



A MITEL
PRODUCT
GUIDE

MiVoice MX-ONE

MX-ONE AWS Installation Document

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Introduction

1

This installation document describes how you can deploy MX-ONE in the Amazon Web Services (AWS) environment.

Prerequisites

This chapter contains the following sections:

- [MX-ONE Prerequisites](#)
- [MX-ONE Image for AWS](#)
- [AWS Prerequisites](#)

In this document, not all the steps/instructions are described, so it is assumed:

- The AWS environment and AWS accounts setup is available.
- Engineer/technician has good knowledge of cloud technologies, specially, AWS.
- The MX-ONE deployment in AWS is approved by the customer IT or equivalent department.
- The connectivity between AWS and the customer premises is active and it supports real time applications, for example, the connectivity must have a low latency.

2.1 MX-ONE Prerequisites

- MX-ONE is properly dimensioned according to MX-ONE documentation.
- The MX-ONE licenses are active.
- An MX-ONE image for AWS is available, the `HyperV_Image-MX-ONE_<version>.zip` can be used. Preparation unzip the image and use the `vhdx` file for upload to AWS.
- The TCP/UDP/SCTP ports required by MX-ONE are properly configured in the enterprise customer firewall. For additional information, refer *MiVoice MX-ONE System Planning - Description, chapter IP Protocols and Ports*.
- NTP and DNS are configured.
- It is highly recommended that HTTPS and SIP/TLS protocols are used in the AWS setup.

2.2 MX-ONE Image for AWS

- For MiVoice MX-ONE to be deployed in AWS, an MX-ONE VHDX (HyperV) image is required.
- The MX-ONE AWS image is based on Hyper-V, in a zip format around 12 GB. An example of zip file name is `HyperV_Image-MX-ONE_<mx-one_version>.sp<sp_version>.hf<hf_version.rc<rc_version>.zip`.
- Download the latest available image from the appropriate repository and store it in a drive in the local network to transfer it to AWS. Since the image is in compressed zip format, you must uncompress it before transferring it to AWS.

2.3 AWS Prerequisites

- AWS subscription and accounts should be active, for example, the engineer, who is configuring the MX-ONE system, shall be able to access AWS portal and has the proper rights to setup the environment.

- The virtual machines sizes are selected.
- Connectivity between the enterprise customer and AWS should be up and running, for example, DirectLink or AWS VPN.
- Resource VPC, Security groups are created and designated to MX-ONE deployment.
- NTP and DNS are configured and accessible from AWS, so the MX-ONE installation can access it during the installation process.

Network Topology

3

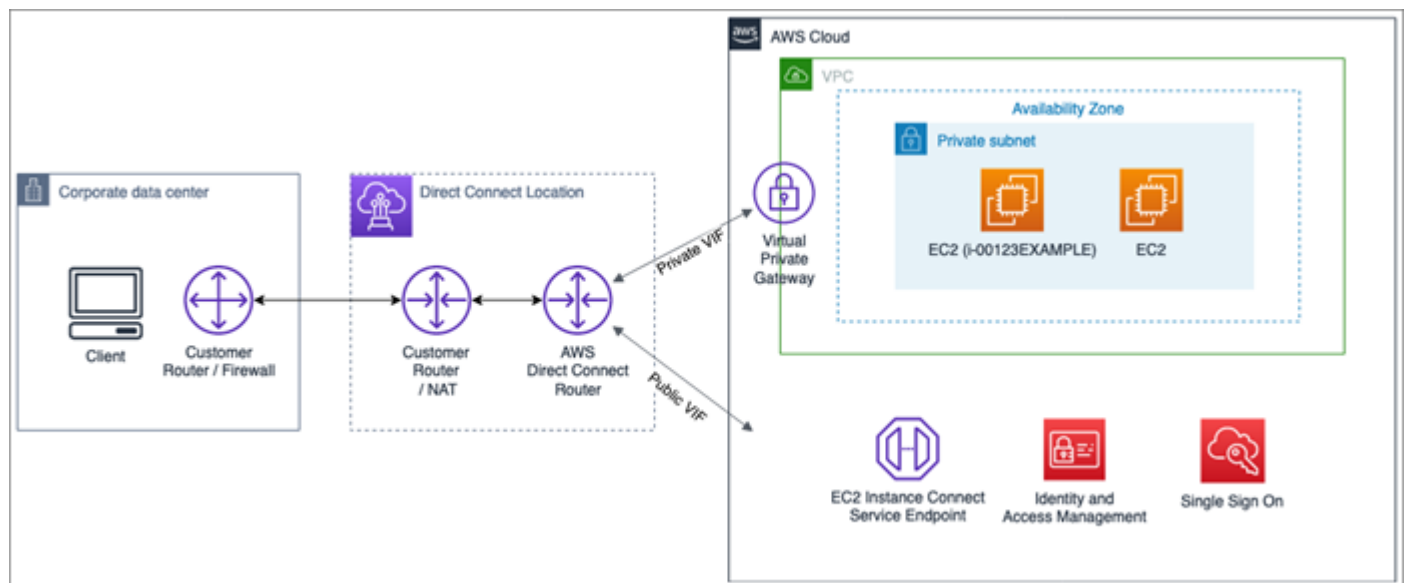
The following figure shows the recommended topology between the enterprise site and the AWS environment. AWS offers different connectivity possibilities, but Mitel recommends DirectLink or AWS VPN, because it offers lower latency.

