# Avaya Breeze Platform Overview and Specification

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# Contents

# Chapter 1: Introduction

## Purpose

This document describes tested product characteristics and capabilities, including feature descriptions, interoperability, performance specifications, security, and licensing requirements.

## Intended audience

This document is intended for people who want to gain a high-level understanding of the product features, functions, capacities, and limitations.

## Document changes since last issue

The following changes have been made to this document since the last issue:

- Updated the “What’s new in this release” section to include information about the latest features.
- Updated the “Snap-in types” section to include information about Callable Services.
- Updated the “System interactions” section to include the latest interoperability information.
- Updated the “Application Programming Interface” section to update information about Media Control Methods.
- Updated the “Avaya Breeze™ requirements” section to update information about the VMware hypervisor versions.

## Documentation

See the following related documents at http://support.avaya.com.

| Title | Description | Audience |
|---|---|---|
| **Understanding** | | |
| *Avaya Breeze™ Overview and Specification* | Describes the Avaya Breeze™ from a functional view. Includes a high-level description of the platform as well as topology diagrams, customer requirements, and design considerations. | Sales engineers<br>Programmers<br>System administrators<br>Services and support personnel |
| *Avaya Aura® System Manager Overview and Specification* | Describes tested product characteristics and capabilities, including product overview and feature descriptions, interoperability, performance specifications, security, and licensing requirements. | Sales engineers<br>Programmers<br>System administrators<br>Services and support personnel |
| **Implementing** | | |
| *Deploying Avaya Breeze™* | Describes the procedures to deploy and administer Avaya Breeze™. Also contains the procedures to deploy, administer, and license an Avaya Media Server for use with Avaya Breeze™. | Services and support personnel |
| *Upgrading Avaya Breeze™* | Describes the procedures to upgrade Avaya Breeze™. | Services and support personnel |
| *Implementing and Administering Avaya Aura® Media Server* | Provides the procedures to install, configure, use, and troubleshoot Avaya Aura® Media Server. | System administrators<br>Services and support personnel |
| *Deploying and Updating Avaya Aura® Media Server Appliance* | Provides installation, configuration and administration information for Avaya Aura® Media Server when it is installed on customer-provided servers. | System administrators<br>Services and support personnel |
| *Deploying Avaya Aura® System Manager* | Describes how to deploy Avaya Aura® System Manager in a virtualized environment using VMware. | System administrators<br>Services and support personnel |
| **Customizing** | | |
| *Getting Started with the Avaya Breeze™ SDK* | Describes the procedures to install and configure the Eclipse IDE, Apache Maven, and the Avaya Breeze™ SDK. | Programmers |
| *Avaya Breeze™ Snap-in Development Guide* | Describes the key concepts needed to develop the different types of Avaya Breeze™ snap-ins. | Programmers |

*Table continues…*

| Title | Description | Audience |
|---|---|---|
| *Avaya Breeze™ FAQ and Troubleshooting for Snap-in Developers* | Provides snap-in troubleshooting procedures. Answers questions such as "Why did my SDK installation fail?" | Programmers |
| *Avaya Breeze™ API Javadocs* | Overview and description of the API classes and uses. | Programmers |
| **Supporting** | | |
| *Maintaining and Troubleshooting Avaya Breeze™* | Contains the list of alarms and errors related to Avaya Breeze™ and the procedures to troubleshoot and fix the problems. | Services and support personnel |
| *Troubleshooting Avaya Aura® Session Manager* | Contains information for troubleshooting Avaya Aura® Session Manager, alarm code descriptions, and procedures for resolving alarms. | Services and support personnel |
| *Troubleshooting Avaya Aura® System Manager* | Provides procedures for troubleshooting errors for System Manager and the Avaya Aura® applications that System Manager supports. | Services and support personnel |
| **Using** | | |
| *Quick Start to Deploying Avaya Breeze™ Snap-ins* | Walks through the steps to install and administer the different types of snap-ins. | Programmers<br>System administrators |
| *Administering Avaya Breeze™* | Provides the procedures to administer and configure Avaya Breeze™ and snap-ins. | System Administrators<br>Services and Support personnel |
| *Administering Avaya Aura® Session Manager* | Describes the routing administration and management of Avaya Aura® Session Manager instances. | System Administrators<br>Services and support personnel |
| *Administering Avaya Aura® System Manager for Release 7.0.1* | Describes the administration and management of Avaya Aura® System Manager. | System Administrators<br>Services and support personnel |

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6. If there is more than one release, select the appropriate release number from the **Choose Release** drop-down list.
7. Use the **Content Type** filter on the left to select the type of document you are looking for, or click **Select All** to see a list of all available documents.

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| Course code | Course title |
|---|---|
| 8U00040E | Knowledge Access: Avaya Avaya Breeze™ Implementation and Support |
| 5105 | Avaya Avaya Breeze™ Implementation and Maintenance Test |
| 2014V/W | What is New in Avaya Avaya Breeze™ 3.1 |

# Avaya Breeze™ videos

Avaya Breeze™ provides the following videos to help in the development and deployment of snap-ins. Access these videos at http://www.avaya.com/breezedeveloper.

| Title | Audience |
|---|---|
| Getting Started with the Avaya Breeze™ SDK: Windows | Programmers |
| Getting Started with the Avaya Breeze™ SDK: Linux | Programmers |
| Creating Your First Service — Part 1 | Programmers |
| Creating Your First Service — Part 2 | Programmers |

*Table continues…*

| | |
|---|---|
| Server Installation and Configuration with vCenter | System Administrators, Services and Support personnel |
| Server Installation and Configuration without vCenter | System Administrators, Services and Support personnel |
| Service Installation, Configuration, and Test | Programmers |
| Understanding the Dynamic Team Formation Sample Service | Programmers |
| Understanding the Hello Sample Service | Programmers |
| Understanding the Multi-Channel Broadcast Sample Service | Programmers |
| Understanding the Whitelist Sample Service | Programmers |

# Support

### Platform support

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### Developer support

Go to the Avaya DevConnect website at http://www.avaya.com/breezedeveloper to access the Avaya Breeze™ API, SDK, sample applications, developer-oriented technical documentation, and training materials.

