



Cisco Unified Communications Manager XML Developers Guide

Release 7.1(2)

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CONTENTS

Preface ix

Purpose ix

Audience x

Organization xi

Related Documentation xi

Developer Support xii

Conventions xii

Obtaining Documentation and Submitting a Service Request xiii

Cisco Product Security Overview xiv

CHAPTER 1

Overview 1-1

Cisco Unified Communications Manager Interfaces 1-1

Provisioning Interfaces 1-1

Device Monitoring and Call Control Interfaces 1-2

Serviceability Interfaces 1-3

What is New in Unified CM 7.1(2) API 1-4

Administrative XML 1-4

Extension Mobility 1-5

Cisco WebDialer 1-5

Serviceability XML 1-5

PART 1

Administrative XML

CHAPTER 2

Administrative XML Programming 2-1

Overview 2-2

New and Changed Information 2-3

New Information for Cisco Unified Communications Manager 7.1(2) 2-4

New Information for Cisco Unified Communications Manager 7.0(1) 2-11

New Information for Cisco Unified Communications Manager 6.1 (1) 2-20

New Information for Cisco Unified Communications Manager 6.0(1) 2-21

New Information for Cisco Unified Communications Manager 5.1(1) 2-25

New Information for Cisco Unified Communications Manager 5.0(1) 2-25

New Information for Cisco Unified Communications Manager 4.2(2) 2-27

New Information for Cisco Unified Communications Manager 4.1(2)	2-27
AXL Schema Documentation	2-30
AXL Versioning Support	2-31
Authentication	2-34
Data Encryption	2-34
Dynamic Throttling of Requests	2-34
Integration Considerations and Interoperability	2-35
Post-Installation Steps and Troubleshooting on the Linux Platform	2-36
Post-Installation Steps	2-36
Post-Installation Troubleshooting Checklist	2-37
AXL Trace Logs	2-38
Using the AXL API with AXIS	2-40
Using the AXL API in a .NET Environment	2-41
Required Changes to the Generated Code	2-41
Resolving JIT Errors	2-43
Backward Compatibility Issues	2-43
Tag Serialization Issues	2-43
Names Containing Special Characters	2-44
Returned Namespace for AXIS and .NET Applications	2-45
Example AXL Requests	2-46
C or C++ Example	2-47
Java Example	2-51
Using executeSQLUpdate	2-53
Using executeSQLQuery	2-53
AXL Error Codes	2-54

CHAPTER 3

Administrative XML Operations by Release 3-1

Operations By Release	3-1
Changes Under Consideration For Future Release	3-18

PART 2

Serviceability API

CHAPTER 4

Serviceability XML Programming 4-1

Overview	4-2
New and Changed Information	4-2
New Information for Cisco Unified Communications Manager 7.1(2)	4-2
New Information for Cisco Unified Communications Manager 7.0(1)	4-4

New Information for Cisco Unified Communications Manager 7.0	4-5
New Information for Cisco Unified Communications Manager 6.1	4-6
New Information for Cisco Unified Communications Manager 6.0	4-6
New Information for Cisco Unified Communications Manager 5.0	4-7
New Information for Cisco Unified Communications Manager 4.3	4-7
New Information for Cisco Unified Communications Manager 4.0	4-7
Data Model	4-8
SOAP Binding	4-8
Namespaces	4-14
Downloading Serviceability SOAP WSDL Files	4-14
Monitoring SOAP Activity	4-14
RisPort SOAP Service	4-15
RisPort Service: selectCmDevice Operation	4-16
RisPort Service: SelectCmDevice Operation (Includes IPv6 Devices)	4-22
RisPort Service: selectCtiltem Operation	4-38
RisPort Service: SelectCtiDevice Operation (Includes IPv6 Devices)	4-40
RisPort Service: getServerInfo Operation	4-50
RisPort Service: SelectCmDeviceSIP Operation	4-54
Interface to Get Server Names and Cluster Name	4-60
PerfmonPort SOAP Service	4-61
PerfmonPort Service: perfmonOpenSession Operation	4-62
PerfmonPort Service: perfmonAddCounter Operation	4-63
PerfmonPort Service: perfmonRemoveCounter Operation	4-65
PerfmonPort Service: perfmonCollectSessionData Operation	4-67
PerfmonPort Service: perfmonCloseSession Operation	4-69
PerfmonPort Service: perfmonListInstance Operation	4-70
PerfmonPort Service: perfmonQueryCounterDescription Operation	4-72
PerfmonPort Service: perfmonListCounter Operation	4-73
PerfmonPort Service: perfmonCollectCounterData Operation	4-75
ControlCenterServicesPort SOAP Service	4-78
ControlCenterServicesPort service: soapGetStaticServiceList Operation	4-78
ControlCenterServicesPort service: soapGetServiceStatus Operation	4-81
ControlCenterServicesPort service: soapDoServiceDeployment Operation	4-91
ControlCenterServicesPort service: soapDoControlServices Operation	4-96
ControlCenterServicesPort service: getProductInformationList Operation	4-100
LogCollectionPort SOAP Service	4-111
LogCollectionPort service: listNodeServiceLogs Operation	4-111
LogCollectionPort service: selectLogFiles Operation	4-114
CDRonDemand SOAP Service	4-117

Security Considerations for CDRonDemand Service	4-120
CDRonDemand Service: get_file_list Operation	4-120
CDRonDemand Service: get_file Operation	4-122
DimeGetFileService SOAP Service	4-124
DimeGetFileService SOAP Service: getOneFile Operation	4-124
Authentication	4-125
Basic	4-125
Secure	4-125
Authorization	4-125
Developer Tools	4-126
View Deployed Web Services	4-126
View <Web Service> WSDL	4-127
SOAP Monitor	4-128
Password Expiration and Lockout	4-128
Application Customization for Cisco Unity Connection Servers	4-128
SOAP Service Tracing	4-129
AXL Serviceability API Authentication Security	4-130
Rate Control Mechanism	4-130
SOAP Fault Error Codes	4-131
Fault Strings	4-132
Sample SOAP Fault or AXIS Fault	4-135
AXL Serviceability Application Design Guidelines and Best Practices	4-137
Maintain HTTPs sessions and Connection Timeouts	4-137
Send Perfmon Close Session	4-137
Device Query Support for Large Clusters	4-138
Respond and React to SOAP Faults	4-140
Limit Request and Response Size in the Application Design	4-140
Number of Nodes in the Cluster	4-140
SOAP Monitor Usage	4-140

CHAPTER 5

Serviceability XML Operations by Release 5-1

Operations By Release	5-1
-----------------------	-----

PART 3

Cisco Extension Mobility API

CHAPTER 6

Extension Mobility Service API 6-1

Overview	6-1
New and Changed Information	6-2

How Extension Mobility Works	6-2
Device Profiles	6-2
Using the Extension Mobility API	6-3
Set Up and Configuration	6-3
Messages	6-4
Message Document Type Definitions	6-5
Message Examples	6-6
Login Operation	6-6
Logout Operation	6-7
UserQuery Operation	6-7
DeviceQuery Operation	6-8
Extension Mobility Service Response Codes	6-9

CHAPTER 7**Cisco Extension Mobility Operations By Release 7-1**

Operations By Release	7-1
-----------------------	-----

PART 4**Cisco Web Dialer API****CHAPTER 8****Cisco Web Dialer API Programming 8-1**

Overview	8-1
New and Changed Information	8-2
New Information for Cisco Unified Communications Manager 7.1(2)	8-2
New Information for Cisco Unified Communications Manager 7.0	8-2
New Information for Cisco Unified Communications Manager 6.0	8-2
New Information for Cisco Unified Communications Manager 5.1	8-2
Cisco Web Dialer Components	8-3
Cisco Web Dialer Servlet	8-3
Redirector Servlet	8-3
Cisco Web Dialer Security Support	8-5
Security Service Parameters	8-6
Phone Support For Cisco Web Dialer	8-7
Call Flows	8-9
Desktop-based Client Application Call Flow	8-9
Browser-Based Application Call Flow	8-10
Interfaces	8-12
SOAP Over HTTPS Interface	8-12
HTML Over HTTPS Interfaces	8-22
Cisco Web Dialer WSDL	8-24

Sample Code Snippet 8-29

CHAPTER 9

Cisco Web Dialer Operations By Release 9-1

Operations By Release 9-1

INDEX



Preface

This preface includes the following sections:

- [Purpose, page ix](#)
- [Audience, page x](#)
- [Organization, page xi](#)
- [Related Documentation, page xi](#)
- [Developer Support, page xii](#)
- [Conventions, page xii](#)
- [Obtaining Documentation and Submitting a Service Request, page xiii](#)
- [Cisco Product Security Overview, page xiv](#)

Purpose

This document describes the following Cisco Unified Communications Manager (Unified CM) (formerly Cisco Unified CallManager) APIs:

- Unified CM AXL implementation allows applications to modify the Unified CM system database. Be aware that AXL is not intended as a real-time API but as a provisioning and configuration API.
- Unified CM real-time information, performance counters, and database information exposure occur through the AXL Serviceability API.
- Unified CM Extension Mobility Service provides a rich API, which enables extension mobility on Cisco Unified IP phones and allows application control over authentication, scheduling, and availability. It allows a device, usually a Cisco Unified IP Phone, to temporarily embody a new device profile, including lines, speed dials, and services. An application that uses the Cisco Unified CM Mobility Service represents an IP phone service that allows a user to log in by entering a userID and PIN. The architecture and implementation of the Cisco Unified CM Extension Mobility Service make many other applications possible.

Examples include:

- An application that automatically activates phones for employees when they reserve a particular desk for a particular time (the scheduling application)
- A lobby phone does not have a line appearance until a user logs in

- The Unified CM Web Dialer application, which is installed on a Unified CM server, enables click-to-dial functionality by creating hyperlinked telephone numbers in a company directory. This functionality allows users to make calls from a web page by clicking the telephone number of the person that they are trying to call. The Web Dialer application, which has a SOAP interface, uses JavaScript to provide the web page functionality.

Audience

The *Cisco Unified Communication Manager Developers Guide* provides information for developers who write applications that extend the functionality of the APIs that are described in this document.

This guide assumes the developer has knowledge of a high-level programming language such as C++, Java, or an equivalent language. You must also have knowledge or experience in the following areas:

- Extensible Markup Language (XML)
- Hypertext Markup Language (HTML)
- Hypertext Transport Protocol (HTTP)
- Simple Object Access Protocol (SOAP) 1.1
- Socket programming
- TCP/IP Protocol
- Web Service Definition Language (WSDL) 1.1
- Secure Sockets Layer (SSL)

In addition, users of the Unified CM APIs must have a firm grasp of XML Schema. For more information about XML Schema, refer to <http://www.w3.org/TR/xmlschema-0/>.

The developer must also have an understanding of Unified CM and its applications. The “[Related Documentation](#)” section on page xi lists documents for Unified CM and other related technologies.

Organization

This document is organized as follows:

Chapter	Description
Chapter 1, “Overview”	Describes the Cisco Unified Communications Manager interfaces.
Chapter 2, “Administrative XML Programming”	Describes the Administrative XML Layer (AXL) API, which provides a mechanism for inserting, retrieving, updating, and removing data from the database by using an XML SOAP interface. This API lets you access Unified CM data by using XML and receive the data in XML form.
Chapter 3, “Administrative XML Operations by Release”	Lists new, changed, and deprecated Administrative XML (AXL) operations by release.
Chapter 4, “Serviceability XML Programming”	Describes the AXL Serviceability APIs. Unified CM real-time information, performance counters, and database information exposure occurs through the AXL Serviceability APIs.
Chapter 5, “Serviceability XML Operations by Release”	Lists new, changed, and deprecated serviceability XML operations by release.
Chapter 6, “Extension Mobility Service API”	Describes high-level concepts that are important in understanding the Cisco Extension Mobility Service and provides an overview of configuring EM services, messages, message DTDs, and error codes.
Chapter 7, “Cisco Extension Mobility Operations By Release”	Lists new, changed, and deprecated Extension Mobility Operations by release.
Chapter 8, “Cisco Web Dialer API Programming”	Describes the Simple Object Access Protocol (SOAP) and HTML over HTTP (and HTTPS) interfaces that are used to develop JavaScript-based directory search web pages and applications for Cisco Web Dialer.
Chapter 9, “Cisco Web Dialer Operations By Release”	Lists new, changed, and deprecated Web Dialer operations by release.

Related Documentation

This section lists documents and URLs that provide information on Unified CM, Cisco Unified IP Phones, and the technologies that are required to develop applications.

- Unified CM Documentation Set—A suite of documents that relate to the installation and configuration of Unified CM including the following documents at http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_documentation_roadmaps_list.html:
 - *Cisco Unified Communications Manager Administration Guide*
 - *Cisco Unified Communications Manager System Guide*
 - *Cisco Unified Communications Manager Features and Services Guide*
- *Cisco Unified IP Phones and Services*—A suite of documents that relate to the installation and configuration of Cisco Unified IP Phones.

- *Cisco DistributedDirector*—A suite of documents that relate to the installation and configuration of Cisco DistributedDirector.

Related Information

- [Simple Object Access Protocol \(SOAP\) 1.1](#)
- [Web Service Definition Language \(WSDL\) 1.1](#)
- [SOAP Tutorial](#)
- [WSDL Tutorial—Web Service Definition Language tutorial.](#)
- <http://www.soapagent.com/>—Open SOAP directory with links to articles, tutorials, and white papers.

Developer Support

The Cisco Technology Developer Program members offer complementary and compatible technologies that help Cisco and Program Members continually expand our solution offerings to customers of all sizes. The program ensures that products and technologies of members have verified interoperability, adhere to strict standards, and offer exciting new capabilities for Cisco joint customers. It ensures that members hold leadership positions in their particular market segments. Members' products showcase the innovations made possible through collaboration with Cisco.

The Developer Support Program provides formalized support for Cisco Systems interfaces to enable developers, customers, and partners in the Cisco Service Provider solutions Ecosystem and Cisco Technology Developer Partner programs to accelerate their delivery of compatible solutions. The Developer Support Engineers are an extension of the product technology engineering teams. They have direct access to the resources necessary to provide expert support in a timely manner.

For additional information about this program, refer to the Developer Support Program web site at <http://www.cisco.com/web/partners/pr46/tdp/index.html>.

Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords are in boldface .
<i>italic</i> font	Arguments for which you supply values are in <i>italics</i> .
[]	Elements in square brackets are optional.
{ x y z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A non-quoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
screen font	Terminal sessions and information the system displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font.

Convention	Description
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Non-printing characters, such as passwords, are in angle brackets.

Notes use the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

Timesavers use the following conventions:



Timesaver

Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Tips use the following conventions:



Tip

Means *the following are useful tips*.

Cautions use the following conventions:



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Warnings use the following conventions:



Warning

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with electrical circuitry and familiar with standard practices for preventing accidents.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

Cisco Product Security Overview

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: <http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>. If you require further assistance please contact us by sending e-mail to export@cisco.com.



CHAPTER 1

Overview

Cisco Unified Communications Manager (Unified CM) is the powerful call-processing component of the Cisco Unified Communications Solution. It is a scalable, distributable, and highly available enterprise IP telephony call-processing solution. Unified CM acts as the platform for collaborative communication and as such supports a wide array of features. In order to provision, invoke the features, monitor, and control such a powerful system, Unified CM supports different interface types.

This chapter gives an introduction to the different interfaces of Unified CM and includes the following sections:

- [Cisco Unified Communications Manager Interfaces, page 1-1](#)
- [What is New in Unified CM 7.1\(2\) API, page 1-4](#)

Cisco Unified Communications Manager Interfaces

The interface types supported by Unified CM are divided into the following types:

- Provisioning interfaces
- Device monitoring and call control interfaces
- Serviceability interfaces

Provisioning Interfaces

The following are the provisioning interfaces of Unified CM:

- Administration XML
- Cisco Extension Mobility service

Administrative XML

The Administration XML (AXL) API provides a mechanism for inserting, retrieving, updating and removing data from the Unified CM configuration database using an eXtensible Markup Language (XML) Simple Object Access Protocol (SOAP) interface. This allows a programmer to access Unified CM provisioning services using XML and exchange data in XML form, instead of using a binary library or DLL. The AXL methods, referred to as requests, are performed using a combination of HTTP and

SOAP. SOAP is an XML remote procedure call protocol. Users perform requests by sending XML data to the Unified CM Publisher server. The publisher then returns the AXL response, which is also a SOAP message.

This guide gives detailed information on the AXL API see [Part 1, Administrative XML API](#).

Cisco Extension Mobility

The Cisco Extension Mobility (Extension Mobility) service, a feature of Unified CM, allows a device, usually a Cisco Unified IP Phone, to temporarily embody a new device profile, including lines, speed dials, and services. It enables users to temporarily access their individual Cisco Unified IP Phone configuration, such as their line appearances, services, and speed dials, from other Cisco Unified IP Phones. The Extension Mobility service works by downloading a new configuration file to the phone. Unified CM dynamically generates this new configuration file based on information about the user who is logging in. You can use the XML-based Extension Mobility service API with your applications, so they can take advantage of Extension Mobility service functionality.

This guide gives detailed information on the Extension Mobility APIs, see [Part 3, Cisco Extension Mobility API](#).

Device Monitoring and Call Control Interfaces

The following are the device monitoring and call control interfaces of Unified CM:

- Cisco TAPI and Wave Driver
- Cisco JTAPI
- Cisco Web Dialer

Cisco TAPI and Wave Driver

Unified CM exposes sophisticated call control of IP telephony devices and soft-clients via the Computer Telephony TAPI interface. Cisco's Telephone Service Provider (TSP) and Wave Driver interface enables custom applications to monitor telephony-enabled devices and call events, establish first- and third-party call control, and interact with the media layer to terminate media, play announcements, record calls.

Information on Cisco TAPI and Wave Driver is beyond the scope of this guide. For information of Cisco TAPI and Wave Driver, see *Cisco Unified TAPI Developers Guide for Cisco Unified Communications Manager* for relevant release of Unified CM at the following location:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_programming_reference_guides_list.html

Cisco JTAPI

Unified CM exposes sophisticated call control of IP telephony devices and soft-clients via the Computer Telephony JTAPI interface. Cisco's JTAPI enables custom applications to monitor telephony-enabled devices and call events, as well as establish first- and third-party call control.

Information on Cisco JTAPI is beyond the scope of this guide. For information on Cisco JTAPI, see *Cisco Unified JTAPI Developers Guide for Cisco Unified Communications Manager* for relevant release of Unified CM at the following location:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_programming_reference_guides_list.html

Cisco Web Dialer

The Web Dialer, which is installed on a Unified CM server, allows Cisco Unified IP Phone users to make calls from web and desktop applications. For example, the Web Dialer uses hyperlinked telephone numbers in a company directory to allow users to make calls from a web page by clicking the telephone number of the person that they are trying to call. The two main components of Web Dialer comprise the Web Dialer Servlet and the Redirector Servlet.

This guide gives detailed information on the Web Dialer API, see [Part 4, Cisco Web Dialer API](#).

Serviceability Interfaces

The following are the serviceability interfaces of Unified CM:

- Serviceability XML
- SNMP/MIBs

Serviceability XML

A collection of services and tools designed to monitor, diagnose, and address issues specific to Unified CM. serviceability XML interface:

- Provides platform, service and application performance counters to monitor the health of Unified CM hardware and software
- Provides real-time device and CTI connection status to monitor the health of phones, devices, and applications connected to Unified CM.
- Enables remote control (Start/Stop/Restart) of Unified CM services.
- Collects and packages Unified CM trace files and logs for troubleshooting and analysis.
- Provides applications with Call Detail Record files based on search criteria.
- Provides management consoles with SNMP data specific to Unified CM hardware and software.

This guide gives detailed information on the Serviceability XML APIs, see [Part 2, Serviceability API](#).

SNMP/MIBs

SNMP interface allows external applications to query and report various UCMgr entities. It provides information on the connectivity of the Unified Communication Manager to other devices in the network, including syslog information.

The MIBs supported by Unified CM includes:

- Cisco-CCM-MIB, CISCO-CDP-MIB, Cisco-syslog-MIB
- Standard Mibs like MIB II, SYSAPPL-MIB, HOST RESOURCES-MIB
- Vendor MIBs

What is New in Unified CM 7.1(2) API

This section gives information about the changes in the following APIs for the Unified CM release 7.1.2:

- Administrative XML
- Extension Mobility
- Cisco WebDialer
- Serviceability XML



Note

Information on the Cisco JTAPI and the Cisco TAPI and Wave Driver API changes are beyond the scope of this guide.

For information on Cisco TAPI and Wave Driver, see *Cisco Unified TAPI Developers Guide for Cisco Unified Communications Manager* and for information on Cisco JTAPI, see *Cisco Unified JTAPI Developers Guide for Cisco Unified Communications Manager* for relevant release of Unified CM at the following location:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_programming_reference_guides_list.html

Administrative XML

For Unified CM release 7.1.2, the following changes are made in the Administrative XML APIs:

- The following new APIs are added:
 - GeoLocation (add, get, remove, and update operations)
 - GeoLocationPolicy (add, get, remove, and update operations)
 - GeoLocationFilter (add, get, remove, and update operations)
 - CommonPhoneConfig (add, get, remove, and update operations)
- The following APIs are updated:
 - Line (add, get, and update operations)
 - HuntPilot (add, get, and update operations)
 - H323Gateway (add, get, and update operations)
 - H323Gateway
 - updateH323Gateway
 - getH323Gateway
 - H323Trunk
 - CommonDeviceConfig
 - SIPProfile
 - ProcessNode
 - SIPRoutePattern
 - Phone
 - H323Phone
 - GatewayEndpoint

- MGCP
- MGCP Endpoint
- SIP Trunk
- VG224
- DevicePool
- DeviceProfile

For the detailed description of the changes for Administrative XML APIs, see [New Information for Cisco Unified Communications Manager 7.1\(2\), page 2-4](#).

Extension Mobility

There are no changes in Cisco Extension Mobility APIs for Unified CM 7.1(2).

Cisco WebDialer

There are no changes in Cisco Web Dialer APIs for Unified CM 7.1(2).

Serviceability XML

For Unified CM release 7.1.2, the following changes are made in the Administrative XML APIs:

- New service URL added
- The following new APIs are added:
 - SelectCmDevice
 - SelectCtiDevice
- New perfmon counters added
- Introduced new phone seamless upgrade information

For the detailed description of the changes for Serviceability XML APIs, see [New Information for Cisco Unified Communications Manager 7.1\(2\), page 4-2](#).



PART 1

Administrative XML API



CHAPTER 2

Administrative XML Programming

This chapter describes the Administrative XML Layer (AXL) Application Programming Interface (API). It contains the following sections:

- [Overview, page 2-2](#)
- [New and Changed Information, page 2-3](#)
- [AXL Schema Documentation, page 2-30](#)
- [AXL Versioning Support, page 2-31](#)
- [Data Encryption, page 2-34](#)
- [Dynamic Throttling of Requests, page 2-34](#)
- [Integration Considerations and Interoperability, page 2-35](#)
- [Post-Installation Steps and Troubleshooting on the Linux Platform, page 2-36](#)
- [Using the AXL API with AXIS, page 2-40](#)
- [Using the AXL API in a .NET Environment, page 2-41](#)
- [Returned Namespace for AXIS and .NET Applications, page 2-45](#)
- [Example AXL Requests, page 2-46](#)
- [AXL Error Codes, page 2-54](#)

Overview

The AXL API provides a mechanism for inserting, retrieving, updating, and removing data from the Cisco Unified Communications Manager database by using an eXtensible Markup Language (XML) Simple Object Access Protocol (SOAP) interface. This approach allows a programmer to access the database by using XML and receive the data in XML form, instead of by using a binary library or DLL.

The AXL API methods, known as requests, use a combination of HTTPS and SOAP. SOAP is an XML remote procedure call (RPC) protocol. The server receives the XML structures and executes the request. If the request completes successfully, the system returns the appropriate AXL response. All responses are named identically to the associated requests, except that the word “Response” is appended.

For example, the XML response that is returned from an addPhone request is named addPhoneResponse.

If an error occurs, an XML error structure is returned, wrapped inside a SOAP Fault structure (see the “[AXL Error Codes](#)” section on page 2-54).

The AXL-SOAP web service is disabled by default on all Cisco Unified Communications Manager (Unified CM) servers that are running version 5.x or later. You should start the service before using the AXL APIs.

To access all AXL SOAP API downloads and AXL requests and responses that are found in this chapter, refer to http://www.cisco.com/pcgi-bin/dev_support/access_level/product_support.

This chapter assumes that the developer has knowledge of a high-level programming language such as C++, Java, or an equivalent language, and has knowledge of SOAP.

Developers must also have knowledge or experience in the following areas:

- TCP/IP Protocol
- Hypertext Transport Protocol (specifically HTTPS)
- Socket programming
- XML

Users of the AXL API must have a firm grasp of XML syntax and Schema, which is used to define the AXL requests, responses, and errors. For more information about XML Schema, refer to <http://www.w3.org/TR/xmlschema-0/>. For more information about XML syntax/grammar, refer to <http://www.w3.org/TR/rdf-syntax-grammar/>.

**Caution**

The AXL API allows you to modify the Cisco Unified Communications Manager system database. Use caution when using AXL because each API call affects the system. Misuse of the API can lead to dropped calls and slower performance. AXL should act as a provisioning and configuration API, not as a real-time API.

AXL Compliance

The Cisco Unified Communications Manager AXL implementation complies with [XML Schema 1.0](#), which was tested for XML Schema compliance with a third-party application that is called XML Spy version 4.x. Early versions of the MSXML schema validator did not support enough of the XML Schema 1.0 recommendation to be used.

The Cisco Unified Communications Manager AXL implementation also complies with [SOAP 1.1](#) as defined by the World Wide Web Consortium as well as [HTTPS 1.1](#). The AXL API runs as an independent service that can be accessed only via HTTPS.

New and Changed Information

The following sections describe the major changes in the AXL APIs for Release 7.1(2) and for previous releases:

- [New Information for Cisco Unified Communications Manager 7.1\(2\)](#), page 2-4
- [New Information for Cisco Unified Communications Manager 7.0\(1\)](#), page 2-11
- [New Information for Cisco Unified Communications Manager 6.1 \(1\)](#), page 2-20
- [New Information for Cisco Unified Communications Manager 6.0\(1\)](#), page 2-21
- [New Information for Cisco Unified Communications Manager 5.1\(1\)](#), page 2-25
- [New Information for Cisco Unified Communications Manager 5.0\(1\)](#), page 2-25
- [New Information for Cisco Unified Communications Manager 4.2\(2\)](#), page 2-27
- [New Information for Cisco Unified Communications Manager 4.1\(2\)](#), page 2-27

For information about new, changed, or deprecated AXL API methods from the interface library, see [Chapter 3, “Administrative XML Operations by Release”](#).

New Information for Cisco Unified Communications Manager 7.1(2)

Cisco Unified Communications Manager (Unified CM) 7.1(2) APIs are compatible with all previous releases of Unified CM. For additional details about the Unified CM database schema changes, refer to the *Cisco Unified Communications Manager Data Dictionary for Release 7.1(2)*.

The following sections describe API updates that were made in Cisco Unified Communications Manager 7.1(2):

- [New APIs, page 2-11](#)
- [Changed Operations, page 2-6](#)

New APIs

[Table 2-1](#) describes new operations in Cisco Unified Communications Manager 7.1(2).

Table 2-1 *New Operations in Cisco Unified Communications Manager 7.1(2)*

Operation	Purpose	Added Tags
addGeoLocation updateGeoLocation getGeoLocation removeGeoLocation	Added for logical partitioning feature.	name(mandatory) country description nationalSubdivision district communityName cityDivision neighbourhood street leadingStreetDirection trailingStreetSuffix streetSuffix houseNumber houseNumberSuffix landmark location floor occupantName postalCode

Table 2-1 ***New Operations in Cisco Unified Communications Manager 7.1(2) (continued)***

Operation	Purpose	Added Tags
addGeoLocationPolicy updateGeoLocationPolicy getGeoLocationPolicy removeGeoLocationPolicy	Added for logical partitioning feature.	name(mandatory) country description nationalSubdivision district communityName cityDivision neighbourhood street leadingStreetDirection trailingStreetSuffix streetSuffix houseNumber houseNumberSuffix landmark location floor occupantName postalCode relatedPolicies, relatedPolicy, geoLocationPolicyA geoLocationPolicyAName geoLocationDeviceA geoLocationPolicyB geoLocationPolicyBName geoLocationDeviceB logicalPartitionPolicy
addGeoLocationFilter updateGeoLocationFilter getGeoLocationFilter removeGeoLocationFilter	Added for logical partitioning feature.	name description useCountry useNationalSubDivision useDistrict useCommunityName useCityDivision useNeighbourhood useStreet useLeadingStreetDirection useTrailingStreetSuffix useStreetSuffix useHouseNumber useHouseNumberSuffix useLandmark useLocation useFloor useOccupantName usePostalCode

Table 2-1 *New Operations in Cisco Unified Communications Manager 7.1(2) (continued)*

Operation	Purpose	Added Tags
addCommonPhoneConfig updateCommonPhoneConfig getCommonPhoneConfig removeCommonPhoneConfig	Added for phone support feature.	name description unlockPwd dndOption dndAlertingType backgroundImage phonePersonalization phoneServiceDisplay sshUserId sshPwd alwaysUsePrimeLine alwaysUsePrimeLineforVoiceMessage vendorConfig

Changed Operations

[Table 2-2](#) describes changed operations in Cisco Unified Communications Manager 7.1(2).

Table 2-2 *Changed Operations in Cisco Unified Communications Manager 7.1(2)*

Operation	Change	Tags
addLine updateLine getLine	Added optional tags for park monitoring feature.	ParkMonForwardNoRetrieveDN ParkMonForwardNoRetrieveIntDN ParkMonForwardNoRetrieveIntVMEnabled ParkMonForwardNoRetrieveVMEnabled ParkMonForwardNoRetrieveCSS ParkMonForwardNoRetrieveIntCSS ParkMonReversionTimer
addLine updateLine getLine	Added optional tag for barge enhancement feature.	partyEntranceTone
addHuntPilot updateHuntPilot getHuntPilot	Added optional tags for park monitoring feature.	ParkMonForwardNoRetrieveDN ParkMonForwardNoRetrieveCSS
addH323Gateway updateH323Gateway getH323Gateway	Added optional tags for H.235 - H.323 security: voice encryption profile with native H.235/H.245 key management feature.	AllowH235PassThrough
	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
	Added optional tags for QSIG variant Per Trunk or Gateway feature.	ASN1ROSEOIDEncoding QSIGVariant tunneledProtocol

Table 2-2 *Changed Operations in Cisco Unified Communications Manager 7.1(2) (continued)*

Operation	Change	Tags
	Added optional tags for more enhancements to CPN transformations.	nationalStripDigits internationalStripDigits unknownStripDigits subscriberStripDigits cgpnTransformationNationalCSS cgpnTransformationInternationalCSS cgpnTransformationUnknownCSS cgpnTransformationSubscriberCSS useDevicePoolCgpnTransformNationalCSS useDevicePoolCgpnTransformInternationalCS S useDevicePoolCgpnTransformUnknownCSS useDevicePoolCgpnTransformSubscriberCSS
addH323Trunk updateH323Trunk getH323Trunk	Added optional tag for H.235 - H.323 security: voice encryption profile with native H.235/H.245 key management feature.	AllowH235PassThrough
	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
	Added optional tags for QSIG variant per trunk or gateway feature.	ASN1ROSEOIDEncoding QSIGVariant
	Added optional tags for more enhancements to CPN transformations.	nationalStripDigits internationalStripDigits unknownStripDigits subscriberStripDigits cgpnTransformationNationalCSS cgpnTransformationInternationalCSS cgpnTransformationUnknownCSS cgpnTransformationSubscriberCSS useDevicePoolCgpnTransformNationalCSS useDevicePoolCgpnTransformInternationalCS S useDevicePoolCgpnTransformUnknownCSS useDevicePoolCgpnTransformSubscriberCSS
addCommonDeviceConfig updateCommonDeviceConfig getCommonDeviceConfig	Added optional tags for IPv6 feature.	IPAddressingMode IPAddressingModePreferenceControl allowAutoConfigurationForPhones
addSIPProfile updateSIPProfile getSIPProfile	Added optional tag for IPv6 feature.	enableAnatForEarlyOfferCalls
	Added optional tag called to enhance Clear Channel (G.clear) support feature.	gClear
addProcessNode updateProcessNode getProcessNode	Added optional tag for IPv6 feature.	IPv6Name

Table 2-2 *Changed Operations in Cisco Unified Communications Manager 7.1(2) (continued)*

Operation	Change	Tags
addSIPRoutePattern updateSIPRoutePattern getSIPRoutePattern	Added optional tag for IPv6 feature.	dnOrPatternIPv6
addPhone updatePhone getPhone	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
	Added optional tags for always-use-primeline feature.	alwaysUsePrimeLine alwaysUsePrimeLineforVoiceMessage
addH323Phone updateH323Phone getH323Phone	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
addGatewayEndpoint updateGatewayEndpoint getGatewayEndpoint	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
	Added optional tags for QSIG variant per trunk or gateway feature.	ASN1ROSEOIDEncoding QSIGVariant
	Added optional tags to enhance the CPN transformations feature.	nationalStripDigits internationalStripDigits unknownStripDigits subscriberStripDigits cgpnTransformationNationalCSS cgpnTransformationInternationalCSS cgpnTransformationUnknownCSS cgpnTransformationSubscriberCSS useDevicePoolCgpnTransformNationalCSS useDevicePoolCgpnTransformInternationalCSS useDevicePoolCgpnTransformUnknownCSS useDevicePoolCgpnTransformSubscriberCSS
addMGCP updateMGCP getMGCP	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation

Table 2-2 *Changed Operations in Cisco Unified Communications Manager 7.1(2) (continued)*

Operation	Change	Tags
addMGCPEndpoint updateMGCPEndpoint getMGCPEndpoint	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
	Added optional tags for QSIG variant per trunk or gateway feature.	ASN1ROSEOIDEncoding QSIGVariant
	Added optional tags for enhancements to CPN transformations.	nationalStripDigits internationalStripDigits unknownStripDigits subscriberStripDigits cgpnTransformationNationalCSS cgpnTransformationInternationalCSS cgpnTransformationUnknownCSS cgpnTransformationSubscriberCSS useDevicePoolCgpnTransformNationalCSS useDevicePoolCgpnTransformInternationalCS S useDevicePoolCgpnTransformUnknownCSS useDevicePoolCgpnTransformSubscriberCSS
addSIPTrunk updateSIPTrunk getSIPTrunk	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
	Added optional tag for IPv6 feature.	destinationAddressIPv6
	Added optional tags for enhancements to CPN transformations.	unknownStripDigits cgpnTransformationUnknownCSS useDevicePoolCgpnTransformUnknownCSS
addVG224 updateVG224 getVG224	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName sendGeoLocation
addDevicePool updateDevicePool getDevicePool	Added optional tags for logical partitioning feature.	geoLocationName geoLocationFilterName
	Added optional tags for enhancements to CPN transformations.	nationalStripDigits internationalStripDigits unknownStripDigits subscriberStripDigits cgpnTransformationNationalCSS cgpnTransformationInternationalCSS cgpnTransformationUnknownCSS cgpnTransformationSubscriberCSS

Table 2-2 *Changed Operations in Cisco Unified Communications Manager 7.1(2) (continued)*

Operation	Change	Tags
addCommonPhoneConfig updateCommonPhoneConfig getCommonPhoneConfig	Added optional tags for always-use-primeline feature.	alwaysUsePrimeLine alwaysUsePrimeLineforVoiceMessage
addDeviceProfile updateDeviceProfile getDeviceProfile	Added optional tags for always-use-primeline feature.	alwaysUsePrimeLine alwaysUsePrimeLineforVoiceMessage

New Information for Cisco Unified Communications Manager 7.0(1)

Cisco Unified Communications Manager 7.0(1) APIs are compatible with all previous releases of Cisco Unified Communications Manager. For additional details about the Cisco Unified Communications Manager database schema changes, refer to the *Cisco Unified Communications Manager Data Dictionary for Release 7.0(1)*.

The following sections describe API updates that were made in Cisco Unified Communications Manager 7.0(1):

- [New APIs, page 2-11](#)
- [Changed Operations, page 2-15](#)

New APIs

[Table 2-3](#) describes new operations in Cisco Unified Communications Manager 7.0(1).

Table 2-3 ***New Operations in Cisco Unified Communications Manager 7.0(1)***

Operation	Purpose	Added Tags
addCalledPartyTransformationPattern removeCalledPartyTransformationPattern updateCalledPartyTransformationPattern getCalledPartyTransformationPattern	Added for Local Route Group feature	pattern (mandatory) usage (mandatory) routePartition description numberingPlan routeFilter patternUrgency (read only) discardDigits calledPartyTransformationMask prefixDigitsOut calledPartyNumberType calledPartyNumberingPlan
addSIPTrunkSecurityProfile updateSIPTrunkSecurityProfile removeSIPTrunkSecurityProfile getSIPTrunkSecurityProfile	Added for SRTP support for SIP Trunk feature	name (mandatory) description securityMode incomingTransport outgoingTransport digestAuthentication noncePolicyTime x509SubjectName incomingPort applLevelAuthentication acceptPresenceSubscription acceptOutOfDialogRefer allowReplaceHeader acceptUnsolicitedNotification transmitSecurityStatus

Table 2-3 *New Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Purpose	Added Tags
addResourcePriorityNamespace updateResourcePriorityNamespace removeResourcePriorityNamespace getResourcePriorityNamespace	Added for AS-SIP feature	namespace
addResourcePriorityNamespaceList updateResourcePriorityNamespaceList getResourcePriorityNamespaceList removeResourcePriorityNamespaceList	Added for AS-SIP feature	name (mandatory) members (mandatory) resourcePriorityNamespace / resourcePriorityNamespaceName
addResourcePriorityDefaultNamespace updateResourcePriorityDefaultNamespac e getResourcePriorityDefaultNamespace removeResourcePriorityDefaultNamespa ce	Added for AS-SIP feature	resourcePriorityNamespace
addSIPProfile updateSIPProfile getSIPProfile removeSIPProfile	Added for AS-SIP feature	resourcePriorityNamespaceList
addTODAccess updateTODAccess getTODAccess removeTODAccess	Added for Mobility - TOD Access List feature	name (mandatory) description ownerId (mandatory) members > member > timeSchedule (mandatory) isActionAllowed (mandatory), accessList (mandatory) associatedRemoteDestination (read only)
getMobileSmartClientProfile	Added for Cisco Unified Communications Manager new device type	MobileSmartClient Name EnableSNRUri EnableCFAUri HandoffUri
addVG224 updateVG224 removeVG224 getVG224	Added for adding VG224 gateway	domainName description product protocol model callManagerGroup callManagerGroupName units unit product

Table 2-3 *New Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Purpose	Added Tags
		subunits subunit endpoints endpoint name description product productInfo model modelInfo class protocol protocolSide callingSearchSpace callingSearchSpaceName devicePool devicePoolName commonDeviceConfig commonDeviceConfigName commonPhoneConfig commonPhoneConfigName networkLocation location, locationName mediaResourceList mediaResourceListName networkHoldMOHAudioSourceId userHoldMOHAudioSourceId automatedAlternateRoutingCSS automatedAlternateRoutingCSSName aarNeighborhood aarNeighborhoodName loadInformation vendorConfig versionStamp traceFlag mlppDomainId mlppIndicationStatus preemption useTrustedRelayPoint retryVideoCallAsAudio securityProfile securityProfileName sipProfile sipProfileName cgpnTransformationCSS cgpnTransformationCSSName

Table 2-3 *New Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Purpose	Added Tags
		useDevicePoolCgpnTransformCSS lines packetCaptureMode packetCaptureDuration transmitUTF8 ports userLocale networkLocale isActive unattendedPort subscribeCallingSearchSpace subscribeCallingSearchSpaceName allowCtiControlFlag remoteDevice phoneTemplate phoneTemplateName presenceGroup presenceGroupName ignorePresentationIndicators deviceMobilityMode hlogStatus ownerUserId vendorConfig versionStamp
addApplicationUser	Added for creating new application users	userid password passwordCredentials digestCredentials presenceGroup presenceGroupName acceptPresenceSubscription acceptOutOfDialogRefer acceptUnsolicitedNotification allowReplaceHeader isStandard associatedDevices associatedGroups associatedCAPFProfiles

Table 2-3 *New Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Purpose	Added Tags
updateApplicationUser	Added for updating application users	userid password passwordCredentials digestCredentials presenceGroup presenceGroupName acceptPresenceSubscription acceptOutOfDialogRefer acceptUnsolicitedNotification allowReplaceHeader associatedDevices associatedGroups
removeApplicationUser	Added for removing existing application users	userid
getApplicationUser	Added for obtaining details about application users	userid

Changed Operations

[Table 2-4](#) describes changed operations in Cisco Unified Communications Manager 7.0(1).

Table 2-4 *Changed Operations in Cisco Unified Communications Manager 7.0(1)*

Operation	Change	Tags
addDevicePool updateDevicePool getDevicePool	Added tags for CPN and E.164 Dialing feature	cgpnTransformationCSS nationalPrefix internationalPrefix unknownPrefix subscriberPrefix
	Added tags for Local Route Group feature	cdpnTransformationCSS useDevicePoolCdpnTransformCSS
addMGCP endPoint	Added tags for Local Route Group feature	cdpnTransformationCSS useDevicePoolCdpnTransformCSS
	Added tags for CPN and E.164 Dialing feature	cgpnTransformationCSS useDevicePoolCgpnTransformCSS
	Added tag for Network Virtualization feature	useTrustedRelayPoint
	Added tag for Secure-Indication Tone feature	enableProtectedFacilityIE

Table 2-4 *Changed Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Change	Tags
addSIPTrunk updateSIPTrunk getSIPTrunk	Added tags for CPN and E.164 Dialing feature	cgpnTransformationCSS useDevicePoolCgpnTransformCSS unknownPrefix
	Added tags for Local Route Group feature	cdpnTransformationCSS useDevicePoolCdpnTransformCSS
	Added tags for Network Virtualization feature	useTrustedRelayPoint
	Added tags for SRTP support feature	srtpAllowed srtpFallbackAllowed
	Added tags for SIP PAI feature	isPaiEnabled sipPrivacy isRpidEnabled sipAssertedType
	Added tag for Trunk Licensing feature	licensedCapacity
addH323Phone updateH323Phone getH323Phone	Added tag for Network Virtualization feature	useTrustedRelayPoint
addH323Trunk updateH323Trunk getH323Trunk	Added tags for CPN and E.164 Dialing feature	cgpnTransformationCSS useDevicePoolCgpnTransformCSS nationalPrefix internationalPrefix unknownPrefix subscriberPrefix
	Added tags for Local Route Group feature	cdpnTransformationCSS useDevicePoolCdpnTransformCSS
	Added tags for Network Virtualization feature	useTrustedRelayPoint
	Added tags for Trunk Licensing feature	licensedCapacity
addH323Gateway updateH323Gateway getH323Gateway	Added tags for CPN and E.164 Dialing feature	cgpnTransformationCSS useDevicePoolCgpnTransformCSS nationalPrefix internationalPrefix unknownPrefix subscriberPrefix
	Added tags for Local Route Group feature	cdpnTransformationCSS useDevicePoolCdpnTransformCSS
	Added tag for Network Virtualization feature	useTrustedRelayPoint
	Added tag for Trunk Licensing feature	licensedCapacity

Table 2-4 *Changed Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Change	Tags
addRoutePattern updateRoutePattern getRoutePattern	Added tags for CPN and E.164 Dialing feature	callingPartyNumberingPlan callingPartyNumberType
	Added tags for Local Route Group feature	calledPartyNumberingPlan calledPartyNumberType
	Added tag for AS-SIP feature	resourcePriorityNamespace
addHuntPilot updateHuntPilot getHuntPilot	Added tags for CPN and E.164 Dialing feature.	callingPartyNumberingPlan callingPartyNumberType
	Added tags for Local Route Group feature	calledPartyNumberingPlan calledPartyNumberType
addTransPattern updateTransPattern getTransPattern	Added tags for CPN and E.164 Dialing feature	callingPartyNumberingPlan callingPartyNumberType
	Added tags for Local Route Group feature	calledPartyNumberingPlan calledPartyNumberType
	Added tag for AS-SIP feature	resourcePriorityNamespace
addConferenceBridge updateConferenceBridge getConferenceBridge	Added tag for Network Virtualization feature	useTrustedRelayPoint
addCTIRoutePoint updateCTIRoutePoint getCTIRoutePoint	Added tagsAdded tag for CPN and E.164 Dialing feature	cgpnTransformationCSS useDevicePoolCgpnTransformCSS
	Added tag for Network Virtualization feature	useTrustedRelayPoint
addPhone updatePhone getPhone	Added tags for CPN and E.164 Dialing feature	cgpnTransformationCSS useDevicePoolCgpnTransformCSS
	Added tags for BLF CallPickup feature	associatedBLFSDFeatures ringSettingIdleBLFAudibleAlert ringSettingBusyBLFAudibleAlert
	Added tags for Enhanced IP Phone Services Provisioning feature	phoneService vendor version priority phoneServiceDisplay requirePKIAuthForHTTPS
	Added tag for Secure-Indication Tone feature	isProtected
	Added tag for new CUCM Device type feature	MobileSmartClientProfile
	Added tags for complete phone API support	requireDTMFReception RFC2833Disabled phoneLoadName authenticationMode keySize

Table 2-4 *Changed Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Change	Tags
addGatewayEndpoint updateGatewayEndpoint getGatewayEndpoint	Added tags for CPN and E.164 Dialing feature	gpnTransformationCSS useDevicePoolCgpnTransformCSS nationalPrefix internationalPrefix unknownPrefix subscriberPrefix
	Added tags for Local Route Group feature	cdpnTransformationCSS useDevicePoolCdpnTransformCSS
	Added tag for Network Virtualization feature	useTrustedRelayPoint
	Added tag for VoSIP/DVX G.Clear feature	GClearEnable
addMOHServer updateMOHServer getMOHServer addVoiceMailPort getVoiceMailPort addCommonDeviceConfig updateCommonDeviceConfig getCommonDeviceConfig	Added tag for Network Virtualization feature	useTrustedRelayPoint
addTranscoder updateTranscoder getTranscoder	Added tag for Network Virtualization feature	isTrustedRelayPoint
addRemoteDestinationProfile updateRemoteDestinationProfile getRemoteDestinationProfile	Added tags for DND Reject feature	dndStatus dndOption
	Added tag for new CUCM Device type feature	MobileSmartClientProfile
addTransformationPattern updateTransformationPattern getTransformationPattern	Added tags for CPN and E.164 Dialing feature	callingPartyNumberingPlan digitDiscardInstruction callingPartyNumberTyp
addTimePeriod updateTimePeriod getTimePeriod	Added tags for Mobility - TOD Access List feature	description isPublished todOwnerId dayOfMonthEnd monthOfYearEnd
addTimeSchedule updateTimeSchedule getTimeSchedule	Added tags for Mobility - TOD Access List feature	description Published timeScheduleCategory todOwnerId

Table 2-4 *Changed Operations in Cisco Unified Communications Manager 7.0(1) (continued)*

Operation	Change	Tags
addRemoteDestination	Added tags for Mobility - TOD Access List feature	timeZone clientApplicationModel todAccess
	Removed tags for Mobility - TOD Access List feature	allowedAccessList blockedAccessList smartClientInstalled
	Added tag for new CUCM Device type feature	MobileSmartClient
	Deprecated tag	clientAppModelxxx
updateRemoteDestination getRemoteDestination	Added tags for Mobility - TOD Access List feature	timeZone clientApplicationModel todAccess
	Removed tags for Mobility - TOD Access List feature	allowedAccessList blockedAccessList smartClientInstalled
	Added tag for new CUCM Device type feature	MobileSmartClient
	Added tag for new CUCM Device type feature	clientAppModelxxx
addUser updateUser getUser	Added tag for Mobility - TOD Access List feature	associatedTodAccess
	Removed tag for addUser API for Mobility - TOD Access List feature	associatedAccessLists
addRouteList updateRouteList getRouteList	Added tags for CPN and E.164 Dialing feature	callingPartyNumberingPlan callingPartyNumberType calledPartyNumberingPlan calledPartyNumberType

Dynamic Throttling of Requests

Cisco Unified Communications Manager 7.0 includes a new throttling mechanism called dynamic throttling of request. The MaxAXLWritesPerMinute service parameter, used in earlier releases, has been deprecated. For more information see, [Dynamic Throttling of Requests, page 2-34](#).

New Information for Cisco Unified Communications Manager 6.1 (1)

Table 2-5 describes the API calls that changed in Cisco Unified Communications Manager 6.1(1). These changes may require updates to the existing user-code that uses these APIs.

Table 2-5 *Changed API Calls in Cisco Unified Communications Manager 6.1(1)*

API Call	Change	Tags
addLine	Added tag for Intercom CTI Support feature	defaultActivatedDevice
updateLine	Added tag for Intercom CTI Support feature	defaultActivatedDevice
getLine	Added tag for Intercom CTI Support feature	defaultActivatedDevice
addUser	Added tag for Mobility user feature	primaryDevice
updateUser	Added tag for Mobility user feature	primaryDevice
getUser	Added tag for Mobility user feature	primaryDevice
addDeviceProfile	Added tags for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
updateDeviceProfile	Added tags SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
getDeviceProfile	Added tags for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
addDevicePool	Added tags for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
updateDevicePool	Added tags for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
getDevicePool	Added tags for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
addPhone	Added tags and joinAcrossLines for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
	Added tag for BAT/TAPS Licensing Allowance feature	isActive
updatePhone	Added tags and joinAcrossLines for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
	Added tag for BAT/TAPS Licensing Allowance feature	isActive
getPhone	Added tags and joinAcrossLines for SingleButtonBarge and JoinAcrossLines features	singleButtonBarge joinAcrossLines
	Added tag for BAT/TAPS Licensing Allowance feature	isActive

**Note**

All Unified CM 6.0 AXL methods, with the exception of `ExecuteSQLQuery` and `ExecuteSQLUpdate`, are backward compatible with Unified CM 6.1. By default, the interface automatically uses the 6.0 AXL schema. Developers should specify SOAPAction: “CUCM:DB ver=6.1” in the HTTP header to use any new 6.1 methods.

New Information for Cisco Unified Communications Manager 6.0(1)

For Cisco Unified Communications Manager Release 6.0(1), be aware that the defined AXL APIs are backward compatible. However, the `executeSQLQuery` request, which lets the user run a database query directly on the Cisco Unified Communications Manager database, is not backward compatible.

- Release 6.0(1) splits some of the tables in the Cisco Unified Communications Manager database. Feature-related information moved to the corresponding dynamic tables. If the direct SQL query to which the 'executeSQLQuery' API referred uses any of the changed tables, you may need to rewrite the query according to the new database schema.
- The columns `enduser.password` and `enduser.pin` from the `enduser` table and the `applicationuser.password` column from the `applicationUser` table moved to the `credential` table as `credential.credentials`. A direct SQL query that refers to these columns will not work in Cisco Unified Communications Manager Release 6.0(1).

**Note**

Be aware that Cisco Unified Communications Manager password and pin fields are encrypted. Applications should not write to those fields using `<executeSQLUpdate>`. Instead, update passwords and pins by using the appropriate `<updateXXXUser>` request.

- The phone API for extension mobility-related parameters has the new tag `CurrentConfig`. This tag is valid only for the `getPhone` response. The tag lets AXL provide the original device configuration and the logged-in profile information:
 - If a user has logged in to a device by using a device profile, the `CurrentConfig` tag contains the values for the extension mobility-related parameters from that device profile.
 - If no user has logged in, the `CurrentConfig` tag contains the values of the extension mobility-related parameters for the actual device.
- Schema changes for the `CMCInfo` and `FACInfo` APIs help maintain consistency with other AXL APIs.

For further details about the Cisco Unified Communications Manager database schema changes, refer to *Cisco Unified Communications Manager Data Dictionary for Release 6.0(1)*.

**Note**

The `getCCMVersion` API will return the Cisco Unified Communications Manager version based on the Node Name that is specified in the request. If no Node Name is specified, you will get the Cisco Unified Communications Manager Version of the lowest node ID Cisco Unified Communications Manager.

Cisco always advises running the AXL API on a completely upgraded cluster. When run on a cluster that is not upgraded completely, the response of the AXL API will be correct when executed on a server that already has been upgraded. However, if you execute the AXL API on a server that has not yet been upgraded, then it will return the Cisco Unified Communications Manager Version of the lowest node ID Cisco Unified Communications Manager per the server local database information.

The following AXL API calls changed in Cisco Unified Communications Manager Release 6.0(1). These changes may require changes to the existing user-code that uses these APIs:

- updateAppUser
- addCallPickupGroup
- updateCallPickupGroup
- getCallPickupGroup
- addConferenceBridge
- updateConferenceBridge
- getConferenceBridge
- addCSS
- updateCSS
- getCSS
- addDevicePool
 - In axl.xsd, the tag name aarNeighborhood and the annotation for the revertPriority tag in XDevicePool changed to match the AXL response.
 - In axlsoap.xsd, the tag name aarNeighborhood and the annotation for the revertPriority tag in updateDevicePoolReq changed.
- updateDevicePool
 - In axl.xsd, the tag name aarNeighborhood and the annotation for the revertPriority tag in XDevicePool changed to match the AXL response.
 - In axlsoap.xsd, the tag name aarNeighborhood and the annotation for the revertPriority tag in updateDevicePoolReq changed.
- getDevicePool
 - In axl.xsd, the tag name aarNeighborhood and the annotation for the revertPriority tag in XDevicePool changed to match the AXL response.
 - In axlsoap.xsd, the tag name aarNeighborhood and the annotation for the revertPriority tag in updateDevicePoolReq changed.
- addDeviceProfile
- updateDeviceProfile
- getDeviceProfile
- addGatewayEndpoint
- updateGatewayEndpoint
- getGatewayEndpoint
- addH323Phone
- updateH323Phone
- getH323Phone
- addH323Trunk
- updateH323Trunk
- getH323Trunk
- addLine
- updateLine

- getLine
- addMGCP
- getMGCP
- addPhone
- updatePhone
- getPhone
- addRegion
- updateRegion
- getRegion
- updateRegionMatrix
- addRoutePartition
- updateRoutePartition
- getRoutePartition
- addSIPTrunk
- updateSIPTrunk
- getSIPTrunk
- addUser
- updateUser
- getUser
- addVoiceMailPort
- updateVoiceMailPort
- getVoiceMailPort
- doAuthenticateUser
- getCMCInfo, removeCMCInfo, and updateCMCInfo

In axlsoap.xsd

- A new option tag “code” along with the “uuid” tag for these three requests exist. The user can send either the uuid or code tag.
- This release renames the existing tag “code” to “newCode” in the updateCMCInfo request. Users can send the new code to be updated as the “newCode” tag instead of “code” in update CMCInfo requests.
- This release removes the invalid authorizationLevel tag in the updateCMCInfo request.
- addFACInfo, getFACInfo, updateFACInfo, and removeFACInfo

In axl.xsd

- The existing tag “description” changed to “name.” This makes the addFACInfo, getFACInfo, and updateFACInfo request match the database. In previous releases, the value that was supplied for the “description” tag updated “name” in the database.

In axlsoap.xsd

- A new option tag “name” along with the “uuid” tag for getFACInfo, updateFACInfo, and removeFACInfo exist.
- The existing tag “description” changed to “newName” in the updateFACInfo request.

- Users can send either uuid or name in the getFACInfo, updateFACInfo, and removeFACInfo requests.

This release deprecated some of the fields that were removed from the Cisco Unified Communications Manager 6.0(1) database in AXL. This release adds annotation for such fields.

AXL Versioning Support

To improve backward compatibility, Cisco Unified Communications Manager introduced AXL schema versioning in Release 6.0(1). This feature is included in all subsequent Cisco Unified Communications Manager releases. Beginning with Release 6.0(1), the system duplicates the previous AXL 1.0 schema as the AXL 6.0(1) schema and numbers the AXL schema the same as the corresponding Cisco Unified Communications Manager release. This approach maintains AXL backward compatibility for one full release cycle.

Changed Service Parameter for Cisco Unified Communications Manager 6.0(1)

Cisco Unified Communications Manager 6.0(1) adds a new service parameter, EnableAXLEncodingInfo, to the Cisco Unified Communications Manager Administrator windows under the Cisco Database Layer Monitor service. This parameter allows the user to decide whether AXL responses should contain the encoding information. Consider encoding information as important if an AXL request has non-English characters in it.

Cisco Unified Communications Manager 5.1(1) added a new service parameter, Send Valid Namespace in the AXL response, under the Cisco Database Layer Monitor service. This parameter determines the namespace that is sent in the AXL response from the Cisco Unified Communications Manager. In the 6.0(1) release, the default value of this parameter changed from False to True.

- When this parameter is True, Cisco Unified Communications Manager sends the valid namespace in the AXL response, so the namespace matches the AXL schema specification.
- If the parameter is False, Cisco Unified Communications Manager sends an invalid namespace in the AXL response, which does not match the AXL schema specification.

To maintain backward compatibility with older applications, you might need to change the value to False. Cisco recommends that you set this parameter to True, so the Cisco Unified Communications Manager sends a valid namespace.

New Information for Cisco Unified Communications Manager 5.1(1)

The following list provides AXL API calls that are new in Cisco Unified Communications Manager 5.1(1):

- addSIPRealm
- updateSIPRealm
- getSIPRealm
- removeSIPRealm

These APIs add and update credentials (passwordreserve) in siprealm.

In addition, Cisco Unified Communications Manager Administration 5.1 release adds a new service parameter, “Send Valid Namespace in AXL Response,” under the Cisco Database Layer Monitor service. This parameter determines the namespace that gets sent in the AXL response from Cisco Unified Communications Manager.

When this parameter specifies True, Cisco Unified Communications Manager sends the valid namespace in the AXL response so the namespace matches the AXL schema specification.

If the parameter specifies False, Cisco Unified Communications Manager sends an invalid namespace in the AXL response, which does not match the AXL schema specification.

The default service parameter value specifies False to maintain backward compatibility with the AXL response in the Cisco Unified Communications Manager 5.0 release. Cisco recommends that you set this parameter to True so Cisco Unified CallManager sends the valid namespace.

New Information for Cisco Unified Communications Manager 5.0(1)

The following AXL API calls are new in Cisco Unified Communications Manager 5.0(1):

- executeSQLUpdate
- doAuthenticateUser
- updateAppUser
- addUserGroup
- updateUserGroup
- removeUserGroup
- getUserGroup

The following AXL API calls have been changed in Cisco Unified Communications Manager 5.0:

- addPhone
- updatePhone
- getPhone
- addGatewayEndpoint
- updateGatewayEndpoint
- getGatewayEndpoint
- addMGCP Endpoint
- updateMGCP

- addSIPTrunk
- updateSIPTrunk
- getSIPTrunk
- addCallManager
- updateCallManager
- getCallManager
- addCallPark
- addRoutePattern
- updateRoutePattern
- updateTransPattern
- updateHuntPilot
- addHuntList
- updateHuntList
- getHuntList
- addPilotPoint
- updatePilotPoint
- getPilotPoint
- addH323Gateway
- updateH323Gateway
- updateH323Phone
- getH323Gateway
- getH323Trunk
- addUser
- updateUser
- getUser
- updateProcessNodeService
- getProcessNodeService
- doDeviceLogout
- listUserByName
- updateServiceParameter
- updateGatekeeper
- updateConferenceBridge
- updateAttendantConsoleHuntGroup
- updateDeviceProfile
- updateLine
- updateLineGroup
- addDevicePool
- updateDevicePool

- doDeviceReset

The following API calls that have been deprecated in Cisco Unified Communications Manager 5.0:

- addDDI
- updateDDI
- removeDDI
- addDialPlan
- updateDialPlan
- removeDialPlan
- addDialPlanTag
- updateDialPlanTag
- removeDialPlanTag

New Information for Cisco Unified Communications Manager 4.2(2)

This section describes the new or changed API calls for Cisco Unified Communications Manager 4.2(2) and a new service parameter for Cisco Database Layer Monitor.

Changed API Calls

Changes to the following API calls in Cisco Unified Communications Manager 4.2(2) support the Hold Reversion feature:

- addDevicePool (adds revertPriority to this request)
- updateDevicePool (adds revertPriority to this request)
- addLine (adds hrDuration and hrInterval to this request)
- updateLine (adds hrDuration and hrInterval to this request)

Because these new tags are disabled by default, these changes are backward-compatible with existing user code.

New Service Parameter

A new service parameter, EnableAXLEncodingInfo, has been added to Cisco Unified Communications Manager Administration under the Cisco Database Layer Monitor service. This parameter enables the user to decide if AXL responses should contain encoding information. Encoding information is important if an AXL request has non-English characters in it.

New Information for Cisco Unified Communications Manager 4.1(2)

The following AXL API calls are new in Cisco Unified Communications Manager 4.1(2):

addTimePeriod

updateTimePeriod

removeTimePeriod

getTimePeriod
addTimeSchedule
updateTimeSchedule
removeTimeSchedule
getTimeSchedule
addCMCInfo
updateCMCInfo
removeCMCInfo
getCMCInfo
addFACInfo
updateFACInfo
removeFACInfo
getFACInfo

The following AXL API calls have been changed in Cisco Unified Communications Manager 4.1(2):

addPhone
updatePhone
getPhone
addLine
updateLine
addUser
removeUser
updateUser
getUser
addDeviceProfile
updateDeviceProfile
getDeviceProfile
addRoutePattern
updateRoutePattern
getRoutePattern
addRouteList
updateRouteList
getRouteList
addGatewayEndpoint
updateGatewayEndpoint
getGatewayEndpoint
addH323Trunk
updateH323Trunk
removeH323Trunk

getH323Trunk
addHuntPilot
updateHuntPilot
removeHuntPilot
getHuntPilot
addProcessNode
updateProcessNode
removeProcessNode
getProcessNode
listAllProcessNodes
listProcessNodesByService
addRoutePartition
updateRoutePartition
removeRoutePartition
getRoutePartition
addH323Gateway
updateH323Gateway
removeH323Gateway
getH323Gateway
addH323Phone
updateH323Phone
removeH323Phone
getH323Phone
addHuntList
updateHuntList
removeHuntList
getHuntList

AXL Schema Documentation

The axlsqltoolkit.zip plug-in contains the following five AXL schema files:

- AXLAPI.wsdl
- AXLEnums.xsd
- axlmessage.xsd
- axlsoap.xsd
- axl.xsd

These files encapsulate the complete AXL schema, including details of all requests, responses, XML objects, and data types.

