



Infoblox Installation Guide vNIOs for Nutanix™ AHV

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About Infoblox vNIOs for Nutanix AHV

Infoblox vNIOs for Nutanix AHV (Acropolis Hypervisor) is a virtual appliance designed for Nutanix AHV 5.11. The virtual appliance enables you to deploy large, robust, manageable, and cost-effective Infoblox grids. For information about Infoblox grids, refer to the NIOS 8.5 online documentation. The NIOS virtual appliance for Nutanix 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 and also provides a framework for integrating all components of the modular Infoblox solution. Additionally, vNIOs also provides TFTP, HTTP, and FTP file transfer services.

In a Nutanix cluster, a node is a fundamental unit. Each node in the cluster runs a standard hypervisor such as AHV and contains processors, memory, and local storage (such as SSDs and hard disks). Nutanix nodes with AHV include a distributed VM management service that is responsible for storing VM configuration, making scheduling decisions, and exposing a management interface. You can control and manage the Nutanix nodes using a Nutanix web console called Prism. For detailed information about using Prism, see *Prism Central Guide* at <https://portal.nutanix.com>. The *Prism Central Guide* is also accessible from the help link in the Nutanix web console.

NIOS virtual appliances can be configured as an HA pair, a Grid master, a Grid master candidate, or as a Grid member.



Note

To maintain high performance on your NIOS virtual appliances and to avoid not having enough resources to service all the NIOS virtual appliances, do not oversubscribe physical resources on the virtualization host. Required memory, CPU, and disk resources must be adequately allocated for each NIOS virtual appliance that is running on the virtualization host.

The following table lists the NIOS virtual appliances that support Nutanix AHV.

vNIOs Models for Nutanix AHV

| Trinzic Series Virtual Appliances | Overall Disk (GB) | Number of CPU Cores | Memory Allocation | Supported as Grid Master and Grid Master Candidate |
|-----------------------------------|--------------------------------|---------------------|-------------------|--|
| IB-V815 | 250 | 2 | 16 GB | Yes |
| IB-V825 | 250 | 2 | 16 GB | Yes |
| IB-V1415 | 250 | 4 | 32 GB | Yes |
| IB-V1425 | 250 | 4 | 32 GB | Yes |
| IB-V2215 | 250 | 8 | 64 GB | Yes |
| IB-V2225 | 250 | 8 | 64 GB | Yes |
| IB-V5005 | User defined reporting storage | User defined | User defined | No |
| Cloud Platform Virtual Appliances | Overall Disk (GB) | Number of CPU Cores | Memory Allocation | Supported as Grid Master and Grid Master Candidate |
| CP-V805 | 250 | 2 | 16 GB | No |

| Cloud Platform Virtual Appliances | Overall Disk (GB) | Number of CPU Cores | Memory Allocation | Supported as Grid Master and Grid Master Candidate |
|------------------------------------|-------------------|---------------------|-------------------|--|
| CP-V1405 | 250 | 4 | 32 GB | No |
| CP-V2205 | 250 | 8 | 64 GB | No |
| Network Insight Virtual Appliances | Overall Disk (GB) | Number of CPU Cores | Memory Allocation | Supported as Grid Master and Grid Master Candidate |
| ND-V1405 | 250 | 4 | 30 GB | No |

Known Limitations

The known limitations of NIOS virtual appliance for Nutanix AHV are as follows:

- vADP and vDCA are not supported by the virtual appliance.
- Among all of Nutanix products, NIOS virtual appliance can be deployed only on Nutanix AHVs.
- vDiscovery of Nutanix resources is currently not supported by the virtual appliance.

Deploying NIOS Virtual Appliances on Nutanix AHV

Before setting up a NIOS virtual appliance as a Grid Master or a Grid member, you must install the virtual appliance on the Nutanix AHV platform. The instructions in this section assume that you have configured the Nutanix AHV server on your network, added the VLANs, and that you are able to connect to it from your management station. For information about configuring Nutanix AHV, see the [Nutanix AHV documentation](#).

Infoblox recommends that you back up your existing configuration before deploying a NIOS virtual appliance.

To deploy a NIOS virtual appliance, complete the following:

1. Upload the NIOS virtual image on Nutanix AHV from Prism web console as described in [Uploading the NIOS Virtual Image on Nutanix AHV](#).
2. Install the virtual appliance as described in [Installing a NIOS Virtual Appliance](#).

