



Avaya one-X[®] Client Enablement Services Overview

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Chapter 1: Introduction

About this guide

This guide provides summary information on the Avaya one-X[®] Client Enablement Services offer and is available for potential users of this offer.

This guide refers to other Avaya products in the context of how they integrate with Client Enablement Services. You can get detailed information about these products from the Avaya Web site at <http://www.avaya.com/support>.

Avaya one-X[®] Client Enablement Services

Client Enablement Services is the first of a new series of next-generation applications that brings Unified Communications (UC) to your desktop and mobile handsets in a single tool. Use Client Enablement Services to access multiple Avaya UC capabilities, including Telephony, Messaging, Mobility, Conferencing, and Presence Services. With Client Enablement Services, you do not need multiple applications to access the features provided by Avaya Aura[®] Communication Manager, Avaya Aura[®] Presence Services, Avaya Modular Messaging / Avaya Aura[®] Messaging, and Avaya Aura[®] Conferencing.

In Client Enablement Services, the UC clients of Avaya one-X[®] Communicator and Avaya one-X[®] Mobile work with a single server. The Client Enablement Services server delivers continuous subscriber data and provides a consistent user experience. Client Enablement Services supports a thick client and mobile interface to gain access to the functionality supported on the server.

Avaya one-X[®] Communicator provides the softphone capability. Use Avaya one-X[®] Communicator to manage the communications tasks in your enterprise. Avaya one-X[®] Communicator provides a simple, intuitive access to your daily communications tools.

The UC features of Avaya one-X[®] Communicator include visual voice mail to filter and sort voice messages. Use the visual voice mail feature to respond to important messages quickly. Communication History logs help you trace the history of your enterprise calls and voice messages. Use Avaya one-X[®] Communicator to increase the productivity of your enterprise with tools that enhance collaboration, improve responsiveness, and lower costs for IT and end-user support.

Avaya one-X[®] Mobile provides seamless access to voice messaging and corporate directories while using a mobile device. Avaya one-X[®] Mobile equips your mobile phone with access to

your office telephone system. Regardless of your work location, you can receive and make calls to and from your desk phone number, review voice mail messages, look up information in your enterprise directory, and even block calls.

System functionality

Client Enablement Services clients deliver the following high-level functionality.

Avaya one-X[®] Communicator

Avaya one-X[®] Communicator delivers the following functionality:

- Desktop access to all your communication tools from a single, intuitive user interface.
- Telephony features similar to Avaya one-X Desktop Edition and Avaya IP Softphone.
- Telephony integration with MOC or IBM Sametime Connect.
- Desktop video for H.323 Softphones for face-to-face communication to streamline decision-making and reduce travel expenses.
- Contact lookup of Microsoft Outlook or IBM Lotus Notes from the Avaya one-X[®] Communicator user interface.
- Contact management tools that help you find contact information quickly.
- Telephone share control that provides telephony functionality from a server to your desktop.
- Expanded video options: Full screen option, Always on top feature, and Screen Saver and Monitor Power Saving feature.
- Visual Audio Bridge Conferencing that is easy to start, join, and manage for improved collaboration and conference call effectiveness.
- Communication History logs that help you trace the history of your enterprise calls and voice messages.
- Presence access requests control.

*** Note:**

Avaya one-X[®] Communicator client must connect to the Client Enablement Services server to access the UC features. Else, the system only delivers telephony features.

Avaya one-X[®] Mobile

Avaya one-X[®] Mobile delivers the following functionality:

- Speech Access feature to dial a predefined number to the one-X Speech server.
- Ring Phones feature to select telephone numbers that must ring when you receive an incoming call.
- History feature to view detailed information of incoming, outgoing, and missed calls.

- Call back feature to route a call from your Avaya one-X[®] Mobile application to any telephone through your office telephone system.
- Block non-VIP callers and receive calls from VIPs only.
- Presence feature to view basic presence capability such as manually setting State, Availability, and User Message.

*** Note:**

Avaya one-X[®] Mobile client must connect to the Client Enablement Services server to access the UC features. Else, the system only delivers telephony features.

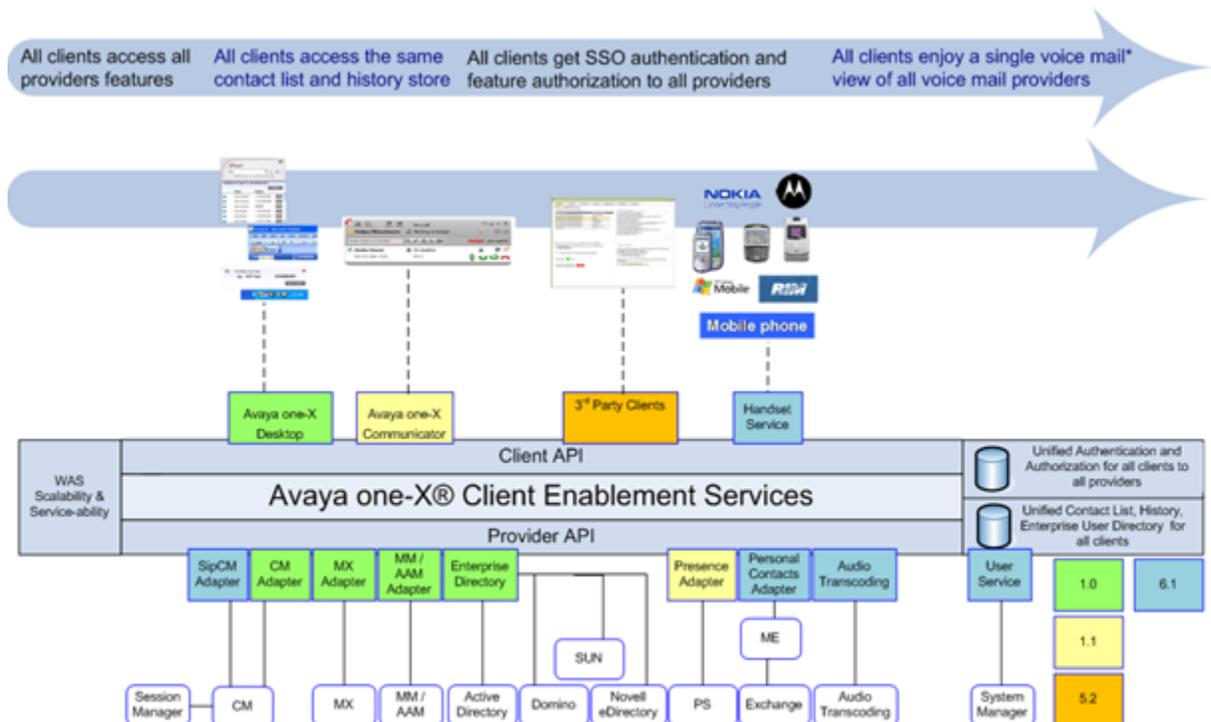
System architecture diagram

Client Enablement Services is comprised of external servers and core components.

External servers deliver telephony, messaging, mobility, conferencing, and presence services from the Communication Manager switch, Modular Messaging, Conferencing, and Presence Services servers.

