NetWitness® Platform XDR

Version 12.1.0.0

Azure Installation Guide

NETWITNESS
Platform XDR

Contact Information

NetWitness Community at https://community.netwitness.com contains a knowledge base that answers common questions and provides solutions to known problems, product documentation, community discussions, and case management.

Trademarks

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Third-Party Licenses

Note on Encryption Technologies

Distribution

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Azure Installation Overview

Azure instances have the same functionality as the NetWitness hardware and virtual hosts. NetWitness recommends that you perform the following tasks when you set up your Azure environment.

Before you can deploy NetWitness in Azure, you need to:

- Review the recommended compute and memory specifications needed for each NetWitness instance.
- Get familiar with the NetWitness Storage Guide to understand the types of drives and volumes needed to support NetWitness instances. For more information, see Storage Guide for NetWitness® Platform XDR 12.1.
- Make sure that you have a NetWitness Throughput license.
- Use Chrome for your browser (Internet Explorer is not supported).

Azure Environment Recommendations

Azure instances have the same functionality as the NetWitness hardware hosts. NetWitness recommends that you perform the following tasks when you set up your Azure environment.

- Based on the resource requirements of the different components, follow best practices to use the system and dedicated storage appropriately.
- Build Concentrator directory for index database and Decoder directory for Packet database on SSD Disks with high IOPS / write throughput.

Azure Deployment Scenarios

Before you can deploy NetWitness you need to:

- Consider the requirements of your enterprise and understand the deployment process.
- Have a high-level picture of the complexity and scope of a NetWitness deployment.

Process

The components and topology of a NetWitness network can vary greatly between installations, and should be carefully planned before the process begins. Initial planning includes:

- Consideration of site requirements and safety requirements.
- Review of the network architecture and port usage.
- Support of group aggregation on Archivers and Concentrators, and virtual hosts.

When updating hosts and services, follow recommended guidelines under the "Running in Mixed Mode" topic in the *NetWitness Host and Services Getting Started Guide*.

You should also become familiar with Hosts, Host Types, and Services as they are used in the context of NetWitness also described in the *NetWitness Host and Services Getting Started Guide*.

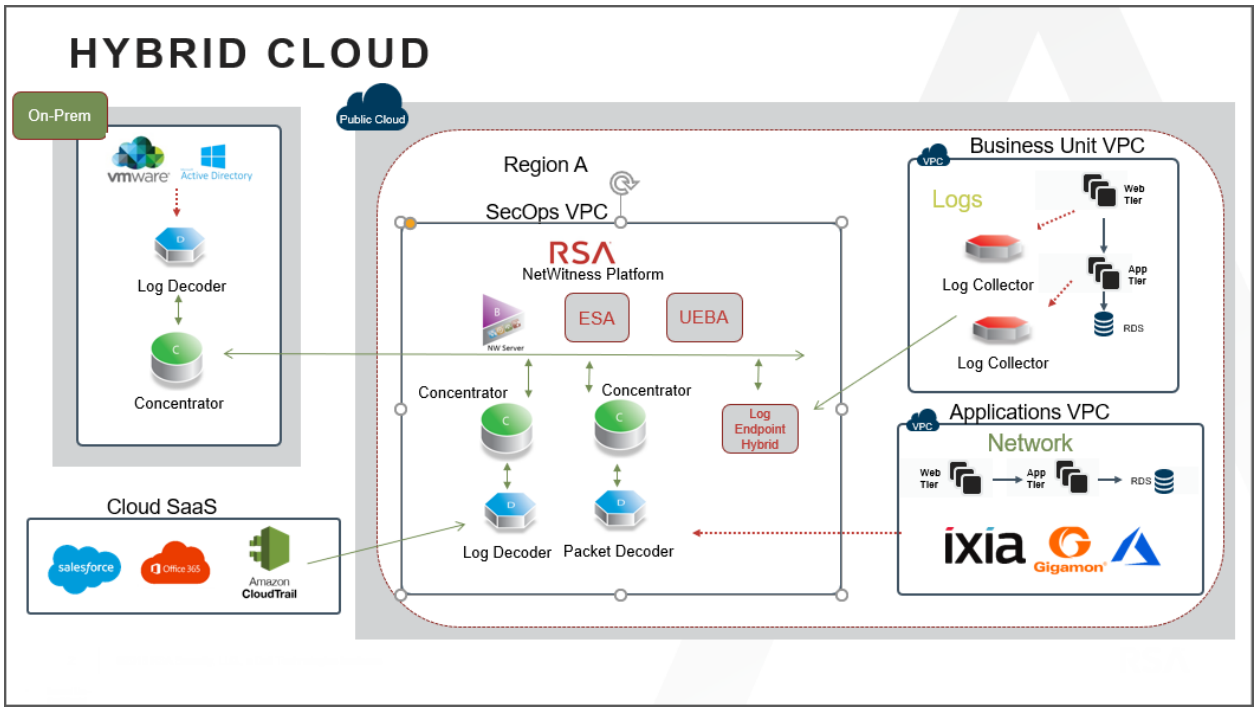
NetWitness High-Level Deployment Diagram

NetWitness is inherently modular. Whether organizations are looking to deploy on-premise or in the cloud, the NetWitness components are decoupled in a way which allows flexible deployment architectures to satisfy a variety of use cases.

