Infoblox Installation Guide vNIOs for Microsoft Hyper-V
Copyright Statements

© 2019, Infoblox Inc.—All rights reserved. The contents of this document may not be copied or duplicated in any form, in whole or in part, without the prior written permission of Infoblox, Inc.

The information in this document is subject to change without notice. Infoblox, Inc. shall not be liable for any damages resulting from technical errors or omissions which may be present in this document, or from use of this document.

This document is an unpublished work protected by the United States copyright laws and is proprietary to Infoblox, Inc. Disclosure, copying, reproduction, merger, translation, modification, enhancement, or use of this document by anyone other than authorized employees, authorized users, or licensees of Infoblox, Inc. without the prior written consent of Infoblox, Inc. is prohibited. For Open Source Copyright information, refer to the Infoblox NIOS Documentation.

Trademark Statements

Infoblox, the Infoblox logo, Grid, NIOS, bloxTools, NetMRI, Network Automation, and PortIQ are trademarks or registered trademarks of Infoblox Inc.

All other trademarked names used herein are the properties of their respective owners and are used for identification purposes only.

Company Information

http://www.infoblox.com/contact

Product Information


Warranty Information

Your purchase includes a 90-day software warranty and a one year limited warranty on the Infoblox appliance, plus an Infoblox Warranty Support Plan and Technical Support. For more information about Infoblox Warranty information, refer to Infoblox Web site, or contact Infoblox Technical Support.
About Infoblox vNIOS Virtual Appliance for Microsoft Hyper-V

The Infoblox vNIOS for Microsoft Hyper-V is a virtual appliance designed to run on Microsoft Windows® Server 2012, 2012 R2 and 2016. You can use Hyper-V Manager or SCVMM to install the vNIOS virtual appliance. Note that the vNIOS virtual appliance for Hyper-V requires Windows Server 2012 R2 that has DAS (Direct Attached Storage) installed.

You can configure the vNIOS virtual appliance as a Grid member or a reporting member. You can set up the IB-VM-800 and IB-VM-1400 virtual appliances as reporting appliances on the Windows Server 2012 R2 only. When you set up a vNIOS reporting virtual appliance, it is used solely for reporting purposes. You cannot add licenses to run other services, such as DNS and DHCP, on a reporting appliance.

The Infoblox reporting solution automates the collection, analysis, and presentation of core network service data that assists you in planning and mitigating network outage risks so you can manage your networks more efficiently. For more information about Infoblox Grids and reporting solution, refer to the Infoblox NIOS Documentation. Infoblox vNIOS for Microsoft Hyper-V provides most of the features supported by NIOS, with some limitations. For more information, see Known Limitations. vNIOS Virtual Appliance Specifications for Microsoft Hyper-V explains the specifications for all supported vNIOS virtual appliances.
vNIOS Virtual Appliance Specifications for Microsoft Hyper-V