A firewall is recommended to be added in the LAN (on-premises side). It is also recommended that only MX-ONE traffic is allowed in the setup.

Mitel never recommends that MX-ONE is placed directly to Internet, so MX-ONE shall not be facing Internet without proper Firewall or SBC in front on it.

Normally, the networks to be used in this solution shall be defined by the Enterprise IT team, so it is recommended that the partner have a discussion with the IT team before starting to plan the MX-ONE installation.

Figure 1: Network Topology



AWS Environment Preparation

4

This chapter contains the following sections:

- [Create S3 Buckets](#)
- [AWS Networking](#)
- [Upload the Image to AWS from your Local Computer or Network Path](#)
- [Import of the Image to EC2](#)

The AWS environment needs to be prepared before you upload an MX-ONE image. The items described in the next sections are the minimum for the system to work and it is assumed the AWS environment was properly defined in advance.

4.1 Create S3 Buckets

1. Log in to the AWS portal.
2. Create an S3 bucket, for information see *Getting started with Amazon S3*, <https://docs.aws.amazon.com/AmazonS3/latest/userguide/GetStartedWithS3.html>.

For information on granting permissions, see <https://aws.amazon.com/premiumsupport/knowledge-center/ec2-instance-access-s3-bucket/>.

4.2 AWS Networking

Create your own security group and VPC network, in the *vpc subnet disable dhcp* option and add an exclusion range in the network. For more information, see [Get started with Amazon VPC](#).



Note:

The Public IP address is not required for MX-ONE deployment as the system will use DirectLink or VPN connectivity between the enterprise network and AWS.

4.3 Upload the Image to AWS from your Local Computer or Network Path

There are different ways of uploading an image to AWS, choose one of the available options:

- Powershell (<https://aws.amazon.com/powershell>)
- AWS CLI (<https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-welcome.html>)

For more information, see [Section Import your VM as an image](#) [Importing a VM as an image using VM Import/Export](#).

In this document AWS CLI is used to upload the MX-ONE image.

The VHDX file is uploaded to AWS using the `aws s3 cp` command.

Logon to AWS from AWS CLI.

4.3.1 Example of Uploading an MX-ONE VHDX Image to AWS

The following steps shows an example of uploading an MX-ONE VHDX image using the AWS CLI `aws s3 cp <source file.vhdx> s3://<S3 bucket name>/<dest_file.vhdx>`.

This process only needs to be done once per deployment.

Example:

```
aws s3 cp MX-ONE_7.5.sp0.hf0.rc30.vhdx s3://mxone-rnd/MX-ONE_7.5.sp0.hf0.rc30.vhdx
```

```
upload: ./MX-ONE_7.5.sp0.hf0.rc30.vhdx to s3://mxone-rnd/MX-ONE_7.5.sp0.hf0.rc30.vhdx
```

List files in S3 bucket.

```
aws s3 ls s3://mxone-rnd
```

```
2022-12-02 09:37:40 12754878464 MX-ONE_7.5.sp0.hf0.rc30.vhdx
```

```
2022-11-29 13:58:08 5346182144 Virtual_Appliance-MX-ONE_7.5.sp0.hf0.rc30-disk1.vmdk
```

Now the image is uploaded in AWS S3 bucket.

