message for REST Protocol Upload API

| Section | Example Content |
|--|--|
| Header | Content-Type: multipart/form-data ; boundary="-----8d08f053d6a90ad" Content-Length: 216829 |
| Part 1: Additional Data Format: XML or JSON | -----8d08f053d6a90ad Content-Disposition: form-data; name=" additionaldata " Content-Type: application/json; charset=utf-8 {"Fields":[{"Name":"Servers","Value":"21,25,29"}]} |
| Part 2: Content Format: File | -----8d08f053d6a90ad Content-Disposition: form-data; name=" content "; filename="datafile" Content-Type: audio/wav (file to upload follows as binary data, up to message length defined in header section). |

Sequence Diagram

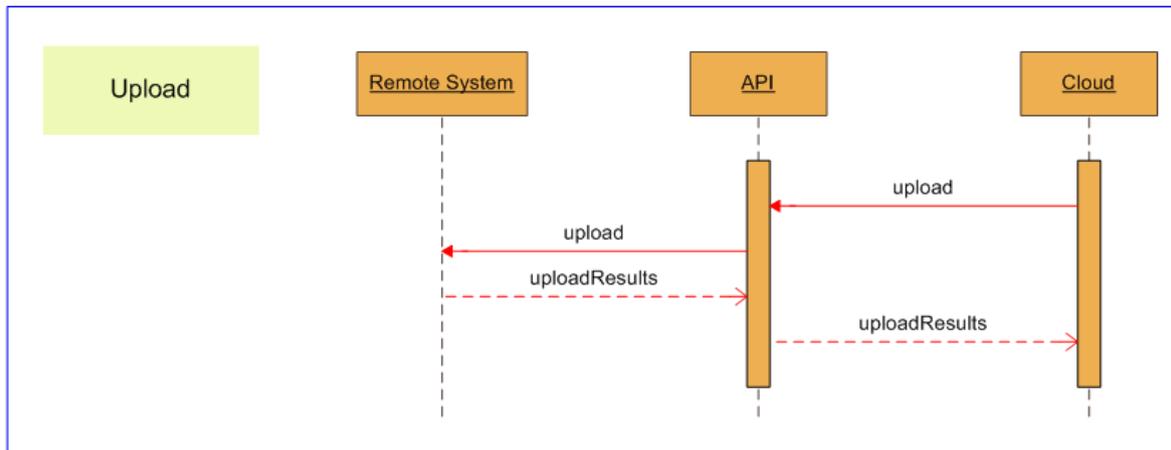


Figure 5.41 Sequence Diagram for Resource Management Upload API

Download

Description

The `Download()` API is a generic API that returns the binary data that has been associated with a resource. The type of content being returned is determined by the resource type.

Parameters

The `Download()` API expects the following parameters:

Table 5.160 Parameters for Download API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|-------------|--|-----------|
| ResourceKey | ResourceKey | The identity of the resource to return the binary data for. | Yes |
| ContentType | String | The type of binary data to be returned. Depends on the resource type (see Table 5.161). | Yes |

The supported resource types, and the associated content types are:

Table 5.161 Supported Resource Types for Download

| Resource Type | Content Type | Content Format |
|---------------|--------------|--|
| Media file | audio/wav | .wav file associated with the specified media file resource. |

Return Type

The Download() API returns the following objects:

Table 5.162 Return Type for Download API

| Data Type | Description | Required? |
|-----------|---|-----------|
| Stream | The binary data that is associated with the resource. If the resource has no associated data, this value is null. | Yes |

REST Protocol**Table 5.163 REST Protocol URI for Download API**

| Data Type | Description |
|----------------------|---|
| URL | https://<server>:8085/ResourceManagement/rest/resources/<resource type>s/<id>/content?contentType=<contentType> |
| HTTP Method | GET |
| Input/ Output format | XML or JSON |
| Example | https://<server>:8085/ResourceManagement/rest/resources/mediafiles/4893/content?contentType=audio/wav |

Sequence Diagram

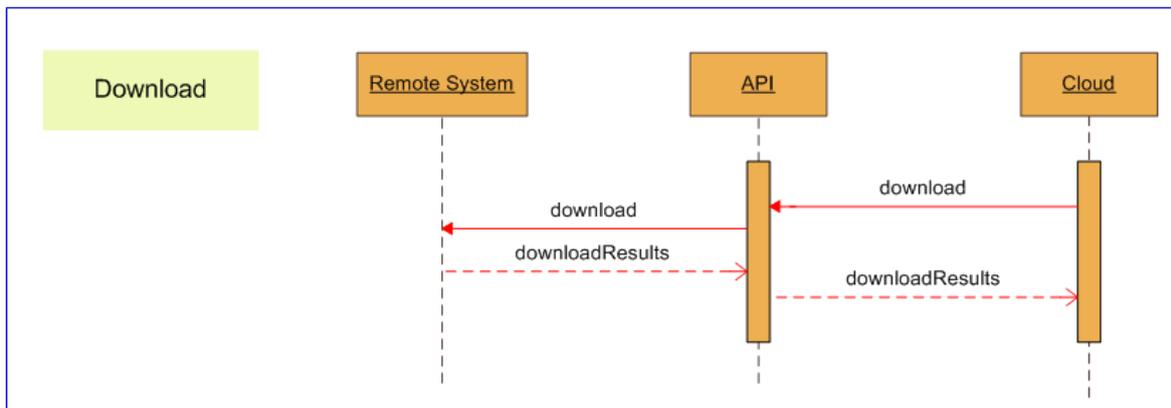


Figure 5.42 Sequence Diagram for Resource Management Download API

Deploy

Description

The Deploy() API is a generic API that enables bulk update of one or more resources of a single type from a single binary deployment package. The deployment package contains both the information to identify each resource and the data to be associated with that resource. This data may include binary data to be uploaded to a remote system as well as other resource data.

If an associated resource already exists in Unified CCMP, the existing data is replaced with the new data from the deployment package. If the associated resource does not yet exist, it is created.

The type of content being deployed and any additional data required to specify the deployment are determined by the resource type.

The Deploy() API encodes the additional data and binary deployment package data in separate parts of a **multipart/form-data** MIME message (see <http://tools.ietf.org/html/rfc2388>, link checked November 2013).

Parameters

The Deploy() API expects the following parameters:

Table 5.164 Parameters for Deploy API

| SOAP Element Name | Data Type | Description | Required? |
|-------------------|----------------|--|-----------|
| ResourceType | String | The type of resource or resources being deployed. | Yes |
| ContentType | String | The type of the deployment package. Depends on the resource type (see Table 5.165). | Yes |
| AdditionalData | AdditionalData | Additional data required for the deployment. Depends on the resource type (see section Table 5.165 "Supported Resource Types for Deploy API"). This parameter is encoded in Part 1 of a MIME message. | Yes |
| Contents | Stream | The deployment package. This parameter is encoded in Part 2 of a MIME message. | Yes |

The supported resource types, and the associated content types and additional data required are:

Table 5.165 Supported Resource Types for Deploy API

| Resource Type | Content Type | Content Format | Additional Data | | |
|---------------|-----------------|--|-----------------|--|-----------|
| | | | Name | Value | Required? |
| IVR Script | application/zip | ZIP file containing one or more VXML applications created by Cisco Call Studio | FolderId | Folder ID where newly-created resources will be saved. | Yes |
| | | | ClusterId | Cluster ID of CVP Operations Console associated with the specified VXML application servers. | Yes |
| | | | Servers | Comma separated list of URNs of the VXML application servers where the package is to be deployed. If not present, the package will be deployed to all VXML application servers associated with the specified Cluster ID. | No |

Return Type

The Deploy() API returns the following objects:

Table 5.166 Return Type for Deploy API

| Data Type | Description | Required? |
|-----------------|-------------------------------------|-----------|
| RequestResult[] | Array of results of the deployment. | Yes |

REST Protocol**Table 5.167 REST Protocol URI for Deploy API**

| Data Type | Description |
|----------------------|---|
| URL | https://<server>:8085/ResourceManagement/resources/<resource type>s/deploy?contentType=<contentType> |
| HTTP Method | POST |
| Input/ Output format | XML or JSON |
| Example | https://<server>:8085/ResourceManagement/rest/resources/ivr-scripts/deploy?contentType=application/zip See Table 5.168 for an example MIME message for this URL. |

Table 5.168 Example MIME Message for REST Protocol Deploy API

| Section | Example Content |
|--|---|
| Header | Content-Type: multipart/form-data; boundary="-----8d0a38f0cd807bb" Content-Length: 24100 |
| Part 1: Additional Data Format: XML or JSON | -----8d0a38f0cd807bb Content-Disposition: form-data; name="additionaldata" Content-Type: application/json; charset=utf-8 { "Fields": [{"Name": "FolderId", "Value": "c2a45666-6137-4109-9744-c82ca730429a"}, {"Name": "Servers", "Value": "21,25,29"}, {"Name": "ClusterId", "Value": "4356b97f-7466-44bd-ac6b-5de89594cd67"}] } |
| Part 2: Content Format: File | -----8d0a38f0cd807bb Content-Disposition: form-data; name="content"; filename="datafile" Content-Type: application/zip (deployment package follows as binary data, up to message length defined in header section). |

Sequence Diagram

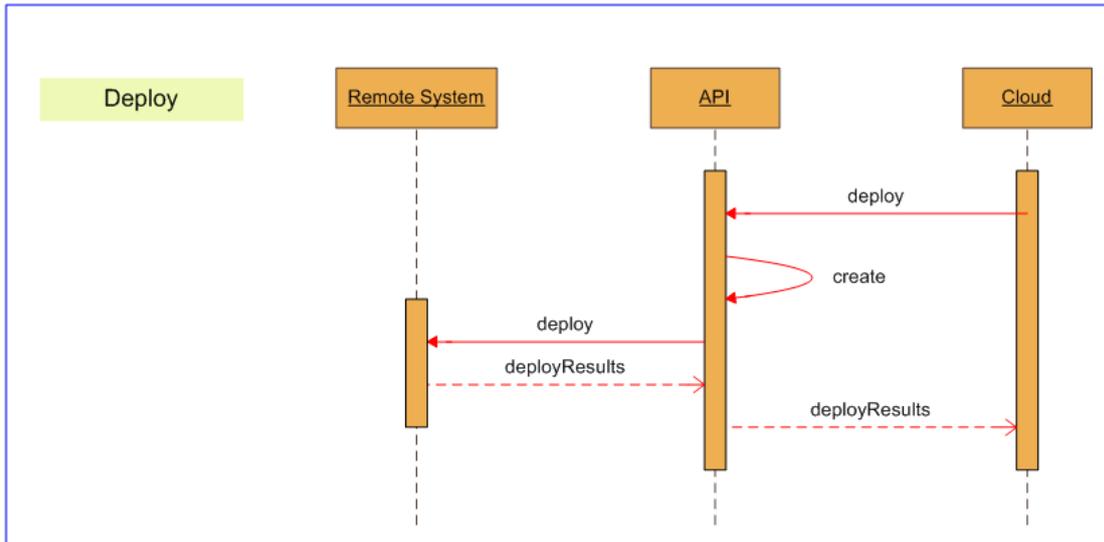


Figure 5.43 Sequence Diagram for Resource Management Deploy API

Resource Management Web Service Examples

Create Agent

Use Case Sequence

Prerequisites:

- The Create Tenant and Create Person use case sequences have been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral or peripherals that the tenant administrator account allows.

Table 5.169 Actions for Create Agent Use Case

| Action | API Calls and Parameters |
|---|--|
| Retrieve the person record. | retrieve Id = person URN |
| Select the folder in which the agent will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Find all peripherals that support agents. By default these are peripherals with a client type of 30. | search type:Peripheral property:ClientType=30 latest:1 deleted:0 |
| Create the agent linked to the person and peripheral and located in the selected folder. The request will be validated and then queued returning the new Agent URN. | create Agent |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent URN |

SOAP Example

The following SOAP request creates a new agent called **Agent1**.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Type>Agent</res:Type>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```
<res:EffectiveFrom>2009-01-01 00:00:00</res:EffectiveFrom>
<res:EffectiveTo>2079-06-06 00:00:00</res:EffectiveTo>
<res:Status>S</res:Status>
<res:Fields>
  <res:NameValuePair>
    <res:Name>FolderId</res:Name>
    <res:Value>9F44B644-7C24-40CD-9DB9-6D1175DD7FE3</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PeripheralUrn</res:Name>
    <res:Value>-1</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PersonUrn</res:Name>
    <res:Value>4568</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>Name</res:Name>
    <res:Value>Agent1</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>InternalName</res:Name>
    <res:Value>CICM.Agent1</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>Description</res:Name>
    <res:Value>Description of Agent1</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>FirstName</res:Name>
    <res:Value>Jim</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>LastName</res:Name>
    <res:Value>Smith</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PeripheralNumber</res:Name>
    <res:Value>132456</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PeripheralName</res:Name>
    <res:Value>Agent1</res:Value>
  </res:NameValuePair>
</res:Fields>
```

```

        <res:NameValuePair>
          <res:Name>Supervisor</res:Name>
          <res:Value>True</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>DomainName</res:Name>
          <res:Value>DOMAIN</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>DomainLoginName</res:Name>
          <res:Value>DOMAIN\Agent1</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>DomainUserName</res:Name>
          <res:Value>Agent1</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>DomainUserGuid</res:Name>
          <res:Value>66965475b1d6a448aafc8fb6deac2b2f
</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update Agent

Use Case Sequence

Prerequisites:

- The Create Agent use case sequence has been executed without any existing agent desktop, skill groups and team memberships.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the agent desktop(s), skill group(s) and agent team(s) that the tenant administrator account allows.
- The Agent and associated resources or members are all in the Ready state.

Table 5.170 Actions for Update Agent Use Case

| Action | API Calls and Parameters |
|--|--|
| Retrieve the agent record | retrieve Id = Agent URN |
| Modify the field(s) of interest. | |
| Update the agent. The agent resource status will go from Ready to Synchronizing until provisioned. | update Agent |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent URN |

The agent re-skilling sequence where this agent is added as a member to a skill group is described in section "Agent Re-Skilling".

SOAP Example

The following SOAP request will update the agent with identity 1234, setting their first name and last name to the passed in values.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Update>
      <res:resources>
        <res:Resource>
          <res:Identity>1234</res:Identity>
        </res:Resource>
      </res:resources>
    </res:Update>
  </soap:Body>
</soap:Envelope>
<res:Type>Agent</res:Type>
<res:EffectiveFrom>2009-01-01 00:00:00</res:EffectiveFrom>
<res:EffectiveTo>2079-06-06 00:00:00</res:EffectiveTo>
<res:Status>S</res:Status>
<res:Fields>
  <res:NameValuePair>
    <res:Name>FolderId</res:Name>
    <res:Value>9F44B644-7C24-40CD-9DB9-6D1175DD7FE3</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>FirstName</res:Name>
    <res:Value>Jim</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
```

```
        <res:Name>LastName</res:Name>
        <res:Value>Smith</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:resources>
</res:Update>
</soap:Body>
</soap:Envelope>
```

Delete Agent

SOAP Example

An example of a SOAP request to the Delete API would be as follows: This request will delete the 2 agents with identities 17585 and 17586.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Delete>
      <res:resourceKeys>
        <res:ResourceKey>
          <res:Identity>17585</res:Identity>
          <res:ResourceType>Agent</res:ResourceType>
        </res:ResourceKey>
        <res:ResourceKey>
          <res:Identity>17586</res:Identity>
          <res:ResourceType>Agent</res:ResourceType>
        </res:ResourceKey>
      </res:resourceKeys>
    </res:Delete>
  </soap:Body>
</soap:Envelope>
```

Retrieve Agent

SOAP Example

An example of a SOAP request to the Retrieve API to return two agent items from VW_DIM_AGENT with the related AgentUrns of 17585 and 17586.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
```

```
<soap:Body>
  <res:Retrieve>
    <!--Optional:-->
    <res:resourceKeys>
      <!--Zero or more repetitions:-->
      <res:ResourceKey>
        <res:Identity>17585</res:Identity>
        <res:ResourceType>Agent</res:ResourceType>
      </res:ResourceKey>
      <res:ResourceKey>
        <res:Identity>17586</res:Identity>
        <res:ResourceType>Agent</res:ResourceType>
      </res:ResourceKey>
    </res:resourceKeys>
  </res:Retrieve>
</soap:Body>
</soap:Envelope>
```

Search For Agent

SOAP Example

An example of a SOAP request calling the Search API to return the results all of the agents in the folder /Customer1 apart from the one with the ID 17585.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Search>
      <!--Optional:-->
      <res:queryString>type:Agent folder:/Customer1</res:queryString>
      <!--Optional:-->
    <res:excludeFilter>
      <!--Zero or more repetitions:-->
      <res:ResourceKey>
        <res:Identity>17585</res:Identity>
        <res:ResourceType>Agent</res:ResourceType>
      </res:ResourceKey>
    </res:excludeFilter>
  </res:Search>
</soap:Body>
</soap:Envelope>
```

