Alfresco Process Services on the AWS Cloud

Quick Start Reference Deployment

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Alfresco Software
AWS Quick Start Reference Team

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This Quick Start deployment guide was created by Amazon Web Services (AWS) with Advanced Technology Partner Alfresco Software.

Quick Starts are automated reference deployments that use AWS CloudFormation templates to deploy key technologies on AWS, following AWS best practices.

Overview

This Quick Start reference deployment guide provides step-by-step instructions for deploying Alfresco Process Services on the Amazon Web Services (AWS) Cloud.

This Quick Start provides IT infrastructure decision-makers and system administrators with technical guidance on how to configure, deploy, and run an Alfresco Process Services server cluster on AWS. It outlines a reference architecture for an Alfresco Process Services version 1.9 deployment that addresses common scalability, high availability, and security requirements.

Alfresco Process Services on AWS

Alfresco Process Services (powered by Activiti, a workflow platform written in Java) is enterprise process management software that is commonly known as Business Process Management (BPM). Organizations use Alfresco Process Services to automate and drive a wide variety of business operations such as client onboarding, investment services, patient care pathway, case management, and many others.

At its core, Alfresco Process Services provides a lightweight, Java-centric, open-source, Business Process Model and Notation (BPMN) process engine that integrates easily with
any existing on-premises or cloud enterprise systems. It includes a suite of web-based and business-friendly tools and analytics that enable a perfect business and IT alignment for faster time to solution.

The platform is extremely flexible and scalable, enabling companies to quickly design, deploy, and adapt a wide range of highly customized processes. Together, Alfresco Process, Content, and Governance Services provide a powerful platform for digital transformation. Learn more at the Alfresco website.

Costs and Licenses
You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using the Quick Start.

The AWS CloudFormation template for this Quick Start includes configuration parameters that you can customize. Some of these settings, such as instance type, will affect the cost of deployment. For cost estimates, see the pricing pages for each AWS service you will be using. Prices are subject to change.

You have two options to obtain an Alfresco Process Services license:

- **Bring your own license (BYOL).** If you have a valid subscription to Alfresco Process Services, you can use that license, subject to complying with standard licensing terms. Additional pricing, terms, and conditions may apply.

- **Trial license.** You may apply for a 30-day, Alfresco Process Services trial license for AWS by filling out the license form.

Architecture
The Quick Start deployment is automated by nested AWS CloudFormation templates. AWS CloudFormation provides an easy way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable manner. The main template performs the following actions:

- Builds the network-related resources
- Builds a scalable bastion host template
- Builds a template for Alfresco Process Services

The Alfresco Process Services template builds an Auto Scaling group with a minimum of two process services instances. This group connects to an Amazon Relational Database Service (Amazon RDS) DB instance, which, by default, is Amazon Aurora (subject to AWS Region permissions). The Alfresco Process Services template then uses the resources
created in the AWS CloudFormation templates—private subnets, public subnets, virtual private clouds (VPCs), and security groups—to ensure the highest privacy and protection of these resources.

**Note** Deleting the main CloudFormation template deletes the entire stack.

The AWS CloudFormation template deploys Alfresco Process Services by using a preconfigured Amazon Machine Image (AMI), which is available via the AWS Marketplace. This produces an Alfresco Process Services environment that is highly reliable, scalable, and less error-prone.

Deploying this Quick Start for a new VPC with default parameters builds the following Alfresco Process Services environment in the AWS Cloud.

![Quick Start Alfresco Process Services architecture on AWS](image)

The reference architecture that the Quick Start deploys maps AWS services to all the components that Alfresco Process Services requires.
This Quick Start sets up the following:

- A highly available architecture that spans two Availability Zones.*
- A VPC configured with public and private subnets according to AWS best practices, to provide you with your own virtual network on AWS.*
- An internet gateway to allow access to the internet. This gateway is used by the bastion hosts to send and receive traffic.*
- In the public subnets, managed NAT gateways to allow outbound internet access for resources in the private subnets.*
- In the public subnets, a Linux bastion host in an Auto Scaling group to allow inbound Secure Shell (SSH) access to EC2 instances in public and private subnets.*
- In the private subnets, an Alfresco Process Services instance in an Auto Scaling group to add or remove highly available process services. Additionally, Amazon Relational Database Service (Amazon RDS) is configured for high availability.