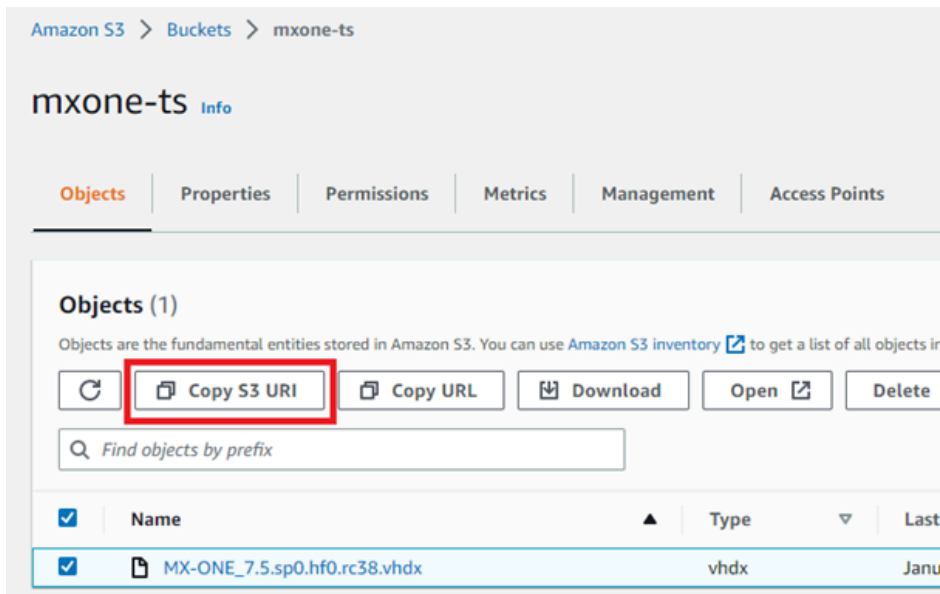
4.4 Import of the Image to EC2

For more information on importing of the image to EC2, see [Importing a VM as an image using VM Import/Export](#).

Alternatively, you can use the following procedure and use Mitel provided script for converting the MX-ONE vhdx file to AMI:

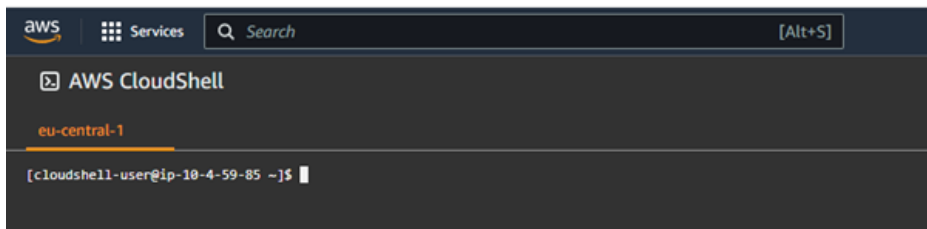
1. Download the package **aws-tools<version>.zip** from the Mitel Software Download Center by searching for aws-tools.

2. In the AWS Management Console, select the check box next to the vhd file you want to convert into an AMI file.
3. Click the **Copy S3 URI** button to copy the URI of the uploaded file.



4. In the search bar of the Amazon AWS console, search for **Cloudshell** and select **Cloudshell** from the **Services** list.

The **CloudShell** window is launched.



Note:
CloudShell is available only in selected regions. Choose the region closest to your deployment region.

