Deploying Avaya Breeze® platform on Amazon Web Services for Avaya Aura®

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Contents

Chapter 1: Introduction

Purpose

This document contains Avaya Breeze® platform installation, configuration, initial administration, and basic maintenance checklist and procedures.

This document is intended for people who install and configure a verified Avaya Breeze® platform reference configuration at a customer site.

Prerequisites

Before deploying the product, ensure that you have the following knowledge, skills, and tools.

Knowledge

- Amazon Web Services setup
- Linux® Operating System
- Avaya Aura® System Manager
- Avaya Aura® Communication Manager
- Avaya Aura® Media Server

Skills

Administration of AWS Management Console and Avaya Aura® applications.

Tools

- Avaya Breeze® platform OVA
- A web browser to gain access to AWS Management Console
- PuTTY, PuTTYgen
- WinSCP
- WinZip

Change history

Issue	Date	Summary of changes
1	December 2018	Initial release.
2	May 2019	Minor updates to the document.

Chapter 2: Avaya Aura® on Amazon Web Services overview

Amazon Web Services (AWS) is a cloud services platform that enables enterprises to securely run applications on the virtual cloud. The key components of AWS are Amazon Elastic Compute Cloud (EC2) and Amazon Simple Storage Service (S3).

Supporting the Avaya applications on the AWS Infrastructure as a service (IaaS) platform provides the following benefits:

- Minimizes the capital expenditure (CAPEX) on infrastructure. The customers can move from CAPEX to operational expense (OPEX).
- Reduces the maintenance cost of running the data centers.
- Provides a common platform for deploying the applications.
- Provides a flexible environment to accommodate the changing business requirements of customers.

You can deploy the following Avaya Aura® applications on Amazon Web Services:

- Avaya Aura® System Manager
- Avaya Aura® Session Manager
- Avaya Aura® Communication Manager
- Avaya WebLM
- Presence Services using Avaya Breeze® platform
- Avaya Session Border Controller for Enterprise
- Avaya Aura® Device Services
- Avaya Aura® Application Enablement Services (Software only)
- Avaya Aura® Media Server (Software only)
- Avaya Diagnostic Server (Software only)

The supported Avaya Aura® AWS applications can also be deployed on-premises.

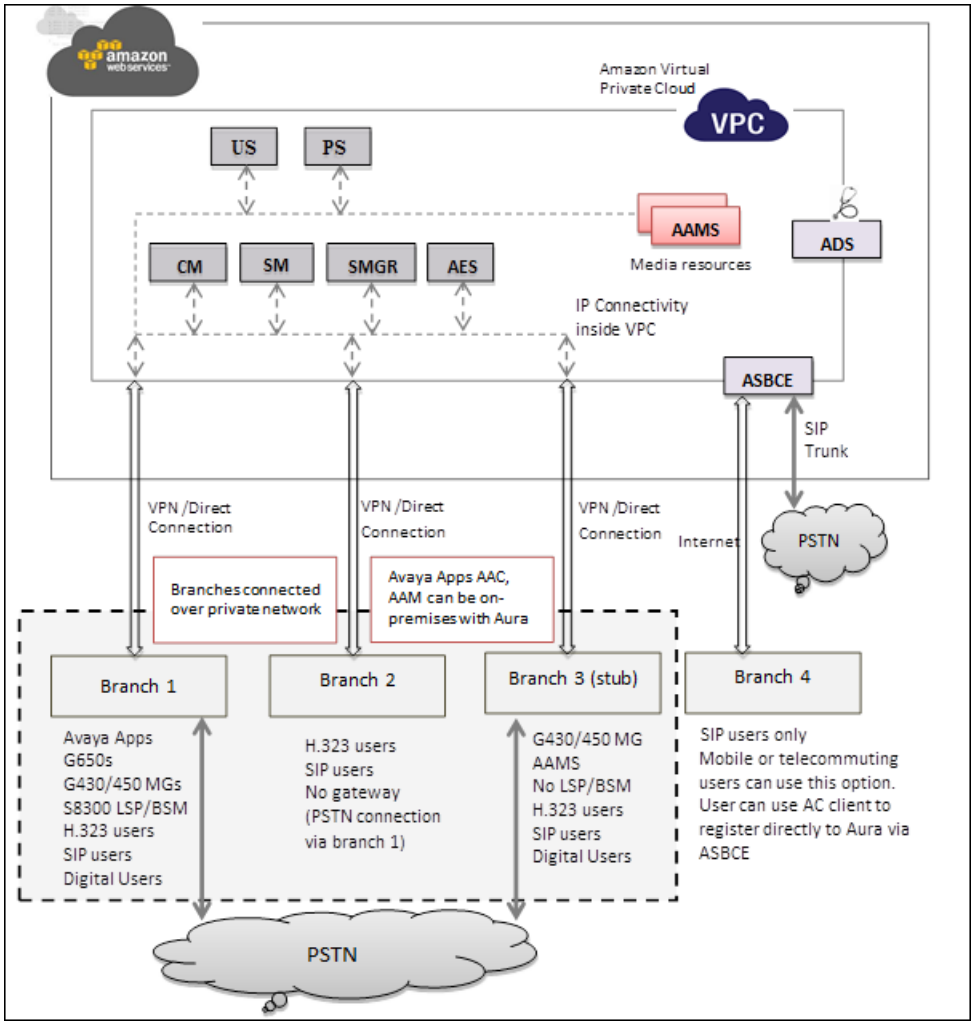
You can connect the following applications to the Avaya Aura® AWS instances from the customer premises:

- Avaya Aura® Conferencing Release 8.0 and later

- Avaya Aura® Messaging Release 6.3 and later
- G430 Branch Gateway, G450 Branch Gateway, and G650 Media Gateway

Topology

This network topology diagram depicts the architecture of Avaya applications on Amazon Web Services. The topology diagram is an example of a possible configuration that Avaya offers. The configuration does not need to include all the applications, but must follow the AWS deployment guidelines.



Networking considerations for connecting Avaya applications

When you deploy an Avaya application at main location or at a branch location on AWS, ensure that you follow the networking requirements, such as, the WAN network topology, bandwidth and latency of the Avaya applications. You must adhere to the Avaya network recommendations and AWS networking rules.

AWS has some limitations for establishing public internet VPNs and direct connections into AWS. For more information about Amazon VPC Limits, see the AWS documentation at http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Appendix_Limits.html.

Important:

Avaya recommends the use of direct connection in combination of a private WAN connection with Service Level Agreement (SLA) measures to ensure that the network quality is appropriate for signaling and voice traffic.

Avaya is not responsible for network connections between AWS and customer premises.

Connection types

You can connect applications in a hybrid network on the Virtual Private Cloud (VPC) in the following ways:

Connection type	Resource
VPN connection	For information about VPN connections, see http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/vpn-connections.html.
Direct connection	For information about AWS direct connections, see https://aws.amazon.com/directconnect/.

System interactions

Avaya product	Supported releases
Avaya Aura® System Manager	8.0.1
Avaya Aura® Session Manager	6.3.8, 6.3.9, 7.0, 7.0.1, 7.1.x, 8.0, and 8.0.1
Avaya Aura® Communication Manager	6.3.6, 7.0, 7.0.1, 7.1.x, 8.0, and 8.0.1
Avaya Aura® Application Enablement Services	6.3.3, 7.0.x, 7.1.x, and 8.0
Avaya Aura® Media Server	8.0 and 8.0.1

Table continues…

Avaya product	Supported releases
Avaya Aura® Messaging	6.3.5 and 7.0
Avaya Equinox® Conferencing	8.3 to 9.1.2
Engagement Call Control solution	3.5.0.1

Traditional H.248 gateways provide access to the PSTN and 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® platform snap-ins interoperate with other Avaya products. For example, WebRTC Snap-in interoperates with Avaya Session Border Controller for Enterprise Releases 6.3 to 8.0.

Chapter 3: Deployment process

Deployment checklist

No.	Task	Description	Notes	✔
1	Record information for the deployment.	See Key customer configuration information on page 20		
2	Install the latest System Manager release.	Verify that the latest release of System Manager is installed. For more details, see *Product Change Notice (PCN)* and *Release Notes for Avaya Breeze® platform*.		
3	Download the following from PLDS: • Software from PLDS. • The Avaya Breeze® platform license file from PLDS. • If needed, download the Avaya Breeze® platform patch file.	See Downloading software from PLDS on page 24		
4	Verify that the **Enrollment Password** is not expired.	See Verifying Enrollment Password status on page 25		
5	Log in to AWS Management Console.	See Signing in to the Amazon Web Services Management console on page 25.		
6	Create a key pair on AWS Management Console.	See Creating a key pair on page 26.		
7	Convert the Avaya Breeze® platform OVA to AWS AMI.	Checklist for converting the Avaya Breeze OVA to AWS AMI on page 27		

Table continues…

No.	Task	Description	Notes	✔
8	Deploy the Avaya Breeze® platform AMI.	Deploying the Avaya Breeze AMI on page 36		
9	Configure Avaya Breeze® platform on AWS	Configuring Avaya Breeze on AWS on page 40		
10	(Optional) Migrate the cluster database of another Avaya Breeze® platform instance. This step is applicable only if you use Avaya Breeze® platform for Presence Services.	Migration of cluster database on page 42		
11	(Optional) Install the patch file.	Patching Avaya Breeze platform on page 46		
12	(Optional) Create multiple privileged user accounts.	Creating multiple privileged user accounts on page 47		
13	Install the Avaya Breeze® platform license file.	Installing the Avaya Breeze platform license file on page 50		
14	Administer the SIP Entity.	Administering an Avaya Breeze platform SIP Entity on page 50		
15	Administer the SIP Entity Link.	Administering the Avaya Breeze platform Entity Link on page 51		
16	Enable implicit users applications for SIP users.	Enabling implicit users applications for SIP users on page 52		
17	Administer the Avaya Breeze® platform Instance.	Administering an Avaya Breeze platform instance on page 52		
18	Verify the Entity Link connection.	Verifying the Avaya Breeze platform Entity Link connection on page 53		
19	Verify the replication status.	Verifying replication status on page 54		
20	Verify management link.	Verifying the management link on page 54		
21	Assign the server to an Avaya Breeze® platform cluster. If one does not already exists for this server, create the cluster.	Creating a new cluster on page 55		

Table continues…

No.	Task	Description	Notes	✔
22	Add a trust certificate to all servers.	Adding a Trust Certificate to all Avaya Breeze platform servers in a cluster on page 76		
23	Add individual trust certificates. **Note:** Step 20 adds the trust certificates to all Avaya Breeze® platform server in the cluster. This step is required only if you are provisioning a new server to be added to the cluster or have redeployed an existing server using an OVA.	Adding trusted CA certificates on page 77		
24	Replace the identity certificate.	Replacing an identity certificate on page 78		
25	Change the state of the server to accept new service.	Accepting new service on page 57		
26	Configure System Manager to receive the Avaya Breeze® platform alarms.	See *SNMP Support for Avaya Breeze® platform* in *Maintaining and Troubleshooting Avaya Breeze® platform.*		

Avaya Aura® Media Server deployment checklist

The following table lists the procedures required to deploy Avaya Aura® Media Server. You must deploy Avaya Aura® Media Server before deploying Avaya Breeze® platform.

#	Action	Reference/Notes	✔
1	Download software from PLDS. Download the Avaya Aura® Media Server License file from PLDS.	Downloading software from PLDS on page 24	
2	Deploy the Avaya Aura® Media Server OVA.	See *Deploying and Updating Avaya Aura® Media Server Appliance*.	
3	Configure virtual machine automatic startup settings.	Configuring virtual machine automatic startup settings using vSphere desktop client on page 65	

Table continues…

#	Action	Reference/Notes	✔
4	License the Avaya Aura® Media Server.	Licensing the Avaya Aura Media Server on page 67 Installing the Avaya Aura Media Server license file on page 68	
5	Enroll Avaya Aura® Media Server on System Manager. Before enrolling, ensure to follow the pre-enrollment checklist included in *Implementing and Administering Avaya Aura® Media Server*.	Refer to the “System Manager enrollment” section in *Implementing and Administering Avaya Aura® Media Server*. **Note:** Note the following during enrolling: • The element and cluster names must not contain the following special characters: "[^<>\\^% $@*#]*"). • The Avaya Aura® Media Server FQDN and the System Manager FQDN must be registered in DNS or must have an entry in /etc/hosts. • System Manager and Avaya Aura® Media Server need to be on the same domain.	
6	Administer Avaya Aura® Media Server for REST.	Administering Avaya Aura Media Server for REST on page 68	
7	Assign Avaya Aura® Media Server for use with Avaya Breeze® platform.	Assigning Avaya Aura Media Server for use with Avaya Breeze platform on page 69	
8	Create a new certificate on Avaya Aura® Media Server, or import an existing certificate to establish a trust relationship with Avaya Breeze® platform.	See *Security Configuration* in the *Configuration* chapter of *Implementing and Administering Avaya Aura® Media Server* for additional information.	
9	Add the System Manager IP address.	Adding the System Manager IP address on page 69	
10	Configure name resolution.	Avaya Aura Media Server host name resolution on page 70	
11	Configure MRCP server on Avaya Aura® Media Server to support Automatic Speech Recognition (ASR) and to stream Text-To-Speech (TTS).	See *Implementing and Administering Avaya Aura® Media Server*.	

Avaya Breeze® platform SIP high availability deployment checklist

The following table lists the procedures required to deploy Avaya Breeze® platform in a SIP high availability configuration.

#	Action	Reference/Notes	✔
1	Create an FQDN SIP Entity.	Creating an FQDN SIP Entity on page 80	
2	Create the FQDN Entity Link.	Creating the FQDN Entity Link on page 81	
3	Create a high availability Application and Application Sequence.	Creating an Application and Application Sequence for high availability on page 82	
4	Resolve the local host name.	Resolving the local host name for high availability on page 84	
5	Enable load balancing for the cluster.	Enabling HTTP load balancing in an Avaya Breeze platform cluster on page 87	

Chapter 4: Planning and preconfiguration

Key customer configuration information

You require the following information to install and configure Avaya Breeze® platform. Have this information before you begin the installation.

Network Settings

Field	Information to enter	Notes
IP Address	`Enter server's IP address`	Management IP address to be assigned to Avaya Breeze® platform.
SIP security module IP address	`Enter server's SIP security module IP address`	
Short Hostname	`Enter server's hostname`	
Network Domain	`Enter network domain or 'none'`	
Netmask	`Enter netmask`	
Default gateway	`Enter gateway IP address`	Default gateway for Avaya Breeze® platform management network interface.
DNS servers	`Enter the Primary, Secondary, and Tertiary DNS server IP address`	You can have up to three DNS servers.

Proxy settings

Field	Information to enter	Notes
HTTP Proxy Server	`Enter the IP address or FQDN of the HTTP proxy server.`	
HTTP Proxy Port	`Enter the HTTP proxy port.`	
HTTPS Proxy Server	`Enter the IP address or FQDN of the HTTPS proxy server.`	
HTTPS Proxy Port	`Enter the HTTPS proxy port.`	

Table continues…

Field	Information to enter	Notes
HTTP Proxy exclusion list	`Enter the HTTPS proxy severs with a delimiter of "|".` For example, `*ca.avaya.com|*.us.avaya.com|135.9.95.*` By default, the customer domain will be added to the proxy exclusion list. The proxy exclusion list can be added with the **`CEnetSetup`** command or using the OVA properties during deployment. If the destination for the HTTP request matches any address in the exclusion list, the HTTP request will be sent directly to the destination instead of the proxy.	

System Time Settings

Field	Information to enter	Notes
Timezone	`Select the timezone from this field.`	This configuration is mandatory for Avaya Breeze® platform to function. The timezone configured on Avaya Breeze® platform must match the timezone on System Manager.
NTP Servers	`Enter IP/FQDN of Primary NTP Server`	You can have up to three NTP servers. NTP servers are mandatory for AWS nodes. By default, AWS nodes use NTP servers. You can override this default setting when you start the node for the first time.
Enhanced Access Security Gateway (EASG)	Enter one of the following: • `1` to enable EASG. • `2` to disable EASG.	