Describe Agent and Person

SOAP Example

An example of a SOAP request calling the Describe API to return the metadata description of the agent and person.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Describe>
      <!--Optional:-->
      <res:resourceType>
        <!--Zero or more repetitions:-->
        <res:string>Agent</res:string>
      </res:resourceType>
      <res:resourceType>
        <!--Zero or more repetitions:-->
        <res:string>Person</res:string>
      </res:resourceType>
    </res:Describe>
  </soap:Body>
</soap:Envelope>
```

Create Agent Team

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral(s) that the tenant administrator account allows.

Table 5.171 Actions for Create Agent Team Use Case

| Action | API Calls and Parameters |
|--|--|
| Select the folder in which the agent team will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Find all peripherals that support agents and agent teams. By default these are peripherals with a client type of 30. | search type:Peripheral property:ClientType=30 latest:1 deleted:0 |

| Action | API Calls and Parameters |
|---|---|
| Create the agent team linked to the peripheral and located in the selected folder. The request will be validated and then queued returning its new call type URN. | create Agent Team |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Team |

SOAP Example

The following SOAP request creates an agent team called “testTeam”.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Agent Team</res:Type>
          <res:EffectiveFrom>1900-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>testTeam</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>PeripheralUrn</res:Name>
              <res:Value>-1</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```

        </res:Resource>
    </res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update Agent Team

Use Case Sequence

Prerequisites:

- The Create Agent Team use case sequence has been executed.
- The Agent Team and associated resources or members are all in the Ready state.

Table 5.172 Actions for Update Agent Team Use Case

| Action | API Calls and Parameters |
|--|---|
| Retrieve the agent team record | retrieve Id = Agent Team URN |
| Modify the field(s) of interest. | |
| Update the agent team. The agent team resource status will go from Ready to Synchronizing until provisioned. | update Agent Team |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Team URN |

Add/Remove Agent Team Members

Use Case Sequence

Prerequisites:

- The Create Agent Team use case sequence has been executed.
- The Agent Team and associated resources or members are all in the Ready state.

Table 5.173 Actions for Add/Remove Agent Team Members Use Case

| Action | API Calls and Parameters |
|--|--|
| Retrieve the agent team record. This will have an associated peripheral parent. | retrieve Id = Agent Team URN |
| Find the agents that are already associated with this Agent Team. | search childof:"Agent Team",<agent team urn>[Status=R;Deleted=0] type:Agent latest:1 |
| Find all the agents for this peripheral that are not already part of the agent team. | Search childof:"Peripheral",<peripheral urn>[Status=R;Deleted=0] type:Agent [excluding resources from step2] |
| Remove unwanted agents from the agent team. The agent team resource status will go from Ready to Synchronizing until provisioned. | delete Agent Agent Team Member X N |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Team URN |
| Add the required agents to the agent team. The agent team resource status will go from Ready to Synchronizing until provisioned. | Add Agent Agent Team Member X N |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Team URN |

Create Call Type

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral(s) that the tenant administrator account allows.

Table 5.174 Actions for Create Call Type Use Case

| Action | API Calls and Parameters |
|---|---|
| Select the folder in which the call type will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Create the call type linked to the media routing domain and peripheral and located in the selected folder. The request will be validated and then queued returning its new call type URN. | create Call Type |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Call Type URN |

SOAP Example

The following SOAP request creates a call type called “testCallType”.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Call Type</res:Type>
          <res:EffectiveFrom>1900-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>testCallType</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```

        </res:Resource>
    </res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update Call Type

Use Case Sequence

Prerequisites:

- The Create Call Type use case sequence has been executed without any existing agent memberships.
- The Call Type and associated resources or members are all in the Ready state.

Table 5.175 Actions for Update Call Type Use Case

| Action | API Calls and Parameters |
|--|--|
| Retrieve the Call Type record. | retrieve Id = Call Type URN |
| Modify the field(s) of interest. | |
| Update the call type. The call type resource status will go from Ready to Synchronizing until provisioned. | update Call Type |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Call Type URN |

Add/Remove Routing Script Members

Use Case Sequence

Prerequisites:

- The Create Agent Team use case sequence has been executed.
- The Agent Team and associated resources or members are all in the Ready state.

Table 5.176 Actions for Add/Remove Routing Script Members Use Case

| Action | API Calls and Parameters |
|---|---|
| Retrieve the Call Type record. | retrieve Id = Call Type URN |
| Find the routing scripts that are already associated with this Call Type. | memberbychild:"Call Type",37333,"Call Type Routing Script Member" |
| Find all the routing scripts that are not already linked to this call type. | Search type:"Routing Script" status=R Deleted=0 latest:1 [excluding resources from step2] |
| Remove unwanted routing scripts from the call type. The call type resource status will go from Ready to Synchronizing until provisioned. | delete Call Type Routing Script Member X N |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Call Type URN |
| Add the required routing scripts from step 3 to the agent team. The agent team resource status will go from Ready to Synchronizing until provisioned. | Add Call Type Routing Script Member X N |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Call Type URN |

Create Dialed Number

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the routing client(s) and media routing domain(s) that the tenant administrator account allows.

Table 5.177 Actions for Create Dialed Number Use Case

| Action | API Calls and Parameters |
|---|--|
| Select the folder in which the dialed number will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Find all relevant routing clients. By default these are peripherals with a client type of 13 (IVR) or 30 (PBX). | search type:"Routing Client" property:ClientType=13 latest:1 deleted:0 |
| Find the relevant media routing domain; typically this is the default voice domain. | Search type:"Media Routing Domain" cstext:"Cisco_Voice" latest:1 deleted:0 |
| Create the dialed number linked to the media routing domain and routing client and located in the selected folder. The request will be validated and then queued returning its new Dialed Number URN. | create Dialed Number |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Dialed Number URN |

SOAP Example

The following SOAP request creates a dialed number called **testDialedNumber**.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <res:Resource>
          <res:Identity>0</res:Identity>
          <res:Type>Dialed Number</res:Type>
          <res:EffectiveFrom>2010-03-11T12:19:37</res:EffectiveFrom>
          <res:EffectiveTo>2012-03-12T16:32:45.96</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>240253c4-3f30-48c5-a3e6-65b3d94b100e</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>Name</res:Name>
  <res:Value>testDialedNumber</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>InternalName</res:Name>
  <res:Value>DN121</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>Description</res:Name>
  <res:Value/>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>RoutingClientUrn</res:Name>
  <res:Value>22049</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>MediaRoutingDomainUrn</res:Name>
  <res:Value>10793</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>Digits</res:Name>
  <res:Value>437457645</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>PermitApplicationRouting</res:Name>
  <res:Value>False</res:Value>
</res:NameValuePair>
</res:Fields>
</res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>
```

Update Dialed Number

Use Case Sequence

Prerequisites:

- The Create Dialed Number use case sequence has been executed without any existing agent memberships.

- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the agents that the tenant administrator account allows.
- The Dialed Number and associated resources and members are all in the Ready state.

Table 5.178 Actions for Update Dialed Number Use Case

| Action | API Calls and Parameters |
|--|---|
| Retrieve the Dialed Number record. | retrieve Id = Dialed Number URN |
| Modify the field(s) of interest. | |
| Update the Dialed Number. The Dialed Number resource status will go from Ready to Synchronizing until provisioned. | update Dialed number |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Dialed Number URN |

Create Directory Number

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral or peripherals that the tenant administrator account allows.

Table 5.179 Actions for Create Directory Number Use Case

| Action | API Calls and Parameters |
|--|--|
| Select the folder in which the directory number will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Create the directory number located in the selected folder. The request will be validated and then queued returning its new directory number URN. | create Directory Number |

| Action | API Calls and Parameters |
|--|---|
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Directory Number URN |

SOAP Example

The following SOAP request creates a directory number called testDirectoryNumber.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Directory Number</res:Type>
          <res:EffectiveFrom>1900-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>testDirectoryNumber</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>DirectoryNumberOrPattern</res:Name>
              <res:Value>00786</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```

        <res:NameValuePair>
          <res:Name>IPCCEnabled</res:Name>
          <res:Value>>true</res:Value>
        </res:NameValuePair>
      </res:Fields>
    </res:Resource>
  </res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update Directory Number

Use Case Sequence

Prerequisites:

- The Create Directory Number use case sequence has been executed without any existing IP Endpoint memberships.
- The Directory Number and associated resources or members are all in the Ready state.

Table 5.180 Actions for Update Directory Number Use Case

| Action | API Calls and Parameters |
|--|---|
| Retrieve the Directory Number record | retrieve Id = Call Type URN |
| Search for the IP Endpoint to which this Directory Number will be associated.. | search type:"IP Endpoint" latest:1 status:R |
| Update the call type. The Directory Number resource status will go from Ready to Synchronizing until provisioned. | create IP Endpoint Directory Number Member |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Directory Number URN |

Create Folder

SOAP Example

The following SOAP request creates a folder called testfolder2 located under the folder with the ID 00000000-0000-0000-0000-000000000005 (Root).

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Folder</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>00000000-0000-0000-0000-000000000005</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>test folder2</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Description</res:Name>
              <res:Value>test description</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>InheritPermissions</res:Name>
              <res:Value>true</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

Update Folder

SOAP Example

The update API may be used for the movement of items between different folders within the Unified CCMP database. Resource updates and move operations may not be performed within the same Update operation and should be achieved using 2 separate web service calls.

To move an item to a new folder the required fields of the resource should be passed in with new field called "NewFolderId". The value of the NewFolderId field should be set to the Unified CCMP identity for the folder to which the resource should be moved.

The following SOAP request moves a Dialed Number resource to another folder:

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <Update>
      <resources>
        <Resource>
          <Identity>23221</Identity>
          <Type>Dialed Number</Type>
          <EffectiveFrom>2010-03-15T13:27:12.09</EffectiveFrom>
          <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
          <Status>R</Status>
          <Changestamp>0</Changestamp>
          <Fields>
            <NameValuePair>
              <Name>NewFolderId</Name>
              <Value>ec7565cc-0873-43fb-8d6e-31e04b252a27</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>FolderId</Name>
              <Value>1E731B34-D062-404C-B650-B8C45C3BE669</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>Name</Name>
              <Value>V723.FG.DN</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>RoutingClientUrn</Name>
              <Value>17801</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>MediaRoutingDomainUrn</Name>
              <Value>8525</Value>
          </Fields>
        </Resource>
      </resources>
    </Update>
  </soap:Body>
</soap:Envelope>
```

```

        </NameValuePair>
        <NameValuePair>
            <Name>Digits</Name>
            <Value>456</Value>
        </NameValuePair>
    </Fields>
</Resource>
</resources>
</Update>
</soap:Body>
</soap:Envelope>

```

The response from the request above is as follows:

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/UpdateResponse</a:Action>
    <a:RelatesTo>uuid:713f6333-1589-4b98-a53c-7ed547cfced</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-03-16T12:46:14.013Z</u:Created>
        <u:Expires>2010-03-16T12:51:14.013Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <UpdateResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <UpdateResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <RequestResult>
          <Identity>23225</Identity>
          <Status>R</Status>
          <Errors i:nil="true"/>
        </RequestResult>
      </UpdateResult>
    </UpdateResponse>
  </s:Body>
</s:Envelope>

```

The movement of this Dialed Number has caused a delete and create operation to be performed. This may happen if an item is moved to a folder outside of its current tenant or if an un-assigned item is moved to a new tenant. This behavior may be recognised by the identity contained within the response not matching that of the original request. The new identity should now be stored and used for all future web service changes relating to this item.

Create Group

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as either the hoster or the tenant administrator.

Table 5.181 Actions for Create Group Use Case

| Action | API Calls and Parameters |
|---|--|
| Select the folder in which the group will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Optionally find the security groups to which the new group will be added. | search type:Group enabled:1 folder:/<tenant>** |
| Create the Group and optionally the Group Group members. The request will be executed synchronously returning its Group URN. | create Group Group Group Member x N |

SOAP Example

The following SOAP request creates a group called testGroup.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
<soap:Body>
<res:Create>
<res:resources>
<res:Resource>
<res:Identity>-1</res:Identity>
<res:Type>Group</res:Type>
<res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
<res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
<res:Status>R</res:Status>
<res:Changestamp>0</res:Changestamp>
```

```

    <res:Fields>
      <res:NameValuePair>
        <res:Name>FolderId</res:Name>
        <res:Value>00000000-0000-0000-0000-000000000005</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>Name</res:Name>
        <res:Value>testGroup</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>Description</res:Name>
        <res:Value>test description</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update Group

Use Case Sequence

Prerequisites:

- The Create Group use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the groups that the tenant administrator account allows.

Table 5.182 Actions for Update Group Use Case

| Action | API Calls and Parameters |
|----------------------------------|--------------------------|
| Retrieve the Group record. | retrieve Id = User ID |
| Modify the field(s) of interest. | |
| Update the Group. | update Group |

Create IP Endpoint

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.

- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral(s), Communication Managers that the tenant administrator account allows.

Table 5.183 Actions for Create IP Endpoint Use Case

| Action | API Calls and Parameters |
|---|---|
| Select the folder in which the IP Endpoint will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Find all peripherals that support IP Endpoints. By default these are peripherals with a client type of 30. | search type:Peripheral property:ClientType=30 latest:1 deleted:0 |
| Find the relevant Device Pool. | Search type:"Device Pool" latest:1 deleted:0 |
| Find the relevant Calling Search Space. By default this is the one and only search space owned by this tenant on the single Communication Manager. | |
| Find the Button template to be used by this IP Endpoint. | |
| Find the Product Code for this IP Endpoint | See section "IP Endpoint Resource Item". |
| Find the Protocol Code for this IP Endpoint. | See section "IP Endpoint Resource Item". |
| Select the template data to be used for this phone. | |
| Create the IP Endpoint linked to the Peripheral, Device pool, Calling Search Space, Button Template, Product Code, Protocol Code and located in the selected folder. The request will be validated and then queued returning its new IP Endpoint URN. | |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = IP Endpoint URN |

SOAP Example

The following SOAP request creates an IP Endpoint called testIPEndpoint.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
```

```
<res:Create>
  <!--Optional:-->
  <res:resources>
    <!--Zero or more repetitions:-->
    <res:Resource>
      <res:Identity>-1</res:Identity>
      <res:Type>IP Endpoint</res:Type>
      <res:EffectiveFrom>1900-01-01T00:00:00</res:EffectiveFrom>
      <res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
      <res:Status>R</res:Status>
      <res:Changestamp>0</res:Changestamp>
      <res:Fields>
        <!--Zero or more repetitions:-->
        <res:NameValuePair>
          <res:Name>FolderId</res:Name>
          <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>Name</res:Name>
          <res:Value>testIPEndpoint</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>PeripheralUrn</res:Name>
          <res:Value>3529</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>DevicePoolUrn</res:Name>
          <res:Value>17933</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>CallingSearchSpaceUrn</res:Name>
          <res:Value>17921</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>IPEndpointButtonTemplateUrn</res:Name>
          <res:Value>20553</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>ProtocolCodeBizUrn</res:Name>
          <res:Value>1769</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>ProductCodeBizUrn</res:Name>
          <res:Value>3321</res:Value>
        </res:NameValuePair>
      </res:Fields>
    </res:Resource>
  </res:resources>
</res:Create>
```

```

        <res:NameValuePair>
          <res:Name>ExtensionMobilityEnabled</res:Name>
          <res:Value>>false</res:Value>
        </res:NameValuePair>
      </res:Fields>
    </res:Resource>
  </res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update IP Endpoint

Use Case Sequence

Prerequisites:

- The Create IP Endpoint use case sequence has been executed without any existing agent memberships.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the agents that the tenant administrator account allows.
- The IP Endpoint and associated resources or members are all in the Ready state.

Table 5.184 Actions for Update IP Endpoint Use Case

| Action | API Calls and Parameters |
|--|---|
| Retrieve the IP Endpoint record. | retrieve Id = Skillgroup URN |
| Modify the field(s) of interest. | |
| Update the IP Endpoint. The IP Endpoint resource status will go from Ready to Synchronizing until provisioned. | update IPEndpoint |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = IPEndpoint URN |

Create Person

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.

- The caller of the Unified CCMP Web Services is logged in as either the host administrator or the tenant administrator.

Table 5.185 Actions for Create Person Use Case

| Action | API Calls and Parameters |
|--|---|
| Select the folder in which the person will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Create the Person in the required folder location. The request will be validated and then queued returning the new Person URN. | create Person |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Person |

SOAP Example

The following SOAP request creates a Person record for a person called John Smith.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Person</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>JohnSmith</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```

    <res:NameValuePair>
      <res:Name>FirstName</res:Name>
      <res:Value>John</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>LastName</res:Name>
      <res:Value>Smith</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>Description</res:Name>
      <res:Value>A description</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>LoginName</res:Name>
      <res:Value>john.smith</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>PassPhrase</res:Name>
      <res:Value>Pa55word</res:Value>
    </res:NameValuePair>
  </res:Fields>
</res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Update Person

Use Case Sequence

Prerequisites:

- The Create Person use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the groups that the tenant administrator account allows.

Table 5.186 Actions for Update Person Use Case

| Action | API Calls and Parameters |
|----------------------------------|--------------------------|
| Retrieve the Person record. | retrieve Id = Person ID |
| Modify the field(s) of interest. | |
| Update the Person. | update Person |

Create Skill Group

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral(s) that the tenant administrator account allows.

Table 5.187 Actions for Create Skill Group Use Case

| Action | API Calls and Parameters |
|---|---|
| Select the folder in which the skill group will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Find all peripherals that support skill groups. By default these are peripherals with a client type of 30. | search type:Peripheral property:ClientType=30 latest:1 deleted:0 |
| Find the relevant media routing domain; typically this is the default voice domain | Search type:"Media Routing Domain" ctext:"Cisco_Voice" latest:1 deleted:0 |
| Create the skill group linked to the media routing domain and peripheral and located in the selected folder. The request will be validated and then queued returning its new Skill Group URN. | create Skillgroup |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Skillgroup URN |

SOAP Example

The following SOAP request creates a skill group called **testSkill**.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
```

```
<res:Type>SkillGroup</res:Type>
<res:EffectiveFrom>1900-01-01T00:00:00</res:EffectiveFrom>
<res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
<res:Status>R</res:Status>
<res:Changestamp>0</res:Changestamp>
<res:Fields>
  <!--Zero or more repetitions:-->
  <res:NameValuePair>
    <res:Name>FolderId</res:Name>
    <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>Name</res:Name>
    <res:Value>testSkill</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PeripheralUrn</res:Name>
    <res:Value>-1</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>MediaRoutingDomainUrn</res:Name>
    <res:Value>8345</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PeripheralName</res:Name>
    <res:Value>testSkill</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>AvailableHoldoffDelay</res:Name>
    <res:Value>0</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>Priority</res:Name>
    <res:Value>0</res:Value>
  </res:NameValuePair>
</res:Fields>
</res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>
```

Update Skill Group

Use Case Sequence

Prerequisites:

- The Create Skill Group use case sequence has been executed without any existing agent memberships.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the agents that the tenant administrator account allows.
- The Skill group and associated resources or members are all in the Ready state.

Table 5.188 Actions for Update Skill Group Use Case

| Action | API Calls and Parameters |
|--|---|
| Retrieve the skill group record | retrieve Id = Skillgroup URN |
| Modify the field(s) of interest. | |
| Update the skill group. The skill group resource status will go from Ready to Synchronizing until provisioned. | update SkillGroup |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Skillgroup URN |

The agent re-skilling sequence where this agent is added as a member to a skill group is described in section "Agent to Skill Group Membership".

Create Tenant

Use Case Sequence

Prerequisites:

- The caller of the Unified CCMP Web Services is logged in as the host administrator.
- The underling equipment is located in the folder structure.

Table 5.189 Actions for Create Tenant Use Case

| Action | API Calls and Parameters |
|--|---|
| Select the equipment clusters that this tenant will be placed in. | search type:"Cluster Resource" property:"ResourceTypeInternalName" =CRT_CICM and/or search type:"Cluster Resource" property:"ResourceTypeInternalName" =CRT_CCM |
| Create the tenant, setting the MappedClusterResources field to the comma separated cluster resources found in step 1. The request will be validated and then queued, returning its new Tenant URN. | create Tenant |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<TenantUrn> or retrieve Id=TenantUrn |
| Create one or more tenant users under the new tenant (see Create User use case sequence in section "Create User"). This would typically be one or more Tenant administrator accounts. Tip. The FolderId field for the User can be determined by retrieving the Tenant record in step 3 or by supplying the path text which will be "/" + tenant name set in step 2. | create User |

Update Tenant

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as either the host administrator or the tenant administrator.
- The Tenant and associated resources or members are all in the Ready state.

Table 5.190 Actions for Update Tenant Use Case

| Action | API Calls and Parameters |
|--|--|
| Retrieve the Tenant record. | retrieve Id = Tenant URN |
| Modify the field(s) of interest. | |
| Update the Tenant. The Tenant resource status will go from Ready to Synchronizing until provisioned. | update Tenant |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Tenant URN |

Create User

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as a host or tenant administrator.

Table 5.191 Actions for Create User Use Case

| Action | API Calls and Parameters |
|--|--|
| Select the folder in which the user will be placed. This is typically either the tenant folder or a sub folder underneath the tenant folder. | search type:folder latest:1 deleted:0 |
| Optionally find the security groups to which the new user will be added. | search type:Group enabled:1 folder:/<tenant>** |
| Create the User and optionally the User Group members. The request will be executed synchronously returning its User URN. | create User, User Group Member xN |

SOAP Example

The following SOAP request creates a user called **testUser**.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
```

```
<res:Create>
  <res:resources>
    <res:Resource>
      <res:Identity>-1</res:Identity>
      <res:Type>User</res:Type>
      <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
      <res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
      <res:Status>R</res:Status>
      <res:Changestamp>0</res:Changestamp>
      <res:Fields>
        <res:NameValuePair>
          <res:Name>FolderId</res:Name>
          <res:Value>00000000-0000-0000-0000-000000000005</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>Description</res:Name>
          <res:Value>test description</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>LoginName</res:Name>
          <res:Value>testuser</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>PassPhrase</res:Name>
          <res:Value>Pa55word</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>FirstName</res:Name>
          <res:Value>First</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>LastName</res:Name>
          <res:Value>Last</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>Email</res:Name>
          <res:Value>email@exony.com</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>PassPhraseNeverExpires</res:Name>
          <res:Value>>false</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>PassPhraseChangeEnabled</res:Name>
          <res:Value>>true</res:Value>
        </res:NameValuePair>
      </res:Fields>
    </res:Resource>
  </res:resources>
</res:Create>
```

```

        </res:NameValuePair>
        <res:NameValuePair>
            <res:Name>ForceChangePassword</res:Name>
            <res:Value>>false</res:Value>
        </res:NameValuePair>
    </res:Fields>
</res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Time Zones

Users can be created using the default server time-zone information (as in the request above), or they can optionally be created with the time-zone specified at creation time. To specify the time zone in the create request, add the optional parameter `TimeZone` and supply the name of the time zone.

The list of valid timezones is contained in the database table `TE_ADM_TIME_ZONE` and is reproduced in "Valid Time Zones".

Update User

Use Case Sequence

Prerequisites:

- The Create User use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the groups that the tenant administrator account allows.

Table 5.192 Actions for Update User Use Case

| Action | API Calls and Parameters |
|----------------------------------|--------------------------|
| Retrieve the User record. | retrieve Id = User ID |
| Modify the field(s) of interest. | |
| Update the User | update User |

Agent to Skill Group Membership

SOAP Example

The following SOAP request creates a membership between an agent and a skill group where the identity of the agent is **7565** and the identity of the skill group is **17701**.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Agent SkillGroup Member</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>ParentId</res:Name>
              <res:Value>17701</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>ChildId</res:Name>
              <res:Value>7565</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>

