TIBCO Enterprise Message Service (EMS) on the AWS Cloud

Quick Start Reference Deployment

January 2018

Richard Flather, TIBCO Messaging Group – TIBCO Software Inc.
Scott Kellish and Shivansh Singh – Amazon Web Services

Contents
Overview..................................................................................................................................................2
TIBCO EMS on AWS...............................................................................................................................2
Costs and Licenses................................................................................................................................3
Architecture...........................................................................................................................................3
Prerequisites ..........................................................................................................................................6
  Specialized Knowledge .......................................................................................................................6
  Technical Requirements .....................................................................................................................6
Deployment Options ..............................................................................................................................6
Deployment Steps ..................................................................................................................................7
  Step 1. Prepare Your AWS Account ....................................................................................................7
  Step 2. Upload the TIBCO EMS Software to Your S3 Bucket..............................................................7
  Step 3. Launch the Quick Start ..........................................................................................................8
  Step 4. Test the Deployment .............................................................................................................13
Best Practices for Using TIBCO EMS on AWS....................................................................................17
Troubleshooting....................................................................................................................................17
Additional Resources............................................................................................................................17
GitHub Repository...............................................................................................................................18
Document Revisions .............................................................................................................................18
This Quick Start deployment guide was created by the Messaging Group at TIBCO Software in partnership with Amazon Web Services (AWS).

**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 TIBCO Enterprise Message Service (EMS) on the AWS Cloud, using Amazon Elastic File System (Amazon EFS) for shared storage.

This deployment guide is for infrastructure architects and TIBCO administrators who want to quickly deploy a TIBCO EMS system in a fault-tolerant configuration across AWS Availability Zones.

**TIBCO EMS on AWS**

You can use a message service to help integrate the applications within an enterprise. For example, you may have several applications: one for customer relations, one for product inventory, and another for raw material tracking. Each application is crucial to the operation of the enterprise, but even more crucial is the communication between the applications to ensure the smooth flow of business processes. Message-oriented middleware (MoM) creates a common communication protocol between these applications and enables you to easily integrate new and existing applications into your enterprise computing environment.

Java Message Service (JMS) is a Java framework specification that provides a uniform messaging interface for enterprise applications. The JMS framework is an interface specification (not an implementation) that provides a basis for MoM development. TIBCO EMS implements JMS and connects other messaging services, such as TIBCO Rendezvous and TIBCO FTL, directly. EMS also integrates with other application types and services by using TIBCO BusinessWorks.

AWS extends the capabilities of TIBCO EMS by supporting MoM across AWS and enabling applications running on different Amazon Elastic Compute Cloud (Amazon EC2) instances to communicate easily. With Amazon EFS, AWS also removes the need to have dedicated hardware or expensive disk arrays (SAN or NAS) for shared storage, while providing a complete fault-tolerant environment for all messages.
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 templates for this Quick Start include 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 the AWS services you will be using. Prices are subject to change.

You are responsible for obtaining a TIBCO EMS license and the TIBCO EMS software, as described in step 2 of the deployment steps. To request a license, contact TIBCO at https://www.tibco.com/contact-us.

Architecture
Deploying this Quick Start for a new virtual private cloud (VPC) with default parameters builds the following TIBCO EMS environment in the AWS Cloud.
The Quick Start sets up the following:

- A virtual private cloud (VPC) that spans two Availability Zones and includes two public and two private subnets. This infrastructure helps enforce security and also serves as the basis of fault tolerance for TIBCO EMS.

- An internet gateway to allow access from the internet to the public subnet.

- In the public subnets, a bastion host to provide Secure Shell (SSH) access to the TIBCO EMS client and server instances. The bastion host is in an Auto Scaling group of 1, which helps ensure that it is always available.

- In the private subnets, two instances configured for the TIBCO EMS servers and two optional instances configured for the TIBCO EMS client.
- The Quick Start uses the Amazon EC2 automatic recovery feature to help ensure that the TIBCO EMS server instances are highly available. This feature automatically recovers instances when a system impairment is detected, by moving the instances to new hardware and reattaching the original Amazon Elastic Block Store (Amazon EBS) and Amazon EFS volumes. After recovery, network adapters retain the same IP addresses.

- On the TIBCO EMS server instances, TIBCO EMS is configured as a Linux service. This is to ensure that TIBCO EMS will be started on the initial launch of the EC2 instance or after the EC2 instance is recovered.