* The template that deploys the Quick Start into an existing VPC skips the tasks marked by asterisks and prompts you for your existing VPC configuration.”

The reference architecture for the Alfresco Process Services cluster requires the following components:

- An HTTP(S) load balancer
- Two or more Alfresco Process Services servers
- A shared database

**Prerequisites**

**Specialized Knowledge**

Before you deploy this Quick Start, we recommend that you become familiar with the following AWS services. (If you are new to AWS, see [Getting Started with AWS](https://aws.amazon.com/getting-started/).

- [Amazon Virtual Private Cloud (Amazon VPC)](https://aws.amazon.com/vpc/)
- [Amazon Elastic Compute Cloud (Amazon EC2)](https://aws.amazon.com/ec2/)
- [Amazon Elastic Block Store (Amazon EBS)](https://aws.amazon.com/ebs/)
- [Amazon Relational Database Service (Amazon RDS)](https://aws.amazon.com/rds/)
Technical Requirements

The following requirements must be met for successful Quick Start deployment:

- Acceptance of the CentOS7 Marketplace AMI End User License Agreement (prior to deployment).
- A valid Alfresco Process Services license, acquired from Alfresco Software

**Note**  AWS account configuration is needed to deploy the Alfresco Process Services Quick Start.

Deployment Options

This Quick Start provides two deployment options:

- **Deploy Alfresco Process Services into a new VPC** (end-to-end deployment). This option builds a new AWS environment consisting of the VPC, subnets, NAT gateways, security groups, bastion hosts, and other infrastructure components, and then deploys Alfresco Process Services into this new VPC.

- **Deploy Alfresco Process Services into an existing VPC**. This option provisions Alfresco Process Services in your existing AWS infrastructure.

The Quick Start provides separate templates for these options. It also lets you configure CIDR blocks, instance types, and Alfresco Process Services settings, as discussed later in this guide.

Deployment Steps

**Step 1. Prepare Your AWS Account**

1. If you don’t already have an AWS account, create one at [https://aws.amazon.com](https://aws.amazon.com) by following the on-screen instructions.

2. Use the region selector in the navigation bar to choose the AWS Region where you want to deploy Alfresco Process Services on AWS.

3. Create a key pair in your preferred region.

4. If necessary, request a service limit increase for the Amazon EC2 m4 class instance type. You might need to do this if you already have an existing deployment that uses this instance type, and you think you might exceed the default limit with this reference deployment.
Step 2. Subscribe to the AMI

2. Open the page for Alfresco Process Services, and choose Continue.
3. Use the Manual Launch option to launch the AMI into your account on Amazon EC2. This involves accepting the terms of the license agreement and receiving confirmation email. For detailed instructions, see the AWS Marketplace documentation.

Step 3. Launch the Quick Start

Note You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using this Quick Start. For full details, see the pricing pages for each AWS service you will be using in this Quick Start. Prices are subject to change.

1. Choose one of the following options to launch the AWS CloudFormation template into your AWS account. For help choosing an option, see Deployment Options earlier in this guide.

Option 1
Deploy into a new VPC on AWS
Launch

Option 2
Deploy into an existing VPC on AWS
Launch

Important If you’re deploying Alfresco Process Services into an existing VPC, make sure that your VPC has two private subnets in different Availability Zones for the Alfresco Process Services instances. These subnets require NAT gateways or NAT instances in their route tables, to allow the instances to download packages and software without exposing them to the internet. You’ll also need the domain name option configured in the DHCP options as explained in the Amazon VPC documentation. You’ll be prompted for your VPC settings when you launch the Quick Start.

