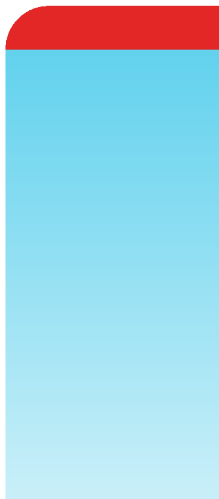


# AWS Deployment Guide

FortiDeceptor 4.1.0



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December 16, 2021

FortiDeceptor 4.1.0 AWS Deployment Guide

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# Change Log

Date	Change Description
2021-12-16	Initial release.

# About FortiDeceptor VM on AWS

FortiDeceptor VM is a 64-bit virtual appliance version of FortiDeceptor. It is deployed in a virtual machine environment. Once the virtual appliance is deployed and set up, you can manage FortiDeceptor VM via its GUI in a web browser on your management computer.

This document provides information about deploying a FortiDeceptor VM in the Amazon Web Services (AWS) environment. This includes how to configure the virtual hardware settings of the virtual appliance. This guide presumes that the reader has a thorough understanding of virtualization servers.

This document does not cover configuration and operation of the virtual appliance after it has been successfully installed and started. For that information, see the [FortiDeceptor Administration Guide](#) in the [Fortinet Document Library](#).

## Licensing

Fortinet offers the FortiDeceptor in a stackable license model. This model allows you to expand your VM solution as your environment expands. For information on purchasing a FortiDeceptor license, contact your Fortinet Authorized Reseller, or visit [https://www.fortinet.com/how\\_to\\_buy/](https://www.fortinet.com/how_to_buy/).

When configuring your FortiDeceptor, ensure that you configure hardware settings as outlined in the following table and consider future expansion. Contact your Fortinet Authorized Reseller for more information.

Technical Specification	Details
AWS support	<ul style="list-style-type: none"> <li>t3.medium for 2 nics</li> <li>c5.4xlarge for 6 nic</li> </ul> The available EC2-instance type is determined by the zone.
Virtual CPUs (min / max)	4 / Unlimited*
Virtual Network Interfaces	2-6 nics
Virtual Memory (min / max)	8GB / Unlimited**
Virtual Storage (min / max)	HDD 50G/ 16TB***

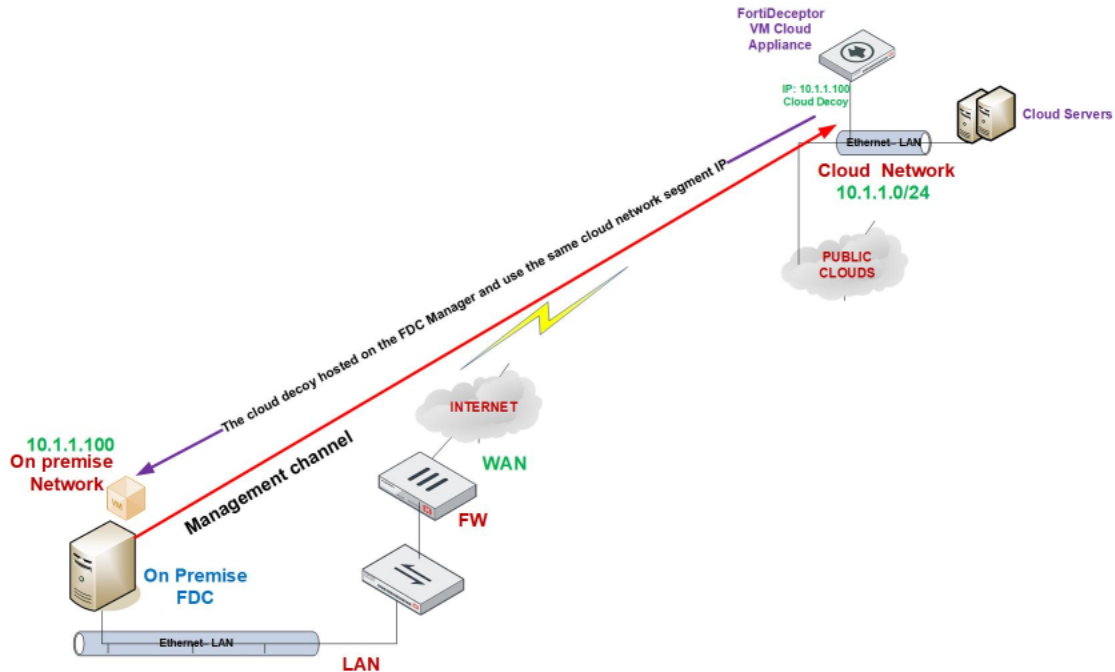
For more information, see the FortiDeceptor product data sheet available on the Fortinet web site, <https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/FortiDeceptor.pdf>.

After placing an order for FortiDeceptor, a license registration code is sent to the email address used in the order form. Use the license registration code provided to register the FortiDeceptor with Customer Service & Support at <https://support.fortinet.com>.

Upon registration, you can download the license file. You will need this file to activate your FortiDeceptor. You can configure basic network settings from the CLI to complete the deployment. Once the license file is uploaded and validated, the CLI and GUI will be fully functional.

## FortiDeceptor Cloud topology

The cloud appliance is deployed over the public infrastructure but uses a different method for decoy deployment. This new method requires less HW requirements for the cloud appliance itself.



The cloud decoy deployment method is as follows:

- The cloud appliance will be deployed over the cloud infrastructure.
- An on-premise FortiDeceptor Manager will manage the cloud appliance over a propriety network tunnel.
- The propriety network tunnel allows managing the cloud appliance and decoy deployment provisioning over layer2 tunnel communication over layer3.
- The cloud appliance network interfaces will hold IP addresses in the cloud segment. Each IP address represents a network decoy.
- The network decoy will run on the on-premise FortiDeceptor Manager and use the same IP address as the cloud appliance network interfaces.
- The cloud IP address will tunnel over Layer2 to the IP address on the on-premise FortiDeceptor Manager.
- The idea is to run a light appliance in the cloud while running the actual network decoys inside the on-premise FortiDeceptor Manager in a sandbox mode. The cloud network is isolated from the rest of the decoys, the on-premise networks.

While the cloud appliance uses different hardware requirements, the on-premise FortiDeceptor Manager HW requirements that should serve the cloud appliance decoys is the same concept as today.

## Preparing FortiDeceptor for deployment

To prepare FortiDeceptor for deployment, download the FortiDeceptor image from FortiCloud. Prepare the AWS network by creating a Virtual Public Cloud, subnets, an Internet gateway, and route table. After the network is prepared you will need to import an AMI image to create a VM instance, then associate the instance with public IP addresses to deploy the decoys.

### To prepare for deployment:

1. [Prepare the FortiDeceptor image.](#)
2. [Prepare the network in AWS.](#)
3. [Create a bucket.](#)
4. [Import the FortiDeceptor image to AWS AMI.](#)
5. [Check the imported image.](#)
6. [Create an instance from the AMI image.](#)
7. [Verify the instance.](#)
8. [Associate a public IP to port1](#)
9. [Configure multiple IPs for deployment.](#)

## Prepare the FortiDeceptor image for AWS

Download the image archive file for the AWS platform and unzip it to get image file *fdc.aws.vhd*.

### To download the FortiDeceptor image:

1. Log in to [FortiCloud](#).
2. In the banner, click *Support > Downloads > Firmware Download*. The *Download/Firmware Images* page opens.
3. From the *Select Product* dropdown, select *FortiDeceptor*.
4. Click the *Download* tab.
5. In the *Image File Path* section, click the image folder until you reach the image page.

6. Select *FDC\_VM-vx.x.x-buildxxx-FORTINET.out.aws.zip*

Image Folders/Files

<a href="#">Up to higher level directory</a>					
Name	Size (KB)	Date Created	Date Modified		
FDC_1000F-v400-build0128-FORTINET.out	200,705	2021-12-16 16:12:30	2021-12-16 16:12:59	<a href="#">HTTPS Checksum</a>	
FDC_1000G-v400-build0128-FORTINET.out	200,705	2021-12-16 16:12:37	2021-12-16 16:12:26	<a href="#">HTTPS Checksum</a>	
FDC_VM-v400-build0128-FORTINET.out	200,705	2021-12-16 16:12:48	2021-12-16 16:12:29	<a href="#">HTTPS Checksum</a>	
<b>FDC_VM-v400-build0128-FORTINET.out.aws.zip</b>	128,782	2021-12-16 16:12:16	2021-12-16 16:12:37	<a href="#">HTTPS Checksum</a>	
FDC_VM-v400-build0128-FORTINET.out.azure.zip	128,580	2021-12-16 16:12:23	2021-12-16 16:12:03	<a href="#">HTTPS Checksum</a>	
FDC_VM-v400-build0128-FORTINET.out.gcp.tar.gz	128,587	2021-12-16 16:12:29	2021-12-16 16:12:58	<a href="#">HTTPS Checksum</a>	
FDC_VM-v400-build0128-FORTINET.out.kvm.zip	127,648	2021-12-16 16:12:59	2021-12-16 16:12:15	<a href="#">HTTPS Checksum</a>	
FDC_VM-v400-build0128-FORTINET.out.ovf.esx.zip	127,500	2021-12-16 16:12:17	2021-12-16 16:12:48	<a href="#">HTTPS Checksum</a>	
FDC_VM-v400-build0128-FORTINET.out.vmware.zip	127,661	2021-12-16 16:12:51	2021-12-16 16:12:17	<a href="#">HTTPS Checksum</a>	

