

Deployment Guide

vNIOS deployment on VMware vSphere

October 2019

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Introduction

About Infoblox NIOS Virtual Appliance for VMware

The Infoblox NIOS virtual appliance on VMware software can run on ESX or ESXi servers that have DAS (Direct Attached Storage), or iSCSI (Internet Small Computer System Interface) or FC (Fibre Channel) SAN (Storage Area Network) attached. You can install the NIOS virtual software package on a host with VMware ESX or ESXi 6.x.x and 5.5.x installed, and then configure it as a virtual appliance.

Infoblox NIOS provides core network services and a framework for integrating all the components of the modular Infoblox solution. It provides integrated, secure, and easy-to-manage DNS (Domain Name System), DHCP (Dynamic Host Configuration Protocol) and IPAM (IP address management) services. In addition to this, the NIOS software also provides TFTP, HTTP, NTP, and FTP file transfer services.

NIOS virtual appliances support the following features:

- Configuration as a HA pair, a Grid master, Reporting server, or a Grid master candidate
- Anycast addressing
- OSPF
- BGP
- Static routes
- IPv6

vSphere vMotion is also supported. You can migrate NIOS virtual appliances from one ESX or ESXi server to another without any service outages. The migration preserves the hardware IDs and licenses of the NIOS virtual appliances. VMware Tools is automatically installed for each NIOS virtual appliance. Infoblox supports the control functions in VMware Tools. For example, through the vSphere client, you can shut down the virtual appliance. You can configure most NIOS virtual appliances as independent or HA (high availability) Grid Masters, Grid Master candidates, and Grid members.

This deployment guide covers deployment of vNIOS on Vmware vSphere 6.5 onwards using Vmware vCenter server.

Deployment

Downloading vNIOS .ova file

- 1. Login to the https://support.infoblox.com portal.
- 2. Navigate to Downloads.
- 3. In the Infobiox Software drop-down menu select NIOS/vNIOS.
- 4. Under Select release type select the first option.

5. In the **Select version** drop box select the latest NIOS release.



- 6. Scroll down and expand **vNIOS for VMware** section.
- 7. Click on Download Image section to download the .OVA file for Grid Master or Member.

The Infoblox v DAS (Direct At FC (Fibre Cha software pack 5.0.x installed,	NIOS on VMware software can run on ESX or ESX servers th ttached Storage), or iSCSI (Internet Small Computer System Ir nnel) SAN (Storage Area Network) attached. You can install th age on a host with VMware ESX or ESX i 6.7, 6.5.x, 6.0.x, 5.5.x , and then configure it as a virtual appliance.	at have nterface) or e vNIOS k, 5.1.x, or
Grid Role	An Open Virtual Appliance (or Application) (.ova) single file distribution package	Link to Download Images
Member, Grid Master, Reporting	DDI:v815, v825, v1415, v1425, v2215, v2225, v4015, v4025, Flex, Reporting: v805, v1405, v2205, v5005 and CP: v805, v1405, v2205	Download Image
Discovery	Discovery: ND-v805, ND-v1405, ND-v2205, ND-v4005	Download Image

Deploying Grid Master

1. Login to your vCenter server with enough permissions to deploy an OVF template.

2. Once you are logged in to the vCenter server, right click on cluster/esxi/resource pool/vapp and select **Deploy OVF Template.**

vmware [®] vSphere We	b Client _ ≜ ≣	Ŭ test_user@india.local ∽ Help
Navigator	¥.	🗊 Compute 📲 🕒 📅 👬 🐡 🔯 Actions 👻 😑
Back		Get Su Mo Co Per Ho VMs Dat Net
Vmware_Deploym	Actions - Vmware_Deployment New Virtual Machine New vApp New Resource Pool Deploy OVF Template	
	Settings	r (DRS), and the vSAN solutions.
Recent Tasks	Move To Rename Tags & Custom Attributes	

3. In the following wizard you can either give a URL by selecting **URL** option to download the OVA file or you can browse the locally downloaded OVA file by selecting **Local file** option.

🍞 Deploy OVF Template		M (\$)
1 Select template	Select template	
2 Select name and location	Select an OVF template.	
3 Select a resource	Enter a URL to download and install the OVF package from the Internet, or browse to a location accessible from your computer	ər,
4 Review details	such as a local hard drive, a network share, or a CD/DVD drive.	
5 Select storage		
6 Ready to complete		-
	Local file	
	Browse 1 file(s) selected, click Next to validate	
	⚠️ Use multiple selection to select all the files associated with an OVF template (.ovf, .vmdk, etc.)	

Note: This deployment guide covers deploying vNIOS though locally downloaded OVA file.