Each deployment takes about 25 minutes to complete.

2. Check the region that’s displayed in the upper-right corner of the navigation bar, and change it if necessary. This is where the network infrastructure for Alfresco Process Services will be built. The template is launched in the US East (Ohio) Region by default.
3. On the **Select Template** page, keep the default setting for the template URL, and then choose **Next**.

4. On the **Specify Details** page, change the stack name if needed. Review the parameters for the template. Provide values for the parameters that require input. For all other parameters, review the default settings and customize them as necessary. When you finish reviewing and customizing the parameters, choose **Next**.

In the following tables, parameters are listed by category and described separately for the two deployment options:

- **Parameters for deploying Alfresco Process Services into a new VPC**
- **Parameters for deploying Alfresco Process Services into an existing VPC**

**Option 1: Parameters for deploying Alfresco Process Services into a new VPC**

**View template**

*Network Configuration:*

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability zones (AvailabilityZones)</td>
<td><strong>Requires input</strong></td>
<td>The list of Availability Zones to use for the subnets in the VPC. The Quick Start uses two Availability Zones from your list and preserves the logical order you specify. Select at least two.</td>
</tr>
<tr>
<td>VPC CIDR (VPCCIDR)</td>
<td>10.0.0.0/16</td>
<td>The CIDR block for the VPC.</td>
</tr>
<tr>
<td>Private subnet 1 CIDR (PrivateSubnet1CIDR)</td>
<td>10.0.0.0/19</td>
<td>The CIDR block for the private subnet located in Availability Zone 1. The CIDR block must be in the form x.x.x.x/16-28.</td>
</tr>
<tr>
<td>Private subnet 2 CIDR (PrivateSubnet2CIDR)</td>
<td>10.0.32.0/19</td>
<td>The CIDR block for the private subnet located in Availability Zone 2. The CIDR block must be in the form x.x.x.x/16-28.</td>
</tr>
<tr>
<td>Public subnet 1 CIDR (PublicSubnet1CIDR)</td>
<td>10.0.128.0/20</td>
<td>The CIDR block for the public (DMZ) subnet located in Availability Zone 1. The CIDR block must be in the form x.x.x.x/16-28.</td>
</tr>
<tr>
<td>Public subnet 2 CIDR (PublicSubnet2CIDR)</td>
<td>10.0.144.0/20</td>
<td>The CIDR block for the public (DMZ) subnet located in Availability Zone 2. The CIDR block must be in the form x.x.x.x/16-28.</td>
</tr>
<tr>
<td>Access CIDR (RemoteAccessCIDR)</td>
<td><strong>Requires input</strong></td>
<td>The CIDR IP range that is permitted to access the Alfresco Process Services software. We recommend that you set this value to a trusted IP range. For example, you might want to grant only your corporate network access to the software. The CIDR block must be in the form x.x.x.x/x.</td>
</tr>
</tbody>
</table>
Amazon EC2 Configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS instance type (APSInstanceType)</td>
<td>m4.large</td>
<td>The EC2 instance type to be launched for Alfresco Process Services for NAT instances. This parameter is used only if your selected AWS Region doesn’t support NAT gateways.</td>
</tr>
<tr>
<td>Key pair name (KeyPairName)</td>
<td>Requires input</td>
<td>Public/private key pair, which allows you to connect securely to your instance after it launches. When you created an AWS account, this is the key pair you created in your preferred region</td>
</tr>
</tbody>
</table>