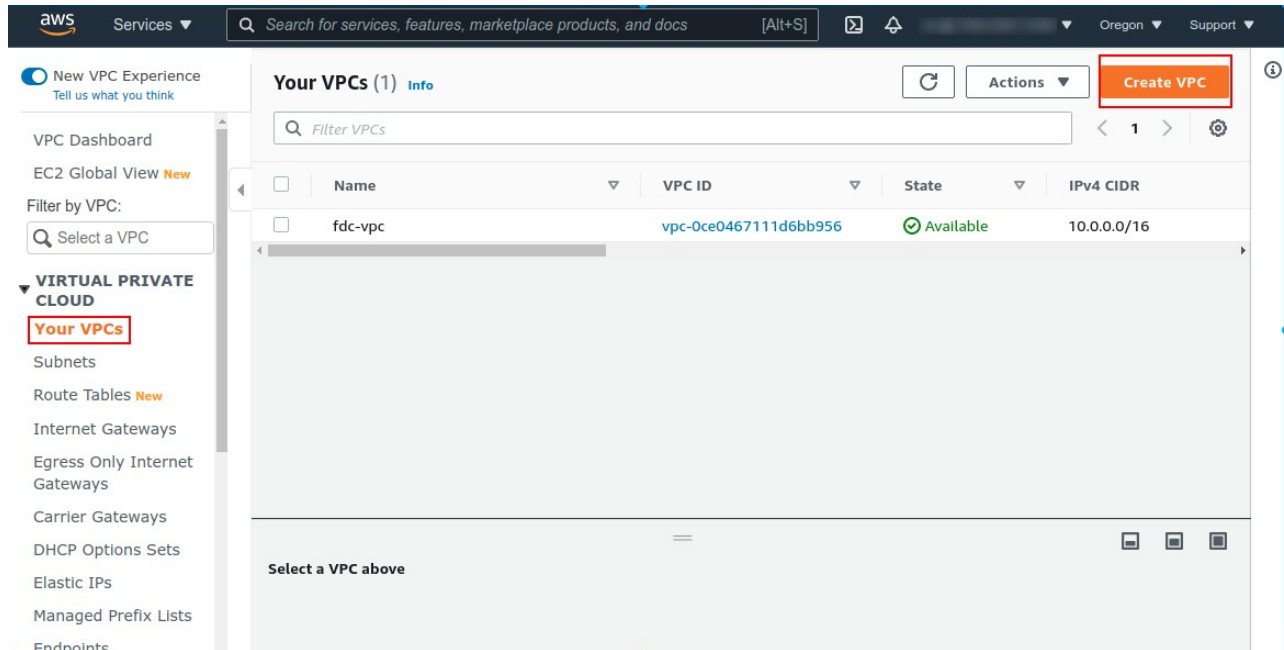
## Preparing the network in AWS

To prepare the network, create a Virtual Private Cloud (VPC) and create several subnets. Next you will create an Internet Gateway and route table. Associate the subnets with the route table and then allocate an elastic IP address.

## Creating a Virtual Private Cloud (VPC)

### To create a VPC in AWS:

1. In the Services menu, go to *Virtual Private Cloud > Your VPCs*.
2. Click *Create VPC*. The *Create VPC* page opens.



3. Configure the following settings:

<b>Name Tag</b>	Enter a name for the VPC such as <i>fdc-vpc</i> .
<b>IPv4 CIDR block</b>	Enter the IP address for the VPC

### Create VPC [Info](#)

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances.

#### VPC settings

**Name tag - optional**  
Creates a tag with a key of 'Name' and a value that you specify.

**IPv4 CIDR block** [Info](#)

**IPv6 CIDR block** [Info](#)

No IPv6 CIDR block  
 Amazon-provided IPv6 CIDR block  
 IPv6 CIDR owned by me

**Tenancy** [Info](#)

---

#### Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
<input type="text" value="Name"/>	<input type="text" value="fdc-vpc"/>	<input type="button" value="Remove"/>

You can add 49 more tags.

## Creating subnets in the VPC

Create several subnets in VPC for FortiDeceptor management and deployment.

**To create subnets in the VPC:**

1. In the *Services* menu, go to *Virtual Private Cloud > Subnets*.
2. Click *Create subnet*. The *Create subnet* page opens.
3. Configure the following settings:

<b>VPC ID</b>	Select an ID from the dropdown.
<b>Subnet name</b>	Enter a name for the subnet such as <i>fdc-mgmnet</i> .
<b>IPv4 CIDR block</b>	Enter the IP address for the network.

## Create subnet Info

### VPC

VPC ID  
Create subnets in this VPC.

vpc-0ce0467111d6bb956 (fdc-vpc)
▼

**Associated VPC CIDRs**

IPv4 CIDRs

10.0.0.0/16

### Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

**Subnet 1 of 1**

**Subnet name**  
Create a tag with a key of 'Name' and a value that you specify.

fdc-mgmnet

The name can be up to 256 characters long.

**Availability Zone** Info  
Choose the zone in which your subnet will reside, or let Amazon choose one for you.

No preference
▼

**IPv4 CIDR block** Info

Q
10.0.1.0/24
X

▼ **Tags - optional**

## Creating an internet Gateway

### To create an internet Gateway:

1. In the *Services* menu, go to *Virtual Private Cloud > Internet Gateways*.
2. Click *Create Internet Gateway*. The *Create Internet Gateway* page opens.
3. In the *Name tag* field, enter a name for the tag such as *fdc-publicaccess-gw*.

VPC > Internet gateways > Create internet gateway

### Create internet gateway [Info](#)

An internet gateway is a virtual router that connects a VPC to the internet. To create a new Internet gateway specify the name for the gateway below.

#### Internet gateway settings

**Name tag**  
Creates a tag with a key of 'Name' and a value that you specify.

---

**Tags - optional**  
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
<input type="text" value="Name"/>	<input type="text" value="fdc-publicaccess-gw"/>	<input type="button" value="Remove"/>

You can add 49 more tags.

4. Click *Create Internet Gateway*.

## Creating a route table

### To create a route table:

1. In the *Services* menu, go to *Virtual Private Cloud > Route Tables*.
2. Click *Create route table*. The *Create route table* page opens.

3. In the *Name* field, enter a name for the table such as *fdcvpc-default-route*.

VPC > Route tables > Create route table

## Create route table Info

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

### Route table settings

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.

**VPC**  
The VPC to use for this route table.

### Tags

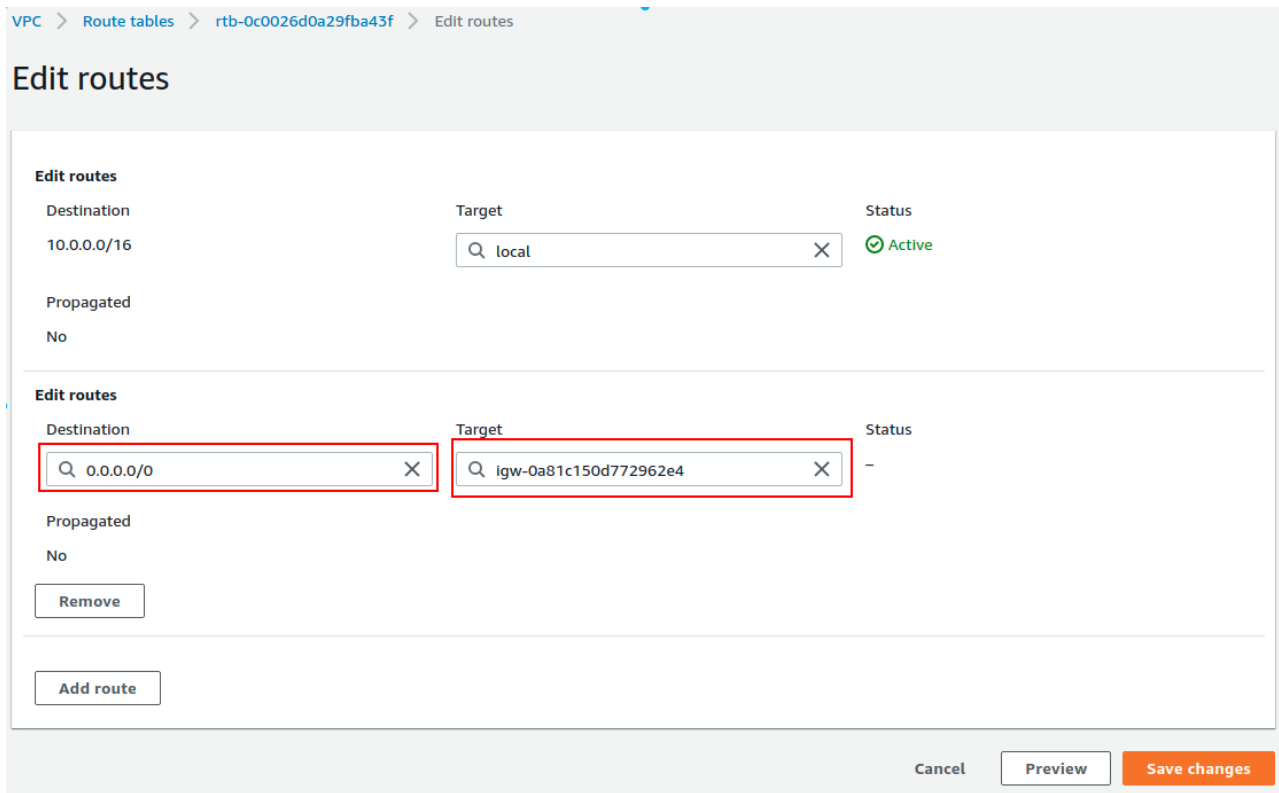
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
Q Name X	Q fdcvpc-default-route X	Remove

You can add 49 more tags.

4. Click *Create route table*.
5. Open the route table you created to edit it.
6. Under *Edit routes*, configure the following settings:

<b>Destination</b>	Enter 0.0.0.0/0.
<b>Target</b>	Enter the Internet gateway you created.



7. Click *Save changes*.

## Associating subnets with a route table

Associate a subnet with the route table to apply route rules to that specific subnet.

### To associate subnets with Route Table:

1. In the *Services* menu, go to *Virtual Private Cloud > Subnets*.
2. Click the subnet you created. The *Edit route table association* page opens.