4. In the **Select name and location** wizard, enter a name for the vNIOS and select a datacenter or folder where vNIOS will be deployed. Click on **Next**.

Ø	Deploy OVF Template		(?)₩
~	1 Select template 2 Select name and location	Select name and location Enter a name for the OVF and select a deployment location.	
	 2 Select a resource 4 Review details 5 Select storage 6 Ready to complete 	Name Grid-Master Filter Browse Select a datacenter or folder. <td< th=""><th></th></td<>	
		Back	Next Finish Cancel

5. Review wizard displays the product details and description. After reviewing the details click on **Next**.

🎁 Deploy OVF Template		?	•••
✓ 1 Select template	Review details Verify the template	details.	
 2 Select name and location 			
✓ 3 Select a resource	Product	WIOS	
4 Review details	Vendor	Infoblox, Inc.	
5 Accept license agreements	Publisher	② No certificate present	
6 Select configuration	Download size	Unknown	
7 Select storage	Size on disk	Unknown (thin provisioned) 244.1 GB (thick provisioned)	
8 Select networks 9 Customize template	Description	NIOS automates the error-prone and time-consuming manual tasks associated with deploying and managing DNS, DHCP and IP address management required for continuous IP network availability and business uptime.	
10 Ready to complete			
		Back Next Finish Cancel	

6. Accept the End User License Agreement (EULA) and click on Next.



 In the Select configuration wizard, select the vNIOS model, by clicking the dropdown menu. RAM and CPU utilization of each vNIOS differs and is displayed against Description. Click on Next.

Deploy OVF Template						H (\$)
 Deploy OVF Template 1 Select template 2 Select name and location 3 Select a resource 4 Review details 5 Accept license agreements 6 Select configuration 7 Select storage 8 Select networks 9 Customize template 10 Ready to complete 	Select configuration Select a deployment Configuration: Description:	n nt configuration. TE-815 • Use this option for a model TE-815. It has: * 2 virtual CPUs * 16384MiB memory A TE-815 license will need to be applied.				₩ 5
			Back	Next	Finish	Cancel

8. Select the datastore where vNIOS files will be stored from the **Select Storage** wizard. **Note**: Infoblox recommends using thick provisioning for enhanced performance.

🗃 Deploy OVF Template					(
1 Select template	Select storage Select location to store the files for the	deployed template.			
3 Select a resource	Select virtual disk format: Thick provi	sion lazy zeroed	•		
4 Review details 5 Accept license agreements	Show datastores from Storage DR	S clusters 🚯			
6 Select configuration 7 Select storage	Datastores Datastore Clusters				
8 Select networks	Name	Status	VM storage policy	Capacity	Free
10 Ready to complete	 datastore1 Dell_Datastore_10TB_1 	NormalNormal		1.81 TB 10 TB	1.53 TB 7.3 TB
	Dell_Datastore_10TB_2 Dell Datastore ISO	 Normal Normal 		10 TB 2 TB	7.43 TB 1.79 TB
	DS-ESX1-11	Normal Normal	•	7.27 TB	4.48 TB
	DS-ESX2-12	Normal		7.27 TB	6.21 TB
		 Normal 	-	1.92 TB	1.92 TB
	M				9 Objects Copy -
			Ba	k Next	Finish Cance

9. Select the network for the vNIOS appliance from the Select networks wizard.

🎁 Deploy OVF Template			?)
 1 Select template 2 Select name and location 3 Select a resource 4 Review details 	Select networks Select a destination network for each sour Source Network VM Network	Destination Network	· · ·
 S Accept license agreements 6 Select configuration 7 Select storage 8 Select networks 			
9 Customize template 10 Ready to complete	Description - VM Network The network that the production DNS/DHC	P queries and responses go over.	
	IP Allocation Settings IP protocol: IPv4	IP allocation: Static - Manual 🕕	
		Back Next Finish	Cancel

10. **Customize template** wizard, lets you to assign LAN-1 networking details for the Grid-Master and licensing details.

Expand the Uncategorized option and enter license strings nios IB-V815 enterprise for activating vNIOS 815 and grid license. License strings are separated by space only. Refer <u>Some Useful</u> <u>Information</u> section to get the list of license strings.

Deploy OVF Template				. The second sec		
 1 Select template 2 Select name and location 	Customize template Customize the deployment pro	Customize template Customize the deployment properties of this software solution.				
✓ 3 Select a resource	All properties have valid valid	alues	Show next	Collapse all		
4 Review details	- Uncategorized	3 settings				
✓ 5 Accept license agreements	Admin Password	Default admin password, min length 4.				
6 Select configuration						
✓ 7 Select storage	Enable Remote Console	Boolean value controlling status of remote console via ssh				
✓ 8 Select networks						
9 Customize template	Temp License	Space separated list of temp license identifiers.				
10 Ready to complete		nios IB-V815 enterprise				
	▶ Gridmaster	3 settings				
	▶ Networking	6 settings				

Back

Next

Finish

Cancel

Expand Networking option to enter LAN-1 networking details. Click on Next.