In addition to these schema files, two folders exist:

- WSDL-AXIS
- WSDL-NET

Each of these folders contains AXLAPI.wsdl and AXLSoap.xsd files to be used for application development in AXIS or .NET client environments, respectively. The plug-in also contains version specific AXL in folders 1.0, 6.0, 6.1, and 7.0.

You can obtain complete documentation of all available AXL messages from the Cisco Developer Services web site: <http://developer.cisco.com>. This website requires a Cisco.com login.

You can use the ***Application > Plugins > Cisco Unified Communications Manager AXL SQL Toolkit*** command from the Cisco Unified Communications Manager server administration interface to obtain:

- AXL schema (.xsd) files
See also [AXL Schema Documentation, page 2-30](#).
- The WSDL file

AXL Versioning Support

To improve backward compatibility, Cisco Unified Communications Manager introduced AXL schema versioning in Release 6.0(1). This feature is included in all subsequent Cisco Unified Communications Manager releases. Beginning with Release 6.0(1), the system duplicates the previous AXL 1.0 schema as the AXL 6.0(1) schema and numbers the AXL schema the same as the corresponding Cisco Unified Communications Manager release. This approach maintains AXL backward compatibility for one full release cycle.

Cisco highly recommends that developers include the version of AXL schema on which an AXL request is based because support for unversioned requests might be removed in future releases of Cisco Unified Communications Manager.

For those developers who are using the AXL APIs `executeSQLQuery` and `executeSQLUpdate`, changes have occurred to the Cisco Unified Communications Manager database schema that affect the direct SQL query approach. Refer to the *Cisco Unified Communications Manager Database Dictionary*, at http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_programming_reference_guides_list.html, for the release that you are using. That document describes the specific changes in the database schema.

To help developers plan for AXL versioning, [Table 2-6](#) provides the approach that Cisco will follow in supporting upcoming releases.

- Cisco will support AXL requests **without** version information for only three releases following the 6.0(1) release; after that, requests without version information will be rejected.
- AXL requests **with** version information will have the corresponding schema applied for up to three subsequent releases; after that, the specified version may not be available.

AXL Policy Under Consideration For Future Release

The following policies related to AXL versioning support is under consideration for future release:

- AXL schema versioning will continue indefinitely.
- AXL schemas will be available for two major Unified CM release cycles, such that AXL applications will require minor updates every two years.
- Future release of Unified CM will have AXL schemas 8.0, 7.1, 7.0, and 6.1. The current AXL 6.0 schema will be removed.
- The default AXL schema will change, in the next major Unified CM release, from the current 6.0 schema to the 6.1 schema.
- Developers who do not request a specific AXL schema will always connect to the oldest schema available.
- Developers can request other available AXL schemas by specifying the AXL schema version in the SOAP Action Header.

Table 2-6 AXL Versioning and Schema Plan

		AXL Request no version specified	AXL Request with Version Specified					
			CUCM:DB ver=6.0()	CUCM:DB ver=6.1	CUCM:DB ver=7.0	CUCM:DB ver=7.1	Plus 1 release	Plus 2 release
Cisco Unified Communications Manager Release	Release 6.0(1)	6.0 schema applied	6.0 schema applied	Not Applicable				
	Release 6.1(0)	6.0 schema applied	6.0 schema applied					
	Release 7.0(1)	6.0 schema applied	6.0 schema applied	6.1 schema applied	7.0 schema applied			
	Release 7.1(2)	6.0 schema applied	6.0 schema applied	6.1 schema applied	7.0 schema applied	7.1 schema applied		
	Plus 1 releases	6.1 schema applied	Not Applicable		6.1 schema applied	7.0 schema applied	7.1 schema applied	Plus 1 schema applied
	Plus 2 releases	7.0 schema applied			7.0 schema applied	7.1 schema applied	Plus 1 schema applied	Plus 2 schema applied
	Plus 3 releases	7.1 schema applied	Schema no longer available			7.1 schema applied	Plus 1 schema applied	Plus 2 schema applied

The following sample AXL request carries version information:

```
Host:10.77.31.194:8443
Authorization: Basic Q0NNQWRtaW5pc3RyYXRvcjpaXNjb19jaXNjbw==
Accept: text/*
Content-type: text/xml
SOAPAction: "CUCM:DB ver=7.0"
Content-length: 427
SOAP-ENV:Envelope xmlns:SOAP-ENV=http://schemas.xmlsoap.org/soap/envelope/
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <axl:getUser xmlns:axl="http://www.cisco.com/AXL/7.0"
si:schemaLocation="http://www.cisco.com/AXL/API/7.0 http://ccmschema/schema/axlsoap.xsd"
sequence="1234">
      <userid>tttt</userid>
    </axl:getUser>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Sample AXL response:

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Set-Cookie: JSESSIONIDSSO=12E52A7F9B34107BA6147096878E00F9; Path=/
Set-Cookie: JSESSIONID=7B94F17D61C6A91B04C5C76A6E3F905E; Path=/axl; Secure
SOAPAction: "CUCM:DB ver=7.0"
```

```

Content-Type: text/xml;charset=utf-8
Content-Length: 1936
Date: Mon, 03 Mar 2008 10:17:38 GMT
Connection: close
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="
http://schemas.xmlsoap.org/soap/encoding/"><SOAP-ENV:Header/>

<SOAP-ENV:Body>
  <axl:getUserResponse xmlns:axl="http://www.cisco.com/AXL/API/7.0"
xmlns:xsi="http://www.cisco.com/AXL/API/7.0" sequence="1234">
    <return>
      <user>
        <firstname/>
        <lastname>tttt</lastname>
        <userid>tttt</userid>
        <password/>
        <pin/>
        <telephoneNumber/>
        <department/>
        <manager/>
        <associatedDevices>
          <device>SEPA8888888888</device>
        </associatedDevices>
        <primaryExtension/>
        <associatedPC/>
        <associatedGroups>
          <userGroup uuid="{6B126A13-8F47-B78D-13D4-9555D664F634}">
            <name>test</name>
            <userRoles>
              <userRole uuid="{A6BAE213-AAB5-F794-B71C-98EE94129C9B}">Standard AXL API
Access</userRole>
            </userRoles>
          </userGroup>
        </associatedGroups>
        <enableCTI>true</enableCTI>
        <digestCredentials/>
        <enableMobility>false</enableMobility>
        <enableMobileVoiceAccess>false</enableMobileVoiceAccess>
        <maxDeskPickupWaitTime>10000</maxDeskPickupWaitTime>
        <remoteDestinationLimit>4</remoteDestinationLimit>
        <passwordCredentials>
          <pwdCredPolicyName>Default Credential Policy</pwdCredPolicyName>
          <pwdCredUserCantChange>false</pwdCredUserCantChange>
          <pwdCredUserMustChange>false</pwdCredUserMustChange>
          <pwdCredDoesNotExpire>false</pwdCredDoesNotExpire>
          <pwdCredTimeChanged>February 14, 2008 16:10:12 IST</pwdCredTimeChanged>
          <pwdCredTimeAdminLockout/>
          <pwdCredLockedByAdministrator>false</pwdCredLockedByAdministrator>
        </passwordCredentials>
        <pinCredentials>
          <pinCredPolicyName>Default Credential Policy</pinCredPolicyName>
          <pinCredUserCantChange>false</pinCredUserCantChange>
          <pinCredUserMustChange>false</pinCredUserMustChange>
          <pinCredDoesNotExpire>false</pinCredDoesNotExpire>
          <pinCredTimeChanged>February 14, 2008 16:10:12 IST</pinCredTimeChanged>
          <pinCredTimeAdminLockout/>
          <pinCredLockedByAdministrator>false</pinCredLockedByAdministrator>
        </pinCredentials>
      </user>
    </return>
  </axl:getUserResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Authentication

The system controls user authentication via the HTTPS Basic Authentication scheme; therefore, you must include the Authorization header in the HTTPS header. Because Base64 encoding takes three 8-bit bytes and represents them as four printable ASCII characters, if the encoded header does not contain an even multiple of four ASCII characters (16, 20, 24, and so on), you must add padding characters (=) to complete the final group of four.

Ensure users are authorized to access AXL. For help with configuring authorization, see [Post-Installation Steps and Troubleshooting on the Linux Platform, page 2-36](#).

If user authentication of the user fails, the system returns an HTTP 401 Access Denied error to the client.

For example, if the user agent wants to send the userid “larry” and password “curly and moe,” it would use the following header field:

```
Authorization: Basic bGFycnk6Y3VybkkgYW5kIG1vZQ==
```

where the string “bGFycnk6Y3VybkkgYW5kIG1vZQ==” provides the Base64 encoding of “larry:curly and moe.”



Note

The two “equals” characters (=) at the end of the string act as padding characters for Base64 encoding.

Data Encryption

Encrypt AXL SOAP messages by using HTTP Secure Sockets Layer (SSL). SSL remains functional on the web server by default. Ensure AXL requests are made by using the “https” protocol.

Dynamic Throttling of Requests

Cisco Unified Communications Manager releases earlier than 7.0 included the AXL service parameter MaxAXLWritesPerMinute, which has a default value of 50 and maximum value of 999. This service parameter designates the maximum number of write requests that AXL can encounter and process in one minute. Cisco Unified Communications Manager 7.0 includes a new throttling mechanism. The MaxAXLWritesPerMinute service parameter has been deprecated.

The new throttling mechanism takes into account the dynamic state of Cisco Unified Communications Manager. It considers the number of outstanding change notifications across the Cisco Unified Communications Manager cluster at any given time. If a node has more than 1,500 outstanding change notifications, AXL stops processing write requests until the outstanding change notifications are below 1,500. During throttling, HTTPS Status-Code: 503 Service Unavailable response and sets AXL performance counters which can be viewed using RTMT. When a 503 Service Unavailable response is returned, Cisco recommends that the application sleep for a number of seconds or milliseconds (as determined by the developer) to allow pending write requests to be processed. The application should then continue submitting requests.

There are two AXL performance counters:

- ThrottleCount—Determines number of times Administrative AXL throttling has been engaged.
- ThrottleState—Determines the state of AXL throttling. That is, whether AXL throttling is currently active (throttling is engaged).

The AXL error message for throttling remains same as in earlier versions of Cisco Unified Communications Manager. There is no change required to AXL applications.

For example, consider an application that makes 1,000 phone insertions in 30 seconds. Assume that these insertions cause 2,000 change notifications to various applications such as Cisco Unified Communications Manager and Cisco TFTP, and that within 10 seconds all change notifications are consumed. In this situation, by the 40th second, the number of outstanding change notifications is zero and the throttling mechanism does not take effect. However, if these change notifications are not consumed, the throttling mechanism does take effect and write requests are throttled until the outstanding change notification value falls below 1,500.

The throttling mechanism considers the capacity of the Cisco Unified Communications Manager cluster to consume the change notifications that generated from all the write activities to the Cisco Unified Communications Manager database. In this way, it is dynamic. As long as all change notifications are consumed at a rate that is equal to or higher than the rate at which change notifications are generated, throttling does not take effect.

Table 2-7 AXL Query Limits

Writes Per Minute	Maximum of 1500 Write requests
Reads Per Minute	No limit for Read requests.
Total Records	No limits for total number of records. But size of total records must be less than 8MB per request and 16MB is the maximum buffer allocated for parallel processing of requests.



Note

- Read requests are never throttled and pass through even when write requests are throttled.
- The MaxAXLWritesPerMinute service parameter has been deprecated and is no longer available.

Integration Considerations and Interoperability

The AXL API gives much power to developers to modify the Cisco Unified Communications Manager system database. The developer must use caution when using AXL because each API call impacts the system. Abuse of the API can lead to dropped calls and slower system performance. AXL acts as a provisioning and configuration API, not as a real-time API.

The AXL interface provides Developers with direct access to the Cisco Unified Communications Manager database via the ExecuteSQLQuery and ExecuteSQLUpdate methods. While the Dynamic Throttling mechanism protects system resources when multiple update (write) requests are received, by returning a “503: Service Unavailable” error message, there is no mechanism to guard system resources when large read requests are received.

Queries issued using the ExecuteSQLQuery method that result in a data sets greater than 8 MB may place Cisco Unified Communications Manager resources at risk. Cisco recommends developers using ExecuteSQLQuery method to follow these guidelines:

- Applications should break up all SQL queries so that the data returned is always less than 8 MB
- Use the Cisco Unified Communications Manager Data Dictionary (http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_programming_reference_guides_list.html) to help determine the maximum allowable size of any field in the database

- ASCII characters are stored as 1-byte
- i18n characters (UTF-8) are stored as 3-bytes
- DB has a mix of ASCII and UTF-8 characters
- While UCMgr is processing a large query, concurrent queries should not result in data sets larger than 2 MB
- Applications should wait to receive a response before issuing subsequent queries
- Applications should not submit duplicate queries.

**Note**

Because AXL is not a real-time API, the autologout function of extension mobility does not work when the user is logged in/out of EM via the AXL interface.

Post-Installation Steps and Troubleshooting on the Linux Platform

The system implements AXL as a Java servlet. The Java implementation provides platform independence. AXL accesses the Cisco Unified Communications Manager database by using DBL2, which is a JDBC wrapper implementation. AXL gets packaged as a WAR file. Linux RPM installs the war file for AXL on Cisco Unified Communications Manager server.

Follow the procedures in [Post-Installation Steps , page 2-36](#), to start the AXL service and set up user permissions. Next, follow the procedures in [Post-Installation Troubleshooting Checklist, page 2-37](#), to check the installation.

Post-Installation Steps

You can start or stop the AXL web service from Cisco Unified Communications Manager Serviceability. The service is disabled by default. You should start the service before using the AXL APIs.

Starting the AXL Service

- | | |
|---------------|--|
| Step 1 | From the Cisco Unified Communications Manager Administration window, choose Navigation > Cisco Unified Communications Manager Serviceability . |
| Step 2 | Choose Tools > Service Activation . |
| Step 3 | From the Server box, choose the server and click GO . |
| Step 4 | From Database and Admin Services , select Cisco AXL Web Service and save the changes. |

Upon starting the AXL service, AXL gets deployed as a web application within Apache Tomcat. The WAR file gets deployed to Tomcat under `/usr/local/thirdparty/jakarta-tomcat/webapps/axl`.

Setting AXL API Access Permissions

-
- Step 1** From the Cisco Unified Communications Manager Administration window, choose **User Management > UserGroup > Add New**.
- Step 2** To add AXP API access for the new UserGroup
- Choose **User Management > User Group**.
 - Choose **Role > Assign Role to Group**.
 - Select **Standard AXL API Access**.
 - Click **Add Selected**.
 - On the main page, click **Save**.
- Step 3** To add a user to the new UserGroup
- Choose **User Management > User Group**.
 - Choose **UserGroup > Add End Users to Group**.
 - Select the user and click **Add Selected**.
-

Post-Installation Troubleshooting Checklist

Use the following checklist to avoid some common problems by fine-tuning your configuration before proceeding with the troubleshooting process:

-
- Step 1** If the AXL client application cannot connect to the AXL service, check the following
- Is the AXL application configured with the correct IP address for the AXL server?
 - Is the AXL application configured with the appropriate AXL user credentials?
 - Does the application server have HTTPS connectivity to the AXL server?
Use this URL for accessing AXL: `https://server-name:port/axl/` (port is 8443).
 - Is HTTPS (secure) configured for AXL?
- Step 2** Verify basic AXL functionality by performing the procedure that follows:
- Go to the AXL API URL via a web browser.
For instance, enter `https://server-name:8443/axl/` in the address text box.
 - When prompted for user name and password, use the standard administrator login, or use the user name that is associated with a user group that is assigned the AXL role.
 - Look for a plain page that states the AXL listener is working and accepting requests but only communicates via POST.
- This procedure verifies functionality and user access.
- Step 3** If the AXL functions or requests are failing with error as User Authorization error: “Access to the requested resource has been denied,” check whether the user has the permission to the Standard AXL API Access. You can check this from the Permission Information section of the EndUser configuration window.
- Step 4** If the AXL functions or requests are failing, check the following:

- AXL logs for AXL or SOAP error responses. See the “[AXL Error Codes](#)” section on page 2-54.
- For further debugging, you can view the AXL log files with the RTMT application.

Step 5 Check that applications in a cluster configuration are connected to the AXL service only on the Cisco Unified Communications Manager Publisher server if the application needs to modify the database.

AXL Trace Logs

AXL trace logs contain the text of every AXL request and response, along with user and origination IP information. Trace logs prove useful for identifying who is making AXL requests, inspecting the AXL XML request for format or syntax errors, and determining the actual AXL service response or errors.

The system writes the AXL trace logs to the `/var/log/active/tomcat/logs/axl/log4j` directory. You can view them with RTMT. File names are `axl####.log`, where `#` represents a number from 0000 (zero) to the maximum number of files allowed. The maximum file size is 1 MB by default. The maximum number of stored files defaults to 10. You can change these settings through the Serviceability windows .



Note

If an AXL login request contains a `<password>` tag with an `xmlns` attribute value, versions of the AXL API prior to 6.0(1) or 5.1(2) log the password in clear text. In later versions of the API, the system replaces the password with an “*” character.

For .NET WSDL applications, including the `xmlns` attribute in the `<password>` tag would be typical behavior, and, in earlier releases, this could represent a security issue. If the SOAP message body contains a namespace tag, you do not need to specify the `xmlns` attribute for each individual tag.

While analyzing the log files:

- Determine which log file is currently active by timestamp.
- Look for Exception traces that indicate processing errors.
- If no traces are being added, verify that Tomcat is running, AXL is currently activated, and a client application is attempting to communicate with the AXL API.

The following sample shows the AXL trace log output:

```
2007-03-17 05:32:26,512 INFO [http-8443-Processor21] axl.AxlListener - Received request
1173323669700 from CCMAdministrator at IP 10.77.31.203
2007-03-17 05:32:26,513 INFO [http-8443-Processor21] axl.AxlListener - <!-- edited with
XMLSPY v5 rel. 4 U (http://www.xmlspy.com) by Jerry Vander Voord (Cisco Systems)
--><SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"><SOAP-ENV:Body>
<axlapi:addGatekeeper sequence="1" xmlns:axlapi="http://www.cisco.com/AXL/API/7.0"
xmlns:axl="http://www.cisco.com/AXL/7.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.cisco.com/AXL/API/7.0 axlsoap.xsd">
<gatekeeper>
  <name>AXL-Sample-GK1</name>
  <description>This is a sample gatekeeper</description>
  <rrqTimeToLive>30</rrqTimeToLive>
  <retryTimeout>30</retryTimeout>
  <enableDevice>false</enableDevice>
</gatekeeper>
</axlapi:addGatekeeper></SOAP-ENV:Body></SOAP-ENV:Envelope>
2007-03-17 05:32:26,668 INFO [http-8443-Processor21] axl.Handler - Handler initializing
```

```

2007-03-17 05:32:26,788 INFO [http-8443-Processor21] axl.AxlListener - <?xml
version="1.0" encoding="UTF-8"?><SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"><SOAP-ENV:Header/><SOAP
-ENV:Body>
<axl:addGatekeeperResponse xmlns:axl=http://www.cisco.com/AXL/7.0
xmlns:xsi="http://www.cisco.com/AXL/7.0" sequence="1">
<return>{7EB31958-C24A-3E63-3E4B-A8446365D35}</return>
</axl:addGatekeeperResponse></SOAP-ENV:Body></SOAP-ENV:Envelope>
2007-03-17 05:32:26,789 INFO [http-8443-Processor21] axl.AxlListener - Request
1173323669700 was process in 356ms

```

The AXL trace log contains:

- Time that the request was received - 05:32:26,512
- Client IP address - IP 10.77.31.203
- Client user ID - CCMAdministrator
- Request ID number - 1173323669700
- Request contents – addGatekeeper, <gatekeeper>, <name>, and so on
- Response contents - <name>
- Time taken for the response - 356 ms

Follow these steps to set the AXL trace level from the Serviceability window:

-
- Step 1** From the Cisco Unified Communications Manager Administration window, choose **Application > Cisco Unified Communications Manager Serviceability**.
 - Step 2** Choose **Trace > Configuration**.
 - Step 3** From the **Servers** column, select the server and click **GO**.
 - Step 4** From the **Service Group** box, select **Database And Admin Services** and click **GO**.
 - Step 5** From the **Services** box, select the **Cisco AXL Web Service** and click **GO**.
 - Step 6** Check the **Trace On** check box.
 - Step 7** If you want the trace to apply to all Cisco Unified Communications Manager servers in the cluster, select the **Apply to All Nodes** check box.

Step 8 From the **Debug Trace Level** field, select **Debug**.

201549

Step 9 You can set trace output options from the same window.



Note

You should enable AXL logs only on request from Cisco TAC or Cisco Developer Services.

Using the AXL API with AXIS

This section explains how to use the AXLAPI.wsdl file in a Java programming environment.

Cisco has verified the AXLAPI.wsdl file in the WSDL-AXIS folder in the AXIS environment.

Cisco provides the associated schema file, AXLSOap.xsd, only for code generation. Cisco has modified this file to minimize the backwards compatibility impact of future changes in the database schema. Use the WSDL and the schema files in the parent directory for reference and for validation of responses.

When you run the wsdl2Java utility to create the Java source code by using AXLAPI.wsdl, the utility throws two errors that are specific to AXIS_1_4. For further details on these errors, refer to <http://issues.apache.org/jira/browse/AXIS-2545> and <http://issues.apache.org/jira/browse/AXIS-1280>.

The incorrect ordering of the parameters that are passed to the constructor causes the first AXIS jira error. A code example follows:

```
public class XNPDirectoryNumberShareLineAppearanceCSS extends
com.cisco.www.AXL.API._7_0.XCallingSearchSpace implements java.io.Serializable {
>
>
super(
    uuid,
    name,
    description,
    clause,
    dialPlanWizardGenId,
    members);
```

However, the parent constructor is defined as:

```
public XCallingSearchSpace(
    org.apache.axis.types.Name name,
    java.lang.String description,
    java.lang.String clause,
    org.apache.axis.types.NonNegativeInteger dialPlanWizardGenId,
    com.cisco.www.AXL.API._7_0.XCallingSearchSpaceMember[] members,
    java.lang.String uuid) {
    this.name = name;
    this.description = description;
    this.clause = clause;
    this.dialPlanWizardGenId = dialPlanWizardGenId;
    this.members = members;
    this.uuid = uuid;
}
```

You need to change either the constructor or the constructor calling as shown below:

```
super(
    name,
    description,
    clause,
    dialPlanWizardGenId,
    members,
    uuid);
```

The second AXIS jira error relates to having a string constructor for simple types; for example

```
// Simple Types must have a String constructor
public XLoadInformation(java.lang.String _value) {
    super(_value);
}
```

For such cases, the corresponding schema file (axl.xsd) in the parent schema folder must be referred and must implement the string class that these classes can inherit.

Using the AXL API in a .NET Environment

To integrate the AXL API with a .NET client, you must modify the Cisco-provided WSDL and XSD files.

Cisco provides the associated schema file, AXLSOAP.xsd, only for code generation. Cisco has modified this file to minimize the backwards compatibility impact of future changes in the database schema. Use the WSDL and the schema files in the parent directory for reference and for validation of responses.

The inability of .NET to handle complex schemas necessitates some of the changes that are described below.

Required Changes to the Generated Code

After running WSDL.exe, you must make several changes to the generated code. Run WSDL.exe by using the following command:

```
wsdl.exe AXLAPI.wsdl axlsoap.xsd
```

This command generates the file `AXLAPIService.cs`. The class `AXLAPIService` in `AXLAPIService.cs` requires at least three changes:

1. Create an `ICertificatePolicy`-derived class, which will later be associated with our service. This class represents a brute-force approach to policy and certificate management. You need to use this method in 5.x and 6.x AXL due to the use of HTTPS.

```
public class BruteForcePolicy : System.Net.ICertificatePolicy
{
    public bool CheckValidationResult(System.Net.ServicePoint sp,
        System.Security.Cryptography.X509Certificates.X509Certificate cert,
        System.Net.WebRequest request, int problem)
    {
        return true;
    }
}
```

2. Modify the service constructor to take username/password credentials, with the Cisco Unified Communications Manager IP address as an argument, and associate the `BruteForcePolicy` class with the static `CertificatePolicy` manager.

```
public AXLAPIService(string ccmIp, string user, string password)
{
    System.Net.ServicePointManager.CertificatePolicy = new BruteForcePolicy();

    this.Url = "https://" + ccmIp + ":8443/axl/";
    this.Credentials = new System.Net.NetworkCredential(user, password);
}
```

3. The .NET framework uses the *expects* header differently (http://issues.apache.org/bugzilla/show_bug.cgi?id=31567). Several possible workarounds exist to this problem:

- a. Override the `GetWebRequest` method to use HTTP 1.0 due to an error between TOMCAT/AXIS and the .NET HTTP 1.1 Web Service request mechanism.

```
protected override System.Net.WebRequest GetWebRequest(Uri uri)
{
    System.Net.HttpWebRequest request = base.GetWebRequest (uri) as
        System.Net.HttpWebRequest;
    request.ProtocolVersion = System.Net.HttpVersion.Version10;

    return request;
}
```

- b. Override the `GetWebRequest` method to manually embed the authentication string. If you do this, do not use the line

```
this.Credentials = new System.Net.NetworkCredential(user, password);
```

from the constructor that is provided in point 2 earlier in this section.

```
protected override System.Net.WebRequest GetWebRequest(Uri uri)
{
    System.Net.HttpWebRequest request =(System.Net.HttpWebRequest)base.GetWebRequest(uri);
    if (this.PreAuthenticate)
    {
        System.Net.NetworkCredential nc = this.Credentials.GetCredential(uri,"Basic");
        if (nc != null)
        {
            byte[] credBuf = new System.Text.UTF8Encoding().GetBytes(nc.UserName + ":" + nc.Password);
            request.Headers["Authorization"] = "Basic " + Convert.ToBase64String(credBuf);
        }
    }
}
```

```

    }
    return request;
}

```

- c. If you use wsdl2wse (WSE library) instead of wsdl.exe, you cannot override the HTTP version or supply HTTP headers manually. To use WSE, you must set the keepalive header to false for the generated class, or set the user-agent to restricted. This technique will work as an alternative to steps a and b.

Resolving JIT Errors

When you compile and attempt to instantiate the AXLAPIService class, you should expect one error to appear while the types are inspected and loaded.

Class XUserUserGroup includes a field that was generated incorrectly. You must remove one of the '[' from the two '[]' brackets after the XUserUserGroupUserRolesUserRole field:

```
public XUserUserGroupUserRolesUserRole[] userRoles;
```

Backward Compatibility Issues

When you add the definitions for new Cisco Unified IP Phone devices to the Unified CM database, the original WSDL that was sent out for that Unified CM becomes outdated. For example, the XModel enumeration in Cisco CallManager Release 4.1.3 does not contain the Cisco Unified IP Phone 7961G-GE.

However, if you install the latest device pack that contains that device information into your release 4.1.3 environment, that value will be returned if you use the listAllDevices or getPhone commands for that device name. This causes .NET to throw an exception when it encounters the new model because the definition does not contain the mode.

More generally, almost all enumerations in AXLEnums.xsd could change in some future release, which in turn might create backward incompatibility with your code. To address this issue, Cisco has changed the type of all of the tags that use any of these enumerations to String and added an annotation to that tag that specifies where to look for the correct value (AXLEnums.xsd).

Tag Serialization Issues

If you generate the client stub by using wsdl.exe, you may find that some fields that have default values that are defined in the schema would not work if passed in the AXL request. For example, in the updatePhoneReq class of the generated client stub, a field named "ignorePresentationIndicators" has a default value of "False" defined in the schema.

```
[System.Xml.Serialization.XmlTypeAttribute(Namespace="http://www.cisco.com/AXL/7.0")]
public class UpdatePhoneReq : APIRequest {
    .
    .

```

```
[System.Xml.Serialization.XmlElementAttribute(Form=System.Xml.Schema.XmlSchemaForm.Unqualified)]

```

```
    [System.ComponentModel.DefaultValueAttribute(false)]
    public bool ignorePresentationIndicators = false;
    .
    .

```

```
}

```

When this tag is sent with a value of false, XmlSerializer does not serialize this tag because of a design restriction in Microsoft .NET Framework 1.0. Refer to <http://support.microsoft.com/kb/325691>.

To work around this problem, comment out all instances of

```
[System.ComponentModel.DefaultValueAttribute(XXX)]
```

in the generated client stub as shown:

```
[System.Xml.Serialization.XmlTypeAttribute(Namespace="http://www.cisco.com/AXL/7.0")]
public class UpdatePhoneReq : APIRequest {
    .
    .
    .
    [System.Xml.Serialization.XmlElementAttribute(Form=System.Xml.Schema.XmlSchemaForm.Unqualified)]
    // Comment this line below
    //[System.ComponentModel.DefaultValueAttribute(false)]
    public bool ignorePresentationIndicators = false;
    .
    .
}
```

A second issue that is found when you are using the version of wsdl.exe that comes with .NET 1.0 is that some tags, including `fkcallingsearchspace_autoregistration`, do not get updated to null/none in the database.

This appears to be an issue in which .NET does not serialize tags that are defined as `nillable=true` in the schema.

For example, to work around this limitation for the tag `callingSearchSpace` in `updatePhoneReq` in the generated stub, you can remove the `"Form=System.Xml.Schema.XmlSchemaForm.Unqualified"` from

```
[System.Xml.Serialization.XmlElementAttribute("name", typeof(string),
Form=System.Xml.Schema.XmlSchemaForm.Unqualified)]
[System.Xml.Serialization.XmlElementAttribute("uuid", typeof(string),
Form=System.Xml.Schema.XmlSchemaForm.Unqualified)]
[System.Xml.Serialization.XmlChoiceIdentifierAttribute("ItemElementName")]
public string Item;
```

With this change, the serializer will serialize the tags. Passing the tag value as "" will set the `callingSearchSpace` to null/None. The same workaround applies to other such tags.

Names Containing Special Characters

Using the version of wsdl.exe that comes with .NET 1.0, Cisco has found that when attempting to add elements like `gatewayEndpoint`, `MGCP endpoint` or `CSS` where the name contains special characters, the elements do not get updated in the database properly.

For example, a `gatewayEndpoint` with `name="AALN@SAA000011114444"` sent as `name="AALN_x0040_SAA000011114444"` in the AXL request.

This appears to be a limitation in .NET serialization of tags that are defined as type `xsd:name` in the schema.

In the XML specification, the type `xsd:name` is defined as a token that begins with a letter or one of a few punctuation characters and continues with letters, digits, hyphens, underscores, colons, or periods, together known as name characters. Thus, `xsd:name` does not allow any special characters such as '@' or '/'.

One workaround involves changing the data type from "Name" to "string" in the generated stub:

Original Code

```
public class XDevice {  
    [System.Xml.Serialization.XmlElementAttribute  
    (Form=System.Xml.Schema.XmlSchemaForm.Unqualified, DataType="Name")]  
    public string name;
```

Modified Code

```
public class XDevice {  
    [System.Xml.Serialization.XmlElementAttribute(typeof(string),  
    Form=System.Xml.Schema.XmlSchemaForm.Unqualified)]  
    public string name;
```

With this modification, the special characters in the name will be updated in the database without any conversion.

Returned Namespace for AXIS and .NET Applications

By default, the AXLAPI.wsdl carries the namespace <http://www.cisco.com/AXL/API/7.0>. The generated client stubs also have this namespace. In some situations, you must change the namespace in AXLAPI.wsdl before creating the client stubs.

The namespace that is returned in the AXL response depends on two factors:

1. Whether the SOAPAction attribute in the HTTP header had the value “CUCM:DB ver=7.0.”
2. The value of the “Send Valid Namespace in AXL Response” service parameter in the Cisco Unified Communications Manager Administration Service Parameter window.

If the SOAPAction attribute in the HTTP header has the value “CUCM:DB ver=7.0”:

- The AXL response will have the namespace value that the “Send Valid Namespace in AXL Response” service parameter specifies: either <http://www.cisco.com/AXL/API/7.0> or <http://www.cisco.com/AXL/7.0>.
- If you set the service parameter “Send Valid Namespace in AXL Response” to true, the namespace that is returned in the AXL response will be <http://www.cisco.com/AXL/API/7.0>, which will match the namespace that is specified in AXLAPI.wsdl.
- If you set this service parameter to False, the namespace that is returned in the AXL response will be <http://www.cisco.com/AXL/7.0>.

If the SOAPAction attribute has any other value, the AXL response will have the namespace <http://www.cisco.com/AXL/API/1.0> or <http://www.cisco.com/AXL/1.0>, depending on the value of the service parameter.

Example AXL Requests

No platform considerations exist in Cisco Unified Communications Manager Release 7.0(1). The client must be able to send an HTTPS request to the AXL endpoint.

The following examples describe how to make an AXL request and read back the response to the request.

Ensure each SOAP request is sent to the web server via an HTTPS POST. The endpoint URL represents the AXL web service that is running on a Cisco Unified Communications Manager server. The following list contains the only four required HTTPS headers:

- POST :8443/axl/

The first header specifies that this particular POST is intended for the Cisco AXL Web Service. The AXL API only responds to the POST method.

- content-type: text/xml

The second header confirms that the data that is being sent to AXL is XML. If this header is not found, the system returns an HTTP 415 error to the client.

- Authorization: Basic <some Base 64 encoded string>

The third header gives the Base64 encoding of the user name and password for the administrator of the AXL Server. Because Base64 encoding takes three 8-bit bytes and represents them as four printable ASCII characters, if the encoded header does not contain an even multiple of four ASCII characters (16, 20, 24, and so on), you must add padding characters (=) to complete the final group of four as in the following examples.

If authentication of the user fails, the system returns an HTTP 401 Access Denied error to the client.

- content-length: <a positive integer>

The fourth header specifies the length (in bytes) of the AXL request.



Note If a request that is greater than 40 kilobytes is received, the system returns an HTTP 413 error message.

The following example contains an HTTPS header for an AXL SOAP request:

```
POST :8443/axl/
Host: axl.myhost.com:8443
Accept: text/*
Authorization: Basic bGFycnk6Y3VybkkgYW5kIG1vZQ==
Content-type: text/xml
SOAPAction: "CUCM:DB ver=7.0"
Content-length: 613
```

The following AXL request gets used in the code examples that display in the following sections. This example shows a getPhone request:

```
POST :8443/axl/
Host: axl.myhost.com:8443
Accept: text/*
Authorization: Basic bGFycnk6Y3VybkkgYW5kIG1vZQ==
Content-type: text/xml
SOAPAction: "CUCM:DB ver=7.0"
Content-length: 613
```

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
```

```

        <axl:getPhone xmlns:axl="http://www.cisco.com/AXL/7.0"
xsi:schemaLocation="http://www.cisco.com/AXL/7.0 http://ccmserver/schema/axlsoap.xsd
" sequence="1234">
        <phoneName>SEP22222222245</phoneName>
    </axl:getPhone>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

C or C++ Example

This code example uses a hard-coded AXL request and sends it to the AXL server that is running on the local system (localhost). It then reads the response and outputs the response to the screen:

```

#include <sys/socket.h>
#include <sys/types.h>
#include <stdlib.h>
#include <openssl/ssl.h>
#include <stdio.h>
#include <unistd.h>
#include <netinet/in.h>
#include <arpa/inet.h>
#include <strings.h>
#include <openssl/x509.h>
#include <openssl/crypto.h>
#include <iostream>
#include <string>
using namespace std;
typedef unsigned char byte;

void encodeBase64( const string& inBuf, string &outBuf )
{
    unsigned int i;
    unsigned int j;
    bool hiteof = false;
    byte dtable[256];

    outBuf.erase();

    for(i= 0;i<9;i++)
    {
        dtable[i]= 'A'+i;
        dtable[i+9]= 'J'+i;
        dtable[26+i]= 'a'+i;
        dtable[26+i+9]= 'j'+i;
    }
    for(i= 0;i<8;i++)
    {
        dtable[i+18]= 'S'+i;
        dtable[26+i+18]= 's'+i;
    }
    for(i= 0;i<10;i++)
    {
        dtable[52+i]= '0'+i;
    }

    dtable[62]= '+';
    dtable[63]= '/';

    j = 0;
    while(!hiteof)
    {
        byte igroup[3],ogroup[4];
        int c,n;

```

```

    igrp[0]= igrp[1]= igrp[2]= 0;
    for(n= 0;n<3;n++){
        if( j < inBuf.size() )
        {
            c = inBuf[j++];
        } else
        {
            hiteof = true;
            break;
        }
        igrp[n]= (byte)c;
    }
    if(n> 0)
    {
        ogrp[0]= dtable[igrp[0]>>2];
        ogrp[1]= dtable[((igrp[0]&3)<<4)|(igrp[1]>>4)];
        ogrp[2]= dtable[((igrp[1]&0xF)<<2)|(igrp[2]>>6)];
        ogrp[3]= dtable[igrp[2]&0x3F];

        if(n<3)
        {
            ogrp[3]= '=';
            if(n<2)
            {
                ogrp[2]= '=';
            }
        }
        for(i= 0;i<4;i++)
        {
            outBuf += ogrp[i];
        }
    }
}

string getAuthorization()
{
    string m_encode64,name;
    //You should change name to your own axl server user name and passwd
    //in this example, "CCMAdministrator" is the user name and "cisco_cisco" is the passwd.
    name="CCMAdministrator:cisco_cisco";
    encodeBase64(name,m_encode64);
    return m_encode64;
}

void
BuildDeviceNameSQL(string &buf, // Buffer to build AXL
                  string& deviceNumber, // DN
                  string& seqNum )
{
    const int BUFSIZE = 2048;
    char buff[BUFSIZE]; // Temp buffer
    string strHTTPHeader; // HTTP/AXL Header
    string strAXLRequest; // AXL Request

    strAXLRequest = "<SOAP-ENV:Envelope xmlns:SOAP-ENV=";
    strAXLRequest += "\"http://schemas.xmlsoap.org/soap/envelope/\"";
    strAXLRequest += " xmlns:SOAP-ENC=\"http://schemas.xmlsoap.org/soap/encoding/\"";
    strAXLRequest += " xmlns:xsi=\"http://www.w3.org/2001/XMLSchema-instance\"";
    strAXLRequest += " xmlns:xsd=\"http://www.w3.org/2001/XMLSchema\"> ";
    strAXLRequest += "<SOAP-ENV:Body> ";
    strAXLRequest += "<m:executesQLQuery xmlns:m=\"http://www.cisco.com/AXL/API/7.0\"";
    strAXLRequest += " sequence=\"" + seqNum + "\"> ";
    strAXLRequest += "<m:sql> ";
    strAXLRequest += "SELECT * FROM Device ";
    strAXLRequest += "</m:sql> ";
    strAXLRequest += "</m:executesQLQuery> ";

```

```

strAXLRequest += "</SOAP-ENV:Body> ";
strAXLRequest += "</SOAP-ENV:Envelope>";

strHTTPHeader = "POST /axl/ HTTP/1.1\r\n";

strHTTPHeader += "Host: localhost:8443\r\n";
strHTTPHeader += "Accept: text/*\r\n";
strHTTPHeader += "Authorization: Basic ";
strHTTPHeader += getAuthorization() + "\r\n";
strHTTPHeader += "Content-type: text/xml\r\n";
strHTTPHeader += "SOAPAction: \"CUCM:DB ver=7.0\"\r\n";
strHTTPHeader += "Content-length: ";

// temporarily use the buffer to store the length of the request
sprintf( buff, "%d", strAXLRequest.length() );

strHTTPHeader += buff;
strHTTPHeader += "\r\nConnection: Keep-Alive";
strHTTPHeader += "\r\n\r\n";

// put the HTTP header and SOAP XML together
buf = strHTTPHeader + strAXLRequest;

return;
}

int main(int argc, char** argv)
{
    struct sockaddr_in saddr;
    SSL_METHOD *meth;
    SSL_CTX *sslctx;
    SSL *ssl;
    X509* server_cert;
    string buff,line,seqnum;
    char buffer[2048];
    int status,error;
    char *str;

    if( argc!=3 )
    {
        printf("Usage : ssltest <ip> <port> \n");
        printf("Usage : the default port is 8443 \n");
        printf("Usage : the ip is the ip of ccm5.0 \n");
        printf("Example: ssltest 10.77.31.168 8443 \n");

        exit(2);
    }

    int sock=socket(AF_INET,SOCK_STREAM,IPPROTO_TCP);
    if(sock<0)
    {
        printf("create socket failed\n");
        exit(1);
    }
    saddr.sin_family=AF_INET;
    saddr.sin_port=htons(atoi(argv[2]));
    saddr.sin_addr.s_addr =inet_addr(argv[1]);
    status=connect(sock,(struct sockaddr *)&saddr,sizeof(saddr));
    if(status<0)
    {
        printf("connect to %s failed\n",argv[1]);
        exit(2);
    }
    SSL_library_init();
    meth=TLSv1_client_method();
    sslctx=SSL_CTX_new(meth);

```

```

if(!sslctx)
{
    printf("SSL_CTX_new failed\n");
    close(sock);
    exit(3);
}
SSL_CTX_set_verify(sslctx, SSL_VERIFY_NONE, NULL);
ssl =SSL_new(sslctx);
if(!ssl)
{
    printf("SSL_new failed\n");
    close(sock);
    exit(4);
}
status=SSL_set_fd(ssl, sock);
if(!status)
{
    printf("SSL_set_fd failed\n");
    close(sock);
    exit(5);
}
SSL_set_mode(ssl, SSL_MODE_AUTO_RETRY);
status=SSL_connect(ssl);
error=SSL_get_error(ssl, status);
switch(error)
{
    case SSL_ERROR_NONE:
        printf("connect successful\n");
        break;
    case SSL_ERROR_ZERO_RETURN:
        printf("peer close ssl connection \n");
        break;
    default:
        printf("connect error is %d\n", error);
}

server_cert = SSL_get_peer_certificate (ssl);
if(!server_cert)
{
    printf("get server certificate failed!\n");
    SSL_shutdown(ssl);
    close(sock);
    exit(6);
}
str= X509_NAME_oneline(X509_get_subject_name (server_cert),0,0);
if(str)
{
    printf("subject :%s\n", str);
}
else
    printf("subject is empty\n");
str = X509_NAME_oneline (X509_get_issuer_name (server_cert),0,0);
if(!str)
    printf("issuer name is :%s\n", str);
else
    printf("issuer name is empty \n");
line="12";
seqnum="1234";
BuildDeviceNameSQL(buff, line, seqnum);
SSL_write(ssl, buff.c_str(), buff.length());
printf("\n");
printf("\n");
printf("Request sent is:\n");
printf(buff.c_str());
printf("\n");
printf("\n");
SSL_read(ssl, buffer, sizeof(buffer));

```

```

printf("Response from server is: \n%s\n",buffer);
status=SSL_shutdown(ssl);
if(status==1)
    printf("shutdown successful\n");
else
    printf("\nshutdown error code is %d\n",status);
close(sock);
}

```

Java Example

This code example uses a hard-coded AXL request and sends it to the AXL server that is running on the local system (localhost). It then reads the response and outputs the response to the screen.

```

import java.io.*;
import java.net.*;
import javax.net.ssl.*;
import java.security.cert.CertificateException;
import java.security.cert.X509Certificate;

public class AXLJavaClient {
    public static void main(String[] args) {
        byte[] bArray = null; // buffer for reading response from
        Socket socket = null; // socket to AXL server
        OutputStream out = null; // output stream to server
        InputStream in = null; // input stream from server

        String sAXLSOAPRequest = "";
        // HTTPS header and SOAP payload
        String sAXLRequest = null; // will hold only the SOAP payload
        //username=CCMAdministrator and password=cisco_cisco
        String authorization = "CCMAdministrator" + ":" + "cisco_cisco";
        // base64 encoding of the username and password
        authorization = new sun.misc.BASE64Encoder().encode(authorization.getBytes());
        // Form the http header
        sAXLSOAPRequest = "POST /axl/ HTTP/1.0\r\n";
        sAXLSOAPRequest += "Host:localhost:8443\r\n";
        sAXLSOAPRequest += "Authorization: Basic " + authorization + "\r\n";
        sAXLSOAPRequest += "Accept: text/*\r\n";
        sAXLSOAPRequest += "Content-type: text/xml\r\n";
        sAXLSOAPRequest += "SOAPAction: \"CUCM:DB ver=7.0\"\r\n";
        sAXLSOAPRequest += "Content-length: ";

        // Build the SOAP payload
        sAXLRequest = "<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\" ";
        sAXLRequest += "xmlns:xsi=\"http://www.w3.org/2001/XMLSchema-instance\" ";
        xmlns:xsd=\"http://www.w3.org/2001/XMLSchema\"> ";
        sAXLRequest += "<SOAP-ENV:Body> <axl:getPhone xmlns:axl=\"http://www.cisco.com/AXL/7.0\" ";
        sAXLRequest += " xsi:schemaLocation=\"http://www.cisco.com/AXL/7.0 http://";
        ccmsserver/schema/axlsoap.xsd\" ";
        sAXLRequest += "sequence=\"1234\"> <phoneName>SEP0000000000000000</phoneName>";
        sAXLRequest += "</axl:getPhone> </SOAP-ENV:Body> </SOAP-ENV:Envelope>";

        // finish the HTTPS Header
        sAXLSOAPRequest += sAXLRequest.length();
        sAXLSOAPRequest += "\r\n\r\n";

        // now add the SOAP payload to the HTTPS header, which completes the AXL
        // SOAP request
        sAXLSOAPRequest += sAXLRequest;
    }
}

```

```

try {
    AXLJavaClient axl = new AXLJavaClient();
    // Implement the certificate-related stuffs required for sending request via https
    X509TrustManager xtm = axl.new MyTrustManager();
    TrustManager[] mytm = { xtm };
    SSLContext ctx = SSLContext.getInstance("SSL");
    ctx.init(null, mytm, null);
    SSLSocketFactory sslFact = (SSLSocketFactory) ctx.getSocketFactory();
    socket = (SSLSocket) sslFact.createSocket("10.77.31.203", Integer.parseInt("8443"));
    in = socket.getInputStream();
    // send the request to the server
    // read the response from the server
    StringBuffer sb = new StringBuffer(2048);
    bArray = new byte[2048];
    int ch = 0;
    int sum = 0;
    out = socket.getOutputStream();
    out.write(sAXLSOAPRequest.getBytes());
    while ((ch = in.read(bArray)) != -1) {
        sum += ch;
        sb.append(new String(bArray, 0, ch));
    }
    socket.close();
    // output the response to the standard output
    System.out.println(sb.toString());
} catch (UnknownHostException e) {
    System.err.println("Error connecting to host: " + e.getMessage());
    return;
} catch (IOException ioe) {
    System.err.println("Error sending/receiving from server: " + ioe.getMessage());
    // close the socket
} catch (Exception ea) {
    System.err.println("Unknown exception " + ea.getMessage());
    return;
}
} finally {
    try {
        if (socket != null)
            socket.close();
    } catch (Exception exc) {
        exc.printStackTrace();
        System.err.println("Error closing connection to server: "+ exc.getMessage());
    }
}
}

public class MyTrustManager implements X509TrustManager {

    MyTrustManager() {
        // create/load keystore
    }

    public void checkClientTrusted(X509Certificate chain[], String authType)
        throws CertificateException {

    }

    public void checkServerTrusted(X509Certificate chain[], String authType)
        throws CertificateException {

    }

    public X509Certificate[] getAcceptedIssuers() {

```

```
return null;
```

In addition to these examples, refer to the AXL SQL Toolkit, which is available for download from the Cisco Unified Communications Manager server at <https://ccmsvr:8443/plugins/axlsqltoolkit.zip>.

Using executeSQLUpdate

This example illustrates the use of the executeSQLUpdate request:

```
POST :8443/axl/
Host: axl.myhost.com:8443
Accept: text/*
Authorization: Basic bGFycnk6Y3VybHkgYW5kIG1vZQ==
Content-type: text/xml
SOAPAction: "CUCM:DB ver=7.0"
Content-length: 613

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Body>
    <axlapi:executeSQLUpdate sequence="1"
      xmlns:axlapi="http://www.cisco.com/AXL/API/7.0" xmlns:axl="http://www.cisco.com/AXL/7.0"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.cisco.com/AXL/API/7.0 axlsoap.xsd">
      <sql>
        insert into device (fkPhoneTemplate,fkDevicePool,tkclass, tkpreemption,
        tkdeviceprofile, tkmodel, tkdeviceprotocol, tkproduct, description,
        tkstatus_mlppindicationstatus, name, pkid) values ('Standard 7941 SCCP','default',1, 2, 2,
        115, 0, 115, '', 0, 'Cisco 7941', newid())
      </sql>
    </axlapi:executeSQLUpdate>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Using executeSQLQuery