3. In the *Route table ID* field, select the route table you just created.

VPC > Subnets > subnet-006d45750a48dba2f > Edit route table association

## Edit route table association Info

### Subnet route table settings

Subnet ID  
📄 subnet-006d45750a48dba2f

Route table ID  
rtb-0c0026d0a29fba43f (fdc-default-route) ▼ ↻

ℹ️ You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer ✕

### Routes (2)

🔍  < 1 > ⚙️

Destination	Target
10.0.0.0/16	local
0.0.0.0/0	<a href="#">igw-0a81c150d772962e4</a>

Cancel Save

4. Click Save.

## Allocating an elastic IP address

Allocate a public IP for public access to FortiDeceptor management port later. This step is not required for deployment.

### To allocate an elastic IP address:

1. In the *Services* menu, go to *Virtual Private Cloud > Elastic IPs*.
2. Select an elastic IP. The *Elastic IP address settings* window opens.

3. Click *Allocate*.

## Allocate Elastic IP address [Info](#)

### Elastic IP address settings [Info](#)

Network Border Group [Info](#)

Public IPv4 address pool

- Amazon's pool of IPv4 addresses
- Public IPv4 address that you bring to your AWS account (option disabled because no pools found) [Learn more](#)
- Customer owned pool of IPv4 addresses (option disabled because no customer owned pools found) [Learn more](#)

Global static IP addresses

AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. [Learn more](#)

[Create accelerator](#)

### Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

[Add new tag](#)

You can add up to 50 more tag

[Cancel](#) [Allocate](#)

## Create a bucket

To create an AWS bucket:

1. In the AWS Management Console, click *Create Bucket*. The *Create bucket* wizard opens.
2. Configure the bucket settings and click *Create bucket*.

The screenshot shows the Amazon S3 console interface. At the top, there is an 'Account snapshot' section with a 'View Storage Lens dashboard' button. Below this, a table displays storage metrics: Total storage (663.8 MB), Object count (2.9 k), and Avg. object size (230.6 KB). A note on the right indicates that advanced metrics can be enabled in the 'default-account-dashboard' configuration.

The main section is titled 'Buckets (1) Info'. It contains several action buttons: Refresh, Copy ARN, Empty, Delete, and Create bucket. The 'Create bucket' button is highlighted with a red border. Below the buttons is a search bar labeled 'Find buckets by name' and a pagination control showing '1'.

Name	AWS Region	Access	Creation date
fsabucket- akiaibf7bhp6ha4r4ypq	US West (Oregon) us-west-2	Objects can be public	June 7, 2021, 10:24:18 (UTC-07:00)

## Import the FortiDeceptor image to AWS AMI

Go to IAM Service and create users and roles with proper permissions. Then get the *Access Key ID/Secret Key* from the *My Security Credentials* menu. You can only get the Secret Key at the time you create the Access Key.

Click this link [https://docs.aws.amazon.com/vm-import/latest/userguide/vmie\\_prereqs.html#vmimport-role](https://docs.aws.amazon.com/vm-import/latest/userguide/vmie_prereqs.html#vmimport-role) for information about creating a *vmimport* role to import/export VM images.

You can import the FortiDeceptor one of two ways:

- [With a python script](#)
- [With the AWS EC2 toolkit](#)

## Importing the FortiDeceptor image with python script

Install Python3, boto3 in Linux, and copy the import script to any work folder. Execute the script to import the FortiDeceptor image into AWS as AMI private image.

To get a copy of the Python script, see [Python script for importing the FortiDeceptor image on page 22](#).



Before you begin, make sure you have copied the `fdc.aws.vhd` file to the current directory. To get a copy of the file, see [Python script for importing the FortiDeceptor image on page 22](#).

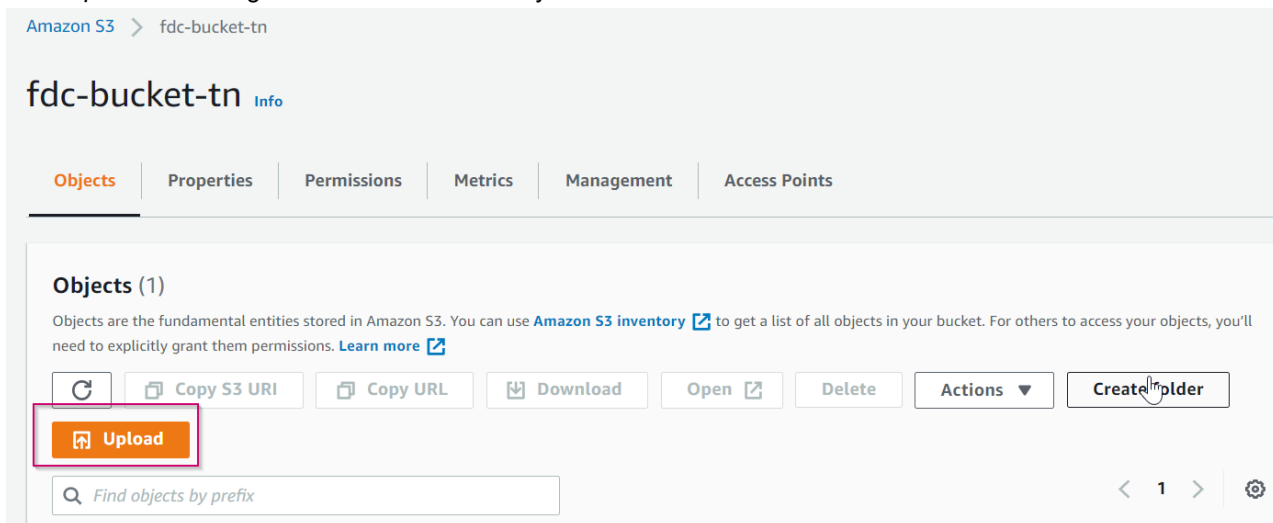
Example command:

```
python3 FDC_import_as_AWS_AMI.py \  
-f /fdc.aws.vhd \  
-n fdcv4.1.0b0090 \  
-a x86_64 \  
-s 1 \  
-r us-west-2 \  
-i AKIA2UEJLWR3DIUPLLF8 \  
-k Uj8QO8TKpgHX5krbR88GkWwnQm2Ko4k14cpUhk99 \  
-b fdcbucket-akiaibf7bhp6ha4r4ypq
```

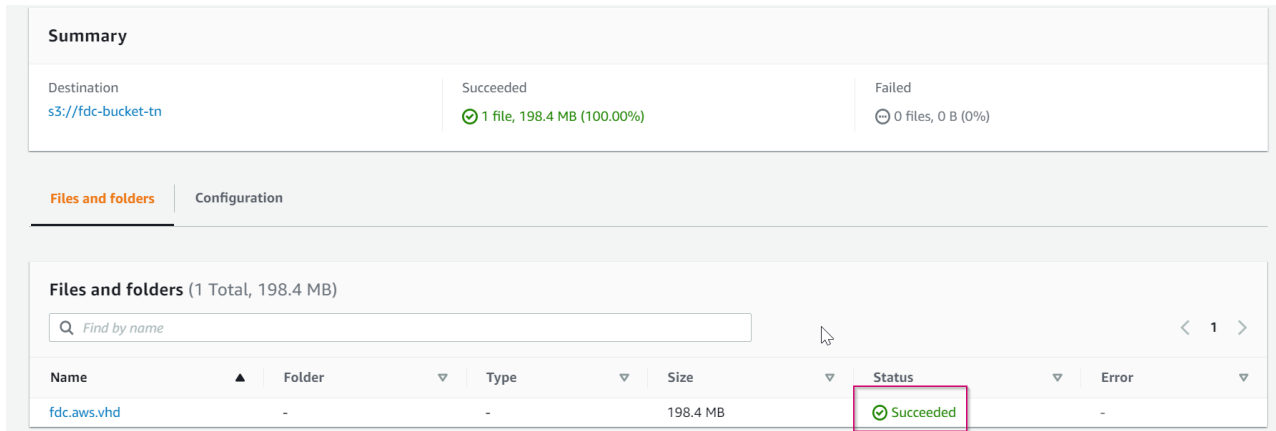
## Importing the FortiDeceptor image with AWS EC2 toolkit

To upload the image to a storage bucket:

1. Install the AWS CLI.
2. In the *Buckets* list, open the bucket you created in the previous step.
3. Click *Upload* and navigate to `fdc.aws.vhd` on your device.



- Click *Upload*. The upload *Status* should display *Succeeded*.



## Importing the uploaded VHD file as snapshot

Use the `import-snapshot` command to import a disk.