Customer Login Settings

Field	Information to enter	Notes
Login Name	`Enter Login ID to use for the customer account (cust).`	The default Login ID for the customer account is `cust`.

Table continues…

Field	Information to enter	Notes
Enter Password	`Enter the customer account password.`	The default password for the customer account is `cust01`. You must change the default password when you log in for the first time.

System Manager Settings

Field	Information to enter	Notes
Primary System Manager IP	Enter the `IP Address` of the Primary System Manager that will be used to manage this Avaya Breeze® platform server.	
Enrollment Password	Enter the `Enrollment Password` that matches the value in System Manager administration.	**Note:** You must know the Enrollment Password, and the password must not have expired. The password is set on System Manager at **Security** > **Certificates** > **Enrollment Password**. On this page, verify that the **Time Remaining** is greater than zero. If you do not know the password, create a new one.

SIP Entity (Security Module Interface) Networking Information

This information is required for administering Avaya Breeze® platform SIP Entity and Avaya Breeze® platforminstance.

Required information	Value
Management IP address	
SIP security module IP address	

Supported footprints for the applications on AWS

Product name	Footprint	AWS instance type	AWS vCPU	AWS RAM (GB)	AWS Storage (GB)	NICs
Presence Services on Avaya Breeze® platform	Profile 1	m4.xlarge	4	16	80	2
	Profile 2	c4.2xlarge	8	15	80	2
	Profile 3	m4.2xlarge	8	32	150	2
	Profile 4	c4.4xlarge	16	30	300	2
System Manager	Profile 3	m4.2xlarge	8	32	250	1
Session Manager	Profile 1	m4.xlarge	4	16	90	2
	Profile 4	c4.4xlarge	16	30	125	2
Communication Manager Simplex	Communication Manager Simplex Max users 36000	m4.large	2	8	64	2
Avaya SBCE	Avaya SBCE standalone with 6 NIC - Large	c4.4xlarge	16	30	160	6
Avaya Aura® Media Server (Software only)	1000 MPU	c4.2xlarge	8	15	50	1
Application Enablement Services (Software only)	AES Profile 2	c3.large	2	3.75	32 (2×16)	1
Avaya Diagnostic Server (Software only)	—	t2.xlarge	4	8	Free Space 230	2

For information about the system capacities, such as the number of users, gateways, and endpoints, see the product-specific documentation on the Avaya Support website at https://support.avaya.com.

Configuration tools and utilities

To convert the Avaya Breeze® platformOVA to AMI, to deploy AMI, and to configure the applications, you need the following tools and utilities:

- Avaya Breeze® platform OVA

- A web browser to gain access to AWS Management Console.

  For the list of supported web browsers, see the AWS documentation at https://docs.aws.amazon.com.
- PuTTY, PuTTYgen
- WinSCP
- WinZip

Downloading software from PLDS

Procedure

1. Enter http://plds.avaya.com in your Web browser to access the Avaya PLDS website.
2. Enter your login ID and password.
3. On the PLDS home page, select **Assets**.
4. Select **View Downloads**.
5. If you are a customer, skip this step.
   a. In the **%Name** field, either Enter **Avaya** or the Partner company name, or click on the search icon (magnifying glass) and select the appropriate company from the drop-down menu.
   b. Click on **Apply Company**.
6. Click the **Search by Download** tab.
7. Enter any information specific to the download, or leave the fields blank to view all downloads.
8. Click **Search Downloads**.
9. Locate the appropriate download.
10. Click the **Download** link in the left-most column of the download row.
11. In the **Download Manager** dialogue box, click the appropriate download link.

    Note:

    The first link, **Click to download your file now**, uses the Download Manager to download the file. The Download Manager provides features to manage the download (stop, resume, auto checksum). The **click here** link uses your standard browser download and does not provide the download integrity features.
12. If you receive an error message, click on the **install ActiveX** message at the top of the page and continue with the download.
13. Select a location where you want to save the file and click **Save** .

14. If you used the Download Manager, click **Details** to view the download progress.

Verifying Enrollment Password status

Avaya Breeze® platform requires an Enrollment Password during the initial installation and deployment process. Enrolling a password establishes trust between System Manager and Avaya Breeze® platform. The Enrollment Password is also known as the **certificate enrollment password**.

If the Enrollment Password has expired, renew the existing password.

If the **Time Remaining** is not zero, the password is valid. Verify that the time remaining is sufficient.

Procedure

1. On System Manager, click **Services** > **Security** > **Certificates** > **Enrollment Password**.
2. If the value of the **Time Remaining** field is zero, renew the password:
   a. In the **Password expires in** field, select a value from the drop-down menu for the time when the password must expire.
   b. Enter the password in the **Password** field.
   c. Reenter the password in the **Confirm Password** field.
   d. Click **Commit**.

   The system updates the **Time Remaining** field.

Signing in to the Amazon Web Services Management console

Before you begin

Ensure that you have an AWS account.

Procedure

1. In your web browser, type the URL https://aws.amazon.com/.
2. Click **Sign In to the Console**.

   The system displays the Amazon Web Service page and auto-populates the **Account** field.
3. In the **User Name** field, type the user name or registered email ID.
4. In the **Password** field, type the password.

5. Click **Sign In**.

   The system displays the AWS Management Console page.

Creating a key pair

About this task

A key pair is a set of public and private keys. The public key is used to encrypt data, such as the login password. The private key is used to decrypt the encrypted data. You provide this key pair when you create a CloudFormation stack, and use it for SSH access to the Amazon Machine Instances.

Procedure

1. Sign in to the Amazon Web Services Management console.
2. In the left navigation pane, go to **NETWORK & SECURITY**, and click **Key Pairs**.
3. Click **Create Key Pair**.
4. In the Create Key Pair dialog box, in the **Key pair name** field, type a name for the key pair.
5. Click **Create**.

   The system generates a `*.pem` file and prompts you to save the file on your computer. You can also view the created key pair name in the Key pair name column.
6. Save the `*.pem` file.

   Important:

   When you create a key pair, save it. If you lose the key, you cannot retrieve it and you will not be able to access the instance.

Chapter 5: OVA to AMI conversion

Checklist for converting the Avaya Breeze® platform OVA to AWS AMI

Ensure that you complete the following before converting the Avaya Breeze® platform OVA to AWS AMI:

No.	Task	Link/Notes	✔
1	Create a bucket on AWS Management Console to upload the OVAs.	See Creating a bucket for uploading the OVAs for AMI conversion on page 27.	
2	Upload the Avaya Breeze® platform OVA.	See Uploading the Avaya Breeze OVA on page 28.	
3	Create an Amazon EC2 virtual server instance.	See Creating a Linux Amazon EC2 virtual server instance on page 28.	
4	Create an access key.	See Creating a user access key on page 30.	
5	Obtain the virtual server instance user id.	See Obtaining the virtual server instance user ID on page 30.	
6	Import the OVA for AMI conversion.	See Importing the OVA for AMI conversion on page 31.	

Creating a bucket for uploading the OVAs for AMI conversion

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Storage**, and click **S3**.

   The system displays the S3 Management Console page.
3. Click **Create bucket**.

   The system displays the Create bucket dialog box.

4. In **Bucket name**, type a unique bucket name.

   Only use lowercase letters for the name.

5. In the **Region** field, click a region for your bucket.

   For more information about creating a bucket and selecting a region, see Amazon S3 Documentation.

6. Click **Create**.

Uploading the Avaya Breeze® platform OVA

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Storage**, and click **S3**.

   The system displays the S3 Management Console page.

3. From the **All Buckets** section, select a bucket.
4. Click **Upload**.

   The system displays the Upload - Select Files and Folders dialog box.

5. Click **Add Files**.
6. On the Choose File to Upload dialog box, select Avaya Breeze® platform OVA file from your local system, and click **Open**.
7. Click **Start Upload**.

Creating a Linux Amazon EC2 virtual server instance

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.

3. Click **Launch Instance**.
4. On the Choose an Amazon Machine Image (AMI) page, search for a Linux AMI, and click **Select**.

   You must select an image that includes the AWS command line tools.

5. On the Choose an Instance Type page, select an instance type, and click **Next: Configure Instance Details**.

6. On the Configure Instance Details page, do the following:
   a. In the **Network** field, click a VPC network.
   b. In the **Network interfaces** section, assign an IP address.
7. Click **Next: Add Storage**.
8. On the Add Storage page, leave the default settings, and click **Next: Add Tags**.
9. On the Add Tags page, add a tag, and click **Next: Configure Security Group**.
10. On the Configure Security Group page, create a new security group or select an existing security group, and click **Review and Launch**.
11. On the Review Instance Launch page, review the details of each configuration, and then click **Launch**.
12. On the Select an existing key pair or create a new key pair dialog box, select one of the following options:
    - **Choose an existing key pair**: If you select this option, perform the following:
      a. From the **Select a key pair** drop-down list, select a key pair.
      b. Select the **I acknowledge that I have access to the selected private key file (<example.pem>), and that without this file, I won't be able to log into my instance** check box.
    - **Create a new key pair**: If you select this option, perform the following:
      a. In the **Key pair name** field, type a name for the private key file. The extension of the private key file is `.pem`.
      b. Click **Download Key Pair**.
      c. Save the file in a secure and accessible location.

         Note:

         You will not be able to download the file again.
    - **Proceed without a key pair**: If you select this option, select the **I acknowledge that I will not be able to connect to this instance unless I already know the password built into this AMI** check box.
13. Click **Launch Instances**.

    The system creates the virtual server instance.
14. Click **Launch Status**, and click **View instance**.

    When the system creates an instance, the **Status Checks** column displays the message: `2/2 checks passed`.

Next steps

Import the OVA for AMI conversion.

Creating a user access key

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Security, Identity & Compliance**, and click **IAM**.

   The system displays the Welcome to Identity and Access Management page.
3. In the left navigation pane, click **Users**.
4. Click on a user name.
5. On the Summary page, click the **Security Credentials** tab.
6. In the **Access Keys** section, click **Create Access Key**.

   The system displays the message: `Your access key has been created successfully.`

   Important:

   When you create a security access key, you must save it. If you lose the security access key, you cannot retrieve it.

Obtaining the virtual server instance user ID

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.
3. In the left navigation pane, click **Instances**.
4. Select a server instance, and click **Connect**.
5. On the Connect To your Instance page, view the user ID.

   Example:

   ```
   ssh -i "example.pem" ec2-user@<IP address>
   ```

   The user name is `ec2-user`. Use this user ID to connect to the Linux server.

Importing the OVA for AMI conversion

Before you begin

- Create an access key. For more information, see “Creating an access key”.
- Obtain the user id. For more information, see “Obtaining the virtual server instance user id”.
- Converting the `*.pem` file to the `*.ppk` format and configure PuTTY for establishing an SSH connection. For more information, see “Configuring PuTTY”.

Procedure

1. Open an SSH session.
2. In **Host Name (or IP address)**, type the IP Address of the virtual server instance, and click **Open**.
3. Log in to the Linux server, and run the command: `aws`.
4. To configure the AWS details, run the command: `aws configure`, and do the following:
   a. In **AWS Access Key ID**, type the AWS access key ID.
   b. In **AWS Secret Access Key**, type the AWS secret access key ID.
   c. In **Default region name**, type the region name.

      For example: us-west-2.
   d. In **Default output format**, type `text` or `json`.
5. To check whether the EC2 instance is ready to use, run the command: `aws s3 ls`.

   The system displays the S3 bucket that you created.
6. To view the content of the S3 bucket, run the command: `aws s3 ls s3://<nameofbucket>`.

   Note:

   If DNS resolution for the VPC is disabled, the execution of the **`aws s3 ls s3://<nameofbucket>`** command fails.
7. To allow importing files into the EC2 instance, create a vmimport role, and attach policies as mentioned in the following sub-steps:
   a. Create a file named `trust-policy.json` with the following policy:

```
{ "Version":"2012-10-17", "Statement":[ { "Sid":"", "Effect":"Allow",
"Principal":{ "Service":"vmie.amazonaws.com" }, "Action":"sts:AssumeRole",
"Condition":{ "StringEquals":{ "sts:ExternalId":"vmimport" } } } ] }
```

   b. Use the **`create-role`** command to create a role named `vmimport` and give VM Import/Export access to it.

Ensure that you specify the full path to the location of the `trust-policy.json` file, and prefix `file://` to it:

```
aws iam create-role --role-name vmimport --assume-role-policy-document
file://trust-policy.json
```

c. Create a file named `role-policy.json` with the following policy:

Where <your_bucket_name> is the bucket where the OVA is stored:

```
{
"Version":"2012-10-17",
"Statement":[
{
"Effect":"Allow",
"Action":[
"s3:ListBucket",
"s3:GetBucketLocation"
],
"Resource":[
"arn:aws:s3:::<your_bucket_name>"
]
},
{
"Effect":"Allow",
"Action":[
"s3:GetObject"
],
"Resource":[
"arn:aws:s3:::<your_bucket_name>/*"
]
},
{
"Effect":"Allow",
"Action":[
"ec2:ModifySnapshotAttribute",
"ec2:CopySnapshot",
"ec2:RegisterImage",
"ec2:Describe*"
],
"Resource":"*"
}
]
}
```

d. Use the following **`put-role-policy`** command to attach the policy to the role created above.

Ensure that you specify the full path to the location of the `role-policy.json` file.

```
aws iam put-role-policy --role-name vmimport --policy-name vmimport --policy-
document file://role-policy.json
```

8. To import the ova for conversion, type the following command:

```
aws ec2 import-image --cli-input-json "{ \"Description\": \"<Server OVA>\",
\"DiskContainers\": [ { \"Description\": \"<text description of task>\",
\"UserBucket\": { \"S3Bucket\": \"<your_bucket_name>\", \"S3Key\" : \"<server.ova>
\" } } ]}"
```

Ensure to replace appropriate values wherever brackets <> are present in above command.

The system displays the **Status** and the **ImportTaskId** parameters.

9. To check the status of the import image, run the command: `aws ec2 describe-import-image-tasks --cli-input-json "{ \"ImportTaskIds\": [\"<Your_ImportTaskId>\"], \"NextToken\": \"abc\", \"MaxResults\": 10 } "`

   Where, **ImportTaskId** is the one from the output of the Step 8. For example: `import-ami-ffmanv5x`.

   The conversion process takes up to 30 minutes. You can run the above command repeatedly. When the AMI conversion is successful, the system displays the **Status** as `completed` and also displays **ImageId**.

   In the following example, the process is at the update stage and is 30% complete.

   ```
   [ec2-user@ip-10-143-10-81 ~]$ aws ec2 describe-import-image-tasks --cli-input-json "{ \"ImportTaskIds\": [\"import-ami-ffgji45r\"], \"NextToken\": \"abc\", \"MaxResults\": 10 } " IMPORTIMAGETASKS <Avaya application>-07.1.0.0.xxx-aws-001.ova import-ami-ffgji45r 30 active updating
   ```

   In the following example, the process is preparing the AMI and is 76% complete.

   ```
    IMPORTIMAGETASKS x86_64 <Avaya application>-07.1.0.0.xxx-aws-001.ova import-ami-ffgji45r BYOL Linux 76 active preparing ami
   ```

   The output format varies depending on the selection of the text or JSON format on the aws CLI configuration.

   For more details, see “AWS Import your VM as an image” on the AWS website at http://docs.aws.amazon.com/vm-import/latest/userguide/import-vm-image.html.

10. Sign in to the Amazon Web Services Management console.
11. Go to **Services** > **Compute**, and click **EC2**.

    The system displays the EC2 Management Console page.

12. In the left navigation pane, click **IMAGES** > **AMIs**.

    You can search the converted AMI with **ImageId**. The system displays the newly converted AMI **ImageId** in the **AMI ID** column.

    You can give an appropriate name for the AMI **ImageId**.

Related links

Creating a user access key on page 30
Obtaining the virtual server instance user ID on page 30

Creating an IAM role for the takeover of the floating IP address

About this task

You need to create the IAM role only once. You can use this IAM role for multiple Amazon EC2 launches to run CLI in AWS accounts.

Before you begin

Convert the Avaya Breeze® platform OVA to AWS AMI.

Procedure

1. Open an SSH session.
2. In the **Host Name (or IP address)** field, type the IP Address of the virtual server instance, and click **Open**.
3. Log in to the Linux server.