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# Chapter 2: Overview

## Avaya Breeze™ overview

Avaya Breeze™ provides a virtualized and secure application platform where Java programmers can develop and dynamically deploy advanced collaboration capabilities that extend the power of Avaya Aura®. A snap-in or a service is the term used to describe this functionality. Customers, business partners, and Avaya developers can use the platform as the deployment vehicle for their applications or snap-ins.

Avaya Breeze™ acts as the platform for many Avaya products such as the WebRTC Snap-in, Avaya Co-Browsing Snap-in, Avaya Real-Time Speech Snap-in, Engagement Designer, Context Store and Work Assignment.

Avaya Breeze™ provides the following benefits:

- Customers, partners, and Avaya organizations can rapidly develop snap-ins and applications that are deployed on Avaya Breeze™.
- Developers can focus on building the collaboration snap-ins they need, without the need to develop a robust platform on which collaboration snap-ins are deployed and run.
- A robust Software Development Kit (SDK) with an easy-to-use API. Developers need not understand the details of call processing to develop new capabilities.
- The ability to perform operations such as:
  - Intercepting calls in to and out of the enterprise.
  - Redirecting calls to an alternate destination.
  - Blocking calls and optionally playing an announcement to the caller.
  - Changing the presented caller ID of the calling or called party.
- The ability to place an outbound call for the purpose of playing announcements and collecting digits.
- The ability to invoke web services for added functionality.
- The ability to expose webpages and web services for invocation by remote browsers and applications.
- A Collaboration Bus that allows snap-ins to leverage each others' capabilities through point-to-point and publish/subscribe messaging patterns.
- A Common Data Manager framework that snap-ins use to access common information stored on System Manager.

- Connector snap-ins that provide access to email, Clickatell SMS (text messaging) and Scopia (conferencing) host applications.
- The ability to add or replace Trust and Identity Certificates for increased security.
- Tools that log and monitor operations and provide troubleshooting support.
- High availability. For more information on high availability, see the *High Availability* section in the *Avaya Breeze™ Overview and Specification* book.
- Third party ability to create custom Connectors that provide access to their (external) application or service.
- Dynamic task types.

Avaya Breeze™ is a powerful snap-in delivery platform that provides Unified Communications and Contact Center customers and partners the ability to quickly deliver capabilities using the skill sets of today's enterprise and cloud application developers.

# What's new in this release

Avaya Breeze™ Release 3.1.1 supports the following new features:

### Callable snap-ins

Callable Services are called directly by the users rather than being called on behalf of the user who makes or receives a call. For more information about administering Callable snap-ins, see *Administering Avaya Breeze™*.

### Real Time Speech Improvements

Avaya Real-time Speech snap-in facilitates interactive speech search on active voice calls. The snap-in provides a set of RESTful web services that enable developers to incorporate real-time speech search capabilities in the solutions.

To increase the efficiency, Avaya Breeze™ supports mixed audio stream as the input to the speech search engine. This feature will reduce the number of channels used on a call by up to 50%.

**Note:**

The 50% reduction is for speech search scenarios that run on both called and calling parties in a call. The mixed audio stream feature uses a shared audio stream and therefore reduces the number of channels required by half instead of a dedicated stream each for the calling party and the called party.

Avaya Breeze™ also supports speech search by reference.

### Trusted Host by cluster

The Avaya Breeze™ Element Manager enables the administrator to configure the trusted host list on each cluster, such that only the trusted hosts for that cluster can have the HTTP(S) access. The Avaya Breeze™ Element Manager also enables the administrator to configure the HTTP(S) CORS host list on each cluster, such that only the configured hosts for that cluster can access Cross-origin Resource Sharing.

### Flexible Call Leg Control

Flexible Call Leg Control enables a snap-in to drop and add participants during a single call. With Avaya Breeze™ Release 3.1.1, you can add or drop a participant from a call regardless of whether the call is initiated by a snap-in or by a user. The Avaya Breeze™ API provides the required methods for snap-in developers to implement Flexible Call Leg Control.

### Media Control API

The Media Control API provides a method for a snap-in to:

- Start recording a single party call.
- Specify a recording URI which includes the file name, the storage location, the DTMF key to end recording, and the maximum recording duration. The method support for making a recording is limited to a single leg of a call.
- Stop recording.
- Save the recorded announcement to an external HTTP or HTTPS server.

### General Use Cluster Database

Avaya Breeze™ enables Avaya snap-ins to use Cluster Database on any cluster type.

### Element Manager improvements

Avaya Breeze™ supports the following new options and fields on the Element Manager:

- **Cluster Administration** > **Cluster Database** column: This column displays the status of Cluster Database. The column displays **Disabled** if Cluster Database is disabled.
- **Cluster Administration** > **Cluster Database Connection** column: This column displays the status of the Cluster Database connection. The column displays **---** if Cluster Database is disabled.
- **Cluster Administration** > **Cluster Editor** > **Enable Cluster Database** check box: Use this check box to enable Cluster Database.
- **Configuration** > **HTTP security** > **Cluster** field: Use the field to enable the administrator to configure the trusted host list on each cluster, such that only the trusted hosts for that cluster can have HTTP access. You can also use this field to enable the administrator to configure the HTTP CORS host list on each cluster, such that only the configured hosts for that cluster can access Cross-origin Resource Sharing.
- The snap-in help text displayed on Element Manager for a snap-in is from the latest loaded version of the snap-in.