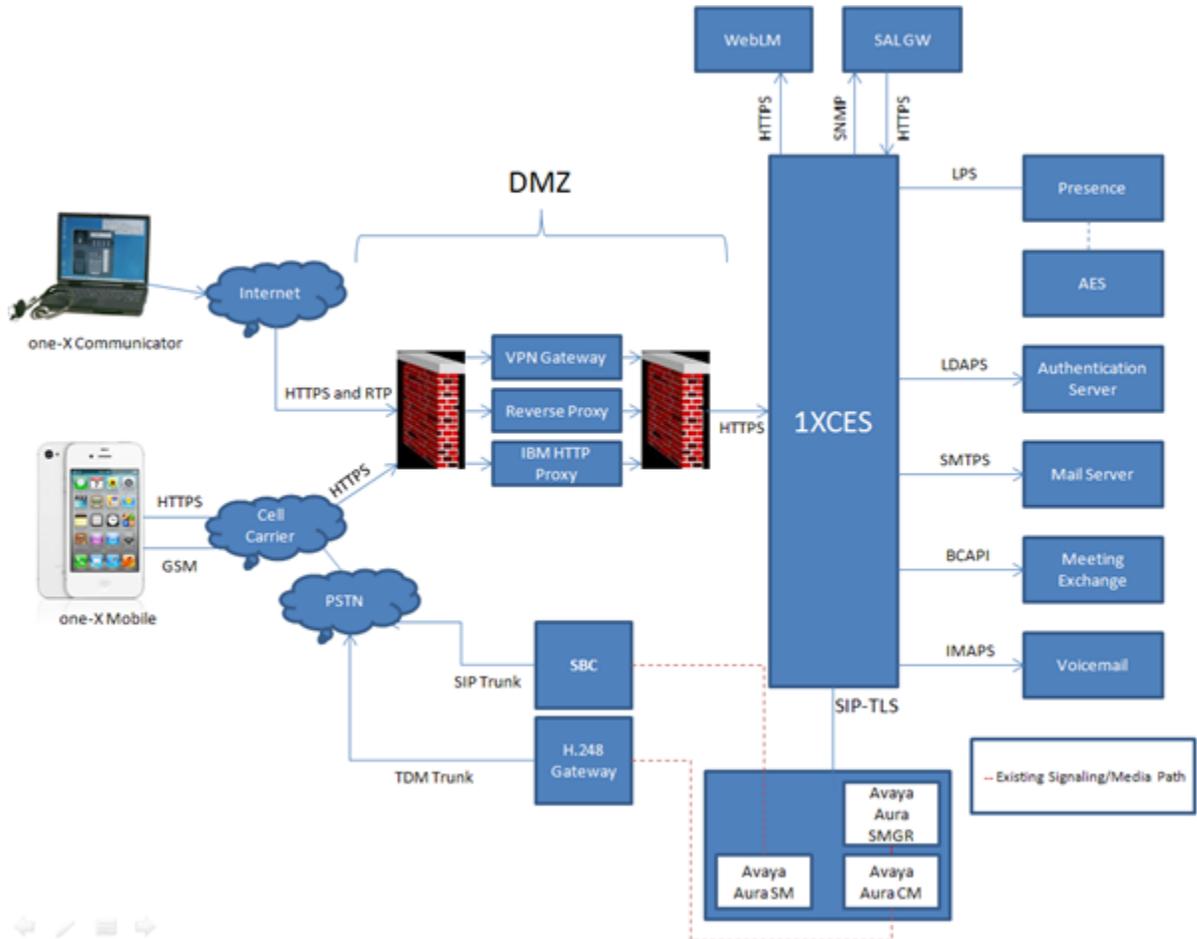
Core components integrate with Directory Services, the WebLM server, and an internal database to support system users. Core components also provide system level functions, such as scheduling database backups and server synchronizations.

The following diagram describes the Client Enablement Services system.



Deployment model

The following figure shows the various components in the Client Enablement Services deployment and their interrelationship between the providers and the entities.



During installation, you can install Client Enablement Services with or without the Handset Server. The Handset Server facilitates the communication between the handsets and the Handset Services running in Client Enablement Services. Handset Services is a separate Java Application that you can install outside the Intranet, mostly in the DMZ. You can scale the Handset Server according to the number of Avaya one-X® Mobile users.

Serviceability

Client Enablement Services provides the following serviceability features:

- SNMP traps for event monitoring and notification
- Audit log to allow retrieval and diagnosis through log files
- Separate administration client for provisioning and import of users

Benefits from the server perspective

From a server perspective, a single-server deployment and client consolidation provides the following benefits:

- Consolidated inbound and outbound call model in server and client, thus eliminating Avaya one-X[®] Communicator and Avaya one-X[®] Mobile conflicts.
- Consolidated and consistent server logic for call logs, visual voice mail, conferencing, presence, and directories or contacts.

Benefits from the user perspective

From a user perspective, a single-server deployment and client consolidation provides the following benefits:

- Avaya one-X[®] Communicator client includes a simplified user interface to enhance user experience.
- Avaya one-X[®] Mobile user interface offers an improved look, consistency across clients, and common usage of terminology. It also provides basic presence viewing capabilities such as manually setting State, Availability, and User Message capabilities.
- All Avaya one-X[®] Mobile clients offer significant improvements in terms of simple call back user experience, and simplified deployment and user experience within the Converged Clients.
- Consolidated administration, maintenance, and monitoring of all clients.

Usage modes

With Client Enablement Services, customers can specify the mode for their users while using the Avaya one-X[®] Communicator and Avaya one-X[®] Mobile clients.

Avaya one-X[®] Communicator usage modes

Avaya one-X[®] Communicator is available in the following modes.

Mode Name	Description
H.323 - Standalone	This is the basic deployment model for customers in an H.323 environment who want to provide their users the Softphone capability. These customers often deploy their first Softphone or replace their existing IP Softphones. Most customers deploy this for regular use, but some use it only as a business continuity tool.
H.323 - UC Integration	This is a common deployment model for customers in a H.323 environment who have deployed other Avaya applications such as Conferencing, Modular Messaging / Avaya Aura [®] Messaging, and/or Presence Services, and want to provide their users with enhanced capabilities and a single user interface.
SIP - Standalone (CM-ES or CM-FS)	This is the basic deployment model for customers in a SIP environment who want to provide their users the Softphone capability. These customers often deploy their first Softphone or replace their existing IP Softphones. Most customers deploy this for regular use, but some use it only as a business continuity tool.
SIP - UC Integration Standalone (CM-ES or CM-FS)	This is a common deployment model for customers in a SIP environment who have deployed other Avaya applications such as Conferencing, Modular Messaging / Avaya Aura [®] Messaging, and/or Presence Services and want to provide their users with enhanced capabilities and a single user interface.
SIP - Native IM Standalone (CM-ES or CM-FS)	Mid-sized companies that want a single source, lower cost offering for their UC and voice centric clients, deploy this model.
SIP - UC Integration + Native IM Standalone (CM-ES or CM-FS)	This preferred deployment model leverages Avaya applications and capabilities. Users of this feature set experience a single GUI access to PC and voice collaboration.

CM-ES is Communication Manager with minor changes. Evolution Server is the descriptor for the option of deploying Communication Manager in the core or branch, in full call model, supporting both SIP and non-SIP endpoints with limited application sequencing

CM-FS is Communication Manager acting as a SIP feature server. Feature Server is the descriptor for the option of deploying Communication Manager in the core or branch, in half call model, supporting only SIP endpoints with full application sequencing.

*** Note:**

For Communication Manager 6.0.1, Client Enablement Services supports both CM-FS and CM-ES implementation. However, for Communication Manager 6.0, Client Enablement Services supports only CM-ES implementation.