   For converting the `*.pem` file to the `*.ppk` format and configuring PuTTY for establishing an SSH connection, see “Configuring PuTTY”.
4. On the Linux server, run the command: **`aws`**.
5. To configure the AWS details, run the command: **`aws configure`**.
6. Configure the following fields:
   - **AWS Access Key ID**: Type the AWS access key ID.
   - **AWS Secret Access Key**: Type the AWS secret access key ID.
   - **Default region name**: Type the region name. For example, us-west-2.
   - **Default output format**: Type `text` or `json`.
7. To create an IAM role, do the following:
   a. Create a file called `<file name1>.json` with the following content:

```
{
"Version":"2012-10-17",
"Statement":[
    {
    "Sid":"",
    "Effect":"Allow",
            "Principal":{
            "Service":"ec2.amazonaws.com"
        },
        "Action":"sts:AssumeRole"
        }
]
}
```

   b. Run the following command:

```
aws iam create-role --role-name <role name> --assume-role-policy-document
file://<file name1>.json
```

8. Do the following to attach a trust policy to the IAM role:
   a. Create a file called `<file name2>.json` with the following content:

```
{
"Version":"2012-10-17",
"Statement":[
{"Sid":"Stmt1479707250000", "Effect":"Allow",    "Action":
["ec2:AssignPrivateIpAddresses", "ec2:DescribeNetworkInterfaces"],
"Resource":"*"}
]
}
```

   b. Run the following command:

```
aws iam put-role-policy --role-name <role name> --policy-name <role name>--
policy-document  file://<file name2>.json
```

9. To create an instance profile run the following command:

```
aws iam create-instance-profile --instance-profile-name <role name>
```

10. To add the IAM role to the instance profile, run the following command:

```
aws iam add-role-to-instance-profile --role-name <role name> --instance-profile-
name <role name>
```

Result

AWS Management Console creates the new IAM role with the instance profile and the associated policies.

Launching an Amazon EC2 instance

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.
3. In the navigation pane, click **IMAGES** > **AMIs**.
4. Select the product-specific Avaya Aura® AMI, and click **Launch**.

Chapter 6: AMI deployment

Deploying the Avaya Breeze® platform AMI

Before you begin

Convert the Avaya Breeze® platform OVA to AMI.

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.
3. In the left navigation pane, click **IMAGES** > **AMIs**.

   The system displays the list of AMIs.
4. Select the Avaya Breeze® platform AMI, and click **Launch**.
5. On the Choose an Instance Type page, select an instance type, and click **Next: Configure Instance Details**.

   You must select the correct instance type for deploying the AMI. If you select an incorrect instance type, usability of the system might be impacted.
6. On the Configure Instance Details page, do the following:
   a. From the **Network** drop-down list, select a VPC network.
   b. In the **Network interfaces** section, configure IP addresses for the eth0 and eth1 devices.
      - **eth0**: Configure the management IP address. Use this IP address to start an SSH session.
      - **eth1**: Configure the SIP security module IP address. You might have to add the eth1 device.
7. Click **Next: Add Storage**.

   AWS Management Console displays the Add Storage page.
8. Configure the required storage based on the Avaya Breeze® platform profile, and click **Next: Tag Instance**.

   AWS Management Console displays the Tag Instance page.

9. Type a unique name, and click **Next: Configure Security Group**.
10. On the Configure Security Group page, create a new security group or select an existing security group, and click **Review and Launch**.

    You must select the security group that has the required ports enabled. For information about ports, see the port matrix on the Avaya Support website at http://support.avaya.com/.
11. On the Select an existing key pair or create a new key pair dialog box, select one of the following options:
    - **Choose an existing key pair**: If you select this option, perform the following:
      a. From the **Select a key pair** drop-down list, select a key pair.
      b. Select the **I acknowledge that I have access to the selected private key file (<example.pem>), and that without this file, I won't be able to log into my instance** check box.
    - **Create a new key pair**: If you select this option, perform the following:
      a. In the **Key pair name** field, type a name for the private key file. The extension of the private key file is `.pem`.
      b. Click **Download Key Pair**.
      c. Save the file in a secure and accessible location.

      Note:

      You will not be able to download the file again.
    - **Proceed without a key pair**: If you select this option, select the **I acknowledge that I will not be able to connect to this instance unless I already know the password built into this AMI** check box.
12. Click **Launch Instances**.

    The system creates the instance and displays it on the Instances page.

    When the system creates an instance, the **Status Checks** column displays the message: `2/2 checks passed`.

Related links

Supported footprints for the applications on AWS on page 23
Checklist for converting the Avaya Breeze platform OVA to AWS AMI on page 27

Amazon Web Services instance management

Using EC2 Management Console, you can start, stop, reboot, and terminate an instance.

Note:

With the stop and start operations, the instance might move to a different host that might change the IP Address and MAC Address if not statically allocated. Rebooting the instance will not change the host, IP Address, and MAC Address in AWS.

Starting an AWS instance

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.
3. In the left navigation pane, click **Instances**.
4. Select one or more instance, click **Actions** > **Instance State** > **Start**.

   The system displays a message to start the instances.
5. Click **Yes, Start**.

   When the system starts the instance, the **Instance State** column displays the state as `running`.

Stopping an AWS instance

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.
3. In the left navigation pane, click **Instances**.
4. Select one or more instance, click **Actions** > **Instance State** > **Stop**.

   The system displays a message to stop the instances.
5. Click **Yes, Stop**.

   When the system stops the instance, the **Instance State** column displays the state as `stopped`.

Rebooting an AWS instance

Procedure

1. Sign in to the Amazon Web Services Management console.
2. Go to **Services** > **Compute**, and click **EC2**.

   The system displays the EC2 Management Console page.
3. In the left navigation pane, click **Instances**.
4. Select one or more instance, click **Actions** > **Instance State** > **Reboot**.

   The system displays a message to reboot the instances.
5. Click **Yes, Reboot**.

Chapter 7: Configuration

Configuring Avaya Breeze® platform on AWS

Before you begin

- Deploy the Avaya Breeze® platform AMI.
- Ensure the 2/2 checks passed.

Procedure

1. Start an SSH session to the Avaya Breeze® platform instance on AWS.

   Use the management IP address configured on the Configure Instance Details page for the SSH session.

2. Log in to AWS with the cust user credentials.

   The following are the default login credentials:

   - Login: cust
   - Password: cust01.

   AWS displays a prompt to change the default cust user password

3. Follow the prompts and change the password.

   AWS displays the Avaya Breeze Server Configuration page.

4. Read EULA, type `Y`, and press `Enter` to accept the Avaya software license terms.

   AWS displays the Avaya Breeze Server Configuration – Management Network page.

5. Configure the following fields:

   - **hostname**
   - **server's IP address**
   - **netmask**
   - **gateway IP address**
   - **network domain**

   Type new values to change the default configuration. Press `Enter` to keep the default configuration.

6. Type `Y` and press `Enter` to save the configuration.

AWS displays the Avaya Breeze Server Configuration – DNS page.

7. **(Optional)** Configure the following fields:
   - **Primary DNS server IP address**
   - **Secondary DNS server IP address**

   Type new values to change the default configuration. Press `Enter` to keep the default configuration.
8. Type `Y` to save the configuration.

   AWS displays the Avaya Breeze Server Configuration – PROXY page.
9. Type `n`, and press `Enter`.
10. Type `Y` to save the configuration.

    AWS displays the Avaya Timezone Selection page.
11. Select a time zone, and press `Enter`.

    AWS displays the Avaya Breeze Server Configuration – Date/Time page.
12. Press `Enter` to keep the default configuration for the following fields:
    - **Date**
    - **Time**
13. Type `Y` to save the configuration.

    AWS displays the Avaya Breeze Server Configuration – NTP page.
14. Press `Enter` to keep the default configuration.

    The default configuration uses the AWS NTP servers and an Internet connection through the NAT gateway for the Avaya Breeze® platform node.

    AWS displays the configuration summary for verification.
15. Type `Y` to save the configuration.

    AWS displays the Avaya Breeze Server Configuration — Enable or Disable EASG page.
16. Type one of the following to configure EASG:
    - `1` to enable EASG.
    - `2` to disable EASG.

    AWS displays the Avaya Breeze Server Configuration — Application page.
17. Configure the following fields:
    - **IP address of the System Manager**
    - **Enrollment Password**

      a. AWS configures the System Manager components. after you configure the System Manager IP address.

b. AWS configures the default firewall rules after you configure the new Enrollment Password.

Result

AWS starts the Avaya Breeze® platform instance.

Migration of cluster database

Avaya Breeze® platform supports the migration of cluster databases using the backup and restore process.

You can migrate cluster databases between Avaya Breeze® platform clusters that are managed by the same System Manager instance through the System Manager web console. These clusters can be deployed on customer premises and on AWS.

You can migrate cluster databases between Avaya Breeze® platform clusters that are deployed on customer premises and on AWS, but are managed by different System Manager instances, using only CLI. The migration of cluster databases between Avaya Breeze® platform clusters on customer premises and AWS and managed by different System Manager instances is supported only for Presence Services.

Checklist for migration of cluster databases

No.	Task	Link/Notes	✔
1	Back up the cluster database of an Avaya Breeze® platform cluster.	To backup the cluster database and migrate the database: • Between Avaya Breeze® platform clusters that are managed by the same System Manager instance, see Backing up a cluster on page 43. • To Avaya Breeze® platform clusters on AWS that are managed by different System Manager instances, see Backing up the cluster database using CLI on page 44.	

Table continues…

No.	Task	Link/Notes	✔
2	Restore the cluster database backup on other Avaya Breeze® platform clusters.	To restore the cluster database backup on other Avaya Breeze® platform clusters: • That are managed by the same System Manager instance, see Restoring a cluster on page 44. • That are deployed on AWS and managed by different System Manager instances, see Restoring the cluster database using CLI on page 45.	

Backing up a cluster

About this task

The backup feature allows databases in the Cluster database to be backed up. The Cluster database contains all different databases defined by the snap-in that are installed on the cluster.

You can backup on one cluster and restore on another.

Note:

Windows CoreFTP server is incompatible with the Cluster Backup and Restore feature and should not be used as an archive server.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Backup and Restore** > **Configure**.
3. Enter the backup server details.
4. Click **Test Connection** to verify the connection of the backup server.
5. Click **Commit**.
6. Select the cluster that you want to backup, and click **Backup and Restore** > **Backup**.

   The system displays the Cluster DB Backup page.
7. In the **Backup** section, select the services to back up.
8. In the **Job schedule** section, enter the following details:
   - In the **Backup password** field, enter a password.
   - In the **Schedule Job** field, select **Run immediately** or **Schedule later**.

     If you select **Schedule later**, enter the appropriate details in the **Task Time**, **Recurrence**, and **Range** fields.
9. Click **Backup**.

10. To monitor the status of the backup, click **Backup and Restore** > **Job Status**.
11. To cancel the backup operation, click **Backup and Restore** > **Cancel**.

Restoring a cluster

About this task

Restore can be performed on any cluster where Cluster database is enabled.

Note:

Windows CoreFTP server is incompatible with the Cluster Backup and Restore feature and should not be used as an archive server.

Before you begin

Cluster database must be enabled.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Backup and Restore** > **Restore**.

   The system lists the backup and restore jobs.
3. Select a completed backup, and click **Restore**.
4. Select the cluster on which you want to restore the backup, and click **Continue**.

Backing up the cluster database using CLI

About this task

Use the cluster database backup to migrate the cluster database among different Avaya Breeze® platform instances.

Avaya Breeze® platform might prompt you to enter the password for the particular database when you run the command to back up the database.

Before you begin

Get the Presence Services cluster database password. The default password is presenceservices01.

Procedure

1. Start an SSH session to the Avaya Breeze® platform active node on customer premises.
2. To back up the Presence Services cluster database, run the following command:

   ```
   pg_dump -h VirtualHaDbMaster -U presenceservices -p 5433 -d
   presenceservices_presence -f <filename>
   ```

Next steps

Avaya Breeze® platform backs up the Presence Services cluster database.

Restoring the cluster database using CLI

About this task

Restore the cluster database to migrate the cluster database among different Avaya Breeze® platform instances.

Avaya Breeze® platform might prompt you to enter the password for the particular database when you run the command to back up the database.

Before you begin

- Get the Presence Services cluster database password. The default password is presenceservices01.
- Move the Presence Services cluster database back up file to a file store that is accessible from the Avaya Breeze® platform node on AWS.

Procedure

1. Start an SSH session to the Avaya Breeze® platform active node on customer premises.
2. To connect to the Presence Services cluster database, run the following command:

   ```
   psql -h VirtualHaDbMaster -U presenceservices -p 5433 -
   d presenceservices_presence
   ```

3. To drop the Presence Services cluster database table structure, run the following command:

   ```
   DROP TABLE archived_messages, client_statistics, messages,
   messages_otherelements, messages_receipientshandles, roster_groups,
   rosters, tuples, vcard CASCADE;
   ```

4. To restore the Presence Services cluster database backup file, run the following command:

   ```
   psql -h VirtualHaDbMaster -U presenceservices -p 5433 -
   d presenceservices_presence <filename>
   ```

Result

Avaya Breeze® platform restores the Presence Services cluster database on the Avaya Breeze® platform node on AWS.

Next steps

Restart the Presence Services service from Element Manager

Patching Avaya Breeze® platform

About this task

This procedure provides general patching steps. Refer to the Release Notes and PSN to determine if there are patch-specific installation instructions.

Caution:

You cannot remove a patch after it is installed. This includes recovery from a patch install failing due to intermittent network issues. To enable recovery, you must take a snapshot of Avaya Breeze® platform before installing the patch. Verify that the system is running correctly after the patch is installed. When verified, remove the snapshot.

Note:

If using Cluster Database, before upgrading the active node:

- Place the active node into Deny New Service.
- Ensure that the activity count is 0.
- Manually switchover the newly upgraded standby node and the targeted to be upgraded active node.

Before you begin

The server must be in a deny service state. You must have downloaded the patch file and copied it to the Avaya Breeze® platform server. The patch should have the following Linux permissions: `rw-r--r--`.

Procedure

1. Log in to Avaya Breeze® platform using the customer account.
2. Execute the **`patchCE`** command.

   For example: `$ patchCE –i /home/cust/<patchname>.bin`
3. When prompted that the patch is service interrupting, answer **Yes** and press `Enter`.

   The patch installs. Wait for the patch installation to complete. Depending on the patch, Avaya Breeze® platform may reboot.
4. Verify the version of the installed patch. The version can be viewed in one of the following ways:
   - Log in to Avaya Breeze® platform and execute the command **`patchCE -s`**.
   - Log in to Avaya Breeze® platform and execute the command **`swversion`**.
   - On System Manager, click **Elements** > **Avaya Breeze®** > **Server Administration**.
5. On System Manager, click **Elements** > **Avaya Breeze®** > **Server Administration**.
6. Identify the row for the Avaya Breeze® platform server you are patching. Verify the following information:
   - The **Service Install Status** is a green checkmark.

- The **Security Module** is Up.
- The **License mode** is a green checkmark.
- The **Version** displays the new release.

Creating multiple privileged user accounts

Procedure

1. Log in to Avaya Breeze® platform with the login credentials created during the OVA deployment.
2. Type the **`custAccounts -a`** command.

   The system prompts you to add this user as an EASG administrator. Accept the default value, or enter `y`. Selecting y enables the user to run the EASG commands. The system prompts you to enter the login credentials for a new customer user account you are creating.
3. Enter the user name and password for the new customer user account you are creating.

   This password is a temporary password that you must change at the first login attempt for the new account.
4. Reenter the password for confirmation.

Enhanced Access Security Gateway

Avaya Breeze® platform supports Enhanced Access Security Gateway (EASG). EASG is a certificate-based, challenge-response authentication and authorization solution.

EASG provides a secure method for Avaya services personnel to:

- Access Avaya Breeze® platform remotely and onsite. Customers can enable or disable the access at any time.
- Perform tasks necessary for the ongoing support, management, and optimization of the solution.
- Enable remote proactive support tools such as Avaya Expert Systems® and Avaya Healthcheck.
- Perform the required maintenance tasks.