Uploading the NIOS Virtual Image on Nutanix AHV

To upload the NIOS virtual image on Nutanix AHV from Prism web console, complete the following:

1. Log in to the Infoblox Support site.
2. On the **Downloads** tab, from the **vNIOS for KVM and Nutanix** section, download the **qcow2** image.
3. Log in to the Nutanix Web Console (also called the Prism web console).
4. Navigate to **Home -> Settings -> Image Configuration**.
5. Click **Upload Image**.
6. On the *Create Image* screen, complete the following details:
 - **Name**: Enter a name for the image.
 - **Annotation**: Enter a description for the image.
 - **Image Type**: Select **Disk**.
 - **Storage Container**: Select a storage container.
 - **Image Source**: Select **Upload a file**. Then browse to the respective path and select the **qcow2** file that you downloaded.

7. Click **Save**.

Installing a NIOS Virtual Appliance

After uploading the NIOS virtual image, you must create a VM in the Prism web console. To create a VM, complete the following steps:

1. Log in to the Prism web console.
2. Click **Home > VM > Create VM**. The *Create VM* dialog box appears.
3. Complete the following. Based on the supported vNIOS model that you are using, see the [vNIOS Models for Nutanix AHV](#) table to know the specifications for **vCPU**, **Number of cores per vCPU**, and **Memory**.
 - **Name**: Enter a name for the VM.
 - **Description**: Enter a description for the VM.
 - **Timezone**: Enter a local time zone at which the VM must operate.



Note

When setting up the NIOS virtual appliance, ensure that you do not select the **Use this VM as an agent VM** option.

- **vCPU(s)**: Enter the number of virtual CPUs to allocate to this VM.
- **Number of Cores per vCPU**: Enter the number of cores that you want to assign to each virtual CPU.
- **Memory**: Enter the amount of memory (in MiBs) to allocate to this VM.
- Click the **Add New Disk** button to attach a disk to the VM. In the *Add Disk* screen, complete the following:
 - i. From the **Type** drop-down list, select **Disk**.
 - ii. From the **Operation** drop-down list, select **Clone from Image Service**.
 - iii. From the **Bus Type** drop-down list, select **SCSI**.
 - iv. From the **Image** drop-down list, select the NIOS virtual image that you uploaded in prior steps. For more information, see [Uploading the NIOS Virtual Image on Nutanix AHV](#).

v. Click **Add**.

- Select **Legacy BIOS** to boot the VM with legacy BIOS firmware.
- Click the **Add New NIC** button to create a NIC for the VM. You can add a maximum of four network interfaces. Complete the following steps:

Note

You must add at least two NICs and they must be MGMT and LAN1 interfaces. Ensure that you add the NICs in the order: MGMT, LAN1, HA, and LAN2.

- From the **VLAN Name** drop-down list, select the required VLAN name.
 - Ensure that the **Network Connection State** is **Connected**.
 - Click **Add**.
- (Optional) Enable **Custom Script** if you want to customize the VM by running a cloud-init script to enable services such as elastic scaling.

4. Click **Save**.

Note

Do not power on the VM until the commands specified in the later steps are run. If the specified order is not followed, creation of the VM will not be successful.

5. Start a command prompt and run the following commands from the Nutanix controller VM:

- Run the `acli vm.list` command and note the VM name and VM UUID.
- For the VM to function properly, turn off the VM branding using the following command:
`acli vm.update <VM_uuid> disable_branding=true`

6. If you have enabled custom script for services such as elastic scaling, create a serial port by using the following command:

```
acli vm.serial_port_create <VM_name> index=0 type=kServer
```

Note that `<VM_name>` is the VM name that you noted after running the `acli vm.list` command.

7. In the Prism web console, select the new VM in the *VM* table, and then click the **Power On** button to start the VM.

**Note**

- As you install and start each VM, use the `show hwid` command to obtain the hardware ID for the new VM. Note the hardware ID for each VM.
- NIOS virtual appliances will not operate without a license. To ensure that the VMs operate until you install the permanent license keys, run the `set temp_license` command in the NIOS command line for any VM. For information, see [Managing Licenses](#) in the *Infoblox NIOS Documentation*.

For detailed information about the procedure in this section, see the Nutanix documentation at <https://portal.nutanix.com/>.