This example illustrates the use of the executeSQLQuery request:

```
POST :8443/axl/
Host: axl.myhost.com:8443
Accept: text/*
Authorization: Basic bGFycnk6Y3VybHkgYW5kIG1vZQ==
Content-type: text/xml
SOAPAction: "CUCM:DB ver=7.0"
Content-length: 613

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Body>
    <axlapi:executeSQLQuery sequence="1"
      xmlns:axlapi="http://www.cisco.com/AXL/API/7.0"
      xmlns:axl="http://www.cisco.com/AXL/API/7.0"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.cisco.com/AXL/API/7.0 axlsoap.xsd">
      <sql>SELECT * from numplan</sql>
    </axlapi:executeSQLQuery>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

AXL Error Codes

If an exception occurs on the server, or if any other error occurs during the processing of an AXL request, the system returns an error in the form of a SOAP Fault message. For example:

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV=http://schemas.xmlsoap.org/soap/envelope/
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Body>
    <SOAP-ENV:Fault>
      <faultcode>SOAP-ENV:Client</faultcode>
      <faultstring>Device not found with name SEP003094C39708.</faultstring>
      <detail xmlns:axl="http://www.cisco.com/AXL/7.0"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://www.cisco.com/AXL/API/7.0
        http://myhost/CCMApi/AXL/V1/axlsoap.xsd">
        <axl:error sequence="1234">
          <code>0</code>
          <message>
            <![CDATA[
              Device not found with name SEP003094C39708.
            ]]>
          </message>
        </axl:error>
      </detail>
    </SOAP-ENV:Fault>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

SOAP Fault messages can also contain more detailed information. The following example depicts a detailed SOAP Fault:

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Body>
    <SOAP-ENV:Fault>
      <faultcode>SOAP-ENV:Client</faultcode>
      <faultstring>Device not found with name SEP003094C39708.</faultstring>
      <detail xmlns:axl="http://www.cisco.com/AXL/7.0"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://www.cisco.com/AXL/7.0
        http://myhost/CCMApi/AXL/V1/axlsoap.xsd">
        <axl:error sequence="1234">
          <code>0</code>
          <message>
            <![CDATA[
              Device not found with name SEP003094C39708.
            ]]>
          </message>
        </axl:error>
      </detail>
    </SOAP-ENV:Fault>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The <detail> element of a SOAP Fault includes error codes. The axl:Error elements represent the errors. If a response to a request contains an <error> element, the user agent can determine the cause of the error by looking at the subelements of the <error> tag.

The user agent uses the <code> element, a numerical value, to find what type of error occurred.

The following table explains the error codes that the <code> tag might have:

Error Code	Description
5000	Unknown Error —An unknown error occurred while the request was processed. This can occur due to a problem on the server but can also be due to errors in the request.
5002	Unknown Request Error —The user agent submitted a request that is unknown to the API.
5003	Invalid Value Exception —The API detected an invalid value in the XML request.
5007	Item Not Valid Error —The system identified the specified item as invalid, which means that it does not exist or that it was specified incorrectly at input.

message

The system provides the <message> element, so the user agent gets a detailed error message that explains the error.

request

The system provides the <request> element, so the user agent can determine the type of request that generated this error. Because this element is optional, it may not always appear.



CHAPTER 3

Administrative XML Operations by Release

Table 3-1 lists new, changed, and deprecated Administrative XML (AXL) operations by release. It also lists operations that are under consideration or review (UCR). Operation details can be found in Chapter 2, “Administrative XML Programming”.

Table legend:

- —Supported
- —Not supported
- —Modified

For information on the changes under consideration for future release, see [Changes Under Consideration For Future Release](#), page 3-18.

Operations By Release

Table 3-1 lists new, changed, and deprecated Administrative XML (AXL) operations by release.

Table 3-1 **Operations by Release**

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
AARGroup	addAARGroup								
	getAARGroup								
	listAarGroup								
	removeAARGroup								
	updateAARGroup								
AARGroupByName	listAARGroupByName								
AARGroupMatrix	updateAARGroupMatrix								
AllProcessNodes	listAllProcessNodes								
ApplicationToSoftkeyTemplate	addApplicationToSoftkeyTemplate								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	removeApplicationToSoftkeyTemplate								
ApplicationUser	addApplicationUser								
	getApplicationUser								
	removeApplicationUser								
	updateApplicationUser								
AppUser	addAppUser								
	getAppUser								
	listAppUser								
	removeAppUser								
	updateAppUser								
AttendantConsoleHuntGroup	addAttendantConsoleHuntGroup								
	getAttendantConsoleHuntGroup								
	removeAttendantConsoleHuntGroup								
	updateAttendantConsoleHuntGroup								
AttendantConsoleUser	addAttendantConsoleUser								
	getAttendantConsoleUser								
	listAttendantConsoleUser								
	removeAttendantConsoleUser								
	updateAttendantConsoleUser								
AuthenticateUser	doAuthenticateUser								
CalledPartyTransformationPattern	addCalledPartyTransformationPattern								
	getCalledPartyTransformationPattern								
	listCalledPartyTransformationPattern								
	removeCalledPartyTransformationPattern								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	updateCalledPartyTransformationPattern								
CallerFilter	addCallerFilterList								
	getCallerFilterList								
	listCallerFilterList								
	removeCallerFilterList								
	updateCallerFilterList								
CallingPartyTransformationPattern	addCallingPartyTransformationPattern								
	getCallingPartyTransformationPattern								
	listCallingPartyTransformationPattern								
	removeCallingPartyTransformationPattern								
	updateCallingPartyTransformationPattern								
CallIntercept	addCallIntercept								
	getCallIntercept								
	listCallIntercept								
	removeCallIntercept								
	updateCallIntercept								
CallManager	addCallManager								
	getCallManager								
	listCallManager								
	removeCallManager								
	updateCallManager								
CallManagerGroup	addCallManagerGroup								
	getCallManagerGroup								
	listCallManagerGroup								
	removeCallManagerGroup								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	updateCallManagerGroup	✓	✓	✓	✓	✓	✓	✓	✓
CallPark	addCallPark	i	✓	✓	✓	✓	✓	i	✓
	getCallPark	✓	✓	✓	✓	✓	✓	i	✓
	listCallPark	✗	✗	✗	✗	✗	✗	✗	✓
	removeCallPark	✓	✓	✓	✓	✓	✓	✓	✓
	updateCallPark	✓	✓	✓	✓	✓	✓	i	✓
CallPickupGroup	addCallPickupGroup	✓	✓	✓	i	✓	✓	✓	✓
	getCallPickupGroup	✓	✓	✓	i	✓	✓	✓	✓
	listCallPickupGroup	✗	✗	✗	✗	✗	✗	✗	✓
	removeCallPickupGroup	✓	✓	✓	✓	✓	✓	✓	✓
	updateCallPickupGroup	✓	✓	✓	i	✓	✓	✓	✓
CcdAdvertisingService	addCcdAdvertisingService	✗	✗	✗	✗	✗	✗	✗	✓
	getCcdAdvertisingService	✗	✗	✗	✗	✗	✗	✗	✓
	listCcdAdvertisingService	✗	✗	✗	✗	✗	✗	✗	✓
	removeCcdAdvertisingService	✗	✗	✗	✗	✗	✗	✗	✓
	updateCcdAdvertisingService	✗	✗	✗	✗	✗	✗	✗	✓
CcdHostedDN	addCcdHostedDN	✗	✗	✗	✗	✗	✗	✗	✓
	getCcdHostedDN	✗	✗	✗	✗	✗	✗	✗	✓
	listCcdHostedDN	✗	✗	✗	✗	✗	✗	✗	✓
	removeCcdHostedDN	✗	✗	✗	✗	✗	✗	✗	✓
	updateCcdHostedDN	✗	✗	✗	✗	✗	✗	✗	✓
CcdHostedDNGroup	addCcdHostedDNGroup	✗	✗	✗	✗	✗	✗	✗	✓
	getCcdHostedDNGroup	✗	✗	✗	✗	✗	✗	✗	✓
	listCcdHostedDNGroup	✗	✗	✗	✗	✗	✗	✗	✓
	removeCcdHostedDNGroup	✗	✗	✗	✗	✗	✗	✗	✓
	updateCcdHostedDNGroup	✗	✗	✗	✗	✗	✗	✗	✓
CcdRequestingService	addCcdRequestingService	✗	✗	✗	✗	✗	✗	✗	✓

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	getCcdRequestingService								
	listCcdRequestingService								
	removeCcdRequestingService								
	updateCcdRequestingService								
CCMVersion	getCCMVersion								
CiscoCatalyst600024PortFXS Gateway	addCiscoCatalyst600024PortFXS Gateway								
	getCiscoCatalyst600024PortFXS Gateway								
	listCiscoCatalyst600024PortFXS Gateway								
	removeCiscoCatalyst600024PortFXS Gateway								
	updateCiscoCatalyst600024PortFXS Gateway								
CiscoCatalyst6000E1VoIPGateway	addCiscoCatalyst6000E1VoIPGateway								
	getCiscoCatalyst6000E1VoIPGateway								
	listCiscoCatalyst6000E1VoIPGateway								
	removeCiscoCatalyst6000E1VoIPGateway								
	updateCiscoCatalyst6000E1VoIPGateway								
CiscoCatalyst6000T1VoIPGatewayPri	addCiscoCatalyst6000T1VoIPGatewayPri								
	getCiscoCatalyst6000T1VoIPGatewayPri								
	listCiscoCatalyst6000T1VoIPGatewayPri								
	removeCiscoCatalyst6000T1VoIPGatewayPri								
	updateCiscoCatalyst6000T1VoIPGatewayPri								
CiscoCatalyst6000T1VoIPGatewayT1	addCiscoCatalyst6000T1VoIPGatewayT1								
	getCiscoCatalyst6000T1VoIPGatewayT1								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	listCiscoCatalyst6000T1VoIPGatewayT1								
	removeCiscoCatalyst6000T1VoIPGatewayT1								
	updateCiscoCatalyst6000T1VoIPGatewayT1								
CMCInfo	addCMCInfo								
	getCMCInfo								
	listCmcInfo								
	removeCMCInfo								
	updateCMCInfo								
CommonDeviceConfig	addCommonDeviceConfig								
	getCommonDeviceConfig								
	listCommonDeviceConfig								
	removeCommonDeviceConfig								
	updateCommonDeviceConfig								
CommonPhoneConfig	addCommonPhoneConfig								
	getCommonPhoneConfig								
	listCommonPhoneConfig								
	removeCommonPhoneConfig								
	updateCommonPhoneConfig								
ConferenceBridge	addConferenceBridge								
	getConferenceBridge								
	listConferenceBridge								
	removeConferenceBridge								
	updateConferenceBridge								
createAutogeneratedProfile	createAutogeneratedProfile								
CredentialPolicy	addCredentialPolicy								
	getCredentialPolicy								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	listCredentialPolicy								
	removeCredentialPolicy								
	updateCredentialPolicy								
CSS	addCSS								
	getCSS								
	listCss								
	removeCSS								
	updateCSS								
CSSByName	listCSSByName								
CTIRoutePoint	addCTIRoutePoint								
	getCTIRoutePoint								
	removeCTIRoutePoint								
	updateCTIRoutePoint								
DDI	addDDI								
	getDDI								
	removeDDI								
	updateDDI								
DeviceByNameAndClass	listDeviceByNameAndClass								
DeviceLogin	doDeviceLogin								
DeviceLogout	doDeviceLogout								
DeviceMobility	addDeviceMobility								
	getDeviceMobility								
	removeDeviceMobility								
	updateDeviceMobility								
DeviceMobilityGroup	addDeviceMobilityGroup								
	getDeviceMobilityGroup								
	removeDeviceMobilityGroup								
	updateDeviceMobilityGroup								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
DevicePool	addDevicePool								
	getDevicePool								
	removeDevicePool								
	updateDevicePool								
DevicePoolByName	listDevicePoolByName								
DeviceProfile	addDeviceProfile								
	getDeviceProfile								
	removeDeviceProfile								
	updateDeviceProfile								
DeviceReset	doDeviceReset								
DialPlan	addDialPlan								
	getDialPlan								
	removeDialPlan								
	updateDialPlan								
DialPlanTag	addDialPlanTag								
	getDialPlanTag								
	removeDialPlanTag								
	updateDialPlanTag								
DirectedCallPark	addDirectedCallPark								
	getDirectedCallPark								
	removeDirectedCallPark								
	updateDirectedCallPark								
FACInfo	addFACInfo								
	getFACInfo								
	removeFACInfo								
	updateFACInfo								
Gatekeeper	addGatekeeper								
	getGatekeeper								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	removeGatekeeper	✓	✓	✓	✓	✓	✓	✓	✓
	updateGatekeeper	✓	✓	✓	✓	✓	✓	✓	✓
GatekeeperByName	listGatekeeperByName	✓	✓	✓	✓	✓	✓	✓	✓
GatewayEndpoint	addGatewayEndpoint	ⓘ	✓	✓	ⓘ	✓	ⓘ	ⓘ	✓
	getGatewayEndpoint	ⓘ	✓	✓	ⓘ	✓	ⓘ	ⓘ	✓
	removeGatewayEndpoint	✓	✓	✓	✓	✓	✓	✓	✓
	updateGatewayEndpoint	ⓘ	✓	✓	ⓘ	✓	ⓘ	ⓘ	✓
GeoLocation	addGeoLocation	✗	✗	✗	✗	✗	✗	✓	✓
	getGeoLocation	✗	✗	✗	✗	✗	✗	✓	✓
	removeGeoLocation	✗	✗	✗	✗	✗	✗	✓	✓
	updateGeoLocation	✗	✗	✗	✗	✗	✗	✓	✓
GeoLocationAttributeRule	addGeoLocationAttributeRule	✗	✗	✗	✗	✗	✗	✓	✓
	getGeoLocationAttributeRule	✗	✗	✗	✗	✗	✗	✓	✓
	removeGeoLocationAttributeRule	✗	✗	✗	✗	✗	✗	✓	✓
	updateGeoLocationAttributeRule	✗	✗	✗	✗	✗	✗	✓	✓
GeoLocationFilter	addGeoLocationFilter	✗	✗	✗	✗	✗	✗	✓	✓
	getGeoLocationFilter	✗	✗	✗	✗	✗	✗	✓	✓
	removeGeoLocationFilter	✗	✗	✗	✗	✗	✗	✓	✓
	updateGeoLocationFilter	✗	✗	✗	✗	✗	✗	✓	✓
GeoLocationPolicy	addGeoLocationPolicy	✗	✗	✗	✗	✗	✗	✓	✓
	getGeoLocationPolicy	✗	✗	✗	✗	✗	✗	✓	✓
	removeGeoLocationPolicy	✗	✗	✗	✗	✗	✗	✓	✓
	updateGeoLocationPolicy	✗	✗	✗	✗	✗	✗	✓	✓
GeoLocationPolicyMatrix	addGeoLocationPolicyMatrix	✗	✗	✗	✗	✗	✗	✓	✓
	getGeoLocationPolicyMatrix	✗	✗	✗	✗	✗	✗	✓	✓
	removeGeoLocationPolicyMatrix	✗	✗	✗	✗	✗	✗	✓	✓
	updateGeoLocationPolicyMatrix	✗	✗	✗	✗	✗	✗	✓	✓

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
H323Gateway	addH323Gateway								
	getH323Gateway								
	removeH323Gateway								
	updateH323Gateway								
H323Phone	addH323Phone								
	getH323Phone								
	removeH323Phone								
	updateH323Phone								
H323Trunk	addH323Trunk								
	getH323Trunk								
	removeH323Trunk								
	updateH323Trunk								
Hunt	addHuntList								
	getHuntList								
	removeHuntList								
	updateHuntList								
HuntPilot	addHuntPilot								
	getHuntPilot								
	removeHuntPilot								
	updateHuntPilot								
IVRUserLocale	addIVRUserLocale								
	getIVRUserLocale								
	removeIVRUserLocale								
	updateIVRUserLocale								
LicenseCapabilities	getLicenseCapabilities								
	updateLicenseCapabilities								
Line	addLine								
	getLine								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	removeLine	✓	✓	✓	✓	✓	✓	✓	✓
	updateLine	i	✓	✓	i	i	✓	i	✓
LineGroup	addLineGroup	i	✓	✓	✓	✓	✓	✓	✓
	getLineGroup	i	✓	✓	✓	✓	✓	✓	✓
	removeLineGroup	i	✓	✓	✓	✓	✓	✓	✓
	updateLineGroup	i	✓	✓	✓	✓	✓	✓	✓
Location	addLocation	✓	✓	✓	✓	✓	✓	✓	✓
	getLocation	✓	✓	✓	✓	✓	✓	✓	✓
	removeLocation	✓	✓	✓	✓	✓	✓	✓	✓
	updateLocation	✓	✓	✓	✓	✓	✓	✓	✓
LocationByName	listLocationByName	✓	✓	✓	✓	✓	✓	✓	✓
MediaResourceList	addMediaResourceList	✓	✓	✓	✓	✓	✓	✓	✓
	getMediaResourceList	✓	✓	✓	✓	✓	✓	✓	✓
	removeMediaResourceList	✓	✓	✓	✓	✓	✓	✓	✓
	updateMediaResourceList	✓	✓	✓	✓	✓	✓	✓	✓
MediaResourceByName	listMediaResourceListByName	✓	✓	✓	✓	✓	✓	✓	✓
MediaResourceGroup	addMediaResourceGroup	✓	✓	✓	✓	✓	✓	✓	✓
	getMediaResourceGroup	✓	✓	✓	✓	✓	✓	✓	✓
	removeMediaResourceGroup	✓	✓	✓	✓	✓	✓	✓	✓
	updateMediaResourceGroup	✓	✓	✓	✓	✓	✓	✓	✓
MediaResourceGroupByName	listMediaResourceGroupByName	✓	✓	✓	✓	✓	✓	✓	✓
MeetMe	addMeetMe	✗	✗	✗	✓	✓	✓	✓	✓
	getMeetMe	✗	✗	✗	✓	✓	✓	✓	✓
	removeMeetMe	✗	✗	✗	✓	✓	✓	✓	✓
	updateMeetMe	✗	✗	✗	✓	✓	✓	✓	✓
MGCP	addMGCP	✓	✓	✓	i	✓	✓	i	✓
	getMGCP	✓	✓	✓	i	✓	✓	i	✓
	removeMGCP	✓	✓	✓	✓	✓	✓	✓	✓

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	updateMGCP								
MGCP Endpoint	addMGCP Endpoint								
	removeMGCP Endpoint								
MGCP Subunit	addMGCP Subunit								
	removeMGCP Subunit								
MGCP Unit	addMGCP Unit								
	removeMGCP Unit								
MobileSmartClientProfile	getMobileSmartClientProfile								
MobileVoiceAccess	addMobileVoiceAccess								
	getMobileVoiceAccess								
	removeMobileVoiceAccess								
	updateMobileVoiceAccess								
Mobility	addMobility								
	getMobility								
	removeMobility								
	updateMobility								
MOH AudioSource	getMOH AudioSource								
	removeMOH AudioSource								
	updateMOH AudioSource								
MOH AudioSourceByName	listMOH AudioSourceByName								
MOH Server	addMOH Server								
	getMOH Server								
	removeMOH Server								
	updateMOH Server								
NumDevices	getNumDevices								
Phone	addPhone								
	getPhone								
	removePhone								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	updatePhone								
PhoneByDescription	listPhoneByDescription								
PhoneByName	listPhoneByName								
PhoneTemplate	addPhoneTemplate								
	getPhoneTemplate								
	removePhoneTemplate								
	updatePhoneTemplate								
PhoneTemplateByName	listPhoneTemplateByName								
PhysicalLocation	addPhysicalLocation								
	getPhysicalLocation								
	removePhysicalLocation								
	updatePhysicalLocation								
PilotPoint	addPilotPoint								
	getPilotPoint								
	removePilotPoint								
	updatePilotPoint								
ProcessNode	addProcessNode								
	getProcessNode								
	removeProcessNode								
	updateProcessNode								
ProcessNodesByService	listProcessNodesByService								
ProcessNodeService	getProcessNodeService								
	updateProcessNodeService								
RecordingProfile	addRecordingProfile								
	getRecordingProfile								
	removeRecordingProfile								
	updateRecordingProfile								
Region	addRegion								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	getRegion	✓	✓	✓	i	✓	✓	✓	✓
	removeRegion	✓	✓	✓	✓	✓	✓	✓	✓
	updateRegion	✓	✓	✓	i	✓	✓	✓	✓
RegionMatrix	updateRegionMatrix	✓	✓	✓	i	✓	✓	✓	✓
RemoteDestination	addRemoteDestination	✗	✗	✗	✓	✓	i	✓	✓
	getRemoteDestination	✗	✗	✗	✓	✓	i	✓	✓
	removeRemoteDestination	✗	✗	✗	✓	✓	✓	✓	✓
	updateRemoteDestination	✗	✗	✗	✓	✓	i	✓	✓
RemoteDestinationProfile	addRemoteDestinationProfile	✗	✗	✗	✓	✓	i	✓	✓
	getRemoteDestinationProfile	✗	✗	✗	✓	✓	i	✓	✓
	removeRemoteDestinationProfile	✗	✗	✗	✓	✓	✓	✓	✓
	updateRemoteDestinationProfile	✗	✗	✗	✓	✓	i	✓	✓
ResourcePriorityDefaultNamespace	getResourcePriorityDefaultNamespace	✗	✗	✗	✗	✗	✓	✓	✓
	updateResourcePriorityDefaultNamespace	✗	✗	✗	✗	✗	✓	✓	✓
ResourcePriorityNamespace	addResourcePriorityNamespace	✗	✗	✗	✗	✗	✓	✓	✓
	getResourcePriorityNamespace	✗	✗	✗	✗	✗	✓	✓	✓
	removeResourcePriorityNamespace	✗	✗	✗	✗	✗	✓	✓	✓
	updateResourcePriorityNamespace	✗	✗	✗	✗	✗	✓	✓	✓
ResourcePriorityNamespaceList	addResourcePriorityNamespaceList	✗	✗	✗	✗	✗	✓	✓	✓
	getResourcePriorityNamespaceList	✗	✗	✗	✗	✗	✓	✓	✓
	removeResourcePriorityNamespaceList	✗	✗	✗	✗	✗	✓	✓	✓
	updateResourcePriorityNamespaceList	✗	✗	✗	✗	✗	✓	✓	✓
RouteList	addRouteList	✓	✓	✓	✓	✓	i	✓	✓
	getRouteList	✓	✓	✓	✓	✓	i	✓	✓
	removeRouteList	✓	✓	✓	✓	✓	✓	✓	✓

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	updateRouteList	✓	✓	✓	✓	✓	i	✓	✓
RouteFilter	addRouteFilter	✓	✓	✓	✓	✓	✓	✓	✓
	getRouteFilter	✓	✓	✓	✓	✓	✓	✓	✓
	removeRouteFilter	✓	✓	✓	✓	✓	✓	✓	✓
	updateRouteFilter	✓	✓	✓	✓	✓	✓	✓	✓
RouteGroup	addRouteGroup	✓	✓	✓	✓	✓	✓	✓	✓
	getRouteGroup	✓	✓	✓	✓	✓	✓	✓	✓
	removeRouteGroup	✓	✓	✓	✓	✓	✓	✓	✓
	updateRouteGroup	✓	✓	✓	✓	✓	✓	✓	✓
RoutePartition	addRoutePartition	✓	✓	✓	i	✓	✓	✓	✓
	getRoutePartition	✓	✓	✓	i	✓	✓	✓	✓
	removeRoutePartition	✓	✓	✓	✓	✓	✓	✓	✓
	updateRoutePartition	✓	✓	✓	i	✓	✓	✓	✓
RoutePartitionByName	listRoutePartitionByName	✓	✓	✓	✓	✓	✓	✓	✓
RoutePattern	addRoutePattern	i	✓	✓	✓	✓	i	i	✓
	getRoutePattern	✓	✓	✓	✓	✓	i	i	✓
	removeRoutePattern	✓	✓	✓	✓	✓	✓	✓	✓
	updateRoutePattern	i	✓	✓	✓	✓	i	i	✓
RoutePlanByType	listRoutePlanByType	✓	✓	✓	✓	✓	✓	✓	✓
ServiceParameter	getServiceParameter	✓	✓	✓	✓	✓	✓	✓	✓
	updateServiceParameter	i	✓	✓	✓	✓	✓	✓	✓
ServiceParameters	listServiceParameters	✓	✓	✓	✓	✓	✓	✓	✓
SIPProfile	addSIPProfile	✗	✗	✗	✗	✗	✓	i	✓
	getSIPProfile	✗	✗	✗	✗	✗	✓	i	✓
	removeSIPProfile	✗	✗	✗	✗	✗	✓	✓	✓
	updateSIPProfile	✗	✗	✗	✗	✗	✓	i	✓
SIPRealm	addSIPRealm	✗	✓	✓	✓	✓	✓	✓	✓
	getSIPRealm	✗	✓	✓	✓	✓	✓	✓	✓

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	removeSIPRealm								
	updateSIPRealm								
SIPTrunk	addSIPTrunk								
	getSIPTrunk								
	removeSIPTrunk								
	updateSIPTrunk								
SIPTrunkSecurityProfile	addSIPTrunkSecurityProfile								
	getSIPTrunkSecurityProfile								
	removeSIPTrunkSecurityProfile								
	updateSIPTrunkSecurityProfile								
SoftKeySet	getSoftKeySet								
	updateSoftKeySet								
SoftKeyTemplate	addSoftKeyTemplate								
	getSoftKeyTemplate								
	removeSoftKeyTemplate								
	updateSoftKeyTemplate								
SQL	executeSQLUpdate								
SQLQuery	executeSQLQuery								
TimePeriod	addTimePeriod								
	getTimePeriod								
	removeTimePeriod								
	updateTimePeriod								
TimeSchedule	addTimeSchedule								
	getTimeSchedule								
	removeTimeSchedule								
	updateTimeSchedule								
TODAccess	addTODAccess								
	getTODAccess								

Table 3-1 Operations by Release (continued)

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	removeTODAccess								
	updateTODAccess								
Transcoder	addTranscoder								
	getTranscoder								
	removeTranscoder								
	updateTranscoder								
TransformationPattern	addTransformationPattern								
	getTransformationPattern								
	removeTransformationPattern								
	updateTransformationPattern								
TransPattern	addTransPattern								
	getTransPattern								
	removeTransPattern								
	updateTransPattern								
User	addUser								
	getUser								
	removeUser								
	updateUser								
UserByName	listUserByName								
UserGroup	addUserGroup								
	getUserGroup								
	removeUserGroup								
	updateUserGroup								
VG224	addVG224								
	getVG224								
	removeVG224								
	updateVG224								
VoiceMailPilot	addVoiceMailPilot								

Table 3-1 *Operations by Release (continued)*

APIs	Operations	5.0 d	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	UCR
	getVoiceMailPilot	✓	✓	✓	✓	✓	✓	✓	✓
	removeVoiceMailPilot	✓	✓	✓	✓	✓	✓	✓	✓
	updateVoiceMailPilot	✓	✓	✓	✓	✓	✓	✓	✓
VoiceMailPort	addVoiceMailPort	✓	✓	✓	i	✓	i	✓	✓
	getVoiceMailPort	✓	✓	✓	i	✓	i	✓	✓
	removeVoiceMailPort	✓	✓	✓	✓	✓	✓	✓	✓
	updateVoiceMailPort	✓	✓	✓	i	✓	i	✓	✓
VoiceMailProfile	addVoiceMailProfile	✓	✓	✓	✓	✓	✓	✓	✓
	getVoiceMailProfile	✓	✓	✓	✓	✓	✓	✓	✓
	removeVoiceMailProfile	✓	✓	✓	✓	✓	✓	✓	✓
	updateVoiceMailProfile	✓	✓	✓	✓	✓	✓	✓	✓
VoiceMailProfileByName	listVoiceMailProfileByName	✓	✓	✓	✓	✓	✓	✓	✓

Changes Under Consideration For Future Release

The following APIs are planned to undergo changes in future release. Click on the API name for more information.

AARGroup	addApplicationToSoftKeyTemplate	addCallManager
AppUser	AttendantConsoleHuntGroup	AttendantConsoleUser
CalledPartyTransformationPattern	CMCInfo	CommonPhoneConfig
ConferenceBridge	CSS	CTIRoutePoint
DevicePool	DeviceProfile	DHCPServer
DHCPSubnet	DirectedCallPark	FACInfo
GatewayEndpoint	getDDI	getSoftKeySet
H323Gateway	H323Phone	H323Trunk
HuntPilot	IVRUserLocale	Line
LineGroup	listAARGroupByName	listAllProcessNodes
listCSSByName	listDeviceByNameAndClass	listDeviceByServiceName
listDevicePoolByName	listGatekeeperByName	listLocationByName
listMediaResourceGroupByName	listMOHAudioSourceByName	listPhoneByName
listPhoneByDescription	listProcessNodeByService	listRoutePlanByName
listRoutePartitionByName	listServiceParameters	listUserByName
listVoiceMailProfileByName	MGCP	MobileSmartClientProfile
MOHServer	Phone	PhoneTemplate
PilotPoint	ProcessNode	RecordingProfile
RemoteDestinationProfile	removeCallManager	RouteGroup
RoutePattern	ServiceParameter	SIPProfile
SIPRealm	SIPRoutePattern	SIPTrunk
SIPTrunkSecurityProfile	TODAccess	Transcoder
TransformationPattern	TransPattern	updateAARGroupMatrix
updateResourcePriorityDefaultNamespace	updateSoftKeySet	User
VG224	VoiceMailPilot	VoiceMailProfile

For details on changes under consideration for future release, see [Table 3-2](#)

Table 3-2 AXL API Method Changes Under Consideration for Future Releases

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
AARGroup	AarGroup This change is applicable to add, update, get, list, and remove operations.	AARGroup	aarGroup
addApplicationToSoftKeyTemplate	No change in API name	newApplication	applicationToSoftKeyTemplate
addCallManager	This API is removed. Addition of server automatically adds the CallManager.		
AppUser	No change in API name	applicationUser	appUser
AttendantConsoleHuntGroup	No change in API name	huntGroup	attendConsoleHuntGroup
AttendantConsoleUser	No change in API name	pilotUser	attendantConsoleUser
CalledPartyTransformationPattern	No change in API name	pattern	calledPartyTransformationPattern
CMCInfo	CmcInfo This change is applicable to add, update, get, list, and remove operations.	No change in elements	
CommonPhoneConfig	No change in API name	CommonPhoneConfig	commonPhoneConfig
ConferenceBridge	No change in API name	device	conferenceBridge
CSS	Css This change is applicable to add, update, get, list, and remove operations.	callingSearchSpace	css
CTIRoutePoint	CtiRoutePoint This change is applicable to add, update, get, list, and remove operations.	aarNeighborhood	This element is removed.
		automatedAlternateRoutingCSS	This element is removed.
		commonPhoneConfigName	This element is removed.
		geoLocationFilterName	This element is removed.
		loadInformation	This element is removed.
		mlppDomainId	This element is removed.
		mlppIndicationStatus	This element is removed.
		networkLocation	This element is removed.
		preemption	This element is removed.
		retryVideoCallAsAudio	This element is removed.
		routePoint	ctiRoutePoint

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		securityProfileName	This element is removed.
		sendGeoLocation	This element is removed.
		sipProfileName	This element is removed.
		traceFlag	This element is removed.
		versionStamp	This element is removed.
DevicePool	No change in API name	automatedAlternateRoutingCSSName	automatedAlternateRoutingCssName
		cdpnTransformationCSSName	cdpnTransformationCssName
		cgpnTransformationCSSName	cgpnTransformationCssName
		cgpnTransformationInternationalCSSName	callingPartyInternationalTransformationCssName
		cgpnTransformationNationalCSSName	callingPartyNationalTransformationCssName
		cgpnTransformationSubscriberCSSName	callingPartySubscriberTransformationCssName
		cgpnTransformationUnknownCSSName	callingPartyUnknownTransformationCssName
		internationalPrefix	callingPartyInternationalPrefix
		internationalStripDigits	callingPartyInternationalStripDigits
		mobilityCSSName	mobilityCssName
		nationalPrefix	callingPartyNationalPrefix
		nationalStripDigits	callingPartyNationalStripDigits
		subscriberPrefix	callingPartySubscriberPrefix
		subscriberStripDigits	callingPartySubscriberStripDigits
		unknownPrefix	callingPartyUnknownPrefix
		unknownStripDigits	callingPartyUnknownStripDigits
		useDevicePoolCdpnTransformationCSSName	useDevicePoolCdpnTransformationCssName
		useDevicePoolCgpnTransformationCSSName	useDevicePoolCgpnTransformationCssName
DeviceProfile	No change in API name	aarNeighborhood	This element is removed.
		aarNeighborhoodName	This element is removed.
		allowCtiControlFlag	This element is removed.
		associatedPC	This element is removed.
		authenticationMode	This element is removed.

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		authenticationString	This element is removed.
		authenticationURL	This element is removed.
		automatedAlternateRoutingCSS	This element is removed.
		automatedAlternateRoutingCSS Name	This element is removed.
		builtInBridge	This element is removed.
		callInfoPrivacyStatus	This element is removed.
		callingSearchSpace	This element is removed.
		callingSearchSpaceName	This element is removed.
		certificateOperation	This element is removed.
		certificateStatus	This element is removed.
		cgnTransformationCSS	This element is removed.
		cgnTransformationCSSName	This element is removed.
		commonDeviceConfig	This element is removed.
		commonDeviceConfigName	This element is removed.
		commonPhoneConfig	This element is removed.
		commonPhoneConfigName	This element is removed.
		currentConfig	This element is removed.
		deviceMobilityMode	This element is removed.
		devicePool	This element is removed.
		devicePoolName	This element is removed.
		dialRules	This element is removed.
		dialRulesName	This element is removed.
		digestUser	This element is removed.
		directoryURL	This element is removed.
		geoLocation	This element is removed.
		geoLocationFilter	This element is removed.
		geoLocationFilterName	This element is removed.
		geoLocationName	This element is removed.
		hlogStatus	This element is removed.
		idleTimeOut	This element is removed.
		idleURL	This element is removed.
		informationURL	This element is removed.
		isActive	This element is removed.
		isDualMode	This element is removed.

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		isProtected	This element is removed.
		keySize	This element is removed.
		loadInformation	This element is removed.
		location	This element is removed.
		locationName	This element is removed.
		medialResourceListName	This element is removed.
		mediaResourceList	This element is removed.
		mobileSmartClientProfile	This element is removed.
		mobileSmartClientProfileName	This element is removed.
		mobilityUser	This element is removed.
		mobilityUserIdName	This element is removed.
		mtpPreferredCodec	This element is removed.
		mtpRequired	This element is removed.
		networkLocale	This element is removed.
		networkMOHAudioSourceId	This element is removed.
		packetCaptureDuration	This element is removed.
		packetCaptureMode	This element is removed.
		phoneLoadName	This element is removed.
		phoneServiceDisplay	This element is removed.
		phoneSuite	This element is removed.
		presenceGroup	This element is removed.
		presenceGroupName	This element is removed.
		primaryPhone	This element is removed.
		primaryPhoneName	This element is removed.
		profile	deviceProfile
		proxyURL	This element is removed.
		remoteDevice	This element is removed.
		requireDTMFReception	This element is removed.
		rerouteCallingSearchSpace	This element is removed.
		rerouteCallingSearchSpaceName	This element is removed.
		retryVideoCallAsAudio	This element is removed.
		RFC2833Disabled	This element is removed.
		ringSettingBusyBLFAudibleAlert	This element is removed.
		ringSettingIdleBLFAudibleAlert	This element is removed.

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		securityProfile	This element is removed.
		securityProfileName	This element is removed.
		sendGeoLocation	This element is removed.
		services	This element is removed.
		servicesUrl	This element is removed.
		sipProfile	This element is removed.
		sipProfileName	This element is removed.
		softKeyTemplate	This element is removed.
		softKeyTemplateName	This element is removed.
		sshPwd	This element is removed.
		sshUser	This element is removed.
		subscribeCallingSearchSpace	This element is removed.
		subscribeCallingSearchSpaceName	This element is removed.
		unattendedPort	This element is removed.
		upgradeFinishTime	This element is removed.
		useDevicePoolCgpnTransformationCSSName	This element is removed.
		userHoldMOHAudioSourceId	userHoldMohAudioSourceId
		useTrustedRelayPoint	This element is removed.
DHCPServer	DhcpServer This change is applicable to add, update, get, list, and remove operations.	bootstrapServeripAddress	bootstrapServerIpAddress
		DHCPServer	dhcpServer
		primaryDNSipAddress	primaryDnsIpAddress
		primaryTFTPServeripAddress	primaryTftpServerIpAddress
		secondaryDNSipAddress	secondaryDnsIpAddress
		secondaryTFTPServeripAddress	secondaryTftpServeripAddress
DHCPSubnet	DhcpSubnet This change is applicable to add, update, get, list, and remove operations.	bootstrapServerIPAddress	bootstrapServerIpAddress
		DHCPSubnet	dhcpSubnet
		domainName	domainName
		primaryDNSIPAddress	primaryDnsIpAddress
		primaryEndIPAddress	primaryEndIpAddress

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		primaryRouterIPAddress	primaryRouterIpAddress
		primaryStartIPAddress	primaryStartIpAddress
		primaryTFTPServerIPAddress	primaryTftpServerIpAddress
		secondaryDNSIPAddress	secondaryDnsIpAddress
		secondaryEndIPAddress	secondaryEndIpAddress
		secondaryRouterIPAddress	secondaryRouterIpAddress
		secondaryStartIPAddress	secondaryStartIpAddress
		secondaryTFTPServerIPAddress	secondaryTftpServerIpAddress
		subnetIPAddress	subnetIpAddress
		subnetMask	subnetMask
		tftpServerName	tftpServerName
DirectedCallPark	No change in API name	revertCSSName	revertCssName
FACInfo	FacInfo This change is applicable to add, update, get, list, and remove operations.	No change in elements.	
GatewayEndpoint	This API is removed. The support for endpoints is given separately for each type of endpoint.		
getDDI	getDdi This change is valid only for get operation.	No change in elements.	
getSoftKeySet	This API is removed.		
H323Gateway	No change in API name	ASN1ROSEOIDEncoding	asn1RoseOidEncoding
		automatedAlternateRoutingCSSName	automatedAlternateRoutingCssName
		calledPartyIENumberType	calledPartyIeNumberType
		callerIdDN	callerIdDn
		callingPartyIENumberType	callingPartyIeNumberType
		cdpnTransformationCSSName	cdpnTransformationCssName
		cgpnTransformationCSSName	cgpnTransformationCssName
		cgpnTransformationInternationalCSSName	callingPartyInternationalTransformationCssName
		cgpnTransformationNationalCSSName	callingPartyNationalTransformationCssName
		cgpnTransformationSubscriberCSSName	callingPartySubscriberTransformationCssName

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		cgpnTransformationUnknownCSSName	callingPartyUnknownTransformationCssName
		commonPhoneConfig	This element is removed.
		commonPhoneConfigName	This element is removed.
		gateway	h323Gateway
		internationalPrefix	callingPartyInternationalPrefix
		internationalStripDigits	callingPartyInternationalStripDigits
		licensedCapacity	This element is removed.
		mlppIndicationStatus	This element is removed.
		mtpPreferredCodec	This element is removed.
		nationalPrefix	callingPartyNationalPrefix
		nationalStripDigits	callingPartyNationalStripDigits
		networkMOHAudioSourceId	This element is removed.
		preemption	This element is removed.
		prefixDN	prefixDn
		QSIGVariant	qsigVariant
		securityProfile	This element is removed.
		securityProfileName	This element is removed.
		sendGeoLocation	This element is removed.
		significantDigits	sigDigits
		sipProfile	This element is removed.
		sipProfileName	This element is removed.
		subscribeCallingSearchSpace	This element is removed.
		subscribeCallingSearchSpaceName	This element is removed.
		subscriberPrefix	callingPartySubscriberPrefix
		subscriberStripDigits	callingPartySubscriberStripDigits
		unattendedPort	This element is removed.
		unknownPrefix	callingPartyUnknownPrefix
		unknownStripDigits	callingPartyUnknownStripDigits
		useDevicePoolCdpnTransformationCSSName	useDevicePoolCdpnTransformationCssName
		useDevicePoolCgpnTransformationCSSName	useDevicePoolCgpnTransformationCssName

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		userMOHAudioSourceId	This element is removed.
		versionStamp	This element is removed.
H323Phone	No change in API name	automatedAlternateRoutingCSSName	automatedAlternateRoutingCssName
		callerIdDN	callerIdDn
		cdpnTransformationCSS	This element is removed.
		cdpnTransformationCSSName	This element is removed.
		cgpnTransformationCSSName	cgpnTransformationCssName
		cgpnTransformationInternationalCSS	This element is removed.
		cgpnTransformationInternationalCSSName	This element is removed.
		cgpnTransformationNationalCSS	This element is removed.
		cgpnTransformationNationalCSSName	This element is removed.
		cgpnTransformationSubscriberCSS	This element is removed.
		cgpnTransformationSubscriberCSSName	This element is removed.
		cgpnTransformationUnknownCSS	This element is removed.
		cgpnTransformationUnknownCSSName	This element is removed.
		codecForOutboundFastStart	This element is removed.
		enableInboundFastStart	This element is removed.
		enableOutboundFastStart	This element is removed.
		loadInformation	This element is removed.
		mlppIndicationStatus	This element is removed.
		networkMOHAudioSourceId	This element is removed.
		packetCaptureDuration	This element is removed.
		packetCaptureMode	This element is removed.
		phone	h323Phone
		preemption	This element is removed.
		securityProfile	This element is removed.
		securityProfileName	This element is removed.
		sendGeoLocation	This element is removed.
		sipProfile	This element is removed.

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		sipProfileName	This element is removed.
		useDevicePoolCdpnTransformCSS	This element is removed.
		useDevicePoolCgpnTransformationCSSName	useDevicePoolCgpnTransformationCssName
		userMOHAudioSourceId	This element is removed.
		vendorConfig	This element is removed.
		versionStamp	This element is removed.
H323Trunk	No change in API name	ASN1ROSEOIDEncoding	asn1RoseOidEncoding
		automatedAlternateRoutingCSS	This element is removed.
		automatedAlternateRoutingCSSName	This element is removed.
		calledPartyIENumberType	calledPartyIeNumberType
		callingPartyIENumberType	callingPartyIeNumberType
		cdpnTransformationCSSName	cdpnTransformationCssName
		cgpnTransformationCSSName	cgpnTransformationCssName
		cgpnTransformationInternationalCSSName	callingPartyInternationalTransformationCssName
		cgpnTransformationNationalCSSName	callingPartyNationalTransformationCssName
		cgpnTransformationSubscriberCSSName	callingPartySubscriberTransformationCssName
		cgpnTransformationUnknownCSSName	callingPartyUnknownTransformationCssName
		commonPhoneConfig	This element is removed.
		commonPhoneConfigName	This element is removed.
		internationalStripDigits	callingPartyInternationalStripDigits
		licensedCapacity	This element is removed.
		loadInformation	This element is removed.
		mtpPreferredCodec	This element is removed.
		nationalStripDigits	callingPartyNationalStripDigits
		networkMOHAudioSourceId	This element is removed.
		prefixDN	prefixDn
		QSIGVariant	qsigVariant
		redirectInboundNumberIE	redirectInboundNumberIe
		redirectOutboundNumberIE	redirectOutboundNumberIe

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		securityProfile	This element is removed.
		securityProfileName	This element is removed.
		significantDigits	sigDigits
		sipProfile	This element is removed.
		sipProfileName	This element is removed.
		subscriberStripDigits	callingPartySubscriberStripDigits
		trunk	h323Trunk
		unknownStripDigits	callingPartyUnknownStripDigits
		useDevicePoolCdpnTransformationCSSName	useDevicePoolCdpnTransformationCssName
		useDevicePoolCgpnTransformationCSSName	useDevicePoolCgpnTransformationCssName
		userMOHAudioSourceId	This element is removed.
		versionStamp	This element is removed.
HuntPilot	No change in API name	allowDeviceOverride	This element is removed.
		destination	The destination element is removed, but huntListName which was a part of this tag is retained.
		dialPlanWizardGenId	This element is removed.
		ForwardHuntBusy	forwardHuntBusy
		ForwardHuntNoAnswer	forwardHuntNoAnswer
		messageWaiting	This element is removed.
		networkLocation	This element is removed.
		ParkMonForwardNoRetrieveCSSName	This element is removed.
		ParkMonForwardNoRetrieveDN	There is a new tag parkMonForwardNoRetrieve and destination and callingSearchSpace are parts of this tag. This tag is removed since it is not applicable for HuntPilot
		pattern	huntPilot
		supportOverlapSending	This element is removed.

Table 3-2 AXL API Method Changes Under Consideration for Future Releases (continued)

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
IVRUserLocale	IvrUserLocale This change is applicable to add, update, get, list, and remove operations.		
Line	No change in API name	cfaCSSPolicy	cfaCssPolicy
		directoryNumber	line
		networkMOHAudioSourceId	networkMohAudioSourceId
		parkMonForwardNoRetrieveCS SName	parkMonForwardNoRetrieveCss Name
		parkMonForwardNoRetrieveDN	parkMonForwardNoRetrieveDn
		parkMonForwardNoRetrieveInt CSSName	parkMonForwardNoRetrieveInt CssName
		parkMonForwardNoRetrieveInt DN	parkMonForwardNoRetrieveInt Dn
		parkMonForwardNoRetrieveInt VMEnabled	parkMonForwardNoRetrieveInt VmEnabled
		parkMonForwardNoRetrieveV MEnabled	parkMonForwardNoRetrieveVm Enabled
		ParkMonReversionTimer	parkMonReversionTimer
		shareLineAppearanceCSSName	shareLineAppearanceCssName
		userMOHAudioSourceId	userMohAudioSourceId
LineGroup		dnPatternAndPartition	directoryNumber
listAARGroupByName	listAarGroup List can be used to return all possible tags for this API	No change in elements.	
listAllProcessNodes	listProcessNode List can be used to return all possible tags for this API	No change in elements.	
listCSSByName	listCss List can be used to return all possible tags for this API	No change in elements.	
listDeviceByNameAndC lass	This API is removed.		
listDeviceByServiceNa me	This API is removed.		
listDevicePoolByName	listDevicePool List can be used to return all possible tags for this API	No change in elements.	

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
listGatekeeperByName	listGatekeeper List can be used to return all possible tags for this API	No change in elements.	
listLocationByName	listLocation List can be used to return all possible tags for this API	No change in elements.	
listMediaResourceGroup ByName	listMediaResourceGroup List can be used to return all possible tags for this API	No change in elements.	
listMOHAudioSourceBy Name	listMohAudioSource List can be used to return all possible tags for this API	No change in elements.	
listPhoneByName	listPhone List can be used to return all possible tags for this API	No change in elements.	
listPhoneByDescription	listPhone List can be used to return all possible tags for this API	No change in elements.	
listProcessNodeByServi ce	This API is removed.		
listRoutePlanByName	listRoutePlan List can be used to return all possible tags for this API	No change in elements.	
listRoutePartitionByNa me	listRoutePartition List can be used to return all possible tags for this API	No change in elements.	
listServiceParameters	This API is removed.		
listUserByName	listUser List can be used to return all possible tags for this API	No change in elements.	
listVoiceMailProfileByN ame	listVoiceMailProfile List can be used to return all possible tags for this API	No change in elements.	
MGCP	This API is removed. The support for this is given through Gateway, GatewayUnits and GatewaySubunits handlers.		
MobileSmartClientProfil e	No change in API name	enableCFAUri	enableCfaUri
		enableSNRUri	enableSnrUri

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
MOHServer	No change in API name	baseMulticastIPAddress	baseMulticastIpAddress
		multicastIncrementOnIP	multicastIncrementOnIp
Phone	No change in API name	associatedPC	This element is removed.
		authenticationURL	authenticationUrl
		automatedAlternateRoutingCSSName	automatedAlternateRoutingCssName
		cdpnTransformationCSSName	cdpnTransformationCssName
		cgpnTransformationCSSName	cgpnTransformationCssName
		currentConfig->userHoldMOHAudioSourceId	currentConfig->userHoldMohAudioSourceId
		device	phone
		directedCallParkDNAndPartition	directedCallParkDnAndPartition
		directoryURL	directoryUrl
		displayASCII	displayAscii
		idleURL	idleUrl
		informationURL	informationUrl
		lineId	This element is removed.
		lineLabel	This element is removed.
		messagesURL	messagesUrl
		networkHoldMOHAudioSourceId	networkHoldMohAudioSourceId
		ownerUserId	ownerUserName
		proxyServerURL	proxyServerUrl
		requireDTMFReception	requireDtmfReception
		RFC2833Disabled	rfc2833Disabled
		ringSettingBusyBLFAudibleAlert	ringSettingBusyBlfAudibleAlert
		ringSettingIdleBLFAudibleAlert	ringSettingIdleBlfAudibleAlert
		servicesURL	servicesUrl
		sshUser	sshUserId
		useDevicePoolCdpnTransformationCSSName	useDevicePoolCdpnTransformationCssName
		useDevicePoolCgpnTransformationCSSName	useDevicePoolCgpnTransformationCssName
		userHoldMOHAudioSourceId	userHoldMohAudioSourceId

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
PhoneTemplate	PhoneButtonTemplate This change is applicable to add, update, get, list, and remove operations.	No change in elements.	
PilotPoint	No change in API name	callingSearchSpace	This element is removed.
		callingSearchSpaceName	This element is removed.
		pilotNumber	This element is removed.
		routePartition	This element is removed.
		routePartitionName	This element is removed.
ProcessNode	No change in API name	IPv6Name	ipv6Name
RecordingProfile	No change in API name	recordingCSSName	recordingCssName
RemoteDestinationProfile	No change in API name	cgpnTransformationCSSName	cgpnTransformationCssName
		networkHoldMOHAudioSourceId	networkHoldMohAudioSourceId
		useDevicePoolCgpnTransformCSS	useDevicePoolCgpnTransformCss
		userHoldMOHAudioSourceId	userHoldMohAudioSourceId
removeCallManager	This API is removed. Removing server automatically removes the Unified CM.		
RouteGroup	No change in API name	device	This element is removed.
		deviceId	This element is removed.
RoutePattern	No change in API name	isdnNSFInfoElement	isdnNsfInfoElement
		messageWaiting	This element is removed.
ServiceParameter	No change in API name	primaryData	This element is removed.
SIPProfile	SipProfile This change is applicable to add, update, get, list, and remove operations.	abbreviatedDialURI	abbreviatedDialUri
		callForwardURI	callForwardUri
		callpickupGroupURI	callpickupGroupUri
		callpickupListURI	callpickupListUri
		callpickupURI	callpickupUri
		enableVAD	enableVad
		meetmeServiceURI	meetmeServiceUri

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
SIPRealm	SipRealm This change is applicable to add, update, get, list, and remove operations.	No change	
SIPRoutePattern	No change in API name	destination	This tag has been removed. sipTrunkName was a part of destination tag. Hence this tag has been made a part of the routePattern
SIPRoutePattern	No change in API name	dnOrPatternIPv6	dnOrPatternIpv6
		pattern	routePattern
SIPTrunk	SipTrunk This change is applicable to add, update, get, list, and remove operations.	acceptInboundRdnis	acceptInboundRDNIS
SIPTrunk	No change in API name	acceptOutboundRdnis	acceptOutboundRDNIS
		automatedAlternateRoutingCSSName	automatedAlternateRoutingCssName
		callerIdDN	callerIdDn
		cdpnTransformationCSSName	cdpnTransformationCssName
		cgpnTransformationCSSName	cgpnTransformationCssName
		cgpnTransformationUnknownCSSName	callingPartyUnknownTransformationCssName
		commonPhoneConfig	This element is removed.
		commonPhoneConfigName	This element is removed.
		destAddrIsSRV	destAddrIsSrv
		destinationAddressIPv6	destinationAddressIpv6
		dtmfSignalingMethod	DTMFSignalingMethod
		licensedCapacity	This element is removed.
		networkHoldMOHAudioSourceId	networkHoldMohAudioSourceId
		prefixDN	prefixDn
		trunk	sipTrunk
		unknownPrefix	callingPartyUnknownPrefix
		unknownStripDigits	callingPartyUnknownStripDigits
		useDevicePoolCdpnTransformCSS	useDevicePoolCdpnTransformC

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		useDevicePoolCgpnTransformCSS	useDevicePoolCgpnTransformCSS
		userHoldMOHAudioSourceId	userHoldMohAudioSourceId
SIPTrunkSecurityProfile	No change	SIPTrunkSecurityProfile	sipTrunkSecurityProfile
TODAccess	TodAccess This change is applicable to add, update, get, list, and remove operations.	TODAccess	todAccess
Transcoder	No change in API name	device	transcoder
TransformationPattern	CalledPartyTransformationPattern This change is applicable to add, update, get, list, and remove operations.		
TransPattern	No change in API name	networkLocation	This element is removed.
		pattern	transPattern
updateAARGroupMatrix	updateAarGroupMatrix This is applicable only to update operation.	No change in elements.	
updateResourcePriorityDefaultNamespace	This API is removed.		
updateSoftKeySet	This API is removed.		
User	No change in API name	associatedAccessLists	This element is removed.
		associatedPC	associatedPc
		enableCTI	enableCti
		extension	This element is removed.
		ipccExtension	This element is removed.
VG224	Vg224 This change is applicable to add, update, get, list, and remove operations.	endPoints	This tag has been removed. Endpoints for VG224 have to be added through addGatewayEndpointAnalogAccess
VoiceMailPilot	No change in API name	CSSName	cssName
		automatedAlternateRoutingCSSName	automatedAlternateRoutingCssName
		cgpnTransformationCSS	This element is removed.
		cgpnTransformationCSSName	This element is removed.
		commonPhoneConfig	This element is removed.
		commonPhoneConfigName	This element is removed.

Table 3-2 *AXL API Method Changes Under Consideration for Future Releases (continued)*

API Name		Corresponding Element Changes	
7.1(2)	UCR	7.1(2)	UCR
		geoLocationFilterName	This element is removed.
		line	This tag is removed and the tags related to line are provided as a part of voiceMailPort
		loadInformation	This element is removed.
		networkHoldMOHAudioSourceId	This element is removed.
		networkLocation	This element is removed.
		retryVideoCallAsAudio	This element is removed.
		securityProfile	This element is removed.
		securityProfileName	This element is removed.
		sendGeoLocation	This element is removed.
		sipProfile	This element is removed.
		sipProfileName	This element is removed.
		userHoldMOHAudioSourceId	This element is removed.
		vendorConfig	This element is removed.
		versionStamp	This element is removed.
VoiceMailProfile	No change in API name.	description	This element is removed.
		isDefault	This element is removed.



PART 2

Serviceability API



CHAPTER 4

Serviceability XML Programming

This chapter describes the implementation of AXL-Serviceability APIs. Cisco Unified Communications Manager Real-Time information, Performance Counters, and Database information exposure occurs through an AXL-Serviceability interface that conforms to the World Wide Web Consortium (W3C) standard. The Web Service Description Language (WSDL) files provide interface definitions.

To access all AXL Configuration API downloads and AXL requests and responses that are found in this document, refer to <http://www.developer.cisco.com>. You must have a Cisco.com account and password to access this URL.

This chapter contains the following sections:

- [Overview, page 4-2](#)
- [New and Changed Information, page 4-2](#)
- [Data Model, page 4-8](#)
- [RisPort SOAP Service, page 4-15](#)
- [PerfmonPort SOAP Service, page 4-61](#)
- [ControlCenterServicesPort SOAP Service, page 4-78](#)
- [LogCollectionPort SOAP Service, page 4-111](#)
- [CDRonDemand SOAP Service, page 4-117](#)
- [DimeGetFileService SOAP Service, page 4-124](#)
- [Authentication, page 4-125](#)
- [Developer Tools, page 4-126](#)
- [Password Expiration and Lockout, page 4-128](#)
- [Application Customization for Cisco Unity Connection Servers, page 4-128](#)
- [SOAP Service Tracing, page 4-129](#)
- [AXL Serviceability API Authentication Security, page 4-130](#)
- [Rate Control Mechanism, page 4-130](#)
- [SOAP Fault Error Codes, page 4-131](#)
- [AXL Serviceability Application Design Guidelines and Best Practices, page 4-137](#)

Overview

By exposing Cisco Unified Communications Manager (Unified CM) real-time information, performance counter, and database information, customers can write customized applications. AXL-Serviceability APIs, extensible SOAP-based XML Web Services, conform to the [Simple Object Access Protocol \(SOAP\) Specification 1.1](#) and the [Web Services Description Language \(WSDL\) Specification 1.1](#). AXL-Serviceability APIs represent one server component of the Cisco Unified Communications Manager Serviceability product.

SOAP provides an XML-based communication protocol and encoding format for interapplication communication. SOAP can serve as the backbone to a new generation of cross-platform, cross-language distributed-computing applications, termed Web Services.

AXL-Serviceability APIs provide remote procedure call (RPC) style operations for clients. Clients of AXL-Serviceability APIs can run in different OS platforms and can communicate through the standard SOAP protocol. AXL-Serviceability APIs provide access to core Cisco Unified Communications Manager Serviceability functionality through an open and standard transport protocol and data model.

The AXL-Serviceability interface uses the AXIS 1.4 SOAP server with the AXIS-2250 patch.

New and Changed Information

The following sections describe the major changes in the AXL-Serviceability APIs for various releases:

- [New Information for Cisco Unified Communications Manager 7.1\(2\)](#), page 4-2
- [New Information for Cisco Unified Communications Manager 7.0\(1\)](#), page 4-4
- [New Information for Cisco Unified Communications Manager 7.0](#), page 4-5
- [New Information for Cisco Unified Communications Manager 6.1](#), page 4-6
- [New Information for Cisco Unified Communications Manager 6.0](#), page 4-6
- [New Information for Cisco Unified Communications Manager 5.0](#), page 4-7
- [New Information for Cisco Unified Communications Manager 4.3](#), page 4-7
- [New Information for Cisco Unified Communications Manager 4.0](#), page 4-7

For information about new, changed, or deprecated Serviceability SOAP API methods from the interface library, see [Chapter 5, “Serviceability XML Operations by Release”](#)

New Information for Cisco Unified Communications Manager 7.1(2)

The following information applies to Cisco Unified Communications Manager 7.1(2):

- Added new service URL that contains the version of Unified CM.
- Added a new API, SelectCmDevice, to show IPv6 details of Unified CM node or server, phone devices, SIP devices, and media devices.
- Added a new API, SelectCtiDevice, to support IPv6 address search for CTI controlled application and devices.
- The following perfmon counters have been added to show the IPv6 network statistics:
 - In Receives

- In HdrErrors
- In UnknownProtos
- In Discards
- In Delivers
- Out Requests
- Out Discards
- Reasm Reads
- Reasm OKs
- Reasm Fails
- Frag OKs
- Frag Fails
- Frag Creates
- InOut Requests
- Introduced new phone seamless upgrade information:
 - Phone Active Load ID
 - Phone InActive Load ID
 - Phone Down Load Status
 - Phone Down Load Failure Reason
 - Phone Firmware Down Loaded Server
- CISCO-CCM-MIB has been enhanced to show IPv6 details of Unified CM node, phone devices, SIP devices, and media devices.

The SOAP service APIs supported by Unified CM Release 7.1(2) is listed in [Table 4-1](#).

Table 4-1 **Serviceability XML Methods supported by Cisco Unified Communications Manager Release 7.1(2)**

SOAP Service	API	Service URL with Version
RisPort (Real Time Information Port)	selectCmDevice (IPv4 devices)	https://<server>:8443/realtimeservice/services/RisPort
	SelectCmDevice (includes IPv6 devices)	https://<server>:8443/realtimeservice/services/RisPort70
	selectCtiItem (IPv4 devices)	https://<server>:8443/realtimeservice/services/RisPort
	SelectCtiItem (includes IPv6 devices)	https://<server>:8443/realtimeservice/services/RisPort70
	getServerInfo	https://<server>:8443/realtimeservice/services/RisPort

Table 4-1 *Serviceability XML Methods supported by Cisco Unified Communications Manager Release 7.1(2)*

SOAP Service	API	Service URL with Version
PerfmonPort (Performance Information Port)	perfmonOpenSession	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonAddCounter	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonRemoveCounter	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonCollectSessionData	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonCloseSession	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonListInstance	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonQueryCounterDescription	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonListCounter	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonCollectCounterData	https://<server>:8443/perfmonservice/services/PerfmonPort
ControlCenterServices Port (All Service Control APIs)	soapGetStaticServiceList	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	soapGetServiceStatus	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	soapDoServiceDeployment	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	soapDoControlServices	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	getProductInformationList	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
LogCollectionPort (All Log Collection APIs)	listNodeServiceLogs	https://<server>:8443/logcollectionservice/services/LogCollectionPort
	selectLogFiles	https://<server>:8443/logcollectionservice/services/LogCollectionPort
CDRonDemand (All CDR APIs)	get_file_list	https://<server>:8443/CDRonDemandService/services/CDRonDemand
	get_file	https://<server>:8443/CDRonDemandService/services/CDRonDemand
DimeGetFileService (Getting Single File)	GetOneFile	https://<server>:8443/logcollectionservice/services/DimeGetFileService

New Information for Cisco Unified Communications Manager 7.0(1)

The following information applies to Unified CM Release 7.0(1):

- The following disk partition counters have been obsolesced starting with Unified CM, release 7.0(1):
 - Await Read Time—Average time measured in milliseconds, for read requests issued to the device to be served. The counter is no longer valid with a counter value as -1.

- Await Write Time—Average time measured in milliseconds, for write requests issued to the device to be served. The counter is no longer valid with a counter value as –1.
- Await Time—Average time measured in milliseconds, for input/output (I/O) requests issued to the device to be served. Includes time spent by the requests in queue and the time spent servicing them. The counter is no longer valid with a counter value as –1.
- % CPU Time—Percentage of CPU time that is dedicated to handling IO requests that were issued to the disk. The counter is no longer valid with a counter value as –1.
- Queue Length—Average queue length for the requests that were issued to the disk. The counter is no longer valid with a counter value as –1.
- The following counters have been added to memory perfmon object:
 - Pages Input Per Sec—Total number of kilobytes paged in from disk per second.
 - Pages Output Per Sec—Total number of kilobytes paged out to disk per second.
 - Faults Per Sec—Number of page faults (major + minor) made by the system per second (post 2.5 kernels only).
This is not the number of page faults that generate I/O, because some page faults can be resolved without I/O.
 - Major Faults Per Sec—Number of major faults the system has made per second, those which have required loading a memory page from disk (post 2.5 kernels only).
 - Low Total—Total low (non-paged) memory for kernel.
 - Low Free—Free low (non-paged) memory for kernel.
- Added Cisco SOAPMessage tracing service ([SOAP Service Tracing, page 4-129](#)).

New Information for Cisco Unified Communications Manager 7.0

The following information applies to Cisco Unified Communications Manager 7.0:

- There are no AXL-Serviceability API changes in this release.
- When trace compression is enabled, trace files are compressed.
- Cisco Cisco Unified Communications Manager 7.0 supports version in the service URL as described in [Table 4-2](#).



Note

The service URL for all the AXL serviceability Cisco Unified Communications Manager 4.x and below is `http://ASTSERVERNAME/soap/astsvc.dll`.

Table 4-2 Serviceability XML Methods by Cisco Unified Communications Manager Release

SOAP Service	API	Service URL with Version
RisPort (Real Time Information Port)	selectCmDevice	<code>https://<server>:8443/realtimeservice/services/RisPort</code>
	selectCtlItem	<code>https://<server>:8443/realtimeservice/services/RisPort</code>
	getServerInfo	<code>https://<server>:8443/realtimeservice/services/RisPort</code>

Table 4-2 *Serviceability XML Methods by Cisco Unified Communications Manager Release (continued)*

SOAP Service	API	Service URL with Version
PerfmonPort (Performance Information Port)	perfmonOpenSession	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonAddCounter	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonRemoveCounter	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonCollectSessionData	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonCloseSession	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonListInstance	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonQueryCounterDescription	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonListCounter	https://<server>:8443/perfmonservice/services/PerfmonPort
	perfmonCollectCounterData	https://<server>:8443/perfmonservice/services/PerfmonPort
ControlCenterServices Port (All Service Control APIs)	soapGetStaticServiceList	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	soapGetServiceStatus	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	soapDoServiceDeployment	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	soapDoControlServices	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
	getProductInformationList	https://<server>:8443/controlcenterservice/services/ControlCenterServicesPort
LogCollectionPort (All Log Collection APIs)	listNodeServiceLogs	https://<server>:8443/logcollectionservice/services/LogCollectionPort
	selectLogFiles	https://<server>:8443/logcollectionservice/services/LogCollectionPort
CDRonDemand (All CDR APIs)	get_file_list	https://<server>:8443/CDRonDemandService/services/CDRonDemand
	get_file	https://<server>:8443/CDRonDemandService/services/CDRonDemand
DimeGetFileService (Getting Single File)	GetOneFile	https://<server>:8443/logcollectionservice/services/DimeGetFileService

New Information for Cisco Unified Communications Manager 6.1

There are no AXL-Serviceability API changes for Cisco Unified Communications Manager 6.1.

New Information for Cisco Unified Communications Manager 6.0

The following updates apply to Cisco Unified Communications Manager 6.0:

- The GetProductInformationList API has been added. This API provides information about the products that are installed on a given server.

- The standard SOAP fault is issued if a failure occurs. For related information, see the [“SOAP Fault Error Codes”](#) section on page 4-131.

New Information for Cisco Unified Communications Manager 5.0

The following APIS have been added for Cisco Unified Communications Manager 5.0:

- `getServerInfo`—Exports information from the Server Information SOAP interface
- `soapGetStaticServiceList`—Allows clients to perform a query for all services static specifications in Cisco Unified Communications Manager.
- `soapGetServiceStatus`—Allows clients to perform a list of deployable and undeployable services status query
- `soapDoServiceDeployment`—Allows clients to deploy or undeploy a list of services
- `soapDoControlServices`—Allows clients to start or stop a list of service
- `listNodeServiceLogs`—Returns the location of their log files for each service.
- `selectLogFiles`—Takes `FileSelectionCriteria` object as an input parameter and returns the file names and location for that object.
- `get_file_list`—Allows an application to query the CDR Repository Node for a list of all the files that match a specified time interval
- `GetOneFile`—Takes as an input parameter the absolute file name of the file that you want to collect from the server

New Information for Cisco Unified Communications Manager 4.3

There are no AXL-Serviceability API changes for Cisco Unified Communications Manager 4.3.

New Information for Cisco Unified Communications Manager 4.0

The following APIs have been added for Cisco Unified Communications Manager 4.0:

- `selectCmDevice`—Allows clients to perform Cisco Unified Communications Manager device-related queries
- `selectCtiItem`—Allows clients to perform a CTI manager-related query
- `SelectCmDeviceSIP`—Allows clients to perform Cisco Unified Communications Manager SIP device related queries

Data Model

AXL-Serviceability APIs are based on SOAP with XML request and response messages. APIs must conform to the structure of a SOAP Envelope element. Although SOAP is a standard protocol, many of its data model aspects remain open for flexibility reasons. For example, it permits different transport protocols, such as SMTP, FTP, or HTTP, to carry SOAP messages. The implementation of a SOAP service must specify the bindings of the data model to constitute a concrete wire protocol specification.

The [Web Services Description Language \(WSDL\) Specification 1.1](#) provides the mechanism to describe the complete SOAP bindings that AXL-Serviceability APIs use.

SOAP Binding

The binding section of the Serviceability SOAP WSDL files specifies AXL-Serviceability API SOAP binding information. Binding specifications apply to both request and response messages. SOAP Binding covers the aspects that are explained in the following sections.

Character Encoding

AXL-Serviceability APIs use UTF-8 to encode the data stream in both request and response SOAP messages. The encoding attribute of the XML declaration specifies UTF-8 encoding. AXL-Serviceability APIs also set “text/xml; charset='utf-8'” as the value of the Content-Type response header field. Internally, AXL-Serviceability APIs processes the data by using UCS-2 Unicode code page.

Binding Style

AXL-Serviceability APIs uses remote procedure call (RPC) binding style. In SOAP, the word operation refers to method or function. Each AXL-Serviceability API operation call gets modeled as an RPC that is encapsulated in SOAP messages. The HTTP request carries RPC calls while the HTTP response carries the call returns. The call information is modeled as a structure. The member elements of the body entry represent the accessor elements that represent the input parameters. The response data is also modeled as a structure with accessors that correspond to output parameters. Parameters that are both input and output must appear in both the request and response message.

Transport Protocols

SOAP allows different transport protocols to carry SOAP messages. AXL-Serviceability APIs use the standard HTTP as its transport. Clients use the POST verb to send requests to AXL-Serviceability APIs.

**Note**

AXL-Serviceability APIs do not use the M-POST method as defined in the HTTP Extension Framework.

Encoding Rule

AXL-Serviceability APIs follow the recommended data model and serialization/encoding rules as defined in [Section 5.1 of SOAP Specification 1.1](#) for both the request and response messages. SOAP simple types are based on the built-in data types that are defined in XML Schema Part 2.

AXL-Serviceability APIs define their own data types, which are derived from the built-in types. The `schemas` element of the AXL-Serviceability APIs WSDL file specifies AXL-Serviceability APIs that are derived data types. AXL-Serviceability APIs use both simple and compound data types, such as arrays and structures. All operations in AXL-Serviceability APIs pass parameters by value.

For performance reasons, AXL-Serviceability APIs do not specify the size of the array elements in the response message. It leaves the size as [], which means that no particular size is specified, but the clients can determine the size by enumerating the actual number of elements that are inside the array. Point 8 of [Section 5.1 of SOAP Specification 1.1](#) specifies this.

The target namespace URL for AXL-Serviceability API data types schema follows:

<http://schemas.xmlsoap.org/soap/envelope/>

AXL-Serviceability APIs qualify the first body entry in the response, which represents the call-return, with this target namespace. Similarly, clients of AXL-Serviceability APIs also need to qualify the first body entry in the request, which represents the call, with this namespace.

Request Message

With RPC-style SOAP binding, the request message contains operation call information that is encoded as a struct. The call struct, which appears as the first body entry in the request message, contains the name of the operation and the input parameters. The name of the top-level element represents the operation name. The struct contains accessor element members that represent input parameters. Operations with no parameters have no members in the struct. The names of the accessor elements match the names of the input parameters. The values of the accessor elements represent the values of the input parameters. The order of the accessor elements must match the order of the input parameters as specified in the signature of the operation.

SOAP Action Header

AXL-Serviceability APIs require SOAP clients to include the SOAP Action HTTP header field in the request message. The SOAP 1.1 specification does not place any restrictions on the format of this header. For AXL-Serviceability APIs, the **soapAction** attribute of the SOAP element, which is defined under the binding section of the Serviceability SOAP API WSDL files, specifies the format of the SOAP Action HTTP header. All AXL-Serviceability APIs operations use the following URI format:

<http://schemas.cisco.com/ast/soap/action/#PortName#OperationName>



Note

Because the enclosing double-quote characters (“ ”) are part of the URI, the header must include them.

PortName acts as a placeholder that refers to the name of the port. AXL-Serviceability APIs must support the port. OperationName represents a placeholder that refers to the name of the intended operation within the specified port. This name must match the operation name in the request body, which is specified as the name of the first body entry element. The SOAP Action header indicates the intent of the SOAP request without having to parse the body of the request. A SOAP server can check the value of this header and determine whether to fail the operation before it proceeds with parsing the XML body. This provides some efficiency on the server side and allows non-SOAP-aware intermediary HTTP servers or proxies to determine the intent of the payload.

Port

A SoapPort basically represents an instantiation of a SoapBinding with a specific network address. Because AXL-Serviceability APIs use HTTP as the transport protocol, the network address in this case specifies an HTTP request URL. SoapPortType, with specific binding rules added to it, provides a basis for the definition of SoapBinding.

The service section of the WSDL file defines the request URL for all AXL-Serviceability API operations. Every request for the AXL-Serviceability APIs operations must use this URL.

SOAP Header

As previously explained, the SOAP header provides a general way to add features to SOAP messages in a decentralized fashion with no prior contract between the sender and recipient. AXL-Serviceability APIs do not use this feature, so no Header element is expected in the envelope and gets ignored. If the Header element gets included with the **mustUnderstand** attribute set to 1, AXL-Serviceability APIs reply with a fault and a fault code value that is set to the **mustUnderstand** value.

The following example shows an AXL-Serviceability API SOAP request message with the HTTP header information:

Example

```
POST /perfmonservice/services/PerfmonPort HTTP/1.1
Charset: utf-8
Accept: application/soap+xml, application/dime, multipart/related, text/*
user-agent: ClientName
Host: nozomi
Content-Type: text/xml; charset=utf-8
Content-Length: xxx
SOAPAction: "http://schemas.cisco.com/ast/soap/action/#PerfmonPort#PerfmonOpenSession"

<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
    <q1:PerfmonOpenSession xmlns:q1="http://schemas.cisco.com/ast/soap/" />
  </soap:Body>
</soap:Envelope>
```

Response Message

For a successful operation call, the call-return gets encoded as a structure. The structure appears as the first body entry of the response. The call-return basically contains the output parameters or return values of the call. The name of the structure top-level element has no significance, and the SOAP 1.1 specification does not place any restriction on the name. The structure contains accessor member elements, which represent the output parameters of the call. The names of the accessor elements match the names of the output parameters. The contents of the accessor elements represent the values of the output parameters. The order of the accessor elements must match the order of output parameters as specified in the operation signatures. Operation, which does not return any value, contains no member elements in the call-return struct.

AXL-Serviceability APIs use the following naming conventions for the call-return top-level element:

```
SOAPAction: "http://schemas.cisco.com/ast/soap/action/#PortName #OperationName"
```

where `OperationName` represents a placeholder that refers to the name of the operation that is specified in the request message. This format specifically applies only for the AXL-Serviceability APIs implementation.

The target namespace that is described in the “[Encoding Rule](#)” section on page 4-8, qualifies the call-return. AXL-Serviceability APIs return HTTP status 200 when the operation succeeds.

For a failed operation call, AXL-Serviceability APIs include the SOAP fault element in the response body. Similar to call-return, the fault element also appears as the first body entry. AXL-Serviceability APIs set HTTP 500 status when sending fault messages.

Fault Message

When an AXL-Serviceability API processes a request and detects that an error occurred, it replies with a SOAP fault element in the response. The fault element appears as the first response body entry. The fault element comprises the following four subelements:

- [Fault Code Values](#)
- [FaultString](#)
- [FaultActor](#)
- [Detail](#)

Fault Code Values

AXL-Serviceability APIs use the following standard fault code values as defined in [Section 4.4.1 of the SOAP 1.1 specification](#).

VersionMismatch

This fault code gets set when the namespace URL of the request envelope does not match.

MustUnderstand

This fault code gets set when the clients include the `Header` element in the envelope along with the `mustUnderstand` attribute set to 1. AXL-Serviceability APIs do not use the `Header` element. See the “[SOAP Header](#)” section on page 4-10 for details.

Client

This fault code gets set when AXL-Serviceability APIs encounters errors that are related to the clients.

Server

This fault code gets set when AXL-Serviceability APIs encounter errors that are related to the service itself. This subelement always exists in the fault element as specified in the SOAP 1.1 specification. This represents a general classification of errors.

FaultString

AXL-Serviceability APIs set a short error description in the `faultstring` element that is intended for human reading. Similar to `faultcode`, this subelement is always present as the SOAP 1.1 specification requires. The string value of the `FaultString` specifically applies only to the AXL-Serviceability APIs.

FaultActor

AXL-Serviceability APIs do not set this subelement. Note that a proxy or intermediary server must include this subelement if it generates a fault message.

Detail

If an AXL-Serviceability API parses and processes the request body and determines that an error occurs afterward, it includes the detailed error information in the detail subelement.

If AXL-Serviceability APIs do not include the detail subelement in the fault element, the error does not relate to the request body. Data types that are defined in the AXL-Serviceability APIs WSDL files specify the encoding rule for the detail subelement.

The following fragments of the file describe the data types:

```
...
<complexType name='CallInfoType'>
  <sequence>
    <element name='FileName' type='xsd:string'/>
    <element name='LineNo' type='xsd:int'/>
    <element name='ErrorCode' type='xsd:unsignedInt'/>
    <element name='Function' type='xsd:string'/>
    <element name='Params' type='xsd:string'/>
  </sequence>
</complexType>

<complexType name='ErrorInfoType'>
  <sequence>
    <element name='Version' type='xsd:string'/>
    <element name='Time' type='xsd:time'/>
    <element name='ProcId' type='xsd:unsignedInt'/>
    <element name='ThreadId' type='xsd:unsignedInt'/>
    <element name='ArrayOfCallInfo' type='tns:ArrayOfCallInfoType'/>
  </sequence>
</complexType>

...
<complexType name='ArrayOfCallInfoType'>
  <complexContent>
    <restriction base='SOAP-ENC:Array'>
      <sequence>
        <element name='CallInfo'
          type='tns:CallInfoType' minOccurs='1' maxOccurs='unbounded'/>
      </sequence>
    </restriction>
  </complexContent>
</complexType>
```

AXL-Serviceability APIs name the detail entry element as ErrorInfo and the type as ErrorInfoType. This type provides a structure with several accessor elements. The Version accessor contains the build version. The Time accessor denotes the time when the error occurs. The ProcId accessor contains the process ID of the AXL-Serviceability APIs. The ThreadId accessor contains the thread ID that generates the fault. The ArrayOfCallInfo accessor contains an array of CallInfo elements.

The type for CallInfo specifies CallInfoType and also represents a structure. CallInfoType contains detailed information that describes where the error occurs in the code. It also includes the returned error code of the function, and the parameter data. The CallInfoType design allows capturing as much information as needed, so it is easy and fast to track down and investigate a problem. Depending on the implementation of the operation, several CallInfo elements can exist in the array.

The following example shows a successful AXL-Serviceability API SOAP response message with HTTP headers:

Example

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: xxx

<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<SOAP-ENV:Envelope SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Body>
    <m:PerfmonOpenSessionResponse xmlns:m="http://schemas.cisco.com/ast/soap/">
      <SessionHandle>{01944B7E-183F-44C5-977A-F31E3AE59C4C}</SessionHandle>
    </m:PerfmonOpenSessionResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The following example shows a failed AXL-Serviceability API SOAP response message with HTTP headers:

Example

```
HTTP/1.1 500 OK
Content-Type: text/xml; charset=utf-8
Content-Length: xxx

<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<SOAP-ENV:Envelope SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Body>
    <SOAP-ENV:Fault>
      <faultcode>SOAP-ENV:Server</faultcode>
      <faultstring>Perfmon error occurs</faultstring>
      <detail>
        <m:ErrorInfo xmlns:m="http://schemas.cisco.com/ast/soap/">
          <Version>3.2.0.2</Version>
          <Time>07/16/2001 - 00:00:24</Time>
          <ProcId>1200</ProcId>
          <ThreadId>300</ThreadId>
          <ArrayOfCallInfo SOAP-ENC:arrayType="m:CallInfoType[]">
            <CallInfo>
              <FileName>perfmon.cpp</FileName>
              <LineNo>396</LineNo>
              <ErrorCode>3221228473</ErrorCode>
              <Function>AddCounter</Function>
              <Params>\\nozomi\tcp\Bad Counter Name</Params>
            </CallInfo>
          </ArrayOfCallInfo>
        </m:ErrorInfo>
      </detail>
    </SOAP-ENV:Fault>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Namespaces

AXL-Serviceability APIs use the following XML namespaces:

- <http://schemas.xmlsoap.org/soap/envelope/>
The namespace URI for the SOAP envelope
- <http://schemas.xmlsoap.org/soap/encoding/>
The namespace for the SOAP-recommended encoding rule that is based on XML Schema
- <http://schemas.cisco.com/ast/soap/>
The namespace URL for AXL-Serviceability API data types as defined in the WSDL file

Downloading Serviceability SOAP WSDL Files

You can download the Cisco Unified Communications Manager serviceability SOAP WSDL files from the Cisco Unified Communications Manager server directly by entering a URL on the web browser. [Table 4-3](#) lists these URLs. In each URL, *servername* must be replaced by an appropriate server IP address.