<table>
<thead>
<tr>
<th>vNIOS Appliances</th>
<th>Corresponding SKUs (Supported Services)</th>
<th>Primary Disk (GB)</th>
<th># of CPU Cores</th>
<th>Memory Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB-V805 (Reporting only)</td>
<td>TE-V805 (Reporting)</td>
<td>250 (+ 1 TB user defined reporting storage)</td>
<td>2</td>
<td>32 GB</td>
</tr>
<tr>
<td>IB-V815</td>
<td>TE-V815 (DNS, DHCP, IPAM)</td>
<td>250</td>
<td>2</td>
<td>16 GB</td>
</tr>
<tr>
<td>IB-V825</td>
<td>TE-V825 (DNS, DHCP, IPAM)</td>
<td>250</td>
<td>2</td>
<td>16 GB</td>
</tr>
<tr>
<td>IB-V1405 (for reporting only)</td>
<td>TR-V1405 (Reporting)</td>
<td>250 (+ 1.2 TB user defined reporting storage)</td>
<td>4</td>
<td>32 GB</td>
</tr>
<tr>
<td>IB-V1415</td>
<td>TE-V1415 (DNS, DHCP, IPAM)</td>
<td>250</td>
<td>4</td>
<td>32 GB</td>
</tr>
<tr>
<td>IB-V1425</td>
<td>TE-V1425 (DNS, DHCP, IPAM)</td>
<td>250</td>
<td>4</td>
<td>32 GB</td>
</tr>
<tr>
<td>IB-V2215</td>
<td>TE-V2215 (DNS, DHCP, IPAM)</td>
<td>250</td>
<td>8</td>
<td>64 GB</td>
</tr>
<tr>
<td>IB-V2225</td>
<td>TE-V2225 (DNS, DHCP, IPAM)</td>
<td>250</td>
<td>8</td>
<td>64 GB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Network Insight vNIOS Appliances</th>
<th>Corresponding SKUs (Supported Services)</th>
<th>Storage (GB)</th>
<th># of CPU Cores</th>
<th>Memory Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND-V805</td>
<td>ND-V805 (Network Insight)</td>
<td>250</td>
<td>2</td>
<td>32 GB</td>
</tr>
<tr>
<td>ND-V1405</td>
<td>ND-V1405 (Network Insight)</td>
<td>250</td>
<td>4</td>
<td>32 GB</td>
</tr>
<tr>
<td>ND-V2205</td>
<td>ND-V2205 (Network Insight)</td>
<td>250</td>
<td>8</td>
<td>32 GB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cloud Platform Virtual Appliances</th>
<th>Corresponding SKUs (Supported Services)</th>
<th>Storage (GB)</th>
<th># of CPU Cores</th>
<th>Memory Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP-V805 *</td>
<td>CP-V805 (Cloud Platform)</td>
<td>250</td>
<td>2</td>
<td>16 GB</td>
</tr>
<tr>
<td>CP-V1405 *</td>
<td>CP-V1405 (Cloud Platform)</td>
<td>250</td>
<td>4</td>
<td>32 GB</td>
</tr>
<tr>
<td>CP-V2205 *</td>
<td>CP-V2205 (Cloud Platform)</td>
<td>250</td>
<td>8</td>
<td>64 GB</td>
</tr>
</tbody>
</table>

Note
For optimal performance, vNIOS for Hyper-V is not recommended as a Grid Master or Grid Master Candidate.

* CP-V805, CP-V1405, and CP-V2205 do not support downgrading from NIOS 8.4.x to any earlier NIOS releases is only supported in NIOS 8.4 and later releases.

Requirements

The Microsoft Windows Server 2012, 2012 R2, and 2016 that will be hosting the vNIOS virtual appliance must have the Hyper-V role already installed and operating. Use the Microsoft PowerShell script provided by Infoblox (with Hyper-V Manager or SCVMM) to install the vNIOS virtual appliance on the Microsoft server.

Note
You must have Hyper-V-PowerShell to successfully deploy the vNIOS virtual appliance on a Microsoft Windows 2012 R2 server using the Infoblox provided PowerShell script. You can install Hyper-V-PowerShell using the command Install-WindowsFeature -Name Hyper-V-PowerShell. For Microsoft servers earlier than Windows 2012 R2, you must have PowerShell Management Library. Refer to https://ps://pshyperv.codeplex.com/releases to download the PowerShell Management Library.

The following are required before you install the vNIOS virtual appliance on a Microsoft Windows Server:

- The vNIOS software package. You can download the vNIOS software from the Infoblox Technical Support site. To download the software, you must have a valid login account on the Infoblox Support site. Register your product at https://support.infoblox.com if you do not already have an account. The vNIOS software package consists of the following:
  - You must uncompress the *.vhd.gz file before using it.
• Windows PowerShell script (.ps1) for the supported vNIOS appliance model. Download the file with an extension that corresponds to the appliance model number. For information about supported vNIOS appliance models, see Table 1.1.

   **Note**
   Copy both the .vhd.gz and .ps1 files to the same directory.

• Make sure that you configure two virtual hard disks (.vhd and .vhdx) when you deploy reporting instances on the IB-V805, IB-V1405, and IB-V2205 appliances. For more information, see *Deploying vNIOS Reporting Instances*.  


Deploying vNIOS Appliances

Instructions in this section assume that you have the Hyper-V role enabled on the hosting Windows Server 2012 or 2012 R2 or 2016 and PowerShell Management Library for Hyper-V installed on your network and you are able to connect to it from your system.

**Note**
Microsoft PowerShell Management Library for Hyper-V is required to successfully configure the vNIOS virtual appliance. Infoblox recommends that you back up your existing configuration before deploying the vNIOS virtual appliance.

