FortiAuthenticator - AWS Deployment Guide

Version 6.1.0

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About FortiAuthenticator on AWS

Overview

FortiAuthenticator is designed specifically to provide authentication services for firewalls, SSL and IPsec VPNs, wireless access points, switches, routers, and servers. FortiAuthenticator includes RADIUS and LDAP server authentication methods, and SAML, which is used for exchanging authentication and authorization data between an Identity Provider and a Service Provider. Authentication servers are an important part of an enterprise network, controlling access to protected network assets, and tracking users' activities to comply with security policies.

FortiAuthenticator is not a firewall; it requires a FortiGate appliance to provide firewall-related services. Multiple FortiGate units can use a single FortiAuthenticator appliance for Fortinet Single Sign-On (FSSO) and other types of remote authentication, two-factor authentication, and FortiToken device management. This centralizes authentication and FortiToken maintenance.

FortiAuthenticator provides an easy-to-configure remote authentication option for FortiGate users. Additionally, it can replace the FSSO Agent on a Windows AD network.

FortiAuthenticator for AWS delivers centralized, secure two-factor authentication for a virtual environment, with a stackable user license for the greatest flexibility. Supporting from 100 to 1 million+ users, FortiAuthenticator for AWS supports the widest range of deployments, from small enterprise right through to the largest service provider.

AWS instance type support

FortiAuthenticator-VM supports the following AWS instance types. Note that supported instance types in the AWS Marketplace listing can change without notice.

- t2.micro, t2.small, t2.medium, t2.large, t2.xlarge, t2.2xlarge
- m3.medium, m3.large, m3.xlarge, m4.large, m4.xlarge, m4.2xlarge
- c3.large, c3.xlarge, c3.2xlarge, c3.4xlarge, c4.large, c4.xlarge, c4.2xlarge

When selecting an instance type for your deployment, consider your use case for FortiAuthenticator and the requirements to support it.

Recommended AWS instance types:

FortiAuthenticator-VM License	AWS Instance Type
FAC-VM-100-UG	t2.medium, m3.medium
FAC-VM-1000-UG	t2.large, m3.large, m4.large, c3.large, c4.large
FAC-VM-10000-UG	t2.xlarge, m3.xlarge, m4.xlarge, c3.xlarge, c3.2xlarge, c4.xlarge, c4.2xlarge

FortiAuthenticator-VM License	AWS Instance Type
FAC-VM-100000-UG	t2.2xlarge, m4.2xlarge, c3.4xlarge

Licensing

FortiAuthenticator for AWS supports the bring your own license (BYOL) model. Licenses can be obtained through any Fortinet partner. If you don't have a partner, contact awssales@fortinet.com for assistance in purchasing a license. This license model is stackable, allowing you to expand your VM solution as your environment expands.

For additional information on the FortiAuthenticator stackable license model, see the FortiAuthenticator datasheet.

Deploying FortiAuthenticator on AWS

Overview

This guide provides step-by-step instructions for successful deployment and initial configuration of FortiAuthenticator for AWS:

- Configuring a Virtual Private Cloud on page 6
- Deploying FortiAuthenticator-VM to AWS on page 9
- Connecting to FortiAuthenticator on page 13
- Installing a valid license on page 15
- Upgrading FortiAuthenticator firmware on page 16

Configuring a Virtual Private Cloud

Amazon Virtual Private Cloud (VPC) allows you to define a virtual network into which you deploy your instances. This virtual network closely resembles a traditional network that you'd operate in your own data center.

Like a traditional network, your VPC will have subnets, can be configured to have internet access, and can even have a VPN connection back to your existing data center, thus extending your physical network into a cloud.