EASG only supports Avaya services logins, such as init, inads, and craft.

Enabling and disabling EASG

About this task

By enabling Avaya Services Logins, you are granting Avaya access to your system. This setting is required to maximize the performance and value of your Avaya support entitlements, allowing Avaya to resolve product issues in a timely manner. The product must be registered using the Avaya Global Registration Tool (GRT) at https://grt.avaya.com for Avaya remote connectivity. See the Avaya support site https://support.avaya.com/registration for additional information for registering products and establishing remote access and alarming. By disabling Avaya Services Logins, you are denying Avaya access to your system. This setting is not recommended, as it can impact Avaya's ability to provide support for the product. Unless the customer can manage the product, Avaya Services Logins should not be disabled.

Procedure

1. Log in to the Avaya Breeze® platform CLI interface using customer account.
2. To check the status of EASG, run the following command: `EASGStatus`.
3. To enable EASG, run the following command: `EASGManage --enableEASG`.
4. To disable EASG, run the following command: `EASGManage --disableEASG`.

Viewing the EASG certificate information

About this task

Use this procedure to view information about the product certificate, which includes information about when the certificate expires.

Procedure

1. Log in to the Avaya Breeze® platform CLI interface using customer account.
2. Run the following command: `EASGProductCert --certInfo`.

EASG site certificate

EASG site certificates are used by the onsite Avaya technicians who do not have access to the Avaya network to generate a response to the EASG challenge. The technician will generate and provide the EASG site certificate to the customer. The customer loads this EASG site certificate on each Avaya Breeze® platform server to which the customer has granted the technician access. The EASG site certificate will only allow access to systems on which it has been installed, and will only allow access to the given Avaya technician and cannot be used by anyone else to access the system including other Avaya technicians. Once this is done, the technician logs in with the EASG challenge and response. After the technician is done, the customer can remove the EASG site

certificate from the server or it will be removed by the EASG software after the site certificate expires.

Managing site certificates

Before you begin

Obtain the site certificate from the Avaya support technician and install it to Avaya Breeze® platform. Note the location of this file and use it in place of *installed_pkcs7_name* in the following commands.

Procedure

1. Log in to the Avaya Breeze® platform CLI interface using customer account.
2. To install the site certificate:
   a. Run the following command: `EASGSiteCertManage –add <installed_pkcs7_name>`.
   b. Save the Site Authentication Factor to share with the technician once on site.
3. To view information about a particular certificate: run the following command:
   - `EASGSiteCertManage --list`: To list all the site certificates that are currently installed on the system.
   - `EASGSiteCertManage --show <installed_pkcs7_name>`: To display detailed information about the specified site certificate.
4. To delete the site certificate, run the following command:
   - `EASGSiteCertManage --delete <installed_pkcs7_name>`: To delete the specified site certificate.
   - `EASGSiteCertManage --delete all`: To delete all the site certificates that are currently installed on the system.

Chapter 8: Avaya Breeze® platform System Manager Administration

Installing the Avaya Breeze® platform license file

Procedure

1. On the System Manager web console, click **Services** > **Licenses**.
2. Click **Install license** and **Browse** to the location of the Avaya Breeze® platform license file on your computer.
3. Click **Install**.

Administering an Avaya Breeze® platform SIP Entity

Before you begin

To complete this task, you will need the IP address of the Avaya Breeze® platform Security Module interface and the SIP Entity name.

About this task

Administer Avaya Breeze® platform as a SIP Entity so that you can configure Session Manager to route traffic through Avaya Breeze® platform.

Procedure

1. On System Manager, click **Elements** > **Routing** > **SIP Entities**.
2. Click **New**.
3. In the **Name** field, type the name of your SIP Entity.

   The SIP Entity name is automatically used as your Avaya Breeze® platform instance name when you create the Avaya Breeze® platform instance.
4. In the **FQDN or IP Address** field, type the IP address of your Avaya Breeze® platform Security Module.

   You must only enter the IP address.
5. From the **Type** drop-down menu, select `Avaya Breeze`.

6. From the **SIP Link Monitoring** drop-down menu, select `Link Monitoring Enabled`.
7. Click **Commit** to save your changes.

Next steps

Administer an Entity Link to connect Session Manager and Avaya Breeze® platform.

Related links

Creating an FQDN SIP Entity on page 80

Administering the Avaya Breeze® platform Entity Link

Before you begin

Administer Avaya Breeze® platform as a SIP Entity.

About this task

Create an Entity Link to connect Session Manager to Avaya Breeze® platform. You must administer separate Entity links for Avaya Breeze® platform servers in order to open SIP listeners on the designated ports.

Note:

You must use a common protocol for the entity links between Avaya Breeze® platform and Session Manager, and between Session Manager and Avaya Aura® Media Server. If you have multiple Avaya Aura® Media Servers with different protocols, configure two Entity Links between Avaya Breeze® platform and Session Manager for TLS and TCP.

Note:

TLS is the recommended protocol for production environments since it is secure and encrypted. Should the need arise to take a network trace between Session Manager and Avaya Breeze® platform, change the protocol to TCP. If this is a production environment, change the protocol back to TLS as soon as the trace is complete.

Procedure

1. On System Manager, click **Elements** > **Routing** > **Entity Links**.
2. Click **New**.
3. In the **Name** field, type a name for the Avaya Breeze® platform SIP Entity Link.
4. For the **SIP Entity 1** select the Session Manager.
5. For the **SIP Entity 2** select the Avaya Breeze® platform SIP Entity that you created.
6. Edit **Protocol** and **Connection policy** fields if necessary.
7. Press **Commit** to save your changes.

Enabling implicit users applications for SIP users

About this task

This procedure is required for calling-party and called-party snap-ins.

Note:

You must perform this procedure only once.

Procedure

1. On System Manager, click **Elements** > **Session Manager** > **Global Settings**.
2. Select **Enable Implicit Users Applications for SIP users**.
3. Click **Commit**.

Administering an Avaya Breeze® platform instance

Before you begin

Get:

- The IP address or the FQDN of the Avaya Breeze® platform **Management Network Interface**.

  This is the same IP address you used when deploying the virtual machine.

  The Avaya Breeze® platform management FQDN assigned to the management network interface must be registered in DNS.

  System Manager supports HTTP Cookie based Single Sign On (SSO). To facilitate SSO between System Manager and Avaya Breeze® platform, the domain name component of Avaya Breeze® platform FQDN must match all or at least a part of the domain name of System Manager FQDN.
- The IP address including the network mask, and default gateway for the Avaya Breeze® platform **Security Module**.
- The SIP entity name associated to the Avaya Breeze® platform **Security Module**.

Note:

In accordance with the Avaya End User License Agreement (EULA), you can administer only the number of Avaya Breeze® platform instances allowed by the Avaya Breeze® platform license.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Server Administration**.
2. In the Avaya Breeze® Server Instances list, click **New**.
3. In the **SIP Entity** field, click the SIP Entity that you created.

4. Ensure that the value in the **UCID Network Node ID** field is unique across the solution deployment so that it does not conflict with other UCID-generating entities such as Avaya Aura® Communication Manager or Avaya Aura® Experience Portal.

   UCID Network Node ID is a unique, numeric node ID that is assigned to each Avaya Breeze® platform server provisioned.

5. In the Management Network Interface **FQDN or IP Address** field, type the IP address or FQDN of the Avaya Breeze® platform **Management Network Interface**.
6. In the Security Module **IPv4 Network Mask** field, type the network mask used for the SIP (Security Module) network.
7. In the Security Module **IPv4 Default Gateway** field, type the default gateway used for the SIP (Security Module) network.
8. Click **Commit** to save your changes.

   Note:

   The Commit fails if the Avaya Breeze® platform license file on WebLM does not have the sufficient capacity to allow addition of another Avaya Breeze® platform server.

Verifying the Avaya Breeze® platform Entity Link connection

About this task

Complete this task to verify that Session Manager can connect with Avaya Breeze® platform using the SIP Entity Link. To do this you must first verify the status of SIP link monitoring on the Session Manager instance.

Procedure

1. Modify the Session Manager Instance.
   a. On System Manager, click **Elements** > **Session Manager** > **Session Manager Administration**.
   b. Select the Session Manager instance that you linked to Avaya Breeze® platform. Click **Edit**.
   c. Check **Enable Monitoring** in the **Monitoring** section.
   d. Click **Commit**.
2. Test the Entity Link.
   a. On System Manager, click **Elements** > **Session Manager** > **System Status** > **SIP Entity Monitoring**.
   b. Click the name of the Session Manager Instance that you linked to Avaya Breeze® platform.

The system displays a list with the status of all the Entity Links for the selected Session Manager.

c. Locate the Avaya Breeze® platform SIP Entity and check the **Conn. Status** column.

- If you see `UP`, the link to Session Manager is successful.
- If you do not see `UP`, for additional information, see *Avaya Breeze® platform FAQ and Troubleshooting for Service Developers*.

Verifying replication status

About this task

Complete this task to verify that the System Manager database replicated to Avaya Breeze® platform.

Procedure

1. On System Manager, click **Services** > **Replication**.
2. Locate the Avaya Breeze® platform in the **Replica Group** list.
3. In the **Synchronization Status** column, verify that the Avaya Breeze® platform status is `Synchronized`.

   Depending on the amount of data, the replication might take some time to complete. Refresh the page or periodically recheck the status.

   If the status is not `Synchronized`, for more information, see *Maintaining and Troubleshooting Avaya Breeze® platform*.

Verifying the management link

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Server Administration**.
2. Check the **Tests Pass** column.
   - A green check mark indicates that the management link is up and healthy.
   - Dashes indicate that the management link is still initializing and is not up yet.
   - A red cross indicates that the management link is down.

   For more information, see *Maintaining and Troubleshooting Avaya Breeze® platform*.

Creating a new cluster

About this task

Use the Cluster Editor page to:

- Select a cluster profile.
- Configure the cluster attributes.
- Add Avaya Breeze® platform servers to a cluster.
- Install snap-ins on a cluster.

You must set up user name and password for Avaya Aura® Media Server if basic authentication is used in Avaya Aura® Media Server administration.

Warning:

Avaya Breeze® platform supports VMware HA, but different applications running on Avaya Breeze® platform may not. Refer to the application deployment guide before deploying Avaya Breeze® platform into an HA-enabled data center. For applications that do not support VMware HA, Avaya Breeze® platform itself can provide an HA solution if each node in a cluster is deployed on a different VMware host.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. On the Cluster Administration page, click **New**.
3. On the Cluster Editor page, select the cluster profile of your choice.

   Note:

   You must select a cluster profile to view the appropriate cluster attributes.

   For example, select the general purpose cluster profile or a product specific cluster profile. Use the **Context Store** profile for the Context Store snap-in, **Work Assignment** profile for the Work Assignment snap-ins, **Customer Engagement** profile for Avaya Oceana® Solution, **Core Platform** profile for Presence Services, **General Purpose Large** profile for the Engagement Call Control snap-in and the **General Purpose** profile for other snap-ins.

   Refer to the snap-in reference documentation for the cluster profile appropriate for the use case being deployed.
4. Enter the cluster attributes for your cluster. You can edit the default cluster attributes the system displays.

   The name and the IP address of a cluster must be unique.

   You cannot edit all the cluster attributes. Some attributes are read-only.

   Note:

   Do not assign a **Cluster IP** for a single-node cluster.
5. If you will be installing snap-ins that use the cluster database, select the **Enable Cluster Database** check box.

Note:

If you attempt to install a snap-in using the cluster database on a cluster that has the **Enable Cluster Database** feature disabled, the installation will be blocked.

6. In the **Minimum TLS Version for SIP Call Traffic** field, specify the TLS version which will be used for SIP calls intercepting Avaya Breeze® platform.
7. In the **Minimum TLS Version for Non-SIP Call Traffic** field, specify the TLS version which will be applied for HTTP requests to Avaya Breeze® platform.
8. (Optional) Click the **Servers** tab to assign Avaya Breeze® platform servers to the cluster.

   Important:

   Do not assign servers with different releases to the same cluster. All servers in the cluster should be running the same Avaya Breeze® platform version.

   For more information on upgrading clusters, see *Upgrading Avaya Breeze® platform*.
9. **(Optional)** Click the **Services** tab to assign snap-ins to this cluster.

   When you assign snap-ins to a cluster, the highest version of the required snap-ins are automatically assigned to the cluster for installation. For the product specific cluster profiles, you must load the required snap-ins from the Service Management page before you install the snap-in.

   In the **Select TLS Version for Selected Snap-in** field, select the TLS version of the snap-in:

   - **Default**
   - **TLS v1.0**
   - **TLS v1.2**

   Avaya recommends using TLS v1.2.

   If you select **Default**, Avaya Breeze® platform uses the value of the **Minimum TLS Version** field set in System Manager global configuration.
10. Click **Commit** to create the cluster.

    The **Service Install Status** in the Cluster Administration page displays a green tick symbol after all the assigned snap-ins are successfully installed on all the servers in the cluster.

    To view the Avaya Breeze® platform servers in the cluster, click **Show** in the **Details** column of the cluster. The system displays the members of the cluster, and the status of each instance in the cluster.

    Click a specific Avaya Breeze® platform server to go to the Avaya Breeze® Instance Editor page. You can view and edit the properties of the Avaya Breeze® platform server from this page.

Note:

When you administer a new Avaya Breeze® platform server, you must add the server to a cluster. If you do not add the Avaya Breeze® platform server to a cluster, you cannot install snap-ins on that server.

Accepting new service

About this task

The steps for returning the server to service are different depending on if the server is being added to an existing in-service cluster or if it is being added as part of a new cluster. Follow the steps appropriate to your situation.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Select a cluster and assign your Avaya Breeze® platform server to the cluster.
3. If this is a new cluster, put the cluster in service.
   a. From the **Cluster State** drop-down menu, select **Accept New Service**.
   b. Verify that the **Cluster State** column for the cluster changed to **Accepting**.
4. If you are adding the server to an existing cluster that is in service, accept service for the server.
   a. On System Manager, click **Elements** > **Avaya Breeze®** > **Server Administration**.
   b. Click the checkbox in front of the new server.
   c. From the **System State** drop-down menu, select **Accept New Service**.
   d. Verify that the **System State** column for the server changed to **Accepting**.

Cluster Database backup and restore

Backing up a cluster

About this task

The backup feature allows databases in the Cluster database to be backed up. The Cluster database contains all different databases defined by the snap-in that are installed on the cluster.

You can backup on one cluster and restore on another.

Note:

Windows CoreFTP server is incompatible with the Cluster Backup and Restore feature and should not be used as an archive server.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Backup and Restore** > **Configure**.
3. Enter the backup server details.
4. Click **Test Connection** to verify the connection of the backup server.
5. Click **Commit**.
6. Select the cluster that you want to backup, and click **Backup and Restore** > **Backup**.

   The system displays the Cluster DB Backup page.
7. In the **Backup** section, select the services to back up.
8. In the **Job schedule** section, enter the following details:
   - In the **Backup password** field, enter a password.
   - In the **Schedule Job** field, select **Run immediately** or **Schedule later**.

     If you select **Schedule later**, enter the appropriate details in the **Task Time**, **Recurrence**, and **Range** fields.
9. Click **Backup**.
10. To monitor the status of the backup, click **Backup and Restore** > **Job Status**.
11. To cancel the backup operation, click **Backup and Restore** > **Cancel**.

Restoring a cluster

About this task

Restore can be performed on any cluster where Cluster database is enabled.

Note:

Windows CoreFTP server is incompatible with the Cluster Backup and Restore feature and should not be used as an archive server.

Before you begin

Cluster database must be enabled.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Backup and Restore** > **Restore**.

   The system lists the backup and restore jobs.

3. Select a completed backup, and click **Restore**.
4. Select the cluster on which you want to restore the backup, and click **Continue**.

Cancelling a pending job

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Backup and Restore** > **Cancel**

   The system displays the Backup and Restore Status page.
3. Select the pending job to be cancelled, and click **Cancel**.
4. Click **Continue**.

Purging a backup

Before you begin

The backup to be purged must be complete.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Backup and Restore** > **Purge**

   The system displays the Backup and Restore Status page.
3. Select the backup and click **Purge**.