You must first install the vNIOS virtual appliance using Windows PowerShell® before configuring the vNIOS virtual appliance as a Grid member or a reporting appliance. Note that the reporting appliance can be configured only on a Microsoft Windows 2012 R2 server. Using the Infoblox provided Windows PowerShell script, complete the following to deploy a vNIOS virtual appliance:

- Install the vNIOS virtual appliance on Windows server 2012 or 2012 R2 or 2016 server, as described in [Installing vNIOS Virtual Appliance](#).
- Start the vNIOS virtual appliance as described in [Starting the vNIOS Appliance using Hyper-V Manager](#) or [Starting the vNIOS Appliance using SCVMM](#).
Installing vNIOS Virtual Appliance

You can install the vNIOS virtual appliance on Windows Server 2012 or 2012 R2 or 2016 using one of the following methods:

Method 1 - Using Windows Powershell

Method 2 - Using Hyper-V Manager

Note
To deploy reporting instances on the IB-V805, IB-V1405, and IB-V2205 appliances, see Deploying vNIOS Reporting Instances.

Method 1 - Using Windows Powershell

You can install the vNIOS virtual appliance on Windows Server 2012 or 2012 R2 or 2016 using Windows PowerShell. Make sure that you close the Windows Powershell environment before using it again to install the vNIOS virtual appliance. You might encounter an error if you use the same Windows Powershell environment.

Note
Windows Server 2016 does not support method 1 for installing vNIOS virtual appliance in Hyper-V.

1. On the Start screen, type PowerShell and then click Windows PowerShell or start Windows PowerShell using the command prompt.

   Figure 1.1 Windows PowerShell Environment

2. Do the following in the Windows PowerShell environment:

   a. Set the execution policy in the Windows PowerShell as Unrestricted to install vNIOS virtual appliance.
   b. To find the execution policy in your system, type Get-ExecutionPolicy. If the message is Restricted, change the policy to Unrestricted using the command Set-ExecutionPolicy Unrestricted.

   Windows PowerShell will display the following information:

   Execution Policy Change
   The execution policy helps protect you from scripts that you do not trust. Changing the execution policy might expose you to security risks described in the about_Execution_Policies help topic.
   c. Enter Y at the prompt: Do you want to change the execution policy? [Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y
   d. Go to the directory where you have downloaded and stored the .vhd and .ps1 files.
   e. Execute the .ps1 script.

3. Provide the virtual machine name and virtual machine hostname as arguments in the .ps1 script:

   Usage: nios-6.5.0-1700992-2012-06-18-16-03-03-120G-1420.ps1 <VM-name> <VM-hostname> where,
   <VM-name>: Name of the Hyper-V VM
   <VM-hostname>: Hostname of the VM server using SCVMM or '-' for Hyper-V Manager

   Note
   Enter '-' if you are managing the vNIOS virtual appliance using the Hyper-V Manager, as shown in Figure 1.2, or enter the hostname of the VM server if you are managing the vNIOS virtual appliance using SCVMM.

   Figure 1.2 Following example illustrates the behavior when you use Hyper-V Manager
3. Following example illustrates the behavior when you use SCVM.

4. Press ENTER to view the Infoblox End-User License Agreement. Type yes to accept the Infoblox license agreement.

Accept the Infoblox End-User License Agreement? (yes/no): yes

It may take a while to install the vNIOS virtual appliance on the Windows Server.

5. If there are multiple virtual networks, select a virtual network. As shown in Figure 1.4, the selected virtual network is Local Area Connection 3.

Select a Virtual Network <0-3>: 3

Figure 1.4 vNIOS Virtual Appliance Configuration
6. From Hyper-V Manager, select the vNIOS instance.
7. From the Actions menu, click Settings.
8. From the Hardware list, select Network Adapter and then select the Enable spoofing of MAC addresses check box. Make sure that you enable the spoofing of MAC addresses for all network adapters.

**Note**
If you use SCVMM, the Enable spoofing of MAC addresses check box is automatically enabled.

*Figure 1.5 Enabling Spoofing of MAC Address (Windows 2012 or 2012 R2)*
Method 2 - Using Hyper-V Manager

To install vNIOS virtual appliance using Hyper-V Manager:

1. Open Hyper-V Manager.
2. From the **Actions** menu, select **New -> VirtualMachine**.
3. On the **BeforeYouBegin** wizard, read the notes about the wizard and then click **Next**.

   *Figure 1.6 New Virtual Machine Wizard*

4. Provide a name for the virtual machine in the **Name** field and then click **Next**.
5. Specify the memory in the **AssignMemory** screen. You can refer to **Table 1.1** to specify an appropriate memory. Click **Next**.
6. Select the network adapter that you want to use for that virtual machine in the **Configure Networking** screen and then click **Next**.