Amazon RDS Configuration

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB engine (DBEngine)</td>
<td>aurora</td>
<td>The engine type for the RDS instances.</td>
</tr>
<tr>
<td>Master user name (DBUsername)</td>
<td>activiti</td>
<td>The master user name for the RDS instances.</td>
</tr>
<tr>
<td>Master user password (DBUserPassword)</td>
<td>Requires input</td>
<td>The master password for the RDS instances. The password for the master database user can be any printable ASCII character except a forward slash (/), quotation marks (&quot;), or ampersand (@). It must be a minimum of eight characters.</td>
</tr>
<tr>
<td>RDS DB instance class (DBInstanceClass)</td>
<td>db.r4.large</td>
<td>The RDS instance class for the DB instances.</td>
</tr>
</tbody>
</table>
### Alfresco Process Services Configuration

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S3 bucket name where license file resides</strong> (APSLicenseBucketName)</td>
<td>AlfrescoProcess Services-Lic-BucketName</td>
<td>The name of the S3 private bucket where the Alfresco Process Services license file resides. <strong>Important:</strong> The bucket and files should be private.</td>
</tr>
<tr>
<td><strong>/Path/To/AlfrescoProcessServices.lic</strong> (APSLicenseBucketKey)</td>
<td>Path/To/AlfrescoProcessServices.lic</td>
<td>The path to the Alfresco Process Services license file from the bucket. Path starts with forward slash (/). If you do not have a license, you can request a 30-day trial from <a href="https://www.alfresco.com/platform/process-services-bpm/trial/aws">https://www.alfresco.com/platform/process-services-bpm/trial/aws</a>.</td>
</tr>
<tr>
<td><strong>Aspose license location URL</strong> (AsposeLicense)</td>
<td><a href="http://dl.alfresco.com/release/enterprise/APS/licenses/transform.lic">http://dl.alfresco.com/release/enterprise/APS/licenses/transform.lic</a></td>
<td>The URL of your Aspose license. If you don’t have a license, please request one from your sales representative or contact Alfresco Support at <a href="http://support.alfresco.com">http://support.alfresco.com</a>. The license provided in the form is a publicly available license.</td>
</tr>
<tr>
<td><strong>Desired number of nodes</strong> (DesiredNumberOfAPSNodes)</td>
<td>2</td>
<td>The desired number of Alfresco Process Services instances to run.</td>
</tr>
<tr>
<td><strong>Maximum number of nodes</strong> (MaxNumberOfAPSNodes)</td>
<td>10</td>
<td>The maximum number of Alfresco Process Services instances to run.</td>
</tr>
<tr>
<td><strong>Minimum number of nodes</strong> (MinNumberOfAPSNodes)</td>
<td>2</td>
<td>The minimum number of Alfresco Process Services instances to run.</td>
</tr>
<tr>
<td><strong>Notifications email</strong> (OperatorEmail)</td>
<td>Requires input</td>
<td>The email address to which notifications of operations are sent.</td>
</tr>
<tr>
<td><strong>User email address</strong> (UserEmailAddress)</td>
<td>Requires input</td>
<td>The email address that is used to log in to Alfresco Process Services.</td>
</tr>
<tr>
<td><strong>User password</strong> (UserPassword)</td>
<td>Requires input</td>
<td>The password to use for logging in to the Alfresco Process Services application.</td>
</tr>
</tbody>
</table>
AWS Quick Start Configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick Start S3 bucket name</td>
<td>aws-quickstart</td>
<td>S3 bucket where the Quick Start templates and scripts are installed. Use this parameter to specify the S3 bucket name you’ve created for your copy of Quick Start assets, if you decide to customize or extend the Quick Start for your own use. The bucket name can include numbers, lowercase letters, uppercase letters, and hyphens (-), but should not start or end with a hyphen.</td>
</tr>
<tr>
<td>Quick Start S3 key prefix</td>
<td>quickstart-alfresco-process-services/</td>
<td>The S3 key name prefix used to simulate a folder for your copy of Quick Start assets, if you decide to customize or extend the Quick Start for your own use. This prefix can include numbers, lowercase letters, uppercase letters, hyphens (-), and forward slashes (/).</td>
</tr>
</tbody>
</table>