   The system displays `Warning: Purged backups will no longer be available for restore.`
4. Click **Confirm**.

Reliable Eventing administration

Reliable Eventing Framework provides a new mechanism for delivering messages. The current Eventing Framework uses Collaboration Bus as a point-to-point delivery mode for intra-node asynchronous events with high performance. The Reliable Eventing Framework adopts Apache ActiveMQ that provides a richer set of capabilities like reliability, asynchronous events, inter-node, and inter-cluster which are not available in Eventing Framework.

Reliable Eventing Framework provides the following features beyond what Eventing Framework provides:

- Enables delivery of events across servers and clusters.
- Guarantees event delivery with event persistence, acknowledgement, and durable subscriptions.
- Master/Slave high availability with replicated persistent messages.

Related links

Creating a Reliable Eventing group on page 60
Editing a Reliable Eventing group on page 61
Deleting a Reliable Eventing group on page 61
Viewing the status of Reliable Eventing destinations on page 62
Deleting a Reliable Eventing destination on page 62
Running a maintenance test for a broker on page 62

Creating a Reliable Eventing group

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Reliable Eventing Administration** > **Dashboard**.
2. Click **New**.
3. Enter the following details:
   - **Cluster**: Select the cluster on which you want to create the Reliable Eventing group.
   - **Group Name**: Assign a name to the Reliable Eventing group.
   - **Description**: Enter a brief description.
   - **Type**: Select **HA** or **Standalone**.
     - If you select **HA**, you must select at least three Avaya Breeze® platform nodes or brokers.
     - If you select **Standalone**, you must select at least one Avaya Breeze® platform node or broker.
4. In the Unassigned Brokers table, click **+** to assign the Avaya Breeze® platform nodes or brokers to the Reliable Eventing group.
5. Click the Associated clusters tab:
   a. In the **Unassigned associated clusters** table, click the **+** icon to add an associated cluster.
   b. In the **Assigned associated clusters** table, click the **X** icon to remove an associated cluster.

6. Click **Commit**.

   The **Status** column shows one of the following:

   - Green checkmark: Indicates that the status of the broker is up and running for subscription and event transfers.
   - Red cross icon: Indicates that the status of the broker is down.

7. To view the status of the brokers, click the green checkmark.

Related links

Reliable Eventing administration on page 59

Editing a Reliable Eventing group

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Reliable Eventing Administration** > **Dashboard**.
2. Select the **Reliable Eventing group** and click **Edit**.
3. Assign new brokers or remove existing brokers.
4. Click the Associated clusters tab:
   a. In the **Unassigned associated clusters** table, click the **+** icon to add an associated cluster.
   b. In the **Assigned associated clusters** table, click the **X** icon to remove an associated cluster.
5. Click **Commit**.

Related links

Reliable Eventing administration on page 59

Deleting a Reliable Eventing group

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Reliable Eventing Administration** > **Dashboard**.
2. Select the **Reliable Eventing group** and click **Delete**.
3. In the Confirm Delete window, click **Continue**.

Related links

Reliable Eventing administration on page 59

Viewing the status of Reliable Eventing destinations

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Reliable Eventing Administration** > **Destination Status**.

   The system displays Broker Destination Status Page.

2. In the **Group** field, select the **Reliable Eventing group**.

   The system displays the destination status.

Related links

Reliable Eventing administration on page 59

Deleting a Reliable Eventing destination

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Reliable Eventing Administration** > **Destination Status**.
2. In the **Group** field, select the **Reliable Eventing group**.

   The system displays the destination status.

3. Select a **Destination** and click **Delete**.
4. Click **Commit**.

   The system will purge the messages and delete the destination.

Related links

Reliable Eventing administration on page 59

Running a maintenance test for a broker

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **System Tools and Monitoring** > **Maintenance Tests**.
2. In the **Select Avaya Breeze to test** field, click the Avaya Breeze® platform instance that you want to test.
3. Select the **Test Reliable Eventing Framework** check box.
4. Click **Execute Selected Tests**.

Avaya Breeze® platform displays one of the following statuses:

- `Failure` when Reliable Eventing is down. That is, publishing and receiving messages by Reliable Eventing is failing.
- `Success` when Reliable Eventing is functional. That is, publishing and receiving messages by Reliable Eventing is working.

Related links

Reliable Eventing administration on page 59

Chapter 9: Avaya Aura® Media Server configuration

This chapter describes the basic configuration of Avaya Aura® Media Server. For some snap-ins, such as Engagement Assistant, you might have to configure more Avaya Aura® Media Server settings.

For more information, see *Deploying Avaya Breeze® platform*.

Avaya Aura® Media Server selection algorithm

Avaya Breeze® platform supports a rich algorithm for selecting Avaya Aura® Media Server to use for a call. The algorithm depends on the use of locations defined in System Manager routing. Locations can be assigned in one of the following ways:

- Locations can explicitly be assigned to a SIP Entity such as Avaya Breeze® platform.
- IP address patterns can be specified for locations. If an endpoint or SIP Entity IP address matches a pattern for a location, the location is associated with the endpoint or the entity.

The selection algorithm includes the following rules that are evaluated in order, and each of which can be independently enabled or disabled through Cluster Attributes:

1. If enabled, the first rule is to check the location of the caller. If the caller SIP endpoint or SIP Entity, such a a trunk gateway matches an assigned location, Avaya Breeze® platform attempts to assign Avaya Aura® Media Server that is in the same location.
2. If enabled, the second rule is to check the location of Avaya Breeze® platform. If a location has been assigned to the Avaya Breeze® platform server that is handling a call, Avaya Breeze® platform attempts to assign Avaya Aura® Media Server that is in the same location.
3. If enabled, the third rule is to select a lightly-loaded Avaya Aura® Media Server from any location.

If none of these rules match, the call fails. Avaya recommends to enable all the rules. Any new clusters that are created in Release 3.6 have all the rules enabled by default. In order to preserve backward compatible behavior, any existing clusters will not have the first rule enabled by default upon upgrading to Release 3.6. You should enable the rule after upgrade.

Avaya Aura® Media Server OVA deployment

The *Avaya Aura® Media Server deployment checklist* contains the high level deployment procedure. There are several different ways to deploy the Avaya Aura® Media Server. The detailed procedure used to deploy the Avaya Aura® Media Server Open Virtual Appliance (OVA) can be found in the *Deploying and Updating Avaya Media Server using VMware® in the Virtualized Environment*.

Do not configure Avaya Aura® Media Server associated to the Avaya Breeze® platform application in an N+1 Load Sharing cluster. If redundancy or High Availability of Avaya Aura® Media Server is required, use the 1+1 High Availability cluster configuration.

The following sections lead you through the steps to configure Avaya Aura® Media Server for use with Avaya Breeze® platform after the Avaya Aura® Media Server OVA is deployed.

You must clear the **Convert Recordings to Base64** check box on Avaya Aura® Media Server. This setting will enable the files to be stored unencoded on the remote HTTP location. The check box is on the **Home** > **System Configuration** > **Media Processing** > **Advanced Settings** page. This setting also helps in file transfer performance

Configure virtual machine automatic startup settings

You do not need to configure the virtual machine automatic startup settings if you deploy the OVA using Solution Deployment Manager. With Solution Deployment Manager the automatic startup configuration is part of the VM deployment.

With other OVA deployment methods, all virtual machines must be configured to start automatically when the vSphere ESXi host starts. Complete the procedure that corresponds to your OVA deployment method.

In high availability (HA) clusters, the VMware HA software ignores the startup selections.

Configuring virtual machine automatic startup settings using vSphere desktop client

Before you begin

Confirm that you have the proper level of permissions to configure the automatic startup settings. If you do not have the proper level of permissions, contact your system administrator.

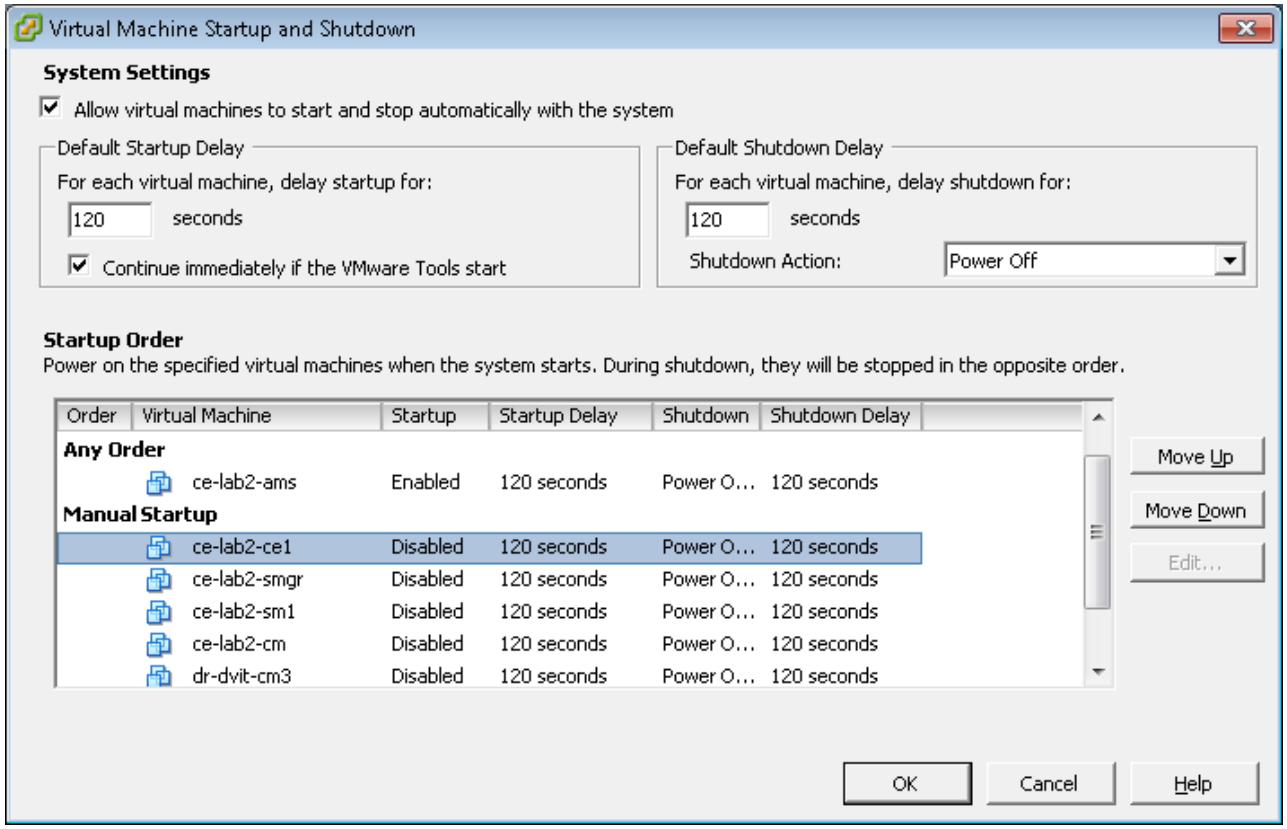
Procedure

1. In the vSphere Client inventory, select the host where the virtual machine is located.
2. Click the **Configuration** tab.
3. In the **Software** section, click **Virtual Machine Startup/Shutdown**.
4. Click **Properties** in the upper right corner of the screen.

5. In the **System Settings** section, select **Allow virtual machines to start and stop automatically with the system**.
6. In the **Manual Startup** section, select the virtual machine.
7. Use the **Move up** button to move the virtual machine under **Automatic Startup**.
8. Click **OK**.

Example

The following is an example of the **Virtual Machine Startup/Shutdown** screen.



Configuring virtual machine automatic startup settings using vSphere Web Client

Before you begin

Confirm that you have the proper level of permissions to configure the automatic startup settings. If you do not have the proper level of permissions, contact your system administrator.

Procedure

1. Select the host where the virtual machine is located.
2. Click **Manage** > **Settings**.

3. Click **Virtual Machine Startup/Shutdown**.
4. Click **Edit**.
5. In the **System Settings** section, select **Allow virtual machines to start and stop automatically with the system**.
6. In the **Manual Startup** section, select the virtual machine.
7. Move the Avaya Breeze® platform VM to be included for Automatic Startup.

Licensing the Avaya Aura® Media Server

About this task

The license file installed on the System Manager WebLM and Avaya Aura® Media Server gets the license from System Manager WebLM.

Note:

In accordance with the Avaya End User License Agreement (EULA) you can administer only the number of Avaya Aura® Media Server instances allowed by your Media Server license.

For more information, see *Implementing and Administering Avaya Aura® Media Server*.

Procedure

1. Get the Avaya Aura® Media Server license from PLDS.
2. Install the Avaya Aura® Media Server license file on System Manager WebLM.
3. To configure Avaya Aura® Media Server with the System Manager WebLM IP address, perform the following steps:
   a. Navigate to **Licensing** > **General Settings**.
   b. From the **Licensing** drop-down list, select **WebLM Server**.
   c. Enter the address of the **WebLM Server** that you plan to use in the **Server Host Name or IP Address** field.
   d. Enter the port to use with the **WebLM Server** in the **Server Port** field.
   e. Enter the URL suffix used to identify the **WebLM Server**. The default URL suffix is / WebLM/LicenseServer.
   f. In the **License Details** , set the **Maximum Number** and **Minimum Number** based on the number of sessions the cluster supports.
   g. Click **Save**.

Installing the Avaya Aura® Media Server license file

Procedure

1. Click **Install license** and **Browse** to the location of the Avaya Breeze® platform license file on your computer.
2. Click **Install**.

Administering Avaya Aura® Media Server for REST

About this task

Use this procedure to configure Avaya Aura® Media Server to allow REST access using HTTP.

For more information, see *Implementing and Administering Avaya Aura® Media Server*.

Procedure

1. Log on to the Avaya Aura® Media Server web console.
2. Navigate to **System Configuration** > **Signaling Protocols** > **REST** > **General Settings**.
3. To enable TLS for REST services, select the **Enable TLS Transport** check box.
4. To enable two-way authentication for an extra level of security, select the **Enable TLS Mutual Authentication** check box.
5. To use plaintext usernames and passwords, select **Basic Authentication**. Alternatively, to include an authentication realm and encrypt the credentials before sending them over the network, select **Digest Authentication**.
   a. Enter the required username and password credentials in the **Authentication Username** and **Authentication Password** fields.
   b. If you selected **Digest Authentication**, then enter the name of the required authentication realm in the **Authentication Realm** field.
6. Click **Save**.

   Changes to the transport settings require a restart to take effect.
7. Navigate to **System Configuration** > **Network Settings** > **General Settings** > **Connection Security**.
8. Select the **Verify Host Name of TLS Client Connections** check box.
9. Click **Save**.
10. Navigate to **Security** > **Certificate Management** > **Key Store**.
11. Assign System Manager signed certificate to all service profiles.
12. Click **Save**.

13. Restart Avaya Aura® Media Server:
    a. Navigate to **System Status** > **Element Status**.
    b. Click **Restart**.

Assigning Avaya Aura® Media Server for use with Avaya Breeze® platform

Procedure

1. On System Manager, click **Elements** > **Media Server** > **Application Assignment**.
2. Select the check box next to Avaya Breeze® platform, and click **Edit**.
3. Select the check box next to Avaya Aura® Media Server and click **Commit**.

   The system can take up to two minutes to update Avaya Breeze® platform.