The following figure is an example of a hybrid cloud deployment, where the base of the components are residing within the SecOps VPC. Centralizing these components make management easier while keeping network latency to a minimum.

Network, log and endpoint traffic could then be aggregated up to the SecOps VPC. The on-premise location would function just like a normal physical deployment and would be accessible for investigations and analytics.

Cloud SaaS visibility could be captured from a Log Decoder residing in either the cloud or on-premise locations.



Azure Configuration Recommendations

This topic contains the minimum Azure VM configuration settings recommended for the NetWitness (NW) virtual stack components.

- VM:
  - The recommended settings in the NetWitness component VM tables below were calculated under the following conditions.
    - Ingestion rates of 15,000 EPS and 1.5GBps were used.
    - All the components were integrated.
    - The Log stream included a Log Decoder, Concentrator, and Archiver.
    - The Packet stream included a Network Decoder and Concentrator.
    - Incident Management was receiving alerts from the Reporting Engine and Event Stream Analysis.
    - The background load included reports, charts, alerts, investigation, and respond.
    - The default partition size of Azure VM hosts for `/root` is 8GB and for `/var/netwitness` is 15GB. These partitions can be increased to a minimum of 40GB. For more information see, Updating Partition Size.
- VHD (Storage)
  For more information, see Storage Guide for NetWitness® Platform XDR 12.1 on how to increase the number of volumes based on your storage requirements using the NetWitness Sizing & Scoping Calculator.

Azure Instance Recommendations

The following table shows the storage recommendations for NetWitness Azure VMs.

Azure Image Type	Rate (EPS)	CPU (Cores)	RAM (GB)	Instance Type (Azure Name)
NW Server	Does not apply	16	112	Standard D14_v2
Log Decoder	15,000	32	128	Standard D32s_v3
Log Concentrator	15,000	16	112	Standard DS14_v2
Archiver	15,000	16	112	Standard D14_v2
Log Collector	15,000	8	32	Standard D8s_v3
UEBA*	Does not apply	16	112	Standard D14_v2

Note: *If your log collection volume is low, NetWitness recommends you to deploy UEBA only on a virtual host. If you have a moderate to high log collection volume, NetWitness recommends you to deploy UEBA on the physical host as described under "NetWitness UEBA Host Hardware Specifications" in the *Physical Host Installation Guide*.

Refer to the *Storage Guide for NetWitness Platform* for additional storage information.

Packet Stream Solutions

The following tables show Instance recommendations for Different EPS rates for Packet stream.

Note: NetWitness Decoder is supported with Gigamon Packet broker from version 11.7.x or higher on Azure Cloud environment.

Decoder - Gigamon Solution

Azure Image Type	Rate (Mbps)	CPU (Cores)	RAM (GB)	Instance Type (Azure Name)	Accelerated Networking Enabled
Decoder	500	16	64	Standard D16ds_v4	Yes
Decoder	1000	16	64	Standard D16ds_v4	Yes
Decoder	1500	32	128	Standard D32ds_v4	Yes

Rate (Mbps)	Volumes	Volume Type	IOPS / Baseline Throughput
500	index, session, meta	RAID5 of minimum 3 P15 Premium SSD Disks	80MB/s
500	packet	RAID5 of minimum 3 P15 Premium SSD Disks	80MB/s
1000	index, session, meta	RAID5 of minimum 3 P20 Premium SSD Disks	170MB/s
1000	packet	RAID5 of minimum 3 P30 Premium SSD Disks	170MB/s
1500	index, session, meta	RAID5 of minimum 3 P40 Premium SSD Disks	300MB/s
1500	packet	RAID5 of minimum 3 P40 Premium SSD Disks	300MB/s

Concentrator - Gigamon Solution

Azure Image Type	Rate (Mbps)	CPU (Cores)	RAM (GB)	Instance Type (Azure Name)	Accelerated Networking Enabled
Packet Concentrator	500	16	64	Standard D16ds_v4	No
Packet Concentrator	1000	16	114	Standard DS14_v2	No
Packet Concentrator	1500	16	114	Standard DS14_v2	No

Note: For Packet Concentrator with **500**Mbps rate, if the query load on the environment is on the higher side (max concurrent queries > **5**), it is recommended to use **Standard DS14_v2** Instance.