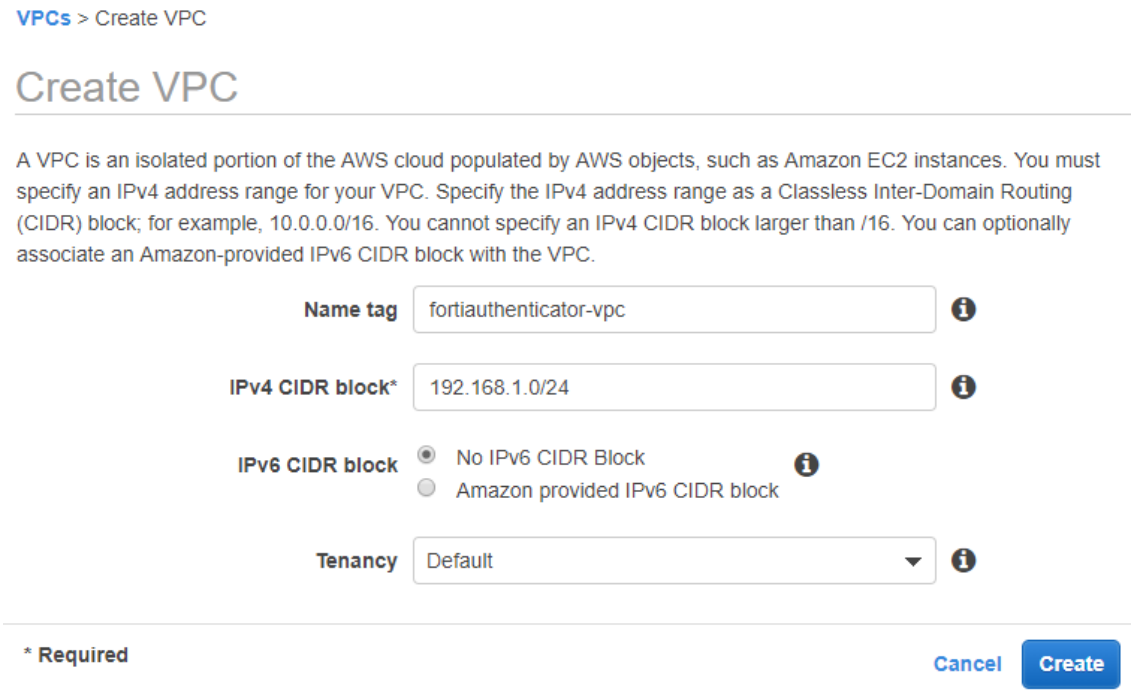
This section describes how to set up a VPC with a single public subnet, attach the VPC to the internet gateway, and then create a routing table and associate the subnet.

Creating a VPC and subnet

This section shows you how to create an AWS VPC and create a subnet. When applicable, choose settings specific to your own environment.

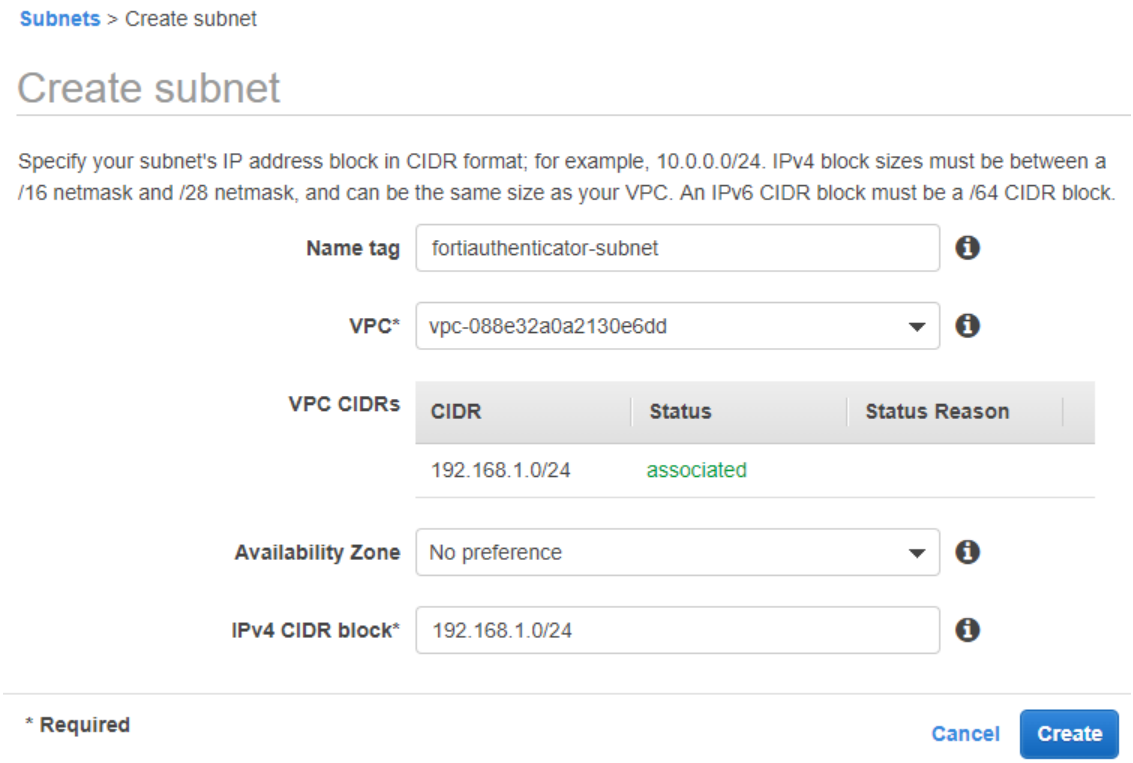
1. From the **AWS Management Console**, under **Network & Content Delivery,** click **VPC**.
2. In the navigation pane, under **Virtual Private Cloud**, click **Your VPCs**.
3. Click **Create VPC**.
4. On the **Create VPC** page, set the following attributes for your VPC:
   a. For the **Name tag** field, enter a name for your VPC.
   b. For the **IPv4 CIDR block** field, specify an IPv4 address range for your VPC.

c. From the **Tenancy** drop-down list, select **Default**.