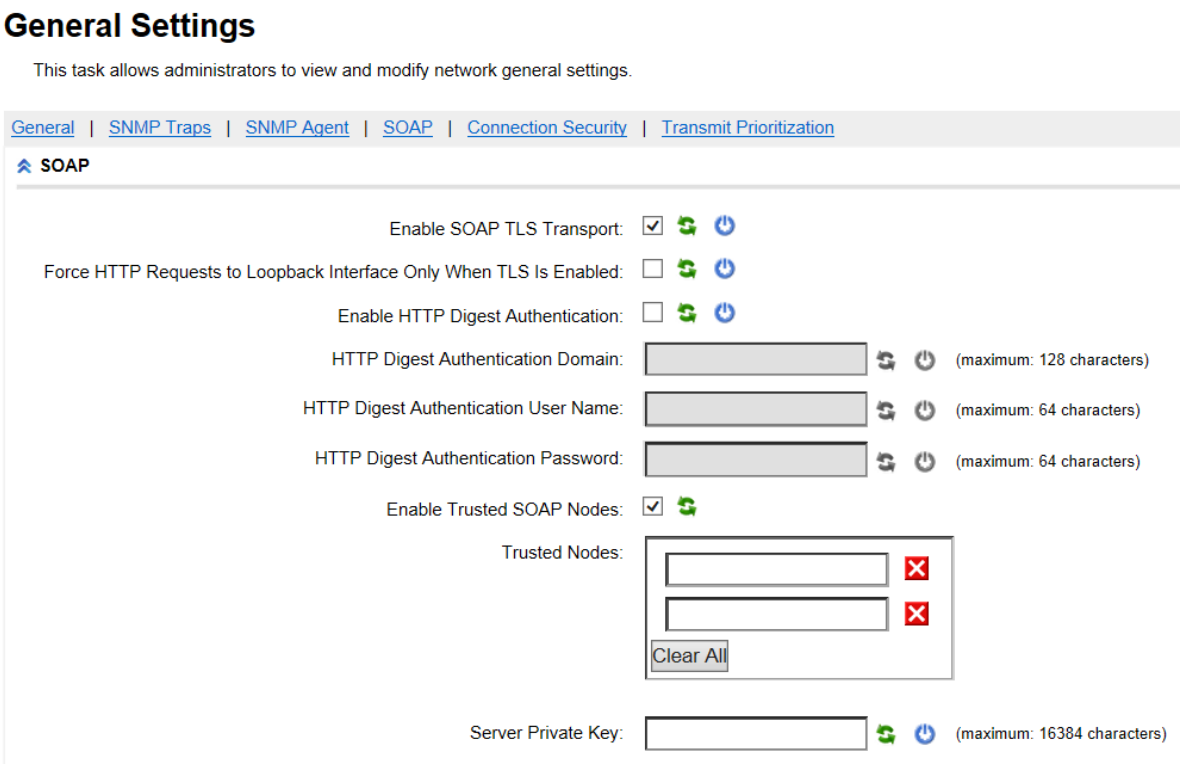
   You cannot assign Avaya Aura® Media Server to multiple applications.

Adding the System Manager IP address

Procedure

1. Type `https://<fqdn>:8443/emlogin` in a Web browser.
2. Log on to the Avaya Aura® Media Server Element Manager interface using the customer login ID and password created when you deployed the OVA.

3. Navigate to **System Configuration** > **Network Settings** > **General Settings**.



4. In the **SOAP** section, **Trusted Nodes** field, type the IP address of the primary System Manager that is used to manage Avaya Breeze® platform. If this is a geo-redundant deployment, type the secondary System Manager IP addresses in the second text field in the Trusted Nodes box.
5. Click **Save** .
6. Repeat this procedure for each Avaya Aura® Media Server.

Next steps

Configure announcements for services on each Avaya Aura® Media Server. For additional information, see *Media File Provisioning* in *Implementing and Administering Avaya Aura® Media Server*. All Media Servers must be configured with the same announcement files.

Avaya Aura® Media Server host name resolution

This section is applicable only to snap-ins using SIP to communicate with Avaya Aura® Media Server.

In cases where the Avaya Aura® Media Server is retrieving announcements or storing recordings for an Avaya Breeze® platform snap-in via HTTPS, you must ensure that the Media Server can communicate with the Avaya Breeze® platform server. You can accomplish this in several ways:

- Map the FQDN of each Avaya Breeze® platform server on your DNS server.
- Enter the IP Address and Hostname of each Avaya Breeze® platform server in the Avaya Aura® Media Server Network Settings.
- Disable host name verification in the Avaya Aura® Media Server Network Settings. This is a less secure option. It is acceptable for a lab deployment, but is not recommended for a production environment.

Configuring Avaya Aura® Media Server name resolution (alternative 1)

About this task

Complete this procedure to allow communication between the Avaya Aura® Media Server and required Avaya Breeze® platform servers. You must enter a mapping for each Avaya Breeze® platform that the Avaya Aura® Media Server accesses. The mappings are preserved in the local hosts file on the Avaya Aura® Media Server. This procedure is not necessary if you have mapped the FQDN of each Avaya Breeze® platform server on your DNS server or if you have disabled host name verification (alternative 2).

Procedure

1. On the Avaya Aura® Media Server web console, click **System Configuration** > **Network Settings** > **Name Resolution**.
2. Click **Add**.
3. Add the **IP Address** and the **Hostname** of an Avaya Breeze® platform server.

   The **Hostname** must match the one specified in the identity certificate for the Avaya Breeze® platform server.

   IP Address is the management IP address of Avaya Breeze® platform server.
4. Continue adding the **IP Address** and the **Hostname** for each additional Avaya Breeze® platform server.
5. Click **Save**.

Configuring connection security options (alternative 2)

About this task

This procedure is recommended only in a lab deployment. It is not recommended for a production environment. This procedure is not necessary if you have mapped the FQDN of each Avaya Breeze® platform server on your DNS server or if you have configured host name resolution (alternative 1).

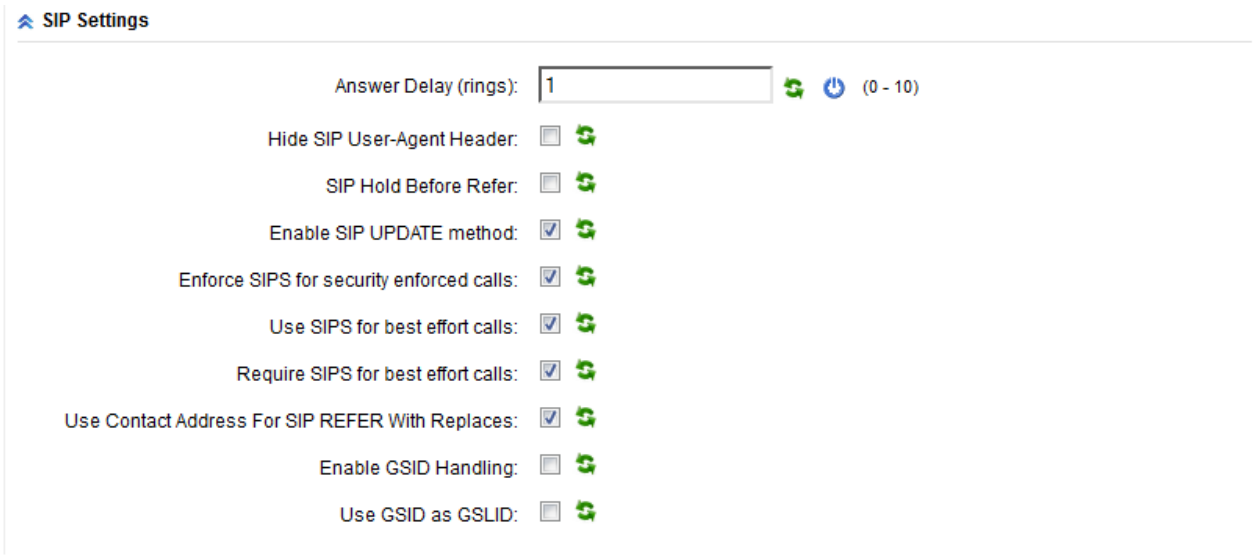
Procedure

1. On the Avaya Aura® Media Server web console, click **System Configuration** > **Network Settings** > **General Settings** > **Connection Security**.
2. Clear **Verify Host Name**.
3. Click **Save**.
4. Restart the Avaya Aura® Media Server for the changes to take effect.
5. On the web console, click **System Status** > **Element Status**.
6. Click **Restart**.
7. Click **Confirm**.

SIPS and SRTP on Avaya Aura® Media Server

The Secure Real Time Protocol (SRTP) administration is described in detail in the *Implementation and Administering Avaya Aura Media Server* document, specifically the topics on Configuring SIP general settings and Media security configuration. Refer to the Avaya Aura® Media Server Element Manager example below for interoperability with Avaya Aura.

The SIPS settings are found under **Home** > **System Configuration** > **Signaling Protocols** > **SIP** > **General Settings**.



The SRTP settings are found under **Home** > **System Configuration** > **Media Processing** > **Media Security**.

If you set the **Security Policy** field to **BEST EFFORT**, you must select the following fields in the SIP Settings section:

- **Enforce SIPS for security enforced calls**
- **Require SIPS for best effort calls**

Avaya Aura® Media Server trust configuration

Only secure (https) connection is supported between Avaya Breeze® platform and Avaya Aura® Media Server. The Subject Name or Subject Alternate Name in the certificate must be valid, and the security options for the connection must be appropriately configured. Refer to the following sections of the *Implementing and Administering Avaya Media Server* document:

- “Configuring connection security options”
- “Security configuration”

Exporting an Avaya Aura® Media Server certificate

Procedure

1. On System Manager, click **Services** > **Inventory** > **Manage Elements**.
2. Select an Avaya Aura® Media Server instance.
3. Click **More Actions** > **Configure Trusted Certificates**.
4. Select the appropriate certificate to export.
5. Click **Export**.

Enabling and configuring digit relay settings

About this task

Note:

Digit relay configuration changes and preferences must be configured on the controlling application and not Avaya Aura® MS. Please refer to controlling application documentation since these configuration changes will be typically ignored, but may be required in certain cases.

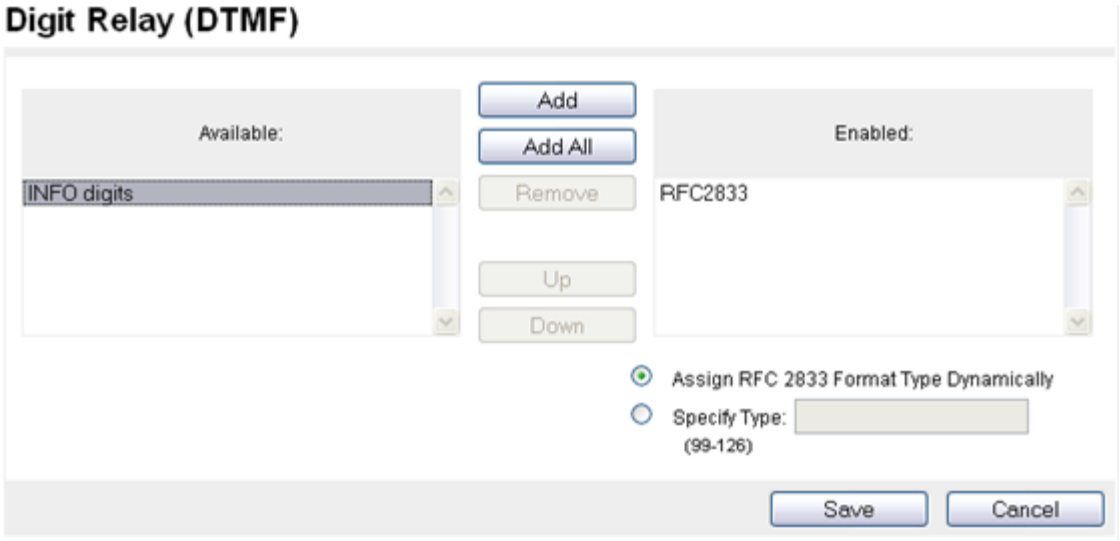
Avaya Aura® MS uses digit relay settings and the order of the enabled relay methods when negotiating digit relay with a client endpoint. These settings apply for inbound or outbound sessions.

Avaya Aura® MS also supports in-band DTMF. The system defaults to this option if no other option is configured or negotiated by Avaya Aura® MS. The preferred method of digit transmission is RFC 2833.

Perform the following procedure to enable and configure the digit relay support on Avaya Aura® MS.

Procedure

1. Navigate to **EM** > **System Configuration** > **Media Processing** > **Digit Relay (DTMF)**.



2. On the **Digit Relay (DTMF)** page, select one or more methods from the **Available** list.
3. Click **Add** to move the methods to the **Enabled** list.
4. To change the priority rank of a method within the **Enabled** list, select a method and use the **Up** or **Down** buttons to move it within the list.
5. Choose the required payload type option:
   - If a dynamic payload type is required, select **Assign RFC 2833 Format Type Dynamically**.
   - If a fixed payload type is required, select **Specify Type**. In the **Specify Type** field, enter the value to use in the payload type field of the RTP header when transmitting RFC2833 encoded digits.
6. Click **Save**.

Chapter 10: Certificate administration

Trust and Identity Certificate administration

You can administer both Trust Certificates and Identity Certificates for Avaya Breeze® platform.

Identity Certificates are administered individually for Avaya Breeze® platform clusters. Five default Identity Certificates are generated as part of the Avaya Breeze® platform OVA deployment process. You can replace a default certificate with a certificate from a well-known certificate authority.

The Security Module (ASSET) HTTP certificate is the one that is visible to applications and endpoints. If using HTTPS with hostname validation checks, you will need to replace the default ASSET HTTP certificate. When replacing the certificate, edit the Subject Alternative Name field to include both the FQDN assigned to the Avaya Breeze® platform server and the FQDN assigned to the cluster.

For instructions for replacing a certificate and changing the Subject Alternative Name (SAN), see “Replacing an identity certificate”.

Entities that access Avaya Breeze® platform via HTTPS must be able to resolve the Common Name (CN) or SAN fields in the certificate with the FQDN of the Avaya Breeze® platform node. If you use the default certificates generated by System Manager, the CN in the certificate will look like: `<serverHostName>-sm100.<domain>`, where host and domain are those specified when you installed theAvaya Breeze® platform server (or specified during CEnetSetup). If a different certificate has been installed, the FQDN is whatever was specified in CN and/or SAN when generating that certificate.

If you change the Avaya Breeze® platform host name or domain name, you need to re-create and install the certificates with updated CN and SAN. For more information, see *Managing Certificates*.

To view the Security Module HTTPS Certificate details, including the CN, for the Avaya Breeze® platform server, see “Viewing Identity Certificate details”.

To resolve the certificate CN or SAN fields with the FQDN, take one of the following actions:

- Enter the FQDN of each Avaya Breeze® platform node in your DNS server.
- Populate the host file of each entity with the FQDN of each Avaya Breeze® platform node that it will access.

Note:

You can edit the Avaya Aura® Media Server host files through the Avaya Aura® MS Element Manager. For more information, see “Configuring Avaya Aura® Media Server name resolution (alternative 1)”.

You can administer the Trust Certificates for each Avaya Breeze® platform cluster or a single Trust Certificate can be assigned simultaneously to all the clusters.

For more information about Trust and Identify Certificates, click **Help** on the System Manager interface and select **Managing Certificates**. For detailed information about migrating from the Avaya Certificate Authority to a Well-known Certificate Authority, see *Avaya Aura® Certificate Migration*.

Viewing Identity Certificate details

Procedure

1. On System Manager, click **Services** > **Inventory** > **Manage Elements**.
2. Click the checkbox in front of the Avaya Breeze® platform server.
3. From the **More Actions** menu, select **Configure Identity Certificates**.
4. In the list of certificate, click the Security Module HTTPS certificate.

   Certificate Details for the Security Module HTTPS certificate display below the certificate list.
5. To exit the screen, click **Done**.

Adding a Trust Certificate to all Avaya Breeze® platform servers in a cluster

Before you begin

Certificates that you intend to add as trusted certificates must be accessible to System Manager.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Select the cluster to which you want to administer the trusted certificates.
3. Click **Certificate Management** > **Install Trust Certificate (All Avaya Breeze® Instances)** to download the trusted certificate for all the servers in the cluster.

Note:

The Trust Certificate that you are about to add will apply to all the Avaya Breeze® platform servers assigned to the cluster.

4. From the **Select Store Type to install trusted certificate** menu, select the appropriate store type.
5. Click **Browse** to the location of your Trust Certificate, and select the certificate.
6. Click **Retrieve Certificate**, and review the details of the Trusted Certificate.
7. Click **Commit** .

Adding trusted CA certificates

About this task

Use this procedure to import a trusted CA certificate. You can import trusted CA certificate using one of the following options:

- from a file.
- by copying the contents of a PEM file.
- from a list of an existing certificates.
- from a remote location using a TLS connection.