### To import a disk:

- Run `import-snapshot --description "My FDC VM" --disk-container`.

```
aws ec2 import-snapshot --description "My FDC VM" --disk-container
file://C:\private\aws\containers.json
```

Specify the URL of the S3 bucket, or provide the S3 bucket name and key.

```
{
  "Description": "My FDC VHD",
  "Format": "VHD",
  "UserBucket": {
    "S3Bucket": "fdc-bucket-tn",
    "S3Key": "fdc.aws.vhd"
  }
}
```

The following image shows the response of above command. The status shown is `active`, which means that the import is in progress.

```
C:\Users\nhou>aws ec2 import-snapshot --description "My FDC VM" --disk-container "file://C:\private\aws\containers.json"
{
  "Description": "My FDC VM",
  "ImportTaskId": "import-snap-0aba8b9978bedc8d9",
  "SnapshotTaskDetail": {
    "Description": "My FDC VM",
    "DiskImageSize": 0.0,
    "Progress": "0",
    "Status": "active",
    "StatusMessage": "pending",
    "UserBucket": {
      "S3Bucket": "fdc-bucket-tn",
      "S3Key": "fdc.aws.vhd"
    }
  }
},
"Tags": []
}
```

2. Use the `describe-import-snapshot-tasks` command to check the status of an import snapshot task.

```
aws ec2 describe-import-snapshot-tasks --import-task-ids import-snap-0aba8b9978bedc8d9
```

The snapshot is ready to use when the status is complete.

```
C:\Users\nhou>aws ec2 describe-import-snapshot-tasks --import-task-ids import-snap-0aba8b9978bedc8d9
{
  "ImportSnapshotTasks": [
    {
      "Description": "My FDC VM",
      "ImportTaskId": "import-snap-0aba8b9978bedc8d9",
      "SnapshotTaskDetail": {
        "Description": "My FDC VM",
        "DiskImageSize": 208028160.0,
        "Format": "VHD",
        "SnapshotId": "snap-083a9220a5876cf77",
        "Status": "completed",
        "UserBucket": {
          "S3Bucket": "fdc-bucket-tn",
          "S3Key": "fdc.aws.vhd"
        }
      }
    }
  ],
  "Tags": []
}
```

## Creating AMI from a snapshot

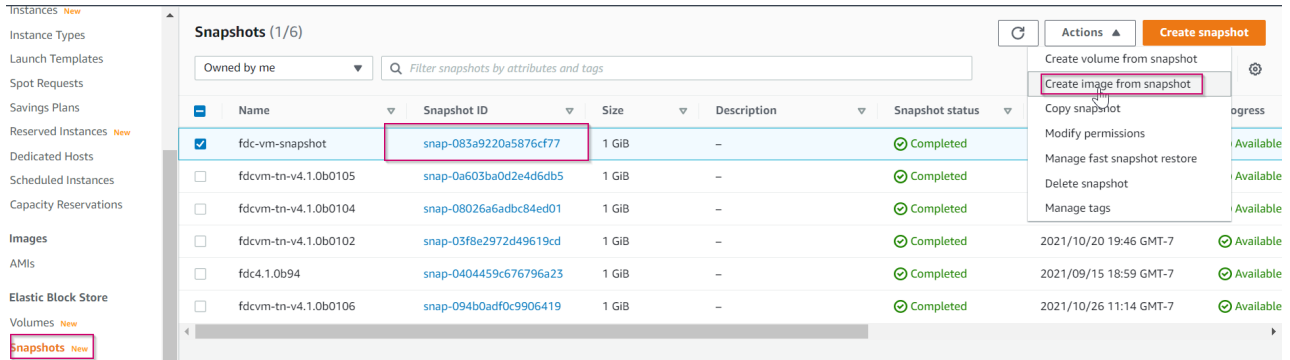
You can create an AMI with either the CLI or the AWS Management Console.

### To create the AMI with the CLI:

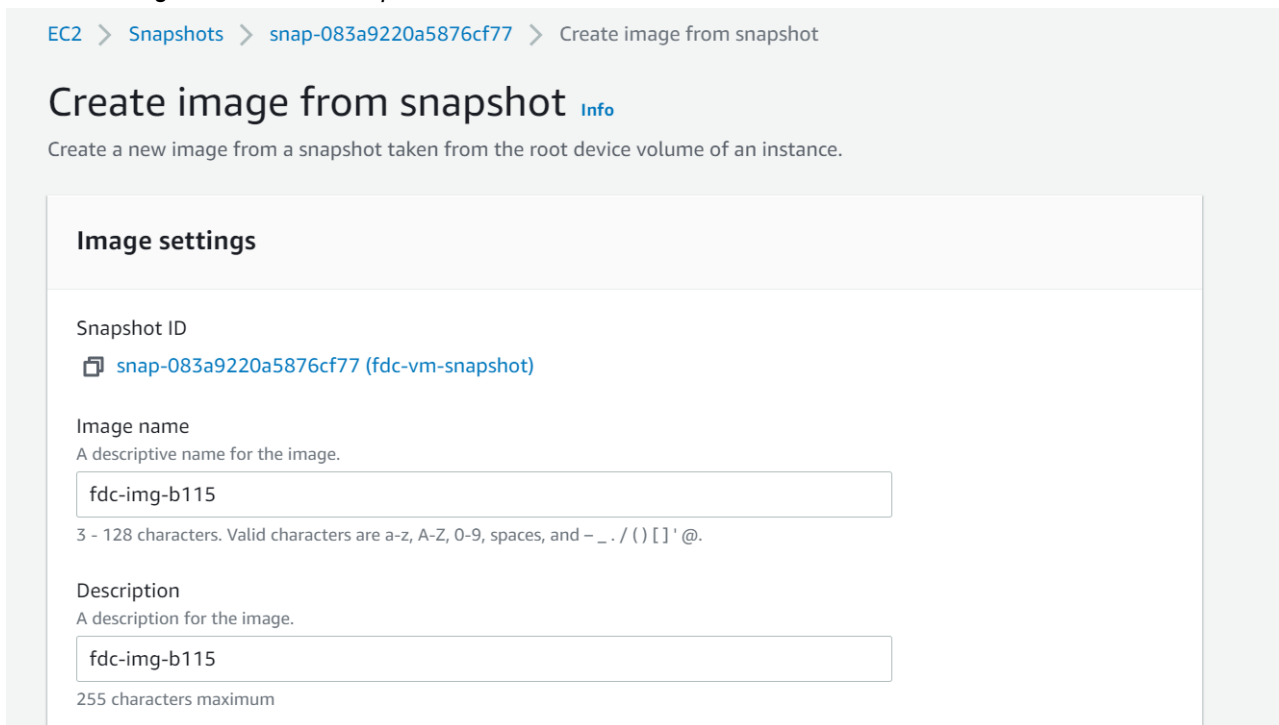
```
aws ec2 register-image --name fdc-img-cm --architecture x86_64 --root-device-name /dev/sda1 --virtualization-type hvm --ena-support --block-device-mappings DeviceName=/dev/sda1,Ebs={SnapshotId=snap-083a9220a5876cf77,VolumeSize=1,VolumeType=gp2,DeleteOnTermination=true} DeviceName=/dev/sdb,Ebs={VolumeType=gp2,VolumeSize=80,DeleteOnTermination=true}
```

**To create the AMI with the AWS web console:**

1. Choose *Snapshots* in the navigation pane of EC2.
2. Select the snapshot you imported.
3. Click *Create image from snapshot* in the *Actions* menu.



4. Enter the *Image Name* and *Description*.



- Configure the *Block device mappings information*, and click *Create Image*.

**Block device mappings - optional** [Info](#)

**i** Provisioned IOPS SSD (io2) volumes with a size greater than 16 TiB, IOPS greater than 64,000, or IOPS:GiB ratio greater than 500:1 are supported with R5b instances only.

**▼ Volume 1**

Device type	Device name	Snapshot
Root	/dev/sda1	snap-083a9220a5876cf77
Size (GiB)	Volume type	IOPS
<input type="text" value="1"/>	General Purpose SSD (gp2) ▼	100 / 3000
Throughput (MB/s)	Termination behavior	Encryption
-	<input checked="" type="checkbox"/> Delete on termination	<input type="checkbox"/> Encrypt volume

**▼ Volume 2** Remove volume

Device type	Device name	Snapshot
EBS ▼	/dev/sdb ▼	Use default ▼
Size (GiB)	Volume type	IOPS
<input type="text" value="50"/>	General Purpose SSD (gp2) ▼	150 / 3000
Throughput (MB/s)	Termination behavior	Encryption
-	<input checked="" type="checkbox"/> Delete on termination	<input type="checkbox"/> Encrypt volume

Add volume

Cancel
Create image

## Python script for importing the FortiDeceptor image

To view the help message for the for this script use the command `-h`.

```
import boto3
import time, sys, os, traceback
import json
import pprint
from datetime import datetime
from types import SimpleNamespace
```

```
global_region_name="us-west-2"
global_aws_access_key_id=""
global_aws_secret_access_key=""
global_bucket=""

class DatetimeEncoder(json.JSONEncoder):
    def default(self, obj):
        if isinstance(obj, datetime):
            return obj.strftime('%Y-%m-%dT%H:%M:%SZ')
        elif isinstance(obj, date):
            return obj.strftime('%Y-%m-%d')
        # Let the base class default method raise the TypeError
        return json.JSONEncoder.default(self, obj)

def check_return(resp):
    if resp != None:
        if resp['ResponseMetadata']['HTTPStatusCode'] == 200:
            return 0
    return -1

def list_bucket():
    bna = []
    for bucket in s3.buckets.all():
        bna.append(bucket.name)
    return bna

def resp2obj(resp):
    s = json.dumps(resp, cls=DatetimeEncoder)
    return json.loads(s, object_hook=lambda d: SimpleNamespace(**d))

def bucket_exists(s3s, fk):
    for b in s3s.buckets.all():
        if b.name == fk:
            return True
    return False

def import_as_AMI(filename, imagename, arch, size):
    if filename is None:
        print("Incorrect parameter")
        return

    fn = filename #sys.argv[1]
    fk = imagename #sys.argv[2]
    arch = arch #sys.argv[3]
    size = size #sys.argv[4]
    s3s = boto3.resource('s3', region_name=global_region_name, aws_access_key_id=global_aws_
access_key_id, aws_secret_access_key=global_aws_secret_access_key)
    s3c = boto3.client('s3', region_name=global_region_name, aws_access_key_id=global_aws_
access_key_id, aws_secret_access_key=global_aws_secret_access_key)
    buck=global_bucket
    if not bucket_exists(s3s, buck):
        bucket = s3s.create_bucket(ACL='private', Bucket=buck, CreateBucketConfiguration=
{'LocationConstraint':global_region_name})
        if bucket != None:
            bucket.wait_until_exists()
        else:
```

```

        print("Failed to create bucket %s" % (buck))
        return
    else:
        bucket = s3s.Bucket(buck)
        bucket = s3s.Bucket(buck)
        s3c.delete_object(Bucket=buck, Key=fk)
        bucket.upload_file(fn, fk)
        ec2 = boto3.client('ec2', region_name=global_region_name, aws_access_key_id=global_aws_
access_key_id, aws_secret_access_key=global_aws_secret_access_key)
        try:
            resp = ec2.import_snapshot(
                Description='import FDC image snapshot',
                DiskContainer={
                    'Format': 'VHD',
                    'UserBucket': {
                        'S3Bucket': buck,
                        'S3Key': fk
                    }
                })
            r = resp2obj(resp)
        except Exception as e:
            print('''Please make sure you have the service role 'vmimport' with below
permissions:
    -- Resource to s3:your-bucket
    *) s3:ListBucket
    *) s3:GetBucketLocation
    *) s3:GetObject
    -- Resource to ec2:*
    *) ec2:ModifySnapshotAttribute
    *) ec2:CopySnapshot
    *) ec2:RegisterImage
    *) ec2:Describe*

    For more information, please refer to https://docs.aws.amazon.com/vm-
import/latest/userguide/vmie\_prereqs.html , section 'Required service role'
''')
            print(traceback.format_exc())
            sys.exit(-1)

print("Importing image: taskid={}".format(r.ImportTaskId))
while True:
    time.sleep(10)
    resp = ec2.describe_import_snapshot_tasks(ImportTaskIds=[r.ImportTaskId])
    #print(resp)
    if check_return(resp) == 0:
        taskdetail = resp['ImportSnapshotTasks'][0]
        st = taskdetail['SnapshotTaskDetail']['Status']
        print("Importing image: {}".format(st))
        if st == 'completed':
            break
        elif st == "deleted":
            print(taskdetail)
            return

print("Imported image successfully")
r = resp2obj(resp)