5. Click **Create**.
   The VPC is created. Take note of the Name and VPC ID as they will be needed later in the deployment process.
6. Click **Close**.
7. In the navigation pane, under **Virtual Private Cloud**, click **Subnets**.
8. Click **Create subnet**.
9. On the **Create subnet** page, set the following attributes for your subnet:
   a. For the **Name tag** field, enter a name.
   b. From the **VPC** drop-down list, select your VPC.
   c. From the **Availability Zone** drop-down list, select **No Preference**.

d. For the **IPv4 CIDR block** field, specify an IPv4 address range.



10. Click **Create**.
    The subnet is created. Take note of the subnet name and subnet ID.
11. Click **Close**.
12. From the list of subnets, select the newly created subnet.
13. Click **Actions**, and then click **Modify auto assign IP settings**.
14. Select **Enable auto-assign public IPv4 address**, and then click **Save**.

Attaching the VPC to the internet gateway

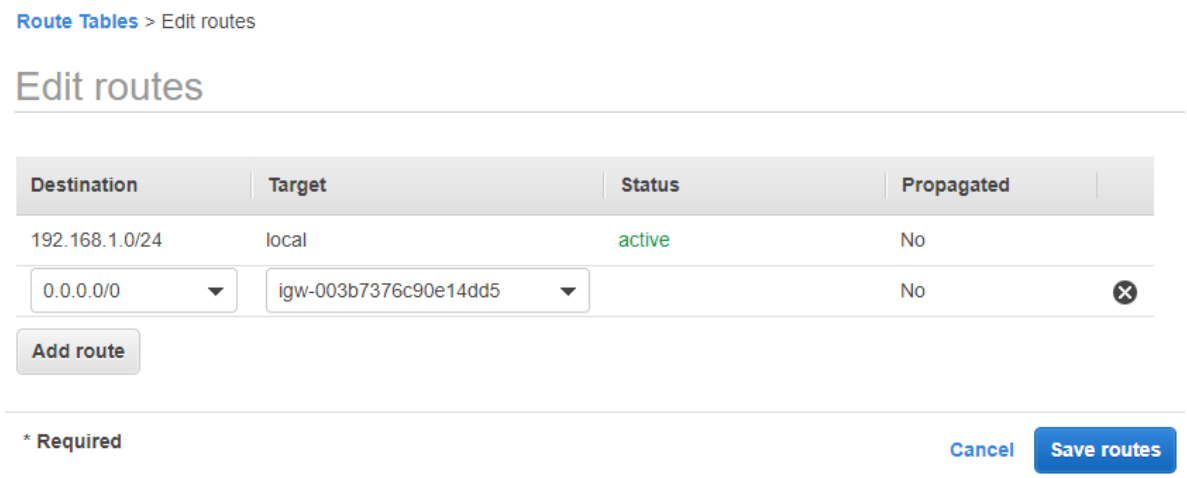
This section shows you how to connect your VPC to the internet gateway. Note that if you are using the default VPC, the internet gateway should already exist.

1. In the navigation pane, under **Virtual Private Cloud**, click **Internet Gateways**.
2. Click **Create internet gateway**.
3. In the **Name tag** field, enter a name for the internet gateway, and then click **Create**.
   The internet gateway is created.
4. Click **Close**.
   Note that the state of the internet gateway you created is detached.
5. From the list of internet gateways, select the newly created internet gateway.
6. Click **Actions**, and then click **Attach to VPC**.
7. On the **Attach to VPC** page, from the **VPC** drop-down list, select your VPC.
8. Click **Attach**.
   The state of the internet gateway changes to attached. Your VPC is attached to the internet gateway.

Creating a routing table

This section shows you how to create a route to allow all outbound traffic from the FortiAuthenticator to use the selected internet gateway.

1. In the navigation pane, under **Virtual Private Cloud**, click **Route Tables**.
2. From the list of route tables, select the route table associated with the your VPC.
3. Click the **Routes** tab, and then click **Edit routes**.
   Add another route to allow all outbound traffic to use the selected gateway. You can also enter a particular IP/Mask combination to restrict outgoing traffic to a specific value.
4. Click **Add route**.
5. In the **Destination** field, type `0.0.0.0/0`.
6. Click the **Target** field, click **Internet Gateway**, and then click your gateway to select it for this route.