## VMware deployment

Avaya Breeze™ is deployed into a VMware virtualized environment. It is delivered as a VMware vAppliance in Open Virtual Appliance (OVA) format and runs on a customer-provided VMware instance (standard edition or better).

Since Avaya Breeze™ is deployed in a virtualized VMware environment, all the snap-ins are deployed into the virtualized environment with no additional work needed on the part of the snap-in developer.

# Snap-in types

Snap-ins that deploy on Avaya Breeze™ can be categorized as follows. A given snap-in can fall into more than one category. The categories are not mutually exclusive.

### Call Intercept snap-ins – Called Party and Calling Party snap-ins

All incoming and outgoing calls between the PSTN and the enterprise can take full advantage of Call Intercept snap-ins that run on Avaya Breeze™. This is true regardless of the type of endpoint (H.323 or SIP) and the type of trunk (ISDN or SIP). Station-to-station calls within the enterprise cannot invoke Call Intercept snap-ins even if the endpoints are SIP endpoints. There are two types of Call Intercept snap-ins:

- Based on who is being called, a Called Party snap-in looks at the configuration data for that called party to determine how to handle the call.
- Based on who is placing a call, a Calling Party snap-in looks at the configuration data for that calling party to determine how to handle the call.

The Hello World snap-in is an example of a Call Intercept snap-in.

### Outbound Calling snap-ins

Outbound Calling snap-ins can initiate calls to phone numbers for the purpose of playing pre-recorded announcements and optionally detecting button presses from the called phone. The Multi-channel Broadcast snap-in is an example of a one-party Outbound Calling snap-in.

Outbound Calling snap-ins can also initiate two-party calls to join two participants together in a call. The calling party is called first, and after answer a call is initiated to the called party. After the called party answers both the participants talk to each other. The Click to Call application is an example of a two-party Outbound Calling snap-in.

**Callable Services:**

Callable Services are the services whose features are invoked to originate or receive a call. For information about administering Callable Service, see *Administering Avaya Breeze™*.

**Note:**

A service can be both callable as well as call intercept.

### HTTP-invoked snap-ins

HTTP-invoked snap-ins perform some action on receipt of an incoming HTTP request. For example, when it receives an incoming HTTP request, the Dynamic Team Formation snap-in creates a Scopia video conference, then sends the conference URL to specified email and / or SMS recipients.

The Multi-channel Broadcast snap-in is another example of an HTTP-invoked service.

### Collaboration Bus-invoked snap-ins

The Collaboration Bus is a core module within Avaya Breeze™ that enables snap-ins to send messages to other snap-ins for the purpose of leveraging the functionality of the other snap-ins.

Collaboration Bus-invoked snap-ins perform some action when they receive a message from another snap-in on the Collaboration Bus.

The email connector snap-in is an example of a Collaboration Bus-invoked snap-in.

## Connector Snap-ins

Avaya Breeze™ includes several connector Snap-ins that provide access to external host applications. These built-in connector snap-ins communicate over the Collaboration Bus with snap-ins that request them. Connector snap-ins are available for:

- Email
- Clickatell SMS (Text Messaging)
- Scopia (conferencing)
- Eventing Framework

### Email

The email connector allows snap-ins to send emails. The email connector is an email client that sends SMTP requests to one or more email hosts, which in turn send the email. The email connector is a send-only email client. Snap-ins communicate with the email connector by using the email API of the Collaboration Bus framework.

The email API can handle a total of 10,000 recipients per request, which can be any combination of primary, carbon-copy, or blind-copy recipients.

The email connector supports the following multipart body content types: HTML, Plain Text, XML, Rich Text Format, and Vcard.

### Clickatell SMS (Text Messaging)

The SMS connector snap-in provides the capability to send, but not receive, SMS messages. The Avaya Breeze™ SMS connector snap-in uses the Clickatell HTTP-based SMS gateway. The SMS API provides the following parameters:

- Destination phone number
- Source phone number (Optional)
- User credentials (Optional)
- Message body (supports extended character sets)

**Note:**

You require a separate SMS service subscription from a public carrier or from another SMS service provider.

### Scopia (conferencing)

The Scopia connector uses the Conferencing API to access the Scopia Management Server for audio and video conferencing. The snap-in can schedule a conference, cancel a conference, or retrieve a list of all the active and scheduled conferences. Video conferences include video participants, audio-only participants, or a mixture of both.

To support both video and audio-only participants, conference requests from the snap-in include:

- A participant URL
- A host URL

- Dial-in phone number
- Meeting ID
- Host code
- Participant code

### Eventing Framework

The Eventing Framework connector allows remote systems to publish events into the Avaya Breeze™ Eventing Framework using REST web services. The publisher simply specifies the event family, type, metadata, and the message body. The Eventing Framework then delivers the event to all the subscribers.

Remote applications can also subscribe to events by using the Eventing Framework. These applications must be able to receive the incoming HTTP POST messages when the events are generated.

## System interactions

System Manager manages the administration, management, and troubleshooting aspects of Avaya Breeze™.