```

```

    ec2s = boto3.resource('ec2', region_name=global_region_name, aws_access_key_id=global_
aws_access_key_id, aws_secret_access_key=global_aws_secret_access_key)
    snapshot = ec2s.Snapshot(r.ImportSnapshotTasks[0].SnapshotTaskDetail.SnapshotId)
    snapshot.create_tags(Tags=[{'Key':'Name', 'Value':fk}))
    resp = ec2.register_image(Name=fk, Architecture=arch, RootDeviceName='/dev/sda1',
        BlockDeviceMappings=[{'DeviceName': '/dev/sda1',
            'Ebs':
{'SnapshotId':snapshot.id,'VolumeType':'gp2','VolumeSize':int
(size),'DeleteOnTermination':True}},
            {'DeviceName': '/dev/sdb',
            'Ebs':
{'VolumeType':'gp2','VolumeSize':50,'DeleteOnTermination':True}},],
        VirtualizationType='hvm', EnaSupport=True)
    if check_return(resp) == 0:
        print("Registered image successfully")
    else:
        print("Failed to register image")
        print(resp)
    r = resp2obj(resp)
    image = ec2s.Image(r.ImageId)
    image.create_tags(Tags=[{'Key':'Name', 'Value':fk}))
    s3c.delete_object(Bucket=buck, Key=fk)
    print("Deleted the image file from bucket {}".format(buck))

if __name__ == "__main__":
    import argparse
    parser = argparse.ArgumentParser()

    parser.add_argument("-r", "--region_name", help="region_name")
    parser.add_argument("-i", "--aws_access_key_id", help="aws_access_key_id")
    parser.add_argument("-k", "--aws_secret_access_key", help="aws_secret_access_key")
    parser.add_argument("-b", "--bucket", help="The bucket name")
    parser.add_argument("-f", "--filename", help="The FDC AWS vhd full file name")
    parser.add_argument("-n", "--imagename", help="The AMI image name on AWS")
    parser.add_argument("-a", "--arch", help="Optional: default is 86_64")
    parser.add_argument("-s", "--size", help="Optional: The size of the image file, default
is 1GB. ")
    args = parser.parse_args()

    global_region_name=args.region_name
    global_aws_access_key_id=args.aws_access_key_id
    global_aws_secret_access_key=args.aws_secret_access_key

    global_bucket="fdcbucket".lower()
    if args.bucket:
        global_bucket = args.bucket

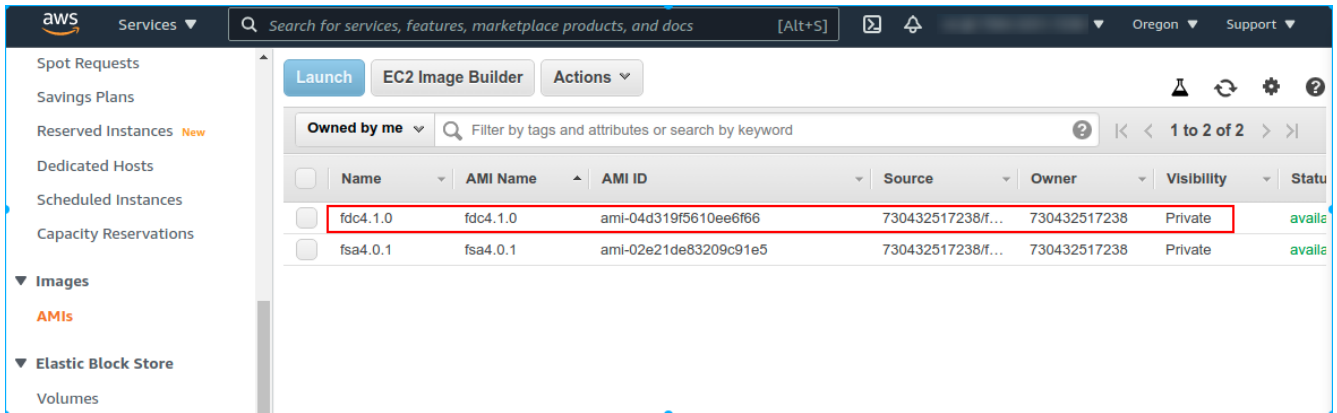
    filename=args.filename
    imagename=args.imagename
    arch="x86_64"
    if args.arch:
        arch = args.arch
    size=1
    if args.size:
        size=args.size

```

```
import_as_AMI(filename, imagename, arch, size)
```

## Check the imported image in AMIs

In the AWS console go to *Images > AMIs*. Verify the AMI you uploaded is displayed.



## Create an instance with the imported AMI image

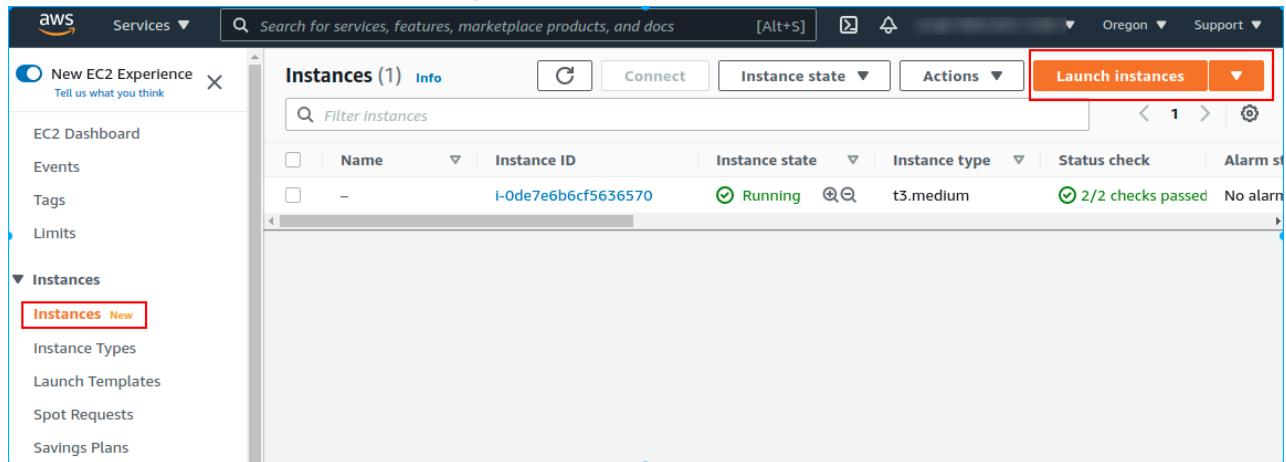
The *Instance Wizard* specifies all the launch parameters required for launching an instance. Where the launch instance wizard provides a default value, you can accept the default or specify your own value, like choosing the AMI you created in the last step, configuring your own network interfaces and specifying the security group.



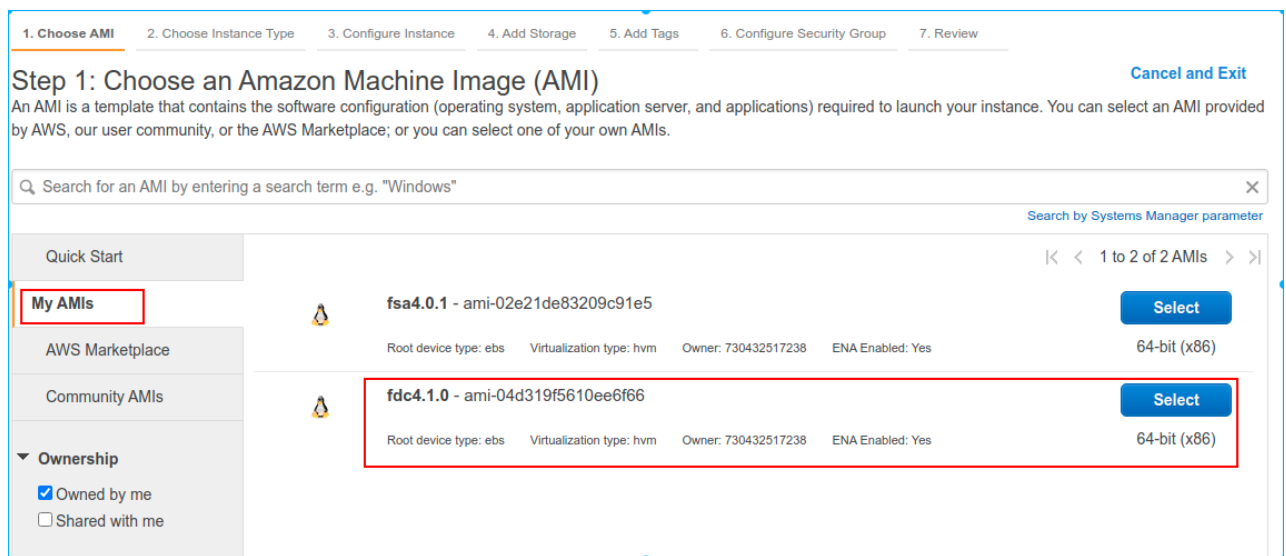
In the current version of AWS, you can only configure a maximum of two interfaces even if you are using the correct type that supports six nics when creating the instance. You can add more interfaces later.