```

Agent to Agent Team Membership

SOAP Example

The following SOAP request creates a membership between an agent and an agent team where the identity of the agent is **7565** and the identity of the agent team is **7917**.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>

```

```

<!--Zero or more repetitions:-->
<res:Resource>
  <res:Identity>-1</res:Identity>
  <res:Type>Agent Agent Team Member</res:Type>
  <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
  <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
  <res:Status>R</res:Status>
  <res:Changestamp>0</res:Changestamp>
  <res:Fields>
    <!--Zero or more repetitions:-->
    <res:NameValuePair>
      <res:Name>ParentId</res:Name>
      <res:Value>7917</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>ChildId</res:Name>
      <res:Value>7565</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>Supervisor</res:Name>
      <res:Value>>false</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>PrimarySupervisor</res:Name>
      <res:Value>>false</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>PhysicalMember</res:Name>
      <res:Value>>true</res:Value>
    </res:NameValuePair>
  </res:Fields>
</res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

IP Endpoint to Directory Number Membership

SOAP Example

The following SOAP request creates a membership between an IP endpoint and a directory number where the identity of the IP endpoint is **20765** and the identity of the directory number is **18697**.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>IP Endpoint Directory Number Member</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>ParentId</res:Name>
              <res:Value>18697</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>ChildId</res:Name>
              <res:Value>20765</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>LineIndex</res:Name>
              <res:Value>0</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>MaxNumCalls</res:Name>
              <res:Value>2</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>BusyTrigger</res:Name>
              <res:Value>1</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

User to Group Membership

SOAP Example

The following SOAP request adds the user with the identity **80479952-4236-456d-9dc4-668a14a9f8a9** to the group with the identity **7d80aa2f-d649-40d8-9c79-0036352d64d2**.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>User Group Member</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>ParentId</res:Name>
              <res:Value>7d80aa2f-d649-40d8-9c79-0036352d64d2</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>ChildId</res:Name>
              <res:Value>80479952-4236-456d-9dc4-668a14a9f8a9</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

Group to Group Membership

SOAP Example

The following SOAP request adds the group with the identity **7d80aa2f-d649-40d8-9c79-0036352d64d2** to the group with the identity **bf272315-0435-49bd-a117-d2117754593a**.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Group Group Member</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00.0000000</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <!--Zero or more repetitions:-->
            <res:NameValuePair>
              <res:Name>ParentId</res:Name>
              <res:Value>bf272315-0435-49bd-a117-d2117754593a</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>ChildId</res:Name>
              <res:Value>7d80aa2f-d649-40d8-9c79-0036352d64d2</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>

```

Dialed Number to Call Type Membership

SOAP Example

The following SOAP request associates the Dialed Number with the identity **9149** to the Call Type with the identity **8909**. Note that the Dialed Number Call Type Membership has a number of properties that may be passed in during create and edit operations.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>

```

```

<res:Resource>
  <res:Identity>0</res:Identity>
  <res:Type>Dialed Number Call Type Member</res:Type>
  <res:EffectiveFrom>2010-03-11T12:19:37</res:EffectiveFrom>
  <res:EffectiveTo>2012-03-12T16:32:45.96</res:EffectiveTo>
  <res:Status>S</res:Status>
  <res:Changestamp>0</res:Changestamp>
  <res:Fields>
    <res:NameValuePair>
      <res:Name>ParentId</res:Name>
      <res:Value>8909</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>ChildId</res:Name>
      <res:Value>9149</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>Item</res:Name>
      <res:Value>0</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>CLIWildcardType</res:Name>
      <res:Value>5</res:Value>
    </res:NameValuePair>
  </res:Fields>
</res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

The Dialed Number Call Type membership has a number of fields available on it and may be configured in different ways for Dialed Numbers that belong to Voice or non-Voice Media Routing Domains.

The fields that may be set when creating or updating a Dialed Number Call Type Membership are:

- ParentId (required) the identity of the Call Type resource
- ChildId (required) the identity of the Dialed Number resource
- RegionUrn
- Item (required)
- CLIWildcard

- CLIWildcardType (required)
- CEDWildcardDescription

When creating or editing a Dialed Number connected to a Voice Media Routing Domain, the configuration can be specified as follows.

Call Line ID Configuration

| | |
|---|---|
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Line ID</p> <p><input checked="" type="radio"/> All</p> <p><input type="radio"/> Region <input type="text" value="CSG.1"/></p> <p><input type="radio"/> Prefix <input type="text"/></p> <p><input type="radio"/> Match <input type="text"/></p> </div> | <p>CLIWildcardType 5 CliWildcard Null RegionUrn Null</p> |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Line ID</p> <p><input type="radio"/> All</p> <p><input checked="" type="radio"/> Region <input type="text" value="CSG.1"/></p> <p><input type="radio"/> Prefix <input type="text"/></p> <p><input type="radio"/> Match <input type="text"/></p> </div> | <p>CLIWildcardType 4 CliWildcard Null RegionUrn The Identity of the selected Region</p> |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Line ID</p> <p><input type="radio"/> All</p> <p><input type="radio"/> Region <input type="text" value="CSG.1"/></p> <p><input checked="" type="radio"/> Prefix <input type="text" value="Prefix1"/></p> <p><input type="radio"/> Match <input type="text"/></p> </div> | <p>CLIWildcardType 6 CliWildcard Prefix1 RegionUrn Null</p> |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Line ID</p> <p><input type="radio"/> All</p> <p><input type="radio"/> Region <input type="text" value="CSG.1"/></p> <p><input type="radio"/> Prefix <input type="text"/></p> <p><input checked="" type="radio"/> Match <input type="text" value="Match1"/></p> </div> | <p>CLIWildcardType 3 CliWildcard Match1 RegionUrn Null</p> |

Call Entered Digits Configuration

| | |
|--|---------------------|
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Entered Digits</p> <p><input checked="" type="radio"/> All</p> <p><input type="radio"/> None <input checked="" type="checkbox"/> None Required</p> <p><input checked="" type="checkbox"/> None Entered</p> <p><input type="radio"/> CED <input type="text"/></p> </div> | CedWildCard _A |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Entered Digits</p> <p><input type="radio"/> All</p> <p><input checked="" type="radio"/> None <input checked="" type="checkbox"/> None Required</p> <p><input checked="" type="checkbox"/> None Entered</p> <p><input type="radio"/> CED <input type="text"/></p> </div> | CedWildCard _N |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Entered Digits</p> <p><input type="radio"/> All</p> <p><input checked="" type="radio"/> None <input checked="" type="checkbox"/> None Required</p> <p><input type="checkbox"/> None Entered</p> <p><input type="radio"/> CED <input type="text"/></p> </div> | CedWildCard _NR |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Entered Digits</p> <p><input type="radio"/> All</p> <p><input checked="" type="radio"/> None <input type="checkbox"/> None Required</p> <p><input checked="" type="checkbox"/> None Entered</p> <p><input type="radio"/> CED <input type="text"/></p> </div> | CedWildCard _NE |
| <div style="border: 1px solid black; padding: 5px;"> <p>Call Entered Digits</p> <p><input type="radio"/> All</p> <p><input type="radio"/> None <input checked="" type="checkbox"/> None Required</p> <p><input checked="" type="checkbox"/> None Entered</p> <p><input checked="" type="radio"/> CED <input type="text" value="1234567"/></p> </div> | CedWildCard 1234567 |

App String 1 Configuration

When creating or editing a Dialed Number connected to a non-Voice Media Routing Domain the configuration can be specified as follows.

| | |
|---|--|
| <p>App String 1</p> <p><input checked="" type="radio"/> All</p> <p><input type="radio"/> None</p> <p><input type="radio"/> Prefix String <input type="text"/></p> <p><input type="radio"/> Match String <input type="text"/></p> | <p>CliWildcardType 5</p> <p>CliWildcard Null</p> <p>RegionUrn Null</p> |
| <p>App String 1</p> <p><input type="radio"/> All</p> <p><input checked="" type="radio"/> None</p> <p><input type="radio"/> Prefix String <input type="text"/></p> <p><input type="radio"/> Match String <input type="text"/></p> | <p>CliWildcardType 3</p> <p>CliWildcard Null</p> <p>RegionUrn Null</p> |
| <p>App String 1</p> <p><input type="radio"/> All</p> <p><input type="radio"/> None</p> <p><input checked="" type="radio"/> Prefix String <input type="text" value="PrefixString"/></p> <p><input type="radio"/> Match String <input type="text"/></p> | <p>CliWildcardType 6</p> <p>CliWildcard PrefixString</p> <p>RegionUrn Null</p> |
| <p>App String 1</p> <p><input type="radio"/> All</p> <p><input type="radio"/> None</p> <p><input type="radio"/> Prefix String <input type="text"/></p> <p><input checked="" type="radio"/> Match String <input type="text" value="Match1"/></p> | <p>CliWildcardType 3</p> <p>CliWildcard Match1</p> <p>RegionUrn Null</p> |

App String 2 configuration

| | |
|---|---------------------------|
| <p>App String 2</p> <p><input checked="" type="radio"/> All</p> <p><input type="radio"/> None</p> <p><input type="radio"/> Match String 2 <input type="text"/></p> | <p>CedWildcard _A</p> |
| <p>App String 2</p> <p><input type="radio"/> All</p> <p><input checked="" type="radio"/> None</p> <p><input type="radio"/> Match String 2 <input type="text"/></p> | <p>CedWildcard Null</p> |
| <p>App String 2</p> <p><input type="radio"/> All</p> <p><input type="radio"/> None</p> <p><input checked="" type="radio"/> Match String 2 <input type="text" value="Match2"/></p> | <p>CedWildcard Match2</p> |

Agent Re-Skilling

The following example describes the Resource Management Web Service API usage when performing a re-skilling action from a third party client.

The example is a third party application that first lists Skill Groups that the user Bob may see. Upon selection of one of those Skill Groups a list of Agents that are currently working in that Skill is presented along with a list of Agent available to work in that Skill that Bob can see. Agents may be removed and added to and from the Skill Group and when complete the "Save" button may be pressed to save the changes to the Unified CCMP database and the remote system.

The web service API interaction for this example is as follows:

Step 1

Retrieve the list of Skill Groups that the user can see.

Call to Search API passing in the search string:

```
type:SkillGroup folder:/Tenant latest:1 max:50 status:R
```

Step 2

The user selects the Skill Group that they wish to change (for example, identity 1234) and is presented with the list of Agents already in that Skill Group

Call to the Search API with the search string

```
childof:SkillGroup,1234>[Status=R;Deleted=0] type:Agent latest:1 max:50
```

Step 3

The Peripheral identity of the Peripheral that the Skill Group is on is retrieved

Call to the Search API with the search string:

```
parentof:SkillGroup,1234 type:Peripheral
```

Step 4

The Peripheral identity (4321) is used to get the list of possible Agents that may be added to the Skill Group

Call to Search API with the search string

```
childof:Peripheral,4321 type:Agent
```

The API is also passed a collection of ResourceKeys of the selected Agents to exclude them from the list

Step 5

The user uses the client to create and remove Skill Group/Agent members as they require. The user presses the "Save" button to commit the change to Unified CCMP database.

Step 6

The 'to delete existing memberships' and 'to add new memberships' collections built up with the previous search queries are maintained by the client. A call to the Delete API is then made passing the 'to delete collection' of Resource objects with the same type set and the parent/child identities of the relationships to be removed. A subsequent call to the Create API is made, passing the 'to add' collection of Resource objects with the type AgentSkillGroupMember and the parent and child identities set accordingly.

Note

Unified CCMP performs a number of validation and capacity checks when performing provisioning requests. It is recommended when provisioning resource memberships that Delete procedures are performed before create to reduce the risk of capacity exceptions occurring.

User Creation

The following example describes the usage of the Web Service APIs to create a new Unified CCMP user account. This account will be able to perform item create/ edit and delete operations for a specific tenant.

When a new tenant is created in Unified CCMP (for example, when a new Unified CCE Customer Definition is imported from Unified CCE), 3 security groups are automatically configured to allow for simplistic configuration of security for newly added users.

The automatically created groups are:

- Advanced Users (high level access, intended for tenant administrator accounts)
- Basic Users (low level access, intended for reporting only accounts)
- Supervisor Users (medium level access, intended for supervisors who require access to reports and permissions to re-skill agents).

An example showing the web service API interactions to create a tenant admin account is as follows:

Step 1

Retrieve the Folder ID for the for the tenant folder. Call the Search API with the following search string:

```
type:IT_FOLDER folder:/ name:"v723"
```

where v723 is the name of the tenant. The returning items identity field will be the FolderID that will be used later

Step 2

Create a new user in the tenant folder. Call the Create API specifying User as the Type, FolderID as the folder id retrieved above and Name/LoginName as the name of the user that is to be created. An initial password must also be specified. The create API will return the identity of the new user

if successful which will be used later

Step 3

Locate the Advanced Users group for the tenant that we have created the new user in. Call the Search API with the following search string:

```
type:IT_GROUP folder:"221c6722-b830-4848-9521-35b2dd8757d7" name:"Advanced Users"
```

where 221c6722-b830-4848-9521-35b2dd8757d7 is the identity for the tenant's folder retrieved in step 1.

Step 4

Create a new User/Group member between the new user and the Advanced Users group for the users tenant Call the Create API specifying UserGroupMember as the Type, the new user id retrieved in step 2 as the ChildId and the group id retrieved in step 3 as the ParentId.

Step 5

The new user has been created and added to the Advanced Users group.

Move Unallocated Dialed Number to Tenant Folder

An example showing the web service API interactions to move an unallocated dialed number(s) to a pre-created call type/routing script is as follows:

Step 1

Get the destination Tenant folder id. Call the Search API with the following search string:

```
type:IT_FOLDER folder:/ name:"v723"
```

where v723 is the name of the tenant.

The returning items identity field will be the FolderID that will be used later.

Step 2

Get the list of unallocated Dialed Numbers that the tenant login can see. Note: these are typically located either in the /Unallocated/<equipment> folder (by default on a multi-tenant Unified CCE) or manually moved to a product offering specific folder in /Shared, for example, /Shared/SFDC/Bronze.

Call to Search API passing in the search string

```
type:"Dialed Number" folder:"<unallocated DNs folder>" max:"<desired number>"  
offset:0 latest:1 deleted:0
```

For example,

```
type:"Dialed Number" folder:"/Shared/SFDC/Bronze" max:3 offset:0 latest:1 deleted:0
```

Step 3

Move the returned dialed numbers to the required tenant folder. For each dialed number in the returned array set its folder id to the tenant folder id found in step 1. Call Update AI with the modified dialed numbers.

Step 4

The Dialed Numbers have been moved from the unallocated location to the tenant folder.

Link Dialed Number to Call Type/Routing Script

Mapping the call treatment for a Dialed Number is ensuring that the Dialed Number is linked to the correct Call Type which in turn is linked to the correct Routing Script which contains the call treatment logic. This use case assumes that the Dialed Number has been moved to the correct tenant folder and that the Call Type(s) are already associated with Routing Script(s).

The web service API interactions to link an dialed number in a tenant folder to an existing call type/routing script would be as follows:

Step 1

Get the Dialed Numbers anywhere in the tenant specific folder structure. Call to Search API passing in the search string:

```
type:"Dialed Number" folder:/<tenant location>*" max:<desired number> offset:0  
latest:1 deleted:0 status:R
```

For example,

```
type:"Dialed Number" folder:/Acme*" max:5 offset:0 latest:1 deleted:0
```

Step 2

Get the Call Types anywhere in the tenant specific folder structure.

Call to Search API passing in the search string:

```
type:"Call Typer" folder:/<tenant location>*" max:<desired number> offset:0  
latest:1 deleted:0
```

For example,

```
type:"Call Type" folder:/Acme*" max:5 offset:0 latest:1 deleted:0
```

Step 3

Add the relevant dialed number(s) to the relevant call type(s) as shown in section "Dialed Number to Call Type Membership".

Call the Create API for resource type "Dialed Number Call Type Member" with parent and child item urns set to the relevant Call Type and Dialed Number urns found in the previous two searches.

Step 4

The new dialed number call type memberships will be added to the Unified CCMP database and their membership URNs returned to the caller for tracking purposes.

Step 5

To check for any existing memberships between call types and dialed numbers then the following Search APIs can be called.

To find if a call type has any associated dialed numbers either

```
childof:"Call Type",<call type urn> type:"Dialed Number" latest:1
```

or

```
memberbyparent:"Call Type",<call type urn>,"Dialed Number Call Type Member"
```

To find if a dialed number has any associated call types, either

```
parentof:"Dialed Number",<dialed number urn> type:"Call Type" latest:1
```

or

```
memberbychild:"Dialed Number",<dialed number urn>, "Dialed Number Call Type Member"
```

Unlink Dialed Number to Call Type/Routing Script

This example details the steps required to remove a membership between a Dialed Number and Call Type; for example when the Dialed Number is to be moved to a different Call Type. The example assumes that the Dialed Number is already linked to the Call Type and that both the resources and their membership is in the Ready state (that is, they can be provisioned). The web service API interactions in this case would be as follows:

Step 1

Get the Dialed Numbers anywhere in the tenant specific folder structure.

Call to Search API passing in the search string:

```
type:"Dialed Number" folder:</tenant location>*" cstext:<dialed number name>
status:R latest:1
```

for example,

```
type:"Dialed Number" folder:/Acme*" cstext:"CCMIST_RC1.2551" status:R latest:1
```

Step 2

Find its existing Dialed Number Call Type Membership(s).

Call to Search API passing in the search string:

```
memberbychild:"Dialed Number",<dialed number urn>, "Dialed Number Call Type Member"
latest:1 status:R
```

Step 3

Delete the membership(s).

Call the Delete API for resource type "Dialed Number Call Type Member" with resource type "Dialed Number Call Type Member" and Identity set to the identities found in the previous membership search..

Step 4

The existing dialed number call type memberships will be marked for deletion in the Unified CCMP database and will be provisioned in due course. Note that the memberships will be purged from the underlying Unified CCE in this case but will remain in the Unified CCMP database with a status of Deleted for reporting and tracking purposes.

Step 5

Subscribers who have subscribed to this resource type will receive a notification for each step in the state machine cycle until the operation is either successful or fails provisioning.

Rename Resources

This example details the steps required to rename the resources for a specific tenant in the underlying equipment. This would typically be done when activating a template or 'blank' customer in which all the resources are pre-allocated with a template prefix name and is done for operational tracking and having meaningful names in the end user reports. The example assumes that all the resources and their membership are in the Ready state, that is, they can be provisioned. The web service API interactions in this case would be as follows:

Step 1

Get the resources underneath the tenant:

Call to Search API passing in the search string:

```
folder: /<tenant folder>** status:R latest:1 max:50 offset:0
```

This will return the all the resources under the tenant folders. Those that are useful to rename for reporting are Tenant, Call Types and Skill Groups. Routing Scripts, Network Vru Scripts and Routes may be usefully renamed for operation tracking. Several calls may be needed using the max and offset keywords to page the data.

Step 2

Rename each resource returned in the previous (including the tenant resource):

Call the Update API changing both the resources internal name and name fields to the desired tenant template name. Typically each resource type has its own naming convention that is specific to each installation

For example; a pattern for Network VRU Scripts may be <Tenant Name>.<N>.VRU and the caller could simply rename the tenant prefix, for example, Blank103.1.1.VRU to Acme.1.1.VRU. The rename mask should ensure that it matches the rules for resource names in terms of length and legal characters.

Create Agent with Pkey Maps, Method 1 (Explicit Pkey Maps)

Description

This example creates an Agent that is linked to two different remote equipment instances. In this example, the pkey map is specified explicitly and separately for each remote equipment instance.

Tip

Use separate pkey maps if an item has different details on different remote equipment instances. You can mix this method with method 2 (implicit pkey maps). You can specify some fields with the main item as common fields for a list of equipment instances and specify some fields individually for each equipment instance as pkey maps.

Use Case Sequence

Prerequisites:

- The Create Tenant and Create Person use case sequences have been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral or peripherals that the tenant administrator account allows.

Table 5.193 Create Agent with Pkey Maps, Method 1 (Explicit Pkey Maps)

| Action | API Calls and Parameters |
|--|---|
| Create the Agent, specifying the Agent details and pkey maps as in the SOAP example below. | create Agent |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Id |

SOAP Example

The following SOAP request creates an agent, with first name “Jim” and last name “Smith”, that is linked to two agents (“Jim Smith A” and “Jim Smith B”) on two remote equipment instances.

In this example, two pkey maps are specified, one for each equipment instance.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <res:Resource>
          <res:Type>Agent</res:Type>
          <res:EffectiveFrom>2013-01-01 00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06 00:00:00</res:EffectiveTo>
          <res:Status>S</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>9F44B644-7C24-40CD-9DB9-6D1175DD7FE3</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>PeripheralUrn</res:Name>
              <res:Value>-1</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>PersonUrn</res:Name>
              <res:Value>4568</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>FirstName</res:Name>
              <res:Value>Jim</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>LastName</res:Name>
              <res:Value>Smith</res:Value>
            </res:NameValuePair>
          </res:Fields>
          <res:EquipmentMapping>
            <res:Equipment>
              <res:Type>Agent Pkey</Type>
              <res:Fields>
                <res:NameValuePair>
                  <res:Name>Name</Name>
                  <res:Value>Jim Smith A</Value>
                </res:NameValuePair>
              </res:Fields>
            </res:Equipment>
          </res:EquipmentMapping>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```
<res:NameValuePair>
  <res:Name>InternalName</Name>
  <res:Value/>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>Description</Name>
  <res:Value>Jim Smith on Equipment A</Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>ClusterResourceId</Name>
  <res:Value>{c5ed5103-55cc-420b-8fa9-9d64c2eaa339}
</Value>
  </res:NameValuePair>
</res:Fields>
</res:Equipment>
<res:Equipment>
  <res:Type>Agent Pkey</Type>
  <res:Fields>
    <res:NameValuePair>
      <res:Name>Name</Name>
      <res:Value>Jim Smith B</Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>InternalName</Name>
      <res:Value/>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>Description</Name>
      <res:Value>Jim Smith on Equipment B</Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>DomainLoginName</Name>
      <res:Value>Jim</Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>ClusterResourceId</Name>
      <res:Value>{5103c5ed-d43e-fa4e-98f0-2eaa33a9d64c}
    </Value>
  </res:NameValuePair>
</res:Fields>
</res:Equipment>
</res:EquipmentMapping>
```

```

        </res:Resource>
    </res:resources>
</res:Update>
</soap:Body>
</soap:Envelope>

```

Create Agent Team with Pkey Maps, Method 2 (Implicit Pkey Maps)

Description

This example creates an Agent Team that is linked to two different remote equipment instances. In this example, the remote equipment instances are specified in a comma-separated list as part of the main Agent Team item. When the Agent Team is created, a pkey map containing the relevant data will be created for each remote equipment instance.

Tip

Use this method if an item has the same details on different remote equipment instances.

You can mix this method with method 1 (explicit pkey maps). You can specify some fields with the main item as common fields for a list of equipment instances and specify some fields individually for each equipment instance as pkey maps.

Use Case Sequence

Prerequisites:

- The Create Tenant use case sequence has been executed.
- The caller of the Unified CCMP Web Services is logged in as the tenant administrator and only has access to the peripheral or peripherals that the tenant administrator account allows.

Table 5.194 Create Agent Team, Two Pkey Maps, Method 2 (Combined Pkey Maps)

| Action | API Calls and Parameters |
|--|--|
| Create the Agent Team, specifying the Agent Team details and pkey maps as in the SOAP example below. | create AgentTeam |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = AgentTeam Id |

SOAP Example

The following SOAP request creates an Agent Team, “Test Agent Team”, that is linked to two Agent Teams on two remote equipment instances, where the two Agent Teams have identical details on both equipment instances.

In this example, the remote equipment instances are specified in a comma-separated list.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <res:Resource>
          <res:Type>Agent Team</res:Type>
          <res:EffectiveFrom>2013-01-01 00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06 00:00:00</res:EffectiveTo>
          <res:Status>S</res:Status>
          <res:Changestamp>0</res:Changestamp>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>Test Agent Team</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>PeripheralUrn</res:Name>
              <res:Value>-1</res:Value>
            </res:NameValuePair>
            <NameValuePair>
              <Name>MappedClusterResources</Name>
              <Value>{c5ed5103-55cc-420b-8fa9-9d64c2eaa339},
                {5103c5ed-d43e-fa4e-98f0-2eaa33a9d64c}</Value>
            </NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Update>
  </soap:Body>
</soap:Envelope>
```

Update Agent (Additional Pkey Map)

Description

This example adds an additional remote equipment mapping to an existing Agent.

Use Case Sequence

Prerequisites:

- The specified Agent already exists.

Table 5.195 Update Agent (Additional Remote Equipment Mapping) Use Case

| Action | API Calls and Parameters |
|--|---|
| Retrieve the agent record | retrieve Id = Agent Id |
| Modify the agent record to include a pkey map containing the mapping to the additional remote equipment. | |
| Update the agent, specifying the remote equipment mapping in a pkey as in the SOAP example below. | update Agent |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Id |

SOAP Example

The following SOAP request updates the agent with identity 1234 to include a link to an additional remote equipment instance.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Update>
      <res:resources>
        <res:Resource>
          <res:Identity>1234</res:Identity>
          <res:Type>Agent</res:Type>
          <res:Fields>
            </res:Fields>
          </res:Resource>
        </res:resources>
      </res:Update>
    </soap:Body>
  </soap:Envelope>
```

```

    <res:EquipmentMapping>
      <res:Equipment>
        <res:Type>Agent Pkey</Type>
        <res:Fields>
          <res:NameValuePair>
            <res:Name>Name</Name>
            <res:Value>Jim Smith X</Value>
          </res:NameValuePair>
          <res:NameValuePair>
            <res:Name>InternalName</Name>
            <res:Value/>
          </res:NameValuePair>
          <res:NameValuePair>
            <res:Name>Description</Name>
            <res:Value>Jim Smith on Equipment X</Value>
          </res:NameValuePair>
          <res:NameValuePair>
            < <res:Name>ClusterResourceId</Name>
              <res:Value>{c5ed5103-55cc-420b-8fa9-9d64c2eaa33b}
            </res:NameValuePair>
          </res:NameValuePair>
        </res:Fields>
      </res:Equipment>
    </res:EquipmentMapping>
  </res:Resource>
</res:resources>
</res:Update>
</soap:Body>
</soap:Envelope>

```

Update Agent (Delete a Pkey Map)

Description

This example deletes one of the remote equipment mappings for an Agent.

Note

You cannot delete the last remaining remote equipment mapping unless you delete the Agent.

Use Case Sequence

Prerequisites:

- The specified Agent already exists and has at least two pkey map items.

Table 5.196 Update Agent (Additional Remote Equipment Mapping) Use Case

| Action | API Calls and Parameters |
|---|--|
| Retrieve the Agent record. | retrieve Id = Agent Id |
| Identify the id of the Agent Pkey to be deleted. | |
| Delete the Agent Pkey as in the SOAP example below. | delete Agent Pkey |
| If required, wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = Agent Pkey Id |

SOAP Example

The following SOAP request deletes the Agent pkey map with id 17585 from Agent 1234. Any other Agent pkey maps associated with Agent 1234 are unaffected.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Update>
      <res:resources>
        <res:Resource>
          <res:Identity>1234</res:Identity>
          <res:Type>Agent</res:Type>
          <res:Fields>
          </res:Fields>
          <res:EquipmentMapping>
            <res:Equipment>
              <res:Type>Agent Pkey</Type>
              <res:Identity>17585</res:Identity>
              <res:Status>D</res:Status>
              <res:Fields></res:Fields>
            </res:Equipment>
          </res:EquipmentMapping>
        </res:Resource>
      </res:resources>
    </res:Update>
  </soap:Body>
</soap:Envelope>
```

Create Agent To Agent Team Membership (Two Remote Equipment Mappings)

Description

This example creates an Agent to Agent Team membership that relates an Agent to an Agent Team where the Agent and the Agent Team are both linked to two different remote equipment instances. In this example, the Agent to Agent Team memberships for both remote equipment instances are specified when the Agent to Agent Team membership is created.

Use Case Sequence

Prerequisites:

- The specified Agent exists and is mapped to at least two remote equipment instances.
- The specified Agent Team exists and is mapped to the same two remote equipment instances.

Table 5.197 Create Agent To Agent Team Membership (Two Remote Equipment Mappings) Use Case

| Action | API Calls and Parameters |
|---|-----------------------------|
| Retrieve the Agent record and obtain the Agent Pkey ids for each remote equipment mapping. | retrieve Id = Agent Id |
| Retrieve the Agent Team record and obtain the Agent Pkey ids for each remote equipment mapping. | retrieve Id = Agent Team Id |
| Create the Agent Agent Team membership, specifying the remote equipment mapping in a pkey as in the SOAP example below. | update Agent |

SOAP Example

The following SOAP request will create a membership between the Agent with id 1234 and pkey maps of 1111 and 2222 and the Agent Team with id 6789 and pkey maps 6666 and 7777.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Agent Agent Team Member</res:Type>
```

```
<res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
<res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
<res:Status>R</res:Status>
<res:Changestamp>0</res:Changestamp>
<res:Fields>
  <res:NameValuePair>
    <res:Name>ParentId</res:Name>
    <res:Value>6789</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>ChildId</res:Name>
    <res:Value>1234</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>Supervisor</res:Name>
    <res:Value>>false</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PrimarySupervisor</res:Name>
    <res:Value>>false</res:Value>
  </res:NameValuePair>
  <res:NameValuePair>
    <res:Name>PhysicalMember</res:Name>
    <res:Value>>true</res:Value>
  </res:NameValuePair>
</res:Fields>
<res:EquipmentMapping>
  <res:Equipment>
    <res:Type>Agent Agent Team Pkey</Type>
    <res:Fields>
      <res:NameValuePair>
        <res:Name>ParentId</res:Name>
        <res:Value>6666</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>ChildId</res:Name>
        <res:Value>1111</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>ClusterResourceId</Name>
        <res:Value>{c5ed5103-55cc-420b-8fa9-9d64c2eaa339}
      </res:NameValuePair>
    </res:Fields>
  </res:Equipment>
</Value>
```

```

        <res:Equipment>
          <res:Type>Agent Agent Team Pkey</Type>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>ParentId</res:Name>
              <res:Value>7777</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>ChildId</res:Name>
              <res:Value>2222</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>ClusterResourceId</Name>
              <res:Value>{5103c5ed-d43e-fa4e-98f0-2eaa33a9d64c}
            </res:NameValuePair>
          </res:Fields>
        </res:Equipment>
      </res:EquipmentMapping>
    </res:Resource>
  </res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Create Precision Attribute

Soap Example

This example creates a Precision Attribute “Mortgages” in the folder with FolderId 00000000-0000-0000-0000-000000000010, where the Attribute is a proficiency attribute (code 4) with a default value of 1.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>IT_PRECISION_ATTRIBUTE</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
          <res:Status>R</res:Status>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>

```

```

    <res:Fields>
      <res:NameValuePair>
        <res:Name>FolderId</res:Name>
        <res:Value>00000000-0000-0000-0000-000000000010</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>Name</res:Name>
        <res:Value>Mortgages</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>InternalName</res:Name>
        <res:Value>CICM.Mortgages</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>AttributeDataType</res:Name>
        <res:Value>4</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>DefaultValue</res:Name>
        <res:Value>1</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Create Precision Queue

Description

This example creates a Precision Queue, which contains:

- a single Precision Queue Step
- a Precision Queue Step Precision Attribute Member that links the Precision Queue Step to an existing Precision Attribute with id 3333.

The details for the step and the member that links the step and the attribute are specified in the same request as the queue since they must be created at the same time.

When the queue is created, the following items are also created automatically as part of the creation process:

- the specified step
- the specified member that links the step and the attribute

- a Precision Queue Step Precision Queue Member linking the new step with the new queue.

Use Case Sequence

Prerequisites:

- The specified Precision Attribute exists

Table 5.198 Create Precision Queue

| Action | API Calls and Parameters |
|---|--|
| Create the Precision Queue and at least one related Precision Queue Step (which in turn must contain at least one Precision Attribute membership), specifying the details for all three items as in the SOAP example below. | create PrecisionQueue |
| Wait for the asynchronous notification if a subscription has been set up (SOAP only), or begin a poll sequence using search or retrieve. | search item:<Id> type:<ResourceType> or retrieve Id = PrecisionQueueURN resourceType:<ResourceType> |

SOAP Example

This SOAP request creates a Precision Queue **Precision Queue 1**, containing one step **Precision Queue 1 Step 1** that links to the Attribute with id **5555**.

The comparison value for this attribute in this step is **7** (field Value1), and the comparison to be used is “greater than or equal to” (specified by a value of **6** in field AttributeRelation).

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <!-- Precision Queue -->
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>IT_PRECISION_QUEUE</res:Type>
          <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
          <res:Status>R</res:Status>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>00000000-0000-0000-0000-000000000010</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```
<res:NameValuePair>
  <res:Name>Name</res:Name>
  <res:Value>Precision Queue 1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>InternalName</res:Name>
  <res:Value>CICM.PQ1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>AgentOrdering</res:Name>
  <res:Value>1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>ServiceLevelThreshold</res:Name>
  <res:Value>1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>ServiceLevelType</res:Name>
  <res:Value>1</res:Value>
</res:NameValuePair>
</res:Fields>
</res:Resource>
<!-- First Precision Queue Step -->
<res:Resource>
  <res:Identity>-1</res:Identity>
  <res:Type>IT_PRECISION_QUEUE_STEP</res:Type>
  <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
  <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
  <res:Status>R</res:Status>
  <res:Fields>
    <res:NameValuePair>
      <res:Name>FolderId</res:Name>
      <res:Value>00000000-0000-0000-0000-000000000010</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>Name</res:Name>
      <res:Value>Precision Queue 1 Step 1</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>StepOrder</res:Name>
      <res:Value>1</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>WaitTime</res:Name>
      <res:Value>-1</res:Value>
    </res:NameValuePair>
  </res:Fields>
</res:Resource>
```

```
<!-- The parent precision queue is being created
      at the same time as this step -->
  <res:NameValuePair>
    <res:Name>PrecisionQueueUrn</res:Name>
    <res:Value>-3</res:Value>
  </res:NameValuePair>
</res:Fields>
</res:Resource>
<!-- Precision Queue Step Precision Queue Attribute Member,
      Comparison is "Attribute id 5555 >= 7" -->
  <res:Resource>
<!-- This membership is being created at the same time
      as the parent step -->
    <res:Identity>-3</res:Identity>
    <res:Type>MT_PRECISION_QUEUE_STEP_PRECISION_ATTRIBUTE_
MEMBER</res:Type>
    <res:Fields>
      <res:NameValuePair>
        <res:Name>ParentId</res:Name>
        <res:Value>-3</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>ChildId</res:Name>
        <res:Value>5555</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>Value1</res:Name>
        <res:Value>7</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>TermOrder</res:Name>
        <res:Value>1</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>ParenthesesCount</res:Name>
        <res:Value>0</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>TermRelation</res:Name>
        <res:Value>0</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>AttributeRelation</res:Name>
        <res:Value>6</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:Type>
```

```
        </res:Fields>
      </res:Resource>
    </res:resources>
  </res:Create>
</soap:Body>
</soap:Envelope>
```

Update Precision Queue (Add Precision Queue Step With Two Precision Attributes)

Description

This example adds a Precision Queue Step containing two Precision Attribute expressions to the end of an existing Precision Queue.

The details for the members that link the step and the attributes are specified in the same request as the step since they must be created at the same time.

When the step is created, the member linking the new step with the parent queue is also created automatically as part of the creation process.

After the new step is added, the `waitTime` field in the original step must be modified as that step is no longer the last step in the queue. In this example, a `ConsiderIf` expression is also added to the original step.

This example uses the `Save()` method since the create and update actions must be done in the same SOAP request (the `ConsiderIf` could be updated later, but the `waitTime` must be updated as the new step is added, because this must be a non-zero value for all steps except the last one).

SOAP Example

This SOAP request creates a new Precision Queue Step **Precision Queue Step 2** in the Precision Queue with id **123456**, that links to the Precision Attributes with id **5555** and **6666**.

The comparison value for attribute **5555** in this step is **4** (field `Value1` in the step to attribute membership), and the comparison to be used is “greater than or equal to” (specified by a value of **6** in field `AttributeRelation` in the step to attribute membership).

The comparison value for attribute **6666** in this step is **true** (field `Value1`), and the comparison to be used is “equal to” (specified by a value of **1** in field `AttributeRelation`). The `TermRelation` field has a value of **2**, indicating that this attribute term is to be compared with the previous one using an “OR” operation.

This step is the new last step in the queue, so the existing step, with id **6789** is updated to have a wait time of 20 seconds.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
```

```

<res:Save>
  <res:resourcesToAdd>
    <!--Add new Precision Queue Step, second step in Precision Queue -->
    <res:Resource>
      <res:Identity>-1</res:Identity>
      <res:Type>IT_PRECISION_QUEUE_STEP</res:Type>
      <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
      <res:EffectiveTo>2079-06-06T00:00:00</res:EffectiveTo>
      <res:Status>R</res:Status>
      <res:Fields>
        <res:NameValuePair>
          <res:Name>FolderId</res:Name>
          <res:Value>00000000-0000-0000-0000-000000000010</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>Name</res:Name>
          <res:Value>Precision Queue 1 Step 2</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>StepOrder</res:Name>
          <res:Value>2</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>WaitTime</res:Name>
          <res:Value>-1</res:Value>
        </res:NameValuePair>
        <res:NameValuePair>
          <res:Name>PrecisionQueueUrn</res:Name>
          <res:Value>123456</res:Value>
        </res:NameValuePair>
      </res:Fields>
    </res:Resource>
    <!-- Add Precision Queue Step Precision Queue Attribute Member 1
      Comparison is "Attribute id 5555 >= 4" -->
    <res:Resource>
      <!-- This membership will be created at the same time
        as the parent step -->
      <res:Identity>-3</res:Identity>
      <res:Type>MT_PRECISION_QUEUE_STEP_PRECISION_ATTRIBUTE_
MEMBER</res:Type>
      <res:Fields>
        <res:NameValuePair>
          <res:Name>ParentId</res:Name>
          <res:Value>-3</res:Value>
        </res:NameValuePair>

```

```
<res:NameValuePair>
  <res:Name>ChildIdId</res:Name>
  <res:Value>5555</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>Value1</res:Name>
  <res:Value>4</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>TermOrder</res:Name>
  <res:Value>1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>ParenthesesCount</res:Name>
  <res:Value>0</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>TermRelation</res:Name>
  <res:Value>0</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>AttributeRelation</res:Name>
  <res:Value>6</res:Value>
</res:NameValuePair>
</res:Fields>
</res:Resource>
<!-- Add Precision Queue Step Precision Queue Attribute Member 2,
      Comparison is "OR Attribute id 6666 = true" -->
<res:Resource>
  <!-- This membership will be created at the same time
        as the parent step -->
  <res:Identity>-3</res:Identity>
  <res:Type>MT_PRECISION_QUEUE_STEP_PRECISION_ATTRIBUTE_
MEMBER</res:Type>
  <res:Fields>
    <res:NameValuePair>
      <res:Name>ParentId</res:Name>
      <res:Value>-3</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>ChildIdId</res:Name>
      <res:Value>6666</res:Value>
    </res:NameValuePair>
```

```

    <res:NameValuePair>
      <res:Name>Value1</res:Name>
      <res:Value>>true/res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>TermOrder</res:Name>
      <res:Value>2</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>ParenthesesCount</res:Name>
      <res:Value>0/res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>TermRelation</res:Name>
      <res:Value>2</res:Value>
    </res:NameValuePair>
    <res:NameValuePair>
      <res:Name>AttributeRelation</res:Name>
      <res:Value>1</res:Value>
    </res:NameValuePair>
  </res:Fields>
</res:Resource>
<!--Update existing Precision Queue Step with new WaitTime -->
<res:Resource>
  <res:Identity>6789</res:Identity>
  <res:Type>IT_PRECISION_QUEUE_STEP</res:Type>
  <res:Fields>
    <res:NameValuePair>
      <res:Name>WaitTime</res:Name>
      <res:Value>20</res:Value>
    </res:NameValuePair>
  </res:Fields>
</res:Resource>
</res:resourcesToAdd>
</res:Save>
</soap:Body>
</soap:Envelope>

```

Update Precision Queue (Delete Precision Queue Step)

Description

This example deletes the first Precision Queue Step from an existing Precision Queue that contained two Precision Queue Steps.

When the step is deleted, the following items are also deleted automatically:

- the member linking the deleted step with the related attribute
- the member linking the deleted step with the parent queue.

In this example, the `StepOrder` field of the remaining step needs to be modified as it is now the first step in the queue.

This example uses the `Save()` method since the delete and update actions must be done in the same SOAP request (the `StepOrder` for the remaining step must be updated as the other step is deleted).

SOAP Example

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Save>
      <res:resourcesToDelete>
        <!-- Delete required Precision Queue Step -->
        <res:Resource>
          <res:Identity>6789</res:Identity>
          <res:Type>IT_PRECISION_QUEUE_STEP</res:Type>
        </res:Resource>
      </res:resourcesToDelete>
      <res:resourcesToAdd>
        <!-- Update StepOrder for existing Precision Queue Step -->
        <res:Resource>
          <res:Identity>6790</res:Identity>
          <res:Type>IT_PRECISION_QUEUE_STEP</res:Type>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>StepOrder</res:Name>
              <res:Value>1</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resourcesToAdd>
    </res:Update>
  </soap:Body>
</soap:Envelope>
```

Subscriptions Web Service

About the Subscriptions Web Service

The Subscriptions Web Service allows the client application to subscribe to receive a notification when a specified item changes state in Cisco Unified CCE.