- **Option 2: Parameters for deploying Alfresco Process Services into an existing VPC**

  View template

Network Configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPC ID (VPCID)</td>
<td>Requires input</td>
<td>The ID of your existing VPC (e.g., vpc-0343606e).</td>
</tr>
<tr>
<td>Private subnet 1 ID (PrivateSubnet1ID)</td>
<td>Requires input</td>
<td>The ID of the private subnet in Availability Zone 1 in your existing VPC (e.g., subnet-a0246dcd).</td>
</tr>
<tr>
<td>Private subnet 2 ID (PrivateSubnet2ID)</td>
<td>Requires input</td>
<td>The ID of the private subnet in Availability Zone 2 in your existing VPC (e.g., subnet-b58c3d67).</td>
</tr>
<tr>
<td>Public subnet 1 ID (PublicSubnet1ID)</td>
<td>Requires input</td>
<td>The ID of the public subnet in Availability Zone 1 in your existing VPC (e.g., subnet-b58c3d67).</td>
</tr>
<tr>
<td>Public subnet 2 ID (PublicSubnet2ID)</td>
<td>Requires input</td>
<td>The ID of the public subnet in Availability Zone 2 in your existing VPC.</td>
</tr>
</tbody>
</table>
### Amazon EC2 Configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS instance type (APSInstanceType)</td>
<td>m4.large</td>
<td>The type of EC2 instance to be launched for Alfresco Process Services.</td>
</tr>
<tr>
<td>Bastion security group ID (BastionSecurityGroupId)</td>
<td>Requires input</td>
<td>The security group ID of the bastion host.</td>
</tr>
<tr>
<td>Key pair name (KeyPairName)</td>
<td>Requires input</td>
<td>Name of an existing EC2 key pair. All instances launch with this key pair. You must also have a copy of this key.</td>
</tr>
</tbody>
</table>

### Amazon RDS Configuration

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB engine (DBEngine)</td>
<td>aurora</td>
<td>The engine type for the RDS instances.</td>
</tr>
<tr>
<td>Master user name (DBUsername)</td>
<td>activiti</td>
<td>The master user name for the RDS instances.</td>
</tr>
<tr>
<td>Master user password (DBUserPassword)</td>
<td>Requires input</td>
<td>The master password for the RDS instances. The password for the master database user can be any printable ASCII character except a forward slash (/), quotation marks (&quot;), or ampersand (@). It must be a minimum of eight characters.</td>
</tr>
<tr>
<td>RDS DB instance class (DBInstanceClass)</td>
<td>db.r4.large</td>
<td>The RDS instance class for the DB instances.</td>
</tr>
</tbody>
</table>

### Alfresco Process Services Configuration

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S3 bucket where license file resides (APSLicenseBucketName)</td>
<td>Requires input</td>
<td>The name of the S3 private bucket where the Alfresco Process Services license file resides. The bucket name for the license can include numbers, lowercase letters, uppercase letters, and hyphens (-). It cannot start or end with a hyphen (-). <strong>Important:</strong> The bucket and files should be private.</td>
</tr>
<tr>
<td>/Path/To/AlfrescoProcessServices.lic (APSLicenseBucketKey)</td>
<td>Requires input</td>
<td>The path to the Alfresco Process Services license file from the bucket. Path starts with forward slash (/). If you do not have a license, you can request a 30-day trial from <a href="https://www.alfresco.com/platform/process-services-bpm/trial/aws">https://www.alfresco.com/platform/process-services-bpm/trial/aws</a>.</td>
</tr>
<tr>
<td>Aspose license location URL (AsposeLicense)</td>
<td><a href="http://dl.alfresco.com/release/enterprise/APS/licenses/transform.lic">http://dl.alfresco.com/release/enterprise/APS/licenses/transform.lic</a></td>
<td>The URL of your Aspose license. If you don’t have a license, please request one from your sales representative or contact Alfresco Support at <a href="http://support.alfresco.com">http://support.alfresco.com</a>. The license provided in the form is a publicly available license.</td>
</tr>
</tbody>
</table>
Parameter label (name) | Default | Description
---|---|---
Desired number of nodes (DesiredNumberOfAPSNodes) | 2 | The desired number of Alfresco Process Services instances to run.
Maximum number of nodes (MaxNumberOfAPSNodes) | 10 | The maximum number of Alfresco Process Services instances to run.
Minimum number of nodes (MinNumberOfAPSNodes) | 2 | The minimum number of Alfresco Process Services instances to run.
Notifications email (OperatorEmail) | Requires input | The email address to which notifications of operations are sent.
User email address (UserEmailAddress) | Requires input | The email address that is used to log in to Alfresco Process Services.
User password (UserPassword) | Requires input | The password to use for logging in to the Alfresco Process Services application.