**To create an instance with an imported image:**

1. In the AWS console go to *Instances > Instances*.
2. Click *Launch Instances*. Instance wizard opens.



3. In *Step 1: Choose an Amazon Machine Image (AMI)*, click *My AMIs* and then select the image you just created, then click *Next*.



4. In *Step 2: Chose an Instance Type*, select the instance type, and click *Next*. For more information, see [Elastic network interfaces](#).

5. In *Step 3: Configure Instance Details*, select *eth1* and *Add Device*, then click *Next*.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 3: Configure Instance Details

**Credit specification** (i)  Unlimited  
Additional charges may apply

**File systems** (i)

▼ **Network interfaces** (i)

Device	Network Interface	Subnet	Primary IP	Secondary	IPv6 IPs	IPv4 Prefixes
eth0	New network interface ▼	subnet-006d4575 ▼	Auto-assign	Add IP	The selected subnet does not support IPv6 because it does not have an IPv6 CIDR.	None ▼
eth1	New network interface ▼	subnet-062c0278 ▼	Auto-assign	Add IP	The selected subnet does not support IPv6 because it does not have an IPv6 CIDR.	None ▼

**(i)** We can no longer assign a public IP address to your instance

- The auto-assign public IP address feature for this instance is disabled because you specified multiple network interfaces. Public IPs can only be assigned to instances with one network interface. To re-enable the auto-assign public IP address feature, please specify only the eth0 network interface.

▼ **Advanced Details**

6. In Step 4: Add Storage, set Size (GB) to a minimum 50, then click Review and Launch.

The screenshot shows the 'Step 4: Add Storage' configuration page in the AWS console. It features a table with columns for Volume Type, Device, Snapshot, Size (GiB), Volume Type, IOPS, Throughput (MB/s), Delete on Termination, and Encryption. The second row shows an EBS volume with a size of 80 GiB, which is highlighted with a red box. Below the table is an 'Add New Volume' button and a blue informational box. At the bottom right, the 'Review and Launch' button is highlighted in blue.

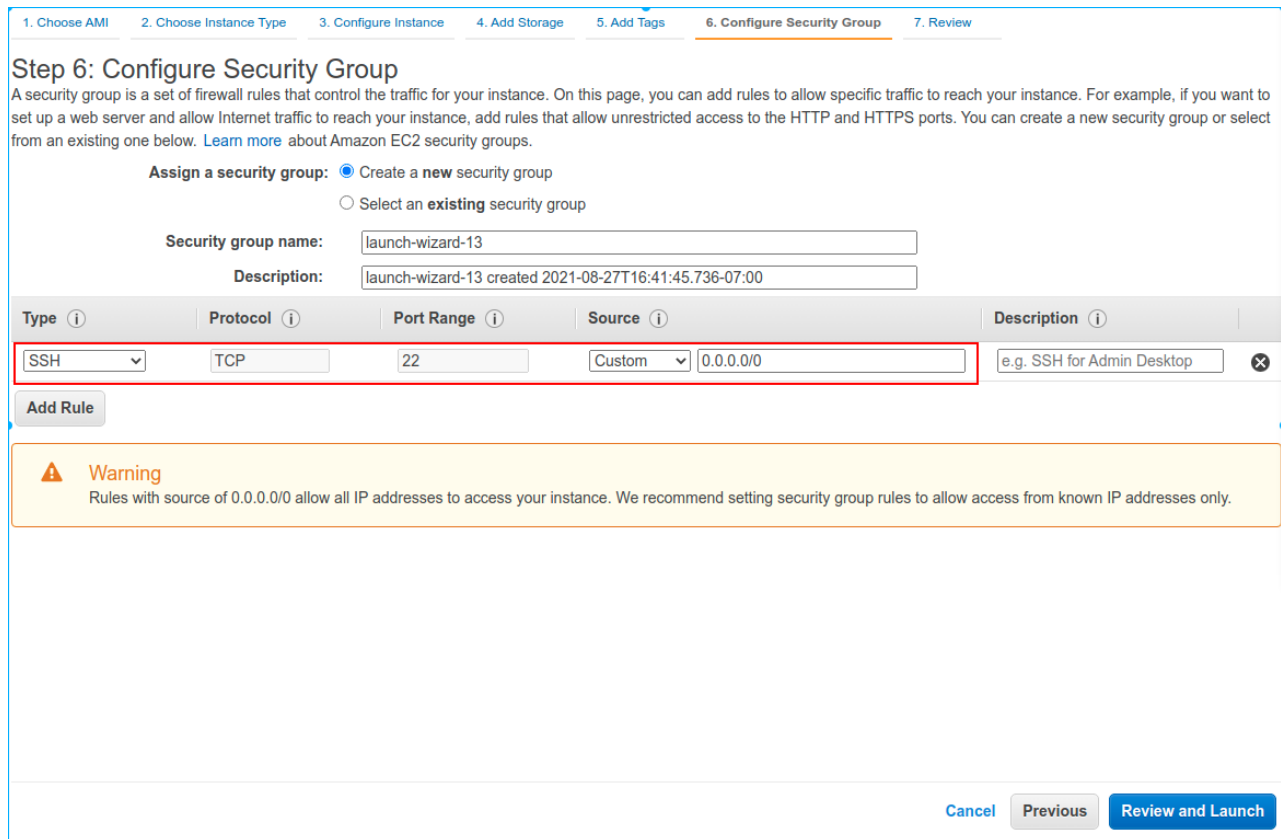
Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-01937d6d74bbda77b	1	General Purpose S	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypte
EBS	/dev/sdb	Search (case-insensit	80	General Purpose S	240 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypte

7. In Step 6: Configure Security Group configure the following settings:

Type	SSH
Protocol	TCP
Port Range	22
Source	Custom



Make sure ports 22, 443, 8443 are open in FortiDeceptor port1. This allows the FortiDeceptor Manager to communicate with the cloud clients.



8. Click *Review and Launch*.

## Connect the Instance with the Serial Console

### To connect the instance with the Serial Console:

1. In the AWS Management Console, go to *EC2 > Instances*.
2. Click the instance you created to open it. The *Instance summary for <instance\_id>* page opens.
3. Click *Actions > Monitor and troubleshoot > EC2 Serial Console*.

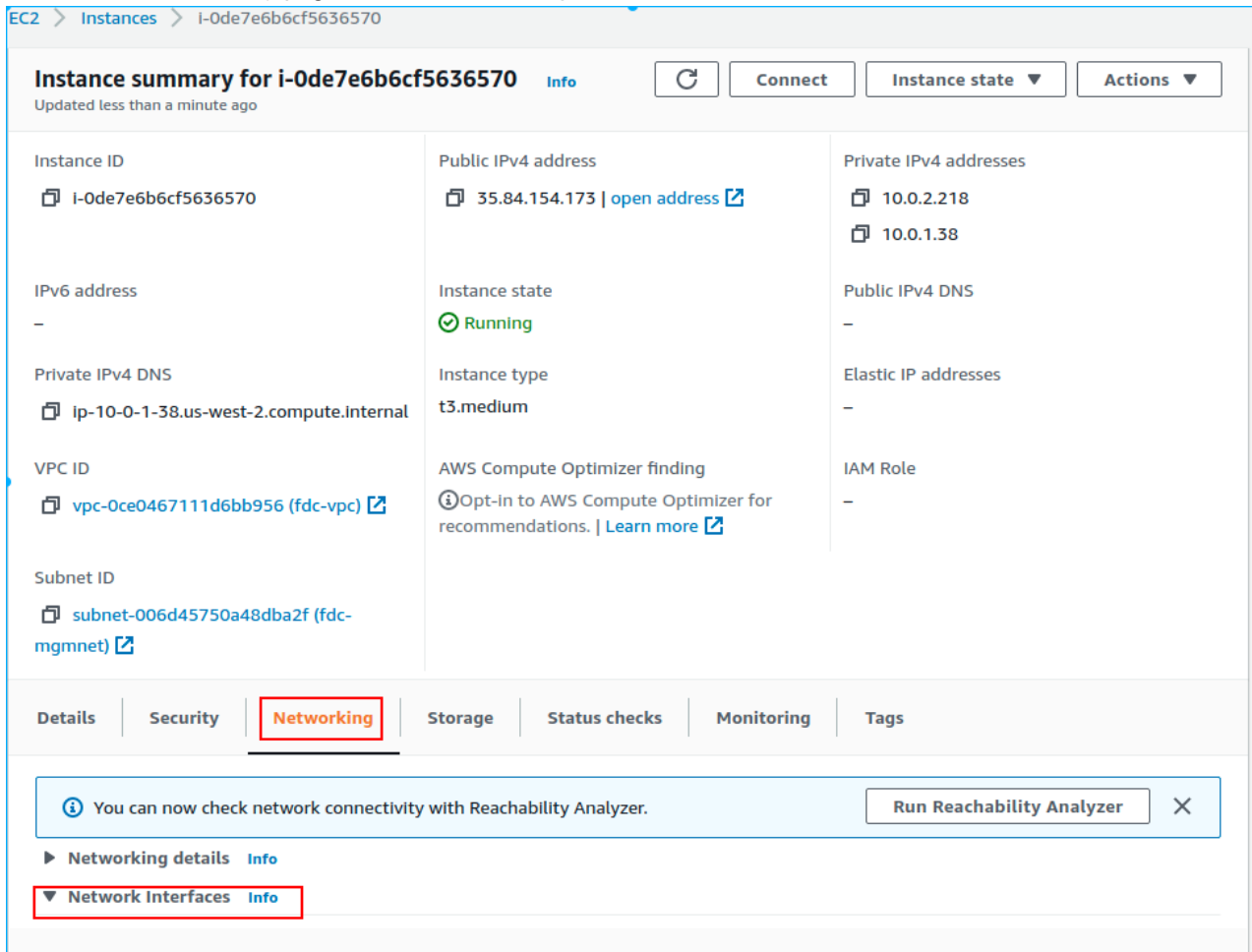
Stay on the Instance Summary page.