🍘 Deploy OVF Template				(? H
 1 Select template 2 Select name and location 	Customize template Customize the deployment p	roperties of this software solution.		
 ✓ 3 Select a resource 	All properties have valid	values S	how next	Collapse all
4 Review details	Uncategorized	3 settings		
 5 Accept license agreements 	▶ Gridmaster	3 settings		
 6 Select configuration 		6 settings		
7 Select storage	IPv4 Address	LAN1 IPv4 IP address.		
✓ 8 Select networks		10.196.200.110		
9 Customize template 10 Ready to complete	IPv4 Default Gateway.	LAN1 IPv4 default gateway. 255.255.255.0		
	IPv4 Netmask	LAN1 IPv4 netmask.		
	IPv6 Address	LAN1 IPv6 IP address.		
	IPv6 CIDR	LAN1 IPv6 CIDR block.		
	IPv6 Default Gateway	LAN1 IPv6 default gateway.		_
		Back	Finish	Cancel

11. You will be presented with the summary of your vNIOS deployment details. Review it and click on **Finish** to commence the deployment.

🎁 Deploy OVF Template			- ? H
 1 Select template 2 Select remp and location 	Ready to complete Review configuration data.		A
 Z Select name and location 			
 3 Select a resource 	Name	Grid-Master	
4 Review details	Source VM name	nios-8.1.6-360192-2017-08-25-21-04-00-ddi	
✓ 5 Accept license agreements	Download size	Unknown	
✓ 6 Select configuration	Size on disk	244.1 GB	
✓ 7 Select storage	Datacenter	India	
✓ 8 Select networks	Resource	Vmware_Deployment_Guide	
 9 Customize template 	Deployment configuration	TE-815	::
✓ 10 Ready to complete	 Storage mapping 	1	
	Network mapping	1	
	▶ IP allocation settings	IPv4, Static - Manual	
	Properties	Admin Password = Enable Remote Console = False Temp License = Certificate = IP Address = Token = IPv4 Address = 10.196.200.110 IPv4 Default Gateway. = 255.255.255.0 IPv4 Netmask = 10.196.200.1	v
		Back Next Finish C	Cancel

- 12. Deployment will take some time. In the meantime, you can monitor the console of the vNIOS to find out what is happening.
- 13. After initial deployment cloud-init kicks in and assigns the networking and licenses which triggers multiple reboots.

Grid-Master Entoree US Keyboard Layout View Fullscreent Send Ctri+Alt+Delete Skipping v6_address parameter Skipping v6_prefix parameter Skipping v6_gateway parameter Skipping v6_vlan_id parameter Image: Comparison of the second se				
<pre>Skipping v6_address parameter Skipping v6_prefix parameter Skipping v6_gateway parameter Skipping v6_vlan_id parameter [2019/10/14 14:19:12.402] System restart: config change [2019/10/14 14:19:38.722] Infoblox system initializing [2019/10/14 14:19:39.692] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1 [2019/10/14 14:19:56.986] Starting services [2019/10/14 14:20:20.201] Infoblox system initializing [2019/10/14 14:20:20.201] Infoblox system initializing [2019/10/14 14:20:20.201] Infoblox system initializing [2019/10/14 14:20:30.1114] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1 [2019/10/14 14:20:30.114] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1</pre>	Grid-Master	Enforce US Keyboard Layout	View Fullscreen	Send Ctrl+Alt+Delete
<pre>Skipping v6_address parameter Skipping v6_prefix parameter Skipping v6_gateway parameter Skipping v6_vlan_id parameter [2019/10/14 14:19:12.402 System restart: config change [2019/10/14 14:19:38.722] Infoblox system initializing [2019/10/14 14:19:39.692] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1 [2019/10/14 14:19:50.986] Starting services [2019/10/14 14:20:20.201] Infoblox system initializing [2019/10/14 14:20:20.201] Infoblox system initializing [2019/10/14 14:20:20.201] Infoblox system initializing [2019/10/14 14:20:30.1114] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1 [2019/10/14 14:20:30.114] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1</pre>				
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[2019/10/14 14:20:30.114] LAN port IPv4 10.196.200.110, netmask 255.255.255.0, g ateway 10.196.200.1 [2019/10/14 14:20:47.435] Starting services	[2019/10/14 14:20:29.261] Infoblox system initializing.			
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[2019/10/14 14:20:47.435] Starting services	ateway 10.196.200.1			
	[2019/10/14 14:20:47.435] Starting services			