- The optional TIBCO EMS client instances are configured with the TIBCO EMS client software only. After deployment, you can install additional client software on these instances.

- The TIBCO client instances are in an Auto Scaling group. Auto Scaling isn’t used for the TIBCO server instances.

- Amazon EFS for shared storage on the two EC2 instances that host the TIBCO EMS servers. Amazon EFS is mounted using the Linux `fstab` (file systems table) file, so the shared file system will be available to TIBCO EMS after the initial launch of the EC2 instances or after any TIBCO EMS server instance is recovered. This ensures that the TIBCO EMS persisted messages are always available to the active TIBCO EMS instance, no matter which EC2 instance is running. If a TIBCO EMS server instance should fail, the failover and recovery of the persisted messages would occur in a matter of seconds due to the TIBCO EMS fault-tolerant configuration.

- The appropriate security group for each EC2 instance based on the function of the instance. For instance, the EC2 instances hosting the TIBCO EMS servers can access the Amazon EFS shared storage, but the TIBCO EMS client instances cannot. You can use Secure Shell (SSH) to access all instances from the bastion host.

* You can choose either a new VPC or an existing VPC for your deployment. If you use an existing VPC with a security group that provides the appropriate access, the Quick Start template will skip the components marked by asterisks.
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 the Getting Started Resource Center.)

- Amazon CloudWatch
- Amazon EBS
- Amazon EFS
- Amazon EC2
- Amazon S3
- Amazon VPC
- Auto Scaling
- AWS Trusted Advisor
- Identity and Access Management

Technical Requirements

This Quick Start supports TIBCO EMS version 8.4 or greater and Amazon Linux (kernel 4.9.51) or greater. Other Linux kernels are supported, but note that there is a Network File System (NFS) client defect in Linux distributions with kernels 4.9.0-4.9.49. The NFS defect was corrected in Linux kernels 4.9.50 and above.

You need to obtain a TIBCO EMS license and the TIBCO EMS software, as discussed in step 2 of the deployment section. To request a license, contact TIBCO at https://www.tibco.com/contact-us.

Deployment Options

This Quick Start provides two deployment options:

- **Deploy TIBCO EMS into a new VPC** (end-to-end deployment). Use this option to build a new AWS environment consisting of the VPC, subnets, NAT gateways, security groups, bastion hosts, and other infrastructure components. The Quick Start then deploys TIBCO EMS into the new VPC.

- **Deploy TIBCO EMS into an existing VPC**. Use this option to provision TIBCO EMS in your existing AWS infrastructure.

The Quick Start provides separate templates for these options. It also lets you configure CIDR blocks, instance types, and TIBCO EMS 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 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 TIBCO EMS on AWS.

   **Important** This Quick Start includes Amazon EFS, which isn’t supported in all AWS Regions. See AWS Regions and Endpoints for a list of supported regions.

3. Create a key pair in your preferred region.

4. If necessary, request a service limit increase for the Amazon EC2 t2.medium instance type. Do this only if you already have an existing deployment that uses this instance type, and if you think you might exceed the default limit with this reference deployment.

Step 2. Upload the TIBCO EMS Software to Your S3 Bucket

1. Sign in to the AWS Management Console, and open the Amazon S3 console at https://console.aws.amazon.com/s3/.

2. Create a new S3 bucket in the region where you will be launching the Quick Start.

3. Make sure that the appropriate permissions are set for your S3 bucket.

4. Upload the TIBCO EMS installation software to your S3 bucket.

   - If you are currently a TIBCO customer, download the software from https://edelivery.tibco.com.

   - If you would like to request a license, contact TIBCO at https://www.tibco.com/contact-us. Evaluation versions are available at https://tap.tibco.com.

You will be prompted for the installer package name and the S3 bucket name when you deploy the Quick Start.
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.

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deploy TIBCO EMS into a new VPC on AWS</td>
<td>Deploy TIBCO EMS into an existing VPC on AWS</td>
</tr>
<tr>
<td><img src="Launch" alt="Launch" /></td>
<td><img src="Launch" alt="Launch" /></td>
</tr>
</tbody>
</table>

**Important** If you are deploying TIBCO EMS into an existing VPC, make sure that your VPC has two private subnets in different Availability Zones for the EMS server instances. You will be prompted for your VPC settings when you launch the Quick Start. 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 will also need the domain name option configured in the DHCP options, as explained in the Amazon VPC documentation. You will be prompted for your VPC settings when you launch the Quick Start.