**AWS Quick Start Configuration:**

Parameter label (name) | Default | Description
---|---|---
Quick Start S3 bucket name (QSS3BucketName) | aws-quickstart | S3 bucket where the Quick Start templates and scripts are installed. Use this parameter to specify the S3 bucket name you've created for your copy of Quick Start assets, if you decide to customize or extend the Quick Start for your own use. The bucket name can include numbers, lowercase letters, uppercase letters, and hyphens (-), but should not start or end with a hyphen.
Quick Start S3 key prefix (QSS3KeyPrefix) | quickstart-alfresco-process-services/ | The S3 key name prefix used to simulate a folder for your copy of Quick Start assets, if you decide to customize or extend the Quick Start for your own use. This prefix can include numbers, lowercase letters, uppercase letters, hyphens (-), and forward slashes (/).

5. On the Options page, you can specify tags (key-value pairs) for resources in your stack and set advanced options. When you’re done, choose Next.

6. On the Review page, review and confirm the template settings. Under Capabilities, select the check box to acknowledge that the template will create IAM resources.

7. Choose Create to deploy the stack.

8. Monitor the status of the stack. When the status is CREATE_COMPLETE, the Alfresco Process Services cluster is ready.
9. Use the URLs displayed in the Outputs tab for the stack to view the resources that were created.

**Step 4. Test the Deployment**

After you have deployed Alfresco Process Services on AWS, you can access the software, make post-configuration changes, and perform testing.

**Logging in to the Servers with SSH**

1. Once all the systems are up and running, use the bastion hosts to access the Alfresco Process Services server. Connect to the bastion host instance through SSH and, using the key pair that you created as part of the deployment, obtain the IP address from the Outputs section of the CloudFormation stack, as shown in Figure 2.

![Figure 2: Getting the IP address for the key pair](image)

2. Once logged in to the instance, create a key file. You use this for connecting to the instances within your private subnet, using SSH.

   **Note** Before connecting to the instances, you must run the following command for successful SSH connection:

   ```bash
   chmod 600 {keyfilename}
   ```

3. You can see the status of the app by using:

   ```bash
   systemctl status tomcat-activiti
   ```

   You can also make post-deployment configuration changes in:

   /usr/share/tomcat/lib/activiti-app.properties
   /usr/share/tomcat/lib/activiti-identity-service.properties and
   /usr/share/tomcat/lib/activiti-admin.properties.

   **Note** If you make any configuration changes, restart the Alfresco-related services on the Alfresco Process Services server by using the command:

   ```bash
   systemctl restart tomcat-activiti
   ```
Accessing Alfresco Process Services

The Outputs section of the AWS CloudFormation stack provide login URLs for the main Alfresco Process Services app and the Alfresco Process Services Admin app. These are different for each deployment. The login credentials for the Alfresco Process Services app are the same as those specified in the parameters when you created the stack. The Alfresco Process Services Admin app is designed to work with the default credentials, as defined in the Alfresco documentation. The login URLs that are in the Outputs section of the AWS CloudFormation stack UI are shown in Figure 3.