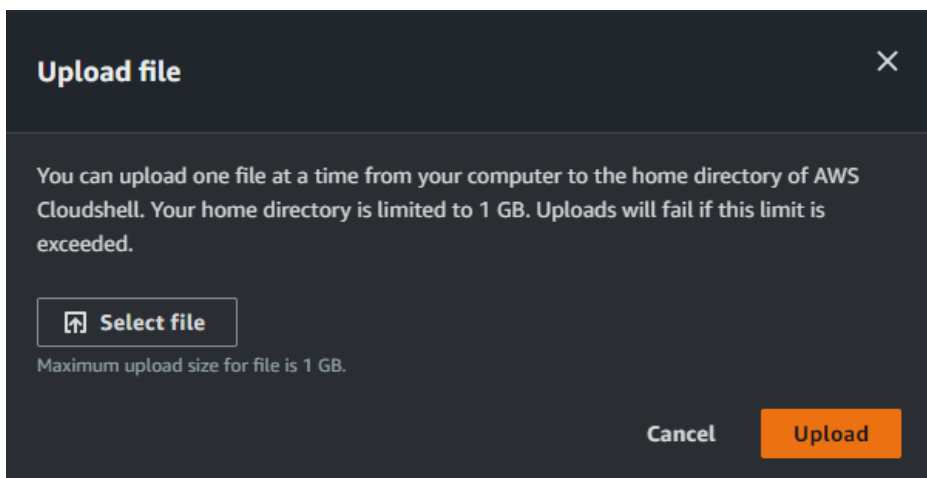
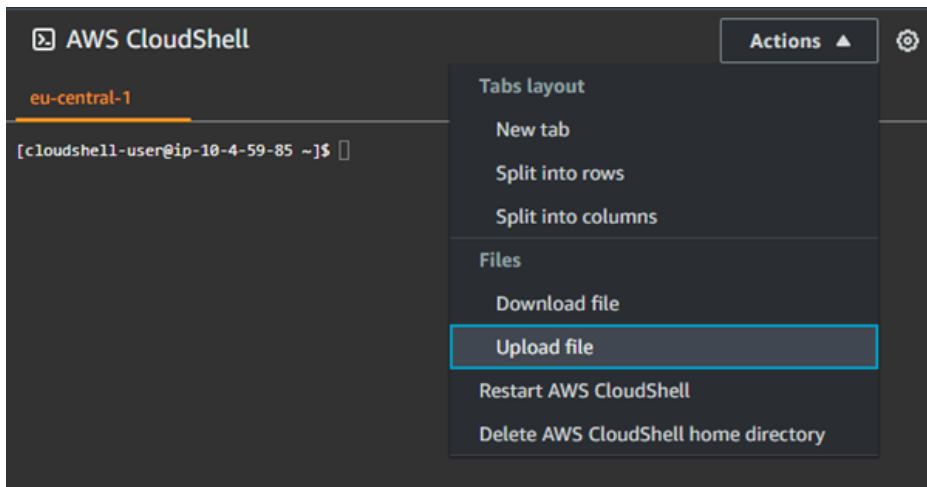
5. From the **Actions** drop-down menu, select **Upload file**.

The **Upload file** window opens.

6. In the **Upload file** window, click **Select file** and browse to the folder where you downloaded the **vhdtoami.sh** script file.

This file is included in the **aws-tools<version>.zip** package you downloaded.

7. Select the downloaded **vhdtoami.sh** script file and click the **Upload** button.



8. Enter the following command and paste (right-click and paste in CloudShell) the copied S3 bucket URI:

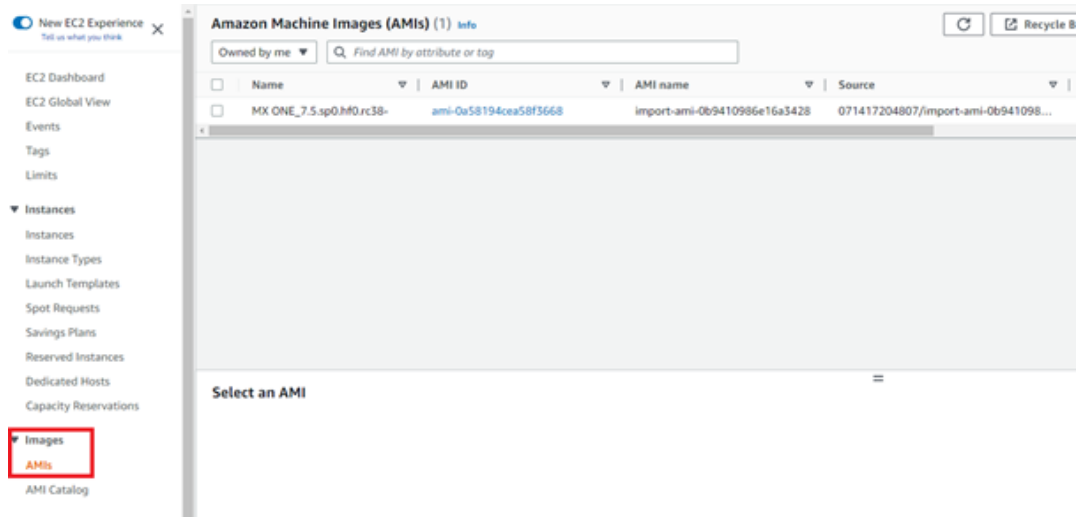
```
$ sh vhdtoami.sh s3://"s3-bucket-name"/MX-ONE_xxx.vhdx
```