Each deployment takes less than one hour 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 TIBCO EMS will be built. The template is launched in the US East (Ohio) Region by default.

**Important** This Quick Start includes Amazon EFS, which isn’t supported in all AWS Regions. See AWS Regions and Endpoints for a list of supported regions.

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 TIBCO EMS into a new VPC**
- **Parameters for deploying TIBCO EMS into an existing VPC**

**Option 1: Parameters for deploying TIBCO EMS into a new VPC**

**View template**

**VPC 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>Requires input</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.</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>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.</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.</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.</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.</td>
</tr>
</tbody>
</table>

**Bastion Access Configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowed Bastion External Access CIDR (RemoteAccessCIDR)</td>
<td>Requires input</td>
<td>The CIDR IP range that is permitted to access the TIBCO 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.</td>
</tr>
<tr>
<td>Bastion AMI Operating System (BastionAMIOS)</td>
<td>Amazon-Linux-HVM</td>
<td>The Linux distribution for the AMI to be used for the bastion host instances. If you choose CentOS, make sure that you have a subscription to the <a href="https://aws.amazon.com/marketplace/pp/wwb-171030">CentOS AMI in AWS Marketplace</a>.</td>
</tr>
</tbody>
</table>
### Parameter label | Default | Description
---|---|---
**Bastion Instance Type** *(BastionInstanceType)* | t2.micro | The EC2 instance type for the bastion host instances.

**TIBCO EMS Server Configuration:**

<table>
<thead>
<tr>
<th>Parameter label</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSH Key Name</strong> <em>(KeyPairName)</em></td>
<td>Requires input</td>
<td>A 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>
<tr>
<td><strong>EMS Installer Package Name</strong> <em>(EMSS3BucketName)</em></td>
<td>TIB_ems_8.4.0_linux_x86_64.zip</td>
<td>The name of the TIBCO EMS installation archive downloaded from the TIBCO website, from <a href="#">step 2</a>.</td>
</tr>
<tr>
<td><strong>EMS S3 Bucket Name</strong> <em>(EMSS3BucketName)</em></td>
<td>Requires input</td>
<td>The name of the S3 bucket for storing and retrieving EMS artifacts such as the installer archive, from <a href="#">step 2</a>.</td>
</tr>
<tr>
<td><strong>EMS Server AMI Type</strong> <em>(EMSServerAMIType)</em></td>
<td>Amazon-Linux-HVM</td>
<td>The Linux distribution for the AMI to be used for the operating system for EMS server instances. The two options are Amazon Linux and Red Hat Enterprise Linux (RHEL).</td>
</tr>
<tr>
<td><strong>EMS Server Instance Type</strong> <em>(EMSServerInstanceType)</em></td>
<td>t2.medium</td>
<td>The EC2 instance type for the EMS server instances.</td>
</tr>
<tr>
<td><strong>EMS Server Port Number</strong> <em>(EMSServerPort)</em></td>
<td>7222</td>
<td>The port number to use for the EMS server instances.</td>
</tr>
</tbody>
</table>

**TIBCO EMS Client Configuration:**

<table>
<thead>
<tr>
<th>Parameter label</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deploy optional EMS client stack</strong> <em>(DeployEMSClientStack)</em></td>
<td>true</td>
<td>Choose false if you don’t want to deploy the TIBCO EMS client instances.</td>
</tr>
<tr>
<td><strong>EMS Client Instance Type</strong> <em>(EMSSClientInstanceType)</em></td>
<td>t2.medium</td>
<td>The EC2 instance type for the EMS client instances, if deployed.</td>
</tr>
<tr>
<td><strong>EMS Client AMI Type</strong> <em>(EMSSClientAMIType)</em></td>
<td>Amazon-Linux-HVM</td>
<td>The operating system to use for the EMS client instances, if deployed. The two options are Amazon Linux and RHEL.</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 (QSS3BucketName)</td>
<td>aws-quickstart</td>
<td>The S3 bucket you have 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 (QSS3KeyPrefix)</td>
<td>quickstart-tibco-em/</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 TIBCO EMS 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>VPC CIDR (VPCCIDR)</td>
<td>10.0.0.0/16</td>
<td>The CIDR block for your existing VPC.</td>
</tr>
<tr>
<td>Public subnet 1 ID in Availability Zone 1 (PublicSubnet1ID)</td>
<td>Requires input</td>
<td>The ID of the public subnet in Availability Zone 1 in your existing VPC (e.g., subnet-a0246dcd).</td>
</tr>
<tr>
<td>Public subnet 2 ID in Availability Zone 2 (PublicSubnet2ID)</td>
<td>Requires input</td>
<td>The ID of the public subnet in Availability Zone 2 in your existing VPC (e.g., subnet-b58c3d67).</td>
</tr>
<tr>
<td>Private subnet 1 ID in Availability Zone 1 (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 in Availability Zone 2 (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>
</tbody>
</table>
**Bastion Access Configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bastion Security Group ID</strong> (BastionSecurityGroupID)</td>
<td>Requires input</td>
<td>The ID of the bastion security group in your existing VPC (e.g., sg-7f16e910).</td>
</tr>
</tbody>
</table>