Avaya one-X[®] Mobile usage modes

Avaya one-X[®] Mobile is available in the following modes:

- Mobile users can be provisioned with a SIP station and have full functionality.
- Mobile users can be provisioned with a H.323 station and have full functionality.

Port usage

The following table includes the port usage for Client Enablement Services.

Server	Network / Application Protocol	Destination Port(s)	Source Port(s)	Comments
Modular Messaging / Avaya Aura [®] Messaging	TCP / SMTP	25	1024-65535	SMTP for sending e-mail and SMS
	SSL / SMTP	465	1024-65535	SMTP for sending e-mail and SMS
	SSL / IMAP4	993	1024-65535	IMAP for retrieving voicemails and faxes for display, and audio playback for user
	TCP / LDAP	389 or 636	1024-65535	LDAP for Modular

Server	Network / Application Protocol	Destination Port(s)	Source Port(s)	Comments
				Messaging / Avaya Aura® Messaging
Conferencing	TCP	2002	1024-65535	Protocol for communicating with Meeting Exchange
	TCP / BCAPI	5040 with auto-increment	1024-65535	BCAPI Protocol for communicating with Meeting Exchange
	UDP / BCAPI	5040 with auto-increment	1024-65535	BCAPI Protocol for communicating with Meeting Exchange
Presence Services	SIP over MLTS	5061 (SIP) 9072 (LPS Consumer Port) 9070 (LPS Supplier Port) 2009 (RMI)	1024-65535	Presence updates for a contact
WebLM	SSL / HTTP	If the WebLM is local, the port is 8443. If WebLM is on System Manager, the port is 52233.	1024-65535	Communication with Avaya Licensing
Enterprise Directory	TCP / LDAP	389	1024-65535	Enterprise contacts and security group information
	SSL / LDAP	636	1024-65535	Enterprise contacts and security group information
Client Enablement Services Administration Client	SSL / HTTP	443 and 9443	1024-65535	Communication with Administration Client

Server	Network / Application Protocol	Destination Port(s)	Source Port(s)	Comments
Command Line Interface (CLI)	SSH	22	1024-65535	Open from inside Corporate firewall to HTTP Server
Management Nodes	SNMP	162	1024-65535	SNMP Traps
System Manager	SCEP	443	1024-65535	Communication with System Manager for trust management
Client Enablement Services	xSocket using SSL v3	8888 (configurable)	1024-65535	Open from Handset Server to Client Enablement Services
Handset Server	xSocket using SSL v3	7777 (configurable)	1024-65535	Open from Public Internet to Handset Server
Handset Device	SSL / HTTP	443	1024-65535	Download mobile binaries package
Session Manager or Communication Manager	SIP	5060 or 5061	1024-65535	Communication with Session Manager or Communication Manager

Avaya one-X® Client Enablement Services administration overview

The Client Enablement Services Administration application contains the Administration Command Line Client and Administration Web Client application. This application is for the following audience:

- Administrative users
- Auditor users

From the administrative interface, administrative users can configure users, services, and system tasks on Client Enablement Services. They can add and configure the security groups

for users of Client Enablement Services during the installation and implementation process. You cannot modify the security groups after the installation.

Administrative users

These users can configure the users, servers, and system functions on Client Enablement Services. Administrative users use the administration application to perform all administrative tasks.

Auditor users

These users have read-only privileges and restricted access to the functions in the Administration application. These users can review Client Enablement Services but cannot make changes to the Client Enablement Services. The *Scheduler* and *Monitor* functions are not available to an *Auditor* user. Other functions return an error if the *Auditor* tries to make a change.

Administration Web Client overview

The Avaya one-X[®] Client Enablement Services administration application is a Web based application and thus you have the advantage of administering a Client Enablement Services server from any computer. Using this application, you can do the following:

- configure the various servers, which are required for different functionalities, on the Client Enablement Services server
- define system and group profiles
- create users and assign resources to a user
- schedule and administer synchronization, statistics cleanup, database backup
- system administration such as Enterprise Directory, License server, Mobile application, SMS domain, Notification, SNMP traps, SNMP destinations, logging, JDBC connector
- monitor, suspend, and restart various services of Client Enablement Services

The above list of tasks is not a comprehensive list of all tasks that you can do using the administration application. This is just a representative list.

Administration Command Line Client overview

You can also use the Administration Command Line Client as an alternative to the Web based administration application for performing some administering tasks. You can use the Administration Command Line Client when the administration Web client is unavailable due to some issue with the server. Administration Command Line Client is also useful when you must perform bulk operations such as importing users, exporting users.

The command line application, Administration Command Line Client, runs commands for various administrative tasks.

Performance and capacities

Client Enablement Services supports 4,000 administered subscribers and 2,000 active subscribers. These subscribers can use any of the Avaya one-X[®] Communicator and Avaya one-X[®] Mobile UC client interfaces they are provisioned for. The system does not allow the numbers of subscribers to exceed the maximum limit. For example, login attempt by the 2,001 subscriber is blocked.

The system supports the following number of Avaya applications on a single Client Enablement Services server.

Server Type	Maximum Supported
Communication Manager	4
Modular Messaging / Avaya Aura [®] Messaging	4
Conferencing	3
Presence Services	1
Session Manager	4
System Manager	1

*** Note:**

To increase the capacity, you can have multiple Client Enablement Services servers. However, each Client Enablement Services server will have its own environment and will not communicate with other Client Enablement Services servers.

Depending on their tasks, different levels of users have different system usage. The following table describes a Light, Average, and Heavy user of the Client Enablement Services application.

All Users	Calls/Day	Calls/Hour	Conferences/Day	Modular Messaging / Avaya Aura [®] Messaging	Personal Contacts	Favorite Contacts	History	Percentage of Users
<i>Light User</i>	5	1	1	2	5	5	20	10
<i>Average User</i>	30	4	3	10	100	50	50	80

All Users	Calls/ Day	Calls/ Hour	Confere nces/ Day	Modular Messag ing / Avaya Aura® Messag ing	Person al Contact s	Favorite Contact s	History	Percent age of Users
<i>Heavy User</i>	100	10	10	30	1000	500	100	10

The system supports the following:

- Up to 4,000 administered subscribers with 2,000 active simultaneous connections of any UC client combination.
- Up to 20,000 groups in the corporate database.
- Up to 100,000 subscribers in the corporate database.

Security features

Connections through VPN or internal LAN

Client Enablement Services supports connection through internal LAN or VPN.

User authentication through the enterprise directory

Client Enablement Services integrates with the existing Enterprise Directory. Client Enablement Services uses the Microsoft Active Directory, IBM Domino Server, Novell eDirectory, or SUN Directory Server Enterprise Edition user records for authentication and authorization.

However, for login in the standalone mode, Avaya one-X® Communicator uses the extension and password of Communication Manager for user authentication.

Access to Client Enablement Services through secure server connections

Client Enablement Services supports access through HTTPS protocol. Install a secure server certificate obtained from a certifying authority such as VeriSign, Thawte, or GTE CyberTrust. Users can then confidently connect to Client Enablement Services.

For H.323 connection

If administered on the call server, the system supports signaling channel encryption for call signaling messages.

Connections to integrated components through secure ports

You can configure secure ports for integrated components including:

- Enterprise directory application
- Web License Manager
- Modular Messaging / Avaya Aura® Messaging

Encryption implemented through the Administration Command Line Client

For information on how to implement the following encryption, see the online help provided with the Administration application.

- Encryption for sensitive information in the Client Enablement Services database
- Encryption for bulk user import
- Encryption for bulk user export

Security requirements for administrators

Use the following requirements to help maintain a secure environment for Client Enablement Services.