Procedure

1. On System Manager, click **Services** > **Inventory** > **Manage Elements**.
2. Select an Avaya Breeze® platform instance.
3. Click **More Actions** > **Configure Trusted Certificates** .
4. On the Trusted Certificates page, click **Add**.
5. To import a certificate from a file:
   a. Click **Import from file**.
   b. Click **Browse** and locate the file.
   c. Click **Retrieve Certificate**.
   d. Click **Commit**.
6. To import a certificate in the PEM format:
   a. Select **Import as PEM Certificate**.
   b. Locate the PEM certificate.
   c. Open the certificate using Notepad.
   d. Copy the entire contents of the file. You must include the start and end tags:

-----BEGIN CERTIFICATE-----" and "-----END CERTIFICATE----.

e. Paste the contents of the file in the box provided at the bottom of the page.

f. Click **Commit**.

7. To import certificates from existing certificates:
   a. Click **Import from existing**.
   b. Select the certificate from the Global Trusted Certificate section.
   c. Click **Commit**.
8. To import certificates using TLS:
   a. Click **Import using TLS**.
   b. Enter the IP Address of the location in the **IP Address** field.
   c. Enter the port of the location in the **Port** field.
   d. Click **Retrieve Certificate**.
9. Click **Commit**.

Replacing an identity certificate

Procedure

1. On the System Manager web console, click **Services** > **Inventory**.
2. In the navigation pane, click **Manage Elements**.
3. On the Manage Elements page, select an element and click **More Actions** > **Manage Identity Certificates**.
4. On the Manage Identity Certificates page, select the certificate that you want to replace.
5. Click **Replace**.

   The system displays the Replace Identity Certificate page.
6. Click **Replace this Certificate with Internal CA Signed Certificate**, and do the following:
   a. Select the common name (CN) check box and type the common name that is defined in the existing certificate.
   b. Select the key algorithm and key size from the respective fields.

      System Manager uses the SHA2 algorithm for generating certificates.
   c. **(Optional)** In **Subject Alternative Name**, select the relevant options and enter the details.
   d. **(Optional)** In **OtherName**, type the other name for the certificate signing request.
   e. To replace the identity certificate with the internal CA signed certificate, click **Commit**.

7. Click **Import third party certificate**, and do the following:
    a. In the **Please select a file** field, choose the file from your local computer.
    b. In the **Password** field, type the password.
    c. Click **Retrieve Certificate**.

       The Certificate Details section displays the details of the certificate.
    d. Review the details of the uploaded certificate.
    e. To replace the certificate with the third-party certificate that you imported, click **Commit**.
8. Click **Generate Certificate Signing Request (CSR) for third party certificate**, and do the following:
    a. Select the common name (CN) check box and type the common name that is defined in the existing certificate.
    b. Select the key algorithm and key size from the respective fields.

       System Manager uses the SHA2 algorithm for generating certificates.
    c. **(Optional)** In **Subject Alternative Name**, select the relevant options and enter the details.
    d. In **OtherName**, type the other name for the certificate signing request.
    e. Click **Generate CSR**.
    f. Ensure that the downloaded CSR is third-party signed.
    g. Import the signed certificate using the **Import third party certificate** option.
9. For the newly generated certificates to take effect, restart JBoss on System Manager.

Chapter 11: High Availability Administration

Avaya Breeze® platform high availability administration

High availability is achieved for Avaya Breeze® platform by sending traffic to a cluster with multiple servers. Load balancing determines what percentage of traffic each server will receive. Clusters are auto configured with the datagrid and the HTTP load balancing functionality. The SIP load balancers are not configured in these servers and clusters. Therefore, for SIP high availability, you must manually configure load balancing. You must enable HTTP load balancing for a cluster; by default load balancing is not enabled.

SIP high availability

SIP high availability is possible with Avaya Breeze® platform by administering a cluster of Avaya Breeze® platform servers and connecting each member of the cluster to each Session Manager. You can then route users of a service to the cluster rather than to a specific Avaya Breeze® platform server so it is likely that at least one will be available.

When you administer a Avaya Breeze® platform cluster, each Avaya Breeze® platform server is entered in a table of local host names, along with a priority and weight for each.

When the cluster database is enabled with three or more servers, assign weights to servers for load balancing in the recommended percentages.

The cluster load balancer is only used for HTTP, not for SIP. Session Manager acts as the load balancer for SIP traffic. In order to enable Session Manager to fulfill this function, an FQDN must be populated in the **Local Host Name Resolution** table, and each Avaya Breeze® platform Security IP Address must be associated with this FQDN. This FQDN must be used when creating the FQDN SIP Entity in the following procedure.

Related links

Local load balancing recommendation on page 84

Creating an FQDN SIP Entity

Before you begin

To complete this task, you will need the FQDN of the Avaya Breeze® platform cluster. In addition to creating this FQDN SIP Entity for the cluster, you must also create a separate SIP entity for each Avaya Breeze® platform instance in the cluster.

Procedure

1. On System Manager, click **Elements** > **Routing** > **SIP Entities**.
2. Click **New**.
3. In the **Name** field, type the name of your SIP Entity.
4. In the **FQDN or IP Address** field, type the FQDN of your Avaya Breeze® platform cluster.

   Caution:

   Do not use the Load Balancer IP Address for the FQDN SIP Entity. The cluster load balancer is only used for HTTP traffic, not SIP traffic.
5. In the **Type** field select `Other`.
6. Click **Commit** to save your changes.

Related links

Administering an Avaya Breeze platform SIP Entity on page 50

Creating the FQDN Entity Link

Before you begin

Create the FQDN SIP Entity.

About this task

For a Avaya Breeze® platform cluster, create a single Entity Link for the FQDN SIP Entity. You must create an Entity Link for each Avaya Breeze® platform server in the cluster using the high availability configuration. Do not use the default port 5061 on Session Manager for the entity link between the cluster and the Session Manager server.

Note:

TLS is the recommended protocol for production environments since it is secure and encrypted. Should the need arise to take a network trace between Session Manager and Avaya Breeze® platform, change the protocol to TCP. If this is a production environment, change the protocol back to TLS as soon as the trace is complete.

Procedure

1. On System Manager, click **Elements** > **Routing** > **Entity Links**.
2. Click **New**.
3. In the **Name** field, type a name for the SIP Entity Link.
4. In the **SIP Entity 1** field, select the Session Manager.
5. In the **Protocol** field, select the desired protocol.
6. In the **Port** field, enter a unique port number. Do not use the Session Manager port number that is administered for the Entity Link connecting Session Manager and Avaya Breeze® platform. See Administering the Avaya Breeze platform Entity Link on page 51 for information about the Session Manager and Avaya Breeze® platform Entity Link.

For example, if you used 5061 as the Session Manager port in the entity link administration representing your Session Manager to your specific Avaya Breeze® platform server, use a different port value here, like 5091. This represents the Session Manager side of the High Availability FQDN entity link.

Caution:

The consequences for using a non-unique port can be severe. If you use the same port number, the system will generate the error message “500 Server Internal Error (Indeterminate originating entity).” This error causes Session Manager to try to alternate route to another server in the cluster.

7. In the **SIP Entity 2** field, select the Avaya Breeze® platform High Availability FQDN SIP Entity that you created.
8. In the **Port** field, enter the same port that you specified in Administering the Avaya Breeze platform Entity Link on page 51.

   For example if you used 5061 as the Avaya Breeze® platform port of the Session Manager to your specific Avaya Breeze® platform entity link, then use 5061 as the Avaya Breeze® platform port in the High Availability FQDN entity link as well.
9. Click **Commit** to save your changes.
10. On System Manager, click **Elements** > **Routing** > **SIP Entities**.
11. Select the Session Manager SIP entity that you created a link to and click **Edit**.

    Repeat these steps for each SIP entity that you created a link to.
12. Under Listen Port, click **Add**.
13. Enter the port number and protocol that you selected for the entity link above.
14. From the Default Domain, select the root domain used for call routing.
15. Click **Commit**.

Creating an Application and Application Sequence for high availability

By administering the Avaya Breeze® platform cluster as an application you can add it to an Application Sequence.

About this task

By administering the Avaya Breeze® platform cluster as an application you can add it to an Application Sequence. You can then add this Application Sequence to the Implicit User Table so that called and caller application requests route to a cluster of Avaya Breeze® platform servers rather than an individual Avaya Breeze® platform server.

Procedure

1. On System Manager, click **Elements** > **Session Manager** > **Application Configuration** > **Applications**.
2. Click **New**.

3. Type a name for the Application.
4. For the **SIP Entity**, select the Avaya Breeze® platform cluster.
5. To save your changes, click **Commit**.
6. On the **Session Manager** menu under **Application Configuration** click **Application Sequences** and click **New**.
7. Type the name of your new Application Sequence.
8. In the list of **Available Applications** click **+** by the Avaya Breeze® platform Application that you created.
9. Uncheck the **Mandatory** box if necessary.

   Session Manager stops processing a call if it cannot reach a mandatory application.
10. To save your Application Sequence, click **Commit**.

Determining active and standby database servers

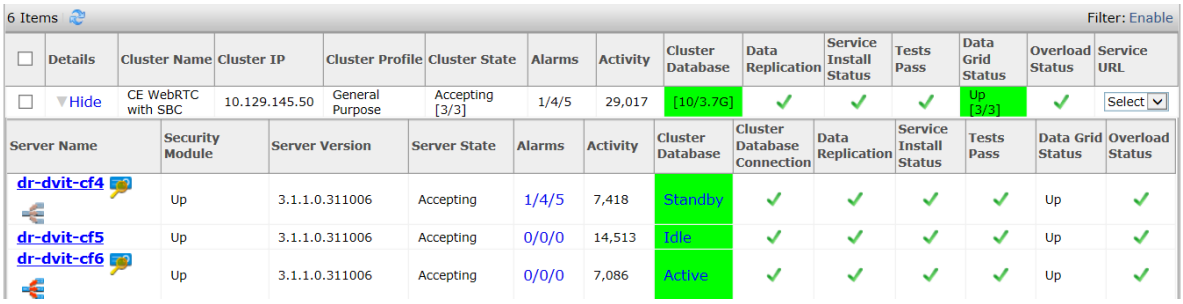
About this task

For load balancing configuration, you must be able to identify your active and standby cluster database servers. Use this information to determine what weight you will specify for each server for load balancing.

The servers that host the cluster database are selected when the servers are added to a cluster. If the active database server fails, Avaya Breeze® platform promotes the standby server to active. If the standby database server fails, no action is taken. The only occurrence that causes another server in the cluster to be selected as a replacement active or standby database is when one of the current database hosts is removed from the cluster.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. Click **Show** in front of the cluster you are administering to see the servers in the cluster.



6 Items — Filter: Enable

	Details	Cluster Name	Cluster IP	Cluster Profile	Cluster State	Alarms	Activity	Cluster Database	Data Replication	Service Install Status	Tests Pass	Data Grid Status	Overload Status	Service URL
☐	Hide	CE WebRTC with SBC	10.129.145.50	General Purpose	Accepting [3/3]	1/4/5	29,017	[10/3.7G]	✓	✓	✓	Up [3/3]	✓	Select

Server Name	Security Module	Server Version	Server State	Alarms	Activity	Cluster Database	Cluster Database Connection	Data Replication	Service Install Status	Tests Pass	Data Grid Status	Overload Status
dr-dvit-cf4	Up	3.1.1.0.311006	Accepting	1/4/5	7,418	Standby	✓	✓	✓	✓	Up	✓
dr-dvit-cf5	Up	3.1.1.0.311006	Accepting	0/0/0	14,513	Idle	✓	✓	✓	✓	Up	✓
dr-dvit-cf6	Up	3.1.1.0.311006	Accepting	0/0/0	7,086	Active	✓	✓	✓	✓	Up	✓

3. In the Cluster Database column, identify the active and standby database servers.

   Active is the primary server
   Standby is the secondary server
   All additional servers in the cluster are marked as Idle

Resolving the local host name for high availability

Procedure

1. Verify that at least one entity link has been defined for each FQDN and Transport entry.
2. On System Manager, click **Elements** > **Session Manager** > **Network Configuration** > **Local Host Name Resolution**.
3. Click **New**.
4. Enter the host information on the New Local Host Name Entries page. You can enter a maximum of ten host names.
    a. For the **Host Name (FQDN)**, enter the Fully Qualified Domain Name or IP address of the host. The host name entries override the information provided by DNS.
    b. Enter the **IP Address** that the host name is mapped to. A host can be mapped to more than one IP addresses and each of these mappings are a separate entry.
    c. Enter the **Port** that the host should use for routing using the particular IP address.
    d. Enter a value for the **Priority**. If there are multiple IP address entries for a given host, Session Manager tries the administered IP addresses in the order of the priority.
    e. Enter a value for the **Weight**. If there are multiple IP address entries for a given host, and if some entries have the same priority, then for each priority level, the Session Manager chooses a host according to the specified weights.

    For systems with the cluster database enabled, see the local load balancing recommendations. For systems with geographical redundancy, see the geo-redundancy example configuration for **Priority** and **Weight** suggestions.
    f. Select a **Transport**. The default is TLS.
5. Click **Commit**.

Related links

Local load balancing recommendation on page 84
Geo-redundancy load balancing example configuration on page 85

Local load balancing recommendation

When the cluster database is enabled, use the following table to determine the load balancing weight to assign to each server in the cluster. Use this table only for local load balancing, not for geographic redundancy clusters.

Number of servers in the cluster	2	3	4	5
Initial primary database server	50	25	16	12
Initial backup database server	50	25	16	13
Server 3		50	34	25
Server 4			34	25
Server 5				25

Geo-redundancy load balancing example configuration

The following is an example of cluster provisioning for a North American cluster and a European cluster that are providing geo-redundancy for each other.

Avaya Breeze® platform high availability is not call preserving but it is connection preserving. This example assumes that the Cluster Database and Load Balancer are running on these clusters and that they are assigned to the first two nodes ((NA-CE1-IP-Addr, NA-CE2-Addr for the North America cluster and EU-CE1-IP-Addr, EU-CE2-IP-Addr for the European cluster).

Host Name	IP Address	Priority	Weight
NA-CE.example.com	<NA-CE1-IP-Addr>	1	25
NA-CE.example.com	<NA-CE2-IP-Addr>	1	25
NA-CE.example.com	<NA-CE3-IP-Addr>	1	50
NA-CE.example.com	<EU-CE1-IP-Addr>	2	25
NA-CE.example.com	<EU-CE2-IP-Addr>	2	25
NA-CE.example.com	<EU-CE3-IP-Addr>	2	50
EU-CE.example.com	<EU-CE1-IP-Addr>	1	25
EU-CE.example.com	<EU-CE2-IP-Addr>	1	25
EU-CE.example.com	<EU-CE3-IP-Addr>	1	50
EU-CE.example.com	<NA-CE1-IP-Addr>	2	25
EU-CE.example.com	<NA-CE2-IP-Addr>	2	25
EU-CE.example.com	<NA-CE3-IP-Addr>	2	50

Avaya Breeze® platform SIP high availability deployment checklist

The following table lists the procedures required to deploy Avaya Breeze® platform in a SIP high availability configuration.

#	Action	Reference/Notes	✔
1	Create an FQDN SIP Entity.	Creating an FQDN SIP Entity on page 80	
2	Create the FQDN Entity Link.	Creating the FQDN Entity Link on page 81	
3	Create a high availability Application and Application Sequence.	Creating an Application and Application Sequence for high availability on page 82	
4	Resolve the local host name.	Resolving the local host name for high availability on page 84	
5	Enable load balancing for the cluster.	Enabling HTTP load balancing in an Avaya Breeze platform cluster on page 87	

HTTP high availability

HTTP load balancing in an Avaya Breeze® platform cluster

Enable load balancing for a cluster if you want to scale the HTTP services without targeting a particular Avaya Breeze® platform server. All the requests are sent to the cluster IP address. When you enable load balancing, two Avaya Breeze® platform servers are chosen as the active and standby load balancing servers. The active load balancer distributes the HTTP requests to all the other servers in the cluster in a round robin fashion.