**TIBCO EMS Server Configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSH Key Name</strong> (KeyPairName)</td>
<td>Requires input</td>
<td>A 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>
<tr>
<td><strong>EMS Installer Package Name</strong> (EMSInstallerName)</td>
<td>TIB_em_8.4.0-linux_x86_64.zip</td>
<td>The name of the TIBCO EMS installation archive downloaded from the TIBCO website, from step 2.</td>
</tr>
<tr>
<td><strong>EMS S3 Bucket Name</strong> (EMSS3BucketName)</td>
<td>Requires input</td>
<td>The name of the S3 bucket for storing and retrieving EMS artifacts such as the installer archive, from step 2.</td>
</tr>
<tr>
<td><strong>EMS Server AMI Type</strong> (EMSServerAMIType)</td>
<td>Amazon-Linux-HVM</td>
<td>The Linux distribution for the AMI to be used for the operating system for EMS server instances. The two options are Amazon Linux and RHEL.</td>
</tr>
<tr>
<td><strong>EMS Server Instance Type</strong> (EMSServerInstanceType)</td>
<td>t2.medium</td>
<td>The EC2 instance type for the EMS server instances.</td>
</tr>
<tr>
<td><strong>EMS Server Port Number</strong> (EMSServerPort)</td>
<td>7222</td>
<td>The port number to use for the EMS server instances.</td>
</tr>
</tbody>
</table>

**TIBCO EMS Client Configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deploy optional EMS client stack</strong> (DeployEMSClientStack)</td>
<td>true</td>
<td>Choose <strong>false</strong> if you don’t want to deploy the TIBCO EMS client instances.</td>
</tr>
<tr>
<td><strong>EMS Client Instance Type</strong> (EMSClientInstanceType)</td>
<td>t2.medium</td>
<td>EC2 instance type for the EMS client instances, if deployed.</td>
</tr>
<tr>
<td><strong>EMS Client AMI Type</strong> (EMSClientAMIType)</td>
<td>Amazon-Linux-HVM</td>
<td>Operating system to use for the EMS client instances, if deployed. The two options are Amazon Linux and RHEL.</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>The S3 bucket you have 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-tibco-ems/</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>

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 TIBCO EMS environment is ready.

9. Use the URLs displayed in the **Outputs** tab for the stack to view the resources that were created. For example, in the next step, you will use the **EMSServer1CP** and **EMSServer2CP** keys to connect to the TIBCO EMS servers.

The Quick Start creates three or five EC2 instances: one instance for the bastion host, two instances for the TIBCO EMS servers, and two optional instances for the TIBCO EMS client, if the **DeployEMSClientStack** parameter is set to **true**. All EC2 instances are named according to their use.

**Step 4. Test the Deployment**

When the AWS CloudFormation template successfully creates the stack, the EC2 instances will be running in your AWS account, and the TIBCO EMS software will be installed from the S3 bucket you specified during launch. Additionally, the TIBCO EMS servers will be running in a fault-tolerant configuration on the server instances.

To verify that EMS is running and accessible, follow these steps:
1. In the AWS CloudFormation console, choose the **Outputs** tab, and record the values for `EMSServer1CP` and `EMSServer2CP`, as highlighted in yellow in Figure 2.