- Use role assignments and assign security groups to appropriately restrict access to operations.
- For accountability, each user must have a unique login ID. Instruct users not to share their login ID and password.
- Periodically review and update the list of administered users, their roles, and their permissions.
- Review administration logs regularly to ensure that the system is operating properly.
- Review audit logs regularly to ensure that the system is operating properly.
- Review security logs and alarms regularly to monitor possible security events.

Additional security information

Additional security information for all Avaya products, including Client Enablement Services, and Avaya components that integrate with Client Enablement Services, is available at <http://support.avaya.com/security>. For example, you can find information about the following:

- Avaya Product Security Vulnerability Response Policy
- Avaya Security Vulnerability Classification
- Security advisories for Avaya products
- Software patches for security issues

- Reporting a security vulnerability
- Automatic e-mail notifications of security advisories

You can also find additional information about security practices at <http://www.nsa.gov/snac/>.

Supported languages

Client Enablement Services supports the following languages for this release.

- English
- Chinese, Simplified
- Dutch
- French, International
- German
- Italian
- Japanese
- Korean
- Portuguese (Brazilian)
- Russian
- Spanish, International

Product documentation

Use the appropriate user documentation to obtain specific information to plan, install, administer, troubleshoot, and maintain your Client Enablement Services system. You can download these documents from the Avaya Support Web site at:

- https://support.avaya.com/css/Products/P0984/All_Documents and
- https://support.avaya.com/css/Products/P0516/All_Documents

- *Implementing Avaya one-X[®] Client Enablement Services*
- *Administering Avaya one-X[®] Client Enablement Services*
- *Avaya one-X[®] Client Enablement Services Online Help for administrators*
- *Avaya one-X[®] Communicator User Guide*
- *Avaya one-X[®] Communicator Online Help for users*

- *Avaya Online Help for centralized administration tool*
- *Avaya one-X® Mobile Android User Guide*
- *Avaya one-X® Mobile Blackberry User Guide (touch screen model)*
- *Avaya one-X® Mobile Blackberry User Guide (non-touch screen model)*
- *Avaya one-X® Mobile iPhone User Guide*

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Chapter 2: Integration with other components

Communication Manager

Communication Manager is a key component of Avaya Aura® and delivers rich voice and video capabilities. Communication Manager provides a resilient, distributed network for:

- Media gateways
- Analog, digital, and IP-based communication devices

In addition, Communication Manager delivers robust PBX features, high reliability and scalability, and multi-protocol support. Communication Manager includes advanced mobility features, built-in conference calling and contact center applications, and E911 capabilities.

Communication Manager is a mandatory component in Client Enablement Services. Communication Manager connects directly or indirectly with Client Enablement Services. Communication Manager connects indirectly using Session Manager. Communication Manager and Client Enablement Services interact with each other using SIP-TLS to deliver the UC functionality and support telephony, IM clients.

*** Note:**

Client Enablement Services does not support Communication Manager 6.0 Feature Server implementation.

The following benefits are available to Client Enablement Services because of the integration with Communication Manager:

- Robust voice and video call processing capabilities
- Advanced workforce productivity and mobility features
- Centralized voice mail and attendant operations across multiple locations
- Support for SIP, H.323, and many industry standard communications protocols over a variety of different networks
- More than 700 powerful features
- High availability, reliability, and survivability

*** Note:**

You cannot use the Avaya one-X[®] Portal 5.2 server and the Client Enablement Services 6.1 server on the same Communication Manager.

Session Manager

Companies typically have a diverse set of communications products within their corporate Intranet that cannot communicate with each other. A standard signaling protocol is required to make these products work together. Avaya has adopted SIP as the signaling protocol for communication. Session Manager is a SIP routing and integration tool and the core component of Avaya Aura[®].

Session Manager integrates all SIP devices across the entire enterprise network within a company. Session Manager does not manage individual locations as separate units within the enterprise. Each location, branch, or application is part of the overall enterprise, managed as an enterprise, and seen as an enterprise.

In Client Enablement Services, Communication Manager interacts with Session Manager to deliver the UC functionality and support telephony, IM clients. System Manager connects to Session Manager for administration of Session Manager.

In Client Enablement Services, Session Manager is an optional component for using the following features:

- Telephony in Avaya one-X[®] Mobile where Communication Manager is used as an Access Element or Evolution Server
- Telephony in the Avaya one-X[®] Communicator - H.323 mode using a non-Aura implementation

You do not need Session Manager to use the Conferencing feature in the Avaya one-X[®] Communicator - H.323 mode.

The following benefits are available to Client Enablement Services because of the integration with Session Manager:

- A simplified network-wide feature deployment
- Centralized routing, SIP trunking, and user profiles
- Cost-effective scalability from small to very large deployments
- High availability with geographic redundancy
- A secure environment that conforms to specific SIP standards and practices

System Manager

System Manager is a central management system that delivers a set of shared management services and a common console for System Manager and the components of System Manager in an enterprise.

The following shared management services are available to Client Enablement Services because of the integration with System Manager:

- *Elements*: Features offered by the individual components of System Manager
- *Events*: Features for administering alarms and logs generated by System Manager and the other components of System Manager
- *Groups and Roles*: Features for administering groups and roles
- *Licenses*: Features for administering licenses for individual components of Avaya Aura®
- *Routing*: Features for managing routing applications
- *Security*: Features for configuring certificates
- *System Manager Data*: Features for backing up and restoring System Manager configuration data among others
- *Users*: Features to administer users and public contact list

System Manager uses SIP as the signaling protocol for communication. Client Enablement Services communicates with System Manager to obtain the presence provisioning information. System Manager and Client Enablement Services both connect to the same LDAP to obtain the user information.

In Client Enablement Services, System Manager is an optional component for using the following features:

- Telephony in Avaya one-X® Mobile where Communication Manager is used as an Access Element or Evolution Server
- Telephony in the Avaya one-X® Communicator - H.323 mode using a non-Aura implementation

You do not need System Manager to use the Conferencing feature in the Avaya one-X® Communicator - H.323 mode.

Presence and Instant Messaging

Presence is an indication of the availability of an individual at a point in time and readiness to communicate across a set of services such as telephony and instant messaging. Presence Services indicates the presence or availability of a person by states like Busy and Away.

Presence Services supports presence information gathered from a diverse range of sources. Presence Services aggregates this information on a per-user basis and then makes this information available to applications that include the presence feature.

Applications interested in a user's presence must first subscribe to receive presence information. Client Enablement Services uses Local Presence Service (LPS) to subscribe to Presence Services. In Client Enablement Services, Session Manager and System Manager are mandatory if you are using Presence Services. Client Enablement Services communicates with System Manager to obtain the presence provisioning information.

Presence Server collects presence information from various sources, such as Application Enablement Services (AES), Microsoft Office™ Communicator Server (OCS), and IBM Lotus™ Sametime Server. You can see on-the-phone status on phones and Internet Messaging status in Microsoft Office Communicator and other Internet Messaging applications.

Messaging

Messaging is an enterprise-class system targeted at flexible deployment options in single site and multisite environments. Messaging is flexible, scalable, resilient, and easy to deploy on standard Linux-based servers.

Messaging enhances productivity by enabling quick and effective communication and collaboration across an enterprise. Using the variety of features and capabilities the solution offers, end users can receive and respond to calls and contacts from customers, partners, and coworkers faster and more efficiently.