14. Once vNIOS successfully boots up, login to it using admin/infoblox as user id and password

15. To validate IP address and license assignment, run the following commands respectively.

```
show network
```

show license	
Infoblox > show network Current LAN1 Network Set IPu4 Address:	tings: 10 196 200 110
Network Mask: Gateway Address:	255.255.255.0 10.196.200.1
ULAN Tag: HA enabled: Grid Status:	Untagged false Master of Infoblox Grid
Note: Additional address mand Infoblox > _	ses configured can be viewed through "show interface" com
Infoblox > show	license
Version Hardware ID	: 8.4.4-386831 : 420171485032B4F62C4E84A93BE48987
License Type	: NIOS (Model IB-V815)

```
License Type : MIUS (Model TB-V815)

Expiration Date : 12/13/2019

License String : GgAAAHY1mUMnZUDeIO23HXdSN017rmn2DbYnZNhU

License Type : Grid

Expiration Date : 12/13/2019

License String : GgAAAH0yg1UpJwbLYru3HXMfPwY2uGH2Ae5wMYoA

Infoblox > _
```

Deploying a Grid Member

Pre-provisioning a member in the Grid-Master

- 1. Login to the Grid UI using the IP address which was specified in the **Customize template** option.
- 2. Once logged in, navigate to the Grid Grid-Manager Members Click on + option.

3. Select **Member type** as **Virtual NIOS**. Specify a FQDN for this member in the **Host Name** option and click on **Next**.

Infoblox 📚		Dashboards Data Management	Smart Folders Grid Administration	Q Search	admin
		Grid Manager Upgrade Licen	es HSM Group		
Finder	«	Infoblox 💻 🖋 📮			*
Smart Folders	+	TFTP HTTP (File Dist) FTP	NTP bloxTools Subscriber Collection		
Bookmarks	+	Members Services			
Recycle Bin	+				-
URL Links		Quick Filt Add Grid Member >	Step 1 of 3		
		Grou Member Type	Virtual NIOS T		
		+ 🗹 *Host Name	member01.localdomain Must be a fully qualified domain name	Go	
		Time Zone	(UTC) Coordinated Unix	DNS	
			Inherited from Grid Infoblox		
		Comment			
		Cancel	Previous Next Save & Close •		•

4. For **Type of Member** option select **Standalone Member**. Specify the IP address, subnet mask and default gateway which you would like to assign to this member and click on **Next**.

Add Grid Member > Step 2 of 3				×
Type of Network IPv4	•			^ 《
TYPE OF MEMBER				
 Standalone Member High Availability Pair 				
REQUIRED PORTS AND ADDRESSES				
INTERFACE ADDRESS	SUBNET MASK (IPV4) OR PREFIX LENGTH (I	GATEWAY VLAN	TAG PORT SETTIN	
LAN1 (IPv4) 10.196.200.111	255.255.255.0	10.196.200.1	Automatic	
				-
Cancel	Previous Next		S	ave & Close 🔹

5. Click on Save and Close to add this member.

Add Grid Member > Step 3 of 3	
-------------------------------	--

Extensible Attr	ibutes				+10	
	ATTRIBUTE N VAL	UE			REQUIRED	
No data						
Cancel			Previous	Next	Save & 0	Close •

6. Once the member is added successfully it will show as offline in the GUI.

+1	2 💼	🖂 🎟 🖽 🏞 - 🖶			
	=	NAME	HA	STATUS	IPV4 ADDRESS
		🚸 infoblox.localdomain	No	Running	10.196.200.110
		🚸 member01.localdomain	No	Offline	10.196.200.111

×

Pre-provisioning and generating a token for the offline member

- 1. Select the newly added offline member and click on edit option.
- 2. Navigate to the **Pre-Provisioning** option.
- 3. From the Hardware Model drop down option select the desired vNIOS model type. Click on **Save and Close**

Toggle Advanced Mode	Basic		
eneral	To remove provisional lice	nses, you must first remove the pre-provisioned member and then confi	gure a new one.
twork vcast	Member Type	Virtual NIOS	
ecurity	Hardware Model	IB-V815	
NS Resolver	PROVISIONAL LICENSES	CP-V1400 CP-V1405	
slog Backup	LICENSE	CP-V2200 LED	
IMP	DHCP	CP-V800	
nail P-Provisioning	DNS	CP-V805 IB-FLEX	
ensible Attributes	DNS Traffic Control	IB-V1415	
missions	Enterprise	IB-V1425 IB-V2215	
	FireEye	IB-V2225 IB-V4015	
	MS Management	IB-V4025	
		IB-V815 IB-V825	
Cancel		IB-VM-100	Save & Cic