<table>
<thead>
<tr>
<th>Key</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSAdminEndPoint</td>
<td><a href="http://apsgtest-APSLoad3-1.ypys3i0yezrif-172980370.us-east-1.e">http://apsgtest-APSLoad3-1.ypys3i0yezrif-172980370.us-east-1.e</a></td>
<td>The APS Admin End Point</td>
</tr>
<tr>
<td>APSEndPoint</td>
<td><a href="http://apsgtest-APSLoad3-1.ypys3i0yezrif-172980370.us-east-1.e">http://apsgtest-APSLoad3-1.ypys3i0yezrif-172980370.us-east-1.e</a></td>
<td>The APS End point</td>
</tr>
</tbody>
</table>

Figure 3: Login URLs for the Alfresco Process Services app and Admin app

Testing the Software

Now that you’ve successfully completed the deployment, check that the software functions correctly and does not report any errors or issues. The following are some suggested actions that you can perform in Alfresco Process Services for validation purposes:

- Create a form including any widgets
- Create a process
- Reference the form that you created in any relevant part of the process, for example, the start event or user task
- Create an app
- Attach the process to the app
- Publish and deploy the app
- Complete the process within the newly deployed app

See the Alfresco documentation for information about how to complete these actions.

Note Check /var/log/tomcat/activiti.log for errors that occurred during bootstrap or as part of the application runtime process.
Best Practices Using Alfresco Process Services on AWS

Migrating Data

Ensure that data is successfully migrated from your on-premises installation of Alfresco Process Services to AWS, and that the infrastructure is running smoothly and securely.

Backups

Consider any existing backup strategies you have in place for on-premise and decide whether any strategy changes might be required for AWS. The file structure in AWS should be identical to that which you created on-premise.

Also, consider what data you’re backing up and any automated tools you are using.

The following is a list of best practices for backing up your Alfresco Process Services data on AWS:

- Back up regularly
- Ensure the backup is dated, and test you can restore from that date
- Perform a complete back up of the Tomcat folder
- Ensure backups include any configuration files and custom files added to class paths
- Consider which type of backup is best suited for your circumstances:
  - Normal backup
  - Incremental backup
  - Differential backup
  - Copy backup
  - Daily backup

Storage

The Alfresco Process Services app provides capability to upload content by attaching a file or a task form. The content is stored in an S3 bucket on AWS. This configuration allows all nodes to access all content because the application is stateless, and any server can handle any request.
Ensuring High Performance
In addition to deploying the app on the right instance, choose an appropriate instance type to suit your use case. The Alfresco Process Services reference deployment uses the M4 class instance type by default. The deployment allows you to scale your resources to the requirements of your target workload. You can choose to run your instance on a more powerful type if, for example, you have high volumes of data or run a large number of processes.

Memory Consumption
Consider how much memory you need to support the Alfresco Process Services deployment on AWS. Memory usage can be affected by the number of user task activities that are modeled in your processes, by document generation and the number of concurrent users, and by the number of processes.

Also, consider any custom logic implementations, for example, Java delegates or Spring beans. See the Alfresco Process Services Custom Logic documentation. Script tasks generally take longer to run and therefore consume more memory resources.

High Availability

Multi-Node Clustered Setup
You can run the Alfresco Process Services app on multiple servers to improve resilience and performance and for failover purposes. The app is architected to be stateless. When using multiple servers, it is sufficient to have an AWS load balancer in front of the servers that are running the Alfresco Process Services app. Scaling out is done in a "horizontal" way, by simply adding more AWS servers behind the load balancer.

Configuring Alfresco Process Services
You can configure Alfresco Process Services using a properties file named activiti-app.properties. This file is located on the application server’s classpath. See Configuring Alfresco Process Services for further details.