The screenshot displays the AWS Management Console interface for an EC2 instance. The breadcrumb navigation at the top reads 'EC2 > Instances > i-0de7e6b6cf5636570'. The main heading is 'Instance summary for i-0de7e6b6cf5636570' with an 'Info' link. Below the heading, it states 'Updated less than a minute ago'. There are three buttons: 'Refresh', 'Connect', and 'Instance state' (with a dropdown arrow). To the right is an 'Actions' button (with an upward arrow) which has a dropdown menu open. The menu items are: 'Connect', 'Manage instance state', 'Instance settings', 'Networking', 'Security', 'Image and templates', and 'Monitor and troubleshoot'. The 'Monitor and troubleshoot' item has a sub-menu open with the following options: 'Get system log', 'Get instance screenshot', 'Manage detailed monitoring', 'Manage CloudWatch alarms', 'EC2 Serial Console' (highlighted with a red box), and 'Replace root volume'. The instance details on the left include: Instance ID (i-0de7e6b6cf5636570), Public IP address (35...), Instance state (Running), Instance type (t3.medium), VPC ID (vpc-0ce0467111d6bb956), and Subnet ID (subnet-006d45750a48dba2f). The bottom navigation bar has tabs for 'Details', 'Security', 'Networking', 'Storage', 'Status checks', 'Monitoring', and 'Tags'. The 'Instance details' section shows Platform (Linux/UNIX), AMI ID (ami-04d319f5610ee6f66), and Monitoring (disabled).

## Associate Public IP to instance port1

To associate a public IP to an instance:

1. In the *Instance Summary* page, click the *Networking* tab.



2. Expand the *Network interfaces* section.

3. Click *Actions > Associate address*. The *Associate Elastic IP address* page opens.

The screenshot displays the AWS Management Console interface for 'Network interfaces'. At the top, there is a search bar and a table with columns for Name, Network interface ID, and Subnet ID. A single interface is listed with ID 'eni-00850666031772470' and Subnet ID 'subnet-006d45750a48dba2f'. An 'Actions' dropdown menu is open over this interface, with 'Associate address' highlighted in red. Below the table, the 'Network interface details' section is expanded, showing various attributes:

Property	Value	Property	Value
Network interface ID	eni-00850666031772470	Name	-
Network Interface status	In-use	Interface type	Interface
VPC ID	vpc-0ce0467111d6bb956	Subnet ID	subnet-006d45750a48dba2f
Owner	730432517238	Requester ID	-
Source/dest. check	True	Description	Primary network interface
IP addresses		Security groups	sg-022e2b4d5c5c47c25 (launch-wizard-12)
		Availability Zone	us-west-2b
		Requester-managed	False

4. From the *Elastic IP address* dropdown, select the elastic IP you created.

EC2 > Network Interfaces > Associate Elastic IP address

### Associate Elastic IP address [Info](#)

Associate an Elastic IP address with one of the private IPv4 addresses for the network interface.

#### Association details

Network interface  
eni-00850666031772470

Elastic IP address  
35.84.154.173

Private IPv4 address  
Choose a private IPv4 address

Allow reassociation  
 Allow the Elastic IP address to be reassociated with this network interface

Cancel Associate

5. Click *Associate*.

Keep the *Network Interfaces* page open.

## Configure secondary IPs

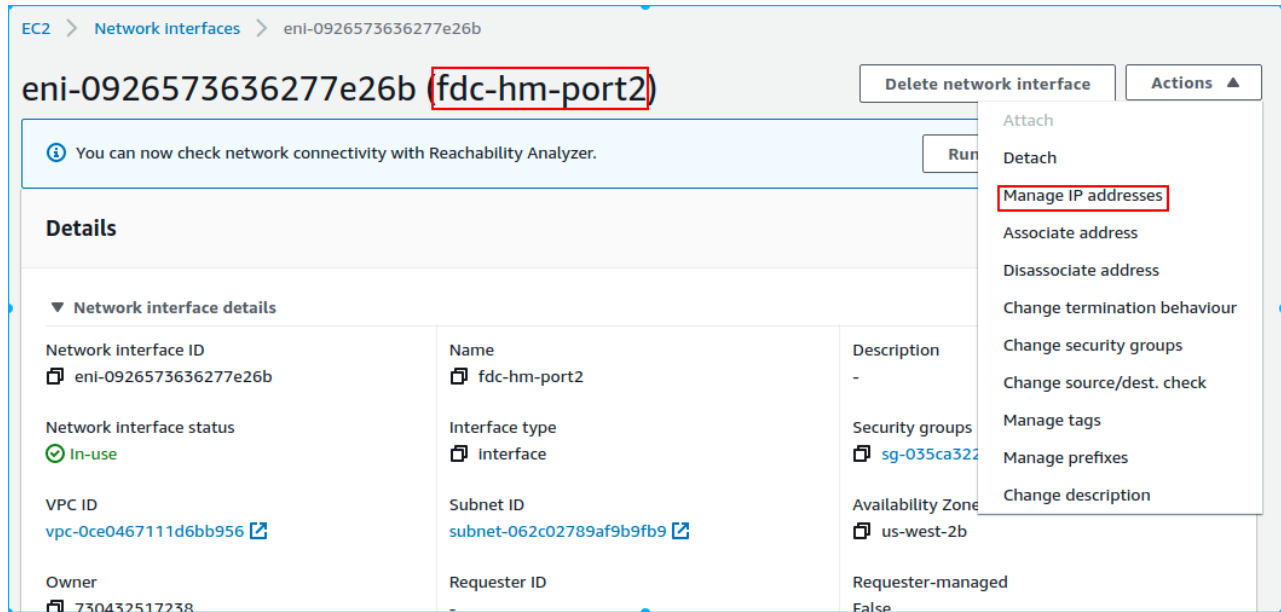
Add more Interfaces and then configure multiple secondary IPs for FDC port2 for decoy deployment. This required when adding more decoy IPs in the future.

### To add more interfaces:

1. Go to *EC2 > Instance* and click the *Instance ID*.
2. Go to *Action > Networking > Attach network interface*.

### To configure secondary IPs:

1. Click *Actions* > *Manage IP address*. The *Manage IP addresses* page opens.



2. In the *IPv4 addresses* section, click *Assign new IP address*.

The screenshot shows the AWS console interface for managing IP addresses on a network interface. The breadcrumb trail is: EC2 > Network Interfaces > eni-0926573636277e26b > Manage IP addresses. The main heading is 'Manage IP addresses' with an 'Info' link. Below the heading is a sub-heading 'eth1: eni-0926573636277e26b - 10.0.2.0/24'. A blue information box contains the text: 'To assign additional public IPv4 addresses to this network interface, you must allocate Elastic IP addresses and associate them with this network interfaces.' Below this is a section titled 'IPv4 addresses' which contains a table with two columns: 'Private IP address' and 'Public IP address'. The table has four rows of data, each with a private IP address and an 'Unassign' button. At the bottom of the table is a button labeled 'Assign new IP address', which is highlighted with a red rectangular box.

EC2 > Network Interfaces > eni-0926573636277e26b > Manage IP addresses

### Manage IP addresses [Info](#)

Assign or unassign IPv4 and IPv6 addresses to or from a network interface.

**i** To assign additional public IPv4 addresses to this network interface, you must [allocate](#) Elastic IP addresses and associate them with this network interfaces.

▼ eth1: eni-0926573636277e26b - 10.0.2.0/24

#### IPv4 addresses

Private IP address	Public IP address	
10.0.2.252		<button>Unassign</button>
10.0.2.242		<button>Unassign</button>
10.0.2.51		<button>Unassign</button>
10.0.2.240		<button>Unassign</button>

[Assign new IP address](#)

# Configuring the FortiDeceptor Manager and AWS Client

To configure FortiDeceptor manager, get the appliance authentication key and use it to add a cloud appliance. Next you will add subnets to the deployment network and deploy the decoys.

## To configure FortiDeceptor and AWS Client:

1. [Get the authentication key.](#)
2. [Configure FortiDeceptor manager.](#)
3. [Configure the deployment network.](#)
4. [Deploy the decoys.](#)

## Get the authentication key

Access the GCP client via the public IP to upload a valid license, change the default password and get the authentication key for deployment.

### To get the authentication key:

1. Log in to the GCP client via the public IP.
2. Upload the FortiDeceptor license
  - a. Go to *Dashboard > System Information* widget.
  - b. In the *Firmware License* field, click *Upload License*.
3. Change the password.
  - a. In the top-right of the page, click the Account menu (*Admin*), then click *Change Password*.
  - b. Complete the fields in the *Edit Administrator* page and click *OK*.
4. Get the authorization key.
  - a. Go to *Dashboard > System Information* widget.
  - b. In *Appliance Auth Key* field, click *Generate* and record the authorization key.



Alternatively, you can get the authorization key with the CLI command `cm -p`.