For Client Enablement Services to function properly, you must implement Client Enablement Services with Modular Messaging or Avaya Aura® Messaging.

*** Note:**

For Modular Messaging, Session Manager and System Manager are not required.

Client Enablement Services integrates with Modular Messaging or Avaya Aura® Messaging server using only the Avaya message store, and not any other e-mail message store. Client Enablement Services uses:

- Internet Message Access Protocol Secure (IMAPS) for retrieving voice mails
- Simple Mail Transfer Protocol (SMTP) for sending e-mail and SMS

The following benefits are available to Client Enablement Services because of the integration with Messaging:

- Transfers important calls to the right person, at the right time
- Alerts employees to critical new messages
- Lowers the cost of acquisition, implementation, and ownership of the Messaging systems through standards-based interfaces that allow easy integration with the existing networks, administrative systems, and security processes
- Provides multiple configuration choices for scalability to enable system consolidation, significantly lowering total cost of ownership (TCO) while offering new business continuity options

Conferencing

Avaya Aura[®] Conferencing 6.0 is a fully integrated audio and data conferencing solution for your organization. Conferencing consists of a number of components which provide booking engines, account management utilities, data sharing functionality, billing outputs, directory server integration capabilities, and audio management for all calls.

Typically, the Standard Edition of Conferencing suits smaller deployments. In the Standard Edition of Conferencing, the media server and the application server reside on a single server.

Client Enablement Services also supports another conferencing server called Avaya Aura[®] Meeting Exchange 5.2 Enterprise Edition. Typically, the Enterprise Edition of Meeting Exchange 5.2 suits larger, more complex deployments.

The Enterprise Edition of Meeting Exchange 5.2 supports complicated installations such as those with multiple application servers, a global distribution of servers, and redundancy requirements. The Enterprise Edition of Meeting Exchange 5.2 also supports additional functionality, such as self-registration for conferences, reseller and wholesaler users, and Avaya Web Conferencing recording and playback.

Client Enablement Services uses BreadCrumb Application Programming Interface (BCAPI) to communicate with the Conferencing server.

LDAP

Lightweight Directory Access Protocol (LDAP) server is a database that contains system data, subscriber data, and Class of Service (CoS) data that is assigned to a user. Customers need to gain access to the user database to bulk-administer the data. The alternative name for the LDAP server is authentication server.

*** Note:**

LDAP does not include mailbox data such as messages, greetings, and announcements.

Client Enablement Services sources and authenticates its users from LDAP. System Manager synchronizes its users with LDAP. Client Enablement Services and System Manager both connect to the same LDAP to obtain the same user information. Client Enablement Services uses Lightweight Directory Access Protocol Secure (LDAPS) to communicate with the LDAP server.

Client Enablement Services supports the following LDAP servers:

- Microsoft Active Directory
- IBM Domino Server
- Novell eDirectory
- SUN Directory Server Enterprise Edition

WebLM

WebLM is a Web-based license manager that runs on both Microsoft Windows, and UNIX or Linux systems. Avaya has designed WebLM to support software products that require licenses. The WebLM server provides a Web User Interface (UI) for license administration. Use a standard Web browser over a secure SSL link (HTTPS) for administration.

As WebLM is Web-based, WebLM facilitates easy and faster tracking of licenses. Administrators can use WebLM to track and manage licenses of multiple Avaya software products from a single location.

Client Enablement Services uses WebLM of System Platform or WebLM of remote System Manager to distribute the software licenses. Use the local WebLM server only if WebLM of System Manager is not available.

SAL Gateway

SAL Gateway remotely manages and provides service support for a variety of devices and products. SAL Gateway monitors alarms generated by the managed devices and sends them to Concentrator Core Server for action. Concentrator Core Server handles alarming and inventory.

The SAL Gateway application provides a user interface (UI) to configure its interfaces to managed devices and other settings. Concentrator Remote Server handles remote access configuration.

All communications from SAL Gateway to Concentrator Core Server flow bidirectionally over a tunnel. The system creates the tunnel through the HTTPS requests initiated from SAL Gateway to Concentrator Core Server.

The Client Enablement Services server interacts with SAL Gateway using SNMP. SAL Gateway interacts with the Client Enablement Services server over a secure SSL link (HTTPS).

Handset Server

Handset Server facilitates the communication between Handset Services running in Client Enablement Services and the handsets. Handset Services is a separate Java application that you can install outside the Intranet mostly in DMZ. You can choose to use a secure SSL link (HTTPS) for communication between Handset Server and Handset Services.

During installation, you can install Client Enablement Services with or without Handset Server. If you install Handset Server on the same server on which you install Client Enablement Services, then this is a Coresident installation. If you install Handset Server on a different server from the one on which you install Client Enablement Services, then this is a Standalone installation.

You can support more number of Avaya one-X[®] Mobile users by increasing the configuration of Handset Server.

IHS

IBM HTTP Server (IHS) is a hardened piece of software designed for gaining HTTP access to WebSphere application servers. During the template installation, the system installs IHS on the Client Enablement Services server. Use Standalone IHS for handling Internet traffic, that is, mobile application download. Use Coresident IHS for handling internal HTTP traffic to IHS and mobile application download.

Installing Client Enablement Services automatically installs local IHS and optionally installs Coresident Handset Server. Upgrading Client Enablement Services automatically upgrades local IHS and Coresident Handset Server.

Install and upgrade Standalone IHS and Handset Server using the installation package that Client Enablement Services provides. The installation package always installs and upgrades both IHS and Handset Server.

Reverse proxy

Deploy IHS in the demilitarized zone (DMZ) or by using a reverse proxy to forward the HTTP traffic to an internal IHS. A reverse proxy is a type of proxy server that retrieves resources on behalf of a client from one or more servers. You can deploy IHS using reverse proxy in two ways. The reverse proxy deployments differ with one being very simple to install, while the other allows security conscious customers the flexibility to harden the customer server.

In the simpler installation method, Client Enablement Services uses Coresident IHS for handling internal HTTP traffic to IHS and mobile application download. This method is simpler because during the template installation the system automatically installs Coresident IHS with Client Enablement Services. Hence, there is no need to install and maintain any other IHS server.

In the secure method, there is a reverse proxy. However, the system reverse proxies the traffic to an internal IHS that you install on a separate server. The internal IHS only contains IHS and none of the other Client Enablement Services functionality. You can also deploy IHS on a customer's standard server.

Avaya one-X[®] Communicator

Avaya one-X[®] Communicator helps enterprise users manage their communication tasks by providing users with a simple, intuitive access to all of their everyday communications tools.

Enterprises can offer Avaya one-X[®] Communicator to their users in the following ways:

- A standalone client that provides basic and advanced telephony features, Instant Messaging, and presence support when integrated with Presence Services.
- A UC client that is integrated with Client Enablement Services for 24*7 call logs, with Conferencing to provide live audio conference services, and with Avaya Aura[®] Messaging or Modular Messaging using the Avaya message store to provide voice message services. The UC client integrates with the Presence Services server and Microsoft Office Communication Server (OCS) to provide Instant Messaging and presence support across Avaya one-X[®] Communicator and MOC.

Use Avaya one-X[®] Communicator to increase your productivity with tools that:

- Enhance collaboration with assurance of security
- Improve responsiveness
- Make high definition video calls
- Lower costs for IT and end-user support

Avaya one-X® Mobile

The Avaya one-X® Mobile software offers enterprise voice mail and corporate directory integration on mobile devices. Use Avaya one-X® Mobile to extend the corporate voice network to employee mobile phones.