7. Click **Save routes**.
8. Click **Close**.

Deploying FortiAuthenticator-VM to AWS

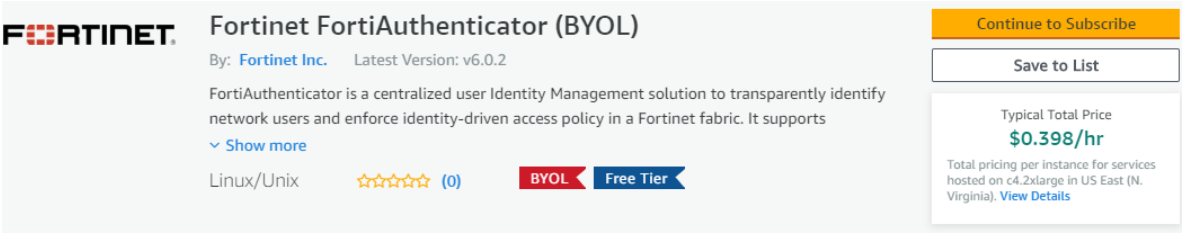
You can deploy the FortiAuthenticator-VM in one of two ways:

- Launching FortiAuthenticator-VM from AWS Marketplace on page 9
- Launching FortiAuthenticator-VM from EC2 Console on page 11

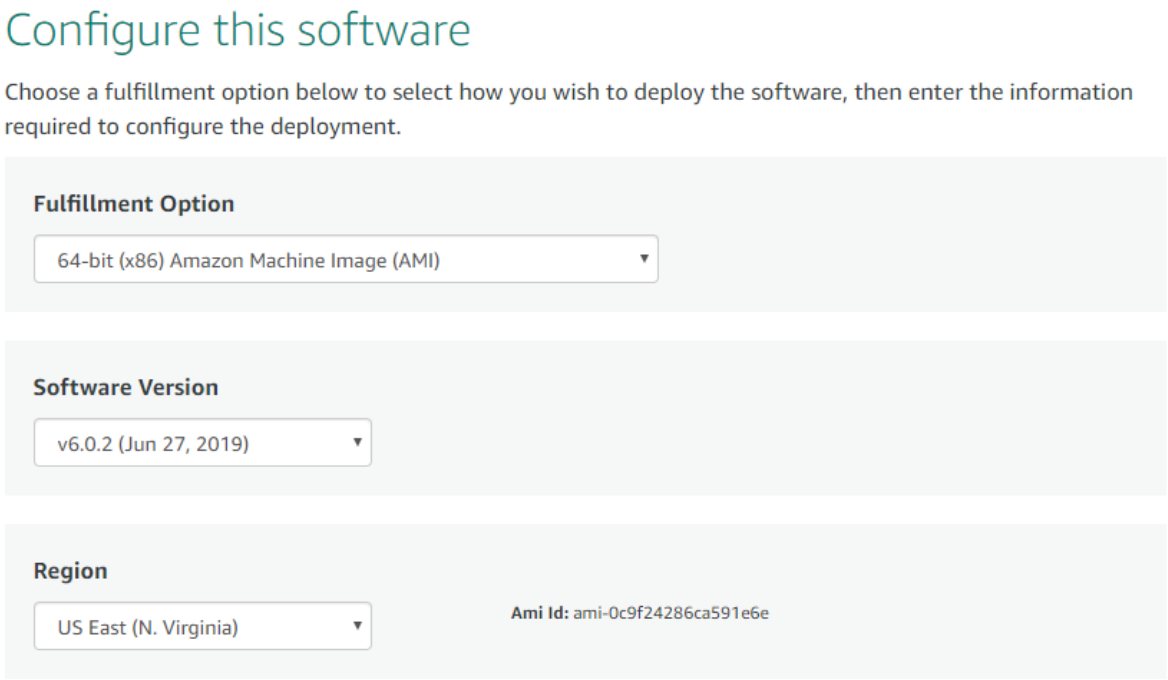
Launching FortiAuthenticator-VM from AWS Marketplace

This section details how to launch FortiAuthenticator from AWS Marketplace. Before proceeding, ensure that you have configured a virtual private cloud (VPC) to use with the FortiAuthenticator-VM.

1. Navigate to the **AWS Marketplace: Fortinet FortiAuthenticator (BYOL)** page.



2. Click **Continue to Subscribe**, and then click **Continue to Configuration**.
3. Under **Configure this software**, select a **Fulfillment Option**, **Software Version**, and **Region**.



4. Click **Continue to Launch**.
5. Under **Launch this software**, configure the following attributes:
   a. From the **Choose Action** drop-down list, select **Launch from Website**.
   b. From the **EC2 Instance Type** drop-down list, select an instance type that supports your deployment scenario.
   c. From the **VPC Settings** drop-down list, select your VPC.
   d. From the **Subnet Settings** drop-down list, select the subnet associated to your VPC.
   e. For **Security Group Settings**, click **Create New Based On Seller Settings**. Provide a name and

description for your security group and then click **Save**.

f. For **Key Pair Settings**, select an existing key pair from the drop-down list or create a key pair.