When a specified change occurs, the client receives a notification about the change. The notification includes the identity, name and status of the item.

Subscriptions Web Service Specification

SOAP

The WSDL file for the Subscriptions Web Service is located on the Web/Application server here:

`https://<server>:8083/ServiceManagement?wsdl`

where `<server>` is the name of the Web/Application server.

The Subscriptions Web Service implements the WS-Eventing interface which is specified at <http://www.w3.org/Submission/WS-Eventing/>.

REST

The Subscriptions Web Service does not support the REST protocol.

Securing Notifications with SSL

About Securing the Subscriptions Web Service

This section describes how to use SSL to secure and authenticate the communications from the Unified CCMP web server (the server generating the notifications) to the subscriber server (the server running the subscriber client application)

This procedure is optional. It is only necessary if you plan to use the Unified CCMP Subscriptions Web Service, and want to secure and authenticate the communications between the Unified CCMP server and the subscriber server. If you are not using the Unified CCMP Subscriptions Web Service, or if you do not need to secure and authenticate communications from the Unified CCMP server to the subscriber server (for example, if all your servers are co-located in a secure area) then this procedure is not required.

Note

In order to use the Unified CCMP Web Services, you must first secure the Web Services themselves as described in the *Installation and Configuration Guide for Cisco Unified Contact Center Management Portal*, section *Securing Unified CCMP Web Service APIs with SSL*. This procedure is not optional and you will not be able to use the Unified CCMP Web Services unless you have done this.

When Unified CCMP is first installed, communications between the Unified CCMP server and the subscriber server are secured with a self-signed certificate called *localhost*. This certificate is suitable for a single server in a laboratory environment, but cannot be used to secure a multi-server installation in a production environment.

To secure and authenticate the communications between the Unified CCMP server and the subscriber server:

- obtain and install a suitable digital certificate on the Unified CCMP server (see section "Obtaining and Installing a Digital Certificate for the Unified CCMP Server")
- obtain and install a suitable digital certificate on the subscriber server (see section "Obtaining and Installing a Digital Certificate for the Subscriber Server")
- configure the Unified CCMP server endpoint behavior to use the two certificates for communication between the servers (see section "Configure the Unified CCMP Server Endpoint Behavior")
- install the public key of the subscriber server on the Unified CCMP server (see section "Installing the Public Key of the Subscriber Server Certificate onto the Unified CCMP Server")
- ensure the certificate authority root certificate for the Unified CCMP server certificate is available on the subscriber server (see section "Installing the Root CA Certificate on the Subscriber server")
- restart the services on both servers.

Obtaining and Installing a Digital Certificate for the Unified CCMP Server

This step installs the digital certificate that secures the Unified CCMP side of the communications between the Unified CCMP App/Web server and the subscriber server.

Note

When Unified CCMP was installed, the Unified CCMP Web Services should have been secured with SSL (see *Installation and Configuration Guide for Cisco Unified Contact Center Management Portal*, section *Securing Unified CCMP Web Service APIs with SSL*). If this has not been done, complete that procedure before continuing with the instructions here.

As part of the process of securing the Unified CCMP Web Services with SSL, a digital certificate was obtained and installed on the Unified CCMP App/Web server. We recommend that you use the same digital certificate here. If you choose to use the same certificate, then it has already been installed and this step is complete.

If you want to use a different certificate, follow the instructions in *Installation and Configuration Guide for Cisco Unified Contact Center Management Portal* to obtain and install another certificate on the Unified CCMP App/Web server and to grant access to the **NETWORK SERVICE** user.

Obtaining and Installing a Digital Certificate for the Subscriber Server

This step installs the digital certificate that secures the subscriber server side of the communications between the Unified CCMP App/Web server and the subscriber server.

You may already have a suitable certificate that you can use to secure the subscriber server side of the communications between the Unified CCMP App/Web server and the subscriber server. If you do not already have a suitable certificate, consult your platform documentation to find out how to request or generate an external certificate (suitable for public use) or an internal certificate (for secure use within the issuing organization).

When you have obtained the certificate, install it on the subscriber server as described in your platform documentation.

Ensure that the account that will be used to run the subscriber application has full access rights for the certificate. Again, consult your platform documentation if necessary.

Configure the Unified CCMP Server Endpoint Behavior

This step configures the endpoint behavior of the Unified CCMP App/Web server to use the server certificates to secure communications between the two servers.

To do this:

1. Identify the *subject distinguished name* of the certificate you have installed on the Unified CCMP App/Web server. This is a text string, containing several name-value pairs, that identifies the certificate, for example:

```
"CN=gold, OU=dev, O=exony, L=newbury, S=berkshire, C=GB"
```

If you do not know the subject distinguished name, you can find it as follows:

- a. On the Unified CCMP server, go to the **Start** menu, and type **mmc** in the command box to open Microsoft Management Console (MMC).
- b. Click **File > Add/Remove Snap-in**, click **Certificates**, then **Add**.
- c. In the Certificates Snap-in dialog box, select **Computer Account** and click **Next**.

- d. In the Select Computer dialog box, select **Local Computer** and click **Finish** to add the Certificates snap-in to MMC. Click **OK**.
 - e. In MMC, expand the Certificates node and the Personal node, then click **Certificates** to see the available certificates.
 - f. Double-click on the certificate and in the **Details** tab, select **Subject**, to see the name-value pairs that make up the subject distinguished name for the certificate. Note that your certificate may not have exactly the same name-value pairs as the example above.
2. Identify the subject distinguished name of the certificate you have installed on the subscriber server. If the subscriber server is a Windows platform you can follow the instructions above. Otherwise, consult your platform documentation to find out how to do this.
 3. On the Unified CCMP App/Web server, go to **C:\Program Files\Management Portal\Application Server**, locate the file **Exony.Reporting.Application.Server.exe.config** and open it in a text editor.

Tip

You may want to make a safe copy of this file before you change it.

4. Locate the section that begins

```
<behavior name="ClientCertificateBehavior">
```


and within that section, the section that begins

```
<clientCredentials>
```
5. In the `<clientCredentials>` section, locate the `<clientCertificate>` tag and change the `findValue` attribute to the subject distinguished name of the Unified CCMP server certificate. Leave the other attributes as they are. Using the example above, the contents of the `<clientCertificate>` tag may become:

```
<clientCertificate findValue="CN=gold, OU=dev,O=exony, L=newbury, S=berkshire, C=GB" storeLocation="LocalMachine" storeName="My" x509FindType="FindBySubjectDistinguishedName" />
```
6. Also in the `<clientCredentials>` section, locate the `<serviceCertificate>` tag, and below that, the `<defaultCertificate>` tag. Set the `findValue` attribute of the `<defaultCertificate>` tag to the subject distinguished name of the subscriber server certificate. Leave the other attributes as they are. For example, if the subject distinguished name of the certificate was

```
"CN=silver, OU=dev, O=exony, L=newbury, S=berkshire, C=GB"
```


the contents of the `<defaultCertificate>` tag may become:

```
<defaultCertificate findValue="CN=silver, OU=dev, O=exony, L=newbury,  
S=berkshire, C=GB"  
storeLocation="LocalMachine" storeName="My"  
x509FindType="FindBySubjectDistinguishedName" />
```

7. Save the changes to this file.

Installing the Public Key of the Subscriber Server Certificate onto the Unified CCMP Server

This step ensures that the Unified CCMP App/Web server can encrypt the communications in the way required by the subscriber server.

To install the public key of the subscriber server certificate onto the Unified CCMP App/Web server:

1. On the subscriber server, obtain the public key of the subscriber server certificate and save it to a file. Consult your platform documentation to find out how to do this.
2. Copy the file containing the public key to the Unified CCMP App/Web server.
3. On the Unified CCMP App/Web server, start MMC, expand the Certificates node and the Personal node, then right-click Certificates. Select **All Tasks > Import**. Follow the steps in the Certificate Import Wizard to import the file containing the subscriber server public key into the Personal certificate store of the local machine.

Installing the Root CA Certificate on the Subscriber server

This step confirms the validity of the Unified CCMP web services certificate to the subscriber server. This is done by obtaining the root certificate of the certificate authority (CA) that issued the Unified CCMP web services certificate and installing it on the subscriber server.

Note

This step is only necessary if the provider of the Unified CCMP server certificate is not already trusted by the subscriber server. If the certificate was purchased from one of the major certificate providers, then the root certificate of the CA will almost certainly be pre-loaded on the subscriber server. In this case, the CA is already trusted.

To install the CA root certificate for the Unified CCMP server certificate:

1. Obtain the CA root certificate for the Unified CCMP server certificate. If you did not get this when you purchased the certificate, you can obtain it from the certificate authority. Copy the file containing the CA root certificate to the subscriber server.
2. On the subscriber server, import the CA root certificate into the Trusted Root certificate area. Consult your platform documentation to find out how to do this if necessary.

Restarting the Services

1. Save all configuration files and other changes.
2. On the Unified CCMP App/Web server, stop and restart the Unified CCMP Web Service.
3. On the subscriber server, stop and restart the application service.

Subscriptions Web Service APIs

Subscribe

Description

The Subscribe web service API creates a subscription for item or member changes.

Example

Request

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
<s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wse:Subscribe xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
    <wse:Delivery>
      <wse:NotifyTo>
        <a:Address> https://localhost:33333/Sink </a:Address>
      </wse:NotifyTo>
    </wse:Delivery>
    <wse:Expires>PT15M</wse:Expires>
    <wse:Filter xmlns:x="http://www.exony.com/portal">//x:Id = 1234 and
//x:Type = 'Agent'</wse:Filter>
  </wse:Subscribe>
</s:Body></s:Envelope>
```

In this example, a subscription has been created for **Agent** items with an ID of **1234**.

- The `Filter` element can contain any valid XPath query which is applied to the incoming status message (described in more detail later).
- The `Expires` element defines how long the subscription is held by the server. In this example, **T15M** indicates that the subscription is held for 15 minutes.
- The `Delivery` element contains the `NotifyTo` node which holds an `Address`. This is the SOAP endpoint that implements the `IStatus` web service interface.

Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
...</s:Header>
```

```

    <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <wse:SubscribeResponse
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
        <wse:SubscriptionManager>
          <a:Address>https://localhost:8083/SubscriptionManager</a:Address>
          <a:ReferenceParameters>
            <wse:Identifier>uuid:ecf6f297-6fce-4924-a973-
aeb533378ef6</wse:Identifier>
          </a:ReferenceParameters>
        </wse:SubscriptionManager>
        <wse:Expires>2009-12-24T10:33:22.9328168Z</wse:Expires>
      </wse:SubscribeResponse>
    </s:Body>
  </s:Envelope>

```

The example response shows the returned **Identifier**. This can be used with the other Web Service methods to identify this subscription.

The **Expires** element contains the absolute expiry date time for this subscription.

Get Status

Description

The GetStatus web service API enables the client to check the status of a subscription.

Example

Request

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <h:Identifier xmlns:h="http://schemas.xmlsoap.org/ws/2004/08/eventing"
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">uuid:67f4901f-e183-4ea2-
83cb-24f07e82d3e9</h:Identifier>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <wse:GetStatus
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"></wse:GetStatus>
  </s:Body>
</s:Envelope>

```

Response

```

s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/08/eventing/GetStatusRespon
se</a:Action>
    <a:RelatesTo>uuid:1128b40a-f9a7-46f0-8ca5-67aa6d410607</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2009-12-24T10:31:12.187Z</u:Created>
        <u:Expires>2009-12-24T10:36:12.187Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <wse:GetStatusResponse
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
      <wse:Expires>2009-12-24T10:40:10.3298445Z</wse:Expires>
    </wse:GetStatusResponse>
  </s:Body>
</s:Envelope>

```

Renew

Description

The Renew web service API enables the client to extend the lifetime of a subscription.

Example

Request

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <h:Identifier xmlns:h="http://schemas.xmlsoap.org/ws/2004/08/eventing"
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">uuid:67f4901f-e183-4ea2-
83cb-24f07e82d3e9</h:Identifier>
  </s:Header>

```

```

    <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <wse:Renew xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
        <wse:Expires>PT20M</wse:Expires>
      </wse:Renew>
    </s:Body>
  </s:Envelope>

```

Response

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <wse:RenewResponse
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
      <wse:Expires>2009-12-24T10:51:35.8457528Z</wse:Expires>
    </wse:RenewResponse>
  </s:Body>
</s:Envelope>

```

Unsubscribe

Description

The Unsubscribe web service API enables the client to cancel an existing subscription.

Example

Request

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <h:Identifier xmlns:h="http://schemas.xmlsoap.org/ws/2004/08/eventing"
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">uuid:67f4901f-e183-4ea2-
83cb-24f07e82d3e9</h:Identifier>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <wse:Unsubscribe
xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"></wse:Unsubscribe>
  </s:Body>
</s:Envelope>