Table 4-3 URLs for SOAP Requests Service Definitions

SOAP Request Type	URL for SOAP Requests Service Definition
RisPort	https://servername:8443/realtimeservice/services/RisPort?wsdl
RisPort70	https://servername:8443/realtimeservice/services/RisPort70?wsdl
PerfmonPort	https://servername:8443/perfmonservice/services/PerfmonPort?wsdl
ControlCenterServices	https://servername:8443/controlcenterservice/services/ControlCenterServicesPort?wsdl
LogCollectionService	https://servername:8443/logcollectionservice/services/LogCollectionPort?wsdl
CDRonDemand	https://servername:8443/CDRonDemandService/services/CDRonDemand?wsdl
DimeGetFile	https://servername:8443/logcollectionservice/services/DimeGetFileService?wsdl
SOAPMonitorService ¹	https://servername:8443/realtimeservice/services/SOAPMonitorService?wsdl

1. SOAPMonitorService is the standard SOAP monitor service WSDL of the third-party Axis SOAP server.

PClients of AXL-Serviceability APIs must download these files to know what services are available, how to form the request message, and how to interpret the response message properly. Basically, the WSDL file has what you need to know about AXL-Serviceability APIs.

Monitoring SOAP Activity

You can use AXIS SOAPMonitor to monitor SOAP activities. Point your browser to <https://servername:8443/realtimeservice/SOAPMonitor> where *servername* is an appropriate server IP address.

RisPort SOAP Service

The RisPort (Real-Time Information Port) service comprises several operations that allow clients to do the following tasks related to real-time information:

Table 4-4 provides a summary of the SOAP RisPort service operations.

Table 4-4 *SOAP RisPort Service Operations*

Operation	Description	Reference
selectCmDevice	Allows clients to perform Cisco Unified Communications Manager device-related queries	RisPort Service: selectCmDevice Operation, page 4-16
SelectCmDevice (includes IPv6 devices)	Allows clients to search for devices that have IPv6 addresses	RisPort Service: SelectCmDevice Operation (Includes IPv6 Devices), page 4-22
selectCtiItem	Allows clients to perform a CTI manager-related query	RisPort Service: selectCtiItem Operation, page 4-38
SelectCtiItem (includes IPv6 devices)	Supports search for CTI controlled applications and devices that have IPv6 addresses	RisPort Service: SelectCtiDevice Operation (Includes IPv6 Devices), page 4-40
getServerInfo	Exports information from the Server Information SOAP interface	RisPort Service: getServerInfo Operation, page 4-50
SelectCmDeviceSIP	Allows clients to perform Cisco Unified Communications Manager SIP device related queries	RisPort Service: SelectCmDeviceSIP Operation, page 4-54

RisPort Service: selectCmDevice Operation

The selectCmDevice operation allows clients to perform Cisco Unified Communications Manager device-related queries.

Request Format



Note

For information about obtaining all device information in a large system, refer to the [“Device Query Support for Large Clusters”](#) section on page 4-138

SOAP Action and Envelope Information

HTTP header should have following SOAP action for these queries.

SOAPAction: "http://schemas.cisco.com/ast/soap/action/#RisPort#SelectCmDevice"

Query information includes an Envelope as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tns="http://schemas.cisco.com/ast/soap/"
  xmlns:types="http://schemas.cisco.com/ast/soap/encodedTypes"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
```

Session ID

This SOAP header will have session ID that is a unique session ID from client.

```
<soap:Header>
<tns:AstHeader id="id1">
<SessionId xsi:type="xsd:string">SessionId</SessionId>
</tns:AstHeader>
</soap:Header>
```

Selection Criteria

Selection criteria type, which is a Cisco Unified Communications Manager Selection criteria, follows the SOAP header. Selection criteria should not include “unknown.” If you specify “unknown,” it is treated as “any.” The “Unknown” state can be present in a response.

```
<soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<tns:SelectCmDevice>
```

If the same information is queried over and over again, send Stateinfo from the previous request for each repetitive query by client.

```
<StateInfo xsi:type="xsd:string" />
<CmSelectionCriteria href="#id1"/>
</tns:SelectCmDevice><tns:CmSelectionCriteria id="id1" xsi:type="tns:CmSelectionCriteria">
```

Maximum Devices Specification

This example specifies how many maximum devices can be returned for search criteria.

```
<MaxReturnedDevices xsi:type="xsd:unsignedInt">10</MaxReturnedDevices>
```

Search Device Classes

This example specifies the device class type to query for real-time status. Device classes include 'Any', 'Phone', 'Gateway', 'H323', 'Cti', 'VoiceMail', 'MediaResources', 'HuntList', 'SIPTrunk', and 'unknown'.

```
<Class xsi:type="tns:DeviceClass">Any</Class>
```

This example specifies the Model of the device—255 specifies all models.

```
<Model xsi:type="xsd:unsignedInt">255</Model>
```

Device Status in Search Criteria

Specify registered/unregistered status devices. The following example shows status 'Any', 'Registered', 'UnRegistered', 'Rejected', and 'Unknown.'

```
<Status xsi:type="tns:CmDevRegStat">Registered</Status>
```

The following example specifies the server name where the search needs to be performed. If no name is specified, a search in all servers in a cluster results.

```
<NodeName xsi:type="xsd:string" />
```

Specify Selection type whether it is IP Address/Name

```
<SelectBy xsi:type="tns:CmSelectBy">Name</SelectBy>
```

Array of Items for Which Search Criteria Are Specified

The following example specifies an array that contains the IP Address or Device Name of the items for which a real-time status is required.

```
<SelectItems href="#id2" />Name or IP</tns:CmSelectionCriteria>
<soapenc:Array id="id2" soapenc:arrayType="tns:SelectedItem[2]">
  <Item href="#id3"/><Item xsi:null="1"/>
</soapenc:Array>
<tns:SelectedItem id="id3" xsi:type="tns:SelectedItem">
  <Item xsi:type="xsd:string"/></tns:SelectedItem>
</soap:Body>
</soap:Envelope>
```

Response Format

The Response follows the following schema and contains information for one to many servers for each server and contains a sequence of search information that is found on the search criteria.

```
<complexType name='SelectCmDeviceResult'>
  <sequence>
    <element name='TotalDevicesFound' type='xsd:unsignedInt' />
    <element name='CmNodes' type='tns:CmNodes' />
  </sequence>
</complexType>
```

CMNodes provides a list of Unified CMNodes that are given in search criteria.

```
<complexType name='CmNodes'>
  <complexContent>
    <restriction base='SOAP-ENC:Array'>
      <sequence>
        <element name='CmNode' type='tns:CmNode' minOccurs='0' maxOccurs='unbounded' />
      </sequence>
    </restriction>
  </complexContent>
</complexType>
```

Each Unified CMNode contains a sequence of devices and their registration status.

```
<complexType name='CmNode'>
  <sequence>
    <element name='ReturnCode' type='tns:RisReturnCode' />
    <element name='Name' type='xsd:string' />
    <element name='NoChange' type='xsd:boolean' />
    <element name='CmDevices' type='tns:CmDevices' />
  </sequence>
```

```

</complexType>
<complexType name='CmDevices'>
  <complexContent>
    <restriction base='SOAP-ENC:Array'>
      <sequence>
        <element name='CmDevice' type='tns:CmDevice' minOccurs='0' maxOccurs='200' />
      </sequence>
    </restriction>
  </complexContent>
</complexType>

```

The Unified CM Device information contains the following information.

```

<complexType name='CmDevice'>
  <sequence>
    <element name='Name' type='xsd:string' />
    <element name='IpAddress' type='xsd:string' />
    <element name='DirNumber' type='xsd:string' />
    <element name='Class' type='tns:DeviceClass' />
    <element name='Model' type='xsd:unsignedInt' />
    <element name='Product' type='xsd:unsignedInt' />
    <element name='BoxProduct' type='xsd:unsignedInt' />
    <element name='Httpd' type='tns:CmDevHttpd' />
    <element name='RegistrationAttempts' type='xsd:unsignedInt' />
    <element name='IsCtiControllable' type='xsd:boolean' />
    <element name='LoginUserId' type='xsd:string' />
    <element name='Status' type='tns:CmDevRegStat' />
    <element name='StatusReason' type='xsd:unsignedInt' />
    <element name='PerfMonObject' type='xsd:unsignedInt' />
    <element name='DChannel' type='xsd:unsignedInt' />
    <element name='Description' type='xsd:string' />
    <element name='H323Trunk' type='tns:H323Trunk' />
    <element name='TimeStamp' type='xsd:unsignedInt' />
  </sequence>
</complexType>

```

Example Request

```

<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:SelectCmDevice soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      xmlns:ns1="http://schemas.cisco.com/ast/soap/">
      <StateInfo xsi:type="xsd:string" />
      <CmSelectionCriteria href="#id0" />
    </ns1:SelectCmDevice>
    <multiRef id="id0" soapenc:root="0"
      soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      xsi:type="ns2:CmSelectionCriteria"
      xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
      xmlns:ns2="http://schemas.cisco.com/ast/soap/">
      <MaxReturnedDevices xsi:type="xsd:unsignedInt">200</MaxReturnedDevices>
      <Class xsi:type="xsd:string">Any</Class>
      <Model xsi:type="xsd:unsignedInt">255</Model>
      <Status xsi:type="xsd:string">Registered</Status>
      <NodeName xsi:type="xsd:string" xsi:nil="true" />
      <SelectBy xsi:type="xsd:string">Name</SelectBy>
      <SelectItems soapenc:arrayType="ns2:SelectItem[1]" xsi:type="soapenc:Array">
        <item href="#id1" />
      </SelectItems>
    </multiRef>
  </soapenv:Body>
</soapenv:Envelope>

```

```

    <multiRef id="id1" soapenc:root="0"
    soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    xsi:type="ns3:SelectedItem" xmlns:ns3="http://schemas.cisco.com/ast/soap/"
    xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
        <Item xsi:type="xsd:string">*</Item>
    </multiRef>
</soapenv:Body>
</soapenv:Envelope>

```

Example Response

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <soapenv:Body>
        <ns1:SelectCmDeviceResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
            <SelectCmDeviceResult xsi:type="ns1:SelectCmDeviceResult">
                <TotalDevicesFound xsi:type="xsd:unsignedInt">4</TotalDevicesFound>
                <CmNodes soapenc:arrayType="ns1:CmNode[1]" xsi:type="soapenc:Array"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
                    <item xsi:type="ns1:CmNode">
                        <ReturnCode xsi:type="ns1:RisReturnCode">0k</ReturnCode>
                        <Name xsi:type="xsd:string">CISCART15</Name>
                        <NoChange xsi:type="xsd:boolean">false</NoChange>
                        <CmDevices soapenc:arrayType="ns1:CmDevice[4]" xsi:type="soapenc:Array">
                            <item xsi:type="ns1:CmDevice">
                                <Name xsi:type="xsd:string">ANN_2</Name>
                                <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
                                <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
                                <Class xsi:type="ns1:DeviceClass">MediaResources</Class>
                                <Model xsi:type="xsd:unsignedInt">126</Model>
                                <Product xsi:type="xsd:unsignedInt">89</Product>
                                <BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
                                <Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
                                <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
                                <IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
                                <LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
                                <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
                                <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
                                <PerfMonObject xsi:type="xsd:unsignedInt">608</PerfMonObject>
                                <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
                                <Description xsi:type="xsd:string">ANN_CISCART15</Description>
                                <H323Trunk xsi:type="ns1:H323Trunk">
                                    <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
                                    <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
                                    <Zone xsi:type="xsd:string" xsi:nil="true"/>
                                    <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
                                    <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
                                    <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
                                    <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
                                    <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
                                    <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
                                    <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
                                </H323Trunk>
                                <TimeStamp xsi:type="xsd:unsignedInt">1204679735</TimeStamp>
                            </item>
                            <item xsi:type="ns1:CmDevice">
                                <Name xsi:type="xsd:string">CFB_2</Name>
                                <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>

```

```

<DirNumber xsi:type="xsd:string" xsi:nil="true"/>
<Class xsi:type="ns1:DeviceClass">MediaResources</Class>
<Model xsi:type="xsd:unsignedInt">50</Model>
<Product xsi:type="xsd:unsignedInt">28</Product>
<BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
<Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
<RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
<IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
<LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
<Status xsi:type="ns1:CmDevRegStat">Registered</Status>
<StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
<PerfMonObject xsi:type="xsd:unsignedInt">15</PerfMonObject>
<DChannel xsi:type="xsd:unsignedInt">0</DChannel>
<Description xsi:type="xsd:string">CFB_CISCART15</Description>
<H323Trunk xsi:type="ns1:H323Trunk">
  <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
  <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
  <Zone xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
  <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
  <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
  <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
  <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
</H323Trunk>
<TimeStamp xsi:type="xsd:unsignedInt">1204679736</TimeStamp>
</item>
<item xsi:type="ns1:CmDevice">
  <Name xsi:type="xsd:string">MOH_2</Name>
  <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
  <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
  <Class xsi:type="ns1:DeviceClass">MediaResources</Class>
  <Model xsi:type="xsd:unsignedInt">70</Model>
  <Product xsi:type="xsd:unsignedInt">51</Product>
  <BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
  <Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
  <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
  <IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
  <LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
  <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
  <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
  <PerfMonObject xsi:type="xsd:unsignedInt">6</PerfMonObject>
  <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
  <Description xsi:type="xsd:string">MOH_CISCART15</Description>
  <H323Trunk xsi:type="ns1:H323Trunk">
    <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
    <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
    <Zone xsi:type="xsd:string" xsi:nil="true"/>
    <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
    <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
    <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
    <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
    <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
    <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
    <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
  </H323Trunk>
  <TimeStamp xsi:type="xsd:unsignedInt">1204679735</TimeStamp>
</item>
<item xsi:type="ns1:CmDevice">
  <Name xsi:type="xsd:string">MTP_2</Name>
  <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
  <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
  <Class xsi:type="ns1:DeviceClass">MediaResources</Class>

```

```

<Model xsi:type="xsd:unsignedInt">110</Model>
<Product xsi:type="xsd:unsignedInt">30</Product>
<BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
<Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
<RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
<IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
<LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
<Status xsi:type="ns1:CmDevRegStat">Registered</Status>
<StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
<PerfMonObject xsi:type="xsd:unsignedInt">13</PerfMonObject>
<DChannel xsi:type="xsd:unsignedInt">0</DChannel>
<Description xsi:type="xsd:string">MTP_CISCART15</Description>
<H323Trunk xsi:type="ns1:H323Trunk">
  <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
  <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
  <Zone xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
  <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
  <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
  <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
  <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
</H323Trunk>
<TimeStamp xsi:type="xsd:unsignedInt">1204679735</TimeStamp>
</item>
</CmDevices>
</item>
</CmNodes>
</SelectCmDeviceResult>
<StateInfo xsi:type="xsd:string">&lt;StateInfo ClusterWide=&quot;1&quot;&gt;&lt;Node
Name=&quot;CISCART15&quot; SubsystemStartTime=&quot;1204679712&quot; StateId=&quot;4&quot;
TotalItemsFound=&quot;4&quot;
TotalItemsReturned=&quot;4&quot;/&gt;&lt;/StateInfo&gt;</StateInfo>
</ns1:SelectCmDeviceResponse>
</soapenv:Body>
</soapenv:Envelope>

```

RisPort Service: SelectCmDevice Operation (Includes IPv6 Devices)

The **SelectCmDevice** API allows clients to query Cisco Unified Communications Manager (Unified CM) for device-related information. This API supports searching for IPv6 device address (Unified CM node/server, phone devices, SIP devices, and media devices) and provides IPv6 information in the response. This API also supports searching by download-status for new generation phones with seamless upgrade capability and provides information on the download-status of the firmware.

The operation name for invoking the API is **SelectCmDevice** and the service URL is:

https://<server name>/realtimeservice/services/RisPort70.



Note

The service URL for release 7.1(2) is different from the earlier releases. The service URL of this release includes the version information.

The **SelectCmDevice** operation comprises the **SelectCmDeviceInput** and **SelectCmDeviceOutput** messages:

```
<message name="SelectCmDeviceInput">
  <part name="StateInfo" type="xsd:string"/>
  <part name="CmSelectionCriteria" type="tns:CmSelectionCriteria"/>
</message>
<message name="SelectCmDeviceOutput">
  <part name="SelectCmDeviceResult" type="tns:SelectCmDeviceResult"/>
  <part name="StateInfo" type="xsd:string"/>
</message>
<portType name="RisPortType">
  <operation name="SelectCmDevice">
    <input message="tns:SelectCmDeviceInput"/>
    <output message="tns:SelectCmDeviceOutput"/>
  </operation>
</portType>
```

Request Format



Note

For information about obtaining all device information in a large system, refer to the [“Device Query Support for Large Clusters”](#) section on page 4-138

SOAP Action

HTTP header should have following SOAP action for these queries.

SOAPAction: http://schemas.cisco.com/ast/soap/action/#RisPort70#SelectCmDevice

Envelope and Session ID

Query information includes the envelope and session ID information as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soap="http://schemas.cisco.com/ast/soap/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
  <soapenv:Header>
    <AstHeader xsi:type="soap:AstHeader">
      <SessionId xsi:type="xsd:string"/>
    </AstHeader>
  </soapenv:Header>
  <body>
    <SelectCmDeviceInput>
      <StateInfo>
        <string>
          <!-- StateInfo content -->
        </string>
      </StateInfo>
      <CmSelectionCriteria>
        <!-- CmSelectionCriteria content -->
      </CmSelectionCriteria>
    </SelectCmDeviceInput>
  </body>
</soapenv:Envelope>
```

```
</AstHeader>
</soapenv:Header>
```

The SOAP header has the session ID that is a unique ID.

SelectDmDevice Operation

The **SelectDevice** operation is first defined in the SOAP body element.

```
<SOAP-ENV:Body soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<soap:SelectCmDevice>
```

Stateinfo

If same Information is queried repetitively, then **Stateinfo** is sent from the previous request. **Stateinfo** is the string that is returned by the server and it represents the state of the real-time database.

```
<StateInfo xsi:type="xsd:string" />
```

Selection Criteria

The **CmSelectionCriteria** element defines the selection criteria for RISDC search. The selection criteria type follows the SOAP header. Selection criteria should not be “unknown.” If you specify “unknown,” it is treated as “any.” The “Unknown” state can be present in a response.

```
<complexType name="CmSelectionCriteria">
  <sequence>
    <element name="MaxReturnedDevices" nillable="true" type="xsd:unsignedInt"/>
    <element name="Class" nillable="true" type="xsd:string"/>
    <element name="Model" nillable="true" type="xsd:unsignedInt"/>
    <element name="Status" nillable="true" type="xsd:string"/>
    <element name="NodeName" nillable="true" type="xsd:string"/>
    <element name="SelectBy" type="tns:CmSelectBy"/>
    <element name="SelectItems" nillable="true" type="tns:SelectItems"/>
    <element name="Protocol" nillable="true" type="tns:ProtocolType"/>
    <element name="DownloadStatus" nillable="true" type="tns:DeviceDownloadStatus"/>
  </sequence>
</complexType>
```

CmSelectionCriteria contains the following information:

- [MaxReturnedDevices](#)
- [Class](#)
- [Model](#)
- [Status](#)
- [NodeName](#)
- [SelectBy](#)
- [SelectItems](#)
- [Protocol](#)
- [DownloadStatus](#)

MaxReturnedDevices

Specifies the maximum number of devices that can be returned in a search. The maximum value is 200.

Format:

```
<element name="MaxReturnedDevices" nillable="true" type="xsd:unsignedInt"/>
```

Example:

```
<MaxReturnedDevices xsi:type="xsd:unsignedInt">10</MaxReturnedDevices>
```

Class

Specifies the device class type that needs to be queried for the real-time status. The following options are available:

- Any
- Phone
- Gateway
- H323
- Cti
- VoiceMail
- MediaResources
- SIP Trunk
- HuntLis
- Unknown

Format:

```
<element name="Class" nillable="true" type="xsd:string"/>
<simpleType name="DeviceClass">
  <restriction base="string">
    <enumeration value="Any"/>
    <enumeration value="Phone"/>
    <enumeration value="Gateway"/>
    <enumeration value="H323"/>
    <enumeration value="Cti"/>
    <enumeration value="VoiceMail"/>
    <enumeration value="MediaResources"/>
    <enumeration value="SIP Trunk"/>
    <enumeration value="HuntList"/>
    <enumeration value="Unknown"/>
  </restriction>
</simpleType>
```

Example:

```
<Class xsi:type="tns:DeviceClass">Any</Class>
```

Model

Specifies the model of the device. 255 means all models.

Format:

```
<element name="Model" nillable="true" type="xsd:unsignedInt"/>
```

Example:

```
<Model xsi:type="xsd:unsignedInt">255</Model>
```

Status

Specifies the status of the device. The following options are available:

- Any
- Registered
- UnRegistered
- Rejected
- PartiallyRegistered

- Unknown

Format:

```
<element name="Status" nillable="true" type="xsd:string"/>
```

Example:

```
<Status xsi:type="tns:CmDevRegStat">Registered</Status>
```

NodeName

Specifies the server name where search is performed. If no name is specified, then all the servers within the cluster will be searched.

Format:

```
<element name="NodeName" nillable="true" type="xsd:string"/>
```

Example:

```
<NodeName xsi:type="xsd:string" xsi:nil="true"/>
```

SelectItems

Specifies the array of items for which you can specify the search criteria.

Format:

```
<complexType name="SelectItems">
  <complexContent>
    <restriction base="soapenc:Array">
      <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:SelectItem[]"/>
    </restriction>
  </complexContent>
</complexType>
```

Example that contains IP address or name of the device of the items for which you need the real time status:

```
<SelectItems href="#id2" />Name or IP</tns:CmSelectionCriteria>
<soapenc:Array id="id2" soapenc:arrayType="tns:SelectItem[2]">
  <Item href="#id3"/><Item xsi:nil="1"/>
</soapenc:Array>
<tns:SelectItem id="id3" xsi:type="tns:SelectItem">
  <Item xsi:type="xsd:string"/></tns:SelectItem>
```

SelectBy

Specifies the Unified CM selection types during the search to RISDC. The following options are available:

- Name
- IPV4Address
- IPV6Address
- DirNumber
- Description

Format:

```
<element name="SelectBy" type="tns:CmSelectBy"/>
<simpleType name="CmSelectBy">
  <restriction base="string">
    <enumeration value="Name"/>
    <enumeration value="IPV4Address"/>
    <enumeration value="IPV6Address"/>
    <enumeration value="DirNumber"/>
    <enumeration value="Description"/>
  </restriction>
</simpleType>
```

```
</restriction>
</simpleType>
```

Example:

```
<SelectBy href="#id1"/>
</multiRef>
<multiRef id="id1" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns3:CmSelectBy"
xmlns:ns3="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">IPV6Address</multiRef>
```

Protocol

Specifies the protocol name in the search criteria. The following options are available:

- Any
- SCCP
- SIP
- Unknown

Format:

```
<element name="Protocol" type="tns:ProtocolType"/>
<simpleType name="ProtocolType">
<restriction base="string">
<enumeration value="Any"/>
<enumeration value="SCCP"/>
<enumeration value="SIP"/>
<enumeration value="Unknown"/>
</restriction>
</simpleType>
```

Example:

```
<Protocol href="#id3"/>
</multiRef>
<multiRef id="id3" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns5:ProtocolType"
xmlns:ns5="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Any</multiRef>
```

DownloadStatus

Specifies the download status of the application. The following options are available:

- Any
- Upgrading
- Successful
- Failed
- Unknown

Format:

```
<element name="DownloadStatus" nillable="true" type="tns:DeviceDownloadStatus"/>
<simpleType name="DeviceDownloadStatus">
<restriction base="string">
<enumeration value="Any"/>
<enumeration value="Upgrading"/>
<enumeration value="Successful"/>
<enumeration value="Failed"/>
<enumeration value="Unknown"/>
```

```
</restriction>
</simpleType>
```

Example:

```
<DownloadStatus href="#id4"/>
</multiRef>
<multiRef id="id4" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns6:DeviceDownloadStatus"
xmlns:ns6="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Any</multiRef>
```

Response Format

The response has the following schema and contains information for a single server or many servers. The response contains a sequence of search information that is specified in the search criteria.

```
<complexType name='SelectCmDeviceResult'>
<sequence>
<element name='TotalDevicesFound' type='xsd:unsignedInt' />
<element name='CmNodes' type='tns:CmNodes' />
<element name='
</sequence>
</complexType>
```

Total Devices Found

This element displays the total number of device that are found.

Format:

```
<element name="TotalDevicesFound" type="xsd:unsignedInt"/>
```

Example:

```
<TotalDevicesFound xsi:type="xsd:unsignedInt">4</TotalDevicesFound>
```

Call Manager Node Information

CmNodes provides a list of Call Manager nodes that are specified in the search criteria.

Format:

```
<complexType name="CmNodes">
<complexContent>
<restriction base="SOAP-ENC:Array">
<attribute ref="soapenc:arrayType" wsdl:arrayType="tns:CmNode[]" />
</restriction>
</complexContent>
</complexType>
```

Each CmNode contains a sequence of devices and their registration status. The CmNode element displays the following information:

- [Return Code](#)
- [Name](#)
- [NoChange](#)
- [CmDevice](#)

Format:

```
<complexType name='CmNode'>
<sequence>
<element name='ReturnCode' type='tns:RisReturnCode' />
<element name='Name' type='xsd:string' />
<element name='NoChange' type='xsd:boolean' />
```

```

<element name='CmDevices' type='tns:CmDevices' />
</sequence>
</complexType>

```

Return Code

Displays the RIS return codes. The following options are available:

- Ok
- NotFound
- InvalidRequest
- InternalRequest
- InternalError
- NodeNotResponding
- InvalidNodeName

Format:

```

<element name='ReturnCode' type='tns:RisReturnCode' />
<simpleType name="RisReturnCode">
<restriction base="string">
<enumeration value="Ok"/>
<enumeration value="NotFound"/>
<enumeration value="InvalidRequest"/>
<enumeration value="InternalError"/>
<enumeration value="NodeNotResponding"/>
<enumeration value="InvalidNodeName"/>
</restriction>

```

Name

Displays the name of the node.

Example:

```
Name xsi:type="xsd:string">172.27.203.17</Name>
```

NoChange

Example:

```
<NoChange xsi:type="xsd:boolean">false</NoChange>
```

CmDevice

Displays the device information. See [Call Manager Device Information](#).

Call Manager Device Information

The CmDevice displays the following information:

- [Name](#)
- [Class](#)
- [Product](#)
- [Httpd](#)
- [DirNumber](#)
- [Model](#)
- [BoxProduct](#)
- [RegistrationAttempts](#)

- [IsCtiControllable](#)
- [Status](#)
- [PerfMonObject](#)
- [Description](#)
- [TimeStamp](#)
- [NumOfLines](#)
- [ActiveLoadID](#)
- [DownloadStatus](#)
- [DownloadServer](#)
- [LoginUserId](#)
- [StatusReason](#)
- [DChannel](#)
- [H323Trunk](#)
- [Protocol](#)
- [LinesStatus](#)
- [InactiveLoadID](#)
- [DownloadFailureReason](#)
- [IPAddress](#)

Format:

```
<complexType name="CmDevice">
  <sequence>
    <element name="Name" type="xsd:string"/>
    <element name="DirNumber" nillable="true" type="xsd:string"/>
    <element name="Class" nillable="true" type="tns:DeviceClass"/>
    <element name="Model" nillable="true" type="xsd:unsignedInt"/>
    <element name="Product" nillable="true" type="xsd:unsignedInt"/>
    <element name="BoxProduct" nillable="true" type="xsd:unsignedInt"/>
    <element name="Httpd" nillable="true" type="tns:CmDevHttpd"/>
    <element name="RegistrationAttempts" type="xsd:unsignedInt"/>
    <element name="IsCtiControllable" type="xsd:boolean"/>
    <element name="LoginUserId" nillable="true" type="xsd:string"/>
    <element name="Status" type="tns:CmDevRegStat"/>
    <element name="StatusReason" nillable="true" type="xsd:unsignedInt"/>
    <element name="PerfMonObject" nillable="true" type="xsd:unsignedInt"/>
    <element name="DChannel" nillable="true" type="xsd:unsignedInt"/>
    <element name="Description" nillable="true" type="xsd:string"/>
    <element name="H323Trunk" nillable="true" type="tns:H323Trunk"/>
    <element name="TimeStamp" nillable="true" type="xsd:unsignedInt"/>
    <element name="Protocol" type="tns:ProtocolType"/>
    <element name="NumOfLines" type="xsd:unsignedInt"/>
    <element name="LinesStatus" type="tns:CmDevLinesStatus"/>
    <element name="ActiveLoadID" nillable="true" type="xsd:string"/>
    <element name="InactiveLoadID" nillable="true" type="xsd:string"/>
    <element name="DownloadStatus" nillable="true" type="tns:DeviceDownloadStatus"/>
    <element name="DownloadFailureReason" nillable="true" type="xsd:string"/>
    <element name="DownloadServer" nillable="true" type="xsd:string"/>
    <element name="IPAddress" type="tns:IPAddressArray"/>
  </sequence>
</complexType>
```

Name

Displays the name of the device.

Example:

```
<Name xsi:type="xsd:string">CTIRP</Name>
```

DirNumber

Displays the directory number.

Example:

```
<DirNumber xsi:type="xsd:string">9999</DirNumber>
```

Class

Defines the device class types. The following options are available:

- Any
- Phone
- Gateway
- H323
- Cti
- VoiceMail
- MediaResources
- SIP Trunk
- HuntLis
- Unknown

Format:

```
<element name="Class" nillable="true" type="xsd:string"/>
<simpleType name="DeviceClass">
  <restriction base="string">
    <enumeration value="Any"/>
    <enumeration value="Phone"/>
    <enumeration value="Gateway"/>
    <enumeration value="H323"/>
    <enumeration value="Cti"/>
    <enumeration value="VoiceMail"/>
    <enumeration value="MediaResources"/>
    <enumeration value="SIP Trunk"/>
    <enumeration value="HuntList"/>
    <enumeration value="Unknown"/>
  </restriction>
</simpleType>
```

Example:

```
<Class xsi:type="ns1:DeviceClass">Cti</Class>
```

Model

Specifies the model of the device.

Example:

```
<Model xsi:type="xsd:unsignedInt">73</Model>
```

Product

Displays the product type.

Example:

```
<Product xsi:type="xsd:unsignedInt">48</Product>
```

BoxProduct

Displays the integer value (0 or 1) for box products.

```
<BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
```

Httpd

Displays the devices support HTTP. The following options are available:

- Yes
- No
- Unknown

Format:

```
<simpleType name="CmDevHttpd">
  <restriction base="string">
    <enumeration value="Yes"/>
    <enumeration value="No"/>
    <enumeration value="Unknown"/>
  </restriction>
</simpleType>
```

Example:

```
<Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
```

RegistrationAttempts

Displays the number of registration attempts.

Example:

```
<RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
```

IsCtiControllable

Displays either yes or no.

Example:

```
<IsCtiControllable xsi:type="xsd:boolean">true</IsCtiControllable>
```

LoginUserId

Displays the login user ID.

Format:

```
<LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
```

Status

Displays the device registration status type. The following options are available:

- Any
- Registered
- Unregistered
- Rejected
- PartiallyRegistered
- Unknown

Format:

```
<simpleType name="CmDevRegStat">
```

```

<restriction base="string">
  <enumeration value="Any"/>
  <enumeration value="Registered"/>
  <enumeration value="UnRegistered"/>
  <enumeration value="Rejected"/>
  <enumeration value="PartiallyRegistered"/>
  <enumeration value="Unknown"/>
</restriction>
</simpleType>

```

Example:

```
<Status xsi:type="ns1:CmDevRegStat">Registered</Status>
```

StatusReason

Example:

```
<StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
```

PerfMonObject

Displays the PerfMonObject ID.

```
<PerfMonObject xsi:type="xsd:unsignedInt">2</PerfMonObject>
```

DChannel

Displays the number of D channels supported for PRI devices.

Example:

```
<DChannel xsi:type="xsd:unsignedInt">0</DChannel>
```

Description

Example:

```
<Description xsi:type="xsd:string">CTIRP1</Description>
```

H323Trunk

Displays the H323 trunk details.

Format:

```

<complexType name="H323Trunk">
  <sequence>
    <element name="ConfigName" nillable="true" type="xsd:string"/>
    <element name="TechPrefix" nillable="true" type="xsd:string"/>
    <element name="Zone" nillable="true" type="xsd:string"/>
    <element name="RemoteCmServer1" nillable="true" type="xsd:string"/>
    <element name="RemoteCmServer2" nillable="true" type="xsd:string"/>
    <element name="RemoteCmServer3" nillable="true" type="xsd:string"/>
    <element name="AltGkList" nillable="true" type="xsd:string"/>
    <element name="ActiveGk" nillable="true" type="xsd:string"/>
    <element name="CallSignalAddr" nillable="true" type="xsd:string"/>
    <element name="RasAddr" nillable="true" type="xsd:string"/>
  </sequence>
</complexType>

```

TimeStamp

Displays the UTC format timestamp.

Example:

```
<TimeStamp xsi:type="xsd:unsignedInt">1222331666</TimeStamp>
```

Protocol

Displays the device protocol types. The following options are available:

- Any
- SCCP
- SIP
- Unknown

Example:

```
<Protocol xsi:type="ns1:ProtocolType">Any</Protocol>
```

NumOfLines

Displays the number of lines.

Example:

```
<NumOfLines xsi:type="xsd:unsignedInt">0</NumOfLines>
```

LinesStatus

Displays the single line status types for SIP devices. The following options are available:

- Any
- Registered
- UnRegistered
- Rejected
- Unknown

Format:

```
<simpleType name="CmSingleLineStatus">  
  <restriction base="string">  
    <enumeration value="Any"/>  
    <enumeration value="Registered"/>  
    <enumeration value="UnRegistered"/>  
    <enumeration value="Rejected"/>  
    <enumeration value="Unknown"/>  
  </restriction>  
</simpleType>
```

ActiveLoadID

Displays the currently active firmware on the phone.

Format:

```
<element name="ActiveLoadID" nillable="true" type="xsd:string"/>
```

InactiveLoadID

Displays the inactive phone partition load of the phone (if phone supports dual partition).

Format:

```
<element name="InactiveLoadID" nillable="true" type="xsd:string"/>
```

DownloadStatus

Displays the inactive partition phone download status.

Format:

```
<element name="DownloadStatus" nillable="true" type="tns:DeviceDownloadStatus"/>
```

DownloadFailureReason

Displays the inactive partition download failure, if any.

Format:

```
<element name="DownloadFailureReason" nillable="true" type="xsd:string"/>
```

DownloadServer

Displays the inactive partition downloading server.

Format:

```
<element name="DownloadServer" nillable="true" type="xsd:string"/>
```

IPAddress

Displays the IP address type, the IP address, and the attribute type.

Format:

```
<complexType name="IPAddressArray">
  <complexContent>
    <restriction base="SOAP-ENC:Array">
      <attribute ref="soapenc:arrayType"
wsdl:arrayType="tns:IPAddressArrayType[]" />
    </restriction>
  </complexContent>
</complexType>

<complexType name="IPAddressArrayType">
  <sequence>
    <element name="IP" type="xsd:string"/>
    <element name="IPAddrType" type="tns:IPAddrType"/>
    <element name="Attribute" type="tns:AttributeType"/>
  </sequence>
</complexType>

<simpleType name="AttributeType">
  <restriction base="string">
    <enumeration value="Unknown"/>
    <enumeration value="Administrative"/>
    <enumeration value="Signaling"/>
    <enumeration value="AdministrativeAndSignaling"/>
  </restriction>
</simpleType>

<simpleType name="IPAddrType">
  <restriction base="string">
    <enumeration value="ipv4"/>
    <enumeration value="ipv6"/>
  </restriction>
</simpleType>
```

Example Request

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:SelectCmDevice soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
      <StateInfo xsi:type="xsd:string"/>
    </ns1:SelectCmDevice>
  </soapenv:Body>
</soapenv:Envelope>
```

```

        <CmSelectionCriteria href="#id0"/>
    </ns1:SelectCmDevice>
    <multiRef id="id0" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns2:CmSelectionCriteria"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns2="http://schemas.cisco.com/ast/soap/">
        <MaxReturnedDevices xsi:type="xsd:unsignedInt">200</MaxReturnedDevices>
        <Class xsi:type="xsd:string">Any</Class>
        <Model xsi:type="xsd:unsignedInt">255</Model>
        <Status xsi:type="xsd:string">Registered</Status>
        <NodeName xsi:type="xsd:string" xsi:nil="true"/>
        <SelectBy xsi:type="xsd:string">Name</SelectBy>
        <SelectItems soapenc:arrayType="ns2:SelectItem[1]" xsi:type="soapenc:Array">
            <item href="#id1"/>
        </SelectItems>
    </multiRef>
    <multiRef id="id1" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns3:SelectItem" xmlns:ns3="http://schemas.cisco.com/ast/soap/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
        <Item xsi:type="xsd:string">*</Item>
    </multiRef>
</soapenv:Body>
</soapenv:Envelope>

```

Example Response

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <soapenv:Body>
        <ns1:SelectCmDeviceResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
            <SelectCmDeviceResult xsi:type="ns1:SelectCmDeviceResult">
                <TotalDevicesFound xsi:type="xsd:unsignedInt">4</TotalDevicesFound>
                <CmNodes soapenc:arrayType="ns1:CmNode[1]" xsi:type="soapenc:Array"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
                    <item xsi:type="ns1:CmNode">
                        <ReturnCode xsi:type="ns1:RisReturnCode">0k</ReturnCode>
                        <Name xsi:type="xsd:string">CISCART15</Name>
                        <NoChange xsi:type="xsd:boolean">>false</NoChange>
                        <CmDevices soapenc:arrayType="ns1:CmDevice[4]" xsi:type="soapenc:Array">
                            <item xsi:type="ns1:CmDevice">
                                <Name xsi:type="xsd:string">ANN_2</Name>
                                <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
                                <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
                                <Class xsi:type="ns1:DeviceClass">MediaResources</Class>
                                <Model xsi:type="xsd:unsignedInt">126</Model>
                                <Product xsi:type="xsd:unsignedInt">89</Product>
                                <BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
                                <Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
                                <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
                                <IsCtiControllable xsi:type="xsd:boolean">>false</IsCtiControllable>
                                <LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
                                <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
                                <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
                                <PerfMonObject xsi:type="xsd:unsignedInt">608</PerfMonObject>
                                <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
                                <Description xsi:type="xsd:string">ANN_CISCART15</Description>

```

```

<H323Trunk xsi:type="ns1:H323Trunk">
  <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
  <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
  <Zone xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
  <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
  <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
  <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
  <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
  <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
</H323Trunk>
<TimeStamp xsi:type="xsd:unsignedInt">1204679735</TimeStamp>
</item>
<item xsi:type="ns1:CmDevice">
  <Name xsi:type="xsd:string">CFB_2</Name>
  <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
  <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
  <Class xsi:type="ns1:DeviceClass">MediaResources</Class>
  <Model xsi:type="xsd:unsignedInt">50</Model>
  <Product xsi:type="xsd:unsignedInt">28</Product>
  <BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
  <Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
  <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
  <IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
  <LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
  <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
  <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
  <PerfMonObject xsi:type="xsd:unsignedInt">15</PerfMonObject>
  <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
  <Description xsi:type="xsd:string">CFB_CISCART15</Description>
  <H323Trunk xsi:type="ns1:H323Trunk">
    <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
    <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
    <Zone xsi:type="xsd:string" xsi:nil="true"/>
    <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
    <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
    <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
    <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
    <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
    <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
    <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
  </H323Trunk>
  <TimeStamp xsi:type="xsd:unsignedInt">1204679736</TimeStamp>
</item>
<item xsi:type="ns1:CmDevice">
  <Name xsi:type="xsd:string">MOH_2</Name>
  <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
  <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
  <Class xsi:type="ns1:DeviceClass">MediaResources</Class>
  <Model xsi:type="xsd:unsignedInt">70</Model>
  <Product xsi:type="xsd:unsignedInt">51</Product>
  <BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
  <Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
  <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
  <IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
  <LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
  <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
  <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
  <PerfMonObject xsi:type="xsd:unsignedInt">6</PerfMonObject>
  <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
  <Description xsi:type="xsd:string">MOH_CISCART15</Description>
  <H323Trunk xsi:type="ns1:H323Trunk">
    <ConfigName xsi:type="xsd:string" xsi:nil="true"/>

```

```

        <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
        <Zone xsi:type="xsd:string" xsi:nil="true"/>
        <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
        <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
        <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
        <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
        <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
        <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
        <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
    </H323Trunk>
    <TimeStamp xsi:type="xsd:unsignedInt">1204679735</TimeStamp>
</item>
<item xsi:type="ns1:CmDevice">
    <Name xsi:type="xsd:string">MTP_2</Name>
    <IpAddress xsi:type="xsd:string">10.77.31.15</IpAddress>
    <DirNumber xsi:type="xsd:string" xsi:nil="true"/>
    <Class xsi:type="ns1:DeviceClass">MediaResources</Class>
    <Model xsi:type="xsd:unsignedInt">110</Model>
    <Product xsi:type="xsd:unsignedInt">30</Product>
    <BoxProduct xsi:type="xsd:unsignedInt">0</BoxProduct>
    <Httpd xsi:type="ns1:CmDevHttpd">No</Httpd>
    <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
    <IsCtiControllable xsi:type="xsd:boolean">false</IsCtiControllable>
    <LoginUserId xsi:type="xsd:string" xsi:nil="true"/>
    <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
    <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
    <PerfMonObject xsi:type="xsd:unsignedInt">13</PerfMonObject>
    <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
    <Description xsi:type="xsd:string">MTP_CISCART15</Description>
    <H323Trunk xsi:type="ns1:H323Trunk">
        <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
        <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
        <Zone xsi:type="xsd:string" xsi:nil="true"/>
        <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
        <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
        <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
        <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
        <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
        <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
        <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
    </H323Trunk>
    <TimeStamp xsi:type="xsd:unsignedInt">1204679735</TimeStamp>
</item>
</CmDevices>
</item>
</CmNodes>
</SelectCmDeviceResult>
    <StateInfo xsi:type="xsd:string">&lt;StateInfo ClusterWide=&quot;1&quot;&gt;&lt;Node
Name=&quot;CISCART15&quot; SubsystemStartTime=&quot;1204679712&quot; StateId=&quot;4&quot;
TotalItemsFound=&quot;4&quot;
TotalItemsReturned=&quot;4&quot;/&gt;&lt;/StateInfo&gt;</StateInfo>
</ns1:SelectCmDeviceResponse>
</soapenv:Body>
</soapenv:Envelope>

```

Faults

For details about all the possible faults for SelectCmDevice operation, see [SOAP Fault Error Codes, page 4-131](#).

RisPort Service: selectCtiItem Operation

The selectCtiItem operation allows clients to perform a CTI manager-related query.

Request Format

SOAP Action

The HTTP header should have following SOAP action:

SOAPAction: http://schemas.cisco.com/ast/soap/action/#RisPort#SelectCtiItems

Envelope Information

The query information should have an Envelope as follows:

```
?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:tns="http://schemas.cisco.com/ast/soap/"
  xmlns:types="http://schemas.cisco.com/ast/soap/encodedTypes"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
```

Session ID

The following example shows a SOAP header that contains a session ID. The client sets a unique session ID.

```
<soap:Header>
<tns:AstHeader id="id1">
<SessionId xsi:type="xsd:string">jSessionId</SessionId>
</tns:AstHeader>
</soap:Header>

<soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<tns:SelectCtiItem><StateInfo xsi:type="xsd:string" /><CtiSelectionCriteria href="#id1"
/></tns:SelectCtiItem>
<tns:CtiSelectionCriteria id="id1" xsi:type="tns:CtiSelectionCriteria">
```

Maximum Device Information

The following example specifies the maximum number of devices that this search needs to return:

```
<MaxReturnedItems xsi:type="xsd:unsignedInt">10</MaxReturnedItems>
```

CTI Application/Device/Line Specification

The following example specifies on which CTI manager class Line/Device/Provider a search is provided:

```
<CtiMgrClass xsi:type="tns:CtiMgrClass">Line</CtiMgrClass>
```

Status of CTI Item Search

The following example specifies the Status of class on which to search:

```
<Status xsi:type="tns:CtiStatus">Any</Status>
```

Server Name for Search

The following example specifies the server name on which the search is performed:

```
<NodeName xsi:type="xsd:string" />
```

Type of Search

The following example specifies the type of selection:

```
<SelectAppBy xsi:type="tns:CtiSelectAppBy">AppIpAddress</SelectAppBy>
```

List of Items That Needs to be Searched

The following example specifies an array for items for which the real-time status is required:

```
<AppItems href="#id2" />Name /IP</tns:CtiSelectionCriteria>
<soapenc:Array id="id2" soapenc:arrayType="tns:SelectAppItem[2]">
<Item href="#id3" /><Item xsi:null="1" /></soapenc:Array>
<tns:SelectAppItem id="id3" xsi:type="tns:SelectAppItem">
<AppItem xsi:type="xsd:string"/>
</tns:SelectAppItem>
</soap:Body>
</soap:Envelope>
```

Response Format

The Response includes a sequence of Unified CM Nodes with sequences of CTI devices and lines real-time information:

```
<complexType name='CtiItem'>
<sequence>
<element name='AppId' type='xsd:string'/>
<element name='ProviderName' type='xsd:string'/>
<element name='UserId' type='xsd:string'/>
<element name='AppIpAddr' type='xsd:string'/>
<element name='AppStatus' type='tns:CtiStatus'/>
<element name='AppStatusReason' type='xsd:unsignedInt'/>
<element name='AppTimeStamp' type='xsd:unsignedInt'/>
<element name='CtiDevice' type='tns:CtiDevice'/>
<element name='CtiLine' type='tns:CtiLine'/>
</sequence>
</complexType>
```

CTI Device real-time information contains the following sequence of information:

```
<complexType name='CtiDevice'>
<sequence>
<element name='AppControlsMedia' type='xsd:boolean'/>
<element name='DeviceName' type='xsd:string'/>
<element name='DeviceStatus' type='tns:CtiStatus'/>
<element name='DeviceStatusReason' type='xsd:unsignedInt'/>
<element name='DeviceTimeStamp' type='xsd:unsignedInt'/>
</sequence>
</complexType>
```

CTI Line contains the following sequence of information:

```
<complexType name='CtiLine'>
<sequence>
<element name='DirNumber' type='xsd:string'/>
<element name='LineStatus' type='tns:CtiStatus'/>
<element name='LineStatusReason' type='xsd:unsignedInt'/>
<element name='LineTimeStamp' type='xsd:unsignedInt'/>
</sequence>
</complexType>
```

RisPort Service: SelectCtiDevice Operation (Includes IPv6 Devices)

SelectCtiDevice API is used for querying CTI information on CTI application or device or line published from Cisco CTI Manager. The SOAP API supports Call Manager device search for both CTI device with IPv4 and IPv6 addresses. The device search criteria can be either CTI device IPv4 or IPv6 address but not both.

The operation name for invoking the API is **SelectCtiDevice** and the service URL is *https://<server>:8443/realtimeservice/services/RisPort70*



Note The service URL for release 7.1(2) is different from the earlier releases. The service URL of this release includes the version information.

The **SelectCtiDevice** operation comprises the **SelectCtiItemInput** and **SelectCtiItemOutput** messages:

```
<message name="SelectCtiItemInput">
  <part name="StateInfo" type="xsd:string"/>
  <part name="CtiSelectionCriteria" type="tns:CtiSelectionCriteria"/>
</message>
<message name="SelectCtiItemOutput">
  <part name="StateInfo" type="xsd:string"/>
  <part name="SelectCtiItemResult" type="tns:SelectCtiItemResult"/>
</message>
<portType name="RisPortType">
  <operation name="SelectCtiItem">
    <input message="tns:SelectCtiItemInput"/>
    <output message="tns:SelectCtiItemOutput"/>
  </operation>
</portType>
```

Request Format

SOAP Action

HTTP header should have following SOAP action for these queries.

SOAPAction: *http://schemas.cisco.com/ast/soap/action/#RisPort70#SelectCtiDevice*

Envelope and Session ID

Query information includes an envelope and session ID information as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soap="http://schemas.cisco.com/ast/soap/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
  <soapenv:Header>
    <AstHeader xsi:type="soap:AstHeader">
      <SessionId xsi:type="xsd:string"/>
    </AstHeader>
  </soapenv:Header>
```

The SOAP header has the session ID that is a unique ID from the client.

SelectCtiItem Operation

The SelectCtiItem operation is first defined in the SOAP body element.

```
<ns1:SelectCtiItem soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
```

Stateinfo

If same Information is queried repetitively, then **Stateinfo** is sent from the previous request. **Stateinfo** is the string that is returned by the server and it represents the state of the real-time database.

```
<StateInfo xsi:type="xsd:string" />
```

Selection Criteria

CtiSelectionCriteria is the selection criteria element. You can specify the following:

- [MaxReturnedItems](#)
- [CtiMgrClass](#)
- [Status](#)
- [NodeName](#)
- [SelectAppBy](#)
- [AppItems](#)
- [DevNames](#)
- [DirNumbers](#)

The format is as follows:

```
<complexType name="CtiSelectionCriteria">
<sequence>
<element name="MaxReturnedItems" nillable="true" type="xsd:unsignedInt"/>
<element name="CtiMgrClass" nillable="true" type="tns:CtiMgrClass"/>
<element name="Status" nillable="true" type="tns:CtiStatus"/>
<element name="NodeName" nillable="true" type="xsd:string"/>
<element name="SelectAppBy" nillable="true" type="tns:CtiSelectAppBy"/>
<element name="AppItems" nillable="true" type="tns:SelectAppItems"/>
<element name="DevNames" nillable="true" type="tns:SelectDevNames"/>
<element name="DirNumbers" nillable="true" type="tns:SelectDirNumbers"/>
</sequence>
</complexType>
```

MaxReturnedItems

Specifies the maximum number of items to be returned.

Format:

```
<element name="MaxReturnedItems" nillable="true" type="xsd:unsignedInt"/>
```

CtiMgrClass

Specifies on which CTI manager class line or device, or provider the search is provided. The following values are available:

- Provider
- Device
- Line

Format:

```
<simpleType name="CtiMgrClass">
<restriction base="string">
<enumeration value="Provider"/>
<enumeration value="Device"/>
```

```

<enumeration value="Line"/>
</restriction>
</simpleType>

```

Status

Specifies the status of class on which to search. The following values are available:

- Any
- Open
- Closed
- OpenFailed
- Unknown

Format:

```

<simpleType name="CtiStatus">
<restriction base="string">
<enumeration value="Any"/>
<enumeration value="Open"/>
<enumeration value="Closed"/>
<enumeration value="OpenFailed"/>
<enumeration value="Unknown"/>
</restriction>
</simpleType>

```

NodeName

Specifies the server name on which the search is performed.

Format:

```

<element name="NodeName" nillable="true" type="xsd:string"/>

```

SelectAppBy

Specifies the type of selection. The following options are available:

- AppId
- AppIPv4Address
- AppIPv6Address
- UserId

Format:

```

<simpleType name="CtiSelectAppBy">
<restriction base="string">
<enumeration value="AppId"/>
<enumeration value="AppIPv4Address"/>
<enumeration value="AppIPv6Address"/>
<enumeration value="UserId"/>
</restriction>
</simpleType>

```

Example:

```

<SelectAppBy xsi:type="ns2:CtiSelectAppBy" href="#id2"/>
<multiRef id="id2" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns6:CtiSelectAppBy"
xmlns:ns5="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">AppId</multiRef>

```

AppItems

Specifies an array of items for which the real-time status is required.

Format:

```
<complexType name="SelectAppItems">
  <complexContent>
    <restriction base="SOAP-ENC:Array">
      <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:SelectAppItem[]" />
    </restriction>
  </complexContent>
</complexType>

<complexType name="SelectAppItem">
  <sequence>
    <element name="AppItem" type="xsd:string"/>
  </sequence>
</complexType>
```

Example:

```
<AppItems soapenc:arrayType="ns2:SelectAppItem[1]" xsi:type="soapenc:Array">
  <item href="#id1"/>
</AppItems>
<multiRef id="id1" soapenc:root="0"
  soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  xsi:type="ns4:SelectAppItem"
  xmlns:ns4="http://ccm.cisco.com/serviceability/soap/risport70/">
  <AppItem xsi:type="xsd:string">Quality Report Tool</AppItem>
</multiRef>
```

DevNames

Format:

```
<complexType name="SelectDevNames">
  <complexContent>
    <restriction base="SOAP-ENC:Array">
      <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:SelectDevName[]" />
    </restriction>
  </complexContent>
</complexType>

<complexType name="SelectDevName">
  <sequence>
    <element name="DevName" type="xsd:string"/>
  </sequence>
</complexType>
```

Example:

```
<DevNames xsi:type="ris:SelectDevNames" soapenc:arrayType="ris:SelectDevName[]">
  <Item xsi:type="ris:DevName"> dev1 </Item>
```

DirNumbers

Specifies the directory number.

Format:

```
<complexType name="SelectDirNumbers">
  <complexContent>
    <restriction base="SOAP-ENC:Array">
      <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:SelectDirNumber[]" />
    </restriction>
  </complexContent>
</complexType>
```

```

<complexType name="SelectDirNumber">
  <sequence>
    <element name="DirNumber" type="xsd:string"/>
  </sequence>
</complexType>

```

Example:

```
<DirNumbers xsi:type="ns2:SelectDirNumber" xsi:nil="true"/>
```

As part of CtiSelectionCriteria object, the element **CtiSelectAppBy** can have IPv4 or IPv6 addresses as search criteria. In the request, we can specify multiple AppItems, DevNames and DirNumbers. The format of the array elements with such a request is as follows:

```

<AppItems xsi:type="ris:SelectAppItem" soapenc:arrayType="ris:SelectAppItems[]">
  <item xsi:type="ris:AppItem">A Cisco DB</item>
  <item xsi:type="ris:AppItem">Cisco</item>
</AppItems>
<DevNames xsi:type="ris:SelectDevNames" soapenc:arrayType="ris:SelectDevName[]">
  <Item xsi:type="ris:DevName"> dev1 </Item>
  <Item xsi:type="ris:DevName"> dev2 </Item>
</DevNames>

<DirNumbers xsi:type="ris:SelectDirNumbers" soapenc:arrayType="ris:SelectDirNumber[]">
  <Item xsi:type="ris:DirNumber"> dir1 </Item>
  <Item xsi:type="ris:DirNumber"> dir2 </Item>
</DirNumbers>

```

In the sample request, the ReturnCode is a string:

```

<simpleType name="ReturnCode">
  <restriction base="xsd:string"/>
</simpleType>

```

SelectCtiItem API can be used to search the CtiLine items. In order to do that, the query needs to be modified by having `<CtiMgrClass xsi:type="ris:CtiMgrClass">Line </CtiMgrClass>` in the request.

Response Format

The response follows the following schema:

```

<complexType name="SelectCtiItemResult">
  <sequence>
    <element name="TotalItemsFound" type="xsd:unsignedInt"/>
    <element name="CtiNodes" nillable="true" type="tns:CtiNodes"/>
  </sequence>
</complexType>

```

TotalItemsFound

Displays the total items found.

Format:

```
<element name="TotalItemsFound" type="xsd:unsignedInt"/>
```

Example:

```
<TotalItemsFound xsi:type="xsd:unsignedInt">1</TotalItemsFound>
```

Node Information

The following node information are displayed:

- [ReturnCode](#)
- [Name](#)
- [NoChange](#)

- [CtiItems](#)

Format:

```
<complexType name="CtiNodes">
  <complexContent>
    <restriction base="SOAP-ENC:Array">
      <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:CtiNode[]"/>
    </restriction>
  </complexContent>
</complexType>

<complexType name="CtiNode">
  <sequence>
    <element name="ReturnCode" type="tns:RisReturnCode"/>
    <element name="Name" type="xsd:string"/>
    <element name="NoChange" type="xsd:boolean"/>
    <element name="CtiItems" nillable="true" type="tns:CtiItems"/>
  </sequence>
</complexType>
```

ReturnCode

Displays the the RIS return codes. The following options are available:

- Ok
- NotFound
- InvalidRequest
- InternalRequest
- InternalError
- NodeNotResponding
- InvalidNodeName

Format:

```
<element name='ReturnCode' type='tns:RisReturnCode' />
<simpleType name="RisReturnCode">
  <restriction base="string">
    <enumeration value="Ok"/>
    <enumeration value="NotFound"/>
    <enumeration value="InvalidRequest"/>
    <enumeration value="InternalError"/>
    <enumeration value="NodeNotResponding"/>
    <enumeration value="InvalidNodeName"/>
  </restriction>
```

Name

Displays the name of the node.

Example:

```
Name xsi:type="xsd:string">172.27.203.17</Name>
```

NoChange

Example:

```
<NoChange xsi:type="xsd:boolean">false</NoChange>
```

CtiItems

Displays the following informations:

- AppId
- UserId
- AppIpAddr
- AppIpv6Addr
- AppStatus
- AppStatusReason
- AppTimeStamp
- CtiDevice
- CtiLine

Format:

```
<complexType name="CtiItem">
  <sequence>
    <element name="AppId" nillable="true" type="xsd:string"/>
    <element name="UserId" nillable="true" type="xsd:string"/>
    <element name="AppIpAddr" nillable="true" type="xsd:string"/>
    <element name="AppIpv6Addr" nillable="true" type="xsd:string"/>
    <element name="AppStatus" nillable="true" type="tns:CtiStatus"/>
    <element name="AppStatusReason" nillable="true" type="xsd:unsignedInt"/>
    <element name="AppTimeStamp" nillable="true" type="xsd:unsignedInt"/>
    <element name="CtiDevice" nillable="true" type="tns:CtiDevice"/>
    <element name="CtiLine" nillable="true" type="tns:CtiLine"/>
  </sequence>
</complexType>
```

AppId

Displays the application ID.