> The selected key pair is used to access the FortiAuthenticator VM using SSH. To create a new key pair, select a file format, and click **Create key pair**. The key pair is automatically downloaded by your browser. When creating a new key pair, select the `.pem` file format for access through a Linux client or `.ppk` for access using PuTTY on Windows. See Connecting to FortiAuthenticator on page 13

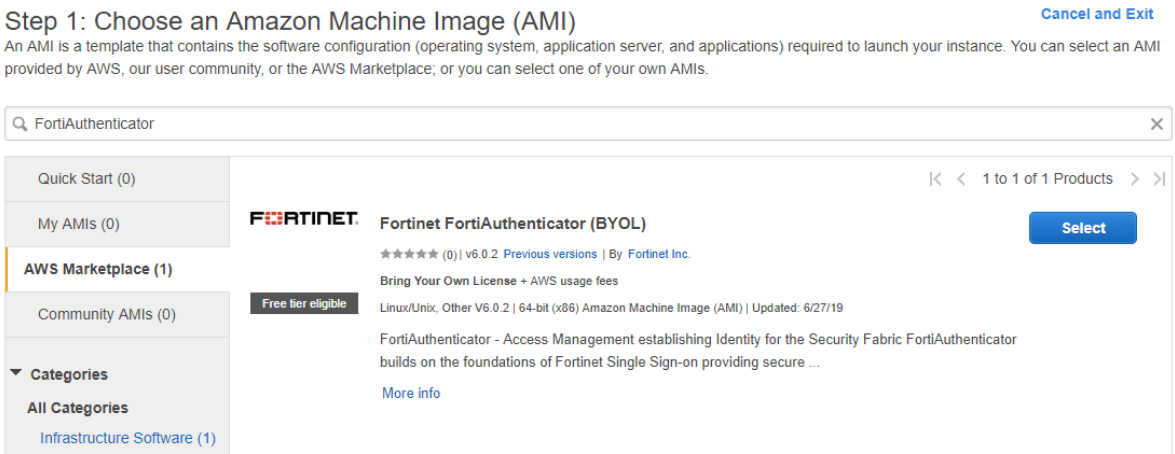
6. Click **Launch**.

The instance of FortiAuthenticator deploys on EC2. The process can take several minutes to complete. You can view the status of the deployment process from the EC2 console. When the deployment process is finished and the FortiAuthenticator-VM is provisioned and powered up, access the FortiAuthenticator-VM to complete the post-deployment setup. See Connecting to FortiAuthenticator on page 13.