```

Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"/>
</s:Envelope>
```

More Information about Subscriptions and Notifications

Subscribing for Notifications

When the client subscribes for notifications, the client specifies an XPath query as the filter to choose the event messages to receive. The XPath query is applied to this message.

The filter supports the use of the following XPath components:

- `//x:Id`
The identity of the item to subscribe to.
- `//x:Type`
The item type of items to subscribe to (for example, Agent, Agent Team).
- `//x:Status`
The status type that the subscription is concerned with. For example a client may be interested in receiving a notification when an agent becomes ready or is deleted.
- `//x:ContainerId`
The identity of the folder in which items must belong. This may be used to monitor multiple items for a given folder, for example, to receive a notification when any agent within a particular folder is updated.

The client can define a subscription query by combining one or more of these XPath components. For example:

- `//x:Id = 1234 and //x:Type = 'Agent'` will cause a notification to be received by the client when the agent with identity 1234 changes state.
- `//x:Type = 'Agent' and //x:Status = 'R' and //x:ContainerId = '1BAE1951-A9FF-4F17-AC46-FA7605C26569'` will cause a notification to be sent when any agent in the folder with the identity 1BAE1951-A9FF-4F17-AC46-FA7605C26569 changes status to R.

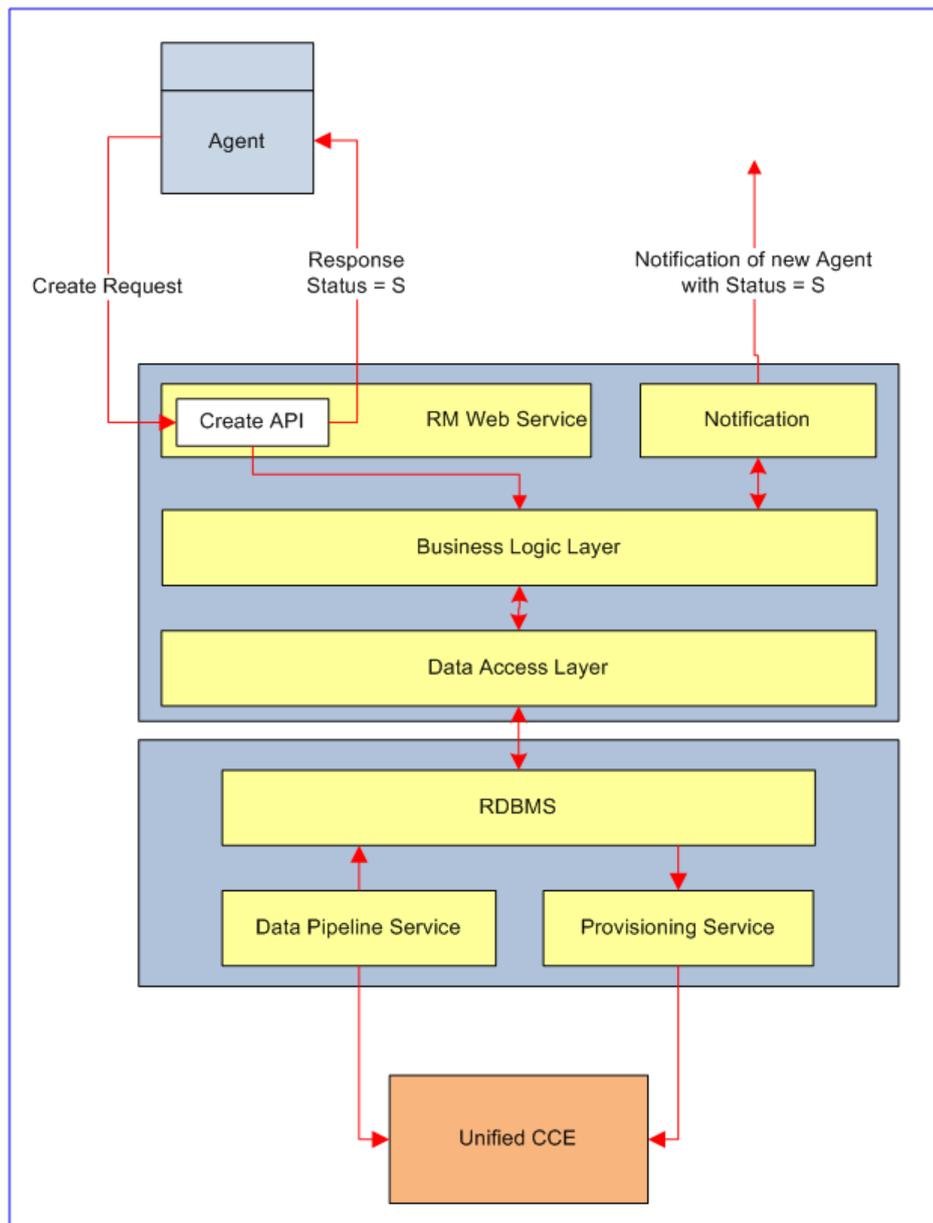
Notifications are only received for items that support status changes. If an API request (for example `Create()`) returns a status of Ready then the status of that item is not updated and no notification will be received.

Notification Reporting

Certain resource types require Unified CCMP to remotely provision them. These resources will return a Pending or Synchronize state when fields and memberships are added, updated or deleted. The client can subscribe to these items to allow status changes to be obtained as the item moves through the provisioning lifecycle.

An example work flow for the agent creation process is as follows:

1. Agent create request is performed by the client, business logic is applied to the item and it is written to the Unified CCMP database waiting to be provisioned onto the remote equipment (in this case Unified CCE). Notification is sent out to all subscribers to say that a new agent has been added and its status is synchronizing.
2. The Unified CCMP Provisioning Server picks up the new change and attempt to make the change on Unified CCE.
3. The Unified CCE successfully creates the new agent, the provisioning server updates the item status in the RDBMS and all subscribers receive a notification that the agent has progressed to Ready status (that is, has been created on Unified CCE).



Not all resource types use the provisioning life-cycle. Some resources, for example, User, Group etc are not provisioned on any remote equipment. They are added to Unified CCMP immediately. Therefore the notification behavior of these types will be subtly different than those that utilize the provisioning life-cycle detailed above.

The following types of notification are supported by Unified CCMP:

- Support Provisioning Life-cycle – has the behavior described above, these are types that rely on Unified CCMP to provision them on remote equipment. These types will progress through the provisioning life-cycle and report their progress at each stage using the notifications to report their current state.
- Returns Status on W/S Call - returns an accurate status of the resource where no provisioning life-cycle exists. This method is used for items that are not required to be provisioned on remote equipment for example users/ groups etc. The status is reported at the time of the operation. An error status indicates that the operation was not successful and the resource will remain in its existing state.
- Notification on Create - when a new resource is created a notification request is received containing the new item identity and the new item status.
- Notification on Update - when a resource is updated then a notification request is received containing the updated item's identity and status.
- Notification on Delete - when a resource is deleted then a notification request is received containing the identity of the item and its new status.

The following table shows the supported types and the level of notification support that they adopt.

| Type | Support Provisioning Life-cycle | Returns Status on W/S Call | Notification on Create | Notification on Update | Notification on Delete |
|----------------------------|---------------------------------|----------------------------|------------------------|------------------------|------------------------|
| Agent | X | | X | X | X |
| Agent Team | X | | X | X | X |
| Call Type | X | | X | X | X |
| Directory Number | X | | X | X | X |
| Folder | | X | X | | X |
| Group | | X | X | | X |
| IP Endpoint | X | | X | X | X |
| Person | X | | X | X | X |
| Skill Group | X | | X | X | X |
| User | | X | X | | X |
| Agent Agent Desktop Member | X | | X | | X |
| Agent Agent Team Member | X | | X | X | X |
| Agent Skill Group Member | X | | X | | X |

| Type | Support Provisioning Life-cycle | Returns Status on W/S Call | Notification on Create | Notification on Update | Notification on Delete |
|-------------------------------------|---------------------------------|----------------------------|------------------------|------------------------|------------------------|
| IP Endpoint Directory Number Member | X | | X | X | X |
| User Group Member | | X | X | | |
| Group Group Member | | X | X | | |

Handling Notification Failures

Subscription and notification information is not persisted in the event of a failure. Notifications are sent periodically when a status change is identified for any subscribed resource, for example, when AgentA moves from status R to status S. Given the distributed nature of the platform it is possible that an item may progress through more than one state before the notification change is collected.

The following subscription method should therefore be applied to protect client applications when notifications are not received (for example, in the event of a failure).

1. Subscribe to resource x (currently status = R)
2. Perform change (for example, Call Update API, status = S)
3. Await ready notification
4. If notification is not received in 30 seconds call Search for the item identity of resource x
5. If status = R then progress, if status = S then go back to step 3

This technique provides a fail-safe tracking mechanism for resources progressing through the provisioning life-cycle.

API Notification Timeout

Description

It is possible that notifications could be lost (for example, if there are network problems) so if it is critical for a response to be received, then we suggest that the caller implements a timer to retrieve the result.

Sequence Diagram

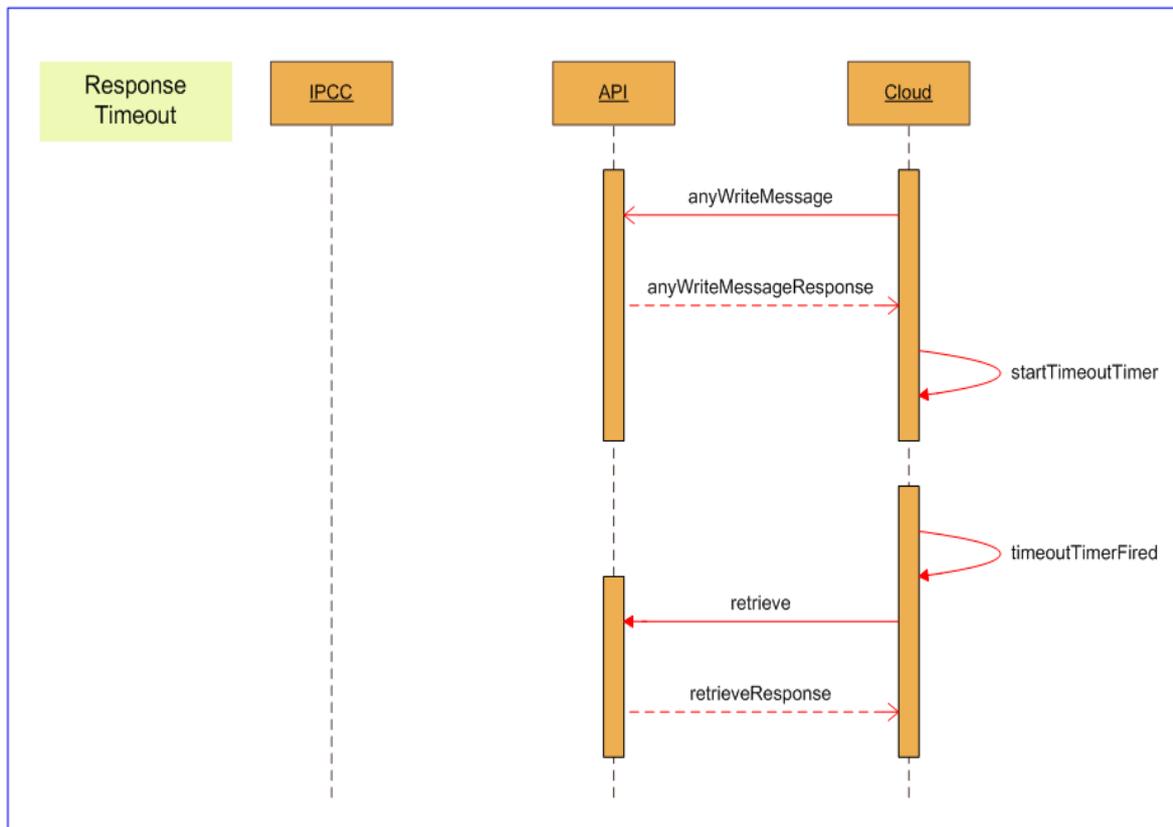


Figure 6.1 API Notification Timeout Sequence Diagram

Closed Loop Poll

Description

Moves, adds and changes may be made in the underlying remote equipment. Unified CCMP periodically reads the configuration data from the remote equipment and updates the Unified CCMP data model accordingly. Updating the data model can have two results:

- Resource notifications will be sent to any clients who have subscribed to them.
- Additional Unified CCMP provisioning workflows may be triggered. For example, the addition of a CUCM Line with an IPCC category set in the description field will trigger the addition of a Device Target / Labels per Routing Client on the relevant Unified CCE. Provisioning workflows may trigger additional status changes.

Sequence Diagram

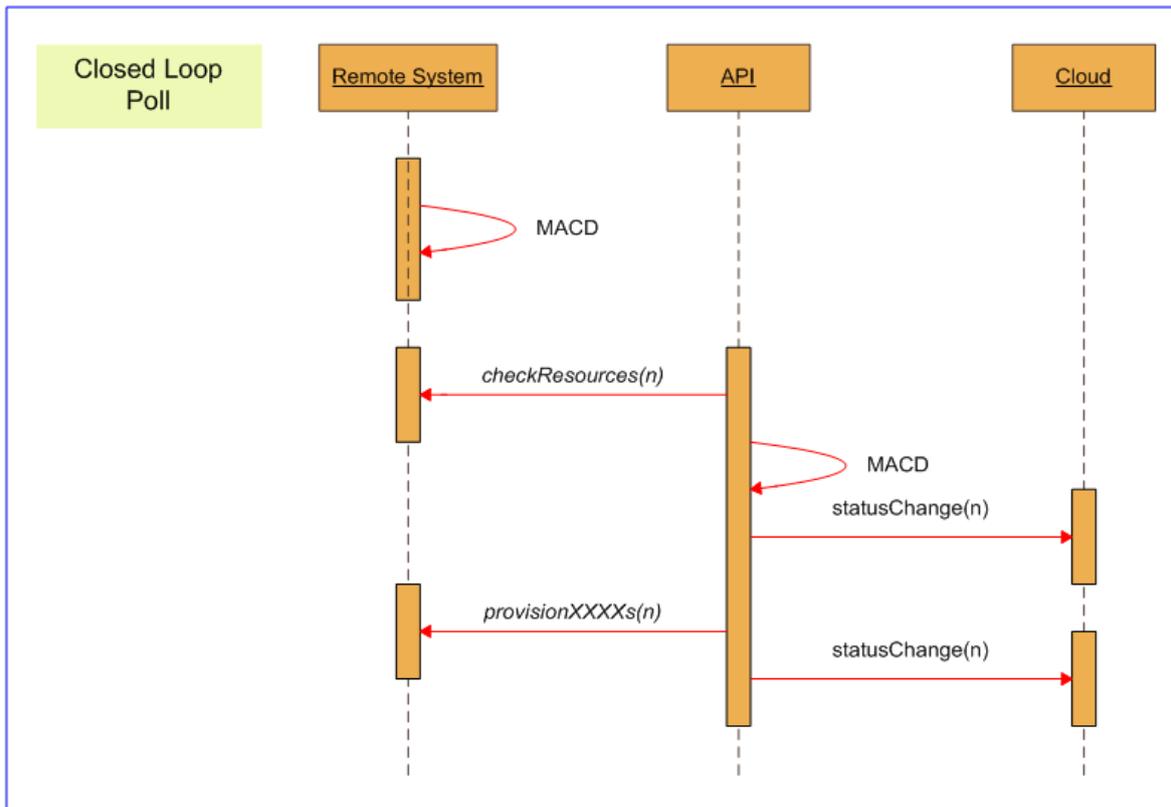


Figure 6.2 Closed Loop Poll Sequence Diagram

Interaction with Resource Management Web Services

See section "Subscriptions Web Service Examples" for some detailed examples showing how the Subscriptions and Resource Management Web Services interact to complete some common tasks.

Subscriptions Web Service Examples

Agent Re-Skilling

A typical agent re-skilling activity may be performed using the following requests and response sequence.

Step 1

Load the agent that is to be re-skilled using the Resource Management Retrieve() web service API.

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org//www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Retrieve>
      <!--Optional:-->
      <res:resourceKeys>
        <!--Zero or more repetitions:-->
        <res:ResourceKey>
          <res:Identity>17585</res:Identity>
          <res:ResourceType>Agent</res:ResourceType>
        </res:ResourceKey>
      </res:resourceKeys>
    </res:Retrieve>
  </soap:Body>
</soap:Envelope>
```

Response

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/RetrieveResponse</a:Action>
    <a:RelatesTo>uuid:701c0aa3-12d1-4728-b199-aae95d64514a</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-01-19T13:57:54.911Z</u:Created>
        <u:Expires>2010-01-19T14:02:54.911Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <RetrieveResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <RetrieveResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Resource>
          <Identity>17585</Identity>
          <Type>Agent</Type>
          <EffectiveFrom>2010-01-18T08:58:36</EffectiveFrom>
          <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
          <Status>R</Status>
          <Changestamp>0</Changestamp>
          <Fields>
            <NameValuePair>
              <Name>FolderId</Name>
              <Value>1bae1951-a9ff-4f17-ac46-fa7605c26569</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>Name</Name>
              <Value>V723.PG1_1.USER67.AG</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>InternalName</Name>
              <Value>V723.PG1_1.USER67.AG</Value>
            </NameValuePair>
          </Fields>
        </Resource>
      </RetrieveResult>
    </RetrieveResponse>
  </s:Body>
</s:Envelope>

```

```
<NameValuePair>
  <Name>Description</Name>
  <Value>User67</Value>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralUrn</Name>
  <Value>3529</Value>
</NameValuePair>
<NameValuePair>
  <Name>PersonUrn</Name>
  <Value>9409</Value>
</NameValuePair>
<NameValuePair>
  <Name>FirstName</Name>
  <Value>User67</Value>
</NameValuePair>
<NameValuePair>
  <Name>LastName</Name>
  <Value>User67</Value>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralNumber</Name>
  <Value>50067</Value>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralName</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>Supervisor</Name>
  <Value>False</Value>
</NameValuePair>
<NameValuePair>
  <Name>AgentStateTrace</Name>
  <Value>False</Value>
</NameValuePair>
<NameValuePair>
  <Name>DomainName</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>DomainLoginName</Name>
  <Value/>
</NameValuePair>
```

```

        <NameValuePair>
          <Name>DomainUserName</Name>
          <Value/>
        </NameValuePair>
        <NameValuePair>
          <Name>DomainUserGuid</Name>
          <Value/>
        </NameValuePair>
        <NameValuePair>
          <Name>DomainPassPhrase</Name>
          <Value/>
        </NameValuePair>
        <NameValuePair>
          <Name>UserDeletable</Name>
          <Value>True</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>UserGroupId</Name>
          <Value/>
        </NameValuePair>
      </Fields>
    </Resource>
  </RetrieveResult>
</RetrieveResponse>
</s:Body>
</s:Envelope>

```

Step 2

Subscribe to receive a notification when the status of the agent that is to be re-skilled changes.

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <wse:Subscribe xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
      <wse:Delivery>
        <wse:NotifyTo>
          <a:Address> https://localhost:33333/Sink </a:Address>
        </wse:NotifyTo>
      </wse:Delivery>
      <wse:Expires>PT15M</wse:Expires>
      <wse:Filter xmlns:x="http://www.exony.com/portal">//x:Id = 17585 and //x:Type =
'Agent' </wse:Filter>

```

```
</wse:Subscribe>
</s:Body>
</s:Envelope>
```

Step 3

Load the list of Skill Groups in which the Agent already exists so that they can be displayed for removal and may be excluded from the list of available Skill Groups. The list of available Skill Groups can be retrieved using the Resource Management Search() API.

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Search>
      <res:queryString>type:SkillGroup parentof:Agent,17585</res:queryString>
      <res:excludeFilter></res:excludeFilter>
    </res:Search>
  </soap:Body>
</soap:Envelope>
```

Notes

Replace the selected identity in this request with the identity of the agent retrieved in Step 1.

Response

The response contains a collection of Skill Group resources for the Skill Groups that are mapped to that agent.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/SearchResponse</a:Action>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-01-19T14:24:22.545Z</u:Created>
        <u:Expires>2010-01-19T14:29:22.545Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
```

```
<SearchResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <SearchResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
    <Resource>
      <Identity>17321</Identity>
      <Type>SkillGroup</Type>
      <EffectiveFrom>2010-01-18T09:04:51</EffectiveFrom>
      <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
      <Status>R</Status>
      <Changestamp>0</Changestamp>
      <Fields>
        <NameValuePair>
          <Name>MediaRoutingDomainUrn</Name>
          <Value>8377</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>PeripheralUrn</Name>
          <Value>3529</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>FolderId</Name>
          <Value>1bae1951-a9ff-4f17-ac46-fa7605c26569</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>Name</Name>
          <Value/>
        </NameValuePair>
        <NameValuePair>
          <Name>InternalName</Name>
          <Value>AvayaPG_1.Cisco_Voice.Avaya2.pri</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>Description</Name>
          <Value/>
        </NameValuePair>
        <NameValuePair>
          <Name>PeripheralNumber</Name>
          <Value>2</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>PeripheralName</Name>
          <Value>AvayaSkill2.pri</Value>
        </NameValuePair>
        <NameValuePair>
          <Name>AvailableHoldoffDelay</Name>
          <Value>-1</Value>
        </NameValuePair>
      </Fields>
    </Resource>
  </SearchResult>
</SearchResponse>
```

```
</NameValuePair>
<NameValuePair>
  <Name>Priority</Name>
  <Value>1</Value>
</NameValuePair>
<NameValuePair>
  <Name>Extension</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>IPTA</Name>
  <Value>N</Value>
</NameValuePair>
<NameValuePair>
  <Name>ServiceLevelThreshold</Name>
  <Value>0</Value>
</NameValuePair>
<NameValuePair>
  <Name>ServiceLevelType</Name>
  <Value>0</Value>
</NameValuePair>
<NameValuePair>
  <Name>DefaultEntry</Name>
  <Value>0</Value>
</NameValuePair>
<NameValuePair>
  <Name>SubSkillGroupMask</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>UserDeletable</Name>
  <Value>True</Value>
</NameValuePair>
</Fields>
</Resource>
<Resource>
  <Identity>17329</Identity>
  <Type>SkillGroup</Type>
  <EffectiveFrom>2010-01-18T09:04:51</EffectiveFrom>
  <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
  <Status>R</Status>
  <Changestamp>0</Changestamp>
  <Fields>
    <NameValuePair>
      <Name>MediaRoutingDomainUrn</Name>
      <Value>8377</Value>
```

```
</NameValuePair>
<NameValuePair>
  <Name>PeripheralUrn</Name>
  <Value>3529</Value>
</NameValuePair>
<NameValuePair>
  <Name>FolderId</Name>
  <Value>1bae1951-a9ff-4f17-ac46-fa7605c26569</Value>
</NameValuePair>
<NameValuePair>
  <Name>Name</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>InternalName</Name>
  <Value>AvayaPG_1.Cisco_Voice.Avaya3.pri</Value>
</NameValuePair>
<NameValuePair>
  <Name>Description</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralNumber</Name>
  <Value>3</Value>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralName</Name>
  <Value>AvayaSkill3.pri</Value>
</NameValuePair>
<NameValuePair>
  <Name>AvailableHoldoffDelay</Name>
  <Value>-1</Value>
</NameValuePair>
<NameValuePair>
  <Name>Priority</Name>
  <Value>1</Value>
</NameValuePair>
<NameValuePair>
  <Name>Extension</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>IPTA</Name>
  <Value>N</Value>
</NameValuePair>
<NameValuePair>
```

```
        <Name>ServiceLevelThreshold</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>ServiceLevelType</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>DefaultEntry</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>SubSkillGroupMask</Name>
        <Value/>
    </NameValuePair>
    <NameValuePair>
        <Name>UserDeletable</Name>
        <Value>True</Value>
    </NameValuePair>
</Fields>
</Resource>
</SearchResult>
</SearchResponse>
</s:Body>
</s:Envelope>
```

Note

This agent is assigned to 2 skill groups. The highlighted skill group identities are used in the next step to exclude them from the list of available selections.

Step 4

Load the list of Skill Groups that the agent can be added to using the Resource Management Search() API. The Skill Groups that have already been mapped are excluded from the results so that they are not available for selection.

The Resource Management Search() API is used to retrieve all Skill Groups on a Peripheral. This uses the PeripheralUrn from the agent retrieved in step 1 (agents may only be skilled to skill groups on the same peripheral).