Example:

```
<AppId xsi:type="xsd:string">Quality Report Tool</AppId>
```

UserId

Displays the user ID.

Example:

```
<UserId xsi:type="xsd:string">XXXSysUser</UserId>
```

AppIpAddr

Displays the IPv4 address.

Example:

```
<AppIpAddr xsi:type="xsd:string">xxx.x.x.x</AppIpAddr>
```

AppIpv6Addr

Displays the IPv6 address.

AppStatus

Example:

```
<AppStatus xsi:type="ns2:CtiStatus">Open</AppStatus>
```

AppStatusReason

Example:

```
<AppStatusReason xsi:type="xsd:unsignedInt">0</AppStatusReason>
```

AppTimeStamp

Example:

```
<AppTimeStamp xsi:type="xsd:unsignedInt">1221380548</AppTimeStamp>
```

CtiDevice

Displays the following information related to CTI device:

- AppControlsMedia
- DeviceName
- DeviceStatus
- DeviceStatusReason
- DeviceTimeStamp

Format:

```
<complexType name="CtiDevice">
  <sequence>
    <element name="AppControlsMedia" nillable="true" type="xsd:boolean"/>
    <element name="DeviceName" nillable="true" type="xsd:string"/>
    <element name="DeviceStatus" nillable="true" type="tns:CtiStatus"/>
    <element name="DeviceStatusReason" nillable="true" type="xsd:unsignedInt"/>
    <element name="DeviceTimeStamp" nillable="true" type="xsd:unsignedInt"/>
  </sequence>
</complexType>
```

CtiLine

Displays the following information related to CTI line:

- DirNumber
- LineStatus
- LineStatusReason
- LineTimeStamp

Format:

```
<complexType name="CtiLine">
  <sequence>
    <element name="DirNumber" type="xsd:string"/>
    <element name="LineStatus" type="tns:CtiStatus"/>
    <element name="LineStatusReason" type="xsd:unsignedInt"/>
    <element name="LineTimeStamp" type="xsd:unsignedInt"/>
  </sequence>
</complexType>
```

Request Example

```
<soapenv:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ris="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
  <soapenv:Body>
    <ns1:SelectCtiItem soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
      <StateInfo xsi:type="xsd:string" xsi:nil="true"/>
      <CtiSelectionCriteria href="#id0"/>
    </ns1:SelectCtiItem>
    <multiRef id="id0" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns2:CtiSelectionCriteria" xmlns:ns2="http://schemas.cisco.com/ast/soap/">
      <MaxReturnedItems xsi:type="xsd:unsignedInt">20</MaxReturnedItems>
      <CtiMgrClass xsi:type="ris:CtiMgrClass">Provider</CtiMgrClass>
      <Status xsi:type="ris:CtiStatus">Any</Status>
      <NodeName xsi:type="xsd:string">172.27.203.17</NodeName>
      <SelectAppBy xsi:type="ns2:CtiSelectAppBy" href="#id2"/>
      <AppItems soapenc:arrayType="ns2:SelectAppItem[1]" xsi:type="soapenc:Array">
        <item href="#id1"/>
      </AppItems>
      <DevNames xsi:type="ns2:SelectDevName" xsi:nil="true"/>
      <DirNumbers xsi:type="ns2:SelectDirNumber" xsi:nil="true"/>
    </multiRef>
    <multiRef id="id1" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns4:SelectAppItem"
xmlns:ns4="http://ccm.cisco.com/serviceability/soap/risport70/">
      <AppItem xsi:type="xsd:string">Quality Report Tool</AppItem>
    </multiRef>
    <multiRef id="id2" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns6:CtiSelectAppBy"
xmlns:ns5="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">AppId</multiRef>
  </soapenv:Body>
</soapenv:Envelope>
```

Response Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:SelectCtiItemResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
      <SelectCtiItemResult xsi:type="ns2:SelectCtiItemResult"
xmlns:ns2="http://schemas.cisco.com/ast/soap/risport70/">
        <TotalItemsFound xsi:type="xsd:unsignedInt">1</TotalItemsFound>
        <CtiNodes soapenc:arrayType="ns3:CtiNode[1]" xsi:type="soapenc:Array"
xmlns:ns3="http://ccm.cisco.com/serviceability/soap/risport70/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
          <item xsi:type="ns2:CtiNode">
            <ReturnCode xsi:type="ns3:RisReturnCode">Ok</ReturnCode>
            <Name xsi:type="xsd:string">172.27.203.17</Name>
            <NoChange xsi:type="xsd:boolean">false</NoChange>
            <CtiItems soapenc:arrayType="ns3:CtiItem[1]" xsi:type="soapenc:Array">
```

```

        <item xsi:type="ns2:CtiItem">
          <AppId xsi:type="xsd:string">Quality Report Tool</AppId>
          <UserId xsi:type="xsd:string">CCMQRTSysUser</UserId>
          <AppIpAddr xsi:type="xsd:string">127.0.0.1</AppIpAddr>
          <AppIpv6Addr xsi:type="xsd:string" xsi:nil="true"/>
          <AppStatus xsi:type="ns2:CtiStatus">Open</AppStatus>
          <AppStatusReason xsi:type="xsd:unsignedInt">0</AppStatusReason>
          <AppTimeStamp xsi:type="xsd:unsignedInt">1221380548</AppTimeStamp>
          <CtiDevice xsi:type="ns3:CtiDevice" xsi:nil="true"/>
          <CtiLine xsi:type="ns3:CtiLine" xsi:nil="true"/>
        </item>
      </CtiItems>
    </item>
  </CtiNodes>
</SelectCtiItemResult>
  <StateInfo xsi:type="xsd:string">&lt;StateInfo&lt;Node Name="172.27.203.17"
SubsystemStartTime="1221380428" StateId="134" TotalItemsFound="1"
TotalItemsReturned="1"/>&lt;/StateInfo></StateInfo>
</ns1:SelectCtiItemResponse>
</soapenv:Body>
</soapenv:Envelope>

```

Fault

For details about all the possible faults for SelectCmDevice operation, see [SOAP Fault Error Codes](#), page 4-131.

RisPort Service: getServerInfo Operation

The getServerInfo operation exports the following information from the Server Information SOAP interface:

- Host Name =MCS-SD4
- OS Name =Linux
- OS Arch =i386
- OS Version =2.4.21-15.ELsmp
- Java Runtime Version =1.4.2_05-b04
- Java Virtual Machine vendor =Sun Microsystems Inc.
- CallManager Version =7.0.1

The getServerInfo operation comprises the getServerInfoRequest and getServerInfoResponse:

```
<wsdl:operation name="getServerInfo">
  <wsdlsoap:operation
    soapAction="http://schemas.cisco.com/ast/soap/action/#PerfmonPort#GetServerInfo" />
  <wsdl:input name="getServerInfoRequest">
    <wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://schemas.cisco.com/ast/soap/" use="encoded" />
  </wsdl:input>
  <wsdl:output name="getServerInfoResponse">
    <wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      namespace="http://schemas.cisco.com/ast/soap/" use="encoded" />
  </wsdl:output>
</wsdl:operation>
```

Request Format

```
<soapenv:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:soap="http://schemas.cisco.com/ast/soap/">
  <soapenv:Header>
    <AstHeader xsi:type="soap:AstHeader">
      <SessionId xsi:type="xsd:string">999</SessionId>
    </AstHeader>
  </soapenv:Header>
  <soapenv:Body>
    <soap:GetServerInfo
      soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
      <Hosts xsi:type="soap:ArrayOfHosts">
        <!--Zero or more repetitions:-->
        <item xsi:type="xsd:string">UCM-HostNameorIP</item>
      </Hosts>
    </soap:GetServerInfo>
  </soapenv:Body>
</soapenv:Envelope>
```

In the request, an ArrayOfHosts definition gets specified, and the response provides the server information for the list of hostnames that are specified in the array.

```
<wsdl:message name="getServerInfoRequest">
  <wsdl:part name="Hosts" type="impl:ArrayOfHosts" />
</wsdl:message>
```

Response Format

The response comprises an `ArrayOfServerInfo`:

```
<wsdl:message name="getServerInfoResponse">
  <wsdl:part name="ServerInfo" type="impl:ArrayOfServerInfo" />
</wsdl:message>
<complexType name="ArrayOfServerInfo">
  <complexContent>
    <restriction base="soapenc:Array">
      <attribute ref="soapenc:arrayType" wsdl:arrayType="impl:ServerInformation[]" />
    </restriction>
  </complexContent>
</complexType>
```

`ServerInformation` consists of the following sequence of elements:

```
<complexType name="ServerInformation">
  <sequence>
    <element name="HostName" nillable="true" type="xsd:string" />
    <element name="os-name" nillable="true" type="xsd:string" />
    <element name="os-version" nillable="true" type="xsd:string" />
    <element name="os-arch" nillable="true" type="xsd:string" />
    <element name="java-runtime-version" nillable="true" type="xsd:string" />
    <element name="java-vm-vendor" nillable="true" type="xsd:string" />
    <element name="call-manager-version" nillable="true" type="xsd:string" />
    <element name="Active-versions" nillable="true" type="xsd:string" />
    <element name="InActive-versions" nillable="true" type="xsd:string" />
  </sequence>
</complexType>
```

Faults

The Server sends a fault for “Error message context is NULL.” This error does not appear in normal operation.

The following fault is sent if an HTTPS connection fails to a remote server — “Error initiating https connection to <URL>.”

Example

Request example

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:GetServerInfo soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      xmlns:ns1="http://schemas.cisco.com/ast/soap/">
      <Hosts soapenc:arrayType="soapenc:string[1]" xsi:type="soapenc:Array"
        xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
        <item xsi:type="soapenc:string">10.77.31.15</item>
      </Hosts>
    </ns1:GetServerInfo>
  </soapenv:Body>
</soapenv:Envelope>
```

Response example

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:GetServerInfoResponse
      soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      xmlns:ns1="http://schemas.cisco.com/ast/soap/">
      <ServerInfo soapenc:arrayType="ns1:ServerInformation[1]" xsi:type="soapenc:Array"
        xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
        <item xsi:type="ns1:ServerInformation">
          <HostName xsi:type="xsd:string">CISCART15</HostName>
          <os-name xsi:type="xsd:string">VOS</os-name>
          <os-version xsi:type="xsd:string">2.6.9-42.ELsmp</os-version>
          <os-arch xsi:type="xsd:string">i386</os-arch>
          <java-runtime-version xsi:type="xsd:string">1.5.0_14-b03</java-runtime-version>
          <java-vm-vendor xsi:type="xsd:string">Sun Microsystems Inc.</java-vm-vendor>
          <call-manager-version xsi:type="xsd:string">7.0.0.39700-8</call-manager-version>
          <Active_Versions xsi:type="xsd:string">hwdata-0.146.23.EL-1 : os-ver-4.0.0.0-7 :
redhat-logos-1.1.26-1 : setup-2.5.37-1.3 : basesystem-8.0-4 : tzdata-2007k-1.el4 :
glibc-2.3.4-2.25 : beecrypt-3.1.0-6 : chkconfig-1.3.13.4-1 :
compat-libstdc++-296-2.96-132.7.2 : dos2unix-3.1-21.2 : e2fsprogs-1.35-12.4.EL4 :
elfutils-libelf-0.97.1-3 : ethtool-1.8-4 : gdbm-1.8.0-24 : glib2-2.4.7-1 :
iputils-20020927-18.EL4.3 : attr-2.4.16-3 : acl-2.2.23-5 : libpgp-error-1.0-1 :
libselinux-1.19.1-7.2 : device-mapper-1.02.07-4.0.RHEL4 : db4-4.2.52-7.1 :
libtermcap-2.0.8-39 : minigetty-1.07-3 : bash-3.0-19.3 : bzip2-1.0.2-13.EL4.3 :
fiord-0.99.1-2.el4 : iproute-2.6.9-3 : mt-st-0.8-1 : ncurses-5.4-13 :
net-tools-1.60-37.EL4.8 : openssl096b-0.9.6b-22.46 : pcre-4.5-3.2.RHEL4 :
perl-Filter-1.30-6 : logrotate-3.7.1-5.RHEL4 : redhat-release-4AS-5.5 : schedutils-1.4.0-2
: setserial-2.17-17 : slang-1.4.9-8 : snmp-mon-0.0.0.19-9 : strace-4.5.14-0.EL4.1 :
expect-5.42.1-1 : tmpwatch-2.9.1-1 : unzip-5.51-7 : vim-minimal-6.3.046-0.40E.7 :
zip-2.3-27 : file-4.10-2.EL4.4 : binutils-2.15.92.0.2-21 : diffutils-2.8.1-12 :
gawk-3.1.3-10.1 : grep-2.5.1-32.2 : ash-0.3.8-20 : gzip-1.3.3-16.rhel4 :
krb5-libs-1.3.4-27 : libidn-0.5.6-1 : libxslt-1.1.11-1 : mgetty-1.1.31-2 :
openssl-0.9.7a-43.14 : bind-utils-9.2.4-24.EL4 : net-snmp-libs-5.1.2-11.EL4.7 :
pdksh-5.2.14-30.3 : readline-4.3-13 : lvm2-2.02.06-6.0.RHEL4 : libxml2-python-2.6.16-6 :
rpm-libs-4.3.3-18_nonptl : shadow-utils-4.0.3-60.RHEL4 : dbus-glib-0.22-12.EL.8 :
nscd-2.3.4-2.25 : rpm-4.3.3-18_nonptl : syslogd-1.4.1-26_EL : sysreport-1.3.15-8 :
tftp-0.39-1 : tomcat-5.5.17-0 : cactus-12.1.5-3 : elixir-4.2-3 : log4j-1.2.8-3 :
pgjdbc-7.3.3-3 : saaj-1.3-3 : unixODBC-2.2.11-1.RHEL4.1 : vim-common-6.3.046-0.40E.7 :
xerces-2.6.2-3 : cracklib-2.7-29 : pam-0.77-66.17 : authconfig-4.6.10-rhel4.3 :
policycoreutils-1.18.1-4.9 : sudo-1.6.7p5-30.1.3 : util-linux-2.12a-16.EL4.20 :
udev-039-10.15.EL4 : initscripts-7.93.25.EL-1 : cyrus-sasl-2.1.19-5.EL4 :
dhclient-3.0.1-58.EL4 : kbd-1.12-2 : kernel-utils-2.4-13.1.83 : mkinitrd-4.2.1.8-1 :
kernel-smp-2.6.9-42.EL : iptables-1.2.11-3.1.RHEL4 : libpcap-0.8.3-10.RHEL4 :
net-snmp-utils-5.1.2-11.EL4.7 : gnupg-1.2.6-9 : nss_ldap-226-17 :
openssh-clients-3.9p1-8.RHEL4.17.1 : openssh-server-3.9p1-8.RHEL4.17.1 : passwd-0.68-10.1
: tcpdump-3.8.2-10.RHEL4 : sysstat-5.0.5-11.rhel4 : master-7.0.0.39700-8 :
platform-script-2.0.0.1-1 : platform-common-2.0.0.1-1 : platform-drf-2.0.0.2-2 :
platform-servM-2.0.0.1-1 : platform-ipsec-1.0.0.0-1 : platform-api-3.0.0.0-6 :
platform-util-2.0.0.1-1 : cm-script-5.0.1.0-1 : cm-lib-1.0.0.0-1 : cm-dbms-1.0.0.0-1 :
cm-ccadmin-1.1.0.0-1 : cm-bps-1.1.0.0-1 : cm-alarm-0.0.0.1-0 : cm-ccmib-0.0.0.1-0 :
cm-cdp-0.0.0.1-0 : cm-svc-web-0.0.0.1-1 : cm-RIS-0.0.0.1-0 : cm-reporter-0.0.0.1-0 :
cm-rtmt-client-plugin-0.0.0.2-0 : cm-soap-cdrondemandservice-0.0.0.1-0 :
cm-soap-perfmonservice-0.0.0.1-0 : cm-car-1.0.0.0-1 : cm-security-1.0.0.0-1 :
cm-ctlp-1.0.0.0-1 : cm-dna-5.0.0.2-1 : cm-authentication-1.0.0.1-0 : cm-dirsync-1.0.0.1-0
: cm-ac-2.0.0.1-0 : cm-locale-english_united_states-7.1.0.1-1 : cm-axl-1.1.0.0-1 :
cm-cmuser-1.1.0.0-1 : cm-ipvms-7.0.0.0-1 : cm-tsp-plugin-7.0.0.2-0 :
cm-app-services-0.0.0.1-0 : cm-webdialer-0.0.0.1-0 : cm-jtapi-plugin-7.0.0.9700-2 :
cm-licensing-2.0.0.0-0 : cm-devicepack-1.0.0.0-0 : cm-ccmhelp-1.1.0.0-2 :
cm-srstctclient-0.0.0.1-0 : cm-cmtomcat-1.1.0.0-1 : cm-grt-1.1.0.0-1 : msg-2007.10-1 :
IIF-10.00.UC7X1-1 : glsclient-4.00.UC7-1 : hpsm-7.8.0-88.rhel4 : cmanic-7.8.0-3.rhel4 :

```

```

hpadu-7.80-6 : comps-4AS-0.20060803 : libgcc-3.4.6-3.1 : preferences-1.0.1-6 :
rootfiles-8-1 : filesystem-2.3.0-1 : termcap-5.4-3 : glibc-common-2.3.4-2.25 :
audit-libs-1.0.14-1.EL4 : bzip2-libs-1.0.2-13.EL4.3 : compat-db-4.1.25-9 :
compat-libstdc++-33-3.2.3-47.3 : dosfstools-2.8-15 : eject-2.0.13-11 : elfutils-0.97.1-3 :
expat-1.95.7-4 : glib-1.2.10-15 : hdparm-5.7-2 : libattr-2.4.16-3 : libacl-2.2.23-5 :
libcap-1.10-20 : libgcrypt-1.2.0-3 : libsepol-1.1.1-2 : libstdc++-3.4.6-3.1 : gmp-4.1.4-3 :
lsof-4.72-1.4 : mktmp-1.5-20 : audit-1.0.14-1.EL4 : crontabs-1.10-7 : fiostats-0.99.1-9 :
java-provides-1.0.0.2-0 : nc-1.10-22 : less-382-4 : OpenIPMI-libs-1.4.14-1.4E.13 :
patch-2.5.4-20 : perl-5.8.5-36.RHEL4 : popt-1.9.1-18_nonptl : psmisc-21.4-4.1 :
rsync-2.6.3-1 : setarch-1.6-1 : sg3_utils-1.06-3 : newt-0.51.6-9.rhel4 : star-1.5a25-6 :
tcl-8.4.7-2 : tcp_wrappers-7.6-37.2 : traceroute-1.4a12-24 : usbutils-0.11-6.1 :
words-3.0-3 : zlib-1.2.1.2-1.2 : info-4.7-5.el4.2 : cpio-2.5-9.RHEL4 :
findutils-4.1.20-7.el4.1 : gdb-6.3.0.0-1.132.EL4 : coreutils-5.2.1-31.4 : grub-0.95-3.5 :
jdk-1.5.0_14-fcs : krb5-workstation-1.3.4-27 : libxml2-2.6.16-6 : make-3.80-6.EL4 :
module-init-tools-3.1-0.pre5.3.2 : bind-libs-9.2.4-24.EL4 : curl-7.12.1-8.rhel4 :
OpenIPMI-1.4.14-1.4E.13 : procps-3.2.3-8.4 : bc-1.06-17.1 : python-2.3.4-14.3 :
PyXML-0.8.3-6 : sed-4.1.2-5.EL4 : dbus-0.22-12.EL.8 : MAKEDEV-3.15.2-3 :
ntp-4.2.0.a.20040617-4.EL4.1 : stunnel-4.05-3 : tar-1.14-12.RHEL4 : tcsh-6.13-9 :
time-1.7-25 : activation-1.0.0-3 : ecs-1.4.2-3 : jaxm-1.1.2-3 : mail-1.0.0-3 :
regexp-1.3-3 : struts-1.1-3 : utempter-0.5.5-5 : xalan-2.7.0-3 : xmlstarlet-1.0.1-1 :
cracklib-dicts-2.7-29 : at-3.1.8-80_EL4 : pam_krb5-2.1.8-1 : screen-4.0.2-5 :
SysVinit-2.85-34.3 : hotplug-2004_04_01-7.7 : hal-0.4.2-4.EL4 : acpid-1.0.3-2 :
cyrus-sasl-md5-2.1.19-5.EL4 : ipsec-tools-0.3.3-6.rhel4.1 : kudzu-1.1.95.15-1 :
lm_sensors-2.8.7-2.40.3 : kernel-2.6.9-42.EL : dhcp-3.0.1-58.EL4 :
iptables-ipv6-1.2.11-3.1.RHEL4 : net-snmp-5.1.2-11.EL4.7 : openldap-2.2.13-6.4E :
libuser-0.52.5-1.el4.1 : openssh-3.9p1-8.RHEL4.17.1 : netdump-0.7.16-2 :
netdump-server-0.7.16-2 : pciutils-2.1.99.test8-3.2 : vixie-cron-4.1-44.EL4 : which-2.16-4 :
platform-ver-2.0.0.1-1 : platform-ui-2.0.0.1-1 : platform-licensing-2.0.0.0-1 :
platform-remotesupport-2.0.0.1-3 : platform-cm-1.0.0.0-1 : platform-csa-5.2.0-245.1 :
platform-clm-2.0.0.1-1 : os-services-1.1-1 : cm-ver-7.0.0.39700-8 : cm-pi-0.0.0.1-0 :
cm-dbl-1.0.0.0-1 : cm-cmplatform-1.1.0.0-1 : cm-taps-plugin-7.0.2.0-1 :
cm-syslog-0.0.0.1-0 : cm-sysapp-1.0.0.0-1 : cm-lpm-0.0.0.1-0 :
cm-reporter-servlet-0.0.0.1-0 : cm-amc-0.0.0.1-0 : cm-rtmt-servlet-0.0.0.1-0 :
cm-log4jinit-servlet-0.0.0.1-0 : cm-soap-logcollectionservice-0.0.0.1-0 :
cm-soap-realtimeservice-0.0.0.1-0 : cm-cef-0.0.0.1-0 : cm-cdrdlv-1.0.0.0-1 :
cm-capf-1.0.0.0-1 : cm-ccm-5.0.1.0-0 : cm-encryption-1.0.0.1-0 : cm-scheduler-1.0.0.1-0 :
cm-CTIManager-1.0.0.1-0 : cm-tftp-1.0.0.1-0 : cm-axlsqltoolkit-plugin-1.1.0.0-1 :
cm-pd-1.0.0.0-1 : cm-ccmcip-1.0.0.1-0 : cm-ipvmsd-6.0.0.1-1 : cm-ctlc-plugin-6.0.0.1-1 :
cm-em-0.0.0.1-0 : cm-ipma-0.0.0.1-0 : cm-cmi-1.0.0.1-0 : cm-tct-svc-0.0.0.1-1 :
cm-tomcatstats-0.0.0.1-0 : cm-dhcp-1.0.0.1-0 : cm-cfrrt-0.0.0.1-0 : cm-ccmivr-6.0.0.1-1 :
cm-cucreports-1.1.0.0-1 : gls-4.00.UC10-1 : msgclient-2004.3-1 : csdk-2.90.UC4XD-1 :
hprsm-7.8.0-custom : hpsmh-2.1.8-177 : hponcfg-1.6.0-1 :</Active_Versions>
<In_Active_Versions xsi:type="xsd:string">no packages :</In_Active_Versions>
</item>
</ServerInfo>
</ns1:GetServerInfoResponse>
</soapenv:Body>
</soapenv:Envelope>

```

RisPort Service: SelectCmDeviceSIP Operation

The SelectCmDeviceSIP operation allows clients to perform Cisco Unified Communications Manager SIP device related queries.

Request Format

SOAP Action

The HTTP header contains the following SOAP action for these queries:

SOAPAction: "http://schemas.cisco.com/ast/soap/action/#RisPort#SelectCmDeviceSIP"

Envelope Information

Query information should have an Envelope as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
  <soapenv:Envelope xmlns:soapenv=http://schemas.xmlsoap.org/soap/envelope/
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <soapenv:Body>
      <ns1:SelectCmDeviceSIP
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
```

State Info

If the same information is queried over and over again then Stateinfo needs to be sent from the previous request for each repetitive query by a client.

```
<StateInfo xsi:type="xsd:string"/>
```

The selection criteria type CmSelectionCriteriaSIP follows the optional State Info:

```
<CmSelectionCriteriaSIP href="#id0"/>
</ns1:SelectCmDeviceSIP>
```

CmSelectionCriteriaSIP comprises the following items:

- **MaxReturnedDevices**—Specifies how many maximum devices that can be returned for search criteria

```
<MaxReturnedDevices xsi:type="xsd:unsignedInt">200</MaxReturnedDevices>
```
- **Class**—Specifies the device class type that needs to be queried for Real-time status. Device classes are Any, Phone, Gateway, H323, Cti, VoiceMail, MediaResources and Unknown.

```
<Class xsi:type="xsd:string">Any</Class>
```
- **Model**—Specifies the model of the device. 255 applies for all models.

```
<Model xsi:type="xsd:unsignedInt">255</Model>
```
- **Status**—Specifies the device status in search criteria, which is one of Any, Registered, UnRegistered, Rejected, PartiallyRegistered or Unknown.

```
<Status xsi:type="xsd:string">Registered</Status>
```
- **NodeName**—Specifies the server name where the search needs to be performed. If you do not specify a name, the system will search in all servers in cluster.

```
<NodeName xsi:type="xsd:string" xsi:nil="true"/>
```

- **SelectBy**—Specifies the selection type for whether it is IP Address/Name.
`<SelectBy xsi:type="xsd:string">Name</SelectBy>`
 - **SelectItems**—Specifies the array of items for which search criteria is specified. The following specifies an array that contains the IP Address or Device Name of the items for which the real-time status is needed.
`<SelectItems xsi:type="ns2:SelectItem" xsi:nil="true"/>`
 - **Protocol**—Specifies the protocol name in the search criteria, which is one of Any, SCCP, SIP, or Unknown.
`<Protocol xsi:type="ns3:Protocol" xsi:nil="true"/>`
- ```

</soapenv:Body>
</soapenv:Envelope>

```

## Response Format

Response follows this schema and contains one to many node information, plus the stateInfo that the SOAP server returns. Each node includes a sequence of search information that was found based on the search criteria.

```

<complexType name='SelectCmDeviceResultSIP'>
 <sequence>
 <element name='TotalDevicesFound' type='xsd:unsignedInt' />
 <element name='CmNodes' type='tns:CmNodesSIP' />
 </sequence>
</complexType>

```

CmNodesSIP is list of CmNodeSIP that are given in the search criteria.

```

<complexType name="CmNodesSIP">
 <complexContent>
 <restriction base="SOAP-ENC:Array">
 <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:CmNodeSIP[]" />
 </restriction>
 </complexContent>
</complexType>

```

Each CmNodesSIP has a sequence of devices and their registration status.

```

<complexType name='CmNodeSIP'>
 <sequence>
 <element name='ReturnCode' type='tns:RisReturnCode' />
 <element name='Name' type='xsd:string' />
 <element name='NoChange' type='xsd:boolean' />
 <element name='CmDevices' type='tns:CmDevicesSIP' />
 </sequence>
</complexType>
<complexType name="CmDevicesSIP">
 <complexContent>
 <restriction base="SOAP-ENC:Array">
 <attribute ref="soapenc:arrayType" wsdl:arrayType="tns:CmDeviceSIP[]" />
 </restriction>
 </complexContent>
</complexType>

```

CmDeviceSIP information will contain the following information:

```

<complexType name="CmDeviceSIP">
 <sequence>
 <element name="Name" type="xsd:string" />

```

```

 <element name="IpAddress" type="xsd:string"/>
 <element name="DirNumber" type="xsd:string"/>
 <element name="Class" type="tns:DeviceClass"/>
 <element name="Model" type="xsd:unsignedInt"/>
 <element name="Product" type="xsd:unsignedInt"/>
 <element name="BoxProduct" type="xsd:unsignedInt"/>
 <element name="Httpd" type="tns:CmDevHttpd"/>
 <element name="RegistrationAttempts" type="xsd:unsignedInt"/>
 <element name="IsCtiControllable" type="xsd:boolean"/>
 <element name="LoginUserId" type="xsd:string"/>
 <element name="Status" type="tns:CmDevRegStat"/>
 <element name="StatusReason" type="xsd:unsignedInt"/>
 <element name="PerfMonObject" type="xsd:unsignedInt"/>
 <element name="DChannel" type="xsd:unsignedInt"/>
 <element name="Description" type="xsd:string"/>
 <element name="H323Trunk" type="tns:H323Trunk"/>
 <element name="TimeStamp" type="xsd:unsignedInt"/>
 <element name="Protocol" type="tns:ProtocolType"/>
 <element name="NumOfLines" type="xsd:unsignedInt"/>
 <element name="LinesStatus" type="tns:CmDevLinesStatus"/>
 </sequence>
</complexType>

```

Protocol defines the following enumerated protocol types:

```

<simpleType name="ProtocolType">
 <restriction base="string">
 <enumeration value="Any"/>
 <enumeration value="SCCP"/>
 <enumeration value="SIP"/>
 <enumeration value="Unknown"/>
 </restriction>
</simpleType>

```

CmDevLinesStatus is a list of CmDevSingleLineStatus:

```

<complexType name="CmDevLinesStatus">
 <complexContent>
 <restriction base="SOAP-ENC:Array">
 <attribute ref="soapenc:arrayType"
 wsdl:arrayType="tns:CmDevSingleLineStatus[]" />
 </restriction>
 </complexContent>
</complexType>

```

CmSingleLineStatus is a sequence of DN and DN status:

```

<complexType name="CmDevSingleLineStatus">
 <sequence>
 <element name="DirectoryNumber" type="xsd:string"/>
 <element name="Status" type="tns:CmSingleLineStatus"/>
 </sequence>
</complexType>

```

CmSingleLineStatus defines the enumerated DN status as follows:

```

<simpleType name="CmSingleLineStatus">
 <restriction base="string">
 <enumeration value="Any"/>
 <enumeration value="Registered"/>
 <enumeration value="UnRegistered"/>
 <enumeration value="Rejected"/>
 <enumeration value="Unknown"/>
 </restriction>
</simpleType>

```

**Example**

The following example shows a SelectCmDeviceSIP response:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:SelectCmDeviceSIPResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <SelectCmDeviceResultSIP xsi:type="ns1:SelectCmDeviceResultSIP">
 <TotalDevicesFound xsi:type="xsd:unsignedInt">4</TotalDevicesFound>
 <CmNodes xsi:type="soapenc:Array" soapenc:arrayType="ns1:CmNodeSIP[2]"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <ReturnCode xsi:type="ns1:RisReturnCode">Ok</ReturnCode>
 <Name xsi:type="xsd:string">node70</Name>
 <NoChange xsi:type="xsd:boolean">false</NoChange>
 <CmDevices xsi:type="soapenc:Array" soapenc:arrayType="ns1:CmDeviceSIP[4]">
 <item>
 <Name xsi:type="xsd:string">SEP003094C25B01</Name>
 <IpAddress xsi:type="xsd:string">192.20.0.1</IpAddress>
 <DirNumber xsi:type="xsd:string">5001-Registered</DirNumber>
 <Class xsi:type="ns1:DeviceClass">Phone</Class>
 <Model xsi:type="xsd:unsignedInt">7</Model>
 <Product xsi:type="xsd:unsignedInt">35</Product>
 <BoxProduct xsi:type="xsd:unsignedInt" xsi:nil="true"/>
 <Httpd xsi:type="ns1:CmDevHttpd">Yes</Httpd>
 <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
 <IsCtiControllable xsi:type="xsd:boolean">true</IsCtiControllable>
 <LoginUserId xsi:type="xsd:string">jdas0</LoginUserId>
 <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
 <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
 <PerfMonObject xsi:type="xsd:unsignedInt">2</PerfMonObject>
 <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
 <Description xsi:type="xsd:string">Fake data</Description>
 <H323Trunk xsi:type="ns1:H323Trunk">
 <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
 <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
 <Zone xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
 <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
 <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
 <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
 <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
 </H323Trunk>
 <TimeStamp xsi:type="xsd:unsignedInt">1110841855</TimeStamp>
 <Protocol xsi:type="ns1:ProtocolType">SIP</Protocol>
 <NumOfLines xsi:type="xsd:unsignedInt">1</NumOfLines>
 <LinesStatus xsi:type="soapenc:Array"
 soapenc:arrayType="ns1:CmDevSingleLineStatus[1]">
 <item>
 <DirectoryNumber xsi:type="xsd:string">5001</DirectoryNumber>
 <Status xsi:type="ns1:CmSingleLineStatus">Registered</Status>
 </item>
 </LinesStatus>
 </item>
 </CmDevices>
 <Name xsi:type="xsd:string">SEP003094C25B02</Name>
 <IpAddress xsi:type="xsd:string">192.20.0.2</IpAddress>
```

```

<DirNumber xsi:type="xsd:string">5002-Registered</DirNumber>
<Class xsi:type="ns1:DeviceClass">Phone</Class>
<Model xsi:type="xsd:unsignedInt">7</Model>
<Product xsi:type="xsd:unsignedInt">35</Product>
<BoxProduct xsi:type="xsd:unsignedInt" xsi:nil="true"/>
<Httpd xsi:type="ns1:CmDevHttpd">Yes</Httpd>
<RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
<IsCtiControllable xsi:type="xsd:boolean">true</IsCtiControllable>
<LoginUserId xsi:type="xsd:string">jdas1</LoginUserId>
<Status xsi:type="ns1:CmDevRegStat">Registered</Status>
<StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
<PerfMonObject xsi:type="xsd:unsignedInt">2</PerfMonObject>
<DChannel xsi:type="xsd:unsignedInt">0</DChannel>
<Description xsi:type="xsd:string">Fake data</Description>
<H323Trunk xsi:type="ns1:H323Trunk">
 <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
 <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
 <Zone xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
 <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
 <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
 <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
 <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
</H323Trunk>
<TimeStamp xsi:type="xsd:unsignedInt">1110841855</TimeStamp>
<Protocol xsi:type="ns1:ProtocolType">SIP</Protocol>
<NumOfLines xsi:type="xsd:unsignedInt">1</NumOfLines>
<LinesStatus xsi:type="soapenc:Array"
 soapenc:arrayType="ns1:CmDevSingleLineStatus[1]">
 <item>
 <DirectoryNumber xsi:type="xsd:string">5002</DirectoryNumber>
 <Status xsi:type="ns1:CmSingleLineStatus">Registered</Status>
 </item>
</LinesStatus>
</item>
<item>
 <Name xsi:type="xsd:string">SEP003094C25B03</Name>
 <IpAddress xsi:type="xsd:string">192.20.0.3</IpAddress>
 <DirNumber xsi:type="xsd:string">5003-Registered</DirNumber>
 <Class xsi:type="ns1:DeviceClass">Phone</Class>
 <Model xsi:type="xsd:unsignedInt">7</Model>
 <Product xsi:type="xsd:unsignedInt">35</Product>
 <BoxProduct xsi:type="xsd:unsignedInt" xsi:nil="true"/>
 <Httpd xsi:type="ns1:CmDevHttpd">Yes</Httpd>
 <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
 <IsCtiControllable xsi:type="xsd:boolean">true</IsCtiControllable>
 <LoginUserId xsi:type="xsd:string">jdas2</LoginUserId>
 <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
 <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
 <PerfMonObject xsi:type="xsd:unsignedInt">2</PerfMonObject>
 <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
 <Description xsi:type="xsd:string">Fake data</Description>
 <H323Trunk xsi:type="ns1:H323Trunk">
 <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
 <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
 <Zone xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
 <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
 <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
 <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
 </H323Trunk>
 <TimeStamp xsi:type="xsd:unsignedInt">1110841855</TimeStamp>
 <Protocol xsi:type="ns1:ProtocolType">SIP</Protocol>
 <NumOfLines xsi:type="xsd:unsignedInt">1</NumOfLines>
 <LinesStatus xsi:type="soapenc:Array"
 soapenc:arrayType="ns1:CmDevSingleLineStatus[1]">
 <item>
 <DirectoryNumber xsi:type="xsd:string">5003</DirectoryNumber>
 <Status xsi:type="ns1:CmSingleLineStatus">Registered</Status>
 </item>
 </LinesStatus>
</item>

```

```

 <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
 </H323Trunk>
 <TimeStamp xsi:type="xsd:unsignedInt">1110841855</TimeStamp>
 <Protocol xsi:type="ns1:ProtocolType">SIP</Protocol>
 <NumOfLines xsi:type="xsd:unsignedInt">1</NumOfLines>
 <LinesStatus xsi:type="soapenc:Array"
 soapenc:arrayType="ns1:CmDevSingleLineStatus[1]">
 <item>
 <DirectoryNumber xsi:type="xsd:string">5003</DirectoryNumber>
 <Status xsi:type="ns1:CmSingleLineStatus">Registered</Status>
 </item>
 </LinesStatus>
</item>
<item>
 <Name xsi:type="xsd:string">SEP003094C25B04</Name>
 <IpAddress xsi:type="xsd:string">192.20.0.4</IpAddress>
 <DirNumber xsi:type="xsd:string">5004-Registered</DirNumber>
 <Class xsi:type="ns1:DeviceClass">Phone</Class>
 <Model xsi:type="xsd:unsignedInt">7</Model>
 <Product xsi:type="xsd:unsignedInt">35</Product>
 <BoxProduct xsi:type="xsd:unsignedInt" xsi:nil="true"/>
 <Httpd xsi:type="ns1:CmDevHttpd">Yes</Httpd>
 <RegistrationAttempts xsi:type="xsd:unsignedInt">0</RegistrationAttempts>
 <IsCtiControllable xsi:type="xsd:boolean">true</IsCtiControllable>
 <LoginUserId xsi:type="xsd:string">jdas3</LoginUserId>
 <Status xsi:type="ns1:CmDevRegStat">Registered</Status>
 <StatusReason xsi:type="xsd:unsignedInt">0</StatusReason>
 <PerfMonObject xsi:type="xsd:unsignedInt">2</PerfMonObject>
 <DChannel xsi:type="xsd:unsignedInt">0</DChannel>
 <Description xsi:type="xsd:string">Fake data</Description>
 <H323Trunk xsi:type="ns1:H323Trunk">
 <ConfigName xsi:type="xsd:string" xsi:nil="true"/>
 <TechPrefix xsi:type="xsd:string" xsi:nil="true"/>
 <Zone xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer1 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer2 xsi:type="xsd:string" xsi:nil="true"/>
 <RemoteCmServer3 xsi:type="xsd:string" xsi:nil="true"/>
 <AltGkList xsi:type="xsd:string" xsi:nil="true"/>
 <ActiveGk xsi:type="xsd:string" xsi:nil="true"/>
 <CallSignalAddr xsi:type="xsd:string" xsi:nil="true"/>
 <RasAddr xsi:type="xsd:string" xsi:nil="true"/>
 </H323Trunk>
 <TimeStamp xsi:type="xsd:unsignedInt">1110841855</TimeStamp>
 <Protocol xsi:type="ns1:ProtocolType">SIP</Protocol>
 <NumOfLines xsi:type="xsd:unsignedInt">1</NumOfLines>
 <LinesStatus xsi:type="soapenc:Array"
 soapenc:arrayType="ns1:CmDevSingleLineStatus[1]">
 <item>
 <DirectoryNumber xsi:type="xsd:string">5004</DirectoryNumber>
 <Status xsi:type="ns1:CmSingleLineStatus">Registered</Status>
 </item>
 </LinesStatus>
</item>
</CmDevices>
</item>
<item>
 <ReturnCode xsi:type="ns1:RisReturnCode">NotFound</ReturnCode>
 <Name xsi:type="xsd:string">node71</Name>
 <NoChange xsi:type="xsd:boolean">false</NoChange>
 <CmDevices xsi:type="soapenc:Array" soapenc:arrayType="ns1:CmDeviceSIP[0]"/>
</item>
</CmNodes>
</SelectCmDeviceResultSIP>

```

```

 <StateInfo xsi:type="xsd:string"><StateInfo><Node Name="node70"
SubsystemStartTime="1110841841" StateId="8"
TotalItemsFound="4" TotalItemsReturned="4"/><Node
Name="node71" SubsystemStartTime="1110688669" StateId="5772"
TotalItemsFound="0"
TotalItemsReturned="0"/></StateInfo></StateInfo>
 </ns1:SelectCmDeviceSIPResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## Interface to Get Server Names and Cluster Name

The interface to get cluster name `getServiceParameter`, interface to get configured servers in cluster `listProcessNodeByService`, and interface to get configured devices in cluster `listDeviceByNameAndClass` are defined as part of the AXL Configuration API WSDL file. Send your queries to API question mailer on these interfaces.

# PerfmonPort SOAP Service

The PerfmonPort (Performance Information Port) service comprises several operations that allow clients to do the following perfmon-related tasks:

- Collect perfmon counter data.  
AXL-Serviceability APIs provide two ways to collect perfmon data: session-based and single-transaction.
- Get a list of all perfmon objects and counter names that are installed in a particular host.
- Get a list of the current instances of a perfmon object.
- Get textual description of a perfmon counter.

Table 4-5 provides a summary of the SOAP PerfmonPort service operations.

**Table 4-5** SOAP PerfmonPort Service Operations

| Operation                      | Description                                                                             | Reference                                                                                |
|--------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| perfmonOpenSession             | Allows client programs to obtain a session handle from the AXL-Serviceability APIs      | <a href="#">PerfmonPort Service: perfmonOpenSession Operation, page 4-62</a>             |
| perfmonAddCounter              | Adds an array of counters to a session handle                                           | <a href="#">PerfmonPort Service: perfmonAddCounter Operation, page 4-63</a>              |
| perfmonRemoveCounter           | Removes an array of counters from a session handle                                      | <a href="#">PerfmonPort Service: perfmonRemoveCounter Operation, page 4-65</a>           |
| perfmonCollectSessionData      | Collects perfmon data for all counters that have been added to the query handle         | <a href="#">PerfmonPort Service: perfmonCollectSessionData Operation, page 4-67</a>      |
| perfmonCloseSession            | Closes the session handle that the PerfmonOpenSession retrieved                         | <a href="#">PerfmonPort Service: perfmonCloseSession Operation, page 4-69</a>            |
| perfmonListInstance            | Returns a list of instances of a Perfmon object in a particular host                    | <a href="#">PerfmonPort Service: perfmonListInstance Operation, page 4-70</a>            |
| perfmonQueryCounterDescription | Returns the help text of a particular counter                                           | <a href="#">PerfmonPort Service: perfmonQueryCounterDescription Operation, page 4-72</a> |
| perfmonListCounter             | Returns the list of Perfmon objects and counters in a particular host                   | <a href="#">PerfmonPort Service: perfmonListCounter Operation, page 4-73</a>             |
| perfmonCollectCounterData      | returns the Perfmon data for all counters that belong to an object in a particular host | <a href="#">PerfmonPort Service: perfmonCollectCounterData Operation, page 4-75</a>      |

For a description for Perfmon error codes, see the “SOAP Fault Error Codes” section on page 4-131.

## PerfmonPort Service: perfmonOpenSession Operation

Client programs submit the perfmonOpenSession operation to get a session handle from the AXL-Serviceability APIs. The client needs a session handle to do the session-based perfmon counter data collection. The session handle represents a universally unique identifier that is used once, which guarantees that no duplicate handles exist. AXL-Serviceability APIs keep the opened handles in cache. If no activity occurs on a handle for 25 hours, the AXL-Serviceability API removes the handle and renders it invalid.

Percentage counters require two samples to determine the average between the sample.

In a session-based perfmon data collection, use the following related operations:

- perfmonOpenSession
- perfmonAddCounter
- perfmonRemoveCounter
- perfmonCollectSessionData
- PerfmonCloseSession

After a client gets a session handle, it normally proceeds to submit the PerfmonAddCounter operation and then follows with the PerfmonCollectSessionData operation. PerfmonCollectSessionData specifies the main operation that collects perfmon data for the clients. When the client no longer needs the session handle, it should submit PerfmonCloseSession, so the AXL-Serviceability APIs can remove the handle from cache. Clients can dynamically add new counters to the session handle and remove counters from it by using the perfmonRemoveCounter operation while the session handle is still open.

### Request Format

The PerfmonOpenSession operation takes no parameter.

The following example shows the PerfmonOpenSession request:

#### Example

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonOpenSession
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/" />
 </soapenv:Body>
 </soapenv:Envelope>
```

### Response Format

PerfmonOpenSession returns a single element that is named SessionHandle. Its type specifies SessionHandleType, which is derived from xsd:string, and it contains the guide for the session handle.

The following example shows the PerfmonOpenSession response:

#### Example

```
<?xml version="1.0" encoding="UTF-8"?>
```

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonOpenSessionResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle
 xsi:type="ns1:SessionHandleType">378273ba-ea59-11dc-8000-000000000000</SessionHandle>
 </ns1:PerfmonOpenSessionResponse>
 </soapenv:Body>
 </soapenv:Envelope>

```

## PerfmonPort Service: perfmonAddCounter Operation

The perfmonAddCounter operation adds an array of counters to a session handle.

### Request Format

The perfmonAddCounter operation takes the following parameters:

- **SessionHandle**—The type is SessionHandleType, which is derived from xsd:string. It contains the session handle that the previous perfmonOpenSession operation previously opened.
- **ArrayOfCounter**—The type for this element is ArrayOfCounterType, which is an array of counter elements. Each Counter element contains the name of a counter to be added to the session handle.

The following fragments from AXL-Serviceability APIs describe the types that this request uses:

```

...
<complexType name='ArrayOfCounterType'>
 <complexContent>
 <restriction base='SOAP-ENC:Array'>
 <sequence>
 <element name='Counter'
 type='tns:CounterType' minOccurs='1' maxOccurs='unbounded' />
 </sequence>
 </restriction>
 </complexContent>
</complexType>

```



#### Note

ArrayOfCounterType expects at least one Counter element in the array.

```

...
<complexType name='CounterType'>
 <sequence>
 <element name='Name' type='tns:CounterNameType' />
 </sequence>
</complexType>

```

CounterType represents a structure, and it has a single element member: Name.

```

...
<simpleType name='CounterNameType'>
 <restriction base='string' />
</simpleType>

```

The Name element that is of string-derived type contains the name of the counter.

The following example shows the perfmonAddCounter request with two counters. This example uses a single-reference accessor.

#### Example

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:tns="http://tempuri.org/"
 xmlns:types="http://tempuri.org/encodedTypes"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <q1:PerfmonAddCounter xmlns:q1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle xsi:type="xsd:string">
 {1A490F1E-D82C-403F-9CF0-C4D4ABD6FF3E}
 </SessionHandle>
 <ArrayOfCounter soapenc:arrayType="q1:CounterType[2]">
 <Counter>
 <Name>\\nozomi\process(inetinfo)\handle count</Name>
 </Counter>
 <Counter>
 <Name>\\nozomi\process(csrss)\handle count</Name>
 </Counter>
 </ArrayOfCounter>
 </q1:PerfmonAddCounter>
 </soap:Body>
</soap:Envelope>
```

The following shows an example of the perfmonAddCounter request with three counters in the ArrayOfCounter parameter. This example uses multireference accessors.

#### Example

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonAddCounter
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle
 xsi:type="ns1:SessionHandleType">38d47c54-ea59-11dc-8000-000000000000</SessionHandle>
 <ArrayOfCounter soapenc:arrayType="ns1:CounterType[2]" xsi:type="soapenc:Array"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns1:CounterType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process\Nice</Name>
 </item>
 <item xsi:type="ns1:CounterType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process\PID</Name>
 </item>
 </ArrayOfCounter>
 </ns1:PerfmonAddCounter>
 </soapenv:Body>
</soapenv:Envelope>
```

## Response Format

The following example shows that the perfmonAddCounter returns no output:

**Example**

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonAddCounterResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap"/>
 </soapenv:Body>
 </soapenv:Envelope>
```

If perfmonAddCounter fails to add one or more counters that are specified in the request, AXL-Serviceability APIs reply with a fault response. Some counters that are specified in the request may get successfully added, while others failed to be added.

In this case, AXL-Serviceability APIs reply with a fault. The Params element of CallInfo element specifies each failed counter name. Client programs can conclude that counter names, which are specified in the request but do not appear in the fault message, actually get added successfully to the query handle.

## PerfmonPort Service: perfmonRemoveCounter Operation

The perfmonRemoveCounter operation removes an array of counters from a session handle.

### Request Format

The perfmonRemoveCounter operation takes the following parameters:

- **SessionHandle**—The type is SessionHandleType which is derived from xsd:string. It contains the session handle that the PerfmonOpenSession operation opened previously.
- **ArrayOfCounter**—The type for this element is ArrayOfCounterType, which is an array of Counter elements. Each Counter element contain the name of a counter to be added to the session handle.

The following example shows a perfmonRemoveCounter request with three counters in the ArrayOfCounter parameter. This example uses single-reference accessor style.

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:tns="http://tempuri.org/"
 xmlns:types="http://tempuri.org/encodedTypes"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <q1:PerfmonRemoveCounter xmlns:q1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle xsi:type="xsd:string">
 {1A490F1E-D82C-403F-9CF0-C4D4ABD6FF3E}
 </SessionHandle>
 <ArrayOfCounter soapenc:arrayType="q1:CounterType[2]">
 <Counter>
 <Name>\\nozomi\process(inetinfo)\handle count</Name>
 </Counter>
 <Counter>
 <Name>\\nozomi\process(csrs)\handle count</Name>
 </Counter>
 <Counter>
 <Name>\\nozomi\process(regsvc)\handle count</Name>
 </Counter>
 </ArrayOfCounter>
 </q1:PerfmonRemoveCounter>
 </soap:Body>
</soap:Envelope>
```

```

 </Counter>
 </ArrayOfCounter>
 </q1:PerfmonRemoveCounter">
 </soap:Body>
</soap:Envelope>

```

The following example shows a perfmonRemoveCounter that uses multireference accessors.

```

<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonRemoveCounter
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle
 xsi:type="ns1:SessionHandleType">38d47c54-ea59-11dc-8000-000000000000</SessionHandle>
 <ArrayOfCounter soapenc:arrayType="ns1:CounterType[2]" xsi:type="soapenc:Array"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns1:CounterType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process\Nice</Name>
 </item>
 <item xsi:type="ns1:CounterType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process\PID</Name>
 </item>
 </ArrayOfCounter>
 </ns1:PerfmonRemoveCounter>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response Format

The perfmonRemoveCounter operation returns no data in the response as shown by the following example:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonRemoveCounterResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 </ns1:PerfmonRemoveCounterResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

If the PerfmonRemoveCounter operation fails to remove one or more counters that the request specifies, the AXL-Serviceability API replies with a fault response with semantics similar to PerfmonAddCounter. If some of the counters that are specified in the request get removed successfully, while others failed to be removed, the AXL-Serviceability API replies with a fault. The Params element of CallInfo element specifies each failed counter name. Client programs can conclude that counter names, which are specified in the request but do not appear in the fault message, actually get removed successfully from the query handle.

## PerfmonPort Service: perfmonCollectSessionData Operation

The perfmonCollectSessionData operation collects the perfmon data for all counters that have been added to the query handle.

### Request Format

The perfmonCollectSessionData operation takes the SessionHandle parameter. The type is SessionHandleType, which is derived from xsd:string. It contains the session handle that the perfmonOpenSession operation opened previously.

The following example shows a perfmonCollectSessionData request:

#### Example

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonCollectSessionData
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle
 xsi:type="ns1:SessionHandleType">3accd2f4-ea59-11dc-8000-000000000000</SessionHandle>
 </ns1:PerfmonCollectSessionData>
 </soapenv:Body>
 </soapenv:Envelope>
```

### Response Format

The perfmonCollectSessionData operation returns the ArrayOfCounterInfo element that contains the value and status of all counters that were previously added to the session handle. The type for ArrayOfCounterInfo element specifies ArrayOfCounterInfoType, which is an array of CounterInfo elements.

The following fragments from AXL-Serviceability APIs .WSDL show the types that this response uses:

```
...
<complexType name='ArrayOfCounterInfoType'>
 <complexContent>
 <restriction base='SOAP-ENC:Array'>
 <sequence>
 <element name='CounterInfo'
 type='tns:CounterInfoType' minOccurs='1' maxOccurs='unbounded' />
 </sequence>
 </restriction>
 </complexContent>
</complexType>
```

ArrayOfCounterInfoType has one or more CounterInfo elements in the array. The CounterInfo element includes the following type:

```
...
<complexType name='CounterInfoType'>
 <sequence>
 <element name='Name' type='tns:CounterNameType' />
 <element name='Value' type='xsd:long' />
 <element name='CStatus' type='xsd:unsignedInt' />
 </sequence>
```

```

</complexType>
...
<simpleType name='CounterNameType'>
 <restriction base='string' />
</simpleType>

```

CounterInfoType specifies a structure with the following element members.

- **Name**—A CounterNameType, derived from xsd:string, that contains the name of the counter that was previously added to the session handle.
- **Value**—A 64-bit signed integer (xsd:long) that contains the value of the counter.
- **CStatus**—Indicates whether the value of the counter was successfully retrieved. The type specifies a 32-bit unsigned integer (xsd:unsignedInt). First, check for the value of CStatus element before reading the Value element. If the value of CStatus equals 0 or 1, the Value element contains a good counter value. Otherwise, it indicates a failure in retrieving the counter value; ignore the Value element.

The following example shows a perfmonCollectSessionData response:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonCollectSessionDataResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ArrayOfCounterInfo soapenc:arrayType="ns1:CounterInfoType[6]"
xsi:type="soapenc:Array" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Processor(0)\Nice
Percentage</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">0</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Processor(0)\System
Percentage</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">0</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Processor(0)\User
Percentage</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">0</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Processor(_Total)\Nice
Percentage</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">0</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Processor(_Total)\System
Percentage</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">0</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Processor(_Total)\User
Percentage</Name>

```

```

 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">0</CStatus>
 </item>
</ArrayOfCounterInfo>
</ns1:PerfmonCollectSessionDataResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## PerfmonPort Service: perfmonCloseSession Operation

The perfmonCloseSession operation closes the session handle that the PerfmonOpenSession previously retrieved.

### Request Format

The perfmonCloseSession operation takes the SessionHandle parameter. The type is SessionHandleType, which is derived from xsd:string. It contains the session handle that the perfmonOpenSession operation previously opened.

The following example shows a perfmonCloseSession request:

```

<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonCloseSession
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <SessionHandle
 xsi:type="ns1:SessionHandleType">378273ba-ea59-11dc-8000-000000000000</SessionHandle>
 </ns1:PerfmonCloseSession>
 </soapenv:Body>
 </soapenv:Envelope>

```

### Response Format

The following example shows that the perfmonCloseSession does not return data in the response:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonCloseSessionResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 </ns1:PerfmonCloseSessionResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

## PerfmonPort Service: perfmonListInstance Operation

The perfmonListInstance operation returns a list of instances of a perfmon object in a particular host. Instances of an object can dynamically come and go, and this operation returns the most recent list.

### Request Format

The perfmonListInstance operation takes the following parameters:

- **Host**—The type is xsd:string. The Host parameter contains the name or address of the target server on which the object resides.
- **Object**—The type is xsd:string. The Object parameter contains the name of the object.

The following example shows a perfmonListInstance request with “nozomi” as the host and “Process” as the object parameter.

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonListInstance
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <Host xsi:type="xsd:string">10.77.31.15</Host>
 <Object xsi:type="ns1:ObjectNameType">Process</Object>
 </ns1:PerfmonListInstance>
 </soapenv:Body>
</soapenv:Envelope>
```

### Response Format

The perfmonListInstance returns an element that named ArrayOfInstance. The type for this element specifies ArrayOfInstanceType, which is an array of Instance elements. The following fragments from AXL-Serviceability APIs .WSDL file explain the types that this response uses:

```
...
<complexType name='ArrayOfInstanceType'>
 <complexContent>
 <restriction base='SOAP-ENC:Array'>
 <sequence>
 <element name='Instance'
 type='tns:InstanceType' minOccurs='0' maxOccurs='unbounded' />
 </sequence>
 </restriction>
 </complexContent>
</complexType>
```



#### Note

ArrayOfInstanceType can have 0 (zero) Instance elements, in which case the requested object is not of a multi-instance object.

```
...
<complexType name='InstanceType'>
 <sequence>
 <element name='Name' type='tns:InstanceNameType' />
 </sequence>
</complexType>
```

The type for Instance element specifies InstanceType. It represents a structure with a single-element member: Name.

```
...
<simpleType name='InstanceNameType'>
 <restriction base='string'>
</simpleType>
```

The Name element, whose type is InstanceNameType, which is derived from xsd:string, contains the name of the instance of the requested object.

The following example shows the response to the request in the previous example:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonListInstanceResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ArrayOfInstance soapenc:arrayType="ns1:InstanceType[133]" xsi:type="soapenc:Array"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns1:InstanceType">
 <Name xsi:type="ns1:InstanceNameType">init</Name>
 </item>
 <item xsi:type="ns1:InstanceType">
 <Name xsi:type="ns1:InstanceNameType">migration_0</Name>
 </item>
 <item xsi:type="ns1:InstanceType">
 <Name xsi:type="ns1:InstanceNameType">ksoftirqd_0</Name>
 </item>
 ...
 <item xsi:type="ns1:InstanceType">
 <Name xsi:type="ns1:InstanceNameType">CTLProvider</Name>
 </item>
 <item xsi:type="ns1:InstanceType">
 <Name xsi:type="ns1:InstanceNameType">capf</Name>
 </item>
 <item xsi:type="ns1:InstanceType">
 <Name xsi:type="ns1:InstanceNameType">CCMDirSync</Name>
 </item>
 </ArrayOfInstance>
 </ns1:PerfmonListInstanceResponse>
 </soapenv:Body>
</soapenv:Envelope>
```

## PerfmonPort Service: perfmonQueryCounterDescription Operation

The perfmonQueryCounterDescription operation returns the help text of a particular counter.

### Request Format

The perfmonQueryCounterDescription operation takes the Counter parameter. The name of the counter. Type is CounterNameType, which is derived from xsd:string.

The following example shows the perfmonQueryCounterDescription request:

#### Example

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <q1:PerfmonQueryCounterDescription
 xmlns:q1="http://schemas.cisco.com/ast/soap/">
 <Counter xsi:type="xsd:string">\\nozomi\Server\Files Open</Counter>
 </q1:PerfmonQueryCounterDescription>
 </soap:Body>
</soap:Envelope>
```

### Response Format

The perfmonQueryCounterDescription operation returns an element that is named HelpText that is of the xsd:string type. It contains the help text of the requested counter.

The following example shows the response to the request in the previous example.

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<SOAP-ENV:Envelope SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/">
 <SOAP-ENV:Body>
 <m:PerfmonQueryCounterDescriptionResponse
 xmlns:m="http://schemas.cisco.com/ast/soap/">
 <HelpText>The number of files currently opened in the server. Indicates
current server
activity.
 </HelpText>
 </m:PerfmonQueryCounterDescriptionResponse>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## PerfmonPort Service: perfmonListCounter Operation

The perfmonListCounter operation returns the list of Perfmon objects and counters in a particular host.

### Request Format

The perfmonListCounter operation takes the Host parameter. The type is xsd:string. The Host parameter contains the name or address of the target server from which the client wants to get the counter information.

The following example shows a perfmonListCounter request:

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <q1:PerfmonListCounter xmlns:q1="http://schemas.cisco.com/ast/soap/">
 <Host xsi:type="xsd:string">nozomi</Host>
 </q1:PerfmonListCounter>
 </soap:Body>
</soap:Envelope>
```

### Response Format

The perfmonListCounter operation returns information that describes the hierarchical structure of Perfmon objects and counters. The body entry includes an ArrayOfObjectInfo element. The following fragments from the AXL-Serviceability APIs WSDL file describe the types that this response uses:

```
...
<complexType name='ArrayOfObjectInfoType'>
 <complexContent>
 <restriction base='SOAP-ENC:Array'>
 <sequence>
 <element name='ObjectInfo'
 type='tns:ObjectInfoType' minOccurs='1' maxOccurs='unbounded' />
 </sequence>
 </restriction>
 </complexContent>
</complexType>
```

The ArrayOfObjectInfo element comprises an array of ObjectInfo elements that have the following type:

```
...
<complexType name='ObjectInfoType'>
 <sequence>
 <element name='Name' type='tns:ObjectNameType' />
 <element name='MultiInstance' type='xsd:boolean' />
 <element name='ArrayOfCounter' type='tns:ArrayOfCounterType' />
 </sequence>
</complexType>

...
<simpleType name='ObjectNameType'>
 <restriction base='string' />
</simpleType>
```

The Name element, whose type is derived from string, describes the name of the object. MultiInstance element indicates whether the object has more than one instance. The ArrayOfCounter element acts as a container for an array of Counter elements that have the following types:

```
...
<complexType name='CounterType'>
 <sequence>
 <element name='Name' type='tns:CounterNameType' />
 </sequence>
</complexType>
<simpleType name='CounterNameType'>
 <restriction base='string' />
</simpleType>
```

The Name element, whose type is derived from xsd:string, describes the name of the counter.

### Example

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<SOAP-ENV:Envelope
 SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
 <SOAP-ENV:Body>
 <m:PerfmonListCounterResponse xmlns:m="http://schemas.cisco.com/ast/soap/">
 <ArrayOfObjectInfo SOAP-ENC:arrayType="m:ObjectInfoType[]">
 <ObjectInfo>
 <Name>.NET CLR Memory</Name>
 <MultiInstance>true</MultiInstance>
 <ArrayOfCounter SOAP-ENC:arrayType="m:CounterType[]">
 <Counter>
 <Name># Gen 0 Collections</Name>
 </Counter>
 <Counter>
 <Name># Gen 1 Collections</Name>
 </Counter>
 ...
 </ArrayOfCounter>
 </ObjectInfo>
 <ObjectInfo>
 <Name>.NET CLR LocksAndThreads</Name>
 <MultiInstance>true</MultiInstance>
 <ArrayOfCounter SOAP-ENC:arrayType="m:CounterType[]">
 <Counter>
 <Name>Total # of Contentions</Name>
 </Counter>
 <Counter>
 <Name>Contention Rate / sec</Name>
 </Counter>
 <Counter>
 <Name>Current Queue Length</Name>
 </Counter>
 ...
 </ArrayOfCounter>
 </ObjectInfo>
 ...
 </ArrayOfObjectInfo>
 </m:PerfmonListCounterResponse>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## PerfmonPort Service: perfmonCollectCounterData Operation

The perfmonCollectCounterData operation returns the perfmon data for all counters that belong to an object in a particular host. Unlike the session-based perfmon data collection, this operation collects all data in a single request/response transaction. If the object represents multiple-instance object, this operation always returns the most current instances of the object.