Avaya Breeze™ interoperates with:

- Session Manager Releases 6.3.4, 6.3.8, and 7.0.
- System Manager Release 7.0.0.1 Service Pack integrated patch.
- Communication Manager Releases 5.2.1, 6.3.2, 6.3.6, and 7.0.

  **Note:**

  Communication Manager Release 5.2.1 can support sequencing of a snap-in for an originating call or a terminating call, but not both. Communication Manager Release 6.3.2 supports sequencing of a snap-in for both originating and terminating call.
- Application Enablement Services Releases 6.3.3 and 7.0.
- Avaya Aura® Media Server Release 7.7.
- Avaya Aura® Messaging Releases 6.3.2 and 6.3.3.
- Avaya Scopia® Release 3.0 and later.

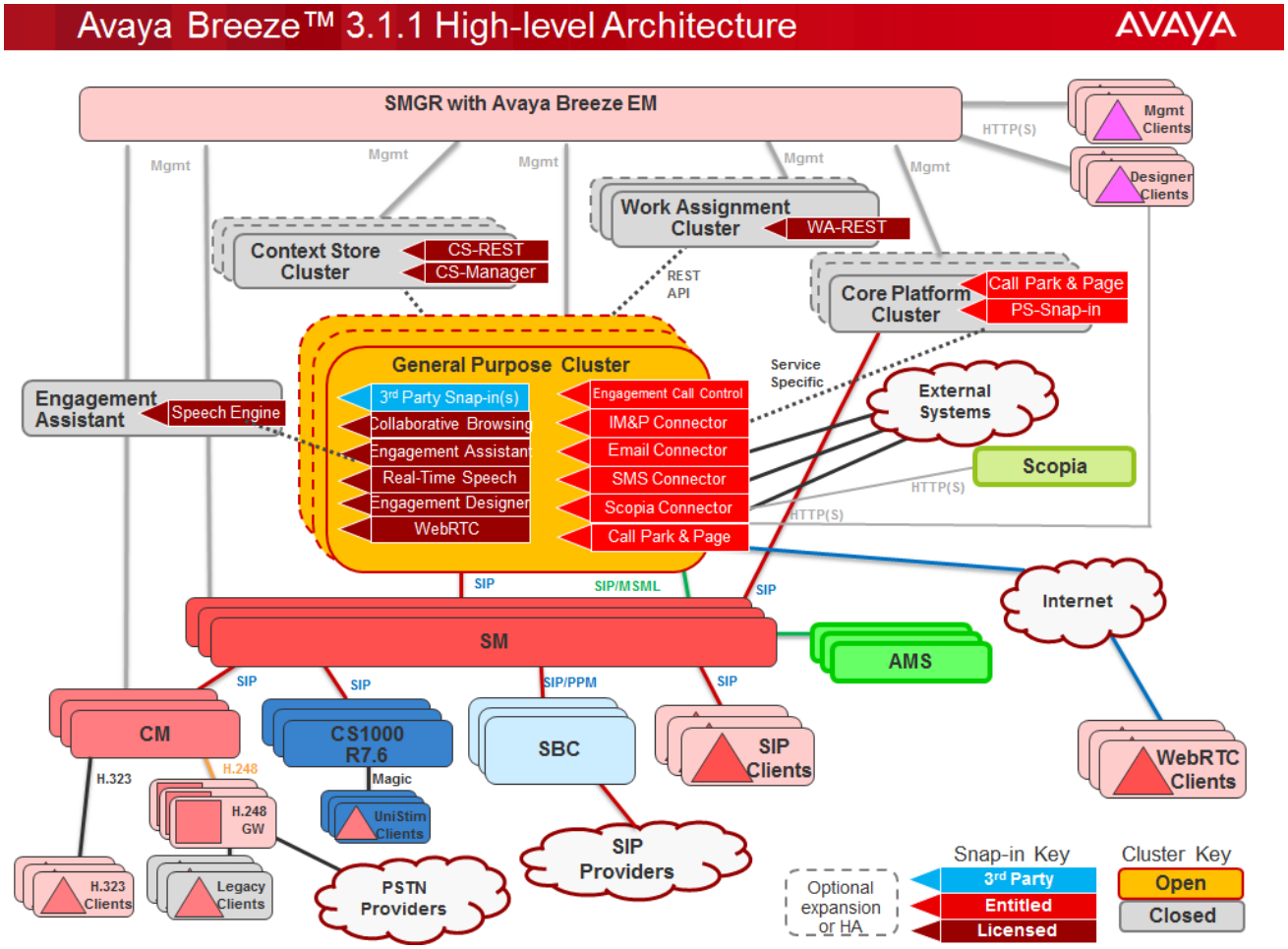
Traditional H.248 gateways provide access to the PSTN and provide support for H.323 and legacy endpoints. Connection to SIP service provider trunks is provided through Session Border Controller to Session Manager.

### Snap-ins

Avaya Breeze™ snap-ins interoperate with other Avaya products. For example, WebRTC Snap-in interoperates with Avaya Session Border Controller for Enterprise 6.3 and later.

# Topology

The following diagram provides a high-level illustration of the components of an Avaya Breeze™ solution.




# Feature description

## Software development kit

Avaya Breeze™ includes a Software Development Kit (SDK) for Java developers to create their own collaboration snap-ins to run on the Avaya Breeze™ server. Any Java programmer can build, test and deploy a custom snap-in. No specialized telecommunications expertise is needed.

The Avaya Breeze™ SDK provides a rich set of developer collateral including code examples, video tutorials, online API documentation and discussion forums.

The Avaya Breeze™ SDK is hosted by DevConnect at https://www.avaya.com/BreezeDeveloper. The SDK is provided in a single download package in the form of a zip file.