Launching FortiAuthenticator-VM from EC2 Console

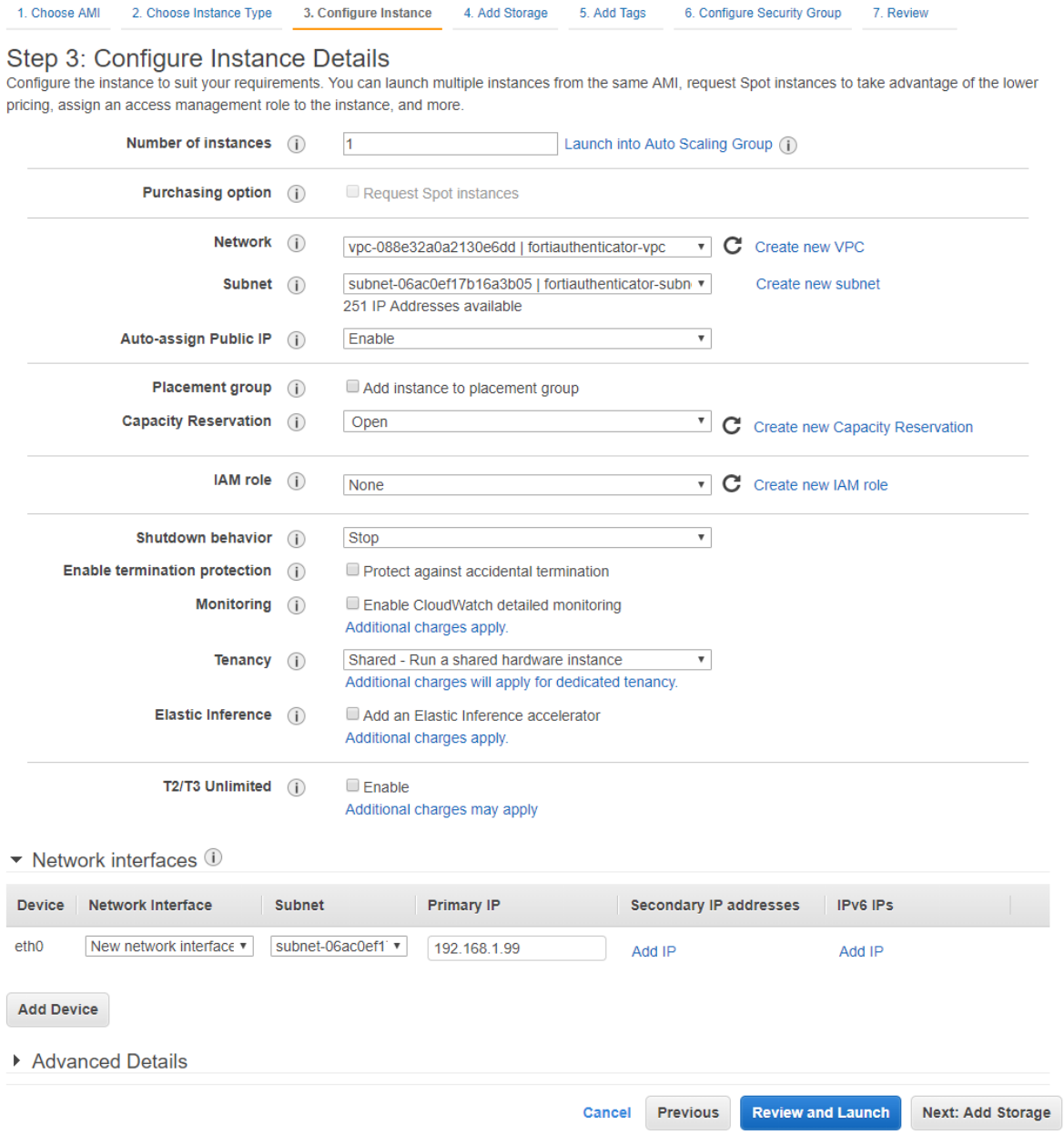
This section details how to launch FortiAuthenticator-VM from the EC2 Management Console. Before proceeding, ensure that you have configured a virtual private cloud (VPC) to use with the FortiAuthenticator-VM and that a key pair has been created and can be assigned to your instance. To create and download a key pair, from the **EC2 Management Console**, under **Network & Security**, click **Key Pairs**.

1. From the **AWS Management Console**, under **Compute**, click **EC2**.
2. From the **EC2 Management Console**, under **Create Instance**, click **Launch Instance**.
3. For **Step 1: Choose an Amazon Machine Image (AMI)**, click **AWS Marketplace**, and in the **Search** field, type `FortiAuthenticator` and press Enter.
4. To the right of **Fortinet FortiAuthenticator (BYOL)**, click **Select**.



5. Review the details of the Fortinet FortiAuthenticator image, and then click **Continue**.
6. For **Step 2: Choose an Instance Type**, select an instance type appropriate for your intended usage, and then click **Next: Configure Instance Details**.

7. For **Step 3: Configure Instance Details**, set the attributes for your instance:
   a. From the **Network** drop-down list, select your VPC.
   b. From the **Subnet** drop-down list, select the subnet associated to your VPC.
   c. From the **Auto-assign Public IP** drop-down list, select **Enable**.
8. Under **Network interfaces**, for **Primary IP**, type `192.168.1.99`.



9. Click **Next: Add Storage**.
10. For **Step 4: Add Storage**, ensure that the size of the second volume is at least 8 GB, and then click **Next: Add Tags**.
11. For **Step 5: Add Tags**, provide any tags that will aid you in managing your FortiAuthenticator VM instance, and then click **Next: Configure Security Group**.
12. For **Step 6: Configure Security Group**, you define a set of firewall rules that control the traffic for your instance. Select an existing security group or create a new security group. If **Create a new security**

group is selected, a security group is generated for you based on recommended settings for the FortiAuthenticator instance.

13. Click **Review and Launch**.
14. Review the details you have specified, and then click **Launch**.
    The **Select an existing key pair or create a new key pair** dialog box appears.
15. From the drop-down list, select **Choose an existing key pair**.
16. From the **Select a key pair** drop-down list, select a key pair.
    Before proceeding, confirm that you have the private key file for the selected key pair. The private key file can be obtained when a new key pair is created. To create and a key pair, from the **EC2 Management Console**, under **Network & Security**, click **Key Pairs**.

    The selected key pair is used to access the FortiAuthenticatorVM using SSH. When creating a new key pair, select the `.pem` file format for access through a Linux client or `.ppk` for access using PuTTY on Windows. See Connecting to FortiAuthenticator on page 13.