*Figure 1.7 Network Adapter Configuration*

7. Select the **Use an existing virtual hard disk** option in the **Connect Virtual Hard Disk** screen and click **Browse** to locate the extracted VHD file and click **Open**.

*Figure 1.8 Virtual Hard Disk Configuration*

8. Click **Next**. You can view your configuration details in the **Summary** screen and then click **Finish**. It may take a while to install the vNIOS virtual appliance on the Windows Server. After you successfully install vNIOS instance, you must add at least 4 virtual network adapters with 8 GB of memory.

*Note*
To add additional hard disk for reporting appliances, right-click **IDEController** and then click **Add Hard Drive**.

9. From Hyper-V Manager, select the vNIOS instance and click **Settings** on the bottom right side of the Hyper-V Manager Interface or click...
Provisioning Infoblox vNIOS for Hyper-V using Elastic Scaling

To provision vNIOS for Hyper-V using Elastic Scaling, you must configure the user-data file as follows:

1. Open your Linux terminal and create a directory, for example `test`.
2. Navigate to the `test` directory and create the following sub-directory structure using the name `openstack` and `latest`:
   ```
   test/openstack/latest
   ```
3. In the `openstack/latest/` path, create a JSON file and name it `meta_data.json`.
4. In the `meta_data.json` file, enter a UUID in the following format:
   ```json
   Example: {
     "uuid": "7a50bb5f-64c0-4a91-9665-012666343296"
   }
   ```
5. In the `openstack/latest/` path, create a YAML file and name it `user_data`. In the `user_data` file, enter the required user-data fields in the following format.
   ```yaml
   Example:
   #infoblox-config
   temp_license: nios IB-V825 enterprise dns dhcp
   remote_console_enabled: y
   ```
   **Note**
   You must use the exact directory names and file names specified in the preceding steps.

6. Enter the following command from outside the `test` directory to package the files into an ISO image:
   ```
   genisoimage -output <.iso file name> -volid config-2 -joliet -r <directory containing the files above>
   ```
   Example:
   ```
   genisoimage -output elastic.iso -volid config-2 -joliet -r test
   ```
   **Note**
   The preceding command creates the ISO image in the same path where the command executes.
7. Configure a vNIOS virtual appliance on Windows Server 2012 or 2012 R2 or 2016, as described in Method 1 - Using Windows PowerShell or Method 2 - Using Hyper-V Manager.

8. From Hyper-V manager, select the vNIOS instance and click Settings on the bottom right side of the Hyper-V Manager Interface. Alternatively, click Settings from the Action menu.


10. Select the Image File option and upload the ISO file created in step 6.

11. Click Apply, and then click OK.

12. Start the vNIOS instance, as described in Starting the vNIOS Appliance using Hyper-V Manager.

Deploying vNIOS Reporting Instances

To deploy a vNIOS reporting instance on the IB-V805, IB-V1405, and IB-V2205 appliances, you must configure two disk images (.vhd and .vhdx).

Complete the following to configure a vNIOS reporting instance:

1. Configure a vNIOS virtual appliance on the Windows Server 2012 or 2012 R2 or 2016, as described in Method 1 - Using Windows PowerShell or Method 2 - Using Hyper-V Manager.

2. Under VirtualMachines, select the virtual machine that you have configured (using step 1) and click Settings.

3. In the Settings dialog box, click AddHardware and select SCSIController in the AddHardware page. Click Add to add a SCSI controller to the virtual machine.

4. In SCSIController, click HardDrive, and then click Add. A hard drive is added to the SCSI controller.

5. Select Virtualharddisk and click New to start the NewVirtualHardDisk wizard.


7. On the ChooseDiskFormat page, accept the default VHDX. Click Next.

8. On the ChooseDiskType page, accept the default DynamicExpanding. Click Next.

9. On the SpecifyNameandLocation page, do the following:
   - Enter the name of your shared virtual hard disk.
   - Click Browse and navigate to your shared storage location and click SelectFolder. Click Next.


11. In the Size text box, specify the maximum size allowed for the virtual hard disk files in gigabytes (GB). Infoblox strongly recommends that you set the disk size above 5 GB. Note that configuring a value less than 5 GB might cause performance issues.

12. Review the configuration settings in the Summary page. To change settings, click Previous.
13. Click Finish.

**Starting the vNIOS Appliance using Hyper-V Manager**

1. Select the vNIOS instance from the Hyper-V Manager.
2. From the Action menu, click Start or right-click the vNIOS instance and then click Start.