## Application Programming Interface

The Avaya Breeze™ API gives programmers a way to quickly develop, test, and deploy snap-ins that use the following methods:

**Call Methods**

Call Methods enable a snap-in to monitor or modify calls on behalf of the calling party or called party. Call methods include functions for:

- Allowing a call.
- Blocking a call.
- Redirecting a call to a different number.
- Changing the presented identity of a user.
- Forking a call.
- Adding a participant to a call.
- Dropping a participant from a call.
- Enabling a snap-in to place a call.

**Media Control Methods**

Media Control Methods enable a snap-in to:

- Play an announcement to one or more participants on the call and to collect button press or DTMF tones on the call.
- Generate and send DTMF tones to a specified called party through Avaya Aura® Media Server.
- Record audio from a single party in a call to an HTTP fileserver or to the Media Server Content Store.

Media Control Methods enable the developer to specify a recording URI that contains name and storage location, the DTMF key to end the recording, and the maximum recording duration. This recording can then be used in the subsequent play requests.

**Send Email Methods**

Send Email Methods enable a snap-in to send an email to one or more recipients.

**Send Text Message Methods**

Send Text Message Methods enable a snap-in to send a text message to one or more recipients.

| | |
|---|---|
| **Create Conference Methods** | Create Conference Methods allow a snap-in to schedule or cancel a video or an audio conference using Scopia conferencing. |
| **Data Access Methods** | Data Access Methods enable a snap-in to access a user, a service, or the global data from the provisioning database as administered on System Manager. Data Access Methods also enable the snap-in to access data from an external database using the Java Persistence API (JPA). |
| **Collaboration Bus Methods** | Collaboration Bus Methods enable snap-ins to asynchronously communicate using a point-to-point model or a publish-subscribe model. |
| **Logging and Alarming Methods** | Logging and Alarming Methods enable a snap-in to log events and errors. The serviceability agent sends the snap-in alarms to System Manager. |
| **System Status Methods** | System Status Methods enable a snap-in to access the system status information of Avaya Breeze™. |
| **Eventing Framework Methods** | Eventing Framework Methods enable notifications for server and snap-in generated events. The framework is pre-populated with events, such as call events and speech search events. Eventing Framework Methods enable snap-ins to produce and consume events. You can view the complete event repository from the Element Manager user interface. |

## Sample snap-ins

The Avaya Breeze™ SDK provides the following sample snap-ins. Use the snap-ins as models to test whether your system is correctly installed and configured. These sample snap-ins are not intended for general deployment.

| Snap-in Name | Description |
|---|---|
| Hello World | A test snap-in intended for developers to use to verify that their Avaya Breeze™ is working correctly. When either the calling or called party is associated with this snap-in, the message ***Hello from Avaya Breeze*** displays on the called endpoint. |
| Whitelist | Routes incoming calls to the dialed user only if the calling number is on a whitelist of numbers designated for the user. If the calling number is not on the list, the call redirects to an alternate number. The snap-in accesses the whitelist database, but does not manage it. |
| Dynamic Team Formation | Sends an email or text message to a list of participants inviting them to join a conference call using their Scopia client. Recipients can join the conference simply by clicking the link in the message. |
| Multi-channel broadcast | Sends a broadcast message by email, text message, or voice to a list of contacts. |

*Table continues…*

| Snap-in Name | Description |
|---|---|
| Click to Call | Allows a user to enter the calling and called numbers on a webpage. A call is then made to both the calling and the called party numbers, and those participants are joined together in a call. The snap-in displays the call progress on the user interface. |
| Calling Policies | Plays announcements and allows the call to continue to the original number, forks the call to other numbers, redirects the call to another number, drops the call with an announcement. The caller must use DTMF to select the options.<br>Calling Policies supports Flexible Call Leg Control methods that include serial forking and serial calling operations.<br>This snap-in also demonstrates attribute scoping. |
| Callable Sample service | A test snap-in for Callable Services. |

# Development environment and tools

Avaya Breeze™ supports the following development environment and build/packaging tools:

- Any Java IDE can be used to develop snap-ins. Eclipse is the IDE used and recommended by the Avaya Avaya Breeze™ team.
- The SDK includes Maven tools to build and package snap-ins. Although the use of Maven is not required to build and deploy snap-ins, it is the tool used and recommended by the Avaya Avaya Breeze™ team.

  An Eclipse plug-in is available for the SDK.

# Clusters

Clustering is the grouping of one or more Avaya Breeze™ servers that can be managed together. A Avaya Breeze™ cluster thus consists of one or more Avaya Breeze™ servers. A Avaya Breeze™ server can belong to only one cluster at a time.

A Avaya Breeze™ server must belong to a cluster to have snap-ins installed. Snap-in installation is at the cluster level. This implies that all the servers in a single cluster will have the same snap-ins.

You can have a maximum of 5 Avaya Breeze™ servers in a cluster and each enterprise is allowed to have a maximum of 20 clusters.

### Cluster profiles

A cluster profile is a pre-loaded template that contains cluster attributes. The cluster profile specifies the fixed and variable attributes in a cluster. A set of cluster profiles are pre-loaded on the Element Manager. For every cluster profile there are a set of required snap-ins. The required snap-ins are mandatory. Ensure that all the required snap-ins are loaded. Some cluster profiles may also have optional snap-ins. You can choose to install any of the optional snap-ins.

General Purpose cluster profile: A General Purpose cluster is an open type cluster where you can install any type of snap-in or service. The minimum number of servers for a general purpose cluster is 1.