4. Click on the icon of the newly added member and select **Generate Token**.

+1	2	@ ≡ ः । = ± -	8		Go to Go
	=	Edit	НА	STATUS	IPV4 ADDRESS
	=	Delete.blox.localdoma.n	No	Running	10.196.200.110
	=	Extensible Attributes member01.localdoma n Permissions	No	Offline	10.196.200.111
		Generate Token			
		View Token			

5. You will be presented with a token like the one mentioned below. Make a note of this token.

Your Permission Token

This is your new permission	token:
NODE 1	
Token	ekOLhJqXxJ6s0Jqauw71NEmH6UPYfi8O
Expiration Date	2019-10-14 22:24:01 IST

Getting the Grid-Master certificate

1. Execute the following command from a Linux machine with openssl utility installed.

```
# openssl s_client -connect grid_master_ip:443 -showcerts
```

2. You will be presented the with the certificate details of the Grid-Master. Make a note of the PEM certificate section of the Grid Master.

PEM certificate chain looks like.

```
----BEGIN CERTIFICATE-----
MIIDrzCCApegAwIBAgIQVsnxwt+YTMPOyYQBU7yQbDANBgkqhkiG9w0BAQUFADB+
MQswCQYDVQQGEwJVUzETMBEGA1UECBMKQ2FsaWZvcm5pYTESMBAGA1UEBxMJU3Vu
bnl2YWxlMREwDwYDVQQKEwhJbmZvYmxveDEUMBIGA1UECxMLRW5naW51ZXJpbmcx
HTAbBgNVBAMTFGluZm9ibG94LmxvY2FsZG9tYWluMB4XDTE5MTAxNDE0MjIyOVoX
DTIwMTAxMzE0MjIyOVowfjELMAkGA1UEBhMCVVMxEzARBqNVBAqTCkNhbG1mb3Ju
aWExEjAQBgNVBAcTCVN1bm55dmFsZTERMA8GA1UEChMISW5mb2Jsb3gxFDASBgNV
BAsTC0VuZ21uZWVyaW5nMR0wGwYDVQQDExRpbmZvYmxveC5sb2NhbGRvbWFpbjCC
ASIwDQYJKoZIhvcNAQEBBQADqqEPADCCAQoCqqEBAMA73jl+6UrbY7h6/JqBbW69
PVJR+vH5oZ6RKNB0g8UeezT3OZUx8Y4lTng/LTj61afpyojSTvGot3S68EhjyDcC
AwEAAaMpMCcwJQYDVR0RBB4wHIcECsTIboIUaW5mb2Jsb3gubG9jYWxkb21haW4w
DQYJKoZIhvcNAQEFBQADqqEBAARRPis+194uUi7G+4JFdPV+01+P7Y6ujPmeZ8vX
ZLpNvEFOyz8BbR7Lvh/KYDiFnp5C/CSqg0IbLFxTeIH6627xwYC5hN/mehyri5vG
fHNmFcaJ4bZSjyvwnSEre9MmDySmEkSySZp2WwqJRLwLsm3Zq0dAAQy1cTmgo/qv
gnQET5CstzxY17fV5yd6mNPa50ZW131XjHcOo2o+OtckUnRpUGLJFoeWh90U1n2L
bK0tVjcQjupzcQXcsF4fsB+XqPOUJzMxuxjMz/StzYGD8rWaayWmW3rbzMHTYn9J
Mioq/CHCFA2/dizZ3lyttHUtzpC8aYjxakpILH0bc2y3p9o=
----END CERTIFICATE----
```

Deploying a Member and adding it to the Grid

1. To deploy a vNIOS member follow same set of instructions as mentioned under <u>Deploying Grid-Master</u> section (till step 9)

Note: Please give a different name while deploying the member vNIOS.

- 2. Once you arrive at Customize Template wizard,
 - a. Expand **Uncategorized** option and specify **Temp license** strings **nios IB-815 enterprise** to active vNIOS and grid license.

Expand the Gridmaster section and enter the Certificate and Token which we obtained previously.



3. Scroll down and expand the **Networking** section, enter the IPv4 address, IPv4 netmask and IPv4 default gateway details. This should match with the details specified during pre-provisioning of the member.