### Request Format

The perfmonCollectCounterData operation takes the following parameters:

- **Host**—The type is xsd:string. It contains the address of the target server from which the client wants to get the counter information.
- **Object**—The type is ObjectNameType, which is derived from xsd:string. It contains the name of the perfmon object.

The following example shows a perfmonCollectCounterData request:

#### Example

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:PerfmonCollectCounterData
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <Host xsi:type="xsd:string">10.77.31.15</Host>
 <Object xsi:type="ns1:ObjectNameType"></Object>
 </ns1:PerfmonCollectCounterData>
 </soapenv:Body>
</soapenv:Envelope>
```

### Response Format

The perfmonCollectCounterData operation returns anArrayOfCounterInfo element, which is an array of CounterInfo elements. CounterInfoType specifies a structure with the following three element members.

- **Name**—A CounterNameType, derived from xsd:string, that contains the name of the counter that was previously added to the session handle.
- **Value**—A 64-bit signed integer (xsd:long) that contains the value of the counter.
- **CStatus**—Indicates whether the value of the counter was successfully retrieved. The type specifies a 32-bit unsigned integer (xsd:unsignedInt). First, check for the value of CStatus element before reading the Value element. If the value of CStatus equals to 0 or 1, the Value element contains a good counter value. Otherwise, it indicates a failure in retrieving the counter value; ignore the Value element.

The following example shows a perfmonCollectCounterData response:

#### Example

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
```

```

<soapenv:Body>
 <ns1:PerfmonCollectCounterDataResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ArrayOfCounterInfo soapenc:arrayType="ns1:CounterInfoType[1995]"
 xsi:type="soapenc:Array" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(CCMDirSync)\% CPU
Time</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(CCMDirSync)\% Memory
Usage</Name>
 <Value xsi:type="xsd:long">2</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(CCMDirSync)\Data
Stack Size</Name>
 <Value xsi:type="xsd:long">344019</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name
xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(CCMDirSync)\Nice</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name
xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(CCMDirSync)\PID</Name>
 <Value xsi:type="xsd:long">9389</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(CCMDirSync)\Page
Fault Count</Name>
 <Value xsi:type="xsd:long">1</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 ...
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(udev)\Total CPU Time
Used</Name>
 <Value xsi:type="xsd:long">4</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(udev)\UTime</Name>
 <Value xsi:type="xsd:long">0</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(udev)\VmData</Name>
 <Value xsi:type="xsd:long">240</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(udev)\VmRSS</Name>
 <Value xsi:type="xsd:long">692</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 </ArrayOfCounterInfo>
 </ns1:PerfmonCollectCounterDataResponse>
</soapenv:Body>

```

```
 </item>
 <item xsi:type="ns1:CounterInfoType">
 <Name xsi:type="ns1:CounterNameType">\\10.77.31.15\Process(udevd)\VmSize</Name>
 <Value xsi:type="xsd:long">3020</Value>
 <CStatus xsi:type="xsd:unsignedInt">1</CStatus>
 </item>
 </ArrayOfCounterInfo>
 </ns1:PerfmonCollectCounterDataResponse>
 </soapenv:Body>
</soapenv:Envelope>
```

# ControlCenterServicesPort SOAP Service

The ControlCenterServicesPort service allows you to do Service Deploy, Service UnDeploy, Get Service List, and perform service starts and stops.

All ControlCenterServicesPort operations work only on the local node, which is specified by the NodeName element.

Table 4-6 provides a summary of the SOAP ControlCenterServicesPort service operations.

**Table 4-6** SOAP ControlCenterServicesPort Service Operations

| Operation                 | Description                                                                                                      | Reference                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| soapGetStaticServiceList  | Allows clients to perform a query for all services static specifications in Cisco Unified Communications Manager | <a href="#">ControlCenterServicesPort service: soapGetStaticServiceList Operation, page 4-78</a>   |
| soapGetServiceStatus      | Allows clients to perform a list of deployable and undeployable services status query                            | <a href="#">ControlCenterServicesPort service: soapGetServiceStatus Operation, page 4-81</a>       |
| soapDoServiceDeployment   | Allows clients to deploy or undeploy a list of services                                                          | <a href="#">ControlCenterServicesPort service: soapDoServiceDeployment Operation, page 4-91</a>    |
| soapDoControlServices     | Allows clients to start or stop a list of service                                                                | <a href="#">ControlCenterServicesPort service: soapDoControlServices Operation, page 4-96</a>      |
| getProductInformationList | Provides information about the products that are installed on a given server                                     | <a href="#">ControlCenterServicesPort service: getProductInformationList Operation, page 4-100</a> |

## ControlCenterServicesPort service: soapGetStaticServiceList Operation

The soapGetStaticServiceList operation allows clients to perform a query for all services static specifications in Cisco Unified Communications Manager. It returns the array of service static specification, which is composed of service name, type (servlet or service), deployable or undeployable service, group name, and dependent services.

### Request Format

The HTTP header should have following SOAP action and envelop information:

```
<operation name="soapGetStaticServiceList">
 <soap:operation
 soapAction="http://schemas.cisco.com/ast/soap/action/#ControlCenterServices#soapGetServiceList"/>
 <input>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" />
 </input>
 <output>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" />
 </output>
 </operation>
```

The `soapGetStaticServiceList` operation takes only one dummy string typed parameter.

## Response Format

The response contains the `ArrayOfServiceSpecification` information that is defined as follows:

```
<complexType name="StaticServiceList">
 <sequence>
 <element name="Services" type="tns:ArrayOfServiceSpecification"/>
 </sequence>
</complexType>
```

`ArrayOfServiceSpecification` is an array of `ServiceSpecification` defined as follows:

```
<complexType name="ArrayOfServiceSpecification">
 <complexContent>
 <restriction base="SOAP-ENC:Array">
 <attribute ref="SOAP-ENC:arrayType"
 wsdl:arrayType="tns:ServiceSpecification[]"/>
 </restriction>
 </complexContent>
</complexType>
```

`ServiceSpecification` contains information defined as follows:

```
<complexType name="ServiceSpecification">
 <sequence>
 <element name="ServiceName" type="xsd:string"/>
 <element name="ServiceType" type="tns:ServiceTypes"/>
 <element name="Deployable" type="boolean"/>
 <element name="GroupName" type="xsd:string"/>
 <element name="DependentServices" type="tns:ArrayOfServices"/>
 </sequence>
</complexType>
```

where `ServiceTypes` defines the type of service, defined as follows:

```
<simpleType name="ServiceTypes">
 <restriction base="xsd:string">
 <enumeration value="Service"/>
 <enumeration value="Servlet"/>
 </restriction>
</simpleType>
```

`ArrayOfServices` defines the dependent services for the service, defined as an array:

```
<complexType name="ArrayOfServices">
 <complexContent>
 <restriction base="SOAP-ENC:Array">
 <attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="xsd:string[]"/>
 </restriction>
 </complexContent>
</complexType>
```

## Fault

### Invalid Service Configuration Files

Static service specification comes from two service configuration xml files:

- `/usr/local/cm/conf/ccmservice/ActivateConf.xml`
- `/usr/local/cm/conf/ccmservice/ServicesConf.xml`

If one of the files does not exist or has an invalid format, an empty list of static service specification will appear in the response. For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetStaticServiceListResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <StaticServiceList xsi:type="ns2:StaticServiceList"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <Services xsi:type="soapenc:Array" soapenc:arrayType="ns2:ServiceSpecification[0]"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" />
 </StaticServiceList>
 </ns1:GetStaticServiceListResponse>
 </soapenv:Body>
 </soapenv:Envelope>
```

## Request Example

The following example shows a request for getting a static service specification list:

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:soapGetStaticServiceList
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="xsd:string">test</ServiceInformationResponse>
 </ns1:soapGetStaticServiceList>
 </soapenv:Body>
</soapenv:Envelope>
```

## Response Example

The following example shows a response for getting a static service specification list:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:soapGetStaticServiceListResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <StaticServiceList xsi:type="ns2:StaticServiceList"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <Services soapenc:arrayType="ns2:ServiceSpecification[58]"
 xsi:type="soapenc:Array" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns2:ServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco AXL Web Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Database and Admin Services</GroupName>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
```

```

 <item xsi:type="ns2:ServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Serviceability Reporter</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring
Services</GroupName>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>

...

</Services>
 </StaticServiceList>
</ns1:soapGetStaticServiceListResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## ControlCenterServicesPort service: soapGetServiceStatus Operation

The soapGetServiceStatus operation allows clients to perform a list of deployable and undeployable services status query. It returns the service status response information for the services that have been queried. It also allows getting all of the services current status by providing an empty list of services.

### Request Format

The HTTP header should have following SOAP action and envelop information:

```

<operation name="soapGetServiceStatus">
 <soap:operation
soapAction="http://schemas.cisco.com/ast/soap/action/#ControlCenterServices#soapGetService
Status"/>
 <input>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
encodingStyle="http://schemas.xmlsoap.org/soap/encoding"/>
 </input>
 <output>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
encodingStyle="http://schemas.xmlsoap.org/soap/encoding"/>
 </output>
</operation>

```

The soapGetServiceStatus operation takes one array of service names for which their statuses are queried.

```

<GetServiceStatusList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>service name</item>
</GetServiceStatusList>

```

If the array of service names is empty in the request, the response will contain service status information for all services in the system.

### Response Format

The response contains the performed query information that is defined as follows:

```

<complexType name="ServiceInformationResponse">
 <sequence>

```

```

 <element name="ReturnCode" type="tns:ReturnCode"/>
 <element name="ReasonCode" type="xsd:integer"/>
 <element name="ReasonString" type="xsd:string"/>
 <element name="ServiceInfoList" type="tns:ArrayOfServiceInformation"/>
 </sequence>
</complexType>

```

where ReturnCode is a string format of return code:

```

<simpleType name="ReturnCode">
 <restriction base="xsd:string"/>
</simpleType>

```

ArrayOfServiceInformation is an array of ServiceInformation that defines service name, service status, reason code, reason string, service start time, and service up time.

```

<complexType name="ArrayOfServiceInformation">
 <complexContent>
 <restriction base="SOAP-ENC:Array">
 <attribute ref="SOAP-ENC:arrayType" wsdl:arrayType="tns:ServiceInformation[]"/>
 </restriction>
 </complexContent>
</complexType>
<complexType name="ServiceInformation">
 <sequence>
 <element name="ServiceName" type="xsd:string"/>
 <element name="ServiceStatus" type="tns:ServiceStatus"/>
 <element name="ReasonCode" type="xsd:integer"/>
 <element name="ReasonCodeString" type="xsd:string"/>
 <element name="StartTime" type="xsd:string"/>
 <element name="UpTime" type="xsd:integer"/>
 </sequence>
</complexType>

```

ServiceStatus defines the enumerated status for the service, as follows:

```

<simpleType name="ServiceStatus">
 <restriction base="xsd:string">
 <enumeration value="Started"/>
 <enumeration value="Stopped"/>
 <enumeration value="Starting"/>
 <enumeration value="Stopping"/>
 <enumeration value="Unknown"/>
 </restriction>
</simpleType>

```

The following details apply about ServiceStatus, ReasonCode, and ReasonCodeString.

- ServiceStatus is either Started or Stopped. If Started, StartTime gives the time that the service is started in a time string format; UpTime gives the time in seconds since the service was started.
- The ReasonCode and ReasonCodeString explain the reason that the service is Stopped:
  - If a deployable service is activated and stopped by an administrator, its status is Stopped, the ReasonCode equals -1019, and the corresponding ReasonCodeString specifies “Component is not running”.
  - If a deployable service is deactivated, its status is Stopped, the ReasonCode equals -1068, and the corresponding ReasonCodeString specifies “Service Not Activated”.
  - If a nondeployable item is stopped by an administrator, its status could be Stopped with ReasonCode -1019, and the corresponding ReasonCodeString “Component is not running.”

The complete listing of ReasonCode and ReasonCodeString follows:

```
-1000: "Component already initialized"
```

-1001: "Entry replaced"  
-1002: "Component not initialized"  
-1003: "Component is running"  
-1004: "Entry not found"  
-1005: "Unable to process event"  
-1006: "Registration already present"  
-1007: "Unsuccessful completion"  
-1008: "Registration not found"  
-1009: "Missing or invalid environment variable"  
-1010: "No such service"  
-1011: "Component is reserved for platform"  
-1012: "Bad arguments"  
-1013: "Internal error"  
-1014: "Entry was already present"  
-1015: "Error opening IPC"  
-1016: "No license available"  
-1017: "Error opening file"  
-1018: "Error reading file"  
-1019: "Component is not running"  
-1020: "Signal ignored"  
-1021: "Notification ignored"  
-1022: "Buffer overflow"  
-1023: "Cannot parse record or entry"  
-1024: "Out of memory"  
-1025: "Not connected"  
-1026: "Component already exists"  
-1027: "Message was truncated"  
-1028: "Component is empty"  
-1029: "Operation is pending"  
-1030: "Transaction does not exist"  
-1031: "Operation timed-out"  
-1032: "File is locked"  
-1033: "Feature is not implemented yet"  
-1034: "Alarm was already set"  
-1035: "Alarm was already clear"  
-1036: "Dependency is in active state"  
-1037: "Dependency is not in active state"  
-1038: "Circular dependencies detected"  
-1039: "Component already started"  
-1040: "Component already stopped"  
-1041: "Dependencies still pending"  
-1042: "Requested process state transition not allowed"  
-1043: "No changes"  
-1044: "Boundary violation for data structure"  
-1045: "Operation not supported"  
-1046: "Process recovery in progress"  
-1047: "Operation pending on scheduled restart"  
-1048: "Operation pending on active dependencies"  
-1049: "Operation pending on active dependents"  
-1050: "Shutdown is in progress"  
-1051: "Invalid Table Handle"  
-1052: "Data Base not initialized"  
-1053: "Data Directory"  
-1054: "Table Full"  
-1055: "Deleted Data"  
-1056: "No Such Record"  
-1057: "Component already in specified state"  
-1058: "Out of range"  
-1059: "Cannot create object"  
-1060: "MSO refused, standby system not ready."  
-1061: "MSO refused, standby state update still in progress. Try again later."  
-1062: "MSO refused, standby state update failed.  
Verify configuration on standby."  
-1063: "MSO refused, Warm start-up in progress."

```

-1064: "MSO refused, Warm start-up Failed."
-1065: "MSO refused, System is not in active state"
-1066: "MSO refused, Detected standalone Flag"
-1067: "Invalid Token presented in request"
-1068: "Service Not Activated"
-1069: "Commanded Out of Service"
-1070: "Multiple Modules have error"
-1071: "Encountered exception"
-1072: "Invalid context path was specified"
-1073: "No context exists"
-1074: "No context path was specified"
-1075: "Application already exists"

```

## Fault

### Invalid Service: Non-existing Service

If the request for getting the service status is for an invalid service name, such as a nonexistent service name, the ReasonCode -1010 and the ReasonCodeString “No such service” will appear in the response. The following request and response example applies for getting service status for “Cisco WrongService.”

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetServiceStatus soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <GetServiceStatusList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>Cisco WrongService</item>
 </GetServiceStatusList>
 </ns1:GetServiceStatus>
 </soapenv:Body>
</soapenv:Envelope>

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetServiceStatusResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1010</ReasonCode>
 <ReasonString xsi:type="xsd:string">No such service</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
 </ns1:GetServiceStatusResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

## Request Example Cisco Tftp Service Status

The following request example for getting “Cisco Tftp” service status applies:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetServiceStatus
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <GetServiceStatusList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>Cisco Tftp</item>
 </GetServiceStatusList>
 </ns1:GetServiceStatus>
 </soapenv:Body>
</soapenv:Envelope>
```

## Response Example for Cisco Tftp Service Status

The following response example for getting “Cisco Tftp” service status applies:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetServiceStatusResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonString xsi:type="xsd:string" xsi:nil="true"/>
 <ServiceInfoList xsi:type="soapenc:Array"
 soapenc:arrayType="ns2:ServiceInformation[1]"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Tftp</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">
 </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Sep 14 14:29:43 2004</StartTime>
 <UpTime xsi:type="xsd:integer">11800</UpTime>
 </item>
 </ServiceInfoList>
 </ServiceInformationResponse>
 </ns1:GetServiceStatusResponse>
 </soapenv:Body>
</soapenv:Envelope>
```

## Request Example for Empty Array of Service Names

The following request example for getting service status when providing an empty array of service names applies:

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
```

```

<soapenv:Body>
 <ns1:GetServiceStatus soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <GetServiceStatusList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[0]"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 </ns1:GetServiceStatus>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response Example for Empty Array of Service Names

The response for the preceding request gets the current status for all services as follows:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetServiceStatusResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonString xsi:type="xsd:string" xsi:nil="true"/>
 <ServiceInfoList xsi:type="soapenc:Array"
soapenc:arrayType="ns2:ServiceInformation[43]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <ServiceName xsi:type="xsd:string">A Red Hat DB</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:14 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186704</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco AMC Service</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 17:51:26 2004</StartTime>
 <UpTime xsi:type="xsd:integer">161372</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco AXL Web Service</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:13:04 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73674</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">CiscoUnified CM SNMP Service</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:19 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186699</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CDP</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:19 2004</StartTime>
 </item>

```

```

 <UpTime xsi:type="xsd:integer">186699</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CDP Agent</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:19 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186699</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CDR Agent</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:50:38 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186620</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CTIManager</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CTL Provider</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Unified Communications
Manager</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 12:43:07 2004</StartTime>
 <UpTime xsi:type="xsd:integer">179871</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Unified Communications Manager
Admin</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:13:01 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73677</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Unified Communications Manager Attendant
Console
 Server</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Unified Communications Manager Personal
Directory
 </ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:13:02 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73676</UpTime>
 </item>

```

```

 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Unified Communications Manager
Serviceability<
 /ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:13:13 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73665</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Unified Communications Manager
Serviceability RTMT
 </ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:13:03 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73675</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco DRF Local</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1019</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Component is not running</ReasonCodeString>
 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Database Layer Monitor</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco DirSync</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Electronic Notification</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Extended Functions</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Extension Mobility</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:57 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73681</UpTime>
 </item>
 <item>

```

```

 <ServiceName xsi:type="xsd:string">Cisco Extension Mobility Application
 </ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:39 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73699</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco IP Voice Media Streaming App</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 12:30:51 2004</StartTime>
 <UpTime xsi:type="xsd:integer">180607</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Log Partition Monitoring Tool</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186698</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Messaging Interface</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1019</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Component is not running</ReasonCodeString>
 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco RIS Data Collector</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 16:25:25 2004</StartTime>
 <UpTime xsi:type="xsd:integer">166533</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco RTMT Reporter Servlet</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:56 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73682</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco SOAP -Log Collection APIs</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:56 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73682</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco SOAP - Performance Monitoring APIs
 </ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:58 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73680</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco SOAP -Real-Time Service APIs</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:59 2004</StartTime>

```

```

 <UpTime xsi:type="xsd:integer">73679</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Serviceability Reporter</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:21 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186697</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Syslog Agent</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:21 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186697</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Tftp</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 17:51:20 2004</StartTime>
 <UpTime xsi:type="xsd:integer">161378</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Tomcat</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:12:35 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73703</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco WebDialer Web Service</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Dec 7 18:13:00 2004</StartTime>
 <UpTime xsi:type="xsd:integer">73678</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Host Resources Agent</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:56 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186662</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">MIB2 Agent</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:58 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186660</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Native Agent Adaptor</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Mon Dec 6 10:49:59 2004</StartTime>
 <UpTime xsi:type="xsd:integer">186659</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">SNMP Master Agent</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1019</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Component is not running</ReasonCodeString>
 </item>

```

```

 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CAR Scheduler</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1068</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Service Not Activated </ReasonCodeString>
 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CAR Web Service</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1068</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Service Not Activated </ReasonCodeString>
 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco CDR Repository Manager</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1068</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Service Not Activated </ReasonCodeString>
 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
 <item>
 <ServiceName xsi:type="xsd:string">Cisco SOAP - CDRonDemand Service</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Stopped</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1068</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">Service Not Activated </ReasonCodeString>
 <StartTime xsi:type="xsd:string" xsi:nil="true"/>
 <UpTime xsi:type="xsd:integer">-1</UpTime>
 </item>
</ServiceInfoList>
</ServiceInformationResponse>
</ns1:GetServiceStatusResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## ControlCenterServicesPort service: soapDoServiceDeployment Operation

The soapDoServiceDeployment operation allows clients to deploy or undeploy a list of services. It returns the services response information for the services that are requested to be deployed or undeployed. You can use this API only to deploy or undeploy a deployable service, a service with the Deployable attribute set to True in the response from getting the static service specification. The API does not allow clients to deploy or undeploy an empty list of services.

This API only activates services the node that is specified by the NodeName element. NodeName must specify the local node.

### Request Format

The HTTP header should have following SOAP action and envelop information:

```

<operation name="soapDoServiceDeployment">
 <soap:operation
 soapAction="http://schemas.cisco.com/ast/soap/action/#ControlCenterServices#soapDoServiceDeployment"/>
 <input>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding"/>
 </input>

```

```

 <output>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 </output>
 </operation>

```

The soapDoServiceDeployment operation takes one array of service names for which their services are either deployed or undeployed:

```

<soapenv:Body>
 <ns1:DoServiceDeployment
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <DeploymentServiceRequest href="#id0"/>
 </ns1:DoServiceDeployment>
 <multiRef id="id0" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns2:DeploymentServiceRequest"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string">172.19.240.61</NodeName>
 <DeployType href="#id1"/>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]">
 <item>service name</item>
 </ServiceList>
 </multiRef>
 <multiRef id="id1" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns3:DeployType"
xmlns:ns3="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Deploy</multiRef>
</soapenv:Body>

```

## Response Format

The response contains the performed query information as defined in the previous [“Response Format” section on page 4-81](#).

## Fault

### Invalid Service: Nonexisting Service

If the request to activate or deactivate a service is for an invalid service name, such as a nonexistent service name, the ReasonCode -1010 and the ReasonCodeString “No such service” will appear in the response.

The following request and response example applies for activating the service “Cisco WrongService.”

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeployment
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <DeploymentServiceRequest xsi:type="ns2:DeploymentServiceRequest"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string">172.19.240.99</NodeName>
 <DeployType xsi:type="ns2:DeployType">Deploy</DeployType>
 </DeploymentServiceRequest>
 </ns1:DoServiceDeployment>
 </soapenv:Body>
</soapenv:Envelope>

```

```

 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>Cisco WrongService</item>
 </ServiceList>
</DeploymentServiceRequest>
</ns1:DoServiceDeployment>
</soapenv:Body>
</soapenv:Envelope>

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeploymentResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1010</ReasonCode>
 <ReasonString xsi:type="xsd:string">No such service</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
 </ns1:DoServiceDeploymentResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

### Invalid Service: Nondeployable Service

If the request to activate or deactivate a service is for a nondeployable service, a service with the Deployable attribute set to False in the response for getting the static service specification, such as service “SNMP Master Agent,” the ReasonCode -1045 and the ReasonCodeString “Operation not supported” will appear in the response.

The following request and response example applies for activating the service “SNMP Master Agent.”

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeployment
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <DeploymentServiceRequest xsi:type="ns2:DeploymentServiceRequest"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string">172.19.240.99</NodeName>
 <DeployType xsi:type="ns2:DeployType">Deploy</DeployType>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>SNMP Master Agent</item>
 </ServiceList>
 </DeploymentServiceRequest>
 </ns1:DoServiceDeployment>
 </soapenv:Body>
</soapenv:Envelope>

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>

```

```

<ns1:DoServiceDeploymentResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/"
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1045</ReasonCode>
 <ReasonString xsi:type="xsd:string">Operation not supported</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
</ns1:DoServiceDeploymentResponse>
</soapenv:Body>
</soapenv:Envelope>

```

### Invalid Service: Empty List of Services

If the request to activate or deactivate a service provides an empty list of services, the ReasonCode -1045 and the ReasonCodeString “Operation not supported” will appear in the response.

The following request and response example applies for activating the service without providing any service name:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeployment
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/"
 <DeploymentServiceRequest xsi:type="ns2:DeploymentServiceRequest"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 <NodeName xsi:type="xsd:string">172.19.240.99</NodeName>
 <DeployType xsi:type="ns2:DeployType">Deploy</DeployType>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[0]"
xmlns:ns2="http://schemas.xmlsoap.org/soap/encoding/">
 </DeploymentServiceRequest>
 </ns1:DoServiceDeployment>
 </soapenv:Body>
 </soapenv:Envelope>

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeploymentResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/"
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1045</ReasonCode>
 <ReasonString xsi:type="xsd:string">Operation not supported</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
 </ns1:DoServiceDeploymentResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

## Request Example

The request example for deploying “Cisco Tftp” service follows:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeployment
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <DeploymentServiceRequest href="#id0"/>
 </ns1:DoServiceDeployment>
 <multiRef id="id0" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns2:DeploymentServiceRequest"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string">172.19.240.61</NodeName>
 <DeployType href="#id1"/>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]">
 <item>Cisco Tftp</item>
 </ServiceList>
 </multiRef>
 <multiRef id="id1" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns3:DeployType"
xmlns:ns3="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Deploy</multiRef>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response Example

The response example for deploying “Cisco Tftp” service follows:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoServiceDeploymentResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonString xsi:type="xsd:string" xsi:nil="true"/>
 <ServiceInfoList xsi:type="soapenc:Array"
soapenc:arrayType="ns2:ServiceInformation[1]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Tftp</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string"> </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Wed Sep 15 13:59:28 2004</StartTime>
 <UpTime xsi:type="xsd:integer">6</UpTime>
 </item>
 </ServiceInfoList>
 </ServiceInformationResponse>
 </ns1:DoServiceDeploymentResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

## ControlCenterServicesPort service: soapDoControlServices Operation

The soapDoControlServices operation allows clients to start or stop a list of service. It returns the services response information for the services that are requested to get started or stopped. The API does not allow clients to stop the following non-stop services:

- A Cisco DB
- Cisco Tomcat

The API also does not allow clients to provide an empty list of services when trying to start or stop the services.

### Request Format

HTTP header should have following SOAP action and envelop information:

```
<operation name="soapDoControlServices">
 <soap:operation
 soapAction="http://schemas.cisco.com/ast/soap/action/#ControlCenterServices#soapDoControlServices"/>
 <input>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" />
 </input>
 <output>
 <soap:body use="encoded" namespace="http://schemas.cisco.com/ast/soap/"
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" />
 </output>
</operation>
```

The soapDoControlServices operation takes one array of service names for which their services are either started or stopped.

```
<multiRef id="id0" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns2:ControlServiceRequest"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <nodeName xsi:type="xsd:string" xsi:nil="true"/>
 <ControlType href="#id1"/>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]">
 <item>service name</item>
 </ServiceList>
</multiRef>
<multiRef id="id1" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns3:ControlType"
 xmlns:ns3="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Start</multiRef>
```

### Response Format

The response contains the performed query information as defined in the previous [“Response Format” section on page 4-81](#).

## Fault

### Invalid Service: Nonexisting Service

If the request of start/stop service for an invalid service name, such as a nonexisting service name, the ReasonCode -1010 and the ReasonCodeString “No such service” will be the response. The following request and response example applies for starting the service “Cisco WrongService.”

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServices soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ControlServiceRequest xsi:type="ns2:ControlServiceRequest"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string" xsi:nil="true"/>
 <ControlType xsi:type="ns2:ControlType">Start</ControlType>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>Cisco WrongService</item>
 </ServiceList>
 </ControlServiceRequest>
 </ns1:DoControlServices>
 </soapenv:Body>
</soapenv:Envelope>
```

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServicesResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1010</ReasonCode>
 <ReasonString xsi:type="xsd:string">No such service</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
 </ns1:DoControlServicesResponse>
 </soapenv:Body>
</soapenv:Envelope>
```

### Invalid Service: Nonstop Service

If the request of stop service for a nonstop service, such as service “Cisco Tomcat”, the ReasonCode -1045 and the ReasonCodeString “Operation not supported” will be the response. The following request and response example applies for stopping the service “Cisco Tomcat.”

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServices soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ControlServiceRequest xsi:type="ns2:ControlServiceRequest"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string" xsi:nil="true"/>
 </ControlServiceRequest>
 </ns1:DoControlServices>
 </soapenv:Body>
</soapenv:Envelope>
```

```

 <ControlType xsi:type="ns2:ControlType">Stop</ControlType>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>Cisco Tomcat</item>
 </ServiceList>
 </ControlServiceRequest>
</ns1:DoControlServices>
</soapenv:Body>
</soapenv:Envelope>

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServicesResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1045</ReasonCode>
 <ReasonString xsi:type="xsd:string">Operation not supported</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
 </ns1:DoControlServicesResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

#### Invalid Service: Empty List of Services

If the request of start or stop service is with an empty list of services, the ReasonCode -1045 and the ReasonCodeString "Operation not supported" will be the response. The following request and response example applies for stopping the service without providing any service name.

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServices soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ControlServiceRequest xsi:type="ns2:ControlServiceRequest"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string" xsi:nil="true"/>
 <ControlType xsi:type="ns2:ControlType">Stop</ControlType>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[0]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 </ControlServiceRequest>
 </ns1:DoControlServices>
 </soapenv:Body>
</soapenv:Envelope>

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServicesResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 <ReasonCode xsi:type="xsd:integer">-1045</ReasonCode>

```

```

 <ReasonString xsi:type="xsd:string">Operation not supported</ReasonString>
 <ServiceInfoList xsi:type="ns2:ServiceInformation" xsi:nil="true"/>
 </ServiceInformationResponse>
</ns1:DoControlServicesResponse>
</soapenv:Body>
</soapenv:Envelope>

```

### Invalid Service: Service with Stopping Status

If the request is to stop a service, and the service status is Stopping, the ReasonCode -1045 and the ReasonCodeString “Operation not supported” will be the response. The request and response example appears very similar to the preceding example.

## Request Example

The request example for starting “Cisco Tftp” service is:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServices
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ControlServiceRequest href="#id0"/>
 </ns1:DoControlServices>
 <multiRef id="id0" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns2:ControlServiceRequest"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <NodeName xsi:type="xsd:string" xsi:nil="true"/>
 <ControlType href="#id1"/>
 <ServiceList xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[1]">
 <item>Cisco Tftp</item>
 </ServiceList>
 </multiRef>
 <multiRef id="id1" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns3:ControlType"
 xmlns:ns3="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Start</multiRef>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response Example

The response example for starting “Cisco Tftp” service follows:

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:DoControlServicesResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="ns2:ServiceInformationResponse"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ReturnCode xsi:type="ns2:ReturnCode">0</ReturnCode>
 </ServiceInformationResponse>
 </ns1:DoControlServicesResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

```

 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonString xsi:type="xsd:string" xsi:nil="true"/>
 <ServiceInfoList xsi:type="soapenc:Array"
soapenc:arrayType="ns2:ServiceInformation[1]"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <ServiceName xsi:type="xsd:string">Cisco Tftp</ServiceName>
 <ServiceStatus xsi:type="ns2:ServiceStatus">Started</ServiceStatus>
 <ReasonCode xsi:type="xsd:integer">-1</ReasonCode>
 <ReasonCodeString xsi:type="xsd:string">
 </ReasonCodeString>
 <StartTime xsi:type="xsd:string">Tue Sep 14 19:36:08 2004</StartTime>
 <UpTime xsi:type="xsd:integer">6</UpTime>
 </item>
 </ServiceInfoList>
</ServiceInformationResponse>
</ns1:DoControlServicesResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## ControlCenterServicesPort service: getProductInformationList Operation

The getProductInformationList operation provides information about the products that are installed on a given server. This information includes:

- Active Server Version
- Primary Node name
- SecondaryNode name (if any)
- Array Of Installed Products

Each installed product provides the following information:

- ProductName
- Product Version
- Product Description
- Product ID
- Short Name for the product
- Array Of Product Service Specification

Each Product Service Specification provides the following information:

- Service Name
- Service Type
- Deployable value
- GroupName
- ProductID
- Array of DependentServices (if any).

For each server in the cluster, clients are expected to send one request to get all this information. The system requires clients to send this request only once during initialization.

## Request Format

```
<?xml version="1.0" encoding="utf-8"?>
```

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetProductInformationList
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse
 xsi:type="xsd:string">getProduct</ServiceInformationResponse>
 </ns1:GetProductInformationList>
 </soapenv:Body>
 </soapenv:Envelope>

```

## Response Format

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetProductInformationListResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <GetProductInformationListResponse xsi:type="ns2:GetProductInformationListResponse"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ActiveServerVersion xsi:type="xsd:string">6.0.0.9381-5</ActiveServerVersion>
 <PrimaryNode xsi:type="xsd:string">irv3-ccm4</PrimaryNode>
 <SecondaryNode xsi:type="xsd:string">
 </SecondaryNode>
 <Products soapenc:arrayType="ns2:InstalledProduct[3]" xsi:type="soapenc:Array"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns2:InstalledProduct">
 <ProductName xsi:type="xsd:string">Cisco Unified CallManager</ProductName>
 <ProductVersion xsi:type="xsd:string">6.0.0.9381-5</ProductVersion>
 <ProductDescription xsi:type="xsd:string">CallManager temporary
description</ProductDescription>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <ShortName xsi:type="xsd:string">CCM</ShortName>
 </item>
 <item xsi:type="ns2:InstalledProduct">
 <ProductName xsi:type="xsd:string">Cisco Unity Connection</ProductName>
 <ProductVersion xsi:type="xsd:string">6.0.0.9381-5</ProductVersion>
 <ProductDescription xsi:type="xsd:string">Unity Connection temporary
description</ProductDescription>
 <ProductID xsi:type="xsd:string">UnityConnection</ProductID>
 <ShortName xsi:type="xsd:string">CUC</ShortName>
 </item>
 <item xsi:type="ns2:InstalledProduct">
 <ProductName xsi:type="xsd:string">Common Services</ProductName>
 <ProductVersion xsi:type="xsd:string">6.0.0.9381-5</ProductVersion>
 <ProductDescription xsi:type="xsd:string">Common Services for all
Products</ProductDescription>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <ShortName xsi:type="xsd:string">SYS</ShortName>
 </item>
 </Products>
 <Services soapenc:arrayType="ns2:ProductServiceSpecification[58]"
 xsi:type="soapenc:Array" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>

```

```

 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Tftp</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 ..
 ..
</Services>
</GetProductInformationListResponse>
</ns1:GetProductInformationListResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## Fault

The system issues a standard SOAP fault in the event of a failure.

## Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetProductInformationList
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ServiceInformationResponse xsi:type="xsd:string">test</ServiceInformationResponse>
 </ns1:GetProductInformationList>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response Example

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetProductInformationListResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <GetProductInformationListResponse xsi:type="ns2:GetProductInformationListResponse"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/ControlCenterServices/">
 <ActiveServerVersion xsi:type="xsd:string">7.0.0.39700-8</ActiveServerVersion>
 <PrimaryNode xsi:type="xsd:string">CISCART15</PrimaryNode>
 <SecondaryNode xsi:type="xsd:string">
 </SecondaryNode>
 <Products soapenc:arrayType="ns2:InstalledProduct[2]" xsi:type="soapenc:Array"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns2:InstalledProduct">
 <ProductName xsi:type="xsd:string">Cisco Unified Communications
Manager</ProductName>

```

```

 <ProductVersion xsi:type="xsd:string">7.0.0.39700-8</ProductVersion>
 <ProductDescription xsi:type="xsd:string">Stand Alone Cisco Unified
Communications Manager</ProductDescription>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <ShortName xsi:type="xsd:string">CCM</ShortName>
 </item>
 <item xsi:type="ns2:InstalledProduct">
 <ProductName xsi:type="xsd:string">Common Services</ProductName>
 <ProductVersion xsi:type="xsd:string">7.0.0.39700-8</ProductVersion>
 <ProductDescription xsi:type="xsd:string">Common Services for all
Products</ProductDescription>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <ShortName xsi:type="xsd:string">SYS</ShortName>
 </item>
</Products>
<Services soapenc:arrayType="ns2:ProductServiceSpecification[58]"
xsi:type="soapenc:Array" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco AXL Web Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Database and Admin Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Serviceability Reporter</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring
Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco DirSync</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Directory Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Tftp</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Messaging Interface</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 </item>

```

```

 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Unified Mobile Voice Access
Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco IP Voice Media Streaming
App</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CTIManager</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices soapenc:arrayType="xsd:string[1]" xsi:type="soapenc:Array">
 <item xsi:type="xsd:string">Cisco CallManager</item>
 </DependentServices>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager Attendant Console
Server</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CTI Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Extension Mobility</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco IP Manager Assistant</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CTI Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco SOAP - CDRonDemand
Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CDR Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>

```

```

<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CTL Provider</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Security Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Extended Functions</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Voice Quality Reporter Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco WebDialer Web Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CTI Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Certificate Authority Proxy
Function</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Security Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CAR Web Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CDR Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager SNMP
Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring
Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Bulk Provisioning
Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Database and Admin Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Dialed Number Analyzer</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>

```

```

 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco DHCP Monitor Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices soapenc:arrayType="xsd:string[1]" xsi:type="soapenc:Array">
 <item xsi:type="xsd:string">Cisco Database Layer Monitor</item>
 </DependentServices>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco TAPS Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">true</Deployable>
 <GroupName xsi:type="xsd:string">Database and Admin Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager Serviceability
RTMT</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco DRF Master</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Backup and Restore Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager
Serviceability</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">System Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">A Cisco DB</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">A Cisco DB Replicator</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>

```

```

<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Tomcat</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">SNMP Master Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Database Layer Monitor</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">DB Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">MIB2 Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Host Resources Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Native Agent Adapter</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">System Application Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CDP Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>

```

```

<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Syslog Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco RTMT Reporter Servlet</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Log Partition Monitoring
Tool</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices soapenc:arrayType="xsd:string[1]" xsi:type="soapenc:Array">
 <item xsi:type="xsd:string">Cisco Database Layer Monitor</item>
 </DependentServices>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CDP</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">System Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">SOAP -Real-Time Service APIs</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">SOAP Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">SOAP -Performance Monitoring
APIs</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">SOAP Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">SOAP -Log Collection APIs</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">SOAP Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco DRF Local</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>

```

```

 <GroupName xsi:type="xsd:string">Backup and Restore Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Certificate Expiry
Monitor</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Trace Collection
Servlet</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">System Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Trace Collection
Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">System Services</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Tomcat Stats Servlet</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco RIS Data Collector</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco AMC Service</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Performance and Monitoring</GroupName>
 <ProductID xsi:type="xsd:string">Common</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>
 <item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager Personal
Directory</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
 </item>

```

```

<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CDR Repository Manager</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">CDR Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices soapenc:arrayType="xsd:string[2]" xsi:type="soapenc:Array">
 <item xsi:type="xsd:string">Cisco Database Layer Monitor</item>
 <item xsi:type="xsd:string">A Cisco DB</item>
 </DependentServices>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager Admin</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Admin Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco License Manager</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">Platform Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CDR Agent</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">CDR Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices soapenc:arrayType="xsd:string[2]" xsi:type="soapenc:Array">
 <item xsi:type="xsd:string">Cisco Database Layer Monitor</item>
 <item xsi:type="xsd:string">A Cisco DB</item>
 </DependentServices>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco Extension Mobility
Application</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CallManager Cisco IP Phone
Services</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Servlet</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">CM Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices xsi:type="xsd:string" xsi:nil="true"/>
</item>
<item xsi:type="ns2:ProductServiceSpecification">
 <ServiceName xsi:type="xsd:string">Cisco CAR Scheduler</ServiceName>
 <ServiceType xsi:type="ns2:ServiceTypes">Service</ServiceType>
 <Deployable xsi:type="xsd:boolean">false</Deployable>
 <GroupName xsi:type="xsd:string">CDR Services</GroupName>
 <ProductID xsi:type="xsd:string">CallManager</ProductID>
 <DependentServices soapenc:arrayType="xsd:string[2]" xsi:type="soapenc:Array">
 <item xsi:type="xsd:string">Cisco Database Layer Monitor</item>

```

```

 <item xsi:type="xsd:string">A Cisco DB</item>
 </DependentServices>
 </item>
 </Services>
</GetProductInformationListResponse>
</ns1:GetProductInformationListResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## LogCollectionPort SOAP Service

This section describes the operations for the LogCollectionPort service, which provides operations for searching for and collecting log files for a set of services.

Table 4-7 provides a summary of the SOAP LogCollectionPort service operations.

**Table 4-7** *SOAP LogCollectionPort Service Operations*

Operation	Description	Reference
listNodeServiceLogs	Returns the location of their log files for each service	<a href="#">LogCollectionPort service: listNodeServiceLogs Operation, page 4-111</a>
selectLogFiles	Takes FileSelectionCriteria object as an input parameter and returns the file names and location for that object	<a href="#">LogCollectionPort service: selectLogFiles Operation, page 4-114</a>

## LogCollectionPort service: listNodeServiceLogs Operation

The listNodeServiceLogs operation returns the location of their log files for each service. This information includes the node names in the cluster and the lists of service names and system log names.

### Request Format

The input is a dummy ListRequest Handle.

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:ListNodeServiceLogs
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ListRequest href="#id0"/>
 </ns1:ListNodeServiceLogs>
 <multiRef id="id0" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns2:ListRequest" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/LogCollection/">handle</multiRef>
 </soapenv:Body>
 </soapenv:Envelope>

```

## Response Format

The response is an array of NodeServiceLogList.

```
message="impl:listNodeServiceLogsResponse" name="listNodeServiceLogsResponse" />
String name;
String[] serviceLog;
String[] systemlog;

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:ListNodeServiceLogsResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ListNodeServiceLogs xsi:type="soapenc:Array"
soapenc:arrayType="ns2:NodeServiceLogList[2]"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/LogCollection/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <name xsi:type="xsd:string">172.19.240.92</name>
 <ServiceLog xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[40]">
 <item>Cisco Syslog Agent</item>
 <item>Cisco Unified CM SNMP Service</item>
 <item>Cisco CDP Agent</item>
 <item>Cisco CDP</item>
 <item>Cisco Log Partition Monitoring Tool</item>
 <item>Cisco RIS Data Collector</item>
 <item>Cisco AMC Service</item>
 <item>Cisco Serviceability Reporter</item>
 <item>Cisco Unified CM Admin Web Service</item>
 <item>Cisco Unified CM Realm Web Service</item>
 <item>Cisco Unified CM Service Web Service</item>
 <item>Cisco SOAP Web Service</item>
 <item>Cisco RTMT Web Service</item>
 <item>Cisco CAR Web Service</item>
 <item>Cisco Unified CM PD Web Service</item>
 <item>Cisco Unified CM DBL Web Library</item>
 <item>Cisco Unified CM NCS Web Library</item>
 <item>Cisco Unified Communications Manager</item>
 <item>Cisco Unified IP Phone Services</item>
 <item>Cisco AXL Web Service</item>
 <item>Cisco WebDialer Web Service</item>
 <item>Cisco WebDialerRedirector Web Service</item>
 <item>Cisco Ccmuser Web Service</item>
 <item>Cisco Extended Functions</item>
 <item>Cisco CDR Repository Manager</item>
 <item>Cisco CDR Agent</item>
 <item>Cisco CAPF</item>
 <item>Cisco CTLProvider</item>
 <item>Cisco Unified Communications Manager</item>
 <item>Cisco DirSync</item>
 <item>Cisco CTIManager</item>
 <item>Cisco TFTP</item>
 <item>Cisco Ip Voice Media Streaming App</item>
 <item>CMI</item>
 <item>Cisco Database Layer Monitor</item>
 <item>Cisco Car Scheduler</item>
 <item>Cisco Ipma Services</item>
 <item>Cisco Extension Mobility</item>
 <item>Database Layer (DBL) Logs</item>
 </ServiceLog>
 </item>
 </ListNodeServiceLogs>
 </ns1:ListNodeServiceLogsResponse>
 </soapenv:Body>
</soapenv:Envelope>
```

```

 <item>Prog Logs</item>
 <item>SQL DBMS Logs</item>
 </ServiceLog>
 <Systemlog xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[5]">
 <item>Event Viewer-Application Log</item>
 <item>Install Logs</item>
 <item>Event Viewer-System Log</item>
 <item>Security Logs</item>
 <item>Cisco Tomcat</item>
 </Systemlog>
</ListNodeServiceLogs>
</ns1:ListNodeServiceLogsResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## Fault

If the database is not up and running or no node exists in the database, it will return a remote exception, “Query selectAllProcessNodes failed.”

If no service list or syslog list is returned from the preferences, the system returns a remote exception: “No service found” or “No System Log found.”

## Example

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:ListNodeServiceLogsResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <ListNodeServiceLogs xsi:type="soapenc:Array"
 soapenc:arrayType="ns2:NodeServiceLogList[2]"
 xmlns:ns2="http://cisco.com/ccm/serviceability/soap/LogCollection/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item>
 <name xsi:type="xsd:string">172.19.240.92</name>
 <ServiceLog xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[40]">
 <item>Cisco Syslog Agent</item>
 <item>Cisco Unified CM SNMP Service</item>
 <item>Cisco CDP Agent</item>
 <item>Cisco CDP</item>
 <item>Cisco Log Partition Monitoring Tool</item>
 <item>Cisco RIS Data Collector</item>
 <item>Cisco AMC Service</item>
 <item>Cisco Serviceability Reporter</item>
 <item>Cisco Unified CM Admin Web Service</item>
 <item>Cisco Unified CM Realm Web Service</item>
 <item>Cisco Unified CM Service Web Service</item>
 <item>Cisco SOAP Web Service</item>
 <item>Cisco RTMT Web Service</item>
 <item>Cisco CAR Web Service</item>
 <item>Cisco Unified CM PD Web Service</item>
 <item>Cisco Unified CM DBL Web Library</item>
 <item>Cisco Unified CM NCS Web Library</item>
 <item>Cisco Unified Communications Manager Cisco Unified IP Phone Services</item>
 <item>Cisco AXL Web Service</item>
 <item>Cisco WebDialer Web Service</item>
 <item>Cisco WebDialerRedirector Web Service</item>
 </ServiceLog>
 </item>
 </ListNodeServiceLogs>
 </ns1:ListNodeServiceLogsResponse>
 </soapenv:Body>
</soapenv:Envelope>

```

```

<item>Cisco Ccmuser Web Service</item>
<item>Cisco Extended Functions</item>
<item>Cisco CDR Repository Manager</item>
<item>Cisco CDR Agent</item>
<item>Cisco CAPF</item>
<item>Cisco CTLProvider</item>
<item>Cisco Unified Communications Manager</item>
<item>Cisco DirSync</item>
<item>Cisco CTIManager</item>
<item>Cisco TFTP</item>
<item>Cisco Ip Voice Media Streaming App</item>
<item>CMI</item>
<item>Cisco Database Layer Monitor</item>
<item>Cisco Car Scheduler</item>
<item>Cisco Ipma Services</item>
<item>Cisco Extension Mobility</item>
<item>Database Layer (DBL) Logs</item>
<item>Prog Logs</item>
<item>SQL DBMS Logs</item>
</ServiceLog>
<Systemlog xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[5]">
 <item>Event Viewer-Application Log</item>
 <item>Install Logs</item>
 <item>Event Viewer-System Log</item>
 <item>Security Logs</item>
 <item>Cisco Tomcat</item>
</Systemlog>
</ListNodeServiceLogs>
</ns1:ListNodeServiceLogsResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## LogCollectionPort service: selectLogFiles Operation

The selectLogFiles API Takes FileSelectionCriteria object as an input parameter and returns the file names and location for that object. In FileSelectionCriteria, you must specify the files that you need to download by using these parameters:

- LogCollectionService URL - http://hostname/logcollectionservice/services/LogCollectionPort
- Array of Service Names / System Log Names for which the files need to be collected
- Username -CMAdministrator
- Password - ciscocisco
- Frequency - OnDemand
- File Collection Time range - Possible values are Day, Week, Hour, Minute, Month
- File Collection Time Value - Possible values are 1 -100.
- Time Zone - Example - "Client:(GMT-8:0)Pacific Standard Time"
- Time to wait after sending a request - in milliseconds
- Local folder where the files are to copied - Example d:\soaptest
- Hostname of the server

## Request Format

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"

```

```

xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:SelectLogFiles soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <FileSelectionCriteria href="#id0"/>
 </ns1:SelectLogFiles>
 <multiRef id="id0" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xsi:type="ns2:SchemaFileSelectionCriteria"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/LogCollection/">
 <ServiceLogs xsi:type="soapenc:Array" soapenc:arrayType="xsd:string[45]">
 <item>Cisco Syslog Agent</item>
 <item>Event Viewer-Application Log</item>
 <item>Install Logs</item>
 <item>Event Viewer-System Log</item>
 <item>Security Logs</item>
 </ServiceLogs>

 <SystemLogs xsi:type="xsd:string" xsi:nil="true"/>

 <JobType href="#id2"/>
 <SearchStr xsi:type="xsd:string"/>
 <Frequency href="#id1"/>
 <ToDate xsi:type="xsd:string" xsi:nil="true"/>
 <FromDate xsi:type="xsd:string" xsi:nil="true"/>
 <TimeZone xsi:type="xsd:string">Client:(GMT-8:0)Pacific Standard Time</TimeZone>
 <RelText href="#id3"/>
 <RelTime xsi:type="xsd:byte">5</RelTime>
 <Port xsi:type="xsd:byte">0</Port>
 <IPAddress xsi:type="xsd:string">MCS-SD4</IPAddress>
 <UserName xsi:type="xsd:string" xsi:nil="true"/>
 <Password xsi:type="xsd:string" xsi:nil="true"/>
 <ZipInfo xsi:type="xsd:boolean">false</ZipInfo>
 </multiRef>
 <multiRef id="id1" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" xsi:type="ns4:Frequency"
xmlns:ns4="http://cisco.com/ccm/serviceability/soap/LogCollection/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">OnDemand</multiRef>
 <multiRef id="id2" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" xsi:type="ns3:JobType"
xmlns:ns3="http://cisco.com/ccm/serviceability/soap/LogCollection/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">DownloadtoClient</multiRef>
 <multiRef id="id3" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" xsi:type="ns4:RelText"
xmlns:ns4="http://cisco.com/ccm/serviceability/soap/LogCollection/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">Hours</multiRef>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response Format

The response returns a FileSelectionResult object, which contains the list of matching file names and their location in the server.

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:SelectLogFilesResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="http://schemas.cisco.com/ast/soap/">

```

```

<FileSelectionResult xsi:type="ns2:SchemaFileSelectionResult"
xmlns:ns2="http://cisco.com/ccm/serviceability/soap/LogCollection/">
 <Node xsi:type="ns2:Node">
 <name xsi:type="xsd:string">MCS-SD4</name>
 <ServiceList soapenc:arrayType="ns2:ServiceLogs[1]" xsi:type="soapenc:Array"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <item xsi:type="ns2:ServiceLogs">
 <name xsi:type="xsd:string" xsi:nil="true"/>
 <SetOfFile soapenc:arrayType="ns2:file[5]" xsi:type="soapenc:Array">
 <item xsi:type="ns2:file">
 <name xsi:type="xsd:string">syslogmib00000305.txt</name>
 <absolutePath
xsi:type="xsd:string">/var/log/active/cm/trace/syslogmib/sdi/syslogmib00000305.txt</absolu
tepath>
 <filesize xsi:type="xsd:string">2097082</filesize>
 <modifiedDate xsi:type="xsd:string">Thu Jan 29 04:14:05 PST 2009</modifiedDate>
 </item>
 <item xsi:type="ns2:file">
 <name xsi:type="xsd:string">syslogmib00000306.txt</name>
 <absolutePath
xsi:type="xsd:string">/var/log/active/cm/trace/syslogmib/sdi/syslogmib00000306.txt</absolu
tepath>
 <filesize xsi:type="xsd:string">2097083</filesize>
 <modifiedDate xsi:type="xsd:string">Thu Jan 29 05:41:26 PST 2009</modifiedDate>
 </item>
 <item xsi:type="ns2:file">
 <name xsi:type="xsd:string">syslogmib00000307.txt</name>
 <absolutePath
xsi:type="xsd:string">/var/log/active/cm/trace/syslogmib/sdi/syslogmib00000307.txt</absolu
tepath>
 <filesize xsi:type="xsd:string">2096868</filesize>
 <modifiedDate xsi:type="xsd:string">Thu Jan 29 07:08:56 PST 2009</modifiedDate>
 </item>
 <item xsi:type="ns2:file">
 <name xsi:type="xsd:string">syslogmib00000308.txt</name>
 <absolutePath
xsi:type="xsd:string">/var/log/active/cm/trace/syslogmib/sdi/syslogmib00000308.txt</absolu
tepath>
 <filesize xsi:type="xsd:string">2096838</filesize>
 <modifiedDate xsi:type="xsd:string">Thu Jan 29 08:36:17 PST 2009</modifiedDate>
 </item>
 <item xsi:type="ns2:file">
 <name xsi:type="xsd:string">syslogmib00000309.txt</name>
 <absolutePath
xsi:type="xsd:string">/var/log/active/cm/trace/syslogmib/sdi/syslogmib00000309.txt</absolu
tepath>
 <filesize xsi:type="xsd:string">100657</filesize>
 <modifiedDate xsi:type="xsd:string">Thu Jan 29 08:40:20 PST 2009</modifiedDate>
 </item>
 </SetOfFile>
 </ServiceList>
 </Node>
 </FileSelectionResult>
 <ScheduleList soapenc:arrayType="ns3:Schedule[0]" xsi:type="soapenc:Array"
xmlns:ns3="http://cisco.com/ccm/serviceability/soap/LogCollection/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 </ns1:SelectLogFilesResponse>
</soapenv:Body>
</soapenv:Envelope>

```

## Fault

If the specified frequency is null, it will throw a remote exception, “LogCollection frequency is null.” If the array of ServiceLogs and System Logs is null, it throws a remote exception, “No Service/Syslog are provided for the collection.” If a matching file is not found, it throws a remote exception, “The File Vector from the server is null.”

## Example

The following example shows a FileCollection from all the services in last 5 days:

```
https://172.19.240.90:8443/logcollectionservice/services/LogCollectionPort
CMAdministrator ciscocisco OnDemand Days 5 "Client:(GMT-8:0)Pacific Standard Time"
6000000 "/var/log/SoapTest" 172.19.240.90
```

For the absolute time, the request would look like this:

```
https://172.19.240.90:8443/logcollectionservice/services/LogCollectionPort
CMAdministrator ciscocisco OnDemand "11/14/04 2:15 PM" "11/15/04 2:15 PM"
"Client:(GMT-8:0)Pacific Standard Time" 6000000 "/var/log/SoapTest" 172.19.240.90
```

# CDRonDemand SOAP Service

The CDRonDemand SOAP service comprises a public SOAP/HTTPS interface that is exposed to third-party billing applications or customers to allow them to query the Cisco Unified Communications Manager CDR Repository Node to retrieve CDR/CMR files on demand through the use of two new API calls, `get_file_list` and `get_file`.

In previous releases, the CDR database stored CDR records, and third-party applications could query the database directly for the CDR records. In this release, CDRs no longer get stored in the CDR database, but as flat files.

The CDR On-Demand Service allows applications to obtain CDR files in a two-step process. First, the application requests CDR file lists based on a specific time interval; then, it can request specific CDR files from those lists that are returned via as (s)FTP session.

The billing application can acquire a list of CDR files that match a specified time interval (`get_file_list`), with the maximum time span being 1 hour. If the application needs to retrieve CDR files that span an interval over 1 hour, multiple `get_file_list` requests must be made to the servlet.

After the list of files is retrieved, the third-party application can then request a specific file (`get_file`). Upon receiving the request, the servlet initiates a (s)FTP session and sends the requested file to the application. Only one file per request is allowed, to avoid timeouts and other potential complications.

The CDR Repository node normally transfers CDR files to the billing servers once on a preconfigured schedule, then deletes them per the Cisco Unified Communications Manager configuration and other criteria. If for some reason the billing servers do not receive the CDR files, or want to have them sent again, they can do so using the SOAP/HTTPS CDR On-Demand APIs. After CDR files are deleted, you cannot retrieve them.

The CDR On-Demand Service provides the following features:

- API to get a list of files that match a specified time interval (`get_file_list`)
- API to request a specific file that matches a specified filename (`get_file`)
- Limit of 1300 file names get returned from the `get_file_list` API
- Specified time range cannot span over 1 hour

- Service not available during CDR repository file maintenance window
- CDR files are sent via standard FTP or (s)FTP, which is user configurable
- API to request specific file (get\_file) can return only one file per request
- Servlet needs to be activated through Service Activation Page

Before an application can access the CDR files, you must follow these steps to ensure that the SOAP APIs are activated from the Service Activation window on the CDR Repository Node where the CDR Repository Manager is activated:

**Step 1** Go to `http://<IP Address of Unified CM node>:8080/ccmservice`

**Step 2** Choose **Tools > Service Activation**.

**Step 3** Select the server where the CDR Repository Manager resides.

**Step 4** Under the CDR Services section, start the following services:

- Cisco SOAP - CDRonDemandService
- CDR Repository Manager

The CDR On-Demand Service depends on the CDR Repository Manager, so both must be activated.

**Step 5** Click **Update** and wait until the page refreshes.

Table 4-8 provides a summary of the SOAP CDRonDemand service operations.

**Table 4-8** SOAP CDRonDemandService Operations

Operation	Description	Reference
get_file_list	Allows an application to query the CDR Repository Node for a list of all the files that match a specified time interval	<a href="#">CDRonDemand Service: get_file_list Operation, page 4-120</a>
get_file	Allows customers to request a specific CDR file that matches the specified filename	<a href="#">CDRonDemand Service: get_file Operation, page 4-122</a>



**Tip**

The On-Demand Service will not function during the maintenance window, which occurs every hour by default (this setting is configurable). The maintenance window generally runs from 10 seconds to a few minutes. Applications should submit requests outside of the maintenance window.

## WSDL Definition

The following section provides the WSDL definition of the SOAP CDRonDemand service APIs:

```
<?xml version="1.0" encoding="UTF-8" ?>
<wSDL:definitions targetNamespace="http://schemas.cisco.com/ast/soap/"
xmlns:apachesoap="http://xml.apache.org/xml-soap"
xmlns:impl="http://schemas.cisco.com/ast/soap/"
xmlns:intf="http://schemas.cisco.com/ast/soap/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
```

```

xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<!--
WSDL created by Apache Axis version: 1.2RC3
Built on Feb 28, 2005 (10:15:14 EST)
-->
<wsdl:types>
 <schema targetNamespace="http://schemas.cisco.com/ast/soap/"
xmlns="http://www.w3.org/2001/XMLSchema">
 <import namespace="http://schemas.xmlsoap.org/soap/encoding/" />
 <complexType name="ArrayOfFileName">
 <sequence>
 <element name="FileName" type="xsd:string" minOccurs="0"
maxOccurs="unbounded"/>
 </sequence>
 </complexType>
 </schema>
</wsdl:types>

<wsdl:message name="get_fileResponse" />

<wsdl:message name="get_file_listResponse">
 <wsdl:part name="get_file_listReturn" type="impl:ArrayOfFileName" />
</wsdl:message>

<wsdl:message name="get_file_listRequest">
 <wsdl:part name="in0" type="xsd:string" />
 <wsdl:part name="in1" type="xsd:string" />
 <wsdl:part name="in2" type="xsd:boolean" />
</wsdl:message>

<wsdl:message name="get_fileRequest">
 <wsdl:part name="in0" type="xsd:string" />
 <wsdl:part name="in1" type="xsd:string" />
 <wsdl:part name="in2" type="xsd:string" />
 <wsdl:part name="in3" type="xsd:string" />
 <wsdl:part name="in4" type="xsd:string" />
 <wsdl:part name="in5" type="xsd:boolean" />
</wsdl:message>

<wsdl:portType name="CDRonDemand">
 <wsdl:operation name="get_file_list" parameterOrder="in0 in1 in2">
 <wsdl:input message="impl:get_file_listRequest" name="get_file_listRequest" />
 <wsdl:output message="impl:get_file_listResponse" name="get_file_listResponse" />
 </wsdl:operation>
 <wsdl:operation name="get_file" parameterOrder="in0 in1 in2 in3 in4 in5">
 <wsdl:input message="impl:get_fileRequest" name="get_fileRequest" />
 <wsdl:output message="impl:get_fileResponse" name="get_fileResponse" />
 </wsdl:operation>
</wsdl:portType>

<wsdl:binding name="CDRonDemandSoapBinding" type="impl:CDRonDemand">
 <wsdlsoap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http" />
 <wsdl:operation name="get_file_list">
 <wsdlsoap:operation
soapAction="http://schemas.cisco.com/ast/soap/action/#CDRonDemand#get_file_list" />
 <wsdl:input name="get_file_listRequest">
 <wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://schemas.cisco.com/ast/soap/" use="encoded" />
 </wsdl:input>
 <wsdl:output name="get_file_listResponse">
 <wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://schemas.cisco.com/ast/soap/" use="encoded" />
 </wsdl:output>
 </wsdl:operation>

```

```

 </wsdl:output>
 </wsdl:operation>

 <wsdl:operation name="get_file">
 <wsdlsoap:operation
soapAction="http://schemas.cisco.com/ast/soap/action/#CDRonDemand#get_file" />
 <wsdl:input name="get_fileRequest">
 <wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="urn:CDRonDemand" use="encoded" />
 </wsdl:input>
 <wsdl:output name="get_fileResponse">
 <wsdlsoap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
namespace="http://schemas.cisco.com/ast/soap/" use="encoded" />
 </wsdl:output>
 </wsdl:operation>
</wsdl:binding>

<wsdl:service name="CDRonDemandService">
 <wsdl:port binding="impl:CDRonDemandSoapBinding" name="CDRonDemand">
 <wsdlsoap:address
location="https://SERVERNAME/CDRonDemandService/services/CDRonDemand" />
 </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

## Security Considerations for CDRonDemand Service

You can use standard FTP or SFTP to deliver the CDR files. Refer to RFC959 and RFC2228 for further details about these applications.