Example:

```
$ sh vhdtoami.sh s3://mxone-ts/MX-ONE_7.5.sp0.hf0.rc38.vhdx
```

9. The AMI conversion process starts. This process will take time (~ 18 minutes) to complete. A progress status message is displayed every 10 seconds.

10. Once the conversion process is completed, the AMI is created in the same region where the S3 bucket was created. After the AMI is created, select your deployment region from the top-level bar to see the deployed AMIs in the current region.



After the import is done, a virtual machine can be created.

Create the MX-ONE VM and Additional Setup

5

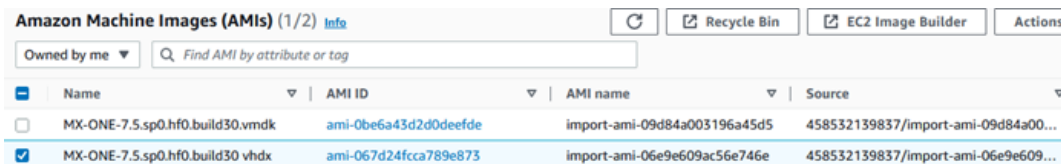
This chapter contains the following sections:

- [Create the MX-ONE VM using the Imported AMI](#)
- [Test the Connectivity](#)

To create a VM instance of MX-ONE setup and for the additional setups required in MX-ONE AWS deployment, see the instructions in the following sections.

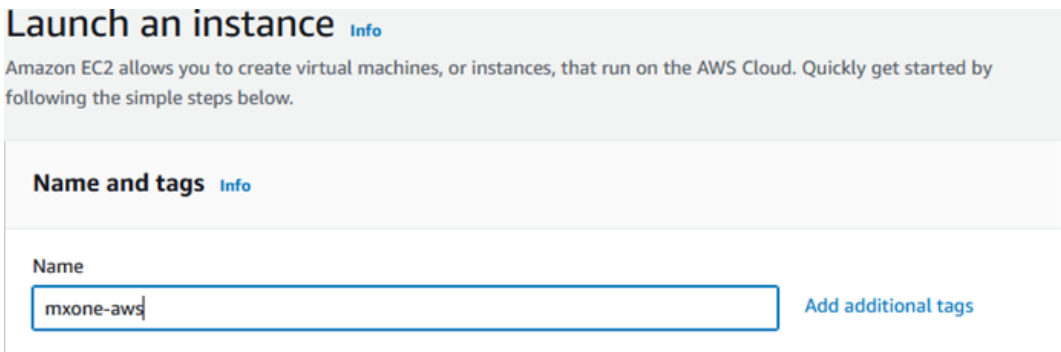
5.1 Create the MX-ONE VM using the Imported AMI

1. Search by AMI.



Amazon Machine Images (AMIs) (1/2) Info				
Owned by me Find AMI by attribute or tag				
<input type="checkbox"/>	Name	AMI ID	AMI name	Source
<input type="checkbox"/>	MX-ONE-7.5.sp0.hf0.build30.vmdk	ami-0be6a43d2d0deefde	import-ami-09d84a003196a45d5	458532139837/import-ami-09d84a00...
<input checked="" type="checkbox"/>	MX-ONE-7.5.sp0.hf0.build30.vhdx	ami-067d24fcca789e873	import-ami-06e9e609ac56e746e	458532139837/import-ami-06e9e609...