Rate (Mbps)	Volumes	Volume Type	IOPS / Baseline Throughput
500	index	RAID5 of minimum 3 P30 Premium SSD Disks	10000
500	session, meta	RAID5 of minimum 3 P15 Premium SSD Disks	80MB/s
1000	index	RAID5 of minimum 3 P40 Premium SSD Disks	12000
1000	session, meta	RAID5 of minimum 3 P20 Standard SSD Disks	170MB/s
1500	index	RAID5 of minimum 3 P40 Premium SSD Disks	15000
1500	session, meta	RAID5 of minimum 3 P40 Premium SSD Disks	300MB/s

ESA and Context Hub

The following table shows Instance recommendations for Different EPS rates for ESA.

Rate (EPS)	CPU (Cores)	RAM (GB)	Instance Type	Accelerated Networking Enabled
15,000	16	112	Standard DS14_v2	No
50,000	20	140	Standard DS15_v2	Yes
100,000	32	256	Standard E32s_v3	Yes

Updating Partition Size

You can increase the partition size to a minimum of 40GB each.

After adding additional required disk size to the Azure VM, you can extend the partition sizes using the following commands:

1. SSH to the VM, login as a root user and execute the following command to view the existing partitions along with the new partition added.
   `lsblk`
2. Check the name of the new partition. Eg: `sdc`

```
pvcreate /dev/sdc -y
vgextend netwitness_vg00 /dev/sdc -y
lvextend -L 40G /dev/netwitness_vg00/root -y
xfs_growfs /dev/netwitness_vg00/root
lvextend -L 40G /dev/netwitness_vg00/nwhome -y
xfs_growfs /dev/netwitness_vg00/nwhome
```

These commands are provided assuming that `sdc` is the new disk added and 40GB is the extended partition size for each of the partitions.

Azure Deployment

This topic contains the rules and high-level tasks you must perform to deploy NetWitness components in Azure.

Rules

You must adhere to the following rules:

It is recommended to use private IP addresses when you provision Azure NetWitness VMs.

Checklist

Step	Description	√
1.	Deploy NW Server Host	
2.	Deploy NW Component Hosts in Azure	

Storage Configurations

This topic contains the recommended Azure storage configurations.

For storage allocations of all host types, see the Prepare Virtual or Cloud Storage topic in the *Storage Guide for NetWitness® Platform XDR 12.1*.

Enabling Swap Partition in Azure Deployments

After completing the Azure deployment, you must enable the swap in your deployment.

To do this, perform the following steps:

1. Modify the default parameters at `/etc/waagent.conf` to

```
ResourceDisk.Format=y
ResourceDisk.Filesystem=ext4
ResourceDisk.MountPoint=/mnt/resource
ResourceDisk.EnableSwap=y
ResourceDisk.SwapSizeMB=4096
```

The following screenshot displays the default parameters.

```
# Format if unformatted. If 'n', resource disk will not be mounted.
ResourceDisk.Format=y

# File system on the resource disk
# Typically ext3 or ext4. FreeBSD images should use 'ufs2' here.
ResourceDisk.Filesystem=ext4

# Mount point for the resource disk
ResourceDisk.MountPoint=/mnt/resource

# Create and use swapfile on resource disk.
ResourceDisk.EnableSwap=n

# Size of the swapfile.
ResourceDisk.SwapSizeMB=0
```

The following screenshot displays the modified parameters.

```
# Format if unformatted. If 'n', resource disk will not be mounted.
ResourceDisk.Format=y

# File system on the resource disk
# Typically ext3 or ext4. FreeBSD images should use 'ufs2' here.
ResourceDisk.Filesystem=ext4

# Mount point for the resource disk
ResourceDisk.MountPoint=/mnt/resource

# Create and use swapfile on resource disk.
ResourceDisk.EnableSwap=y

# Size of the swapfile.
ResourceDisk.SwapSizeMB=4096
```

Note: You can set the `ResourceDisk.SwapSizeMB` parameter based on your requirement.

2. Restart the `waagent.service` using the command: `systemctl restart waagent.service`

Note: To check the status of the swap use the command `swapon --show`.