C Deploy OVF Template		
 1 Select template 2 Select name and location 	Customize template Customize the deployment p	properties of this software solution.
✓ 3 Select a resource	All properties have valid	values Show next Collapse all
✓ 4 Review details		ekOLhJqXxJ6s0Jqauw71NEmH6UPYfi8O
 5 Accept license agreements 	- Networking	6 settings
 6 Select configuration 	IPv4 Address	LAN1 IPv4 IP address.
 7 Select storage 		10.196.200.111
 8 Select networks 9 Customize template 	IPv4 Default Gateway.	LAN1 IPv4 default gateway. 10.196.200.1
10 Ready to complete	IPv4 Netmask	LAN1 IPv4 netmask. 255.255.255.0
	IPv6 Address	LAN1 IPv6 IP address.
	IPv6 CIDR	LAN1 IPv6 CIDR block.
	IPv6 Default Gateway	LAN1 IPv6 default gateway.
		Back Next Finish Cancel

- 4. Click on Next and you will be presented with the summary of all the deployment details.
- 5. Review and click on **Finish** to commence the deployment.

/ 1 Select template	Ready to complete		[
2 Select name and location	Review configuration data.		_
/ 3 Select a resource	Name	Mem01	-
4 Review details	Source VM	nios-8.4.4-386831-2019-08-02-03-45-48-ddi	
5 Accept license agreements	Download size	Unknown	
6 Select configuration	Size on disk	244.1 GB	
7 Select storage	Datacenter	India	
8 Select networks	Resource	Vmware_Deployment_Guide	
9 Customize template	Deployment configuration	TE-815	
10 Ready to complete	 Storage mapping 	1	
	 Network mapping 	1	
	▶ IP allocation settings	IPv4, Static - Manual	
	4	Admin Password = Enable Remote Console = True Temp License = nios IB-V815 enterprise Certificate =BEGIN CERTIFICATE MIIDrzCCApegAwIBAgI0ZnOPC0+nat3BCrscW2KJYJANBgkqhkiG9w0BAQUFADB+MQswCQYDV QGEwJVUzETMBEGA1UECBMKQ2FsaWZvcm5pYTESMBAGA1UEBxMJU3Vubni2YWxIMREwD YDVQQKEwhJbmZvYmxveDEUMBIGA1UECxMLRW5naW5IZXJpbmcxHTAbBgNVBAMTFGIuZmi G94LmxvY2FsZG9tYWIuMB4XDTE5MTAxNDE0MTYyNloXDTIwMTAxMZE0MTYyNloMFJELMAKG/ UEBhMCVVMxEzARBgNVBAgTCKNhbGimb3JuaWExEJAQBgNVBAcTCVN1bm55dmFsZTERMA1	

- 7. Deployment will take some time. In the meantime, you can monitor the console of the vNIOS member to find out what is happening.
- 8. After initial deployment cloud-init kicks in and assigns the networking and licenses which triggers multiple reboots.
- 9. Post this cloud-init also adds the newly deployed vNIOS member to the Grid.

```
[2019/10/14 18:02:16.878] Starting services...
Skipping v6_address parameter
Skipping v6_prefix parameter
Skipping v6_gateway parameter
Skipping v6_olan_id parameter
[2019/10/14 18:02:27.277] System restart: config change...
[2019/10/14 18:02:53.385] Infoblox system initializing...
[2019/10/14 18:02:54.262] LAN port IPv4 10.196.200.111, netmask 255.255.255.0, g
ateway 10.196.200.1
[2019/10/14 18:03:11.533] Starting services...
[2019/10/14 18:03:17.477] System restart...
[2019/10/14 18:03:43.872] Infoblox system initializing...
[2019/10/14 18:03:44.733] LAN port IPv4 10.196.200.111, netmask 255.255.255.0, g
ateway 10.196.200.1
[2019/10/14 18:03:44.733] LAN port IPv4 10.196.200.111, netmask 255.255.255.0, g
ateway 10.196.200.1
[2019/10/14 18:03:44.733] LAN port IPv4 10.196.200.111, netmask 255.255.255.0, g
ateway 10.196.200.1
[2019/10/14 18:04:02.000] Starting services...
```

10. Login to the grid and verify that member is showing up as green and in online state.

Infoblox 📚	Dashboards	Data Management	Smart Folders	Grid Ac	Iministration	
	Grid Manage	Upgrade Licenses	HSM Group			
Finder 🔇	Infoblox	— 💉 🖪				
Smart Folders	+ TFTP H	TTP (File Dist) FTP	NTP bloxToo	ls Subscribe	er Collection	
Bookmarks -	+ Members	Services				
Recycle Bin	+		_			
URL Links -	Quick Filter	None	Filter On	Show Filter	Off <u>Replication Status View</u>	
	Group F	Results Group By Ch	oose one	~	+	
	+ 🖻	ā ≔ ≖ ≞ 1 -	I 🖶			
		NAME	н	A	STATUS	IPV4 ADDRESS
		🚸 infoblox.localdomain	N	lo	Running	10.196.200.110
		🚸 member01.localdoma	ain N	lo	Running	10.196.200.111

Deploying vNIOS through Vmware ovftool

The VMware OVF Tool is a command-line utility that allows administrators to import and export Open Virtualization Format (OVF) packages to and from VMware products. VMware OVF tool comes handy when a scripted deployment of OVA is desired.