2. Select proper AMI and then click **Launch instance from AMI**.



Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

[Add additional tags](#)

3. Information about the selected AMI is displayed.

▼ **Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

AMI from catalog

Recents

My AMIs

Quick Start

☒ Owned by me

☐ Shared with me

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

import-ami-06e9e609ac56e746e

ami-067d24fcca789e873

2022-11-29T13:31:43.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description

AWS-VMImport service: Linux - SUSE Linux Enterprise Server 12 SP5 - 4.12.14-122.136-default

Architecture

AMI ID

x86_64

ami-067d24fcca789e873

4. Assign a name to the VM and select a proper instance type that is at least t3.large or better.

▼ **Instance type** [Info](#)

Instance type

t3.large

Family: t3 2 vCPU 8 GiB Memory

On-Demand Linux pricing: 0.0864 USD per Hour

On-Demand Windows pricing: 0.114 USD per Hour

[Compare instance types](#)

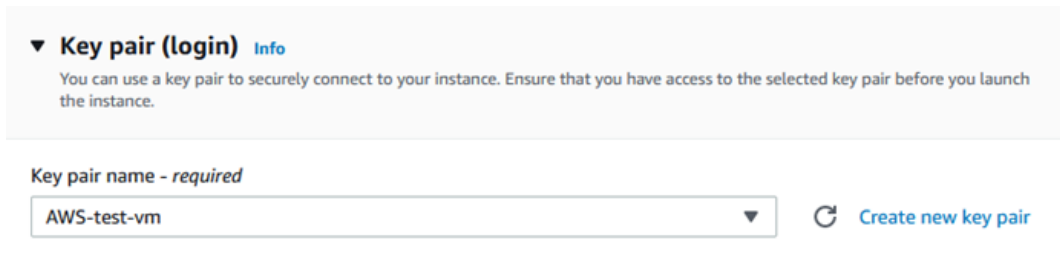
5. Adjust the VM size according to the MX-ONE system size. The *MX-ONE Virtualization and IOPS Disk and Network bandwidth requirements* documents are valid to AWS and cloud deployments.

The recommended Virtual Machines sizes are to be used with MX-ONE 7.5 and later are:

- Minimum: Family t3.large (2vCPU, 8GB Memory)
 - t3.xlarge (4vCPU, 16GB Memory) or equivalent *
 - t3.2xlarge (8vCPU, 32GB Memory) or equivalent *
- High Performance : Compute Optimized Family Series
 - c5n.xlarge (4vCPU, 10.5GB Memory) or equivalent *
 - c5n.2xlarge (8vCPU, 21GB Memory) or equivalent *

* The size of the virtual machines needs to be defined by the number of SIP users, the MX-ONE application and total number of users in the database used in the virtual machine.

6. Select the generated key pair.



▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

AWS-test-vm ▼ [↻ Create new key pair](#)

7. In network setup, choose the VPC created earlier with correct network and select the security group as well.
8. Follow the steps shown in the GUI or follow the steps in the [Create a VM from an AMI](#).
9. Note that when deploying MX-ONE in AWS, the MX-ONE redundancy options are not available. To have availability in MX-ONE system, the AWS built-in resources must be used.
10. In security group, add the correct ports for inbound/outbound traffic, if required. Those can be alternatively configured in the company firewall (VPN connection to premises).

Note:

Any type of traffic that needs to be directed to MX-ONE or any application in AWS requires a rule. This is not covered in this document. For additional information on MX-ONE TCP/UDP/SCTP ports, see *Chapter 13 IP Protocols and Ports* in the *MiVoice MX-ONE System Planning – Description* document.

11. In the **Networking settings** section, select the appropriate subnet and security group.

The screenshot shows the 'Networking settings' section of the AWS Management Console. It includes the following fields and options:

- VPC - required**: A dropdown menu showing 'vpc-0739fce8208137ca6 (MX-RnD-Sto-vpc)' with a refresh icon.
- Subnet**: A dropdown menu showing 'subnet-094705c6c8218f4cd MX-RnD-Sto-subnet-private3-eu-north-1a' with a refresh icon and a 'Create new subnet' link.
- Auto-assign public IP**: A dropdown menu set to 'Disable'.
- Auto-assign IPv6 IP**: A dropdown menu set to 'Disable'.
- Firewall (security groups)**: Two radio buttons: 'Create security group' (unselected) and 'Select existing security group' (selected).
- Common security groups**: A dropdown menu showing 'MX-Sec sg-070ba5c63cc2bbe2f' with a refresh icon and a 'Compare security group rules' link.
- A note: 'Security groups that you add or remove here will be added to or removed from all your network interfaces.'
- A link: 'Advanced network configuration'.

12. Configure the server IP address as Primary IP in **Network settings > Advanced network configuration**. If the server will have Cassandra database installed on it, configure the database IP in Secondary IP.