Deploy NW Server Host

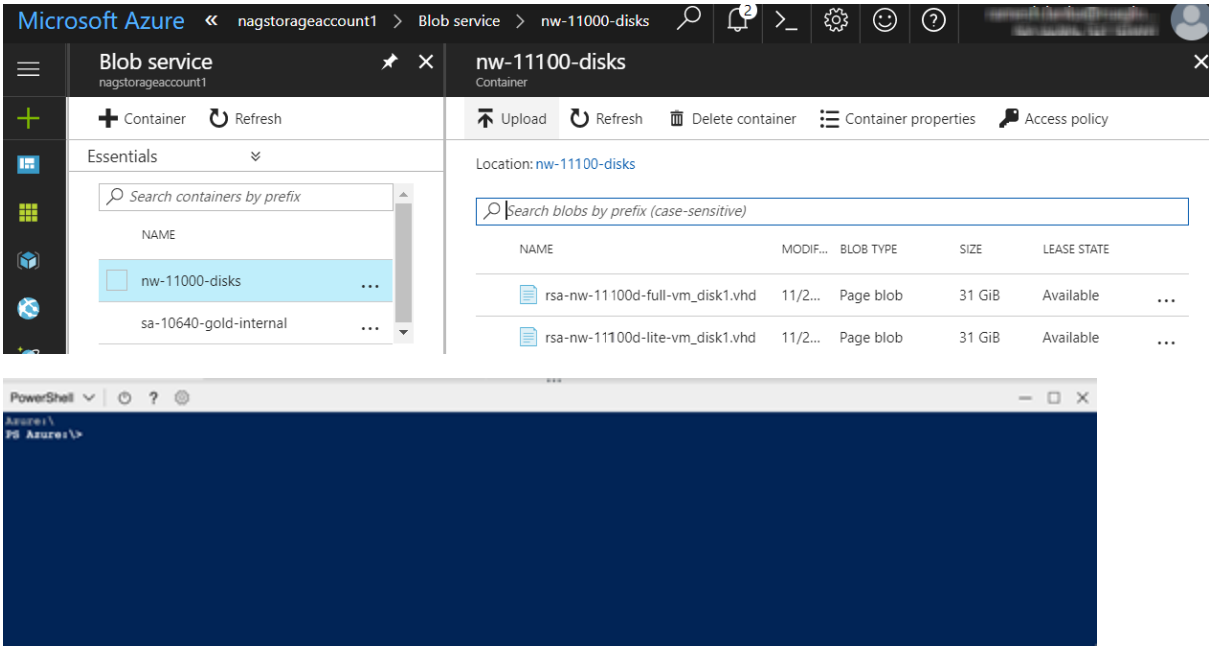
The following tasks must be performed to deploy a NetWitness Server (NW Server) on a virtual machine (VM) in the Azure Cloud environment.

Note: It is not mandatory to deploy the NW Server in the Azure Cloud environment . For more information on how to deploy other components, see Azure Deployment Scenarios.

Task 1. - Upload NW Server VHDs

To upload NW Server VHDs to Azure.

1. Contact Customer Support (https://community.netwitness.com/t5/support/ct-p/support) to open a support case requesting the NW Server VHDs. A valid throughput license is required.
2. Customer Support will update the case with VHD URI's.
3. In the Azure Portal, open the Powershell CLI.



You will need a storage account, blob service and container setup. This is where the VHD's are copied. After these are in place, you can execute the following command within the Azure Portal Powershell CLI. Alternatively, you can also run these commands from the Powershell on your workstation:

a. Run this command from Powershell to install AzureRM: `Install-Module -Name AzureRM -AllowClobber`

b. Execute this command to verify the installation process has been successfully done: `Import-Module -Name AzureRM`

c. If you find any error regarding execution policy, execute this command: - `Set-ExecutionPolicy -ExecutionPolicy RemoteSigned` (then repeat step b)

d. (Optional) If you are running the commands from the Powershell on your workstation, log in to your Azure account using this command: `Login-AzureRmAccount`

e. Select the Subscription: `Select-AzureRmSubscription -SubscriptionId <subscriptionid>`

f. Create a target context: `$targetStorageContext = (Get-AzureRmStorageAccount -ResourceGroupName <resource-group-name> –Name <storage-account-name>).Context`

