



# Infoblox Installation Guide vNIOS for Oracle Cloud Infrastructure

04/06/2021

## Contents

<b>About Infoblox vNIOs for Oracle Cloud Infrastructure .....</b>	<b>3</b>
<b>Deploying the NIOs Virtual Appliance on Oracle Cloud Infrastructure .....</b>	<b>4</b>
<b>Joining NIOs Virtual Appliances to the Grid.....</b>	<b>7</b>

## About Infoblox vNIOS for Oracle Cloud Infrastructure

Infoblox vNIOS for Oracle Cloud Infrastructure is a virtual appliance designed for deployment on Oracle Cloud Infrastructure, an Infrastructure as a Service that is offered by Oracle. The virtual appliance enables you to deploy large, robust, manageable, and cost-effective Infoblox Grids.

The NIOS virtual appliance for Oracle Cloud Infrastructure functions as a hardware virtual machine guest on the Linux system. It provides integrated, secure, and easy-to-manage DNS (Domain Name System), DHCP (Dynamic Host Configuration Protocol), and IPAM (IP address management) services. It also provides a framework for integrating all components of the modular Infoblox solution. For more information about the Infoblox Grid, DNS, and IPAM, refer to the

[Infoblox NIOS documentation](#). You can deploy an Infoblox vNIOS for Oracle Cloud Infrastructure instance as a virtual cloud member tied to an on-premise (non-cloud) NIOS Grid.

The following table lists the NIOS virtual appliance that supports Oracle Cloud Infrastructure. NIOS versions supported by the virtual appliance are 8.5.1 and 8.5.2.

### *vNIOS Model for Oracle Cloud Infrastructure*

Cloud Platform Virtual Appliance	Overall Disk (GB)	Number of CPU Cores	Memory Allocation	Shape	Supported as Grid Master and Grid Master Candidate
CP-V2205	250	4 OCPUs (8 vCPU cores)	60 GB	VM.Standard2.4	No

Infoblox currently does not support any other vNIOS appliance. For more information on cloud platform appliances, see [About Cloud API Requests](#).

## Known Limitations

The known limitations of vNIOS for Oracle Cloud Infrastructure are as follows:

- In NIOS, the platform type for the vNIOS appliance is updated as KVM.
- HA and LAN2 interfaces are not supported.
- IPv6 configuration is not supported.
- Virtual Advanced DNS Protection and virtual DNS Cache Acceleration are not supported.
- In the current release, the Microsoft management feature and the security ecosystem features are not tested.
- vDiscovery of Oracle Cloud Infrastructure resources is not supported.
- If the vNIOS for OCI instance is using paravirtualized networking, there may be occasional packet drops of less than 1% when querying a large number of DNS queries per second as observed during our testing.

# Deploying the NIOS Virtual Appliance on Oracle Cloud Infrastructure

Before setting up a NIOS virtual appliance as a Grid member, you must install the virtual appliance in your Oracle Cloud Infrastructure environment. Complete the [Prerequisites](#) and see the following topics for steps on how to deploy a vNIOS for Oracle Cloud Infrastructure:

1. [Uploading the vNIOS Image on Oracle Cloud Infrastructure](#)
2. [Creating a Custom Image from the Uploaded Image](#)
3. [Deploying vNIOS for Oracle Cloud Infrastructure](#)

## Note

After deploying the vNIOS for Oracle Cloud Infrastructure appliance that is running on NIOS 8.5.1, the necessary security hotfix must be installed before you start using the vNIOS appliance. Contact Infoblox Support for assistance.

## Prerequisites

Before deploying vNIOS for Oracle Cloud Infrastructure, ensure that you complete the following:

- Set up an Oracle Cloud Infrastructure account.
- Set up a virtual cloud network (VCN) with two subnets on Oracle Cloud Infrastructure.
- Ensure that the virtual cloud network is configured with ports and firewall rules for DNS and DHCP services, HTTP, HTTPS, and SSH access, and for vNIOS Grid traffic.