Joining NIOS Virtual Appliances to the Grid

You can configure a NIOS virtual appliance as a single Grid member or configure two NIOS virtual appliances as NIOS virtual HA Grid members and join them 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 NIOS Virtual Appliances on Nutanix AHV](#).
2. Define the virtual Grid members on the Grid Master as described in [Provisioning NIOS Virtual Appliance Grid Members on the Grid Master](#).
3. For deployments that do not use elastic scaling: Specify the initial settings and join the NIOS virtual appliance to the Grid, as described in [Configuring and Joining NIOS Virtual Grid Members](#).
4. For deployments that use elastic scaling: Join the Grid members to the Grid Master as described in [Joining Grid Members in Deployments with Elastic Scaling](#).

Note

When you need to configure a NIOS virtual HA Grid member, deploy two NIOS virtual appliances and define the network settings for each node. Then, connect to the Grid Master and specify the two NIOS virtual appliances as nodes in the HA pair. The procedure is the same as joining two physical appliances as an HA pair. You must configure a Grid Master and set up the Grid before you join the Grid members.

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 click **Next**:
 - **Member Type**: Select **Virtual NIOS**.
 - **Host Name**: Type the FQDN (fully qualified domain name) of the NIOS virtual single or HA 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**:
 - For a single Grid member, complete the following:
 - **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.
 - For an HA Grid member, complete the following:
 - **High Availability Pair**: Select this option.
 - **Virtual Router ID**: Enter a unique VRID number — from 1 to 255 — for the local subnet.
 - **Required Ports and Addresses**: Enter information about the following virtual interfaces: VIP, Node 1 HA, LAN ports, Node 2 HA, and LAN ports. The VIP address and the IP addresses of all the ports must be in the same subnet. Enter the IP address of the gateway for the subnet on which the interfaces are set. This is the same for all interfaces. All fields are required. Note that you cannot change the port settings.
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, connect to the NIOS CLI and specify the initial settings. If you are configuring a NIOS virtual HA Grid member, you must complete the following steps for each virtual node in the HA pair.



Note

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

1. In the Nutanix Prism web console, select the NIOS virtual instance.
2. Click the **Launch Console** button at the bottom of the VM table.
3. When the Infoblox login prompt appears, log in with the default user name and password.
login: **admin**
password: **infoblox**
The Infoblox prompt appears: Infoblox >
4. You must have valid licenses before you can configure the NIOS virtual appliance. To obtain permanent licenses, first, use the **show version** command to obtain the serial number of the NIOS virtual appliance, and then visit the Infoblox Support site at <https://www.infoblox.com/support>. Log in with the user ID and password 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

5. Set the network settings and join the NIOS virtual appliance to the Grid. Use the **set network** CLI command to configure the network settings and specify the Grid.

```
Infoblox > set network
```

NOTICE: All HA configurations are performed from the GUI. This interface is used only to configure a standalone node or to join a Grid.

```
Enter IP address: 10.1.1.11
Enter netmask: [Default: 255.255.255.0]: 255.255.255.0
Enter gateway address [Default: 10.1.1.1]: 10.1.1.1
Become Grid member? (y or n): y
Enter Grid Master VIP: 10.1.1.22
```

```
Enter Grid Shared Secret: L0ck37
Join Grid as member with attributes:
Join Grid Master VIP: 10.1.1.22
Grid Name: DaveyJones
Grid Shared Secret: L0ck37
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
The network settings have been updated.
```

Joining Grid Members in Deployments with Elastic Scaling

When using elastic scaling on your NIOS virtual appliance deployment, log in to the Grid Master and perform the following:

1. Create offline Grid members that you plan to join to the Grid and pre-provision the respective Grid members as described in [Provisioning NIOS Virtual Appliance Grid Members on the Grid Master](#).
2. Generate a token for each member. Copy the certification and token strings, and then save it for later.

For detailed instructions on how to pre-provision a member and obtain a token, refer to the *Infoblox NIOS Documentation*.

Note

- When you plan to use elastic scaling on deployment, obtain dynamic licenses for the features you want to use. For information about elastic scaling, refer to the *About Elastic Scaling* section of the *Infoblox NIOS Documentation*.
- Elastic scaling is not supported for a Grid Master that is in an HA (High Availability) setup.