Avaya one-X® Mobile connects to the Client Enablement Services server to provide the following UC capabilities:

- Telephony
- Messaging
- Mobility
- Conferencing
- Presence Services

Use Avaya one-X® Mobile to enable your mobile device to gain access to the telephone system of your company. Using Avaya one-X® Mobile, you can:

- use your office telephone number to make and receive calls
- review voice mail messages
- look up your company corporate directory
- block selected calls irrespective of your location

Chapter 3: Features

User features

Key features of Avaya one-X[®] Communicator

Basic features

The Avaya one-X[®] Communicator offer includes the following basic features:

- Desktop access to all your communication tools from a single, intuitive user interface
- Telephony features similar to Avaya one-X Desktop Edition and Avaya IP Softphone
- Usage modes control
- Multiple levels of security
- High-definition video calling
- Viewing and sharing of presence states
- Scalable Instant messaging capability to send messages without requiring any third-party messaging application
- Presence to determine the best way to reach a colleague quickly
- Groups for associating users with particular telephone settings
- Centralized control and administration
- Click-to-Dial from MOC or IBM Sametime Connect using native Avaya one-X[®] Communicator integration
- Telephony integration with MOC or IBM Sametime Connect
- Desktop video for H.323 Softphones for face-to-face communications to streamline decision-making and reduce travel expenses
- Click-to-Dial capability from Microsoft Internet Explorer and Mozilla Firefox
- Click-to-Dial capability from Microsoft Outlook Contacts
- Wipe-to-dial (clipboard dialing) capability from any application
- Contact lookup of Microsoft Outlook or IBM Lotus Notes contact from the Avaya one-X[®] Communicator user interface
- Contact management tools that help you find contact information quickly

- Telephone share control that provides telephony functionality from a server to your desktop
- Enhanced login preferences: Automatic login and Autostart
- Expanded video options: Full screen option, Always on top feature, and Screen Saver and Monitor Power Saving feature
- Customization of the Avaya one-X logo, and the title on the Login and Welcome windows

Unified Communications features

Unified Communications features require integration with Client Enablement Services. These features include:

- All of the Basic feature set, as described above
- Visual Voice Mail that allows you to filter and sort voice messages so that you can respond to the most important messages quickly
- Visual Audio Bridge Conferencing that is easy to start, join, and manage for improved collaboration and conference call effectiveness
- Communication History logs that help you trace the history of your enterprise calls and voice messages
- Contact management tools that help you find contact information quickly and view the presence information of corporate contacts
- Presence access requests control

In addition to Client Enablement Services, some functionality also requires integration with additional products.

Key features of Avaya one-X[®] Mobile

Speech Access

Use the Speech Access feature of the Avaya one-X[®] Mobile application to dial a predefined number to the one-X Speech server.

Message

Use the Message feature of the Avaya one-X[®] Mobile application to add, edit, delete, or select a status message.

Ring Phones and Block

Use the Ring Phones feature of the Avaya one-X[®] Mobile application to select telephone numbers that should ring when you receive an incoming call.

The Block feature allows you to block calls, allow only VIP calls or allow all incoming calls on your ring phone destination.

Availability

Use the Availability feature of the Avaya one-X[®] Mobile application to set your presence status.

History

Use the History feature of the Avaya one-X[®] Mobile application to view the list of incoming, outgoing, and missed calls.

Contacts and Corporate Directory

Use the Contacts feature of the Avaya one-X[®] Mobile application to search for a contact from your company corporate directory. You can also add corporate contact information to your local contact list.

Call Back

Use the Call Back feature of the Avaya one-X[®] Mobile application to route a call from your Avaya one-X[®] Mobile application to any telephone through your office telephone system. You can configure the office telephone system to call your mobile, home, or hotel room telephone number and connect to the number you want to reach. After you answer the call, the office telephone system then calls the number you want to reach. After the destination answers, the office telephone system connects your call to the destination. The Avaya one-X[®] Mobile Call Back feature provides the following advantages:

- The two-party Call Back feature offers improved reliability.
- Your office telephone number is your caller ID regardless of the device you use. You can use any device to make a call, such as your mobile phone, home telephone, or a hotel or conference room telephone.
- The application displays all calls on the History screen.
- You can use any telephone and still benefit from the special rate plans for calls made from your office telephone system.

Messages

Use the Messages feature of the Avaya one-X[®] Mobile application to play or delete voice mail messages. You can save the telephone number of the caller and mark it as VIP or favorite in your contacts list.

VIP

You can designate key contacts from the corporate directory of your company as VIPs. You can then use the VIP feature in association with the Block feature to allow only VIP calls.

Favorite

You can designate key contacts from the corporate directory of your company as favorite, for example, when the contact is frequently called. You can then easily search for the frequently called contact.

Lost/stolen device

The Avaya one-X[®] Client Enablement Services server notifies the Avaya one-X[®] Mobile application to remove all locally stored data, such as downloaded voice mail, clear the account information, and force the user to re-login in order to access Avaya one-X[®] Mobile. You are then unable to use Avaya one-X[®] Mobile on any mobile device until the administrator enables your account.

For more information, see *Administering Avaya one-X Client Enablement Services Guide*.

Administration features

Administration Web Client features

Client Enablement Services Administration Web Client is a Web-based browser application that enables remote access to server-based administration of Client Enablement Services.

Client Enablement Services supports the following administration:

- Control of feature availability through configuration and scheduling
- Configuration of system components
- Provisioning of system resources
- Maintenance of system operations
- System status

Administration Command Line client features

Import Multiple Users: Imports numerous user records to the Client Enablement Services database to save time and effort. You can also run this command in connection with the export users command to return users to the database after a database backup, to perform tasks. For example, move users from one database to another and utilize the user data on a test system.

Export Multiple Users: Exports numerous user records from the Client Enablement Services database to an Excel file. Run this command in connection with the import users command to perform tasks like remove users from the database before a database backup, to move users from one database to another, to utilize the user data on a test system.

Monitor Services: Monitors and displays the status of the Client Enablement Services registered services. These services include the Directory Service, Alarm Service, Contact Service, Contact Logger Service, Scheduler Service, Statistics Service, and the User Service. This command displays information such as monitor requests failed, action required, run time, start time, requests received for the services.

Monitor Servers: Monitors and displays the status of the servers on the Client Enablement Services registered services. These servers include Communication Manager, Voice Messaging server, and the Conferencing server. This command displays information such as connection state, connection start time, connection up time, server name, server ID for the servers.

Add Encryption Keys: Adds encryption keys to the database table on Client Enablement Services by reading a keys file that contains the desired encryption keys. This file must have a .keys extension and a key or value pair in each line.

Associate Key To Column: Associates the keys that were added to Client Enablement Services through the Add Encryption Keys command to the specified column of the database table.

Run Key Migration: Encrypts the keys you added to Client Enablement Services to the columns in the database table. This is the third step in the encryption key process after adding the encryption keys and associating the keys to the columns in the database table.

Provision Users: Enables you to put users in the Client Enablement Services user group of the Enterprise Directory and into the Client Enablement Services database. Once these users are present in the Client Enablement Services database, they are provisioned for Client Enablement Services.

Unprovision Users: Enables you to remove users from the Client Enablement Services user group and the Client Enablement Services database. Once these users are no longer in Client Enablement Services, they are unprovisioned on Client Enablement Services.

Assign Users to Groups: Enables you to assign a group to a user who is provisioned on Client Enablement Services. Provisioned users must be in the Client Enablement Services user group of the Enterprise Directory and reside in the Client Enablement Services database.