## Uploading the vNIOS Image in Oracle Cloud Infrastructure

You must first upload the vNIOS image to a bucket in the Oracle Cloud Infrastructure environment, and then use it to create a custom image. To upload the vNIOS image in Oracle Cloud Infrastructure, complete the following steps:

1. Log in to the Infoblox Support site.
2. On the **Downloads** tab, from the **vNIOS for Oracle Cloud Infrastructure** section, complete the following steps to download the image:
  - a. **Infoblox Software:** Select **NIOS/vNIOS**.
  - b. **Select release type:** Select the release type as **General maintenance products with full engineering support for routine patches and bug fixes on all significant issues**.
  - c. **Select version:** Select the vNIOS version.
  - d. **vNIOS for OCI** section: Download the NIOS **qcow2** image.
3. Log in to the Oracle Cloud Infrastructure Console.
4. Click the Navigation menu icon at the upper left-hand corner. Under *Core Infrastructure*, click **Object Storage** -> **Object Storage**.
5. On the *Buckets* page, click **Create Bucket**. If you have an existing bucket where you want to upload the image, proceed to Step 7 directly.
6. In the *Create Bucket* dialog box, complete the following to specify the bucket details:
  - a. **Bucket Name:** Enter a name for the bucket.
  - b. **Storage Tier:** Select **Standard**.
  - c. Click **Create Bucket**.
7. On the *Buckets* page, click the created bucket to open it.
8. On the *Bucket Details* page, click **Upload Objects**.
9. In the *Upload Objects* dialog box, complete the following:
  - a. **Object Name Prefix:** Enter a file name prefix for the file.
  - b. **Choose Files from Your Computer:** Click **Select Files** and upload the NIOS **qcow2** file.
  - c. Click **Upload Objects** and wait for the file upload to complete.

## Creating a Custom Image from the Uploaded Image

After uploading the vNIOS image as defined in the [Uploading the vNIOS Image in Oracle Cloud Infrastructure](#) section, use the vNIOS image to create a custom image that you can use to deploy the vNIOS appliance on Oracle Cloud Infrastructure. To create a custom image, complete the following steps:

1. In the Oracle Cloud Infrastructure Console, click the Navigation menu icon at the upper left-hand corner.
2. Under **Core Infrastructure**, click **Compute -> Custom Images**.
3. On the *Custom Images* page, click **Import Image**.
4. In the *Import Image* dialog box, complete the following:
  - a. **Create in Compartment:** Select the compartment to store the image that you are creating.
  - b. **Name:** Enter a name for the image.
  - c. **Operating System:** Select **Linux**.
  - d. **Import from an Object Storage Bucket:** Select it and complete the following:
    - i. **Bucket in <compartment\_name>:** Select the bucket that has the image you downloaded. For steps, see [Uploading the vNIOS Image in Oracle Cloud Infrastructure](#).
    - ii. **Object Name:** Select the name of the downloaded image.
  - e. **Image Type:** Select **QCOW2**.
  - f. **Launch Mode:** Select **Paravirtualized Mode**.
  - g. Click **Import Image** and wait for importing to complete. Note that this process takes several minutes to complete.

## Deploying vNIOS for Oracle Cloud Infrastructure

To deploy vNIOS for Oracle Cloud Infrastructure, complete the following steps in the Oracle Cloud Infrastructure Console:

1. Click the Navigation menu icon in the upper left-hand corner.
2. Under **Core Infrastructure**, click **Compute -> Instances**.
3. On the *Instances* page, click **Create Instance**.
4. In the *Create Compute Instance* dialog box, complete the following:
  - a. **Name:** Enter a name for the instance.
  - b. **Create in Compartment:** Choose the compartment in which you want to create the instance.
  - c. **Configure placement and hardware:** Click to expand the section and complete the following:
    - i. **Availability domain:** Select the domain in which you want to create the instance.
    - ii. **Image:** Click **Change Image**. In the *Browse All Images* dialog box, complete the following:
      1. On the **Custom Images** tab, select the custom image that you created.
      2. Click **Select Image**.
    - iii. **Shape:** Click **Change Shape**. In the *Browse all Shapes* dialog box, complete the following:
      1. **Instance type:** Ensure that **Virtual Machine** is selected as the instance type.
      2. **Shape series:** Click **Intel Skylake**, and then from the shapes list, select **VM.Standard2.4** (4 OCPUs and 60 GB memory).
      3. Click **Select Shape**.
  - d. **Configure networking:** Click to expand the section and configure network details for the instance. This network interface card is assigned to the eth0 (MGMT) port of vNIOS. Complete the following:
    - i. **Network:** Click **Select Existing Virtual Cloud Network** to select an existing network for the instance.
    - ii. **Virtual Cloud Network in <compartment\_name>:** Select the compartment for the virtual cloud network.
    - iii. **Subnet:** Click **Select Existing Subnet** to attach the instance to an existing subnet.
    - iv. **Subnet in <compartment\_name>:** Select the compartment that contains the subnet.
    - v. **Public IP Address:** Keep **Do not Assign a Public IP Address** selected. Select **Assign a Public IP Address** only if you want to make this IP address accessible from the internet.
  - e. **Boot volume:** Retain the default settings. Do not modify them.
  - f. **Show Advanced Options:** Click to expand and select **Choose Cloud-Init Script File** to browse and select the cloud-init file, or select **Paste Cloud-init Script** to copy the script.
  - g. Click **Create**.

- h. In the *No SSH Access* dialog box, click **Yes, Create Instance Anyway** and wait for the instance to be created.

After completion, the status of the instance on the *Instances* page changes to **Succeeded**.

 **Note**

While creating an instance, Oracle Cloud Infrastructure does not have an option to add more than one network interface card, whereas the vNIOS appliance requires at least two network cards to boot. The booting of the vNIOS appliance fails until two network cards are added. An alternative is to manually attach a secondary VNIC as explained in later steps, and then reboot the instance.

5. Open the NIOS instance that you created.
6. On the *Instance Details* page, under **Resources**, click **Attached VNICs**.
7. In the **Attached VNICs** section, click **Create VNIC** to create a secondary VNIC that must be assigned to the LAN1 port of the vNIOS appliance.
8. In the *Create VNIC* dialog box, complete the following:
  - a. **Name**: Enter a name for the VNIC.
  - b. **Select a Virtual Cloud Network in <compartment\_name>**: Choose the virtual cloud network from the drop-down list.
  - c. **Select a Subnet in <compartment\_name>**: Choose the subnet from the drop-down list.
  - d. **Primary IP Information** (optional): Select **Assign a public IP address** only if you want to make this IP address accessible from the internet.
  - e. Click **Save Changes** and wait for the status of the new VNIC to show as **Attached**.
9. Click the created VNIC instance to open it.
10. On the *Instance Details* page, click **Reboot** to reboot the instance.  
The booting of the NIOS instance takes a few minutes to complete.

## Joining NIOS Virtual Appliances to the Grid

You can configure a NIOS virtual appliance as a single Grid member and join it to the Grid. To configure a NIOS virtual appliance as a Grid member, complete the following:

1. Deploy the NIOS virtual appliance as described in [Deploying vNIOS for Oracle Cloud Infrastructure](#).
2. Define the virtual Grid member on the Grid Master as described in the *Provisioning NIOS Virtual Appliance Grid Members on the Grid Master* section.
3. Join the NIOS virtual appliance member to the Grid, as described in the *Configuring and Joining NIOS Virtual Grid Members* section.

## Provisioning NIOS Virtual Appliance Grid Members on the Grid Master

Before you configure the individual appliances that you want to add to the Grid, you must first define them on the Grid Master. Complete the following steps:

1. Log in to the Grid Master.
2. From the **Grid** tab, select **Grid Manager** -> **Members**, and then click **Add** -> **Add Grid Member** from the Toolbar.
3. In the *Add Grid Member* wizard, complete the following and then click **Next**:
  - **Member Type**: Select **Virtual NIOS**.
  - **Host Name**: Type the FQDN (fully qualified domain name) of the NIOS virtual appliance that you want to add to the Grid.
  - **Time Zone**: If the NIOS virtual Grid member is in a different time zone from that of the Grid, click **Override** and select a time zone.
  - **Comment**: Enter useful information about the NIOS virtual appliance.
4. Enter the following information about the member that you want to add to the Grid and click **Next**:
  - **Standalone Member**: Select this option.
  - **Address**: Type the IP address of the NIOS virtual Grid member.
  - **Subnet Mask**: Choose the netmask.
  - **Gateway**: Type the IP address of the default gateway of the NIOS virtual Grid member.
  - **Port Settings**: The default is **Automatic**. You cannot change port settings for NIOS virtual appliances.
5. Optionally, define extensible attributes. For more information, refer to the *Infoblox NIOS Documentation*.
6. Save the configuration and click **Restart** when it appears at the top of the screen.

## Configuring and Joining NIOS Virtual Grid Members

After you successfully install and start the NIOS virtual appliance, create a console connection to the NIOS CLI, specify the initial settings, and join the appliance to the Grid. To configure, complete the following steps:

1. In the Oracle Cloud Infrastructure Console, create a console connection to the NIOS CLI as follows:
  - a. From the Navigation menu, click **Compute** -> **Instances**.
  - b. Open the NIOS instance that you created.
  - c. On the *Instance Details* page, under *Resources*, click **Console Connections**.
  - d. In the right-hand panel, click **Create Console Connection**.
  - e. In the *Create Console Connection* dialog box, select or copy the public key of the machine for which NIOS access is needed.
  - f. Click **Create Console Connection**.
  - g. On the console connection that you created, click the Actions icon (three dots), and then click **Copy Serial Console Connection for Linux/Mac** to copy the serial console.
2. Log in to the NIOS CLI using the serial console.

### Note

For joining the NIOS virtual appliance to a Grid, you must have both the Grid and NIOS virtual licenses.

3. You must have valid licenses before you can configure the NIOS virtual appliance. To obtain permanent licenses, first, use the **show version** command to get the serial number of the NIOS virtual appliance, and then visit the Infoblox Support site at <https://www.infoblox.com/support>. Log in to the Support site using the user ID and password that you receive when you register your product online.

If the NIOS virtual appliance does not have the Infoblox licenses required to run NIOS services and to join a Grid, use the **set temp\_license** command to generate and install a temporary 60-day license. The command lists the available licenses. You can select the licenses you need.

```
Infoblox > set temp_license
```

1. DNSone (DNS, DHCP)
  2. DNSone with Grid (DNS, DHCP, Grid)
  3. Network Services for Voice (DHCP, Grid)
  4. Add NIOS License
  5. Add DNS Server license
  6. Add DHCP Server license
  7. Add Grid license
  8. Add Microsoft management license
  9. Add Multi-Grid Management license
  10. Add Query Redirection license
  11. Add Threat Protection (Software add-on) license
  12. Add Threat Protection Update license
  13. Add Response Policy Zones license
  14. Add FireEye license
  15. Add DNS Traffic Control license
  16. Add Cloud Network Automation license
  17. Add Security Ecosystem license
  18. Add Threat Analytics license
  19. Add Flex Grid Activation license
  20. Add Flex Grid Activation for Managed Services license
- Select license (1-20) or q to quit

4. Join the virtual appliance member to the Grid Master. To join, run the **set membership** CLI command as illustrated in the following example:

```
Infoblox > set membership
```

```
Join status: No previous attempt to join a grid.
```

```
Enter New Grid Master VIP: 10.0.1.12
```

```
Enter Grid Name [Default Infoblox]:
```

```
Enter Grid Shared Secret: seCreT_123
```

```
Join grid as member with attributes:
```

```
Grid Master VIP: 10.0.1.12
```

```
Grid Name: Infoblox
```

```
Grid Shared Secret: seCreT_123
```

```
WARNING: Joining a grid will replace all the data on this node!
```

```
Is this correct? (y or n): y
```

```
Are you sure? (y or n): y
```

```
NOTE: This node will not become an active member of the ID grid until it has been configured on the grid master.
```