17. Select **I acknowledge that I have access to the selected private key file**.
18. Click **Launch Instances**.

The instance of FortiAuthenticator deploys on EC2. The process can take several minutes to complete. You can view the status of the deployment process from the EC2 console. When the deployment process is finished and the FortiAuthenticator-VM is provisioned and powered up, access the FortiAuthenticator-VM to complete the post-deployment setup. See Connecting to FortiAuthenticator on page 13.

Connecting to FortiAuthenticator

To connect to the FortiAuthenticator-VM instance, you require the instance's elastic IP address, the key pair, and an SSH client.

Reviewing the FortiAuthenticator instance state

After launching the FortiAuthenticator-VM instance from the AWS Marketplace or EC2 Management Console, navigate to the EC2 Management Console and view the list of instances to confirm that the instance is provisioned and powered up. Take note of the instance's public IP address.

Connecting to FortiAuthenticator using SSH and key pair from a Linux environment

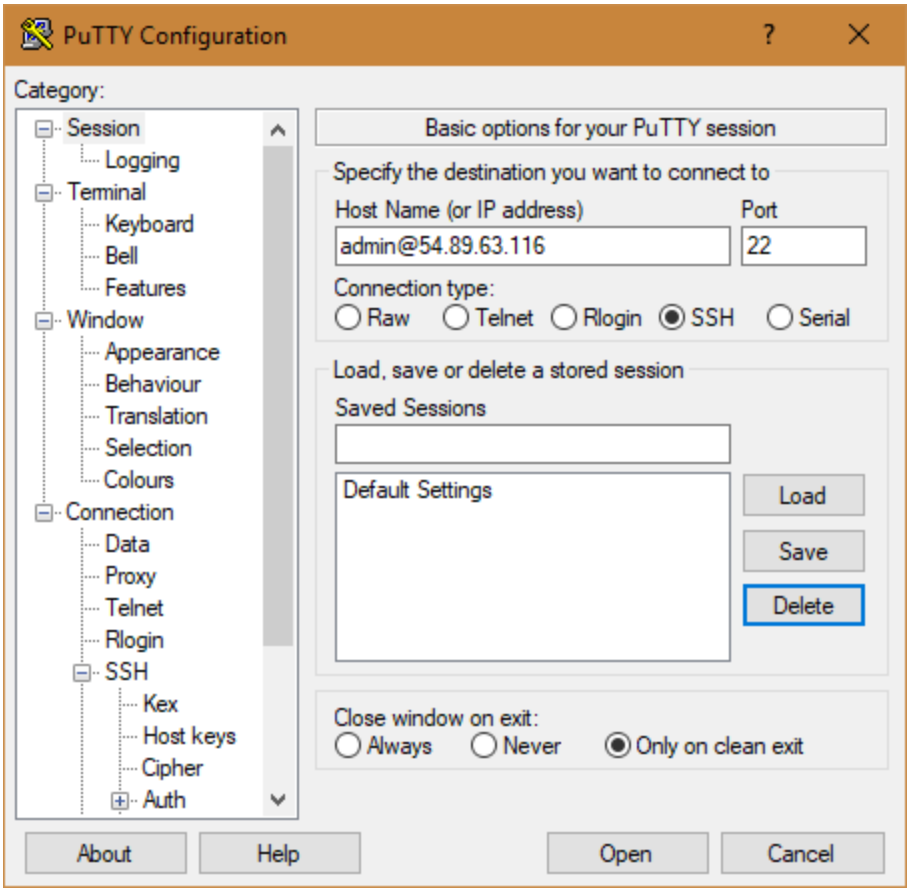
1. Using SSH, initiate a connection to the FortiAuthenticator-VM with the following command:
   `ssh -i <key-pair_pem-file> admin@<FAC-IPv4-Public_IP>`

For additional information on connecting to your instance from a Linux environment, see Connecting to Your Linux Instance Using SSH.

Connecting to FortiAuthenticator using SSH and key pair from a Windows environment

This section details how to connect to the FortiAuthenticator-VM using PuTTY, a free SSH client. You can download and install PuTTY from the PuTTY download page. PuTTY does not support the private key format (`.pem`) provided by AWS. Before you can connect to the FortiAuthenticator instance, you must convert your private key to (`.ppk`) format required by PuTTY. For more information, see Convert Your Private Key Using PuTTYgen.

1. Open **PuTTY**.
2. In the **Category** pane, expand **Connection**, expand **SSH**, and then click **Auth**.
3. Click **Browse** , select the `.ppk` file for your key pair, and then click **Open**.
4. In the **Category** pane, click **Session**.
5. For **Host Name (or IP address)**, type `admin@<ip_address>`.
6. Ensure **Port** is set to **22**.