General Purpose Large cluster profile: An open cluster that mainly supports the Engagement Call Control solution.

Core Platform cluster profile: A closed cluster that supports up to 10 Avaya Breeze™ servers. You can install snap-ins like Presence Services and Call Park and Page Snap-in on this cluster.

Product specific cluster profiles: Cluster profiles like Context Store profile or a Work Assignment profile are product specific. These cluster profiles have a specified list of required and optional snap-ins that you can install. If you attempt to install an unlisted snap-in for this cluster profile, the installation fails, and the system displays an error message.

### Clustering capabilities

Use the clustering functionality to:

- Create a new cluster and assign a cluster profile to a cluster. The profile has configuration information, attribute definitions, and requirements of the cluster.
- Edit clusters and cluster attributes.
- Delete clusters
- Add or remove servers from a cluster.
- Install or remove snap-ins across instances in a cluster.
- Manage resources for logging.
- Select product specific cluster profiles like Context Store or Work Assignment.

### Data grid for clusters

Avaya Breeze™ supports data grid configuration on a cluster. The data grid is shared by all the servers in a cluster. If a server needs to find the data residing on another server on the cluster, a Lookup service is required. The Lookup service is hosted on two designated Lookup servers in a cluster.

## Service Profiles

A Service Profile is an administered group of snap-ins. A snap-in can be administered to have different snap-in attributes for each specific Service Profile. Therefore, the same snap-in can be tailored using the snap-in attributes to meet the needs of different users or groups.

A Service Profile can contain up to five Call Intercept snap-ins.

For more information about Service Profiles, see *Administering Avaya Breeze™*.

## Preferred version of a snap-in

Avaya Breeze™ provides an option to choose a preferred version of a snap-in. The administrator manages the preferred version of the snap-in. If you set the preferred version of a snap-in for

specific clusters, and install a newer version of the same snap-in, the service is not disrupted. The Avaya Breeze™ servers continue to use the preferred version of the snap-in. As an administrator, when you want to switch to the newer version of the snap-in, select the newer version as the preferred version.

**Note:**

If you have not installed the preferred version of a snap-in in an Avaya Breeze™ cluster, the latest version is automatically chosen as the preferred version.

You can set different versions of the same snap-in as preferred for different clusters.

## Incoming and outgoing HTTP snap-in invocation

Avaya Breeze™ allows a snap-in to very easily expose both webpages and web services to external browsers and applications. Avaya Breeze™ snap-ins have access to the full suite of Java Enterprise Edition (JEE) classes and methods such as HttpServlet. Additionally, an implementation of Jax-RS is included in Avaya Breeze™ so that developers can easily write RESTful web services. SOAP web services could be used if desired by including SOAP libraries such as Apache Axis in the WAR module and therefore in the Service Archive file.

Developers do not need to concern themselves with routing of incoming HTTP requests to their Avaya Breeze™ snap-in. When an Avaya Breeze™ snap-in is deployed, the security module and the JEE container are automatically configured on the behalf of the deployed snap-in, such that messages are correctly routed to the snap-in. This configuration ensures that any request sent to a URL of the form `http(s)://<Avaya Breeze_FQDN>/snap-ins/<SNAP-IN_NAME>` will cause the snap-in to be invoked. If multiple versions of a snap-in are deployed concurrently, the preferred version is invoked.

In addition to allowing snap-ins to handle incoming HTTP requests, Avaya Breeze™ snap-ins can invoke external web services by using the HTTP client library of their choice. Apache HttpClient works well. If a snap-in developer desires an interface tailored to REST invocation, Apache Wink is a possible solution. The Avaya Breeze™ installer allows optional configuration of an outbound HTTP proxy if snap-ins invoke web services external to an enterprise firewall.

In some cases you may have to provide the client certificate when you use a web service secured with HTTPS. Use Avaya Breeze™ to use the configured server certificates when you initiate outbound requests. For more information, see *Javadoc for the class com.avaya.collaboration.ssl.util.SSLUtilityFactory*.

## System Manager Geographic Redundancy support for Avaya Breeze™

The Geographic Redundancy feature of System Manager consists of two System Manager servers located in geographically remote locations. The Geographic Redundancy feature ensures that the

management of enterprise communications remain unaffected during the failure of a single System Manager server or during network failures.

The Geographic Redundancy feature provides the following replication mechanisms to ensure data synchronization between the primary System Manager server and the secondary System Manager server:

- Database replication
- File replication

In a system consisting of geographic redundant System Manager servers, the main components include:

- Two System Manager servers located in geographically diverse locations. One System Manager server is designated as the primary System Manager server. On a sunny day, the primary System Manager server manages all elements in the system. The other System Manager server is designated as the secondary System Manager server. The secondary System Manager server remains in the standby mode. You can administer the secondary server in the active mode if the primary System Manager server fails or loses connectivity with the Avaya Breeze™ servers.
- Avaya Breeze™ servers.

**Important:**

In an environment of geographic redundant System Manager servers, both the primary System Manager server and the secondary System Manager server must reach each other using FQDN. FQDN must be reachable and resolvable through `/etc/hosts` or DNS.

Before configuring Avaya Breeze™ in a geographic redundant environment, ensure that:

- Both the primary and the secondary System Manager servers can resolve the Avaya Breeze™ FQDN through `/etc/hosts`.
- The DNS server contains the IP address or the FQDN entry of all the Avaya Breeze™ servers that are configured with System Manager. This configuration ensures that both the forward and the reverse lookups of Avaya Breeze™ work from both the primary and the secondary System Manager servers.
- The servers can reach each other using FQDN.