The following cluster attributes must be configured for HTTP load balancing:

Name	Description
HTTP Load Balancer backend server max failure response timeout period (seconds)	The maximum timeout period of the failure response of the HTTP Load Balancer backend server. The default value is 15.
Max number of failure responses from HTTP Load Balancer backend server	The maximum number of failure responses from the HTTP Load Balancer backend server. The default value is 2.
Network connection timeout to HTTP Load Balancer backend server (seconds)	The network connection timeout period from the HTTP Load Balancer backend server. The default value is 10.

Load balancing validations

The following are the validations when you enable load balancing in a cluster:

- Load balancing is not supported in a single server cluster.
- By default the load balancing check box is not selected.
- For load balancing to function, the cluster must have two Avaya Breeze® platform servers that have the SIP Entity IP addresses in the same subnet as the cluster IP address. The active server starts a network alias using the cluster IP address. If the active server is down, the standby starts a network alias with the cluster IP address. The standby server takes over as the active load balancer.
- With load balancing, you cannot remove the active or the standby Avaya Breeze® platform server from the cluster unless another server in the cluster meets the subnet validation.

Session affinity

Session affinity ensures that all the requests from the same client are directed to the same back end Avaya Breeze® platform server in a cluster. Session affinity is mandatory for snap-ins like the WebRTC Snap-in.

To enable session affinity, select the **Is session affinity** cluster attribute.

Use the Trusted addresses for converting to use X-Real-IP for session affinity cluster attribute to enter trusted addresses that are known to send correct replacement addresses so thatAvaya Breeze® platform load balancer can use the real client IP when an HTTP request traverses

through reverse proxies like Avaya Session Border Controller for Enterprise. The header which is used to identify the real client IP address is X-Real-IP

Enabling HTTP load balancing in an Avaya Breeze® platform cluster

About this task

You need not enable load balancing if you use an external load balancer or if you are running a single server cluster.

Before you begin

1. When you select the load balancing option during **Edit** operation, change the state of the cluster to **Deny New Service**. 2. After enabling the load balancing functionality, change the state of the cluster back to **Accept New Service**.

Procedure

1. On System Manager, click **Elements** > **Avaya Breeze®** > **Cluster Administration**.
2. **(Optional)** To enable load balancing for an existing cluster, on the Cluster Administration page, do the following:
   a. Select the check box in front of the cluster.
   b. In the **Cluster State** field, click **Deny New Service**.
   c. Verify that the **Cluster State** column for the cluster is changed to **Denying**.
   d. Click **Edit**.
3. **(Optional)** To create a new cluster with load balancing enabled, on the Cluster Administration page, do the following:
   a. Click **New**.
   b. Specify the attributes of the cluster.
4. In the Cluster Attributes section, select the **Is Load Balancer enabled** check box to enable load balancing.

   If the **Is Load Balancer enabled** check box is selected and the load balancer node in the cluster is in the Accepting state, the **Cluster State** field displays **Accepting**. If the **Is Load Balancer enabled** check box is cleared and at least one of the node in the cluster is in the Accepting state, the **Cluster State** field displays **Accepting**. discuss
5. In the Basic section **Cluster IP** field, type the IP address of the cluster.

   The **Cluster IP** address used for load balancing must be unique. It must not match the Security Module IP address or the management IP address. The Security Module IP address must be on the same subnet as the Avaya Breeze® platform **Cluster IP** address.
6. Click **Commit**.

Two Avaya Breeze® platform servers are automatically designated as active and standby to perform the load balancing functionality.

7. On the Cluster Administration page, in the **Cluster State** field, select **Accept New Service**.

External load balancer for HTTP Geo-redundancy

Session Manager can be used to achieve geo-redundancy for SIP signaling across Avaya Breeze® platform clusters. Similarly, an external HTTP load balancer or Application Gateway can be used. Multiple Avaya Breeze® platform clusters are configured exactly the same and deployed in different regions. An FQDN is defined for each region. The external load balancer is configured with both of these FQDNs. Each FQDN includes the cluster IP address for both Breeze clusters, but in a different preferential order. Each FQDN prefers the local cluster's IP address, with the other cluster's IP address being the second choice.

Browsers or other clients that access Avaya Breeze® platform HTTP services can use the FQDN associated with their local Avaya Breeze® platform cluster. When the load balancer receives this request, the load balancer routes the request to the local Avaya Breeze® platform cluster if available. If the local cluster is not available, the load balancer routes to the remote cluster. In either case, the local Avaya Breeze® platform load balancer distributes the request to one of the Avaya Breeze® platform machines in the cluster.

Some Avaya Breeze® platform snap-ins use a Avaya Breeze® platform-specific affinity mechanism that is not supported by external load balancers. Therefore, this configuration is not a supported configuration to use an external HTTP load balancer to distribute HTTP requests to individual Avaya Breeze® platform servers in the cluster as opposed to addressing the cluster IP address.

Chapter 12: Post-installation verification

Checking the Avaya Breeze® platform status

Before you begin

Configure Avaya Breeze® platform on AWS.

Procedure

1. Start an SSH session to the Avaya Breeze® platform instance on AWS.

   Use the IP address configured on the Configure Instance Details page for the SSH session.

2. Log in to AWS with the cust user credentials.

   AWS displays a prompt to change the cust user password.

3. Type the **statapp** command, and press `Enter`.

Result

AWS displays a status of the Avaya Breeze® platform components.

Example

```
[cust@breeze-177 ~]$ statapp
Watchdog           9/  9 UP
logevent          15/ 15 UP
postgres-db       32/ 32 UP
mgmt             275/275 UP
WebSphere        214/214 UP
sal-agent         50/ 50 UP
dcm                1/  1 UP
secmod             4/  4 UP
```

Verifying replication status

About this task

Complete this task to verify that the System Manager database replicated to Avaya Breeze® platform.

Procedure

1. On System Manager, click **Services** > **Replication**.
2. Locate the Avaya Breeze® platform in the **Replica Group** list.
3. In the **Synchronization Status** column, verify that the Avaya Breeze® platform status is `Synchronized`.

   Depending on the amount of data, the replication might take some time to complete. Refresh the page or periodically recheck the status.

   If the status is not `Synchronized`, for more information, see *Maintaining and Troubleshooting Avaya Breeze® platform*.

Chapter 13: Troubleshooting

Avaya Breeze® platform cannot establish a trusted connection with System Manager

Condition

Avaya Breeze® platform cannot establish a trusted connection with System Manager if the initial configuration fails with the following error:

```
Unknown error encountered, see /var/log/Avaya/InitTM.log for details.
```

Cause

The NTP server time between Avaya Breeze® platform and System Manager might not be synchronized.

Solution

1. Start an SSH session to the Avaya Breeze® platform instance on AWS.

   Use the IP address configured on the Configure Instance Details page for the SSH session.
2. Log in to AWS with the cust user credentials.
3. Type the **`CEnetSetup`** command, and press `Enter`.
4. Follow the prompts to configure the NTP servers.

Chapter 14: Resources

Documentation

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

Title	Use this document to:	Audience
Understanding		
Avaya Breeze® platform Overview and Specification	Understand the Avaya Breeze® platform platform, customer requirements, and design considerations.	Sales engineers Programmers System administrators Services and support personnel
Avaya Aura® System Manager Overview and Specification	Understand System Manager customer requirements and design considerations.	Sales engineers Programmers System administrators Services and support personnel
Implementing		
Deploying Avaya Breeze® platform	Deploy and configure Avaya Breeze® platform.	Services and support personnel System administrators
Deploying Zang-Enabled Avaya Breeze® platform	Deploy and configure Zang-enabled Avaya Breeze® platform.	Services and support personnel System administrators
Upgrading Avaya Breeze® platform	Upgrade Avaya Breeze® platform.	Services and support personnel

Table continues…

Title	Use this document to:	Audience
Implementing and Administering Avaya Aura® Media Server	Deploy and configure Avaya Aura® Media Server.	System administrators Services and support personnel
Deploying and Updating Avaya Aura® Media Server Appliance	Deploy and configure Avaya Aura® Media Server when it is installed on customer-provided servers.	System administrators Services and support personnel
Deploying Avaya Aura® System Manager	Deploy and configure Avaya Aura® System Manager in a virtualized environment using VMware.	System administrators Services and support personnel
Avaya Aura® System Manager Solution Deployment Manager Job-Aid	Use Solution Deployment Manager.	System administrators Services and support personnel
Migrating and Installing Avaya Aura® Appliance Virtualization Platform	Deploy and configure Avaya Aura® Appliance Virtualization Platform.	System administrators Services and support personnel
Deploying Avaya Session Border Controller for Enterprise	Deploy and configure Avaya Aura® Session Border Controller.	System administrators Services and support personnel
Customizing		
Getting Started with the Avaya Breeze® platform SDK	Deploy and configure the Eclipse IDE, Apache Maven, and the Avaya Breeze® platform SDK.	Programmers
Avaya Breeze® platform Snap-in Development Guide	Understand the key concepts needed to develop the different types of Avaya Breeze® platform snap-ins.	Programmers
Avaya Breeze® platform FAQ and Troubleshooting for Snap-in Developers	Troubleshoot Avaya Breeze® platform.	Programmers
Avaya Breeze® platform API Javadocs	Understand API classes and uses.	Programmers
Supporting		

Table continues…

Title	Use this document to:	Audience
Maintaining and Troubleshooting Avaya Breeze® platform	Troubleshoot Avaya Breeze® platform.	Services and support personnel System administrators
Troubleshooting Avaya Aura® Session Manager	Troubleshoot Avaya Aura® Session Manager.	Services and support personnel
Troubleshooting Avaya Aura® System Manager	Troubleshoot System Manager.	Services and support personnel
Using		
Quick Start to deploying the HelloWorld Snap-in	Install, configure, and test an Avaya Breeze® platform snap-in service, specifically the HelloWorld call-intercept snap-in.	Programmers System administrators
Administering Avaya Breeze® platform	Administer Avaya Breeze® platform and snap-ins.	System Administrators Services and Support personnel
Administering Avaya Aura® Session Manager	Administer Avaya Aura® Session Manager.	System Administrators Services and support personnel
Administering Avaya Aura® System Manager	Administer Avaya Aura® System Manager.	System Administrators Services and support personnel
Administering Avaya Session Border Controller for Enterprise	Administer Avaya Aura® Session Border Controller.	System Administrators Services and support personnel

Finding documents on the Avaya Support website

Procedure

1. Go to https://support.avaya.com.
2. At the top of the screen, type your username and password and click **Login**.
3. Click **Support by Product** > **Documents**.
4. In **Enter your Product Here**, type the product name and then select the product from the list.
5. In **Choose Release**, select an appropriate release number.

6. In the **Content Type** filter, click a document type, or click **Select All** to see a list of all available documents.

   For example, for user guides, click **User Guides** in the **Content Type** filter. The list displays the documents only from the selected category.

7. Click **Enter**.

Avaya Documentation Portal navigation

Customer documentation for some programs is now available on the Avaya Documentation Portal at https://documentation.avaya.com.

Important:

For documents that are not available on the Avaya Documentation Portal, click **Support** on the top menu to open https://support.avaya.com.

Using the Avaya Documentation Portal, you can:

- Search for content in one of the following ways:
  - Type a keyword in the **Search** field.
  - Type a keyword in **Search**, and click **Filters** to search for content by product, release, and document type.
  - Select a product or solution and then select the appropriate document from the list.
- Find a document from the **Publications** menu.
- Publish a PDF of the current section in a document, the section and its subsections, or the entire document.
- Add content to your collection by using **My Docs** (☆).

  Navigate to the **My Content** > **My Docs** menu, and do any of the following:
  - Create, rename, and delete a collection.
  - Add content from various documents to a collection.
  - Save a PDF of selected content in a collection and download it to your computer.
  - Share content in a collection with others through email.
  - Receive content that others have shared with you.
- Add yourself as a watcher by using the **Watch** icon (👁).

  Navigate to the **My Content** > **Watch list** menu, and do the following:
  - Set how frequently you want to be notified, starting from every day to every 60 days.
  - Unwatch selected content, all content in a document, or all content on the Watch list page.

  As a watcher, you are notified when content is updated or deleted from a document, or the document is removed from the portal.

- Share a section on social media platforms, such as Facebook, LinkedIn, Twitter, and Google +.
- Send feedback on a section and rate the content.

Note:

Some functionality is only available when you log in to the portal. The available functionality depends on the role with which you are logged in.

Training

The following courses are available on the Avaya Learning website at http://www.avaya-learning.com. After logging in to the website, enter the course code or the course title in the **Search** field, and click **Go** to search for the course.

Course code	Course title
2016W	Fundamentals of Avaya Breeze® platform
2316W	Avaya Breeze® platform Client SDK Fundamentals
2024V	Programming Avaya Breeze® platform Snap-ins using Java SDK Bootcamp
2024T	Programming Avaya Breeze® platform Snap-ins using Java SDK Online Test
20250V	Programming Avaya Breeze® platform Snap-ins using Engagement Designer
20250T	Programming Avaya Breeze® platform R3 Snap-ins using Engagement Designer Online Test
5105	Avaya Breeze® platform Implementation and Support Test
7016W	Avaya Breeze® platform Implementation and Support

Avaya Breeze® platform videos

Avaya Breeze® platform 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® platform SDK: Windows	Programmers
Getting Started with the Avaya Breeze® platform 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 Hello Sample Service	Programmers
Understanding the Multi-Channel Broadcast Sample Service	Programmers
Understanding the Whitelist Sample Service	Programmers

Support

Platform support

Go to the Avaya Support website at www.avaya.com/Support for the most up-to-date product documentation, and product notices. Also search for release notes, service packs, and patches. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

Developer support

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

Appendix A: Appendix

Configuring PuTTY

Converting the *.pem file to the *.ppk format

Before you begin

Download the PuTTYGen software.

Procedure

1. Double-click the downloaded `puttygen.exe` file.
2. In the PuTTY Key Generator dialog box, click **Conversions** > **Import key.**.
3. On Load private key, select a `.pem` file from your local computer, and click **Open**.

   The system displays the key in the **Key** section.
4. Click **Generate**.

   The system takes a few minutes.
5. Click **Save private key**.

Configuring PuTTY for an SSH session

Before you begin

Convert the `*.pem` file to the `*.ppk` format.

Procedure

1. Open a PuTTY session for SSH.
2. On the PuTTY Configuration dialog box, in the left navigation pane, click **Connections** > **SSH** > **Auth**.
3. In the **Authentication parameters** section, click **Browse**.
4. On **Select a private key**, select a `.ppk` file from your local computer, and click **Open**.

Signing in to the Amazon EC2 virtual server instance

Before you begin

- Convert the `*.pem` file to the `*.ppk` format.
- Configure PuTTY for an SSH session

Procedure

1. Open a PuTTY session for SSH.
2. On the PuTTY Configuration dialog box, in the left navigation pane, click **Session**.
3. In **Host Name (or IP Address)**, type `admin@<IP_Address>`, where `<IP_Address>` is the IP address of the Amazon EC2 virtual server instance.
4. Click **Open**.

Identifying the SSH user name of the RHEL instance on AWS

About this task

You will require the user name to login to the RHEL instance. This is applicable for software-only deployments.

Before you begin

Create RHEL instance on Amazon Web Services.

Procedure

1. Log on to the Amazon Web Services management console.
2. Click **Servers** > **EC2**.
3. In the right-pane, select the RHEL instance you created.
4. On the top of the page, click **Actions** > **Connect**.

   In the page that opens, under the **Example**, user name of the RHEL instance appears. For example: **`ssh -i "<Key_Pair.pem>" abc-user@<IP address>`**. In this example, “abc-user” is the user name to login to the RHEL instance using SSH.

Glossary

Availability Zone	A distinct location within a region that is insulated from failures in other availability zones and provides inexpensive low latency network to other availability zones in the same region. A Virtual Private cloud (VPC) can extend across availability zones, but each availability zone uses a different IP subnet.
Region	A named set of AWS regions in the same geographical area. A region comprises availability zones. VPCs cannot extend across regions.
Virtual Private Cloud	An elastic network populated by infrastructure, platform, and application services that share common security and interconnection. For more information about Amazon Virtual Private Cloud (VPC), go to the Amazon Web Services website at https://aws.amazon.com/vpc/.

Index

D

E

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

W