7. Click **Open**.
8. PuTTY displays a security alert that asks whether you trust the host you are connecting to. Click **Yes**.
   The PuTTY SSH terminal window opens.

For additional information on connecting to your FortiAuthenticator-VM instance from a Windows environment, see Connecting to Your Linux Instance from Windows Using PuTTY.

Change the FortiAuthenticator administrator password

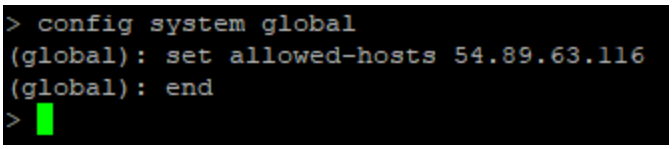
Fortinet recommends changing the default admin password after successfully connecting to the FortiAuthenticator-VM. To change the admin password, execute the following command in the open SSH session:

```
execute restore-admin <new_password>
```

Configure FortiAuthenticator to allow access the UI

To enable access to the FortiAuthenticator UI, execute the following commands in the open SSH session:

```
config system global
set allowed-hosts <public_IP>
end
```



Connect to FortiAuthenticator UI

1. In a web browser, navigate to https://<public_IP>.
2. When you connect, your web browser might display a security warning related to the certificate not being trusted. This warning is normal and is due to the certificate being self-signed, rather than being signed by a valid certificate authority. Verify and accept the certificate, either permanently or temporarily, and proceed to https://<public_IP>.
3. On the **Login** page, for **Username**, enter **admin**. For **Password**, enter the administrator password selected when you first connected to the FortiAuthenticator-VM.
4. Click **Login**.

Installing a valid license

FortiAuthenticator-VM runs in evaluation mode until it is licensed. Before using the FortiAuthenticator VM you must enter the license file that you download from the Fortinet Support portal upon registration.

Registering and downloading your license

After placing an order for FortiAuthenticator-VM, a license registration code is sent to the email address used in the order form. Use the license registration code provided to register the FortiAuthenticator-VM with Fortinet Support.

Upon registration, download the license file. You will need this file to activate your FortiAuthenticator-VM. You can configure basic network settings from the CLI to complete the deployment. Once the license file is uploaded, the CLI and UI are fully functional.

1. Navigate to the **Fortinet Support** portal and create a new account or log in with an existing account.
2. In the toolbar, click **Asset > Register/Renew** to start the registration process.
3. In the **Specify Registration Code** field, enter your license activation code and click **Next** to continue registering the product.
4. Enter the **Support Contract number**, **Product Description**, **Fortinet Partner**, and **IP address**.
   As a part of the license validation process, the IP address of the FortiAuthenticator VM instance is compared to the IP information in the license file. If a new license has been imported or the IP address has been changed, the FortiAuthenticator VM must be rebooted in order for the system to validate the change and operate with a valid license.
5. Click **Next**.
6. The **Fortinet Product Registration Agreement** page displays. Select the check box to indicate that you have read, understood, and accepted the service contract. Click **Next**.
7. The **Verification** page displays. Select the checkbox to indicate that you accept the terms. Click **Confirm**.
8. On the **Registration Complete** page, download the license file (`.lic`) to your computer. You will upload this license to activate the FortiAuthenticator VM.

Note: After registering a license, Fortinet servers can take up to 30 minutes to fully recognize the new license. When you upload the license file to activate the FortiAuthenticator VM, if you get an error that the license is invalid, wait 30 minutes and try again.

Upload the license file to FortiAuthenticator-VM

1. Log into the FortiAuthenticator-VM from a browser.
2. Navigate to **System** > **Administration** > **Licensing**.
3. Click **Choose File** and locate the license file (`.lic`) on your computer. Click **OK** to upload the license file.

The VM registration status appears as valid after the license has been validated.

As a part of the license validation process, the IP address of the FortiAuthenticator-VM instance is compared to the IP information in the license file. If a new license has been imported or the IP address has been changed, the FortiAuthenticator-VM must be rebooted in order for the system to validate the change and operate with a valid license.

Upgrading FortiAuthenticator firmware

The FortiAuthenticator image available on AWS Marketplace might not include the latest firmware available for FortiAuthenticator. Upgrade the firmware of your FortiAuthenticator-VM after deployment to ensure that you have the latest features, functionality, and fixes available.

1. Log into the **Fortinet Support** site and download the latest firmware to your local computer.
2. Log into the FortiAuthenticator-VM from a browser.
3. Navigate to **System** > **Administration** > **Firmware Upgrade**.
4. Click **Choose File**, locate the firmware image on your local computer, and click **Open**.
5. Click **OK**.

The firmware image uploads from your local computer to the FortiAuthenticator-VM, which will then reboot. For a short period of time during this reboot, the FortiAuthenticator-VM is offline and unavailable for authentication.