Manage User Resources: Enables you to assign, modify, and delete resources for provisioned users on Client Enablement Services. For users to access telephony, messaging, conferencing, or presence on Client Enablement Services, the corresponding resource must be created for those users. Monitors and displays the status of the servers on the registered services. These servers include Communication Manager, Voice Messaging server, conferencing server, and the Presence server.

Terminate Users Session: Enables you to end the current session of the user on Client Enablement Services.

Migrate Server: Enables you to migrate a server from one version to the next. This is crucial when upgrading the Communications Manager that Client Enablement Services uses.

Features configured by system administrator

This section provides a high-level view of the features configured by the system administrator.

Category	Sub-category
User Administration	System profile modification
	Group profile creation/modification/deletion
	User provisioning
	User resource creation/modification/deletion
Server Administration	Server creation/modification/deletion (Communication Manager, System Manager, Modular Messaging,

Category	Sub-category
	Conferencing , Presence Services and Audio Transcoding)
	Handset Server/Service configuration
Scheduler Administration	Database Backup scheduler
	Modular Messaging synchronization scheduler
	Enterprise Directory synchronization scheduler
	Statistics scheduler
Monitors Administration	<p>Monitor service (adapter services) status includes the following information: service name, uptime, status, number of successful/unsuccessful requests, and server statuses for that particular service. The services can be started, stopped, and restarted.</p>
	<p>Monitor service (non-adapter service) status includes the following information: service name and status. The services can be started, stopped, restarted, suspended, and resumed.</p>
System Administration	Enterprise LDAP details configuration
	Logging configuration
	SIP local configuration
	Mobile applications and SMS domain configuration
	Statistics configuration
	General system configurations

Chapter 4: Supported platforms

Avaya components

*** Note:**

The versions of Avaya and third-party products mentioned in this guide are likely to change as Avaya tests and certifies later versions of supported products. To know about the latest versions of products that Client Enablement Services supports, refer to the Avaya Support Web site at <https://support.avaya.com/CompatibilityMatrix/Index.aspx>.

Client Enablement Services supports the following Avaya components:

Avaya Components	Software / Hardware	Version
PBX	Communication Manager	5.2.1 SP11
		6.0*
		6.0.1 SP6
Session Manager	Session Manager	6.0
		6.1 SP4
System Manager	System Manager	6.1 SP4
System Platform	System Platform	6.0 Build 6.0.3.0.3 with Patch 6.0.3.3.3 or 6.0.3.4.3
Presence	Presence Services	6.1
Messaging	Avaya Modular Messaging	5.2 SP6
	Avaya Aura [®] Messaging	6.0
		6.0.1
		6.1
Conferencing	Avaya Aura Conferencing Standard Edition In Release 5.2, Avaya Aura Conferencing Standard Edition was named as Avaya Meeting Exchange [™] Enterprise Edition.	5.2
		6.0
Speech	Avaya one-X [®] Speech	5.2.x

Avaya Components	Software / Hardware	Version
SIP Hard Phones	Avaya SIP 2.6	9620
		9620C
		9620L
		9630
		9630G
		9640
		9640G
		9650
		9650C
		Avaya SIP 6.0
H.323 Hard Phones	Avaya H.323	9620C
		9620L
		9630
		9630G
		9640
		9640G
		9650
		9650C
Avaya Soft Clients	Avaya one-X [®] Communicator	6.1 SP3
	Avaya one-X [®] Portal	5.2 SP4

*** Note:**

* Client Enablement Services does not support Communication Manager 6.0 Feature Server implementation.

Avaya plans to support Aura 6.2 with Client Enablement Services.

! Important:

There are limitations in the interoperability between the Avaya one-X[®] Portal and Client Enablement Services clients. To view this information, see the *one-X Client Enablement Services and one-X Portal Client Interoperability* section in the *Avaya one-X[®] Client Enablement Services Release Notes* document for 6.1 SP2.

Third-party components

*** Note:**

The versions of Avaya and third-party products mentioned in this guide are likely to change as Avaya tests and certifies later versions of supported products. To know about the latest versions of products that Client Enablement Services supports, refer to the Avaya Support Web site at <https://support.avaya.com/CompatibilityMatrix/Index.aspx>.

Client Enablement Services supports the following third-party components.

Third-party Components	Software / Hardware	Version
Server OS	Linux	RHEL (part of the Client Enablement Services template)
Handset Server OS	Linux	RHEL 5.0
Administration Browser	Microsoft Internet Explorer	7.0
		8.0
	Mozilla Firefox	3.6
	Apple Safari	5.x
LDAP	Microsoft Active Directory	2003 R2
		2008 R2
	IBM Domino Server	8.5.1
	Novell eDirectory	8.8 SP5
	SUN Directory Server Enterprise Edition	6.3.1
7.0		
Mobile Device Platforms	iPhone (Apple)	4.3+ and 5.0
	BlackBerry (RIM)	5.0+, 6.0+, and 7.0
	Android	2.2+
Handsets	iPhone (Apple)	3G, 3GS, and 4
	BlackBerry (RIM)	Bold - 9000, 9650, and 9700
		Curve - 8520, 8530, 8900, and 9300
		Torch 9800
		Storm 9550
Android	Motorola - Droid 2	

Third-party Components	Software / Hardware	Version
		HTC - Evo 4G
		LG - Revolution
		Samsung - Galaxy S and Galaxy S2
		Dell - Streak 5 and Venue

Software requirements for features

Client Enablement Services provides multiple features. Depending on the requirement, you can choose all the features or any combination. Certain features require additional or specific software to function properly.

For Client Enablement Services to function properly, you must:

- Implement Client Enablement Services with Modular Messaging 5.2 or Avaya Aura[®] Messaging 6.x.

For Modular Messaging 5.2, Session Manager and System Manager are not required.

- Assign all users a voice mail resource, as voice mail is mandatory in Client Enablement Services.
- Install Session Manager 6.1 if you use System Manager 6.1.

The following tables list the software that you must install for each feature. To use the feature listed in the *Feature* column, you must install the corresponding software indicated by a Yes in the software column.

Avaya one-X[®] Mobile:

Feature	Communication Manager	Presence Services	System Manager	Session Manager
Telephony	Access Element. Yes (5.2.1)	No	Optional (6.1 and later)	Optional (6.0 and later)
	Evolution Server. Yes (6.0 and later)	No	Optional (6.1 and later)	Optional (6.0 and later)
	Feature Server. Yes (5.2.1 and later)*	No	Yes (6.1 and later)	Yes (6.0 and later)

Feature	Communication Manager	Presence Services	System Manager	Session Manager
Presence	Yes (5.2.1 and later)	Yes (6.1 and later)	Yes (6.1 and later)	Yes (6.0 and later)
Messaging	Yes (5.2.1 and later)	No	Yes (6.1 and later)	Yes (6.0 and later)

*** Note:**

*Client Enablement Services does not support Communication Manager 6.0 Feature Server implementation.