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Search>
      <res:queryString>type:SkillGroup childof:Peripheral,3529</res:queryString>
      <res:excludeFilter>
        <res:ResourceKey>
          <res:Identity>17321</res:Identity>
          <res:ResourceType>SkillGroup</res:ResourceType>
        </res:ResourceKey>
        <res:ResourceKey>
          <res:Identity>17329</res:Identity>
          <res:ResourceType>SkillGroup</res:ResourceType>
        </res:ResourceKey>
      </res:excludeFilter>
    </res:Search>
  </soap:Body>
</soap:Envelope>
```

Response

The response from this request returns all the skill groups on the peripheral, except the skill groups with identities 17321 and 17329.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/SearchResponse</a:Action>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-01-19T14:40:09.175Z</u:Created>
        <u:Expires>2010-01-19T14:45:09.175Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <SearchResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <SearchResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Resource>
```

```
<Identity>17241</Identity>
<Type>SkillGroup</Type>
<EffectiveFrom>2010-01-18T09:04:49</EffectiveFrom>
<EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
<Status>R</Status>
<Changestamp>0</Changestamp>
<Fields>
  <NameValuePair>
    <Name>MediaRoutingDomainUrn</Name>
    <Value>8377</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>PeripheralUrn</Name>
    <Value>3529</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>FolderId</Name>
    <Value>1bae1951-a9ff-4f17-ac46-fa7605c26569</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Name</Name>
    <Value/>
  </NameValuePair>
  <NameValuePair>
    <Name>InternalName</Name>
    <Value>PG1_1.Cisco_Voice.default.72576</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Description</Name>
    <Value/>
  </NameValuePair>
  <NameValuePair>
    <Name>PeripheralNumber</Name>
    <Value>19882</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>PeripheralName</Name>
    <Value>000474608774</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>AvailableHoldoffDelay</Name>
    <Value>-1</Value>
  </NameValuePair>
  <NameValuePair>
```

```
        <Name>Priority</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>Extension</Name>
        <Value/>
    </NameValuePair>
    <NameValuePair>
        <Name>IPTA</Name>
        <Value>Y</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>ServiceLevelThreshold</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>ServiceLevelType</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>DefaultEntry</Name>
        <Value>1</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>SubSkillGroupMask</Name>
        <Value/>
    </NameValuePair>
    <NameValuePair>
        <Name>UserDeletable</Name>
        <Value>True</Value>
    </NameValuePair>
</Fields>
</Resource>
<Resource>
    <Identity>17249</Identity>
    <Type>SkillGroup</Type>
    <EffectiveFrom>2010-01-18T09:04:49</EffectiveFrom>
    <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
    <Status>R</Status>
    <Changestamp>0</Changestamp>
    <Fields>
        <NameValuePair>
            <Name>MediaRoutingDomainUrn</Name>
            <Value>8377</Value>
        </NameValuePair>
    </Fields>
</Resource>
```

```
<NameValuePair>
  <Name>PeripheralUrn</Name>
  <Value>3529</Value>
</NameValuePair>
<NameValuePair>
  <Name>FolderId</Name>
  <Value>1bae1951-a9ff-4f17-ac46-fa7605c26569</Value>
</NameValuePair>
<NameValuePair>
  <Name>Name</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>InternalName</Name>
  <Value>Skill12</Value>
</NameValuePair>
<NameValuePair>
  <Name>Description</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralNumber</Name>
  <Value>1</Value>
</NameValuePair>
<NameValuePair>
  <Name>PeripheralName</Name>
  <Value>Skill12</Value>
</NameValuePair>
<NameValuePair>
  <Name>AvailableHoldoffDelay</Name>
  <Value>-1</Value>
</NameValuePair>
<NameValuePair>
  <Name>Priority</Name>
  <Value>0</Value>
</NameValuePair>
<NameValuePair>
  <Name>Extension</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>IPTA</Name>
  <Value>Y</Value>
</NameValuePair>
<NameValuePair>
```

```

        <Name>ServiceLevelThreshold</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>ServiceLevelType</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>DefaultEntry</Name>
        <Value>0</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>SubSkillGroupMask</Name>
        <Value/>
    </NameValuePair>
    <NameValuePair>
        <Name>UserDeletable</Name>
        <Value>True</Value>
    </NameValuePair>
</Fields>
</Resource>
</SearchResult>
</SearchResponse>
</s:Body>
</s:Envelope>

```

Step 5

Add the Agent to a Skill Group. The Resource Management Create() API is called passing the identity of the Agent and Skill Group to create a new Agent Skill Group Member.

Request

Here is the agent skill group member creation request. ParentId describes the identity of the skill group to which the agent is being associated. ChildId describes the identity of the agent that is being added to the skill group.

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <res:Resource>
          <res:Identity>-1</res:Identity>
          <res:Type>Agent SkillGroup Member</res:Type>
          <res:EffectiveFrom>1900-01-01T00:00:00</res:EffectiveFrom>

```

```

    <res:EffectiveTo>2079-06-06T23:59:59.9999999</res:EffectiveTo>
    <res:Status>S</res:Status>
    <res:Changestamp>0</res:Changestamp>
    <res:Fields>
      <res:NameValuePair>
        <res:Name>ParentId</res:Name>
        <res:Value>17249</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>ChildId</res:Name>
        <res:Value>17585</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>

```

Response

The identity in the response is the identity of the Agent Skill Group Member object that is being removed.

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/CreateResponse</a:Action>
    <a:RelatesTo>uuid:e1b93eaf-2ba8-4a68-8a66-8aaded6524a8</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-01-19T15:09:18.902Z</u:Created>
        <u:Expires>2010-01-19T15:14:18.902Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <CreateResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <CreateResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <RequestResult>
          <Identity>14757</Identity>

```

```

        <Status>S</Status>
        <Errors i:nil="true"/>
    </RequestResult>
</CreateResult>
</CreateResponse>
</s:Body>
</s:Envelope>

```

Step 6

Notification received that the Agent has returned to ready (R) status.

Notification of an agent change is retrieved first when the re-skilling change is committed informing that the status has changed to Synchronizing (S) and then again once the change has been committed and the item has progressed to Ready (R) status.

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope">
<s:Header></s:Header>
<s:Body>
  <OnStatusChange xmlns="http://www.exony.com/schemas/2009/10/status">
<status xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Id>17585</Id>
<Status>R</Status>
<Type>Agent</Type>
<ContainerId>1bae1951-a9ff-4f17-ac46-fa7605c26569</ContainerId>
</status>
</OnStatusChange>
  </s:Body>
</s:Envelope>

```

Step 7

Delete the Agent from a Skill Group

Once the agent returns to Ready (R) status the Resource Management Delete() API is called passing the identity of the Agent Skill Group Member that is to be removed.

To delete an Agent from a Skill Group we need to obtain the identity of the Agent Skill Group Member object that maps the two items together.

This can be achieved using the following search query in the Resource Management Search API to retrieve all of the Agent Skill Group Member objects for skill groups mapped to this agent:

```
memberbychild:Agent,17585,"Agent Skill Group Member"
```

The identity of the Agent Skill Group Member that is to be removed should then be used in the Resource Management Delete web service API. The request for this API will look like this:

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Delete>
      <res:resourceKeys>
        <res:ResourceKey>
          <res:Identity>14757</res:Identity>
          <res:ResourceType>Agent SkillGroup Member</res:ResourceType>
        </res:ResourceKey>
      </res:resourceKeys>
    </res:Delete>
  </soap:Body>
</soap:Envelope>
```

This will produce a response similar to this:

Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/DeleteResponse</a:Action>
    <a:RelatesTo>uuid:c4a43490-1bd8-4856-8bbf-8516f56a1904</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-01-19T15:32:58.487Z</u:Created>
        <u:Expires>2010-01-19T15:37:58.487Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <DeleteResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <DeleteResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <RequestResult>
          <Identity>14757</Identity>
          <Status>P</Status>
          <Errors i:nil="true"/>
        </RequestResult>
      </DeleteResult>
```

```

    </DeleteResponse>
  </s:Body>
</s:Envelope>

```

Step 8

Notification received that the Agent has returned to ready (R) status.

Notification of an agent change is retrieved first when the re-skilling change is committed informing that the status has changed to Synchronizing (S) and then again once the change has been committed and the item has progressed to Ready (R) status.

Request

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope">
  <s:Header></s:Header>
  <s:Body>
    <OnStatusChange xmlns="http://www.exony.com/schemas/2009/10/status">
      <status xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Id>17585</Id>
        <Status>R</Status>
        <Type>Agent</Type>
        <ContainerId>1bae1951-a9ff-4f17-ac46-
fa7605c26569</ContainerId>
      </status>
    </OnStatusChange>
  </s:Body>
</s:Envelope>

```

Agent Creation

The following steps must be performed for a typical agent creation activity:

A typical agent creation activity may be performed using the following requests and response sequence.

Step 1

Create a Person.

Create a person record using the Resource Management Create() API. The XML request for this will look similar to this.

Request

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <!--Optional:-->

```

```
<res:resources>
  <!--Zero or more repetitions:-->
  <res:Resource>
    <res:Identity>-1</res:Identity>
    <res:Type>Person</res:Type>
    <res:EffectiveFrom>0001-01-01T00:00:00</res:EffectiveFrom>
    <res:EffectiveTo>2079-06-06T23:59:59.9999999</res:EffectiveTo>
    <res:Status>S</res:Status>
    <res:Changestamp>0</res:Changestamp>
    <res:Fields>
      <!--Zero or more repetitions:-->
      <res:NameValuePair>
        <res:Name>FolderId</res:Name>
        <res:Value>221C6722-B830-4848-9521-35B2DD8757D7</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>Name</res:Name>
        <res:Value>JohnSmith</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>FirstName</res:Name>
        <res:Value>John</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>LastName</res:Name>
        <res:Value>Smith</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>Description</res:Name>
        <res:Value>A description</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>LoginName</res:Name>
        <res:Value>john.smith</res:Value>
      </res:NameValuePair>
      <res:NameValuePair>
        <res:Name>PassPhrase</res:Name>
        <res:Value>Pa55word</res:Value>
      </res:NameValuePair>
    </res:Fields>
  </res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>
```

This request will return the identity of the new person record which we will need later on. In this example the identity of the person returned is 21365. This is returned from the web service in the following XML structure:

Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
<s:Header>
<a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourceManagement/IResou
rceManagement/CreateResponse</a:Action>
<o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
<u:Timestamp u:Id="_0">
<u:Created>2010-01-19T11:29:22.429Z</u:Created>
<u:Expires>2010-01-19T11:34:22.429Z</u:Expires>

</u:Timestamp>
</o:Security>
</s:Header>
<s:Body>
<CreateResponse xmlns="http://www.exony.com/schemas/2009/10/resourceManagement">
<CreateResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance"><RequestResult>
<Identity>21365</Identity>
<Status>S</Status>
<Errors i:nil="true"/>
</RequestResult>
</CreateResult>
</CreateResponse>
</s:Body>
</s:Envelope>
```

Step 2

Subscribe to the Person.

After creation the returned identity should immediately be subscribed to so that when the status is updated to ready, the associated agent may be created. The subscription request must be made to the Subscriptions Subscribe() method using an XML request as follows:

Request

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
```

```
<s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<wse:Subscribe xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
<wse:Delivery>
<wse:NotifyTo>
<a:Address> https://localhost:33333/Sink </a:Address>
</wse:NotifyTo>
</wse:Delivery>
<wse:Expires>PT15M</wse:Expires>
<wse:Filter xmlns:x="http://www.exony.com/portal">//x:Id = 21365 and //x:Type =
'Person'</wse:Filter>
</wse:Subscribe>
</s:Body>
</s:Envelope>
```

The Address element must be updated to an endpoint that implements the IStatus web service interface and the filter must include the person identity and type from the above request. The expiry of this notification is set to 15 minutes.

Note

It is possible that the item may have changed status between the create and subscription request. Therefore it is recommended that the Resource Management Search API is called after the subscription is setup to ensure that the status has not already changed from synchronizing (S).

Step 3

Receive the Person subscription notification.

Within the 15 minute subscription period a notification will be sent to the subscriber when the associated item has changed. This notification will be an XML request in the following format:

Request

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope">
<s:Header></s:Header>
<s:Body>
<OnStatusChange xmlns="http://www.exony.com/schemas/2009/10/status">
<status xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Id>21365</Id>
<Status>R</Status>
<Type>Person</Type>
<ContainerId>221C6722-B830-4848-9521-35B2DD8757D7</ContainerId>
</status>
</OnStatusChange>
</s:Body>
</s:Envelope>
```

Step 4

Create the Agent.

When the notification has been received and the created person has moved into the ready status (R), the agent creation request can be sent to the Resource Management Create() API.

The following XML request creates the agent associating the newly created person:

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Create>
      <res:resources>
        <!--Zero or more repetitions:-->
        <res:Resource>
          <res:Type>Agent</res:Type>
          <res:EffectiveFrom>2009-01-01 00:00:00</res:EffectiveFrom>
          <res:EffectiveTo>2079-06-06 00:00:00</res:EffectiveTo>
          <res:Status>S</res:Status>
          <res:Fields>
            <res:NameValuePair>
              <res:Name>FolderId</res:Name>
              <res:Value>9F44B644-7C24-40CD-9DB9-6D1175DD7FE3</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>PeripheralUrn</res:Name>
              <res:Value>-1</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>PersonUrn</res:Name>
              <res:Value>21365</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Name</res:Name>
              <res:Value>Agent1</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>InternalName</res:Name>
              <res:Value>CICM.Agent1</res:Value>
            </res:NameValuePair>
            <res:NameValuePair>
              <res:Name>Description</res:Name>
              <res:Value>Description of Agent1</res:Value>
            </res:NameValuePair>
          </res:Fields>
        </res:Resource>
      </res:resources>
    </res:Create>
  </soap:Body>
</soap:Envelope>
```

```
<res:NameValuePair>
  <res:Name>FirstName</res:Name>
<res:Value>Jim</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>LastName</res:Name>
<res:Value>Smith</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>PeripheralNumber</res:Name>
<res:Value>132456</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>PeripheralName</res:Name>
<res:Value>Agent1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>Supervisor</res:Name>
<res:Value>True</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>DomainName</res:Name>
<res:Value>DOMAIN</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>DomainLoginName</res:Name>
<res:Value>DOMAIN\Agent1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>DomainUserName</res:Name>
<res:Value>Agent1</res:Value>
</res:NameValuePair>
<res:NameValuePair>
  <res:Name>DomainUserGuid</res:Name>
<res:Value>66965475b1d6a448aafc8fb6deac2b2f</res:Value>
</res:NameValuePair>
  </res:Fields>
  </res:Resource>
</res:resources>
</res:Create>
</soap:Body>
</soap:Envelope>
```

The response for the above request will return the identity of the new agent.

Response

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
<s:Header>
<a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/CreateResponse</a:Action>
<o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
<u:Timestamp u:Id="_0">
<u:Created>2010-01-19T11:29:22.429Z</u:Created>
<u:Expires>2010-01-19T11:34:22.429Z</u:Expires>
</u:Timestamp>
</o:Security>
</s:Header>
<s:Body>
<CreateResponse xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
<CreateResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance"><RequestResult>
<Identity>21369</Identity>
<Status>S</Status>
<Errors i:nil="true"/>
</RequestResult>
</CreateResult>
</CreateResponse>
</s:Body>
</s:Envelope>

```

Step 5

Subscribe to the Agent using the new identity.

Subscribe to the agent so that a notification is sent when the agent is updated. This will allow the end user to be informed once the change has been made to the remote system. The following XML request should be sent to the Subscriptions Subscribe() API:

Request

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
<s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<wse:Subscribe xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
<wse:Delivery>
<wse:NotifyTo>

```

```
<a:Address> https://localhost:33333/Sink </a:Address>
</wse:NotifyTo>
</wse:Delivery>
<wse:Expires>PT15M</wse:Expires>
<wse:Filter xmlns:x="http://www.exony.com/portal">//x:Id = 21369 and //x:Type =
'Agent'</wse:Filter>
</wse:Subscribe>
</s:Body>
</s:Envelope>
```

Step 6

Receive the Agent Subscription Notification.

Within the 15 minute subscription period a notification will be sent to the subscriber when the associated item has changed. This notification will be an XML request in the following format:

Request

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope">
<s:Header></s:Header>
<s:Body>
<OnStatusChange xmlns="http://www.exony.com/schemas/2009/10/status">
<status xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Id>21369</Id>
<Status>R</Status>
<Type>Agent</Type>
<ContainerId>9F44B644-7C24-40CD-9DB9-6D1175DD7FE3</ContainerId>
</status>
</OnStatusChange>
</s:Body>
</s:Envelope>
```

Once this notification is received then the agent has been successfully created and may be skilled or added to an agent team.

Note

Whilst these examples demonstrate a solution for a single item, it may be considered more efficient to setup and maintain a recurring subscription to a given type. For example, if the Subscribe API is called specifying just a type and not an identity then notifications will be sent for all changes to all items of that type.

Dialed Number From Unallocated folder

Resources that are not allocated to a tenant or shared across multiple tenants are held in the equipment specific sub folder under the /Unallocated folder. A typical example of such a resource is the Dialed Number resource type.

To using the Resource Management Web Services to obtain a list of unallocated Dialed Numbers:

Step 1

Use the Resource Management Search() API to obtain the identity of the folder containing unallocated Dialed Numbers for this Unified CCE:

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
<soap:Header/>
  <soap:Body>
    <res:Search>
      <res:queryString>type:Folder folder:"00000002-0000-0000-0000-000000000005"
name:ProvisioningCICM</res:queryString>
    </res:Search>
  </soap:Body>
</soap:Envelope>
```

Note

The identity of the unallocated folder used in the above search query is fixed for all Unified CCMP installations.

Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/SearchResponse</a:Action>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-03-12T16:47:35.520Z</u:Created>
        <u:Expires>2010-03-12T16:52:35.520Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <SearchResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <SearchResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Resource>
          <Identity>dc68cb53-4654-49aa-a947-24592fd1bc39</Identity>
```

```
<Type>Folder</Type>
<EffectiveFrom>0001-01-01T00:00:00</EffectiveFrom>
<EffectiveTo>2079-06-06T23:59:59.9999999</EffectiveTo>
<Status>R</Status>
<Changestamp>0</Changestamp>
<Fields>
  <NameValuePair>
    <Name>FolderId</Name>
    <Value>00000002-0000-0000-0000-000000000005</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Name</Name>
    <Value>ProvisioningCICM</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Description</Name>
    <Value>Unallocated resources for equipment [ProvisioningCICM]
  </Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Hidden</Name>
    <Value>False</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Path</Name>
    <Value>/Unallocated/ProvisioningCICM</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>PolicyId</Name>
    <Value>00000002-0000-0000-0000-000000000004</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>FolderType</Name>
    <Value>F</Value>
  </NameValuePair>
</Fields>
</Resource>
</SearchResult>
</SearchResponse>
</s:Body>
</s:Envelope>
```

Note

Record the identity of the returned resource as this is used in the next query to retrieve the list of unallocated Dialed Numbers.

Step 2

Call the Resource Management Search() API using the retrieved Folder ID to request the list of unallocated Dialed numbers for this Unified CCE.

Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns:res="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <res:Search>
      <res:queryString>type:"Dialed Number" folder:"dc68cb53-4654-49aa-a947-
24592fd1bc39" latest:1 status:R max:10</res:queryString>
    </res:Search>
  </soap:Body>
</soap:Envelope>
```

The list of Dialed Numbers contained within the unallocated folder is returned to the client:

Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/SearchResponse</a:Action>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-03-12T16:59:02.937Z</u:Created>
        <u:Expires>2010-03-12T17:04:02.937Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <SearchResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <SearchResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Resource>
          <Identity>31081</Identity>
```

```
<Type>Dialed Number</Type>
<EffectiveFrom>2010-03-12T16:32:46.857</EffectiveFrom>
<EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
<Status/>
<Changestamp>0</Changestamp>
<Fields>
  <NameValuePair>
    <Name>FolderId</Name>
    <Value>dc68cb53-4654-49aa-a947-24592fd1bc39</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Name</Name>
    <Value/>
  </NameValuePair>
  <NameValuePair>
    <Name>InternalName</Name>
    <Value>V723.JONO.DN</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>Description</Name>
    <Value/>
  </NameValuePair>
  <NameValuePair>
    <Name>Digits</Name>
    <Value>465456456</Value>
  </NameValuePair>
  <NameValuePair>
    <Name>PermitApplicationRouting</Name>
    <Value>False</Value>
  </NameValuePair>
</Fields>
</Resource>
<Resource>
  <Identity>31085</Identity>
  <Type>Dialed Number</Type>
  <EffectiveFrom>2010-03-12T16:32:46.96</EffectiveFrom>
  <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
  <Status/>
  <Changestamp>0</Changestamp>
  <Fields>
    <NameValuePair>
      <Name>FolderId</Name>
      <Value>dc68cb53-4654-49aa-a947-24592fd1bc39</Value>
    </NameValuePair>
    <NameValuePair>
      <Name>Name</Name>
      <Value/>
    </NameValuePair>
  </Fields>
</Resource>
```

```
</NameValuePair>
<NameValuePair>
  <Name>InternalName</Name>
  <Value>V723.FG.DN</Value>
</NameValuePair>
<NameValuePair>
  <Name>Description</Name>
  <Value/>
</NameValuePair>
<NameValuePair>
  <Name>Digits</Name>
  <Value>456</Value>
</NameValuePair>
<NameValuePair>
  <Name>PermitApplicationRouting</Name>
  <Value>False</Value>
</NameValuePair>
</Fields>
</Resource>
<Resource>
  <Identity>31089</Identity>
  <Type>Dialed Number</Type>
  <EffectiveFrom>2010-03-12T16:32:46.963</EffectiveFrom>
  <EffectiveTo>2079-06-06T00:00:00</EffectiveTo>
  <Status/>
  <Changestamp>0</Changestamp>
  <Fields>
    <NameValuePair>
      <Name>FolderId</Name>
      <Value>dc68cb53-4654-49aa-a947-24592fd1bc39</Value>
    </NameValuePair>
    <NameValuePair>
      <Name>Name</Name>
      <Value/>
    </NameValuePair>
    <NameValuePair>
      <Name>InternalName</Name>
      <Value>V723.DN45.DN</Value>
    </NameValuePair>
    <NameValuePair>
      <Name>Description</Name>
      <Value/>
    </NameValuePair>
    <NameValuePair>
      <Name>Digits</Name>
      <Value>436436745</Value>
    </NameValuePair>
  </Fields>
</Resource>
</Resource>
```

```

        <NameValuePair>
          <Name>PermitApplicationRouting</Name>
          <Value>False</Value>
        </NameValuePair>
      </Fields>
    </Resource>
  </SearchResult>
</SearchResponse>
</s:Body>
</s:Envelope>

```

Note

When returning large sets of resources, you can use the Max and Offset keywords with the Search() API to return pages of resources.