The network with geographic redundancy operates in the following scenarios:

### Sunny day scenario

In this case, the primary System Manager server manages all the Avaya Breeze™ servers. The primary System Manager server replicates administration changes to all the Avaya Breeze™ servers. The secondary server is in the standby mode and you cannot make any administration changes using the secondary server.

### Rainy day scenario

In this case, the secondary System Manager server manages all the Avaya Breeze™ servers. The secondary System Manager server replicates the administration changes to all the Avaya Breeze™ servers. The primary System Manager server has failed or has lost connectivity with the Avaya

Breeze™ servers. The primary server is thus offline and you cannot make any administration changes using the primary server.

### Split-network scenario

In this case, the system administrator administers the secondary System Manager server to the active mode when the primary System Manager server is also in the active mode. A connectivity failure occurs in the network. Some Avaya Breeze™ servers can communicate only with the primary System Manager server while some Avaya Breeze™ servers can communicate only with the secondary System Manager server. However, some Avaya Breeze™ servers can communicate with the primary and the secondary servers.

**Caution:**

Do not make any administration change in a Avaya Breeze™ server during a split-network scenario.

For more information on Geographic Redundancy, see *Administering Avaya Avaya Breeze™*.

# Chapter 3: Interoperability

## Product compatibility

For the latest and most accurate compatibility information, go to www.avaya.com/Support.

## Avaya Breeze™ requirements

Avaya Breeze™ requires a licensed VMware instance (standard edition or better) and the following versions of the VMware hypervisor and products:

- ESXi 5.0 and any of its updates, including 5.5
- ESXi 6.0

Avaya Breeze™ is a single vAppliance package with the following characteristics:

| | |
|---|---|
| **Operating system** | RHEL 6.5 64–bit |
| **CPU Core(s)** | 4 floating cores |
| **CPU reservation** | 9600MHz = 4x2400MHz |
| **Memory reservation** | 6.0GB |
| **Storage reservation** | 50GB |
| **Shared NIC(s)** | Two at 1000 Mbps, used for management interface and security module |

The resources specified in the table are default values. You can modify these values during Avaya Breeze™ installation.

**Note:**

All the Avaya Breeze™ servers in a cluster must have the same memory reservation.

Resource requirements may increase depending on the Avaya Breeze™ snap-ins that are installed.

# Resources and memory configuration

The following table specifies the resource and memory configuration for Engagement Call Control deployments. This snap-in provides both call control functionality and programmatic access to voicemail.

The number of Avaya Breeze™ servers required for each deployment profile varies based on whether voicemail access is in use, and on the number of Avaya Aura® Messaging Servers used. If the deployment is using only the call control functionality, use the value indicated in the **Avaya Breeze Servers required without Voicemail**. If voicemail access is in use, use the value indicated in the **No. of Messaging Servers : Avaya Breeze Servers required with Voicemail** column. The first number in this column indicates the number of Avaya Aura® Messaging Servers and the second number indicates the required number of Avaya Breeze™ servers.

For more information about the deployment profiles, see *Avaya Engagement Call Control Snap-in Reference*.

| Deployment Profile | Avaya Breeze Footprint | Max Call Rates | Max. no. of Communication Managers | Max no. of endpoints | Maximum simultaneous calls | Avaya Breeze Servers required without Voicemail | No. of Messaging Servers : Avaya Breeze Servers required with Voicemail |
|---|---|---|---|---|---|---|---|
| Small | Profile 2 - 4 vCPU, 8 GB | 2 CPS | 2 | 15000 | 360 | 1 | 1:1<br>2:1<br>3:2 |
| Medium | Profile 4 - 8 vCPU, 16 GB | 15 CPS | 3 | 30000 | 2700 | 2 | 1:2<br>2:2<br>3:2 |
| Large | Profile 4 - 8 vCPU, 16 GB | 24 CPS | 3 | 41000 | 4320 | 2 | 1:2<br>2:3<br>3:3 |

**Note:**

Choose Profile 2 for Voicemail when you have 1 to 3 Avaya Aura® Media Server servers.

Media fetches /Avaya Aura® Media Server = 4

For information about Application Enablement Services and Communication Manager deployment profiles, see the respective product deployment guides.

# Avaya Aura® Media Server requirements

Avaya Aura® Media Server is a single vAppliance package with the following characteristics:

| | |
|---|---|
| **Operating system** | RHEL 6.2 |
| **CPU Core(s)** | 4 floating cores |
| **CPU reservation** | 9600MHz = 4x2400MHz |
| **Memory reservation** | 4.5GB |
| **Storage reservation** | 50GB |
| **Shared NIC(s)** | One at 1000 Mbps |

# Chapter 4: Performance specifications

## Capacity and scalability specification

| | |
|---|---|
| **Avaya Breeze™ servers in an enterprise** | 35 |
| **Avaya Breeze™ users in an enterprise** | • 250,000 users for Presence Services<br>• 35,000 users for General Purpose Avaya Breeze™ Cluster |
| **Avaya Breeze™ clusters in an enterprise** | 20 |
| **Avaya Breeze™ servers in a cluster** | 5 |
| **Busy Hour Calls per Avaya Breeze™ server** | 50,000 |
| **Busy Hour Email Notifications** | 50,000 |
| **Busy Hour SMS Notifications** | 50,000 |
| **Avaya Aura® Media Server instances** | 20 |
| **Avaya Aura® Media Server ports per instance** | 1,024 |
| **Avaya Aura® Media Server concurrent sessions** | A single instance of virtual Avaya Aura® Media Server supports:<br>• 1000 concurrent sessions using the G.711 codec<br>• 830 concurrent sessions using the G.722 codec<br>• 670 concurrent sessions using the G.729 codec<br>SRTP adds 50% overhead (reduce above numbers by factor of 1.5).<br>The number of supported sessions is subject to change based on the results of further performance testing. |

**Note:**

The Avaya Breeze™ capacity is reduced significantly if the traffic is being processed by Engagement Designer.