Security
The AWS Cloud provides a scalable, highly reliable platform that helps customers deploy applications and data quickly and securely. When you build systems on the AWS infrastructure, security responsibilities are shared between you and AWS. This shared model can reduce your operational burden. AWS operates, manages, and controls the components from the host operating system and virtualization layer down to the physical security of the facilities in which the services operate. In turn, you assume responsibility and management of the guest operating system (including updates and security patches),
other associated applications, and configuration of the AWS-provided security group firewall.

**Security Groups**
A security group acts as a firewall that controls the traffic for one or more instances. When you launch an instance, you associate one or more security groups with the instance. You add rules to each security group that allow traffic to or from its associated instances. You can modify the rules for a security group at any time. The new rules are automatically applied to all instances that are associated with the security group.

**Processes That Use AWS Services**
The following are examples of Alfresco Process Services processes that use AWS services:

- **Amazon Alexa** - a voice-enabled, business process demo that uses Alfresco Process Services and Amazon Alexa. It allows people to interact with the process using their Amazon Echo and mobile phone. The solution also integrates with technologies such as Alfresco Content Services, email, Twilio, and Decooda.

- **Amazon SQS** - a blog post that discusses ways to integrate Alfresco Process Services with the popular messaging systems/platforms Amazon Simple Queue Service (SQS) and Apache ActiveMQ.

- **Amazon DynamoDB** - a blog post that describes steps to model business data integration between Alfresco Process Services and Amazon DynamoDB using data models.

**Troubleshooting**
If you encounter problems during the deployment, log in to the servers and view the Alfresco Process Services configuration files and logs.

The following information is provided for troubleshooting problems you might encounter when deploying and running the AWS Quick Start.
**Q.** I encountered a CREATE_FAILED error when I launched the Quick Start.

**A.** If AWS CloudFormation fails to create the stack, we recommend that you relaunch the template with Rollback on failure set to No. (This setting is under Advanced in the AWS CloudFormation console, Options page.) With this setting, the stack’s state will be retained and the instance will be left running, so you can troubleshoot the issue. (You'll want to look at the log files in %ProgramFiles%\Amazon\EC2ConfigService and C:\cfn\log.)

| Important | When you set Rollback on failure to No, you’ll continue to incur AWS charges for this stack. Please make sure to delete the stack when you’ve finished troubleshooting. |

For additional information, see Troubleshooting AWS CloudFormation on the AWS website or contact us on the AWS Quick Start Discussion Forum.

**Q.** I encountered a size limitation error when I deployed the AWS CloudFormation templates.

**A.** Should you encounter this error, we recommend that you launch the Quick Start templates from the location we’ve provided or from another S3 bucket. If you deploy the templates from a local copy on your computer or from a non-S3 location, you might encounter template size limitations when you create the stack. For more information about AWS CloudFormation limits, see the AWS documentation.

**GitHub Repository**

You can visit our GitHub repository to download the templates and scripts for this Quick Start, to post your comments, and to share your customizations with others.

**Additional Resources**

**AWS services**

- Amazon EC2  

- AWS CloudFormation  
  [https://aws.amazon.com/documentation/cloudformation/](https://aws.amazon.com/documentation/cloudformation/)

- Amazon VPC  
  [https://aws.amazon.com/documentation/vpc/](https://aws.amazon.com/documentation/vpc/)
Alfresco Process Services - resource links

- Alfresco Process Services documentation
  http://docs.alfresco.com

Quick Start reference deployments

- AWS Quick Start home page
  https://aws.amazon.com/quickstart/

Document Revisions

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<tr>
<th>Date</th>
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<tr>
<td><strong>July 2018</strong></td>
<td>Updated Alfresco version to 1.9; Updated Alfresco doc links to version 1.9; Updated parameter names/default values for APSLicenseBucketKey, APSLicenseBucketName, and AsposeLicense; Updated post-configuration property files</td>
<td><strong>Overview:</strong> Throughout the guide; <strong>Step 3: Launch the Quick Start</strong> <strong>Step 4: Test the Deployment</strong></td>
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