Step 3

Once the list is obtained then unallocated Dialed Numbers should be moved to the associated tenant folder when they are to be allocated. This is achieved using the Resource Management Update() API, passing in the details of the item to be moved and the associated folder ids as follows:

Request

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
  <soap:Header/>
  <soap:Body>
    <Update>
      <resources>
        <Resource>
          <Identity>31089</Identity>
          <Type>Dialed Number</Type>
          <EffectiveFrom>2010-03-11T12:19:37</EffectiveFrom>
          <EffectiveTo>2011-03-12T16:32:45.96</EffectiveTo>
          <Status>R</Status>
          <Changestamp>0</Changestamp>
          <Fields>
            <NameValuePair>
              <Name>FolderId</Name>
              <Value>DC68CB53-4654-49AA-A947-24592FD1BC39</Value>
            </NameValuePair>
            <NameValuePair>
              <Name>NewFolderId</Name>
              <Value>240253C4-3F30-48C5-A3E6-65B3D94B100E</Value>
            </NameValuePair>
          </Fields>
        </Resource>
      </resources>
    </Update>
  </soap:Body>
</soap:Envelope>

```

```

        <Name>Name</Name>
        <Value>V723.DN45.DN</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>InternalName</Name>
        <Value>V723.DN45.DN</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>Description</Name>
        <Value/>
    </NameValuePair>
    <NameValuePair>
        <Name>RoutingClientUrn</Name>
        <Value>22049</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>MediaRoutingDomainUrn</Name>
        <Value>10789</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>Digits</Name>
        <Value>436436745</Value>
    </NameValuePair>
    <NameValuePair>
        <Name>PermitApplicationRouting</Name>
        <Value>False</Value>
    </NameValuePair>
    </Fields>
</Resource>
</resources>
</Update>
</soap:Body>
</soap:Envelope>

```

This moves the dialed number from the folder DC68CB53-4654-49AA-A947-24592FD1BC39 to the folder 240253C4-3F30-48C5-A3E6-65B3D94B100E.

When moving items between tenant folders or to or from the unallocated folder, Unified CCMP may delete and recreate the item to enforce security on any associated historical data. This means that the identity for the item will change, and so should be updated in the remote system for future web service calls. The response to the Update() request contains the identity of all updated items and allows remote systems storing these keys to be updated.

An example response for the above request where a delete and recreate has been performed is as follows:

Response

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing" xmlns:u="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://www.exony.com/schemas/2009/10/resourcemanagement/IResou
rceManagement/UpdateResponse</a:Action>
    <a:RelatesTo>uuid:11c09613-483c-4f1c-9072-b18a7ecfda1b</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created>2010-03-16T12:31:33.991Z</u:Created>
        <u:Expires>2010-03-16T12:36:33.991Z</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body>
    <UpdateResponse
xmlns="http://www.exony.com/schemas/2009/10/resourcemanagement">
      <UpdateResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <RequestResult>
          <Identity>31093</Identity>
          <Status>R</Status>
          <Errors i:nil="true"/>
        </RequestResult>
      </UpdateResult>
    </UpdateResponse>
  </s:Body>
</s:Envelope>

```

Note the new identity and use it for all future web service calls relating to this resource.

Unified CCMP

Technical Overview

Unified CCMP Management Overview

Unified CCMP marries contact center platforms to business requirements through a multilayered, partitioned framework. At the user interface level it is designed to empower the numerous user types with the appropriate control and reporting surface. Its core framework provides security, hierarchical partitioning and dual side resilience. The lower levels of the framework provide interfacing and workflow to gather data from the call center components and through workflow provision the components in a very flexible, scripted manner.

Control/Provisioning

- Creation of interaction handling strategies.
- Uploading of IVR speech files.
- Routine maintenance of application.
- Exception handling.

Management Intelligence

- Consolidated cross-platform enterprise reporting.
- Actionable Intelligence.
- Business Relevant.

Business Integration

- Telephony to business system integration.

Framework

- Sophisticated security and partitioning model.
- Core database repository based on RDBMS.
- Modular connector framework for heterogeneous equipment connectivity.
- Thin client user interface.
- Multi-site resilience.
- Integrated Workflow to orchestrate asynchronous operations such as equipment off-line or human interaction requirements.

Web Service API Architecture

The Unified CCMP Web Services API implementation exposes a number of web services allowing remote provisioning requests to be serviced for third party applications.

These third party applications are typically B2B applications rather than composite client/server interactions.

This first of these services is the Resource Management service, which exposes a web service layer on top of the existing platforms provisioning abstraction layer. Remote requests are serviced via the web service, building low level objects from passed in type-safe parameters. For this service Unified CCMP supports two web service protocols, REST and SOAP for maximum interoperability.

The next of these services is the Subscription Management service, which exposes another web service layer to allow third party applications the ability to subscribe for events when a given resource is changed. This subscription based event service can be used by third party applications to monitor resource items progress through the provisioning life cycle. The REST protocol cannot be used with this web service.

Web Service API Design Concepts

The Unified CCMP Web Services are hosted within the Unified CCMP application server and do not use the Web Server components at all. Accordingly, they are stateless with a mid-tier cache and distributed for maximum scaling through load balancers. Concurrency checks and two-phase atomic commits (2PC) are implemented in the underlying transactional RDBMS layer for any provisioning write request.

Clients must be aware that each consecutive request can be load balanced to a different server and that the usual race conditions will be present as data makes its way through the systems. For example; a Create call will return an identifier from a Side A server but a subsequent Search/Retrieve on Side B may not see that identifier for up to 10 seconds as the mid-tier caches are updated. Note: this is not a problem in practice since the client already has the new identifier and it can therefore be used in a subsequent provisioning request since write requests are always re-loaded from the RDBMS irrespective of the cache state.

Performance Tips

Like all secure web service stacks, the excellent interoperability offered by this technology comes at a high performance cost in terms of throughput and latency. There are many reasons for this, including HTTP bloat and network latency .

Some common observations and tips when using the Unified CCMP Web Services:

- Web service latencies are measured in the hundreds to thousands of milliseconds which is significantly slower than the binary streaming operations between App Servers to Databases found in traditional client server systems. Hence, make each call count by requesting or doing as much as possible in each call
- HTTP/S is a best-effort delivery service. This means any request could simply be dropped. Hence, the clients of the Unified CCMP Web Services have to handle this and retry.
- Take the frequency of the messaging into account. Remedy: For provisioning, the majority of data interactions are read-many/write-seldom making them suitable for caching techniques in the higher levels; ideally caching at the edge nearest the users. In the context of many users making many similar small calls then this can be simply implemented as taking the results out of a higher level cache such as memcache.
- High volume aggregation services which involve many elements of state based data queries can be particularly difficult to scale. Hence, replicate key data items into a high level persistent model (the Master Data Source) and use regular re-synchronization, ideally retrieving data during off-hours in large, course-grained transactions.
- Repeated client calls to access server state can choke a network and degrade the server performance. So cache data on the client whenever possible to avoid requests to the server.
- The SOAP protocol is more resource-intensive than the REST equivalent. SOAP has a high intrinsic overhead because it has to extract the SOAP envelope, parse the contained XML information and handle the typing information required in every SOAP message. The XML data cannot be optimized very much, and the binary representation of an object may be expanded by around 500% when encoded in XML.

SOAP Messages

SOAP Request Format

Requests sent to the Unified CCMP Web Services are in the standard SOAP format. The standard SOAP envelope XML format is shown below.

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header/>
  <soap:Body>
    <!-- Message contents here -->
  </soap:Body>
</soap:Envelope>
```

SOAP Response Format

Responses from the Unified CCMP Web Services are in the standard SOAP format. The standard SOAP envelope XML format is show below.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope" xmlns:a="http://www.w3.org/2005/08/addressing"
  xmlns:u="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
  <s:Header>
    <a:Action s:mustUnderstand="1"?</a:Action>
    <a:RelatesTo?</a:RelatesTo>
    <o:Security s:mustUnderstand="1" xmlns:o="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <u:Timestamp u:Id="_0">
        <u:Created?</u:Created>
        <u:Expires?</u:Expires>
      </u:Timestamp>
    </o:Security>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <!-- Message contents here -->
  </s:Body>
</s:Envelope>
```

Valid Time Zones

The following time zones are valid to be specified in the `TimeZone` field of the User Resource Item (see section "User Resource Item").

- Afghanistan Standard Time
- Alaskan Standard Time
- Arab Standard Time
- Arabian Standard Time
- Arabic Standard Time
- Argentina Standard Time
- Atlantic Standard Time
- AUS Central Standard Time
- AUS Eastern Standard Time
- Azerbaijan Standard Time
- Azores Standard Time
- Canada Central Standard Time
- Cape Verde Standard Time
- Caucasus Standard Time
- Cen. Australia Standard Time
- Central America Standard Time
- Central Asia Standard Time
- Central Brazilian Standard Time
- Central Europe Standard Time
- Central European Standard Time
- Central Pacific Standard Time
- Central Standard Time
- Central Standard Time (Mexico)
- China Standard Time
- Dateline Standard Time
- E. Africa Standard Time
- E. Australia Standard Time
- E. Europe Standard Time
- E. South America Standard Time
- Eastern Standard Time
- Egypt Standard Time
- Ekaterinburg Standard Time
- Fiji Standard Time
- FLE Standard Time
- Georgian Standard Time
- GMT Standard Time
- Greenland Standard Time
- Greenwich Standard Time
- GTB Standard Time

Hawaiian Standard Time
India Standard Time
Iran Standard Time
Jerusalem Standard Time
Jordan Standard Time
Korea Standard Time
Malay Peninsula Standard Time
Mid-Atlantic Standard Time
Middle East Standard Time
Montevideo Standard Time
Morocco Standard Time
Mountain Standard Time
Mountain Standard Time (Mexico)
Myanmar Standard Time
N. Central Asia Standard Time
Namibia Standard Time
Nepal Standard Time
New Zealand Standard Time
Newfoundland Standard Time
North Asia East Standard Time
North Asia Standard Time
Pacific SA Standard Time
Pacific Standard Time
Pacific Standard Time (Mexico)
Pakistan Standard Time
Romance Standard Time
Russian Standard Time
SA Eastern Standard Time
SA Pacific Standard Time
SA Western Standard Time
Samoa Standard Time
SE Asia Standard Time
South Africa Standard Time
Sri Lanka Standard Time
Taipei Standard Time
Tasmania Standard Time
Tokyo Standard Time
Tonga Standard Time
US Eastern Standard Time
US Mountain Standard Time
Venezuela Standard Time
Vladivostok Standard Time
W. Australia Standard Time
W. Central Africa Standard Time

W. Europe Standard Time
West Asia Standard Time
West Pacific Standard Time
Yakutsk Standard Time

Example Notification Endpoint WSDL

This Appendix contains some example WSDL for a subscriber client that expects to receive SOAP requests containing notifications about state changes that the client has previously subscribed to receive.

This is the WSDL implemented by an Unified CCMP test subscriber.

```
<?xml version="1.0" encoding="utf-8" ?>
- <wsdl:definitions name="SinkStatus"
targetNamespace="http://www.exony.com/schemas/2009/10/status"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsa10="http://www.w3.org/2005/08/addressing"
xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
utility-1.0.xsd" xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
xmlns:tns="http://www.exony.com/schemas/2009/10/status"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
<wsp:Policy wsu:Id="TrustedWebClientBinding_IStatus_policy">
- <wsp:ExactlyOne>
- <wsp>All>
- <sp:TransportBinding
xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
- <wsp:Policy>
- <sp:TransportToken>
- <wsp:Policy>
  <sp:HttpsToken RequireClientCertificate="false" />
  </wsp:Policy>
  </sp:TransportToken>
- <sp:AlgorithmSuite>
- <wsp:Policy>
  <sp:Basic256 />
  </wsp:Policy>
  </sp:AlgorithmSuite>
- <sp:Layout>
- <wsp:Policy>
  <sp:Strict />
```

```

    </wsp:Policy>
  </sp:Layout>
  <sp:IncludeTimestamp />
</wsp:Policy>
</sp:TransportBinding>
- <sp:SignedSupportingTokens
xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
- <wsp:Policy>
- <sp:UsernameToken
sp:IncludeToken="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy/IncludeToken/
AlwaysToRecipient">
- <wsp:Policy>
  <sp:WssUsernameToken10 />
  </wsp:Policy>
  </sp:UsernameToken>
  </wsp:Policy>
  </sp:SignedSupportingTokens>
- <sp:EndorsingSupportingTokens
xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
- <wsp:Policy>
- <sp:X509Token
sp:IncludeToken="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy/IncludeToken/
AlwaysToRecipient">
- <wsp:Policy>
  <sp:RequireThumbprintReference />
  <sp:WssX509V3Token10 />
  </wsp:Policy>
  </sp:X509Token>
- <sp:SignedParts>
  <sp:Header Name="To" Namespace="http://www.w3.org/2005/08/addressing" />
  </sp:SignedParts>
  </wsp:Policy>
  </sp:EndorsingSupportingTokens>
- <sp:Wss11 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
- <wsp:Policy>
  <sp:MustSupportRefKeyIdentifier />
  <sp:MustSupportRefIssuerSerial />
  <sp:MustSupportRefThumbprint />
  <sp:MustSupportRefEncryptedKey />
  </wsp:Policy>
  </sp:Wss11>
- <sp:Trust10 xmlns:sp="http://schemas.xmlsoap.org/ws/2005/07/securitypolicy">
- <wsp:Policy>
  <sp:MustSupportIssuedTokens />
  <sp:RequireClientEntropy />
  <sp:RequireServerEntropy />

```

```

    </wsp:Policy>
  </sp:Trust10>
  <wsaw:UsingAddressing />
</wsp:All>
</wsp:ExactlyOne>
</wsp:Policy>
- <wsdl:types>
- <xsd:schema elementFormDefault="qualified"
targetNamespace="http://www.exony.com/schemas/2009/10/status"
xmlns:ser="http://schemas.microsoft.com/2003/10/Serialization/" >
- <xsd:element name="OnStatusChange">
- <xsd:complexType>
- <xsd:sequence>
  <xsd:element minOccurs="0" name="status" nillable="true"
type="tns:ResourceStatus" />
</xsd:sequence>
</xsd:complexType>
</xsd:element>
- <xsd:complexType name="ResourceStatus">
- <xsd:sequence>
  <xsd:element minOccurs="0" name="ContainerId" type="ser:guid" />
  <xsd:element name="Id" nillable="true" type="xsd:string" />
  <xsd:element name="Status" nillable="true" type="xsd:string" />
  <xsd:element name="Type" nillable="true" type="xsd:string" />
</xsd:sequence>
</xsd:complexType>
  <xsd:element name="ResourceStatus" nillable="true" type="tns:ResourceStatus" />
</xsd:schema>
- <xsd:schema attributeFormDefault="qualified" elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/">
  <xsd:element name="anyType" nillable="true" type="xs:anyType" />
  <xsd:element name="anyURI" nillable="true" type="xs:anyURI" />
  <xsd:element name="base64Binary" nillable="true" type="xs:base64Binary" />
  <xsd:element name="boolean" nillable="true" type="xs:boolean" />
  <xsd:element name="byte" nillable="true" type="xs:byte" />
  <xsd:element name="dateTime" nillable="true" type="xs:dateTime" />
  <xsd:element name="decimal" nillable="true" type="xs:decimal" />
  <xsd:element name="double" nillable="true" type="xs:double" />
  <xsd:element name="float" nillable="true" type="xs:float" />
  <xsd:element name="int" nillable="true" type="xs:int" />
  <xsd:element name="long" nillable="true" type="xs:long" />
  <xsd:element name="QName" nillable="true" type="xs:QName" />
  <xsd:element name="short" nillable="true" type="xs:short" />
  <xsd:element name="string" nillable="true" type="xs:string" />

```

```

    <xs:element name="unsignedByte" nillable="true" type="xs:unsignedByte" />
    <xs:element name="unsignedInt" nillable="true" type="xs:unsignedInt" />
    <xs:element name="unsignedLong" nillable="true" type="xs:unsignedLong" />
    <xs:element name="unsignedShort" nillable="true" type="xs:unsignedShort" />
    <xs:element name="char" nillable="true" type="tns:char" />
- <xs:simpleType name="char">
  <xs:restriction base="xs:int" />
</xs:simpleType>
  <xs:element name="duration" nillable="true" type="tns:duration" />
- <xs:simpleType name="duration">
- <xs:restriction base="xs:duration">
  <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?" />
  <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
  <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
</xs:restriction>
</xs:simpleType>
  <xs:element name="guid" nillable="true" type="tns:guid" />
- <xs:simpleType name="guid">
- <xs:restriction base="xs:string">
  <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-
fA-F]{12}" />
</xs:restriction>
</xs:simpleType>
  <xs:attribute name="FactoryType" type="xs:QName" />
  <xs:attribute name="Id" type="xs:ID" />
  <xs:attribute name="Ref" type="xs:IDREF" />
</xs:schema>
</wsdl:types>
- <wsdl:message name="IStatus_OnStatusChange_InputMessage">
  <wsdl:part name="parameters" element="tns:OnStatusChange" />
</wsdl:message>
- <wsdl:portType name="IStatus">
- <wsdl:operation name="OnStatusChange">
  <wsdl:input
wsaw:Action="http://www.exony.com/schemas/2009/10/status/onstatuschange"
message="tns:IStatus_OnStatusChange_InputMessage" />
  </wsdl:operation>
</wsdl:portType>
- <wsdl:binding name="TrustedWebClientBinding_IStatus" type="tns:IStatus">
  <wsp:PolicyReference URI="#TrustedWebClientBinding_IStatus_policy" />
  <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
- <wsdl:operation name="OnStatusChange">
  <soap12:operation
soapAction="http://www.exony.com/schemas/2009/10/status/onstatuschange"
style="document" />
- <wsdl:input>

```

```
<soap12:body use="literal" />
</wsdl:input>
</wsdl:operation>
</wsdl:binding>
- <wsdl:service name="SinkStatus">
- <wsdl:port name="TrustedWebClientBinding_IStatus"
binding="tns:TrustedWebClientBinding_IStatus">
  <soap12:address location="https://localhost:33333/Sink" />
- <wsa10:EndpointReference>
  <wsa10:Address>https://localhost:33333/Sink</wsa10:Address>
</wsa10:EndpointReference>
</wsdl:port>
</wsdl:service>
</wsdl:definitions>
```