Downloading Vmware ovftool

Ovftool can be downloaded from <u>https://code.vmware.com/web/tool/4.3.0/ovf</u>. This site also provides the documentation on the installation procedure on ovftool on Linux. More information on installation of ovftool on a linux machine can be obtained from <u>https://www.virtual-odyssey.com/2017/11/26/install-vmware-ovftool-ubuntu/</u>

Using ovftool to deploy vNIOS appliance on VMware vSphere

- 1. Login to the ubuntu machine where ovftool is installed as a root user.
- 2. Create a directory ovftool by executing following command



3. Copy the vNIOS OVA file to ovftool directory.

root@ubuntu-desktop:~# cd ovftool/ root@ubuntu-desktop:~/ovftool# ls nios-8.1.6-360192-2017-08-25-21-04-00-ddi.ova root@ubuntu-desktop:~/ovftool#

4. Use the following command to commence the deployment of Grid-Master using ovftool.

```
ovftool --noSSLVerify --name=name_of_the_vm --acceptAllEulas
--datastore=name_of_the_datastore -dm="disk_provisioning"
--network=name_of_the_portgroup --powerOn
--prop:remote_console_enabled=True --prop:temp_license="license_string"
--prop:lan1-v4_addr=lan1_ip_address --prop:lan1-v4_netmask=lan1_netmask
--prop:lan1-v4_gw=lan1_gateway absolute_path_of_the_ova_file
'vi://vcenter_user_id:password@vcenter_fqdn/datacenter_name/vm/name_of_vapp
_already_created_in_vcenter'
```

5. Sample command and its output



- ovftool will take some time to deploy the OVA. Once deployed you should be able to access Grid GUI using the LAN-1 IP address.
- 7. Once Grid GUI shows up, please follow the same set of instructions as mentioned under <u>Pre-provisioning and generating a token for the offline member</u> section.
- 8. To get the Grid-Master certificate details follow the instructions mentioned under <u>Getting the</u> <u>Grid-Master certificate</u> section.
- After generating member token and getting certificate details use the following command to deploy a vNIOS member and add it to the grid.
 - ovftool --noSSLVerify --name=name_of_the_vm --acceptAllEulas
 - --datastore=name_of_the_datastore -dm="disk_provisioning"
 - --network=name_of_the_portgroup --powerOn

```
--prop:remote_console_enabled=True --prop:temp_license="license_string"
```

- --prop:lan1-v4_addr=lan1_ip_address --prop:lan1-v4_netmask=lan1_netmask
- --prop:lan1-v4_gw=lan1_gateway
- --prop:gridmaster-ip_addr=gridmaster_ip_address
- --prop:gridmaster-token=member_token

```
--prop:gridmaster-certificate=gridmaster_certificate_pem
```

absolute path of the ova file

'vi://vcenter_user_id:password@vcenter_fqdn/datacenter_name/vm/name_of_vapp
_already_created_in_vcenter'

10. Sample command and its output.



Resizing vNIOS vmdk disk

Starting from NIOS 8.5 onwards, customers can resize vNIOS virtual hard disk. Once vNIOS is deployed from the resizable OVA file, its virtual hard disk can be resized based on your requirement and future expansion. By default, 60 GB hard disk gets provisioned post deployment. Once the virtual hard disk usage reaches 80%, Infoblox GUI flashes a disk usage warning. Infoblox recommends increasing the virtual hard disk size immediately after disk usage warning appearance. Resize option can only be performed before powering on vNIOS for the first time.

- Follow the steps mentioned under <u>download vNIOS OVA file</u> section to download resizable vNIOS OVA file.
- 2. After OVA file is downloaded, follow the instructions mentioned under Deploying Grid-Master.