The screenshot shows the 'Advanced network configuration' section of the AWS Management Console. It includes the following fields and options:

- Network interface 1**: A section with three columns: 'Device index', 'Network interface', and 'Description'. The 'Device index' is '0'. The 'Network interface' is 'New interface'. The 'Description' is empty.
- Subnet**: A dropdown menu showing 'subnet-0261ae068d5e27e6e' with 'IP addresses available: 23'.
- Security groups**: A dropdown menu showing 'Select security groups' with a refresh icon and a 'Show all selected (1)' link.
- Primary IP**: A text input field containing '10.224.9.10'.
- Secondary IP**: A dropdown menu set to 'Manually assign' with a text input field containing '10.224.9.11'.
- IPv6 IPs**: A dropdown menu set to 'Select'.
- IPv4 Prefixes**: A dropdown menu set to 'Select'.
- A link: 'Add IP'.

**Note:**

The first four IP addresses and the last IP address in each subnet CIDR block are not available for your use, and they cannot be assigned to a resource, such as an EC2 instance, see <https://docs.aws.amazon.com/vpc/latest/userguide/configure-subnets.html#subnet-sizing>.

13. Check the summary.

▼ Summary

Number of instances [Info](#)

Software Image (AMI)
AWS-VMImport service: Linux - ...[read more](#)
ami-067d24fcc789e873

Virtual server type (instance type)
t3.large

Firewall (security group)
MX-Sec

Storage (volumes)
1 volume(s) - 100 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

×

Cancel

Launch instance

14. If the information is correct, click Launch instance and wait for the VM to be created.

5.2 Test the Connectivity

1. Go to **Support + troubleshooting** and select **Connection troubleshoot** and then test the connectivity between your local network and the VM in AWS.
2. After the successful test, the AWS will be ready. Now, install MX-ONE.

Initial Configuration of MX-ONE by Accessing VM via SSH Client

6

1. Open an SSH client of your choice (for example; PuTTY) and establish connection to the configured IP address of the AWS instance. Log in using root/changeme.
2. Run the `ip r l` command and note down the default gateway address, which you will need to configure later in the setup.
3. Run the `net_setup --skipTty` command and follow the steps to complete the MX-ONE initial configuration.

- When using the AWS console, the contrast and navigation in the net_setup (Yast2) is not optimal. This is a SLES behavior when console is used. Therefore, it is recommended to use SSH connection instead of the console access to the instance as described in chapter 6.
- During the net_setup flow when asked to configure NTP server you must enter the IP address of an Enterprise NTP server. Alternatively, you can also use the IP address provided by AWS - 169.254.169.123.

Acronyms, Abbreviations and Glossary

8

AWS

Amazon Web Service

DNS

Domain Name System

GUI

Graphical User Interface

HTTPS

Hypertext Transfer Protocol Secure

ICMP

Internet Control Message Protocol

IT

Information Technology

NTP

Network Time Protocol

SBC

Session Border Controller

SCTP

Stream Control Transmission Protocol

SIP

Session Initiation Protocol

SSD

Solid-State Drive

SSH

Secure Shell

TCP

Transport Control Protocol

TLS

Transport Layer Security

UDP

User Data Protocol

VHDX

Virtual Hard Disk

XML

Extensible Markup Language

- General AWS documentation page: <https://docs.aws.amazon.com/index.html>
- Create an S3 bucket: [Getting started with Amazon S3](#)
- Granting Amazon EC2 instance access to an Amazon S3 bucket: <https://aws.amazon.com/premiumsupport/knowledge-center/ec2-instance-access-s3-bucket/>
- Get started with Amazon VPC: <https://docs.aws.amazon.com/vpc/latest/userguide/vpc-getting-started.html>
- Upload a vhd to AWS using PowerShell: <https://aws.amazon.com/powershell>
- Importing a VM as an image using VM Import/Export: <https://docs.aws.amazon.com/vm-import/latest/userguide/vmimport-image-import.html>
- Launching an EC2 instance from a custom Amazon Machine Image (AMI): <https://aws.amazon.com/premiumsupport/knowledge-center/launch-instance-custom-ami/>
- Subnet sizing: <https://docs.aws.amazon.com/vpc/latest/userguide/configure-subnets.html#subnet-sizing>
- AWS CLI: <https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-welcome.html>