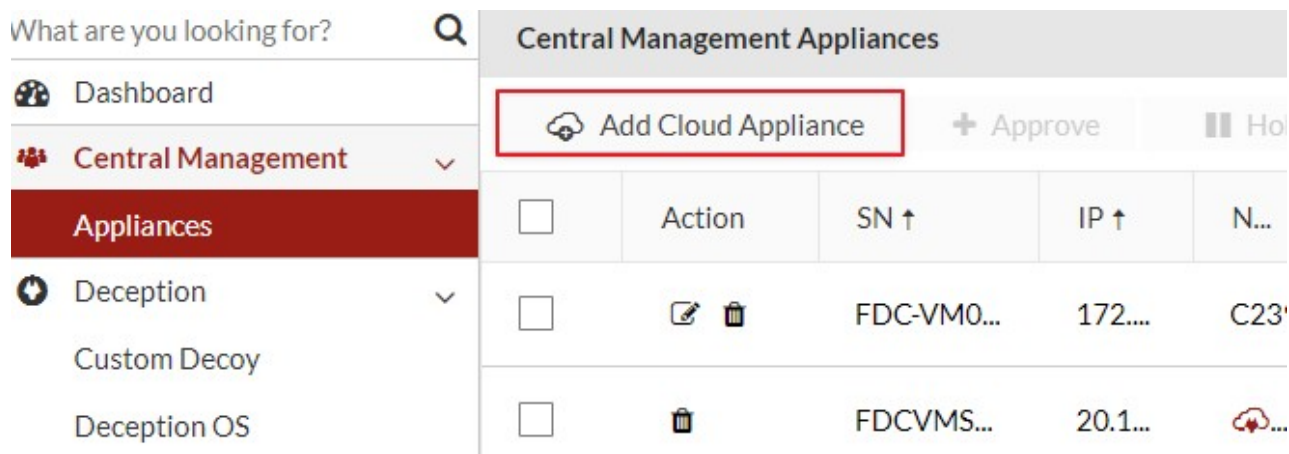
---

## Configuring FortiDeceptor Manager

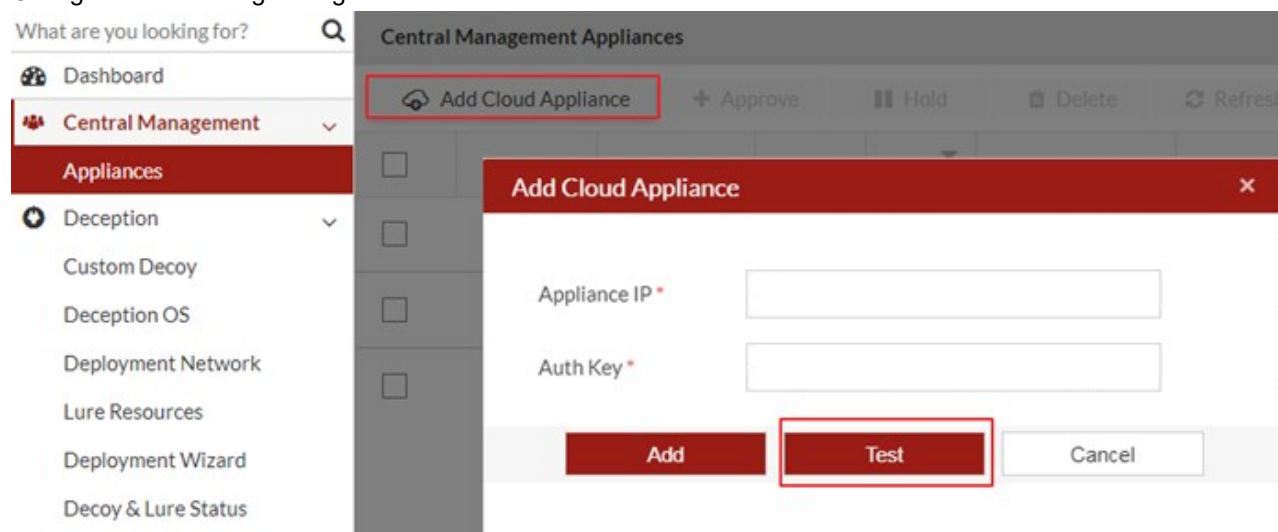
Add the GCP FortiDeceptor as a client appliance.

**To configure FortiDeceptor manager:**

1. In FortiDeceptor, go to *Central Management > Appliances*.
2. Click *Add Cloud Appliance*. The *Add Cloud Appliance* dialog opens.



3. Configure the following settings:



<b>Appliance IP</b>	Enter the cloud client's public IP address.
<b>Auth Key</b>	Enter Appliance Authorization Key you generated in Step 8.

4. Click *Test*. You should see the message, *Successfully communicated with the cloud appliance*.



5. Click *Add* to add this cloud appliance.



Delete the previous client and add the client with new public IP once the public IP is changed.

## Manage Cloud Clients

To delete a cloud appliances:

1. Go to *Central Management > Appliances*.
2. In the *Action* column, click the *Trash* icon.

Central Management Appliances									
<span>➕ Add Cloud Appliance</span> <span>➕ Approve</span> <span>⏸ Hold</span> <span>🗑 Delete</span> <span>🔄 Refresh</span> <span>▶ Restart</span>									
<input type="checkbox"/>	Action	SN ↑	IP ↑	Name ↑	Approval Stat...	Live Status	Version ↑	Enroll Time ↑	Last Activity ↑
<input type="checkbox"/>		FDCVMS0000...	54.218.231....	AWS_Fo... (USG)	✔ Approved	🟢 Online	v4.1.0.build0110...	2021-11-23 16:58:06 PST	2021-11-23 16:58:19 PST
<input type="checkbox"/>		FDCVMS0000...	172.16.69.56	GCP_69... (USG)	✔ Approved	🟢 Online	v4.1.0.build0114...	2021-11-22 18:06:08 PST	2021-11-23 16:58:16 PST
<input type="checkbox"/>		FDCVMS0000...	172.16.69.80	6980Client (USG)	✔ Approved	🟢 Online	v4.1.0.build0115...	2021-11-22 18:06:06 PST	2021-11-23 16:58:18 PST

## Configure the deployment network

To configure the deployment network:

1. Go to *Deception > Deployment Network*.
2. Click *Add New Vlan/Subnet*. The *Add New Vlan/Subnet* dialog opens.
3. Configure the network settings and click *Save*.

Add New Vlan / Subnet
✕

Name \*  ✔

Interface \*  ✕  
Interface is required.

VLANID \*  ✔

Decoy Monitor \*   
Subnet must be valid network address.

Gateway \*   
Gateway is required.

Tag \*  ✔

Save

Cancel

## Deploy the decoys

### Checking for multiple IPs

To check the multiple IPs on AWS platform:

1. In the AWS Management Console, go to *Network Interfaces*.

Details		
<p>▼ Network interface details</p>		
<p>Network interface ID enl-0926573636277e26b</p>	<p>Name fdc-hm-port2</p>	<p>Description -</p>
<p>Network interface status In-use</p>	<p>Interface type interface</p>	<p>Security groups sg-035ca322401654a75 (launch-wizard-2)</p>
<p>VPC ID vpc-0ce0467111d6bb956</p>	<p>Subnet ID subnet-062c02789af9b9fb9</p>	<p>Availability Zone us-west-2b</p>
<p>Owner 730432517238</p>	<p>Requester ID -</p>	<p>Requester-managed False</p>
<p>Source/dest. check True</p>		
<p>▼ IP addresses</p>		
<p>Private IPv4 address 10.0.2.252</p>	<p>Private IPv4 DNS -</p>	<p>Elastic Fabric Adapter False</p>
<p>Public IPv4 address -</p>	<p>Public IPv4 DNS -</p>	<p>IPv6 addresses -</p>
<p>Secondary private IPv4 addresses 10.0.2.242 10.0.2.51 10.0.2.240</p>	<p>Association ID -</p>	<p>Elastic IP address owner -</p>

2. Open the Interface you created and verify the values in *Private IPv4 address* and *Secondary private IPv4 Addresses*.

## Configuring decoys on FortiDeceptor manager

To choose a cloud appliance in deployment wizard.

1. In FortiDeceptor, go to *Deception Deployment Wizard* and create a new template.
2. In the *Configuration* tab, in *Appliance Name* choose the AWS cloud device.

### Deployment Wizard

1 Template
2 Configuration
3 Set Network

Name \*  ✔

Appliance Name  x ▼

Available Deception OSes \*  x ▼

Selected Services \*

Automate Lures  ▼

RDP

0

+ Add lure

Username	Password

3. In the *Set Network* tab, click *Add network for Deployment* and configure the following settings:

<b>Deploy Network</b>	Select one of the multiple IPs.
<b>Mac Address</b>	Enter the MAC address for the cloud device.
<b>IP Ranges</b>	Enter the IP range.

Add Network for Deployment
✕

Appliance AWS\_FortiDeceptor

Deploy Network \* port2: subnet 10.0.2.250/24 ✕ ▾ ✓

Addressing Mode \* Static DHCP

Network Mask \* 255.255.255.0 ✓

Gateway \* 10.0.2.1 ✓

MAC Address 02:16:9b:9d:dd:cb ✓

IP Count \* 1 ✓

ⓘ Please check our best practice deployment guide.

Min 10.0.2.1

Max 10.0.2.255

IP Ranges \* (1) 10.0.2.240 ✓

⌛ Cancel
✓ Done

4. Click *Done* to deploy the decoy.
5. (Optional) Deploy more decoys.
  - To deploy decoys for different interfaces, repeat [Checking for multiple IPs on page 40](#)
  - To deploy more decoys for the same interface, repeat [Configuring decoys on FortiDeceptor manager on page 41](#).
6. Attack this decoy IP via the endpoint in the cloud and check the incidents as regular deployment.



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