3. Post-deployment, right click on the vNIOS and click on **Edit Settings** option.

vmware [,] vSphere Web Cli	ent ft≣	
Vmware° vSphere Web Client ♠≡ Navigator Back Back © © ovftool NIOS-8.5		Actions - NIOS-8.5 Power Guest OS Snapshots Open Console Migrate Clone Template Fault Tolerance VM Policies
Recent Objects X Viewed Created	Image: Second Tasks Image: Second Task Name Deploy OVF template Import OVF package Delete virtual machine Power Off virtual machine	Compatibility Export System Logs Edit Resource Settings Edit Settings Move To Rename Edit Notes Tags & Custom Attributes Add Permission Alarms
		Remove from Inventory

4. Expand the **Hard disk 1** option to view and change hard disk related options.

NIOS-8.5 - Edit Settings		?₩
Virtual Hardware VM Options 5	SDRS Rules VApp Options	
F 🔲 CPU	2 • •	A
► m Memory	16384 v MB v	
	60 GB V	
Maximum Size	7.34 TB	
VM storage policy	Datastore Default	
Туре	Thick provision lazy zeroed	
Sharing	No sharing -	::
Disk File	[Dell_Datastore_10TB_2] NIOS- 8.5/NIOS-8.5.vmdk	
Shares	Normal • 1,000	
Limit - IOPs	Unlimited •	
Virtual flash read cache	0 GB Advanced	
Disk Mode	Dependent 🔹	
Virtual Device Node	SCSI controller 0 SCSI(0:0)	
▶ G SCSI controller 0	LSI Logic Parallel	
▶ m Network adapter 1	Internet-200-24 (Dswitch-Internet-200	
Network adapter 2	Internet-200-24 (Dswitch-Internet-201 🔽 Connect	
▶ m Network adapter 3	Internet-200-24 (Dswitch-Internet-20(•
New device:	Select Add	
Compatibility: ESXi 5.5 and later (VM	1 version 10) OK Ca	ancel

5. To increase the vNIOS virtual hard disk size, enter virtual hard size against **Hard disk 1** option and click on **OK**.

NIOS-8.5 - Edit Settings	(?)		
Virtual Hardware VM Options S	DRS Rules VApp Options		
F 🔲 CPU	2 •		
▶ IIII Memory	16384 • MB •		
╼ 🛄 *Hard disk 1	150 GB 👻		
Maximum Size	7.34 TB		
VM storage policy	Datastore Default		
Туре	Thick provision lazy zeroed		
Sharing	No sharing -		
Disk File	[Dell_Datastore_10TB_2] NIOS- 8.5/NIOS-8.5.vmdk		
Shares	Normal		
Limit - IOPs	Unlimited		
Virtual flash read cache	0 GB 🔹 Advanced		
Disk Mode	Dependent 🔹 🛈		
Virtual Device Node	SCSI controller 0 SCSI(0:0)		
▶ SCSI controller 0	LSI Logic Parallel		
Metwork adapter 1	Internet-200-24 (Dswitch-Internet-20(
▶ Metwork adapter 2	Internet-200-24 (Dswitch-Internet-201		
▶ 📻 Network adapter 3	Internet-200-24 (Dswitch-Internet-20(▼ Connect ▼		
New device:	Select Add		
Compatibility: ESXi 5.5 and later (VM	version 10) OK Cancel		

Some useful information

- NIOS virtual appliance for VMware supports most of the features of the Infoblox NIOS appliances, with the following limitations:
 - When you configure an HA pair, both nodes in the HA pair must be NIOS virtual instances.
 You cannot configure a physical NIOS appliance and a NIOS virtual instance in an HA pair.
 - NIOS virtual appliances run on virtual hardware. They do not have sensors to monitor the physical CPU temperature, fan speed, and system temperature.
 - Changing the NIOS virtual appliance settings through the VMware vSphere or vCenter console may violate the terms of the NIOS virtual licensing and support models. The NIOS virtual appliance may not join the Grid or function properly.
- Following are the temp license strings which activates the corresponding licensed features using cloud-init.

String	License description
nios	NIOS license
dns	DNS server
dhcp	DHCP server
enterprise	Grid license
vnios	vNIOS license
cloud	Cloud Network Automation
cloud_api	Cloud Platform license
load_bal	Load Balancer license
ms_management	Microsoft management license
qrd	Query Redirection license
dnsqrw	DNS Query Rewrite license
dtc	DNS Traffic Control license
rpz	Response Policy Zones license
fireeye	FireEye license
threat_anl	Threat Analytics license
sw_tp	Threat Protection (Software add-on) license
tp_sub	Threat Protection Update license
sec_eco	Security Ecosystem license
flex_grid	Flex Grid Activation ("Organization") license

- After increasing the vNIOS virtual hard disk size it cannot be decreased.
- vNIOS virtual hard disk can be increased up to 2.5 TB.



Infoblox is the leader in modern, cloud-first networking and security services. Through extensive integrations, its solutions empower organizations to realize the full advantages of cloud networking today, while maximizing their existing infrastructure investments. Infoblox has over 12,000 customers, including 70 percent of the Fortune 500.

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