The CDR On-Demand Service will create either a standard FTP or SFTP session with the billing server each time that a CDR file is to be sent. Exceptions get thrown whenever an error occurs on the Servlet side. In addition, all errors will get written into log files.

On the billing application side, Cisco recommends that billing applications implement code to catch these exceptions and display the exception string for detailed error conditions.

## CDRonDemand Service: get\_file\_list Operation

The `get_file_list` operation allows an application to query the CDR Repository Node for a list of all the files that match a specified time interval. The time interval of the request cannot exceed one hour. If you want a list of files that span more than the one hour time interval that is allowed, you must make multiple requests to the servlet to acquire multiple lists of filenames.

The `get_file_list` API returns an array of strings that contain the list of all the filenames that match the specified time interval. If no filenames exist that match the time range, the value that is returned from the API call is simply null. If any time errors are encountered, exceptions get thrown. In addition, logs will be kept detailing the errors. Find these log files in the `/var/log/active/tomcat/logs/soap/log4j` directory.

A limit of 1300 file names can be returned to the application as a result of a `get_file_list` API call. If the file list that is returned contains 1300 file names, but does not span the entire requested time interval, you should make additional requests with the start time of the subsequent requests as the time of the last file name that was returned in the previous request.

## Parameters

The `get_file_list` API expects the following parameters:

- **Start Time**—Mandatory parameter that specifies the starting time for the search interval. The format is a string: YYYYMMDDHHMM. No default value exists.
- **End Time**—Mandatory parameter that specifies the ending time for the search interval. The format is a string: YYYYMMDDHHMM. No default value exists.



### Note

The time span between Start Time and End Time must constitute a valid interval, but be not longer than 1 hour.

- **Where to get the files from**—Mandatory parameter that tells the servlet whether to include those files that were successfully sent to the third-party billing servers. The format is boolean.
  - True = Include both files that were sent successfully and files that failed to be sent.
  - False = Send only the files that failed to be sent. Do not include files that were sent successfully.

## Request

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:get_file_list soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <in0 xsi:type="xsd:string">200511161000</in0>
 <in1 xsi:type="xsd:string">200511161059</in1>
 <in2 href="#id0"/>
 </ns1:get_file_list>
 <multiRef id="id0" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" xsi:type="xsd:boolean"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">true</multiRef>
 </soapenv:Body>
</soapenv:Envelope>
```

## Response

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:get_file_listResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <get_file_listReturn xsi:type="ns1:ArrayOfFileName">
 <FileName
 xsi:type="xsd:string">cdr_StandAloneCluster_01_200807081000_50</FileName>
 <FileName
 xsi:type="xsd:string">cdr_StandAloneCluster_01_200807081001_51</FileName>
 <FileName
 xsi:type="xsd:string">cdr_StandAloneCluster_01_200807081002_52</FileName>
 </get_file_listReturn>
 </ns1:get_file_listResponse>
```

```
</soapenv:Body>
</soapenv:Envelope>
```

## CDRonDemand Service: get\_file Operation

The `get_file` operation allows customers to request a specific CDR file that matches the specified filename. The resulting CDR file then gets sent to the customer via standard FTP or secure FTP, depending on the third-party billing application preference. The only constraint provides that the servlet can only process one file per request.

The `get_file` API returns normally with no value to indicate that the file has been successfully sent to the third-party billing server. If the transfer fails for any reason, exceptions get thrown. In addition, logs detailing the errors get saved in the `/var/log/active/tomcat/logs/soap/log4j` directory.

### Parameters

The `get_file` API expects the following parameters:

- **Host Name**—Mandatory parameter (string) that specifies the hostname of the third-party billing application server, information that the servlet needs to connect to the billing server to deliver the CDR files.
- **User Name**—Mandatory parameter (string) that specifies the username for the third-party billing application server, information that the servlet needs to connect to the billing server to deliver the CDR files.
- **Password**—Mandatory parameter (string) that specifies the password for the third-party billing application server, information that the servlet needs to connect to the billing server to deliver the CDR files.
- **Remote Directory**—Mandatory parameter (string) that specifies the remote directory on the third-party billing application server to that the CDR servlet is to send the CDR files.
- **File Name**—Mandatory parameter (string) that specifies the filename of the CDR file that the third-party billing application wants delivered from the CDR On-Demand Service.
- **Secure FTP**—Mandatory parameter (Boolean) that specifies whether to use standard FTP or secure SFTP to deliver the CDR files. This depends on the third-party billing application configuration and preferences.

### Request

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:get_file soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="urn:CDRonDemand">
 <in0 xsi:type="xsd:string">citadel</in0>
 <in1 xsi:type="xsd:string">root</in1>
 <in2 xsi:type="xsd:string">citadelroot</in2>
 <in3 xsi:type="xsd:string">/tmp/</in3>
 <in4 xsi:type="xsd:string">cdr_cluster1_cm1_200511161018_9</in4>
 <in5 href="#id0"/>
 </ns1:get_file>
 </soapenv:Body>
</soapenv:Envelope>
```

```

 <multiRef id="id0" soapenc:root="0"
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" xsi:type="xsd:boolean"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">true</multiRef>
 </soapenv:Body>
</soapenv:Envelope>

```

## Response

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:get_fileResponse
soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:ns1="urn:CDRonDemand"/>
 </soapenv:Body>
</soapenv:Envelope>

```

## Fault

The CDR On-Demand Service throws exceptions when certain error conditions are met:

- The servlet gets used during the maintenance period.
- The values that are entered for starting and ending time do not reflect the correct length – 12 bytes in the format YYYYMMDDHHMM is the correct length.
- The starting and ending time spans an interval of more than 1 hour.
- The starting time is greater than or equal to the ending time (invalid interval).
- No files exist in the CDR Repository.
- The (s)FTP connection to the remote node did not get established.
- The (s)FTP application failed to send the files that the third-party billing application requested.

The exception string describes the error condition that the billing application can print with the toString() function.

# DimeGetFileService SOAP Service

The DimeGetFileService service provides for obtaining log files through the standard Direct Internet Message Encapsulation (DIME) protocol.

## DimeGetFileService SOAP Service: getOneFile Operation

The getOneFile operation takes as an input parameter the absolute file name of the file that you want to collect from the server.

The return value specifies the file name, but the file name will have an AXIS-specific name. After the file is downloaded, you must replace it with the actual file name that you got from the server.

This APIS is in a different service, and the service name is DimeGetFileService. The URL is: <https://host:8443/logcollectionsservice/services/DimeGetFileService>.

### Request Format

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetOneFile soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="DimeGetFileService">
 <FileName xsi:type="xsd:string">/var/log/active/syslog/messages</FileName>
 </ns1:GetOneFile>
 </soapenv:Body>
</soapenv:Envelope>
```

### Response Format

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetOneFileResponse
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="DimeGetFileService">
 <DataHandler href="cid:967B4FFE5D1E6F693815D4CA118E91D0"/>
 </ns1:GetOneFileResponse>
 </soapenv:Body>
</soapenv:Envelope>
```

### Fault

None.

### Example

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:GetOneFile soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns1="DimeGetFileService">
 <FileName xsi:type="xsd:string">/var/log/active/cm/trace/ris/sdi/
 </ns1:GetOneFile>
 </soapenv:Body>
</soapenv:Envelope>
```

```
</ns1:GetOneFile>
</soapenv:Body>
</soapenv:Envelope>
```

## Authentication

The following sections describe the authentication for the AXL-Serviceability API.



### Note

To improve performance, the SOAP server uses a timed finite cache of authentication and authorization information for up to 100 users. Cached information persists for up to 2 minutes.

## Basic

Basic authentication uses base64 to encode and decode the credential information. Because base64 is a two-way function, which requires no key, this protocol represents an insecure clear-text authentication. Many platforms implement Basic authentication and most HTTP client agents support it. Basic authentication can be secure if encryption, such as SSL, is used.

## Secure

When you install/upgrade Cisco Unified Communications Manager, the HTTPS self-signed certificate, `httpsert.cer`, automatically installs on the default website that hosts the Cisco Unified Communications Manager virtual directories.

Hypertext Transfer Protocol over Secure Sockets Layer (SSL), which secures communication between the browser client and the server, uses a certificate and a public key to encrypt the data that is transferred over the internet. HTTPS also ensures that the user login password transports securely via the web.

The following Cisco Unified Communications Manager applications support HTTPS, which ensures the identity of the server:

- Cisco Unified Communications Manager Administration
- Cisco Unified Communications Manager Serviceability
- Cisco Unified IP Phone User Option Pages
- Cisco Unified Communications Manager Bulk Administration
- Cisco Unified Communications Manager Auto-Register Phone Tool
- Cisco Unified Communications Manager CDR Analysis and Reporting
- Cisco Unified Communications Manager Trace Collection Tool
- Cisco Unified Communications Manager Real Time Monitoring Tool

For more information, refer to the *Cisco Unified Communications Manager Security Guide, Release 7.0*.

## Authorization

Each LDAP user gets checked against an MLA configuration for permissions. If the LDAP user in basic authentication does not have permission to “Read and Execute” and does not have the “Standard CCM Admin Users” role, the access to SOAP APIs gets denied.

## Developer Tools

Each of the following Web Services includes a separate JSP page that can be referenced during development as developer support:

- Real-time Service—<https://<server>:8443/realtimeservice>
- Performance Service—<https://<server>:8443/perfmonservice>
- ControlCenter Service—<https://<server>:8443/controlcenterservice>
- Log Collection Service—<https://<server>:8443/logcollectionservice>
- CDR On-Demand Service—<https://<server>:8443/CDRonDemandService>


**Note**

You must enter the name of each Web Service exactly as shown above.

Each Web Service JSP page offers these options:

- View Deployed Web Services
- View <Web Service> WSDL
- SOAP Monitor

## View Deployed Web Services

This option displays a window that is similar to [Figure 4-1](#) for each Web Service. The [\(wsdl\)](#) links display the code for the item(s) that are listed. For more information about viewing the web services, see the *Cisco Unified Communications Manager Administration Guide*.

**Figure 4-1** *Deployed Web Services Window*

### And now... Some Services

- AdminService [\(wsdl\)](#)
  - ◊ AdminService
- Version [\(wsdl\)](#)
  - ◊ getVersion
- SOAPMonitorService [\(wsdl\)](#)
  - ◊ publishMessage
- RisPort [\(wsdl\)](#)
  - ◊ selectCmDevice
  - ◊ selectCtlItem
  - ◊ executeCCMSQLStatement
  - ◊ getServerInfo
  - ◊ selectCmDeviceSIP

201546

## View <Web Service> WSDL

This option displays a window similar to [Figure 4-2](#), which displays the WSDL code for the selected web service.

**Figure 4-2** Web Service WSDL Window

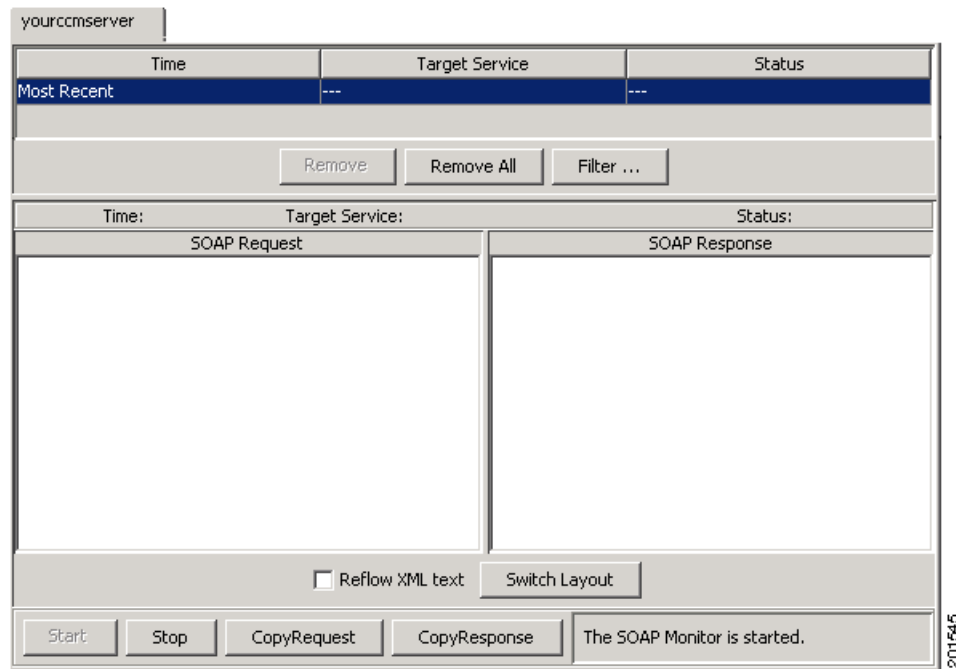
```
- <definitions name="RISService" targetNamespace="http://schemas.cisco.com/ast/soap/">
- <!--
=====
<
<
XML Schemas
<
=====
-->
- <types>
- <schema elementFormDefault="qualified" targetNamespace="http://schemas.cisco.com/ast/soap/">
- <simpleType name="RisReturnCode">
- <restriction base="string">
<enumeration value="Ok"/>
<enumeration value="NotFound"/>
<enumeration value="InvalidRequest"/>
<enumeration value="InternalError"/>
<enumeration value="NodeNotResponding"/>
<enumeration value="InvalidNodeName"/>
</restriction>
</simpleType>
- <simpleType name="CmSelectBy">
- <restriction base="string">
<enumeration value="Name"/>
<enumeration value="IpAddress"/>
<enumeration value="DirNumber"/>
<enumeration value="Description"/>
</restriction>
</simpleType>
```

201547

## SOAP Monitor

This option displays the SOAP Monitor Window, as shown in [Figure 4-3](#). The SOAP Monitor window helps you look at the request and response messages during the development cycle.

**Figure 4-3** SOAP Monitor Window



## Password Expiration and Lockout

If a Credential Policy is defined for SOAP accounts to lock out with a count of login failures, the SOAP services returns “http 401 Unauthorized.”

If a Credential Policy is defined for SOAP accounts to expire, SOAP services returns “http 403 Forbidden.”

If a Credential Policy is defined for SOAP accounts to change the password, SOAP services returns “http 403 Forbidden.”

## Application Customization for Cisco Unity Connection Servers

Be aware that some Serviceability SOAP operations are only available when the server runs the Cisco Unified Communications Manager software. Applications that support multiple server configurations (servers that run the Cisco Unified Communications Manager software, or the Cisco Unity Connection software, or both) must use the `getProductInformation()` interface to determine whether the operation they want to perform is available.

The following Serviceability SOAP operations are not available when only the Cisco Unity Connection software resides on the server:

Port or Service	Unavailable Operations
PerfmonPort	SelectCmDevice
CDROnDemand	<i>All operations</i>

The following Serviceability SOAP operations may provide different sets of target objects, depending on which software resides on the server:

Port or Service	Operations with Different Sets of Target Objects
PerfmonPort	perfmonAddCounter perfmonRemoveCounter perfmonCollectSessionData perfmonListInstance perfmonQueryCounterDescription perfmonListCounter perfmonCollectCounterData
ControlCenterServices	soapGetStaticServiceList soapGetServiceStatus soapDoServiceDeployment soapDoControlServices
LogCollectionPort	listNodeServiceLogs selectLogFiles DimeGetOneFile

## SOAP Service Tracing

SOAP Service tracing is configurable through the Serviceability page in the Cisco Unified Serviceability application.

To configure debugging for the Cisco SOAP web service and the Cisco SOAPMessage service, follow these steps:

- Step 1** From Cisco Unified Serviceability administration, choose **Trace > Configuration**.
- Step 2** From the Server drop-down list, choose a server in your network.
- Step 3** From the Service Group drop-down list, choose **Soap Services**.
- Step 4** From the Service drop-down list, choose the service that you want to configure.
- Step 5** If you want debugging to apply to all nodes, check the **Apply to All Nodes** check box.
- Step 6** Make sure that the **Trace On** check box is checked.

- Step 7** From the Debug Trace Level drop-down list, choose **Debug**.
- Step 8** Click **Save**.
- Step 9** Repeat this steps as needed to configure debugging for another service.

The traces can also be configured to debug level in Cisco Unified Serviceability administration. To do so, **Trace > Troubleshooting Trace Settings**, check the **Cisco SOAP Web Service** and **Cisco SOAP Message Service** check boxes, then click **Save**.

You can collect SOAP service logs for the Cisco SOAP web service and the Cisco SOAPMessage service by using the Cisco Unified Communications Manager Real Time Monitoring Tool (RTMT). For detailed instructions, refer to the RTMT on-line help.

## AXL Serviceability API Authentication Security

The HTTP transport that is used for the AXL Serviceability API uses the following methods for authentication:

- **Basic authentication**—Uses base64 and SSL to encode and decode user name and password information. Because base64 is a two-way function and requires no key, this method is not secure. Basic authentication has the advantage of being widely implemented by many platforms and most HTTP client agents support it. Basic authentication is used with SSL to ensure a secure connection.
- **Secure**—When you install or upgrade Cisco Unified Communications Manager, HTTPS certificates are installed. Hypertext Transfer Protocol over SSL, which secures communication between the browser client and the server, uses a certificate and a public key to encrypt data that is transferred over the internet. HTTPS also ensures that the user log in password transports securely via the web.

## Rate Control Mechanism

The AXL serviceability interface includes a request rate control mechanism that monitors the request rates for each server. If the request rate for a server is more than supported, a SOAP Fault is sent by the SOAP service on that server to the client and the additional requests are blocked. This rate control is enabled for Real-time Data Requests and Perfmon Data Requests. Rates are controlled through the enterprise parameters that are described in [Table 4-9](#).

**Table 4-9 Enterprise Parameters for Rate Control**

Enterprise Parameter	Description
Allowed Performance Queries Per Minute	Specifies the maximum number of AXL performance counter queries that are allowed per minute for each server. Clients such as Voice Health Monitoring and Gateway Statistic Utility (GSU) receive a slow response if applications send more queries than the limit that is imposed by this parameter.   Default value: 50   Minimum value: 1   Maximum value: 80

**Table 4-9 Enterprise Parameters for Rate Control (continued)**

Enterprise Parameter	Description
Allowed Device Queries Per Minute	Specifies the maximum number of AXL device queries that are allowed per minute for each server. Clients such as Voice Health Monitoring and Gateway Statistic Utility (GSU) receive a slow response if applications send more queries than the limit that is imposed by this parameter.   Default value: 15   Minimum value: 1   Maximum value: 18
Maximum Performance Counters Per Session	Specifies the maximum number of performance counters that are allowed in a session-based request.   Default value: 100   Minimum value: 0   Maximum value: 1000
Allowed CDRonDemand get_file Queries Per Minute	Specifies the maximum number of CDRonDemand get_file queries that are allowed per minute for each server.   Default value: 10   Minimum value: 1   Maximum value: 20
Allowed CDRonDemand get_file_list Queries Per Minute	Specifies the maximum number of CDRonDemand get_file_list queries that are allowed per minute for the each server.   Default value: 20   Minimum value: 1   Maximum value: 40

## SOAP Fault Error Codes

Unified CM sends the AxisFaults to soap clients.

For general information about SOAP AxisFaults, refer to information provided by Apache for Apache Axis 1.4.

## Fault Strings

The SOAP FaultString element contains the error string from Unified CM. [Table 4-10](#) describes these error messages.

**Table 4-10** *Fault Strings in the SOAP FaultString Element*

Error Message	Description	Error Location
Exceeded allowed rate for Realtime information. Current allowed rate for realtime information is " + maxcountperminute " requests per minute." +SOAPaction	Client has exceeded the configured limit for real-time SOAP requests that is configured for the rate control mechanism.  For related information, see the <a href="#">“Rate Control Mechanism” section on page 4-130</a> section on page 2-97.	Client
"Exceeded allowed rate for CDRonDemand get_file_list. Current allowed rate is " + maxCdrGetFileListCountPerMinute + " requests per minute." + SOAPaction	Client has exceeded the configured limit for CDR on demand SOAP requests that is configured for the rate control mechanism.  For related information, see the <a href="#">“Rate Control Mechanism” section on page 4-130</a> section on page 2-97.	Client
ERROR not able to resolve localhost	AXL-Serviceability soap server unable able to resolve localhost. This there is configuration error in Cisco Unified Communications Manager.	Server
ERROR the cmSelectionCriteria is null	Selection criteria specified in the request cannot be null. SOAP clients must specify the selection criteria in the request.	Client
RISBEAN COULD NOT BE INSTANCIATED	Connection between servlet and RIS data collector could not be established.	Server
ERROR: Invalid Class " + classStr	Class criteria specified in the request is not a valid device class.	Client
ERROR: Invalid Status " + statusStr	Status criteria specified in the request is not a valid registration status	Client
ERROR: Invalid node " + node2search	Node specified in the request is not reachable	Client
ERROR: Invalid node " + node2search + " Host "	Error message provides a description.	Client
ERROR: SelectBy is null"	SelectBy criteria has not been specified in the request.	Client
ERROR: Invalid DeviceDownloadStatus	Download status specified in the request is not valid.	Client
ERROR: Invalid ip address	IP address is not in the valid format.	Client
ERROR ctiSelectionCriteria is null	Selection criteria specified in the request cannot be null. SOAP clients must specify the selection criteria in the request.	Client

**Table 4-10** *Fault Strings in the SOAP FaultString Element (continued)*

Error Message	Description	Error Location
ERROR: Invalid empty Cti Class	CtiMgrClass criteria specified in the request cannot be empty.	Client
ERROR: Invalid SelectAppBy	SelectAppBy criteria specified in the request has an invalid string.	Client
ERROR: Invalid Cti Class " + cticlasshere	Error message provides a description.	Client
ERROR: Invalid Cti Status " + ctistatushere	Error message provides a description.	Client
ERROR: Invalid node " + node2search + " Host " + myHost	Error message provides a description.	Client
Error Context is null	Error message provides a description.	Server
Failure trying to get the Call object"	Error message provides a description.	Server
Server.Unauthorized	Error message provides a description.	Client
DB access to NodeNames failed	Error message provides a description.	Client
-> soap getFileDirectoryList IO exception->	Error message provides a description.	Server
GetOneFile response message context null	Error message provides a description.	Server
FileName is NULL	Error message provides a description.	Client
Error found in Adding counters: Error=" + error code + " ErrorMessage=" + Error String	The perfmonAddCounter API fault includes one of these ReturnCode values:       1: "Not Found" client error     2: "Invalid Request" client error     3: "Internal Error" server error     9: "Invalid Node Name" client error     10: "Not Ready" server error     11: "Remote RisDC Down" server error     12: "Remote RisDC Not Ready" server error     13: "Collection Disabled"; server error     14: "No Collector Available" server error     50: "Handle Not Found In Cache" client error     100: "Perfmon Error" client error     101: "Add Counter Error" client error     102: "Invalid Request For All Instance Sessison" client error     103: "Invalid Counter Format" client error     127: "Unknown Error" client/server error	—

**Table 4-10** *Fault Strings in the SOAP FaultString Element (continued)*

Error Message	Description	Error Location
Error found in Removing counters" + errorString	The perfmonRemoveCounter API fault includes one of these ReturnCode values:       1: "Not Found" client error     2: "Invalid Request" client error     3: "Internal Error" server error     9: "Invalid Node Name" client error     10: "Not Ready" server error     11: "Remote RisDC Down" server error     12: "Remote RisDC Not Ready" server error     13: "Collection Disabled"; server error     14: "No Collector Available" server error     50: "Handle Not Found In Cache" client error     100: "Perfmon Error" client error     101: "Add Counter Error" client error     102: "Invalid Request For All Instance Sessison" client error     103: "Invalid Counter Format" client error     127: "Unknown Error" client/server error	—

**Table 4-10** *Fault Strings in the SOAP FaultString Element (continued)*

Error Message	Description	Error Location
Query counter failed. Error=" + Error code + " ErrorMsg=" + Error String	The perfmonCollectSessionData, perfmonListInstance, perfmonListCounter, or perfmonCollectCounterData API includes one of these ReturnCode values: 1: "Not Found" client error 2: "Invalid Request" client error 3: "Internal Error" server error 9: "Invalid Node Name" client error 10: "Not Ready" server error 11: "Remote RisDC Down" server error 12: "Remote RisDC Not Ready" server error 13: "Collection Disabled"; server error 14: "No Collector Available" server error 50: "Handle Not Found In Cache" client error 100: "Perfmon Error" client error	—
ERROR: The ctiSelectionCriteria is null	Selection criteria specified in the request cannot be null. Soap Clients needs to specify this in the request.	Client
ERROR: Invalid SelectAppBy	SelectAppBy criteria specified in the request has an invalid string.	Client
ERROR: Invalid ip address	IP Address is not in the valid format.	Client
ERROR: Invalid DeviceDownloadStatus	DownloadStatus specified in the request is not valid.	Client

## Sample SOAP Fault or AXIS Fault

The following example shows the format of a SOAP or AXIS fault.

```
<?xml version="1.0" encoding="UTF-8" ?> - <soapenv:Envelope
xmlns:soapenv="{*}http://schemas.xmlsoap.org/soap/envelope/* "
xmlns:xsd="http://www.w3.org/2001/XMLSchema "
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance ">- <soapenv:Body>- <soapenv:Fault>
 <faultcode>soapenv:Server.generalException</faultcode>
 <faultstring>{*}Error found in Adding counters: Error=101 ErrorMsg=\\suri-lab3\Memory% Mem UUU;*</faultstring> - <detail>
 <ns1:stackTrace xmlns:ns1="{*}http://xml.apache.org/axis/* ">{*}Error found in Adding
counters: Error=101 ErrorMsg=\\suri-lab3\Memory% Mem UUU; at
com.cisco.ccm.serviceability.soap.perfport.PerfmonBindingImpl.perfmonAddCounter(Unknown
Source) at
com.cisco.ccm.serviceability.soap.perfport.PerfmonBindingSkeleton.perfmonAddCounter(Unknow
n Source) at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method) at
sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39) at
```

```

sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25) at
java.lang.reflect.Method.invoke(Method.java:324) at
org.apache.axis.providers.java.RPCProvider.invokeMethod(RPCProvider.java:384) at
org.apache.axis.providers.java.RPCProvider.processMessage(RPCProvider.java:281) at
org.apache.axis.providers.java.JavaProvider.invoke(JavaProvider.java:319) at
org.apache.axis.strategies.InvocationStrategy.visit(InvocationStrategy.java:32) at
org.apache.axis.SimpleChain.doVisiting(SimpleChain.java:118) at
org.apache.axis.SimpleChain.invoke(SimpleChain.java:83) at
org.apache.axis.handlers.soap.SOAPService.invoke(SOAPService.java:454) at
org.apache.axis.server.AxisServer.invoke(AxisServer.java:281) at
org.apache.axis.transport.http.AxisServlet.doPost(AxisServlet.java:697) at
javax.servlet.http.HttpServlet.service(HttpServlet.java:709) at
org.apache.axis.transport.http.AxisServletBase.service(AxisServletBase.java:327) at
javax.servlet.http.HttpServlet.service(HttpServlet.java:802) at
sun.reflect.GeneratedMethodAccessor190.invoke(Unknown Source) at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25) at
java.lang.reflect.Method.invoke(Method.java:324) at
org.apache.catalina.security.SecurityUtil$1.run(SecurityUtil.java:239) at
java.security.AccessController.doPrivileged(Native Method) at
javax.security.auth.Subject.doAsPrivileged(Subject.java:500) at
org.apache.catalina.security.SecurityUtil.execute(SecurityUtil.java:268) at
org.apache.catalina.security.SecurityUtil.doAsPrivilege(SecurityUtil.java:157) at
org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:231) at
org.apache.catalina.core.ApplicationFilterChain.access$000(ApplicationFilterChain.java:50) at
org.apache.catalina.core.ApplicationFilterChain$1.run(ApplicationFilterChain.java:140) at
java.security.AccessController.doPrivileged(Native Method) at
org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:136) at
org.apache.catalina.core.StandardWrapperValve.invoke(StandardWrapperValve.java:214) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:104) at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:520) at
org.apache.catalina.core.StandardContextValve.invokeInternal(StandardContextValve.java:198) at
org.apache.catalina.core.StandardContextValve.invoke(StandardContextValve.java:152) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:104) at
org.apache.catalina.authenticator.AuthenticatorBase.invoke(AuthenticatorBase.java:540) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:102) at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:520) at
org.apache.catalina.core.StandardHostValve.invoke(StandardHostValve.java:137) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:104) at
org.apache.catalina.valves.ErrorReportValve.invoke(ErrorReportValve.java:118) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:102) at
org.apache.catalina.valves.AccessLogValve.invoke(AccessLogValve.java:535) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:102) at
org.apache.catalina.authenticator.SingleSignOn.invoke(SingleSignOn.java:417) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:102) at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:520) at
org.apache.catalina.core.StandardEngineValve.invoke(StandardEngineValve.java:109) at
org.apache.catalina.core.StandardValveContext.invokeNext(StandardValveContext.java:104) at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:520) at
org.apache.catalina.core.ContainerBase.invoke(ContainerBase.java:929) at
org.apache.coyote.tomcat5.CoyoteAdapter.service(CoyoteAdapter.java:160) at
org.apache.coyote.http11.Http11Processor.process(Http11Processor.java:799) at
org.apache.coyote.http11.Http11Protocol$Http11ConnectionHandler.processConnection(Http11Protocol.java:705) at
org.apache.tomcat.util.net.TcpWorkerThread.runIt(PoolTcpEndpoint.java:577) at
org.apache.tomcat.util.threads.ThreadPool$ControlRunnable.run(ThreadPool.java:683) at
java.lang.Thread.run(Thread.java:534)*</ns1:stackTrace>
<ns2:hostname xmlns:ns2="{*}"http://xml.apache.org/axis/*
">suri-lab3.cisco.com</ns2:hostname>
</detail>
</soapenv:Fault>
</soapenv:Body>

```

# AXL Serviceability Application Design Guidelines and Best Practices

The following sections provide guidelines and best practices for designing AXL serviceability applications.

## Maintain HTTPs sessions and Connection Timeouts

All SOAP clients need to maintain an HTTPS session. The SOAP server normally sends a set-cookie in response to an authentication request. The client must maintain an HTTPS session by sending cookies in subsequent SOAP requests as described in RFC 2109.

Clients should handle the connection timeouts and read timeouts. This approach helps release the connections and helps the web server to reuse the connection thread for another request.

## Send Perfmon Close Session

It is the responsibility of the application to send the PerfmonCloseSession SOAP API.

The client program can use the following operations from the AXL serviceability APIs:

- Perfmon Open Session
- Perfmon Add Counter
- Perfmon Remove Counter
- Perfmon Collect Session Data
- Perfmon Close Session

A session handle is needed by the client to perform the session-based perfmonListCounter operation. The session handle is a universally unique identifier and is used only once. Ensure that there are no duplicate handles. The server stores the open handles in its cache. Session handles are removed by a Cisco Unified Communications Manager server when any of the following conditions occur:

- Session has been idle time out is reached
- Service/Server gets restarted
- Server resource is tight

An application should issue and PerfmonCloseSession API when a session completes. This API releases the memory on server side.

## Device Query Support for Large Clusters

The following guidelines apply for device queries in large Cisco Unified Communications Manager clusters:

- The selectCmDevice operation includes StateInfo as part of the response. The StateInfo string must be in a CDATA element and indicates the state of the Device server. Clients must provide string from the first request to the next request for the same selection criteria. Clients receive the response with the NoChange element set to “true” as part of CmNode, which indicates that the server information state has not changed from the previous state. If NoChange in the response set to “false,” the server information has changed. In this case, clients must obtain real-time information from the server and update the client information on the devices.

The following example shows the schema of the StateInfo within the SelectCmDevice operation:

```
<!-- SOAP AST Header -->
<message name="AstHeader"><part name="AstHeader" type="tns:AstHeader"/></message>
<!-- R1. SelectCmDevice -->
<message name="SelectCmDeviceInput"><part name="StateInfo" type="xsd:string"/><part
name="CmSelectionCriteria" type="tns:CmSelectionCriteria"/>
</message>
<message name="SelectCmDeviceOutput"><part name="SelectCmDeviceResult"
type="tns:SelectCmDeviceResult"/><part name="StateInfo" type="xsd:string"/>
</message>

<complexType name="SelectCmDeviceResult">
<sequence><element name="TotalDevicesFound" type="xsd:unsignedInt"/><element
name="CmNodes" type="tns:CmNodes"/>
</sequence>
</complexType>
<complexType name="CmNodes">
<complexContent><restriction base="SOAP-ENC:Array"><attribute ref="soapenc:arrayType"
wsdl:arrayType="tns:CmNode[]" />
</restriction>
</complexContent>
</complexType>
<complexType name="CmNode">
<sequence>
<element name="ReturnCode" type="tns:RisReturnCode"/><element name="Name"
type="xsd:string"/><element name="NoChange" type="xsd:boolean"/>
<element name="CmDevices" type="tns:CmDevices"/>
</sequence>
</complexType>
```

- The response provides a maximum of 200 devices, as shown in the following response schema:

```
<complexType name="CmDevices"><complexContent>
<restriction base="SOAP-ENC:Array">
<sequence><element name="CmDevice" type="tns:CmDevice" minOccurs="0"
maxOccurs="200"/></sequence>
</restriction>
</complexContent>
</complexType>
```

This approach limits the response buffer to the first 200 devices that are returned. To obtain information about all configured devices, clients must embed the device information obtained from the AXL-DB method “SelectItems” into the serviceability method “CmSelectionCriteria.”

The following example shows this approach:

```
<?xml version="1.0" encoding="utf-8"?>
```

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
 <ns1:SelectCmDevice soapenv:encodingStyle="http://schemas.xmlsoap.org/
 soap/encoding/" xmlns:ns1="http://schemas.cisco.com/ast/soap/">
 <StateInfo xsi:type="xsd:string"/>
 <CmSelectionCriteria href="#id0"/>
 </ns1:SelectCmDevice>
 <multiRef id="id0" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns2:CmSelectionCriteria"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:ns2="http://schemas.cisco.com/ast/soap/">
 <MaxReturnedDevices xsi:type="xsd:unsignedInt">200</MaxReturnedDevices>
 <Class xsi:type="xsd:string">Phone</Class>
 <Model xsi:type="xsd:unsignedInt">255</Model>
 <Status xsi:type="xsd:string">Registered</Status>
 <NodeName xsi:type="xsd:string" xsi:nil="true"/>
 <SelectBy xsi:type="xsd:string">Name</SelectBy>
 <SelectItems soapenc:arrayType="ns2:SelectItem[200]" xsi:type="soapenc:Array">
 <item href="#id1"/>
 </SelectItems>
 </multiRef>
 <multiRef id="id1" soapenc:root="0"
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 xsi:type="ns3:SelectItem" xmlns:ns3="http://schemas.cisco.com/ast/soap/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
 <Item xsi:type="xsd:string">SEP0123456789ab</Item>
 ...
 <Item xsi:type="xsd:string"> SEP0123456789aa</Item>
 </multiRef>
 </soapenv:Body>
</soapenv:Envelope>

```

The most efficient way to obtain the list of devices is to use “executeSQLQuery” in the AXL-DB API.

You also can use the SQL equivalent to “Select name from device where tkclass = 1” to obtain all phones, then iterate through the list sending 200 at a time to the AXL Serviceability API.

By default, device requests per minute can not exceed 15 per minute by default to the Cisco Unified Communications Manager server. Client requests should be spaced so that they do not exceed this limit. If client requests exceed this limit, the server responds with a SOAP fault. The SOAP client can then adjust the request rate. These rates are expected to take less than 20% of CPU resource so that they do not affect the performance of Cisco Unified Communications Manager.

#### Example of Stateinfo in a Response

The following example shows the StateInfo String from a response that contains a CDATA[] section. State ID for each Node is specified as an attribute StateId="123456".

```

<StateInfo xsi:type="xsd:string">
 <StateInfo><Node Name="sa-cm2-1"
 SubsystemStartTime="1136458877" StateId="123456"
 TotalItemsFound="0" TotalItemsReturned="0" /><Node
 Name="sa-cm2-2" SubsystemStartTime="1136403259"
 StateId="33" TotalItemsFound="15"
 TotalItemsReturned="15" /><Node Name="sa-cm2-6"
 SubsystemStartTime="1135982895" StateId="387"
 TotalItemsFound="1" TotalItemsReturned="1" /></StateInfo>

```

```
</StateInfo>
```

## Respond and React to SOAP Faults

It is the responsibility of the application to respond and react to SOAP faults.

SOAP faults are sent according to the SOAP standard. For additional information, see the [“SOAP Fault Error Codes” section on page 4-131](#).

## Limit Request and Response Size in the Application Design

When an application uses a SOAP interface, the application must ensure that the size of the SOAP request and response does not exceed the 1 MB limit. If this limit is exceeded, review the application design to determine another solution.

Usage notes for applications:

- Web server level security filters are configured to deny requests that exceed limits that are configured in your security applications.
- Tomcat Webserver 5.x and later provides a 2 MB limit on request size.
- Number of Perfmon counters per sessions is limited to 1,000.

## Number of Nodes in the Cluster

In large cluster, configure your application to point SOAP clients to individual servers that have server specific Perfmon counters.

## SOAP Monitor Usage

The SOAP Monitoring Tool should not be used in a production system because this tool can affect performance. Use this tool only be used in development or unit testing and rely on SOAP logs for troubleshooting production systems.



# CHAPTER 5

## Serviceability XML Operations by Release

Table 5-1 lists alphabetically the new, changed, and deprecated serviceability XML operations by release. It also lists operations that are under consideration or review (UCR). Operation details can be found in [Chapter 4, “Serviceability XML Programming.”](#)

Table legend:

- : Supported
- : Not supported
- : Modified

## Operations By Release

**Table 5-1** *Serviceability XML Operations by Cisco Unified Communications Manager Releases*

SOAP Service	Operation	5.0	6.0	6.1	7.0	7.1	UCR
CDRonDemand (All CDR APIs)	get_file						
	get_file_list						
ControlCenterServicesPort (All Service Control APIs )	getProductInformationList						
	soapDoControlServices						
	soapDoServiceDeployment						
	soapGetServiceStatus						
	soapGetStaticServiceList						
DimeGetFileService (Getting Single File)	GetOneFile						
LogCollectionPort (All Log Collection APIs)	listNodeServiceLogs						
	selectLogFiles						

**Table 5-1** Serviceability XML Operations by Cisco Unified Communications Manager Releases (continued)

SOAP Service	Operation	5.0	6.0	6.1	7.0	7.1	UCR
PerfmonPort (Performance Information Port)	perfmonAddCounter	✓	✓	✓	✓	✓	✓
	perfmonCloseSession	✓	✓	✓	✓	✓	✓
	perfmonCollectCounterData	✓	✓	✓	✓	✓	✓
	perfmonCollectSessionData	✓	✓	✓	✓	✓	✓
	perfmonListCounter	✓	✓	✓	✓	✓	✓
	perfmonListInstance	✓	✓	✓	✓	✓	✓
	perfmonOpenSession	✓	✓	✓	✓	✓	✓
	perfmonQueryCounterDescription	✓	✓	✓	✓	✓	✓
	perfmonRemoveCounter	✓	✓	✓	✓	✓	✓
RisPort (Real Time Information Port)	getServerInfo	✓	✓	✓	✓	✓	✓
	selectCmDevice ( ipv4 devices)	✓	✓	✓	✓	✓	✓
	SelectCmDevice (includes ipv6 devices)	✗	✗	✗	✗	✓	✓
	selectCtiItem (includes ipv6 devices)	✗	✗	✗	✗	✓	✓
	selectCtiItem (ipv4 devices)	✓	✓	✓	✓	✓	✓



## **PART 3**

### **Cisco Extension Mobility API**





## CHAPTER 6

# Extension Mobility Service API

---

This chapter describes the Extension Mobility (Extension Mobility) service. It contains the following sections:

- [Overview, page 6-1](#)
- [New and Changed Information, page 6-2](#)
- [How Extension Mobility Works, page 6-2](#)
- [Using the Extension Mobility API, page 6-3](#)
- [Set Up and Configuration, page 6-3](#)
- [Message Examples, page 6-6](#)
- [Extension Mobility Service Response Codes, page 6-9](#)

## Overview

The Extension Mobility service, a feature of Cisco Unified Communications Manager (Unified CM), allows a device, usually a Cisco Unified IP Phone, to temporarily embody a new device profile, including lines, speed dials, and services. It enables users to temporarily access their individual Cisco Unified IP Phone configuration, such as their line appearances, services, and speed dials, from other Cisco Unified IP Phones. The Extension Mobility service works by downloading a new configuration file to the phone. Unified CM dynamically generates this new configuration file based on information about the user who is logging in.

The system associates each Extension Mobility user with a device profile through configuration. When a user logs in to a phone, the phone temporarily embodies the device profile for that user. The two primary functions of the Extension Mobility feature comprise authenticating the user who is logging in and generating the right configuration file from the user information.

You can view the device profile as a template for a physical device. The device profile defines the attributes of a device, but it does not associate with a physical phone. A device profile includes information such as the phone template, user locale, services to which the device is subscribed, and so on. Because it does not associate with a physical phone, it does not have information such as MAC address, location, and region. When a phone downloads a device profile, the phone retains its physical attributes such as MAC address, device location information, device CSS, and so on.

The Unified CM support for the Extension Mobility service comprises the Extension Mobility Application (EMApp) and the Extension Mobility Service (EMService) modules. The application and service modules, along with other Unified CM infrastructure such as the Database Layer (DBL), User directory (either internal or an external LDAP directory), and TFTP server, provide the Extension Mobility feature.

You can use the XML-based EMService API with your applications, so they can take advantage of Extension Mobility service functionality. For details about how to use the Extension Mobility service API, see the [“Using the Extension Mobility API” section on page 6-3](#).

To successfully develop an application that uses the Extension Mobility service, you need to understand how the service operates and how your application fits into the Extension Mobility service. This chapter includes the high-level concepts that are important in understanding the Extension Mobility service

## New and Changed Information

There are no changes in Cisco Extension Mobility service for Unified CM 7.1(2).

## How Extension Mobility Works

This section describes what happens when your application sends a message to the Extension Mobility service to use its functionality.

Your login application submits an XML message to the EMService servlet by using the Hypertext Transfer Protocol (HTTP). The EMService uses the LDAP directory to check the UserID and PIN in the message from the login application. If the UserID and PIN are valid, the EMService executes the request by communicating with the database layer (DBL) through JNI. For more details about how the Extension Mobility module works, see the [“Device Profiles” section that follows](#).

If the DBL changes the device profile for a login or logout request, it tells the DBL Monitor, which passes this information on to the CallProcessing and CTI components. CallProcessing, in turn, tells the Cisco Unified IP Phone that it needs to restart itself to load the new device profile. For more information about device profiles, see the [“Device Profiles” section on page 6-2](#).

The CTI layer notifies JTAPI and TAPI applications that are monitoring the device or user that the application control list has changed.

If the DBL completes a transaction successfully, it tells the EMService. The EMService then sends an XML response that the transaction was successful to your login application by using HTTP.

If the transaction is not successful, the EMService sends your login application an appropriate error message.

## Device Profiles

Device profiles act as the basic unit of transaction for the Extension Mobility service. A device profile contains all the configuration information, such as line appearances, speed dials, and services, for a particular device. You can think of it as a “virtual device.” It has all the properties of a device except physical characteristics such as a Media Access Control (MAC) address and a directory URL.

When a user logs in, the User device profile replaces the current device configuration. When a user logs out, the Logout device profile replaces the User device profile.

Extension Mobility requires a Logout Device Profile for each configured device. Extension Mobility uses the Logout Device Profile, which can be either the current device settings or the User Device Profile, as the “logged out” configuration of the device.

**Note**

Extension Mobility fully supports the Cisco Unified IP Phone 7960 and the Cisco Unified IP Phone 7940 but not the Cisco IP Phone model 7910 and preceding devices.

## Using the Extension Mobility API

The Extension Mobility service provides a fairly rich API, which enables extension mobility on Cisco Unified IP Phones and allows application control over authentication, scheduling, and availability.

An application that uses Extension Mobility service represents an IP phone service that allows a user to enter a userID and PIN at the phone itself and log in to the phone. The architecture and implementation of Extension Mobility make many other applications possible; some examples follow:

- An application that automatically activates phones for employees when they reserve a particular desk for a particular time (the scheduling application)
- A lobby phone that does not have a line appearance until a user logs in

The Extension Mobility API gets exposed as an Extensible Markup Language (XML) interface via HTTP. The administrator of the system designates a website as the entry point to the API, and all requests and queries are made through those URLs. This website also provides the document type definitions (DTDs) that define the XML for requests, queries, and responses. This document includes the DTDs, along with examples.

The XML input gets submitted via an HTTP POST. A field named “xml” contains the XML string that defines the request or query. The response to this HTTP POST represents a pure XML response with either a success or failure indicator for a request or the response to a query.

**Note**

The Extension Mobility API does not use the M-POST method as defined in the HTTP Extension Framework.

This section includes the following topics:

- [Set Up and Configuration, page 6-3](#)
  - [Messages, page 6-4](#)
  - [Message Document Type Definitions, page 6-5](#)
  - [Message Examples, page 6-6](#)
  - [Extension Mobility Service Response Codes, page 6-9](#)

## Set Up and Configuration

The Extension Mobility service application accompanies Unified CM. As such, all necessary Extension Mobility service API components are installed with the standard Unified CM installation.

To use the Extension Mobility service, create a device profile for the user who is logging in and for the target device. Use the following steps to configure Extension Mobility service:

- Activate the service.
- Create Extension Mobility IP phone service.
- Create a user device profile.
- Assign the user device profile to a user.
- Assign authentication proxy rights to a UserID.
- Assign UserID to the Standard EM Authentication Proxy Rights user group.
- Enable Extension Mobility and configure the default device profile on the target device. (You must enable Extension Mobility on a device-by-device basis.)
- Subscribe to Extension Mobility IP phone service on the target device and the device profile.
- Assign a logout device profile to a target device.
- Configure the system parameters (the system uses defaults if parameters are not manually configured).

**Note**


---

Technically, no need exists to assign a profile to a user. The device profile can be specified at login.

---

For details on how to configure the User Device Profile, refer to the *Cisco Unified Communications Manager Administration Guide* or *Cisco Unified Communications Manager Features and Services Guide*.

## Messages

You communicate between your login application and the Extension Mobility service by sending and receiving XML messages. The XML messages that you send must follow the rules that are set by the Message DTDs that are described in the [“Message Document Type Definitions” section on page 6-5](#).

The default URL for login and logout requests and system queries is

`http://<server>:8080/emservice/EMServiceServlet`

The application sends authentication information, including an Application ID and an Application Certificate, at the start of message.

A password represents the only type of certificate that is currently supported. All messages must include a valid appID and appPassword, or they do not get processed. For examples of valid Extension Mobility messages, see the [“Message Examples” section on page 6-6](#).

## Login Requests

Login requests provide the cornerstone of this service, and currently they offer the most flexible and complex message type. The information that is required to process a login request must include the device that is to be logged in to and the UserID of the user who is logging in to that device. If a device profile other than the default device profile that has been associated with the user is to be used, you can specify that profile name. If the system is to automatically log the user out after a particular time, you can also specify that. To log out, you only need to provide the device name in the message.

## Device-User Queries

A Device-User query represents a query wherein the login application specifies a list of one or more devices, and the system returns the userID of the user who is currently logged on to each device.

## User-Devices Queries

A User-Devices query represents a query in which the login application specifies a list of one or more users, and the system returns the list of devices to which a particular user is currently logged in.

## Message Document Type Definitions

A Message Document Type Definition (DTD) designates an XML list that specifies precisely which elements can appear in a request, query, or response document. It also specifies the contents and attributes of the elements.

You communicate between your login application and the Extension Mobility service by sending and receiving XML documents. These XML documents must follow the rules that the Message DTDs set. For examples of how Message DTDs are used, see the [“Message Examples” section on page 6-6](#).

### Request DTD

The Request DTD defines the login and logout messages that your application can send to the Cisco Exchange Mobility service.

```
<!-- login requests DTD -->
<!ELEMENT request (appInfo, (login | logout))>
<!ELEMENT appInfo (appID, appCertificate)>
<!ELEMENT appID (#PCDATA)>
<!ELEMENT appCertificate (#PCDATA)>
<!ELEMENT login (deviceName, userID, deviceProfile?, exclusiveDuration?)>
<!ELEMENT logout (deviceName)>
<!ELEMENT deviceName (#PCDATA)>
<!ELEMENT userID (#PCDATA)>
<!ELEMENT deviceProfile (#PCDATA)>
<!ELEMENT exclusiveDuration (time | indefinite)>
<!ELEMENT time (#PCDATA)>
<!ELEMENT indefinite EMPTY>
```

### Login or Logout Response DTD

Login or Logout Response DTD defines the messages that your application receives from the Extension Mobility service when it sends a login or logout request message.

```
<!-- login response DTD -->
<!ELEMENT response (success | failure)>
<!ELEMENT success EMPTY>
<!ELEMENT failure (error)>
<!ELEMENT error (#PCDATA)>
<!ATTLIST error
 code NMTOKEN #REQUIRED>
```

### Query DTD

The Query DTD defines the Device-User and User-Devices messages that your application sends the Extension Mobility service to find out which user is logged in to a device or to which devices users are logged in.

```
<!-- login query DTD -->
<!ELEMENT query (appInfo, (deviceUserQuery | userDevicesQuery))>
<!ELEMENT appInfo (appID, appCertificate)>
```

```

<!ELEMENT appID (#PCDATA)>
<!ELEMENT appCertificate (#PCDATA)>
<!ELEMENT deviceUserQuery (deviceName+)>
<!ELEMENT userDevicesQuery (userID+)>
<!ELEMENT deviceName (#PCDATA)>
<!ELEMENT userID (#PCDATA)>

```

## Query Response DTD

The Query Response DTD defines the messages that your application receives from the Extension Mobility service when it sends the service a Device-User or User-Devices query.

```

<!-- login query results DTD -->
<!ELEMENT response (deviceUserResults | userDevicesResults | failure)>
<!ELEMENT deviceUserResults (device+)>
<!ELEMENT userDevicesResults (user+)>
<!ELEMENT device (userID | lastlogin | none | doesNotExist)>
<!ATTLIST device
 name NMTOKEN #REQUIRED>
<!ELEMENT user (deviceName+ | none | doesNotExist)>
<!ATTLIST user
 id NMTOKEN #REQUIRED>
<!ELEMENT userID (#PCDATA)>
<!ELEMENT lastlogin (#PCDATA)>
<!ELEMENT deviceName (#PCDATA)>
<!ELEMENT none EMPTY>
<!ELEMENT doesNotExist EMPTY>
<!ELEMENT failure (errorMessage)>
<!ELEMENT errorMessage (#PCDATA)>

```

## Message Examples

This section provides examples of various types of messages to aid in understanding how to use the message DTDs to communicate between your login application and the Extension Mobility service.

### Login Operation

The Login operation logs in a single user using the specified device profile.

#### Sample Login Code

The following example logs in userID “john” to device SEP003094C25B15 using the User Device Profile UserDevProf:

```

<request>
 <appInfo>
 <appID>appid</appID>
 <appCertificate>appasswd</appCertificate>
 </appInfo>
 <login>
 <deviceName>SEP003094C25B15</deviceName>
 <userID>john</userID>
 <deviceProfile>UserDevProf</deviceProfile>
 <exclusiveDuration>
 <time>60</time>
 </exclusiveDuration>
 </login>
</request>

```

**Success Response**

```
<response>
 <success/>
</response>
```

**Failure Response**

```
<response>
 <failure>
 <error code="3">Could not authenticate 'appid'</error>
 </failure>
</response>
```

## Logout Operation

The Logout operation logs out a single user from the specified device.

**Sample Logout Code**

The following example logs out a user who is logged into device SEP003094C25B15:

```
<request>
 <appInfo>
 <appID>appid</appID>
 <appCertificate>apppasswd</appCertificate>
 </appInfo>
 <logout>
 <deviceName>SEP003094C25B15</deviceName>
 </logout>
</request>
```

**Success Response**

```
<response>
 <success/>
</response>
```

**Failure Response**

```
<response>
 <failure>
 <error code="3">Could not authenticate 'appid'</error>
 </failure>
</response>
```

## UserQuery Operation

The UserQuery operation returns the user ID that is logged in to the specified device.

**Sample UserQuery Request**

The following example finds the user who is logged in to the device SEP003094C25B15:

```
<query>
 <appInfo>
 <appID>appid</appID>
 <appCertificate>apppasswd</appCertificate>
 </appInfo>
 <deviceUserQuery>
 <deviceName>SEP003094C25B15</deviceName>
```

```

 </deviceUserQuery>
</query>

```

### Sample UserQuery Response

If you log in to the phone for the first time, the response is as follows:

```

<response>
<deviceUserResults>
<device name="SEP00016CEA6616">
<userID>one</userID>
<none/>
</device>
</deviceUserResults>
</response>

```

If you have previously logged in to the phone, the response is as follows:

```

<response>
<deviceUserResults>
<device name="SEP.....">
<userID>one</userID>
<lastlogin>one</lastlogin>
</device>
</deviceUserResults>
</response>

```

## DeviceQuery Operation

The DeviceQuery operation returns all device IDs (MAC addresses) for the specified user ID.

### Sample DeviceQuery Request

The following example finds the devices that user ID “john” is logged in to:

```

<query>
 <appInfo>
 <appID>appid</appID>
 <appCertificate>apppasswd</appCertificate>
 </appInfo>
 <userDevicesQuery>
 <userID>john</userID>
 </userDevicesQuery>
</query>

```

### Sample DeviceQuery Response

```

<response>
 <userDevicesResults>
 <user id="rknotts">
 <deviceName>SEP003094C25B15</deviceName>
 <deviceName>SEP003094C25B49</deviceName>
 </user>
 <user id="fwrage">
 <deviceName>SEP003094C249A6</deviceName>
 </user>
 </userDeviceResults>
</response>

```

# Extension Mobility Service Response Codes

Table 6-1 describes the response codes and messages that can be returned by the Extension Mobility service. A response contains a code and a response string, formatted as an XML string.

**Table 6-1**      *Extension Mobility Service Response Codes*

Response Code	Message	Description
0	Unknown Error	Generic error, which does not belong to the known error types.
1	Error on Parsing	Invalid XML request. The XML passed does not conform to the DTD.
2	Cannot auth. App user	<b>Blank UserID or PIN</b> NULL_PARAM—Shows the user login page with error title.
3	Invalid App User	The appid supplied in the XML is not a valid user.
4	Policy Validation error	Does not conform to the policy set up for the user. For example, multiple log in not allowed.
5	Dev. logon disabled	Extension Mobility is not enabled on the device at the time of log out.
6	Database Error	Database is unable to process the Extension Mobility request.
7	Logout Request Error	Could not set auto-logout duration during log in.  Could not remove the device from the auto-logout list after log out.
8	Query type undetermined	Unrecognized Query type. The query type provided in the XML is not supported.
9	Dir. User Info Error	Could not authenticate user. This error is a for various authentication related failures.
10	User lacks app proxy rights	If a userID also is used as an appID, the userID should have proxy rights.
11	Device does not exist	Trying to perform an operation on a device that does not exist.
12	Dev. Profile not found	Trying to use a User Device Profile that does not exist.
18	Another user logged in	Another user is logged in to the device where login is being performed.
19	No user logged in	Trying to perform log out on a device where no user is currently logged in.
20	Hoteling flag error	Could not retrieve the Extension Mobility “Enabled” status for the specified device (DB error).
21	Hoteling Status error	Could not verify the login status of the specified device (DB error).
22	Dev. logon disabled	Extension Mobility is not enabled on the device.
23	User not found	Given user ID is invalid.
25	User logged in elsewhere	User is trying to log in to a device, but is already logged in to another device and multiple log in is not allowed.

**Table 6-1**      *Extension Mobility Service Response Codes (continued)*

<b>Response Code</b>	<b>Message</b>	<b>Description</b>
26	Busy, please try again	The server currently is processing the maximum number of log in/log out requests. Additional requests will be accepted after pending ones are processes.
27	Change Password	Password must change on first use or password has expired. User must change password from the User page in Unified CM Administration.
28	Untrusted IP Error	Trying to log in or log out from an untrusted IP address.
29	ris down-contact admin	The RIS Data Collector service is down. An administrator must turn it on.
30	Proxy not allowed	Log in or Log out using a proxy server is not allowed.



# CHAPTER 7

## Cisco Extension Mobility Operations By Release

Table 7-1 lists alphabetically the new, changed, and deprecated Cisco Extension Mobility operations by release. It also lists operations that are under consideration or review (UCR). Operation details can be found in [Chapter 6, “Extension Mobility Service API.”](#)

Table legend:

-  —Supported
-  —Not supported

### Operations By Release

**Table 7-1** *Extension Mobility Operations by Cisco Unified Communications Manager Release*

Operation	5.0(d)	5.1	5.1(2)	6.0	6.1	7.0	7.1(2)	8.0 UCR
DeviceProfileQuery								
DeviceQuery								
Login								
Logout								
LogoutAll								
UserQuery								





## **PART 4**

### **Cisco Web Dialer API**





## CHAPTER 8

# Cisco Web Dialer API Programming

This chapter describes the Simple Object Access Protocol (SOAP) and HTML over secure HTTP (HTTPS) interfaces that are used to develop customized click-to-dial applications for Cisco Web Dialer (Web Dialer) for Cisco Unified Communications Manager (Unified CM) and contains the following sections:

- [Overview, page 8-1](#)
- [New and Changed Information, page 8-2](#)
- [Cisco Web Dialer Components, page 8-3](#)
- [Cisco Web Dialer Security Support, page 8-5](#)
- [Phone Support For Cisco Web Dialer, page 8-7](#)
- [Call Flows, page 8-9](#)
- [Interfaces, page 8-12](#)
- [Cisco Web Dialer WSDL, page 8-24](#)
- [Sample Code Snippet, page 8-29](#)

## Overview

Web Dialer is a service that can be activated on a Unified CM subscriber to enable custom developed click-to-dial applications to issue MakeCall requests on behalf of a user. These applications can be server based, such as a click-to-dial enabled corporate directory, or desktop-based, such as an Outlook plug-in that lets users click to dial contacts.

The two main components of Web Dialer are the Web Dialer servlet and the Redirector servlet.

[Table 8-1](#) explains some terms that are used in this chapter.

**Table 8-1**      **Web Dialer Terms**

Cisco Web Dialer Service	A server-based component of Cisco Unified Communications Manager that allows users to make calls from web and desktop applications.
Cisco Web Dialer Application	A customer or partner created application that calls SOAP or HTTP methods from the Web Dialer interface library.

**Table 8-1 Web Dialer Terms (continued)**

Web Dialer Servlet	A Java servlet that responds to SOAP or HTTP requests.
Redirector Servlet	A Java servlet that finds the home Unified Communications Manager cluster of a user and responds with one or more IP addresses of the Web Dialer enabled subscribers within the home cluster.

## New and Changed Information

The following sections describes the major changes in the Web Dialer API for Release 7.0(1) and for previous releases:

- [New Information for Cisco Unified Communications Manager 7.1\(2\), page 8-2](#)
- [New Information for Cisco Unified Communications Manager 7.0, page 8-2](#)
- [New Information for Cisco Unified Communications Manager 6.0, page 8-2](#)
- [New Information for Cisco Unified Communications Manager 5.1, page 8-2](#)

For information about new, changed, or deprecated Web Dialer API methods from the interface library, see [Chapter 9, “Cisco Web Dialer Operations By Release.”](#)

### New Information for Cisco Unified Communications Manager 7.1(2)

There are no changes in Web Dialer for Unified CM 7.1(2).

### New Information for Cisco Unified Communications Manager 7.0

The following SOAP API methods have been added for Web Dialer in Unified CM 7.0:

- `getProfileDetailSoap`
- `getPrimaryLine`

### New Information for Cisco Unified Communications Manager 6.0

Unified CM 6.0 includes the following change to Web Dialer:

- The `getProfilSoap` method returns only devices that are supported by Web Dialer. These devices are derived from those that are supported by Cisco JTAPI. Devices that are not supported by Cisco JTAPI are no longer returned. For additional information, refer to *Cisco Unified Communications Manager JTAPI Developers Guide* for release 6.0(1), which is available at this URL:  
[http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/cucm/jtapi\\_dev/6\\_0\\_1/jtapi-dev.html](http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/jtapi_dev/6_0_1/jtapi-dev.html)
- Application Dial Rules support has been added for the SOAP API.

### New Information for Cisco Unified Communications Manager 5.1

Unified CM 5.1 includes the following change to Web Dialer:

- Web Dialer and Redirector now require HTTPS.

Developers should format Redirector and Web Dialer requests to use HTTPS. Cisco Unified Communications Manager requires the secured protocol to prevent unauthorized applications from reading user data.

Refer to *Cisco Unified CallManager Developers Guide for Release 5.0* for important changes to Web Dialer API programming in the 5.0 release.

## Cisco Web Dialer Components

The following sections provide information about Web Dialer Components:

- [Cisco Web Dialer Servlet, page 8-3](#)
- [Redirector Servlet, page 8-3](#)

### Cisco Web Dialer Servlet

The Web Dialer servlet, a Java servlet, allows Cisco Unified Communications Manager users in a specific cluster to make and end calls, as well as to access their phone and line configuration.