Avaya Aura® Media Server is required to:

- Play recorded voice announcements.
- Play text-to-speech announcements.
- Detect and collect DTMF tones.
- Send DTMF tones.
- Perform automated speech recognition.
- Perform speech search operations.
- Record audio.

# High availability

Avaya Breeze™ can be deployed across multiple geographic locations with each Avaya Breeze™ providing active service. To accomplish this for SIP, a Session Manager is linked to different Avaya Breeze™ servers and an FQDN is used to route service requests to the Avaya Breeze™ cluster.

**Note:**

The Avaya Breeze™ clusters can be located in different geographical locations. However, the Avaya Breeze™ servers in a particular cluster must be in the same location.

Call Intercept snap-ins on Avaya Breeze™ are highly available, provided two or more Avaya Breeze™ servers are provisioned as a cluster. All new calls handled by such snap-ins provide full feature functionality even if an Avaya Breeze™ server goes down.

If an Avaya Breeze™ server fails, any active calls that were originated or intercepted by that server are impacted. The talk path on these existing calls is maintained, but you cannot apply any functionality to these calls by using Avaya Breeze™ snap-ins or other applications in the call path such as Communication Manager.

For more information about administering Avaya Breeze™ high availability, see *Deploying Avaya Breeze™*.

# Chapter 5: Security

## Security specification

### Trust and Identify certificates

As a customer, install your own or third-party Trust Certificates and Identity Certificates for clusters. Use different certificates for SIP and HTTP for traffic and the management interface.

**Security alert:**

To ensure the security of your system, Avaya strongly recommends that you replace the Demo certificates and the Avaya SIP CA certificate with:

- your own third-party certificates, or
- unique, individual certificates signed by the System Manager Trust Manager CA.

### HTTP security

It is possible to optionally provision a list of trusted hosts that are authorized to invoke HTTP snap-ins.

- IP Address

  If the source IP address for an incoming HTTP(S) request matches one specified in the trusted host list, then the connection is accepted. If not, the connection is denied.

- Certificate-based

  If this mechanism is enabled, the HTTP Firewall / Front-End Proxy will challenge for a client certificate and validate that certificate against its trusted CAs.

If neither of these mechanisms is enabled, the HTTP Firewall / Front-End Proxy accepts incoming connections from any host.

### Role Based Access Control (RBAC)

Avaya Breeze™ supports RBAC for System Manager functions. This includes:

- Read and write access to all the Avaya Breeze™ servers.
- Add, delete, modify and view access to each Avaya Breeze™ webpage.
- The ability to load, install, uninstall or delete a snap-in.

# Port utilization

For complete port matrix information, see the Port Matrix Documents section at http://support.avaya.com/security.

**Note:**

Additional ports can be opened on a per snap-in basis on a cluster using the Service ports functionality.

# Chapter 6: Licensing Requirements

## Licensing requirements

### Avaya Breeze™

Use of the Avaya Breeze™ software requires a valid Avaya Breeze™ license file.

Avaya Breeze™ uses the Avaya Product Licensing and Delivery System (PLDS) to manage license entitlements and to generate license files. The license file contains information regarding the product, major release, license features and capacities. License files are downloadable from PLDS and are installed on System Manager WebLM.

In a network with multiple Avaya Breeze™ servers, only a single license file installed on System Manager WebLM is needed to license all the Avaya Breeze™ servers.

### Other license requirements

Avaya Breeze™ runs on a VMware environment that must be licensed independently by the customer.

Avaya Aura® Media Server requires a separate license file from Avaya Breeze™.

Some Avaya snap-ins like WebRTC Snap-in, Context Store, Engagement Designer, Work Assignment require their own license files.

**Note:**

Download the license files from PLDS and install the license files on System Manager WebLM.

## Avaya Breeze™ platform licensing

Avaya Breeze™ supports the platform licensing feature, where the Avaya Breeze™ element manager maintains the license mode for each Avaya Breeze™ instance. The possible license modes for a Avaya Breeze™ instance are:

- **License Normal Mode**: A valid license file is installed. No license errors are found. The complete functionality is available for the Avaya Breeze™ instance.
- **License Error Mode**: License error is seen in this mode. The Avaya Breeze™ instance is in a 30 day grace period during this mode. Complete functionality is available during the grace period. The system displays the warning icon along with the grace period in the **License Mode** column in the Server Administration page.

- **License Restricted Mode**: The Avaya Breeze™ instance goes in to the restricted mode after the 30 day grace period expires. The Avaya Breeze™ instance goes in to the Deny New Service mode.

### Platform license validation

The platform licensing feature also validates Avaya Breeze™ instances when you add, delete, and start up a Avaya Breeze™ server. Each Avaya Breeze™ server needs a license. The number of Avaya Breeze™ servers cannot exceed the number of license files.

If you administer a Avaya Breeze™ server beyond the license capacity, the server goes into the License Error mode with a 30 day grace period.

### Licensing audit

Avaya Breeze™ licensing audit runs every 9 minutes. Any license changes including install or uninstall actions on the WebLM server takes time to reflect on the user interface. The latest license information thus takes a maximum of 9 minutes to reflect in the Avaya Breeze™ element manager.

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