**Note**
After you start the virtual appliance, it may take a few minutes for the CLI prompt to appear while the appliance initializes.

**Shutting Down the vNIOS Appliance using Hyper-V Manager**
1. Select the vNIOS instance from the Hyper-V Manager.
2. Do one of the following:
   - From the Action menu, click Shut Down or Turn Off.
   - Right-click the vNIOS instance and then click Shut Down or Turn Off.

   **Note**
   Click Pause to suspend the current execution and click Resume to return to the condition that it was in when its state was paused.

### Starting the vNIOS Appliance using SCVMM

1. Select the vNIOS instance from SCVMM.
2. From the Action menu, point to Virtual Machine and click Start or right-click the vNIOS instance, and then click Start.

   **Note**
   After you start the virtual appliance, it may take a few minutes for the CLI prompt to appear while the appliance initializes.

### Shutting Down the vNIOS Appliance using SCVMM

1. Select the vNIOS instance from SCVMM.
2. Do one of the following:
   - From the Action menu, click Shut Down or Save State.
   - Right-click the vNIOS instance and then click Shut Down or Turn Off.

   **Note**
   Click Pause to suspend the current execution and click Start to return to the condition that it was in when its state was paused.
Configuring vNIOS Appliances as Grid Members

To configure a vNIOS appliance as a Grid member or reporting member, complete the following:

1. Define the vNIOS appliance on the Grid, as described in Provisioning vNIOS Members on the Grid Master.
2. Specify the initial settings and join the vNIOS appliance to the Grid, as described in Configuring and Joining vNIOS Grid Members.

Provisioning vNIOS 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, as follows:

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

Configuring and Joining vNIOS Grid Members

After you successfully install the vNIOS virtual machine and start the vNIOS appliance, connect to the NIOS CLI and specify the initial settings.

1. Connect to the Grid Master where you can add the vNIOS appliance to the Grid.
2. From the Hyper-V Manager, select the vNIOS instance.
3. From the Action menu, click Connect.
4. Click anywhere in the console screen to activate the console.
5. When the Infoblox login prompt appears, log in with the default user name and password.
   
   login: admin
   password: infoblox
   
   The Infoblox prompt appears: Infoblox >
6. You must have valid licenses before you can configure the vNIOS appliance. To obtain permanent licenses, first use the `show version` command to obtain the serial number of the vNIOS appliance, and then visit the Infoblox Support web site at [http://support.infoblox.com](http://support.infoblox.com). Log in with the user ID and password you receive when you register your product online at: [http://www.infoblox.com/support/customer/evaluation-and-registration](http://www.infoblox.com/support/customer/evaluation-and-registration).

   If the vNIOS appliance does not have the Infoblox licenses required to run NIOS services and to join a Grid, you can use the `set temp_license` command to generate and install a temporary 60-day license. The appliance lists the available licenses and you select those you need.
   
   Infoblox > set temp_license
   
   From the list of licenses, select the Grid and vNIOS licenses. For the vNIOS reporting appliance, you must also select the Reporting license.

   **Note**
   You must have both the Grid and vNIOS licenses for the vNIOS appliance to join the Grid.

7. Set the network settings and join the vNIOS appliance to a Grid. Use the CLI command `set network` 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: 10.1.1.1
   Enter netmask: [Default: 255.255.255.0]: 255.255.255.0
   Enter gateway address [Default: 10.1.1.1]: 10.1.1.1
   
   Configure IPv6 network settings? (y or n): n
   
   Note: IPv6 network settings not configured.
   Become Grid member? (y or n): y
   Enter Grid Master VIP: 10.1.1.22
   Enter Grid Shared Secret: Lock37
   
   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.

Verifying and Monitoring

After you configure the vNIOS appliance, you can check its status on the Dashboard and in the Grid -> Grid Manager -> Members tab, as shown in Figure 1.11 and Figure 1.12.

Figure 1.11 vNIOS Appliance Status on the Dashboard

![Grid Status](image)

Figure 1.12 vNIOS Appliance Status in the Members Tab

![Members Tab](image)
Known Limitations

The vNIOS virtual appliance has the following limitations:

- You cannot configure the reporting virtual appliance as an HA pair. You also cannot configure it as a Grid Master or Grid Master Candidate. You can use it only as a dedicated reporting server in the Grid.
- vNIOS appliances do not support the configuration of port settings for the MGMT, LAN, LAN2, and HA ports.
- vNIOS appliances run on virtual hardware. They do not have sensors to monitor the physical CPU temperature, fan speed, and system temperature.