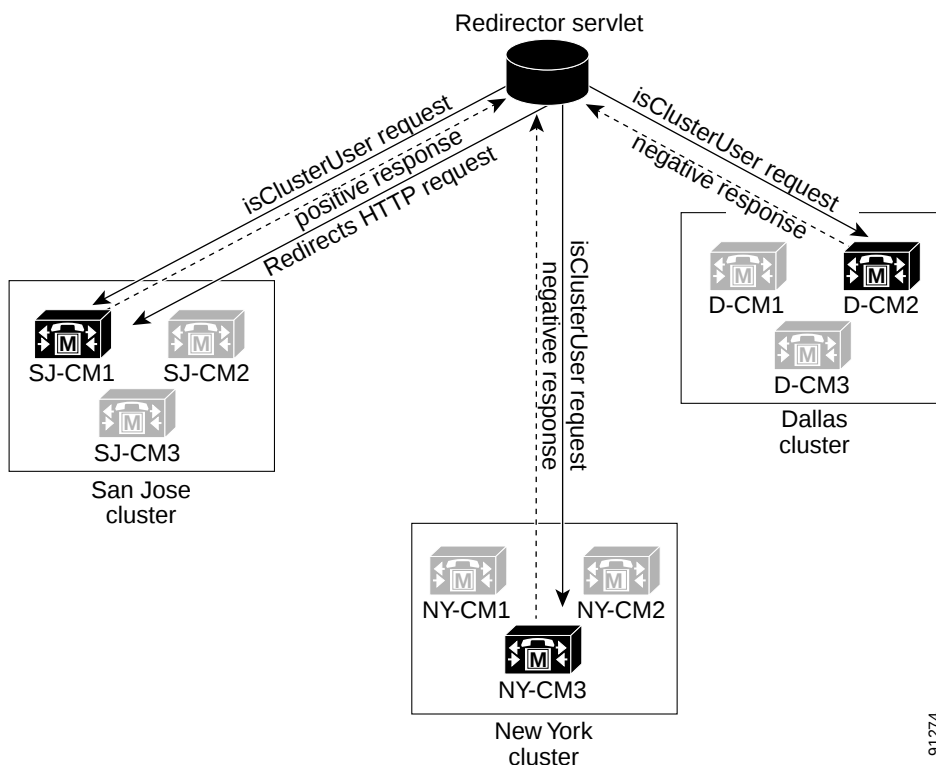
Cisco Web Dialer applications interact with the Web Dialer servlet through two interfaces:

- SOAP over HTTPS—This interface, based on the Simple Object Access Protocol (SOAP), is used to develop desktop applications such as a Microsoft Outlook Plug-in or a SameTime Client Plug-in. Developers can use the `isClusterUserSoap` interface to design multicenter applications that require functionality similar to a Redirector servlet.
- HTML over HTTPS—This interface, based on the HTTPS protocol, is used to develop web-based applications such as the Cisco Unified Communications Manager directory search page (`directory.asp`). Developers who use this interface can use the Redirector servlet for designing multicenter applications.

### Redirector Servlet

The Java-based Redirector servlet is responsible for distributing web (HTTP and HTTPS) MakeCall requests to the home Web Dialer server of a user. Redirector generally is used in a multi-cluster environments to instruct an application where to send MakeCall requests. When Redirector receives a MakeCall request, it sends the `IsClusterUser` broadcast message to all configured Web Dialer servers in the Enterprise. When Redirector receives a positive response, it forwards the request to the appropriate Web Dialer server. Redirector is available for HTTP and HTTPS applications only. SOAP-based applications are responsible for sending the MakeCall request to the home Web Dialer server of a user.

[Figure 8-1](#) illustrates how a Redirector servlet redirects a call in a multicenter environment.

**Figure 8-1 Multiple Clusters**

91274

**Example of Web Dialer Using the Redirector Servlet**

For example, consider three clusters, each one in a single city such as San Jose, Dallas, and New York. Each cluster contains three Cisco Unified Communications Manager servers with Web Dialer servlets that have been configured for Cisco Unified Communications Manager servers SJ-CM1, D-CM2, and NY-CM3.

The system administrator configures the Web Dialer servlets on any Cisco Unified Communications Manager server by entering the IP address of that specific Cisco Unified Communications Manager server in the List of WebDialers service parameter.

For information about configuring Web Dialer and Redirector servlets, refer to the “Web Dialer” chapter in the *Cisco Unified Communications Manager Features and Services Guide, Release 5.0*.

When a user who is located in San Jose clicks a telephone number in the corporate directory search page that is enabled by Web Dialer, the following actions happen:

1. The Cisco Unified Communications Manager server sends an initial *makeCall* HTTPS request to the Redirector servlet.
2. If this request is received for the first time, the Redirector servlet reads the Web Dialer server cookie and finds it empty.  
For a repeat request, the Redirector servlet reads the IP address of the Web Dialer server that previously serviced the client and sends a *isClusterUser* HTTPS request only to that server.
3. The Redirector servlet sends back a response that asks for information, which results in the authentication dialog box opening for the user.
4. The user enters the Cisco Unified Communications Manager user ID and password and clicks the **Submit** button.

5. The Redirector servlet reads only the user identification from this information and sends a *isClusterUser* HTTPS request to each Web Dialer server that the system administrator configured.

Figure 8-1 illustrates how this request is sent to the Web Dialer servlets that have been configured for SJ-CM1, D-CM2, and NY-CM3. Depending on the geographical location of the calling party, the Web Dialer servlet from that cluster responds positively to the Redirector servlet. The remaining Web Dialer servlets that were contacted return a negative response. The Web Dialer servlet SJ-CM1 responds positively to the request because the calling party is located in San Jose (SJ-CM).

The Redirector servlet redirects the original request from the user to SJ-CM1 and sets a cookie on the user browser for future use.

## Cisco Web Dialer Security Support

Web Dialer supports secure connections to CTI (TLS connection). For this feature, Web Dialer uses the security API that JTAPI provides. Refer to *Cisco Unified Communications Manager JTAPI Developers Guide* for the JTAPI API. Web Dialer uses the Application User, “WDSecureSysUser”, for obtaining the CTI connection.

You must complete the following configuration before Web Dialer can be configured to open a CTI connection in secure mode.

- Step 1** Activate the Cisco CTL Provider service in Cisco Unified Communications Manager Service Administration.
- Step 2** Activate the Cisco Certificate Authority Proxy Function Service.
- Step 3** Download the Cisco CTL Client from the Application plug-in and install it on any machine.
- Step 4** Run the CTL Client, choose the option to “enable Cluster Security,” and follow the instructions that display. This requires USB E-tokens.
- Step 5** To verify that cluster security is enabled, go to Cisco Unified Communications Manager Administration and look at [System-> Enterprise Parameter configuration]. Look at the Security Parameters; the cluster security should be set to 1.
- Step 6** In Cisco Unified Communications Manager Administration, from the User Management drop-down menu, select the Application User CAPF Profile option.
- Step 7** Click **Add new InstanceID**.
- Step 8** In the CAPF Profile configuration window, set up an InstanceID and CAPF profile for the InstanceID for the Application User WDSecureSysUser.
  - a. **InstanceID:** Enter the value of instance ID; for example, 001.
  - b. **Certificate Operation:** Select Install/Upgrade from the drop-down menu.
  - c. **Authentication Mode:** Select By Authorization String from the drop-down menu.
  - d. **Authorization String:** Enter the value of authorization string; for example, 12345.
  - e. **Key Size:** Select key size from drop-down menu; for example, 1024.
  - f. **Operation Completes By:** Enter the date and time in following format yyyy:mm:dd:hh:mn where yyyy=year, mm=month, dd=date, hh=hour, mn=minutes, such as 2006:07:30:12:30.



**Note** If this date and time has passed, the certificate update operation will fail.

- g. Ignore the **Packet Capture Mode**, **Packet Capture Duration**, and **Certificate** fields.

- h. **Certificate Status:** Select Operation pending from the drop-down menu. If anything else is selected, the certificate update will fail.
- 

## Security Service Parameters

Web Dialer includes two mode-specific service parameters for CTI connection security.

- **CTI Manager Connection Security Flag**—This required service parameter indicates whether security for the Web Dialer service CTI Manager connection is enabled or disabled.  
  
If enabled (true), Cisco Web Dialer will open a secure connection to CTI Manager by using the Application CAPF profile that is configured for the instance ID (as configured in CTI Manager Connection Instance ID service parameter) for Application user WDSecureSysUser. The default value specifies false.
- **Application CAPF Profile Instance ID:** This service parameter specifies the Instance ID of the Application CAPF Profile for Application User WDSecureSysUser that this Web Dialer server will use to open a secure connection to CTI Manager. You must configure this parameter if the CTI Manager Connection Security Flag parameter is enabled (true).
- **Algorithm:**
  1. Read the service parameters.
  2. Get the node IP/name of the nodes where TFTP and CAPF are activated.
  3. For the instanceID (input in service parameters), if the Certificate Operation is 'Install/Upgrade' or 'Delete', delete the current certificates, if any.
  4. If the Certificate Operation is not 'Install/Upgrade' or 'Delete', and a current certificate exists, use this certificate.
  5. If no certificate is present, request one by using JTAPI API `setSecurityPropertyForInstance`; this will need username, instanceID, authCode, tftpServerName, tftpPort, capfServerName, capfPort, certPath, and securityFlag. This call will contact the TFTP server, download the certificate, contact the CAPF server, verify the CTL file, and request the client and server certificates.
  6. If Step 5 is successful, set the following items on the ICCNProvider and call `open().provider.setInstanceID(instanceID);provider.setTFTPSTServer(tftpServerName);provider.setCAPFServer(capfServerName);provider.setCertificatePath(certPath);provider.setSecurityOptions(securityFlag);`
  7. If Step 5 fails, throw `initFailedException`. You can see this in the Web Dialer traces.

# Phone Support For Cisco Web Dialer

Web Dialer relies on Cisco JTAPI to place calls on the behalf of users. [Table 8-2](#) provides information about CTI supported devices.

Table legend:

- —Supported
- —Not supported

**Table 8-2** *CTI Supported Device Matrix*

Device/Phone Model	SCCP	SIP	Comments
Analog Phone			You can find information on the limitations of this device in <i>Cisco JTAPI Developer Guide for Cisco Unified CallManager</i> .
Cisco 12 S			
Cisco 12 SP			
Cisco 12 SP+			
Cisco 30 SP+			
Cisco 30 VIP			
Cisco 3911	—	—	Not a CTI supported device
Cisco 7902			
Cisco 7905			
Cisco 7906			
Cisco 7910			
Cisco 7911			
Cisco 7912			
Cisco 7914 Sidecar			
Cisco 7915 Sidecar	—	—	Not yet tested
Cisco 7916 Sidecar	—	—	Not yet tested
Cisco 7920			
Cisco 7921			
Cisco 7931			CTI supported only if rollover is disabled
Cisco 7935			
Cisco 7936			
Cisco 7937			

**Table 8-2** CTI Supported Device Matrix (continued)

Device/Phone Model	SCCP	SIP	Comments
Cisco 7940	✓	✗	
Cisco 7941	✓	✓	
Cisco 7941G-GE	✓	✓	
Cisco 7942	✓	✓	
Cisco 7945	✓	✓	
Cisco 7960	✓	✗	
Cisco 7961	✓	✓	
Cisco 7961G-GE	✓	✓	
Cisco 7962	✓	✓	
Cisco 7965	✓	✓	
Cisco 7970	✓	✓	
Cisco 7971	✓	✓	
Cisco 7975	✓	✓	
Cisco 7985	✓	✗	
Cisco ATA 186	✓	✗	You can find information on the limitations of this device in <i>Cisco JTAPI Developer Guide for Cisco Unified CallManager</i> .
Cisco IP Communicator	✓	✓	
Cisco Unified Personal Communicator	✗	✗	CTI support when running in desktop mode depends on physical device.
Cisco VGC Phone	✓	✗	
VG224	—	—	Not a CTI supported device
VG248	✓	✗	
CTI Port	—	—	CTI supported virtual device that does not use SCCP or SIP
CTI Route Point	—	—	CTI supported virtual device that does not use SCCP or SIP
CTI Route Point (Pilot Point)	—	—	CTI supported virtual device that does not use SCCP or SIP
ISDN BRI Phone	—	—	Not a CTI supported device

# Call Flows

The call flows in this section describe the flow of events for client and browser-based applications that use Web Dialer, which should help you design customized applications for Web Dialer.

## Desktop-based Client Application Call Flow

Figure 8-2 shows the call flow for an outgoing call from a client application. The user clicks the **Dial** or **Make Call** button in the client application. If the user is making a call for the first time, the application does not have authentication or configuration information on the user.

When the user makes a call for the first time,

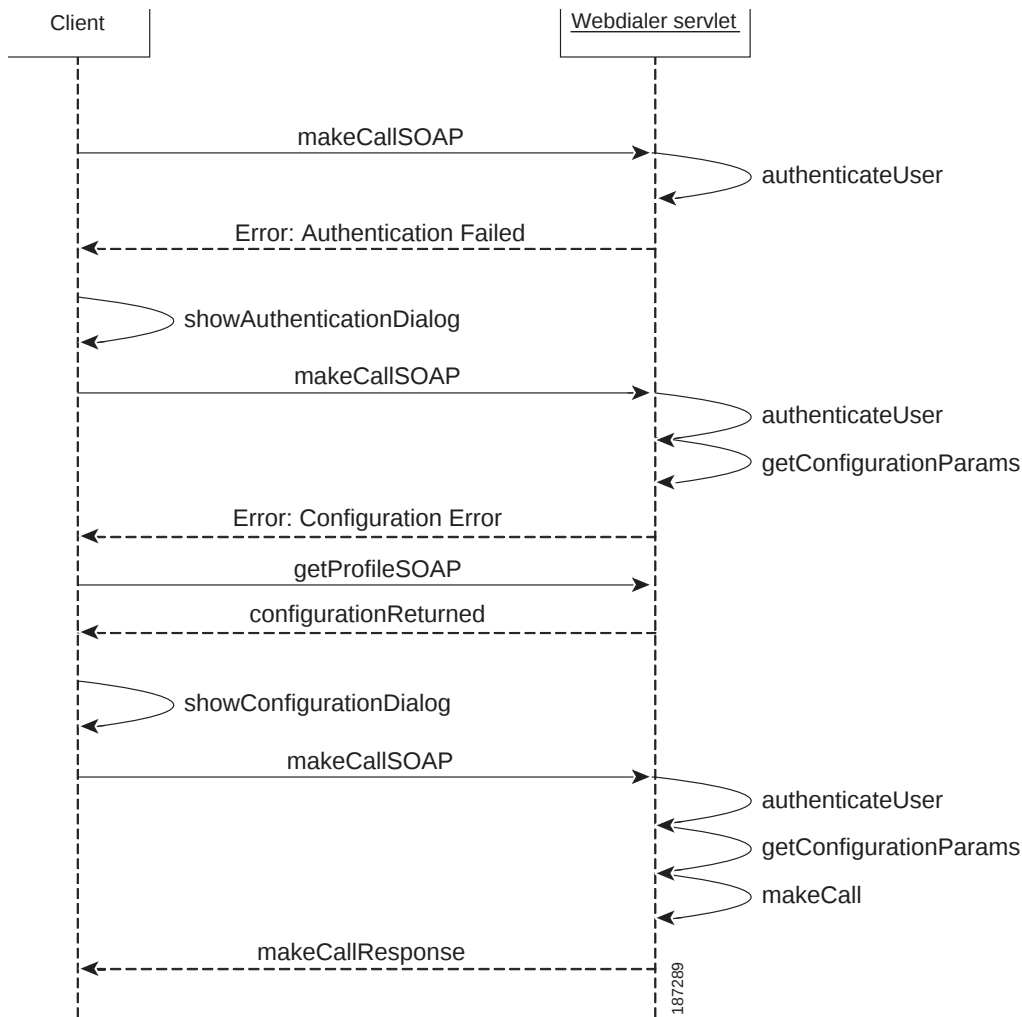
1. The client sends a `makeCallSoap` request to the configured Web Dialer servlet.
2. The Web Dialer servlet attempts to authenticate the user. Figure 8-2 shows an authentication failure that occurred because the authentication information is incomplete or does not exist.
3. The Web Dialer servlet sends an authentication failure response to the client application.
4. The client application displays a dialog box that asks for the user ID and password. The user enters this information and clicks the **submit** button. The user ID and password get stored for future invocations of the application.
5. The application sends a repeat SOAP request to the Web Dialer servlet. The request contains credential information on the user.
6. The Web Dialer servlet authenticates the user.
7. The Web Dialer servlet reads any missing configuration information in the request.
8. The Web Dialer servlet returns a configuration error message to the client application.
9. The client application sends a `getProfileSoap` request to the Web Dialer servlet.
10. The Web Dialer servlet responds with the user configuration information that is stored in the directory.
11. The client application displays a configuration dialog box that asks the user to select or update the configuration. The user enters the information and clicks the **submit** button. The user configuration information gets stored for future invocations of the application.
12. The client resends the `makeCallSoap` request to the Web Dialer servlet. This request contains the user configuration information.
13. The Web Dialer servlet authenticates the user and dials the telephone number by using the information that the `makeCallSoap` request contains. It responds to the client with a success or failure message.



### Note

The call flow goes directly to step 12 in these situations:

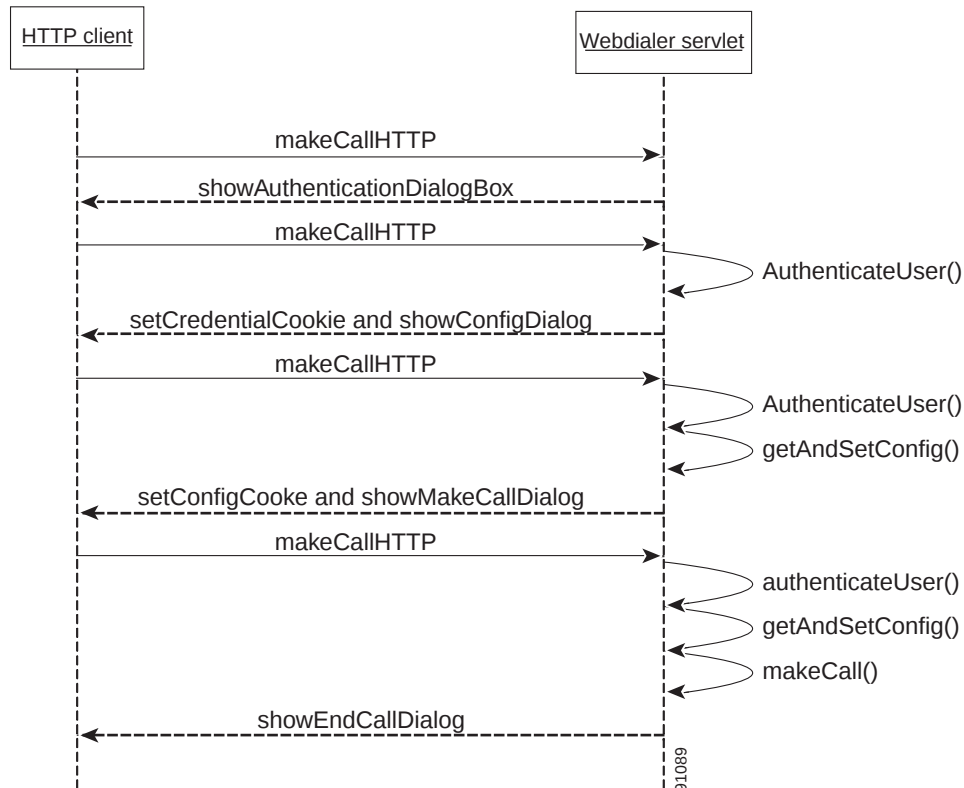
- If the credential and configuration information is already stored when the application is installed.
- For all subsequent requests that the user makes.

**Figure 8-2 Cisco Web Dialer Call Flow for a Client-Based Application**

## Browser-Based Application Call Flow

Figure 8-3 shows the call flow for an HTTP-based browser application such as a directory search page, personal address book, or the Cisco Unified Communications Manager directory search page (directory.asp).

The user clicks the **Dial** or **Make Call** button in the address book of the client application. If the user is making a call for the first time, the application does not have authentication or configuration information on the user.

**Figure 8-3 Cisco Web Dialer Call Flow for a Browser-Based Application**

When the user makes a call for the first time:

1. The client sends a makeCall HTTPS request to the configured Web Dialer servlet. The query string contains the number to be called.
2. The Web Dialer servlet authenticates the user. Authentication fails because the authentication information is incomplete or does not exist.



**Note** Authentication succeeds if the user credentials are sent with the request, and the call flow goes directly to step 7.

3. The Web Dialer servlet sends an authentication dialog to the client browser for user authentication.
4. The user enters the user ID and password and clicks the **Submit** button.
5. The client sends a makeCallHTTPS request that contains the user credentials to the Web Dialer servlet.
6. The Web Dialer servlet authenticates the user.
7. The Web Dialer servlet reads the configuration information in the cookie that is sent with the request.
8. Assuming that the request is made for the first time, the servlet sends a response that contains a cookie to the client browser. The cookie that contains the client credentials gets stored on the client browser. The client credentials comprise user ID, IP address, and the time of the request.
9. The user enters the updates in the configuration dialog box and clicks the **Submit** button.
10. The client browser sends a makeCall HTTPS request to the Web Dialer servlet. The request contains a cookie with the credential and configuration information in parameter form.

11. The Web Dialer servlet uses the credentials to authenticate the user and saves the configuration information in its memory.
12. The Web Dialer servlet sends a makeCall confirmation dialog to the client browser with the configuration information that is stored in a cookie. The cookie gets stored on the client browser for future invocations.
13. The Make Call dialog box appears on the user computer screen. The user clicks the **Dial** button, which sends another makeCall HTTPS request to the Web Dialer servlet.
14. The Web Dialer servlet authenticates the user by using the credentials in the cookie, retrieves the configuration information from the cookie, and makes the call.
15. The servlet responds by sending an endCall confirmation dialog to the user to end the call. The End Call dialog box appears on the user computer screen and stays there for the time interval that is configured in the service parameters.

For subsequent requests, the call flow starts at step 12 and ends at step 15.

## Interfaces

Web Dialer applications interact with the Web Dialer servlet through two interfaces:

- SOAP over HTTPS—This interface, based on the Simple Object Access Protocol (SOAP), is used to develop desktop applications such as a Microsoft Outlook Plug-in and SameTime Client Plug-in. Developers can use the isClusterUserSoap interface to design multicluster applications that require functionality similar to a Redirector servlet.
- HTML over HTTPS—This interface, based on the HTTPS protocol, is used to develop web-based applications such as the Cisco Unified Communications Manager directory search page (directory.asp). Developers who are using this interface can use the Redirector servlet for designing multicluster applications.

## SOAP Over HTTPS Interface

To access the SOAP interfaces for Web Dialer, use the Web Dialer Web Service Definition Language (WSDL) in the [“Cisco Web Dialer WSDL” section on page 8-24](#).

## makeCallSoap

You access the makeCallSoap interface by initiating a SOAP request to the URL `https://<CUCM_Server>/webdialer/services/WebdialerSoapService70` where CUCM\_Server specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Parameter	Mandatory	Description	Data Type	Range Values	Default Value
Destination	Mandatory	Standard canonical form. For example, +1 408 5551212 or extensions such as 2222. The optional service parameter "Apply Application Dial Rules on SOAP Dial Request" is False by default; if this parameter is True, the destination gets transformed according to the dial rules.	String	None	None
Credential	Mandatory	The user ID or password of the user or proxy user. For more information on creating a proxy user, see the <i>Cisco Web Dialer</i> chapter in the <i>Cisco Unified Communications Manager Features and Services Guide, Release 5.0</i> .	Refer to the credential data type in the <a href="#">“Cisco Web Dialer WSDL”</a> section on page 8-24.	None	None
Profile	Mandatory	The profile that is used to make a call. A typical profile is a calling device such as an IP phone or line. The line should be in the same format as returned by getProfileSoap—<number>; <partition>	Refer to the profile data type in the <a href="#">“Cisco Web Dialer WSDL”</a> section on page 8-24.	None	None

### Results

See the [“Cisco Web Dialer WSDL”](#) section on page 8-24 for return values and their data type.

Error Code	Name	Type	Description	Action by application
0	responseCode	Integer	Success	Displays a dialog box.
	responseDescription	String	Success	
1	responseCode	Integer	Call failure error	Displays a relevant error message.
	responseDescription	String	Call failure error	
2	responseCode	Integer	Authentication error	Displays the authentication dialog where the user enters ID and password information.
	responseDescription	String	User authentication error	

Error Code	Name	Type	Description	Action by application
3	responseCode	Integer	No authentication proxy rights	Void for user-based applications.
	responseDescription	String	No authentication proxy rights	
4	responseCode	Integer	Directory error	Displays an appropriate directory error message.
	responseDescription	String	Directory error	
5	responseCode	Integer	No device is configured for the user, or missing parameters exist in the request.	The application initiates a getProfileSoap request and displays the selected device and line to the user.
	responseDescription	String	No device is configured for the user, or missing parameters exist in the request.	
6	responseCode	Integer	Service temporarily unavailable	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service temporarily unavailable	
7	responseCode	Integer	Destination cannot be reached.	Displays the appropriate error dialog that allows the user to edit the dialed number.
	responseDescription	String	Destination cannot be reached.	
8	responseCode	Integer	Service error	Displays the appropriate error dialog.
	responseDescription	String	Service error	
9	responseCode	Integer	Service overloaded	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service overloaded	

This example shows a makeCallSoap request:

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" xmlns:tns="urn:WebdialerSoap"
xmlns:types="urn:WebdialerSoap/encodedTypes"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<tns:makeCallSoap>
<cred href="#id1" />
<dest xsi:type="xsd:string">7475</dest>
<prof href="#id2" />
</tns:makeCallSoap>
<tns:Credential id="id1" xsi:type="tns:Credential">
<userID xsi:type="xsd:string">xzibit</userID>
<password xsi:type="xsd:string">55555</password>
```

```

</tns:Credential>
<tns:UserProfile id="id2" xsi:type="tns:UserProfile">
<user xsi:type="xsd:string">xzibit</user>
<deviceName xsi:type="xsd:string">SEP00131A6EC8BD</deviceName>
<lineNumber xsi:type="xsd:string">2345</lineNumber>
<supportEM xsi:type="xsd:boolean">>false</supportEM>
<locale xsi:type="xsd:string" />
</tns:UserProfile>
</soap:Body>
</soap:Envelope>

```

## endCallSoap

You access the endCallSoap interface by initiating a SOAP request to the URL `https://<CUCM_Server>/webdialer/services/WebdialerSoapService70` where CUCM\_Server specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Parameter	Mandatory	Description	Data Type	Range Values	Default Value
Credential	Mandatory	The user ID or password of the user or proxy user. For information on creating a proxy user, see the <i>Cisco Web Dialer</i> chapter in the <i>Cisco Unified Communications Manager Features and Services Guide, Release 5.0</i> .	Refer to the credential data type in “ <a href="#">Cisco Web Dialer WSDL</a> ” section on page 8-24.	None	None
Profile	Mandatory	The profile that is used to make a call. A typical profile is a calling device such as an IP phone or line.	Refer to the profile data type in the “ <a href="#">Cisco Web Dialer WSDL</a> ” section on page 8-24.	None	None

See the “[Cisco Web Dialer WSDL](#)” section on page 8-24 for return values and their data type.

Error Code	Name	Type	Description	Action by application
0	responseCode	Integer	Success	Displays a dialog box on the computer screen.
	responseDescription	String	Success	
1	responseCode	Integer	Call failure error	Displays a relevant error message.
	responseDescription	String	Call failure error	
2	responseCode	Integer	Authentication error	Displays authentication dialog for user to enter user ID and password.
	responseDescription	String	User authentication error	
3	responseCode	Integer	No authentication proxy rights	Void for user-based applications.
	responseDescription	String	No authentication proxy rights	

Error Code	Name	Type	Description	Action by application
4	responseCode	Integer	Directory error	Displays an appropriate directory error message.
	responseDescription	String	Directory error	
5	responseCode	Integer	No device is configured for the user, or missing parameters exist in the request.	The Application initiates a getProfileSoap request and displays the selected device and line to the user.
	responseDescription	String	No device is configured for the user, or missing parameters exist in the request.	
6	responseCode	Integer	Service temporarily unavailable	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service temporarily unavailable	
7	responseCode	Integer	Destination cannot be reached.	Displays the appropriate error dialog that allows the user to edit the dialed number.
	responseDescription	String	Destination cannot be reached.	
8	responseCode	Integer	Service error	Displays appropriate error dialog.
	responseDescription	String	Service error	
9	responseCode	Integer	Service overloaded	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service overloaded	

This example shows an endCallSoap request:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:tns="urn:WebdialerSoap"
 xmlns:types="urn:WebdialerSoap/encodedTypes"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body
 soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <tns:endCallSoap>
 <cred href="#id1" />
 <prof href="#id2" />
 </tns:endCallSoap>
 <tns:Credential id="id1" xsi:type="tns:Credential">
 <userID xsi:type="xsd:string">wd</userID>
 <password xsi:type="xsd:string">55555</password>
 </tns:Credential>
 <tns:UserProfile id="id2" xsi:type="tns:UserProfile">
 <user xsi:type="xsd:string">wd</user>
 <deviceName xsi:type="xsd:string">
 SEP000DECAFE069
 </deviceName>
 </tns:UserProfile>
 </soap:Body>
</soap:Envelope>
```

```

 <lineNumber xsi:type="xsd:string">666</lineNumber>
 <supportEM xsi:type="xsd:boolean">false</supportEM>
 <locale xsi:type="xsd:string" />
 </tns:UserProfile>
</soap:Body>
</soap:Envelope>

```

## getProfileSoap

You access the getProfileSoap interface, which is used by plug-in based clients, by initiating a SOAP request to the URL `https://<CUCM_Server>/webdialer/services/WebdialerSoapService70` where CUCM\_Server specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Parameter	Mandatory/Optional	Description	Data Type	Value Range	Default Value
Credential	Mandatory	User ID or password of the user or proxy user. For information on creating a proxy user, see the <i>Cisco Web Dialer</i> chapter in <i>Cisco Unified Communications Manager Features and Services Guide, Release 5.0</i> .	Refer to the credential data type in the “ <a href="#">Cisco Web Dialer WSDL</a> ” section on page 8-24.	None	None
UserID	Mandatory	The user ID for which the configuration is requested.	String	None	None

See the “[Cisco Web Dialer WSDL](#)” section on page 8-24 for return values and their data type.

Error Code	Name	Type	Description	Action by plug-in application
0	responseCode	Integer	Returns an array of phones or lines on the phone that is associated with the user. Refer to the <i>Cisco Web Dialer WSDL</i> for the WDDeviceInfo data type.	Displays a dialog box on the computer screen.
	responseDescription	String	Success	
	deviceInfoList	Array	Returns an array of the the WDDeviceInfo data type	
1	responseCode	Integer	No device configured for the user	Displays an appropriate error message.
	responseDescription	String	No device configured for the user	

Error Code	Name	Type	Description	Action by plug-in application
2	responseCode	Integer	Authentication error	Displays the authentication dialog where the user enters ID and password information.
	responseDescription	String	User authentication error	
3	responseCode	Integer	No authentication proxy rights	Void for user-based applications.
	responseDescription	String	No authentication proxy rights	
4	responseCode	Integer	Directory error	Displays an appropriate directory error message.
	responseDescription	String	Directory error	
6	responseCode	Integer	Service temporarily unavailable	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service temporarily unavailable	
9	responseCode	Integer	Service overloaded	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service overloaded	

This example shows a `getProfileSoap` request used for debugging purposes (normally, the SOAP implementation layer would make this request):

```
<?xml version="1.0" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" xmlns:tns="urn:WebdialerSoap"
xmlns:types="urn:WebdialerSoap/encodedTypes"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <tns:getProfileSoap>
 <cred href="#id1" />
 <userid xsi:type="xsd:string">xzibit</userid>
 </tns:getProfileSoap>
 <tns:Credential id="id1" xsi:type="tns:Credential">
 <userID xsi:type="xsd:string">xzibit</userID>
 <password xsi:type="xsd:string">55555</password>
 </tns:Credential>
 </soap:Body>
</soap:Envelope>
```

## isClusterUserSoap

You access the `isClusterUserSoap` interface by initiating a SOAP request to the URL `https://<CUCM_Server>/webdialer/services/WebdialerSoapService70` where `CUCM_Server` specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Use this SOAP interface for multicluster applications that require functionality, similar to a Redirector servlet, for redirecting calls to the various locations where Web Dialer is installed on a network. The application uses this interface to locate and verify the Web Dialer that is servicing the user, followed by makeCall, endCall, or getProfile requests to that Web Dialer.

Parameter	Mandatory	Description	Data Type	Range of Values	Default Value
UserID	Mandatory	The user ID for which the request is made.	String	None	None

See the “Cisco Web Dialer WSDL” section on page 8-24 for return values and their data type.

Name	Type	Description
result	Boolean	The result specifies True if the user is present in the directory of the cluster. The result specifies False if the user is not present in the directory.

This example shows an isClusterUserSoap request:

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:tns="urn:WebdialerSoap"
 xmlns:types="urn:WebdialerSoap/encodedTypes"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <soap:Body
 soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <tns:isClusterUserSoap>
 <userid xsi:type="xsd:string">wd</userid>
 </tns:isClusterUserSoap>
 </soap:Body>
</soap:Envelope>
```

## getProfileDetailSoap

You access the getProfileDetailSoap interface by initiating a SOAP request to the URL `https://<CUCM_Server>/webdialer/services/WebdialerSoapService70` where CUCM\_Server specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Parameter	Mandatory	Description	Data Type	Range Values	Default Value
Credential	Mandatory	User ID or password of the user or proxy user. For information about creating a proxy user, refer to the “Cisco Web Dialer” chapter in <i>Cisco Unified Communications Manager Features and Services Guide, Release 5.0</i> .	See the credential data type in the “ <a href="#">Cisco Web Dialer WSDL</a> ” section on page 8-24.	None	None

### Results

See the “[Cisco Web Dialer WSDL](#)” section on page 8-24 for return values and their data type.

Error Code	Name	Type	Description	Action by application
0	responseCode	Integer	Returns an array of phones or lines on the phone that is associated with the user. Also returns Phone Description and the Phone type for each device. See the credential data type in the “ <a href="#">Cisco Web Dialer WSDL</a> ” section on page 8-24.	Displays a dialog box.
	responseDescription	String	Success	
	deviceInfoListDetail	Array	Returns an array of the the WDDeviceInfoDetail data type	
1	responseCode	Integer	No device configured for the user	Displays an appropriate error message.
	responseDescription	String	No device configured for the user	
2	responseCode	Integer	Authentication error	Displays the authentication dialog where the user enters ID and password information.
	responseDescription	String	User authentication error	

Error Code	Name	Type	Description	Action by application
3	responseCode	Integer	No authentication proxy rights	Void for user-based applications.
	responseDescription	String	No authentication proxy rights	
4	responseCode	Integer	Directory error	Displays an appropriate directory error message.
	responseDescription	String	Directory error	
6	responseCode	Integer	Service temporarily unavailable	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service temporarily unavailable	
9	responseCode	Integer	Service overloaded	Displays the appropriate error dialog with an option to try again.
	responseDescription	String	Service overloaded	

This example shows a `getProfileDetailSoap` request used for debugging purposes (normally, the SOAP implementation layer would make this request):

```
<soapenv:Envelope
 xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 <soapenv:Body
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 <s0:getProfileDetailSoap
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:s0="urn:WD70">
 <in0 xsi:type="s0:Credential">
 <userID xsi:type="xs:string">kelly</userID>
 <password xsi:type="xs:string">3sd4G</password>
 </in0>
 </s0:getProfileDetailSoap>
 </soapenv:Body>
 </soapenv:Envelope>
```

## getPrimaryLine

You access the `getPrimaryLine` interface by initiating a SOAP request to the URL `https://<CUCM_Server>/webdialer/services/WebdialerSoapService70` where `CUCM_Server` specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Parameter	Mandatory	Description	Data Type	Range of Values	Default Value
UserID	Mandatory	The user ID for which the the request is made.	String	None	None

See the “[Cisco Web Dialer WSDL](#)” section on page 8-24 for return values and their data type.

Name	Type	Description
result	Boolean	The result returns the number that is configured by the Unified CM administrator as the primary line of the user.

This example shows a `getPrimaryLine` request:

```
<soapenv:Envelope
 xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
 <soapenv:Body
 soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
 <s0:getPrimaryLine
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:s0="urn:WD70">
 <in0 xsi:type="s0:Credential">
 <userID xsi:type="xs:string">kelly</userID>
 <password xsi:type="xs:string">2sd3G</password>
 </in0>
 </s0:getPrimaryLine>
 </soapenv:Body>
</soapenv:Envelope>
```

## HTML Over HTTPS Interfaces

This section describes the HTML over HTTPS interfaces.



### Note

If you are using the browser interface, then use the HTTP POST method to pass the parameters. This reduces the time delay that the Web Dialer takes to automatically convert GET parameters to POST.

## makeCall

You use the `makeCall` interface in customized directory search applications. The Cisco Unified Communications Manager directory search page (`directory.asp`) also uses this interface. Access the `makeCall` interface by initiating an HTTPS request to the URL `https://<ipaddress>/webdialer/Webdialer`. In this URL, `ipaddress` specifies the IP address of the Cisco Unified Communications Manager server where Web Dialer is configured.

Browser-based applications in which the browser accepts cookies use this interface. The user profile exists only for the length of the session if the cookies are disabled in a browser. For a sample script that is used to enable directory search pages, go to the [“Sample Code Snippet” section on page 8-29](#).

Parameter	Mandatory	Description	Data Type	Range of Values	Default Value
destination	Mandatory	Destination number called by the application. Number gets converted to a regular telephone number by applying the application dial rules. Refer to the <i>Cisco Web Dialer</i> chapter in the <i>Cisco Unified Communications Manager Features and Services Guide, Release 5.0</i> .	String	None	None

Name	Description
result	Web Dialer displays the appropriate dialog and its applicable success or error message. It displays an authentication dialog if no active session exists.

## makeCallProxy

You access the makeCallProxy interface by initiating an HTTPS request to the URL `https://ipaddress/webdialer/Webdialer?cmd=doMakeCallProxy`. Browser-based applications in which the browser accepts cookies use this interface. If the cookies are disabled in a browser, the user profile exists only for the length of the session.

Applications such as a personal address book, defined in the Unified CMUser pages at `https://cmserver/CMUser`, can use the makeCallProxy interface. The credential of the application is used as a proxy to make calls on behalf of users. Because these users have authenticated themselves before accessing the Unified CMUser window, they do not get prompted again for their user ID and password. The application sends the user ID and password of the proxy user in the form of a query string in the request or as a parameter in the body of the POST message.



### Note

The API does not use the M-POST method as defined in the HTTP Extension Framework.

For a sample script that is used to enable directory search pages, go to the [“Sample Code Snippet” section on page 8-29](#).

Parameter	Mandatory	Description	Data Type	Range of Values	Default Value
uid	Mandatory	The user ID for which the request is made	String	None	None
appid	Mandatory	The userid of the application that is making a request on behalf of the user. For example, consider a Unified CM personal address book where the application allows authentication proxy rights. The appid parameter is used when the user logs in once; for example, in the Unified CM User windows. After this login, other pages do not require the user to log in again. For web page applications that are not integrated, the appid matches the userid.	String	None	None
pwd	Mandatory	The password of the appid	String	None	None
destination	Mandatory	The number to be called. The dial plan service converts this number to an E.164 number.	String	None	None

Name	Description
result	Web Dialer displays the appropriate dialog and its applicable success or error message.

## Cisco Web Dialer WSDL

The WSDL specification provides the basis for the Web Service Definition Language (WSDL) for Web Dialer. You can access the WSDL for Web Dialer on the Web Dialer server installation at

`https://<CCM_Server>/webdialer/wsd/wd70.wsdl`

Use this specific WSDL and the interfaces that are mentioned in this document to develop customized applications for Web Dialer. For a list of references on Cisco Unified Communications Manager, SOAP, and WSDL, refer to the “Related Documentation” section in the Preface to the *Cisco Unified CallManager Developers Guide for Release 5.0*.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions targetNamespace="urn:WD70"
 xmlns:apachesoap="http://xml.apache.org/xml-soap" xmlns:impl="urn:WD70"
 xmlns:intf="urn:WD70"
 xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
 xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <!--WSDL created by Apache Axis version: 1.4 With AXIS-2250
 Built on Apr 22, 2006 (06:55:48 PDT)-->
 <wsdl:types>
```

```

<schema targetNamespace="urn:WD70"
 xmlns="http://www.w3.org/2001/XMLSchema">
 <import
 namespace="http://schemas.xmlsoap.org/soap/encoding/" />
 <complexType name="Credential">
 <sequence>
 <element name="userID" type="xsd:string" />
 <element name="password" type="xsd:string" />
 </sequence>
 </complexType>
 <complexType name="UserProfile">
 <sequence>
 <element name="user" type="xsd:string" />
 <element name="deviceName" type="xsd:string" />
 <element name="lineNumber" type="xsd:string" />
 <element name="supportEM" type="xsd:boolean" />
 <element name="locale" type="xsd:string" />
 <element name="dontAutoClose" type="xsd:boolean" />
 <element name="dontShowCallConf" type="xsd:boolean" />
 </sequence>
 </complexType>
 <complexType name="CallResponse">
 <sequence>
 <element name="responseCode" type="xsd:int" />
 <element name="responseDescription"
 type="xsd:string" />
 </sequence>
 </complexType>
 <complexType name="WDDeviceInfo">
 <sequence>
 <element name="deviceName" type="xsd:string" />
 <element name="lines" type="xsd:string" />
 </sequence>
 </complexType>
 <complexType name="ArrayOfWDDeviceInfo">
 <complexContent>
 <restriction base="soapenc:Array">
 <attribute ref="soapenc:arrayType"
 wsdl:arrayType="impl:WDDeviceInfo[]" />
 </restriction>
 </complexContent>
 </complexType>
 <complexType name="GetConfigResponse">
 <sequence>
 <element name="description" type="xsd:string" />
 <element name="deviceInfoList"
 type="impl:ArrayOfWDDeviceInfo" />
 <element name="responseCode" type="xsd:int" />
 </sequence>
 </complexType>
 <complexType name="ArrayOf_soapenc_string">
 <complexContent>
 <restriction base="soapenc:Array">
 <attribute ref="soapenc:arrayType"
 wsdl:arrayType="soapenc:string[]" />
 </restriction>
 </complexContent>
 </complexType>
 <complexType name="WDDeviceInfoDetail">
 <sequence>
 <element name="deviceName" nillable="true"
 type="soapenc:string" />
 <element name="lines" nillable="true"
 type="impl:ArrayOf_soapenc_string" />
 </sequence>
 </complexType>

```

```

 <element name="phoneDesc" nillable="true"
 type="soapenc:string" />
 <element name="phoneType" nillable="true"
 type="soapenc:string" />
 </sequence>
</complexType>
<complexType name="ArrayOfWDDeviceInfoDetail">
 <complexContent>
 <restriction base="soapenc:Array">
 <attribute ref="soapenc:arrayType"
 wsdl:arrayType="impl:WDDeviceInfoDetail[]" />
 </restriction>
 </complexContent>
</complexType>
<complexType name="ConfigResponseDetail">
 <sequence>
 <element name="description" nillable="true"
 type="soapenc:string" />
 <element name="deviceInfoListDetail" nillable="true"
 type="impl:ArrayOfWDDeviceInfoDetail" />
 <element name="responseCode" type="xsd:int" />
 </sequence>
</complexType>
</schema>
</wsdl:types>
<wsdl:message name="getProfileDetailSoapResponse">
 <wsdl:part name="getProfileDetailSoapReturn"
 type="impl:ConfigResponseDetail" />
</wsdl:message>
<wsdl:message name="getPrimaryLineResponse">
 <wsdl:part name="getPrimaryLineReturn" type="soapenc:string" />
</wsdl:message>
<wsdl:message name="getPrimaryLineRequest">
 <wsdl:part name="in0" type="impl:Credential" />
</wsdl:message>
<wsdl:message name="getProfileDetailSoapRequest">
 <wsdl:part name="in0" type="impl:Credential" />
</wsdl:message>
<wsdl:message name="getProfileSoapRequest">
 <wsdl:part name="in0" type="impl:Credential" />
 <wsdl:part name="in1" type="soapenc:string" />
</wsdl:message>
<wsdl:message name="getProfileSoapResponse">
 <wsdl:part name="getProfileSoapReturn"
 type="impl:GetConfigResponse" />
</wsdl:message>
<wsdl:message name="endCallSoapResponse">
 <wsdl:part name="endCallSoapReturn" type="impl:CallResponse" />
</wsdl:message>
<wsdl:message name="makeCallSoapResponse">
 <wsdl:part name="makeCallSoapReturn" type="impl:CallResponse" />
</wsdl:message>
<wsdl:message name="isClusterUserSoapResponse">
 <wsdl:part name="isClusterUserSoapReturn" type="xsd:boolean" />
</wsdl:message>
<wsdl:message name="makeCallSoapRequest">
 <wsdl:part name="in0" type="impl:Credential" />
 <wsdl:part name="in1" type="soapenc:string" />
 <wsdl:part name="in2" type="impl:UserProfile" />
</wsdl:message>
<wsdl:message name="endCallSoapRequest">
 <wsdl:part name="in0" type="impl:Credential" />
 <wsdl:part name="in1" type="impl:UserProfile" />
</wsdl:message>

```

```

<wsdl:message name="isClusterUserSoapRequest">
 <wsdl:part name="in0" type="soapenc:string" />
</wsdl:message>
<wsdl:portType name="WDSOapInterface">
 <wsdl:operation name="makeCallSoap"
 parameterOrder="in0 in1 in2">
 <wsdl:input message="impl:makeCallSoapRequest"
 name="makeCallSoapRequest" />
 <wsdl:output message="impl:makeCallSoapResponse"
 name="makeCallSoapResponse" />
 </wsdl:operation>
 <wsdl:operation name="endCallSoap" parameterOrder="in0 in1">
 <wsdl:input message="impl:endCallSoapRequest"
 name="endCallSoapRequest" />
 <wsdl:output message="impl:endCallSoapResponse"
 name="endCallSoapResponse" />
 </wsdl:operation>
 <wsdl:operation name="getProfileSoap"
 parameterOrder="in0 in1">
 <wsdl:input message="impl:getProfileSoapRequest"
 name="getProfileSoapRequest" />
 <wsdl:output message="impl:getProfileSoapResponse"
 name="getProfileSoapResponse" />
 </wsdl:operation>
 <wsdl:operation name="isClusterUserSoap" parameterOrder="in0">
 <wsdl:input message="impl:isClusterUserSoapRequest"
 name="isClusterUserSoapRequest" />
 <wsdl:output message="impl:isClusterUserSoapResponse"
 name="isClusterUserSoapResponse" />
 </wsdl:operation>
 <wsdl:operation name="getProfileDetailSoap"
 parameterOrder="in0">
 <wsdl:input message="impl:getProfileDetailSoapRequest"
 name="getProfileDetailSoapRequest" />
 <wsdl:output message="impl:getProfileDetailSoapResponse"
 name="getProfileDetailSoapResponse" />
 </wsdl:operation>
 <wsdl:operation name="getPrimaryLine" parameterOrder="in0">
 <wsdl:input message="impl:getPrimaryLineRequest"
 name="getPrimaryLineRequest" />
 <wsdl:output message="impl:getPrimaryLineResponse"
 name="getPrimaryLineResponse" />
 </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="WebdialerSoapServiceSoapBinding"
 type="impl:WDSOapInterface">
 <wsdlsoap:binding style="rpc"
 transport="http://schemas.xmlsoap.org/soap/http" />
 <wsdl:operation name="makeCallSoap">
 <wsdlsoap:operation soapAction="" />
 <wsdl:input name="makeCallSoapRequest">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:input>
 <wsdl:output name="makeCallSoapResponse">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:output>
 </wsdl:operation>
 <wsdl:operation name="endCallSoap">
 <wsdlsoap:operation soapAction="" />
 <wsdl:input name="endCallSoapRequest">

```

```

 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:input>
 <wsdl:output name="endCallSoapResponse">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:output>
</wsdl:operation>
<wsdl:operation name="getProfileSoap">
 <wsdlsoap:operation soapAction="" />
 <wsdl:input name="getProfileSoapRequest">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:input>
 <wsdl:output name="getProfileSoapResponse">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:output>
</wsdl:operation>
<wsdl:operation name="isClusterUserSoap">
 <wsdlsoap:operation soapAction="" />
 <wsdl:input name="isClusterUserSoapRequest">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:input>
 <wsdl:output name="isClusterUserSoapResponse">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:output>
</wsdl:operation>
<wsdl:operation name="getProfileDetailSoap">
 <wsdlsoap:operation soapAction="" />
 <wsdl:input name="getProfileDetailSoapRequest">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:input>
 <wsdl:output name="getProfileDetailSoapResponse">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:output>
</wsdl:operation>
<wsdl:operation name="getPrimaryLine">
 <wsdlsoap:operation soapAction="" />
 <wsdl:input name="getPrimaryLineRequest">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:input>
 <wsdl:output name="getPrimaryLineResponse">
 <wsdlsoap:body
 encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
 namespace="urn:WD70" use="encoded" />
 </wsdl:output>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="WDSOapInterfaceService">

```

```

 <wsdl:port binding="impl:WebdialerSoapServiceSoapBinding"
 name="WebdialerSoapService">
 <wsdlsoap:address
location="https://localhost/webdialer/services/WebdialerSoapService70" />
 </wsdl:port>
 </wsdl:service>
 </wsdl:definitions>

```

## Sample Code Snippet

This sample code snippet enables Web Dialer from a directory search page.

### Single-Cluster Applications

Use this snippet for single-cluster applications if all users are in only one cluster.

```

f<FORM action="https://42.88.86.1/webdialer/Webdialer" method="post">
 <P>
 <INPUT type="hidden" name="destination" value="+666">
 <INPUT type="submit" value="Send">
 </P>
</FORM>

```

### Multiple-Cluster Applications

Use this snippet if all users are spread across different clusters.

```

function launchWebDialerWindow(url) {
 webdialer=window.open(url, "webdialer", "status=no, width=420, height=300,
scrollbars=no, resizable=yes, toolbar=no");
}

function launchWebDialerServlet(destination) {
 url= 'https://<%=server_name%>/webdialer/Redirector?destination='+escape(destination);
 launchWebDialerWindow(url);
}

```

*!These functions can be called from the HTML page which has a hyperlink to the phone number to be called. An example of it is*

```

<TD><A href="javascript:launchWebDialerServlet(<%= userInfo.TelephoneNumber %>)"><%=
userInfo.TelephoneNumber %> </TD>

```





# CHAPTER 9

## Cisco Web Dialer Operations By Release

Table 9-1 lists new, changed, and deprecated Cisco Web Dialer operations by release. It also lists operations that are under consideration or review (UCR). Operation details can be found in [Chapter 8, “Cisco Web Dialer API Programming.”](#)



**Note**

Beginning with Cisco Unified Communications Manager Release 5.1, WebDialer SOAP operations use HTTPS (SSL). HTTP was used in releases earlier than 5.1.

Table legend:

- —Supported
- —Not supported
- —Modified

## Operations By Release

**Table 9-1** Web Dialer Operations by Cisco Unified Communications Manager Release

Operation	5.0	5.1	6.0	6.1	7.0	7.1(2)	7.1(3) UCR	8.0 UCR
endCallSoap								
getPrimaryLine								
getProfileDetailSoap								
getProfileSoap								
isClusterUserSoap								
makeCallRolloverSOAP								
makeCallSoap								

**Note**

---

Release 5.1 onwards SOAP is over HTTPS (SSL) instead of the earlier HTTP.

---



## INDEX

---

### Symbols

.NET client, using with AXL API [2-41](#)

---

### A

addCommonPhoneConfig [2-6](#)

addGeoLocation [2-4](#)

addGeoLocationFilter [2-5](#)

addGeoLocationPolicy [2-5](#)

#### API

##### AXL

*See* AXL API

##### AXL-Serviceability

*See* AXL-Serviceability API

Application and Service Error Codes [6-9](#)

Audience [x](#)

#### Authentication

Basic [4-125](#)

of users [2-30, 4-125](#)

Secure [4-125](#)

authentication, for AXL API [2-34](#)

authentication, for AXL-Serviceability API [4-125](#)

Authorization [4-125](#)

AXIS, using with AXL API [2-40](#)

#### AXL API

authentication [2-34](#)

compliance [2-2](#)

data encryption [2-34](#)

error codes [2-54](#)

integration [2-35](#)

interoperability [2-35](#)

new and changed information [2-3](#)

operations by release [3-1](#)

overview [2-2](#)

request examples [2-46](#)

trace logs [2-38](#)

troubleshooting [2-36](#)

use with AXIS [2-40](#)

using in .NET environment [2-41](#)

versioning support [2-24, 2-31](#)

AXL Compliance [2-2](#)

AXL Error Codes [2-54](#)

AXL schema [2-30](#)

AXL Schema Documentation [2-30](#)

#### AXL-Serviceability API

authentication [4-125](#)

best practices [4-137](#)

CDRonDemand service [4-117](#)

ControlCenterServicesPort service [4-78](#)

customtizing for Cisco Unity Connection [4-128](#)

data model [4-8](#)

developer tools [4-126](#)

device query for large clusters [4-138](#)

DimeGetFileService service [4-124](#)

LogCollectionPort service [4-111](#)

new and changed information [4-2](#)

operations by release [5-1](#)

overview [4-2](#)

password expiration [4-128](#)

PerfmonPort service [4-61](#)

rate control mechanism [4-130](#)

RisPort service [4-15](#)

SOAP service tracing [4-129](#)

SOAP WSDL files [4-14](#)

---

**B**

Binding Style [4-8](#)

---

**C**

C++ example [2-47](#)

call flows

desktop-based client application [8-9](#)

WebDialer browser-based application [8-11](#)

WebDialer client-based application [8-10](#)

call flows, for Cisco Web Dialer [8-9](#)

CDRonDemand service

description [4-117](#)

get\_file\_list operation [4-120](#)

get\_file operation [4-122](#)

CDR on demand service [4-117](#)

Changes in Release 5.0(2) [8-5](#)

Character Encoding [4-8](#)

Cisco Extension Mobility

API [6-3](#)

operations by release [7-1](#)

Cisco Extension Mobility service

device profiles [6-2](#)

message examples [6-6](#)

operation [6-2](#)

overview [6-1](#)

response codes [6-9](#)

Cisco Unity Connection [4-128](#)

Cisco Web Dialer

call flows [8-9](#)

components [8-3](#)

interfaces [8-12](#)

new and changed information [8-2](#)

operations by release [9-1](#)

overview [8-1](#)

phone support [8-7](#)

security [8-5](#)

Servlet [8-3](#)

servlet [8-3](#)

Single Cluster Applications [8-29](#)

Support for Enhancements in CTI and JTAPI [8-5](#)

Using the Redirector Servlet [8-4](#)

Web Service Definition Language (WSDL) [8-24](#)

WSDL [8-24](#)

Configuration [6-3](#)

ControlCenterServicesPort service

description [4-78](#)

getProductInformationList operation [4-100](#)

soapDoControlServices operation [4-96](#)

soapDoServiceDeployment operation [4-91](#)

soapGetServiceStatus operation [4-81](#)

soapGetStaticServiceList operation [4-78](#)

Control Services API [4-96](#)

Conventions [xii](#)

---

**D**

Data Encryption [2-34](#)

data encryption [2-34](#)

data mode, for AXL-Serviceability API [4-8](#)

Data Model [4-8](#)

Detailed error information [4-12](#)

device profiles

Logout Device Profile [6-2](#)

overview [6-2](#)

device profiles, for Cisco Extension Mobility service [6-2](#)

Device-User Queries [6-4](#)

DimeGetFileService service

description [4-124](#)

getOneFile operation [4-124](#)

Do Service Deployment API [4-91](#)

dynamic request throttling [2-34](#)

---

**E**

Encoding Rule [4-8](#)

endCallSoap [8-15](#)  
 Example AXL Requests [2-46](#)

## Extension Mobility

Application Error Codes [6-9](#)  
 Architecture [6-2](#)  
 Service Module [6-2](#)

## F

FaultActor [4-12](#)  
 fault code values [4-11](#)  
 fault message [4-11](#)  
 Faults [4-51](#)  
 FaultString [4-11](#)

## G

get\_file [4-122](#)  
 get\_file\_list [4-120](#)  
 get\_file\_list operation [4-120](#)  
 get\_file operation [4-122](#)  
 getCommonPhoneConfig [2-6](#)  
 getGeoLocation [2-4](#)  
 getGeoLocationFilter [2-5](#)  
 getGeoLocationPolicy [2-5](#)  
 GetOneFile [4-124](#)  
 getOneFile operation [4-124](#)  
 getProductInformationList operation [4-100](#)  
 getProfileSoap [8-17](#)  
 getServerInfo operation [4-50](#)  
 Get Service Status API [4-81](#)  
 Get Static Service List [4-78](#)

## H

HTML over HTTP Interfaces [8-22](#)

## I

Integration Considerations [2-35](#)  
 Interfaces [8-12](#)  
 Interface to Get Server Names and Cluster Name [4-60](#)  
 Introduction [4-2](#)  
 IPv6  
     SelectCmDevice [4-15](#)  
     SelectCtiDevice [4-15](#)  
 isClusterUserSoap [8-18](#)  
 istNodeServiceLogs operation [4-111](#)

## J

Java Example [2-51](#)

## L

ListNodeServiceLogs [4-111](#)  
 LogCollectionPort service  
     description [4-111](#)  
     listNodeServiceLogs operation [4-111](#)  
     selectLogFiles operation [4-114](#)  
 Log Collection Service [4-111](#)  
 Login or Logout Response DTD [6-5](#)  
 Login Requests [6-4](#)  
 login service  
     error codes [6-9](#)  
     overview [6-2](#)  
 Logout Device Profile [6-2](#)

## M

makeCall [8-22](#)  
 makeCallProxy [8-23](#)  
 makeCallSoap [8-13](#)  
 Message Document Type Definitions [6-5](#)  
 messages

## queries

- device-user [6-4](#)
- query DTD [6-5](#)
- response DTD [6-6](#)
- user-devices [6-5](#)

## requests

- login [6-4](#)
- logout [6-4](#)
- request DTD [6-5](#)
- request examples [6-6](#)
- response DTD [6-5](#)

Multiple Cluster Applications [8-29](#)

Multiple Clusters [8-4](#)

---

## N

Namespaces [4-14](#)

---

## O

Overview [8-1](#)

---

## P

Parameters [4-122](#)

password expiration, for AXL-Serviceability API [4-128](#)

PerfmonAddCounter [4-63](#)

perfmonAddCounter operation [4-63](#)

PerfmonCloseSession [4-75](#)

perfmonCloseSession operation [4-69](#)

PerfmonCollectCounterData [4-75](#)

perfmonCollectCounterData operation [4-75](#)

PerfmonCollectSessionData [4-67](#)

perfmonCollectSessionData operation [4-67](#)

PerfmonListCounter [4-73](#)

perfmonListCounter operation [4-73](#)

PerfmonListInstance [4-70](#)

perfmonListInstance operation [4-70](#)

PerfmonOpenSession [4-62](#)

perfmonOpenSession operation [4-62](#)

PerfmonPort service

description [4-61](#)

perfmonAddCounter operation [4-63](#)

perfmonCloseSession operation [4-69](#)

perfmonCollectCounterData operation [4-75](#)

perfmonCollectSessionData operation [4-67](#)

perfmonListCounter operation [4-73](#)

perfmonListInstance operation [4-70](#)

perfmonOpenSession [4-62](#)

PerfmonQueryCounterDescription operation [4-72](#)

perfmonRemoveCounter operation [4-65](#)

PerfmonQueryCounterDescription [4-72](#)

PerfmonQueryCounterDescription operation [4-72](#)

PerfmonRemoveCounter [4-65](#)

perfmonRemoveCounter operation [4-65](#)

Purpose [ix](#)

---

## Q

Query

DTD [6-5](#)

Response DTD [6-6](#)

---

## R

rate control mechanism [4-130](#)

real-time information

Cisco Unified Communications Manager [4-16](#)

CTI [4-38](#)

SIP device [4-54](#)

Redirector Servlet [8-3](#)

Redirector servlet [8-3](#)

Related Documentation [xi](#)

removeCommonPhoneConfig [2-6](#)

removeGeoLocation [2-4](#)

removeGeoLocationFilter [2-5](#)

[removeGeoLocationPolicy](#) [2-5](#)  
[Request DTD](#) [6-5](#)  
[Request Examples](#) [6-6](#)  
[Response Message](#) [4-10](#)  
[Results](#) [8-13, 8-20](#)  
[RisPort service](#)  
     [description](#) [4-15](#)  
     [getServerInfo operation](#) [4-50](#)  
     [SelectCmDevice \(IPv6\) operation](#) [4-22](#)  
     [selectCMDevice operation](#) [4-16](#)  
     [SelectCmDeviceSIP operation](#) [4-54](#)  
     [SelectCtiDevice \(IPv6\) operation](#) [4-40](#)  
     [selectCtiItem operation](#) [4-38](#)

## S

[Security](#) [4-120](#)  
[security, for Cisco Web Dialer](#) [8-5](#)  
[selectCMDevice operation](#) [4-16](#)  
[SelectCmDeviceSIP operation](#) [4-54](#)  
[SelectCtiItem](#) [4-15](#)  
[selectCtiItem operation](#) [4-38](#)  
[SelectLogFiles](#) [4-114](#)  
[selectLogFiles operation](#) [4-114](#)  
[Server Query Service](#) [4-50](#)  
[Service Interface](#) [4-78](#)  
[SOAP](#) [4-129](#)  
[SOAP Action Header](#) [4-9](#)  
[SOAP binding](#) [4-8](#)  
[soapDoControlServices operation](#) [4-96](#)  
[soapDoServiceDeployment operation](#) [4-91](#)  
[SOAP fault error codes](#) [4-131](#)  
[soapGetServiceStatus operation](#) [4-81](#)  
[soapGetStaticServiceList operation](#) [4-78](#)  
[SOAP Header](#) [4-10](#)  
[SOAP over HTTP Interface](#) [8-12](#)  
[SoapPort](#) [4-10](#)  
[SOAP service tracing](#) [4-129](#)  
[SOAP WSDL files](#) [4-14](#)

## T

[throttling, dynamic](#) [2-34](#)  
[trace logs](#) [2-38](#)  
[Transport Protocols](#) [4-8](#)  
[troubleshooting, AXL API](#) [2-36](#)

## U

[updateCommonPhoneConfig](#) [2-6](#)  
[updateGeoLocation](#) [2-4](#)  
[updateGeoLocationFilter](#) [2-5](#)  
[updateGeoLocationPolicy](#) [2-5](#)  
[User-Devices Queries](#) [6-5](#)  
[Using the Extension Mobility API](#) [6-3](#)

## W

[Web Service Definition Language \(WSDL\)](#) [8-24](#)