Avaya one-X® Communicator - H.323:

Feature	Communication Manager	Presence Services	System Manager	Session Manager	Conferencing
Telephony (Non - Aura implementation)	Yes (5.2.1 and later)	No	Optional (6.1 and later)	Optional (6.0 and later)	No
Telephony	Access Element. Yes (5.2.1)	No	Yes (6.1 and later)	Yes (6.0 and later)	No
	Evolution Server. Yes (6.0 and later)	No	Yes (6.1 and later)	Yes (6.0 and later)	No
	Feature Server. Yes (5.2.1 and later)*	No	Yes (6.1 and later)	Yes (6.0 and later)	No
Presence	Yes (5.2.1 and later)	Yes (6.1 and later)	Yes (6.1 and later)	Yes (6.0 and later)	No
Conferencing	Yes (5.2.1 and later)	No	No	No	Yes (5.2.1 and later)
Messaging	Yes (5.2.1 and later)	No	Yes (6.1 and later)	Yes (6.0 and later)	No

*** Note:**

*Client Enablement Services does not support Communication Manager 6.0 Feature Server implementation.

Avaya one-X® Communicator - SIP:

Supported platforms

Feature	Communication Manager	Presence Services	System Manager	Session Manager	Conferencing
Telephony	Access Element. Yes (5.2.1)	No	Yes (6.1 and later)	Yes (6.0 and later)	No
	Evolution Server. Yes (6.0 and later)	No	Yes (6.1 and later)	Yes (6.0 and later)	No
	Feature Server. Yes (5.2.1 and later)*	No	Yes (6.1 and later)	Yes (6.0 and later)	No
Presence	Yes (5.2.1 and later)	Yes (6.1 and later)	Yes (6.1 and later)	Yes (6.0 and later)	No
Conferencing	Yes (5.2.1 and later)	No	Yes (6.1 and later)	Yes (6.0 and later)	Yes (5.2.1 and later)
Messaging	Yes (5.2.1 and later)	No	Yes (6.1 and later)	Yes (6.0 and later)	No

*** Note:**

*Client Enablement Services does not support Communication Manager 6.0 Feature Server implementation.

Chapter 5: Feature set comparison

Comparison of feature sets between clients

The tables in this section compare the feature differences between the Avaya one-X[®] Communicator and Avaya one-X[®] Mobile clients.

Some functionality also requires integration with additional products.

Communication Manager:

Feature	Avaya one-X [®] Communicator	Avaya one-X [®] Mobile
H.323	Full UC functionality, Standalone and IM client support. The Presence Services server provides presence information.	Full UC functionality and telephony client support.
Session Manager (CM-FS)	Full UC functionality, Standalone and IM client support. The Presence Services server provides presence information.	Full UC functionality and telephony client support.
Session Manager (CM-ES)	Full UC functionality, Standalone and IM client support. The Presence Services server provides presence information.	Full UC functionality and telephony client support.

* Note:

For Communication Manager 6.0.1, Client Enablement Services supports both CM-FS and CM-ES implementation. However, for Communication Manager 6.0, Client Enablement Services supports only CM-ES implementation.

Environment:

Feature	Avaya one-X [®] Communicator		Avaya one-X [®] Mobile
	Basic	UC	
Login modes	VoIP / This Computer, Desk Phone, Other Phone.	VoIP / This Computer, Desk Phone, Other Phone.	Mobile

Feature set comparison

Feature	Avaya one-X [®] Communicator		Avaya one-X [®] Mobile
Authentication against	Communication Manager extension, SES for SIP.	AD, Corporate directory.	AD, Corporate directory.
Additional authentication	Lenovo biometric	Lenovo biometric	No

Presence, Visual Messaging, Conferencing, Video:

Feature	Avaya one-X [®] Communicator		Avaya one-X [®] Mobile
	Basic	UC	
Presence Services	No presence	Yes	Yes
Presence Services, but no Microsoft Office Communications Server	No presence.	Presence + phone status. No IM bubble in contacts.	Presence + phone status. No IM bubble in contacts.
Presence Services + Microsoft Office Communications Server	No presence.	Presence + phone status. Presence status from OCS. IM bubble.	Presence + phone status. Presence status from OCS. IM bubble.
Call History	Only if logged in with Avaya one-X [®] Communicator.	Unified call log.	Unified call log.
History log name resolution	Communication Manager.	Corporate directory.	Corporate directory.
Call journal in Outlook	Yes	Yes	No
Desktop video telephony	Yes (My Computer, Desk Phone)	Yes (My Computer, Desk Phone)	No
Visual Messaging. Modular Messaging with MSS.	MWI.	MWI, number of unread messages, access to play and delete messages.	MWI, number of unread messages, access to play and delete messages.
Visual Conferencing. Meeting Exchange Enterprise. No	No	Display conferences in separate window. Control hosted conferences, control own participation on other conferences.	Display conferences in separate window. Control hosted conferences, control own participation on other conferences.

Desktop Integration:

Feature	Avaya one-X [®] Communicator		Avaya one-X [®] Mobile
	Basic	UC	
Display personal contacts in GUI	Add personal contacts manually.	Display personal contacts that are uploaded to Client Enablement Services.	Display personal contacts that are uploaded to Client Enablement Services.
Click-to-Dial - Outlook contacts	Outlook add-in, search in Avaya one-X [®] Communicator. Additional "call" icon in Outlook.	Outlook add-in, search in Avaya one-X [®] Communicator. Additional "call" icon in Outlook.	No
Click-to-Dial - Lotus Notes	Search in Avaya one-X [®] Communicator.	Search in Avaya one-X [®] Communicator.	No
Click-to-Dial - Microsoft Office Communications Server	Yes	Yes	Yes
Add-in - Microsoft Office Communications Server 2007	Yes	Yes	Yes
Click-to-Dial from Lotus Sametime	Yes	Yes	Yes
Add-in - Lotus Sametime	No	No	No
Start e-mail from contacts. Opens default e-mail application.	Yes	Yes	Yes
Start IM from contacts	No	Yes	Yes

Search:

Feature	Avaya one-X [®] Communicator		Avaya one-X [®] Mobile
	Basic	UC	
Corporate directory	Yes	Yes	Yes
LDAP directory	Yes	Yes	Yes

Feature	Avaya one-X® Communicator		Avaya one-X® Mobile
Outlook contact directory	Yes	Yes	No
Lotus Notes contact directory	Yes	Yes	No
Personal contact directory	Yes	Yes	Yes

Differences between controlling SIP and H.323 phones

This section details the expected difference in behavior when controlling SIP and H.323 phones for a Client Enablement Services user.

The main difference between the two types of phones, when using Client Enablement Services, is that the H.323 phone is unregistered from Communication Manager when you log in using the VoIP / This Computer mode and Other Phone mode, while the SIP phone remains registered to Session Manager when Client Enablement Services is active in those modes.

Since the SIP and H.323 phones can work in parallel, this presents a problem for any software that is trying to control your phone by making third-party requests to Communication Manager, including MOC and Client Enablement Services.

Communication Manager and Client Enablement Services deal with this issue using the following rules:

- By default, the user configured to use SIP desk phone in the system is controlling the SIP desk phone.
- When a user logs into Client Enablement Services in the Other Phone or VoIP / This Computer mode, the control switches to follow the option chosen in Client Enablement Services.
- When the user logs out of Client Enablement Services, the control switches back to controlling the SIP desk phone.

*** Note:**

If the SIP desk phone is used while in the Other Phone or VoIP / This Computer mode, the control automatically switches to SIP desk phone. This implementation handles cases where the user left the client logged in while working remotely, and has gone to the office. The control switches back to the SIP desk phone by simply using the SIP desk phone.

Another difference between the two types of phones is that, when using a SIP phone in DeskPhone mode, you have to use the desk phone to send DTMF tones. You will not be able to send DTMF tones from the one-X client application. When using Other Phone or VoIP / This Computer modes, DTMF tones will continue to work as they did previously.

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