![Table showing values for EMSServer1CP and EMSServer2CP](image)

**Figure 2:** IP address and port for EMS server instances

These values have also been set as Linux shell environment variables in the client instances, as shown in Figure 3.

```
[ec2-user@ip-10-0-0-72 bin]$ set
AWS_AUTO_SCALING_HOME=/opt/aws/apitools/as
AWS_CLOUDWATCH_HOME=/opt/aws/apitools/mon
AWS_ELB_HOME=/opt/aws/apitools/elb
AWS_PATH=/opt/aws
BASH=/bin/bash
...
EC2_HOME=/opt/aws/apitools/ec2
EMSEFSID=fs-f1a22558
EMSServer1CP=10.0.31.232:7222
EMSServer2CP=10.0.56.22:7222
...
TIBCO_HOME=/opt/tibco
[ec2-user@ip-10-0-0-72 bin]$ 
```

**Figure 3:** EMS server IP address and port Linux shell variables

2. Open the Amazon EC2 console at [https://console.aws.amazon.com/ec2/](https://console.aws.amazon.com/ec2/), and record the private IP address for the EMS client instance to be used for testing.

3. In the EC2 console, choose the bastion host, and then choose the **Connect** tab. Follow the instructions to connect to the bastion host.
Note  Do not copy your private key to the bastion host. Use the -A option as a part of your SSH connection. This ensures that you can log in to an EMS client instance without copying the private key (.pem) files to the bastion host. Here’s an example of logging in using an SSH client:

```
ssh -i "your.pem" -A ec2-user@ec2-34-222-222-222.compute-1.amazonaws.com
```

4. Log in to the EMS client instance using SSH and the private IP address for an EMS client instance.

```
ssh -A ec2-user@172.31.27.222
```

5. Switch to the EMS bin directory at /opt/tibco/ems/version/bin.

6. Use the IP addresses from Figure 2 and the `tibemsadmin64` command to log in to EMS, as shown in Figure 4. Use admin as the login name, and C/R for the password. This step will verify that TIBCO EMS is running and accessible from a client instance.

```
[ec2-user@ip-10-0-0-72 bin]$ printf "EMSServer1CPF=$EMSServer1CPF\nEMSServer2CPF=$EMSServer2CPF\n" EMSServer1CPF=10.0.31.232:7222 EMSServer2CPF=10.0.56.22:7222
[ec2-user@ip-10-0-0-72 bin]$ ./tibemsadmin64 -server tcp://$EMSServer1CPF,tcp://$EMSServer2CPF
[ec2-user@ip-10-0-0-72 bin]$ ./tibemsadmin64 -server tcp://10.0.31.232:7222,tcp://10.0.56.22:7222
```

**Figure 4: Logging in to TIBCO EMS**

7. Use the `show server` command to ensure that you are connected to the active EMS instance, as shown in Figure 5.
8. Create a new queue called sync using $sys.failsafe as the EMS data store, as shown in Figure 6. Creating the queue verifies that TIBCO EMS can create a new queue on Amazon EFS shared storage, and is ready for use.

9. This concludes the test. Log out from EMS, the EMS client instance, and the bastion host.
Best Practices for Using TIBCO EMS on AWS

TIBCO EMS behaves the same on AWS as when it’s running on premises and using a networked storage device. When using TIBCO EMS on AWS, follow your current best practices for on-premises environments.

Troubleshooting

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. (Look at the log files in /var/log.)

Important When you set Rollback on failure to No, you will continue to incur AWS charges for this stack. Please make sure to delete the stack when you finish troubleshooting.

For additional information, see Troubleshooting AWS CloudFormation on the AWS website.

Q. I encountered a size limitation error when I deployed the AWS CloudFormation templates.
A. We recommend that you launch the Quick Start templates from the links in this guide 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.

Additional Resources

AWS services

- User Guide for Linux Instances
- AWS CloudFormation
  https://aws.amazon.com/documentation/cloudformation/
- Amazon VPC
  https://aws.amazon.com/documentation/vpc/
• Amazon EFS
  http://docs.aws.amazon.com/efs/latest/ug/

TIBCO Enterprise Message Service
• TIBCO Software
  http://www.tibco.com/
• TIBCO Enterprise Message Service
  https://docs.tibco.com/products/tibco-enterprise-message-service-8-4-0

Quick Start reference deployments
• AWS Quick Start home page
  https://aws.amazon.com/quickstart/

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.

Document Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Change</th>
<th>In sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2018</td>
<td>Initial publication</td>
<td>—</td>
</tr>
</tbody>
</table>