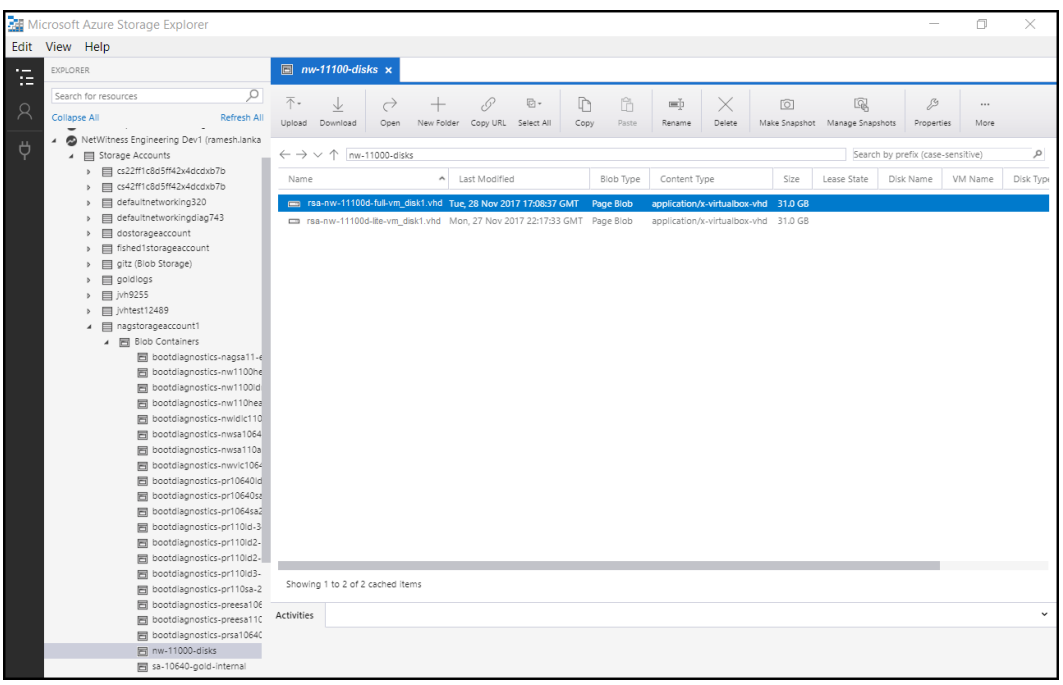
g. Start the copy: `Start-AzureStorageBlobCopy -AbsoluteUri "<SAS-URL>" -DestContainer <container-name> -DestBlob <destination-blob-name> -DestContext $targetStorageContext`

h. Obtain the Blob copy status by using the command: `Get-AzureStorageBlobCopyState -Blob "< destination-blob-name>" -Container "<container-name> " –Context $targetStorageContext`

4. Once the VHD's are successfully copied. You'll must create an image and a VM.

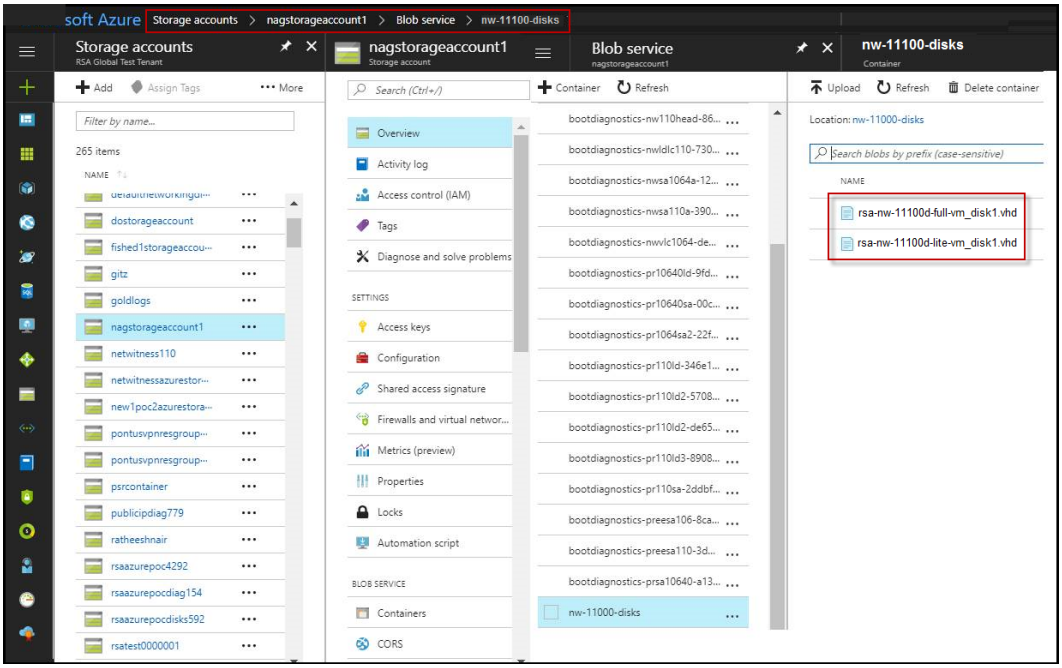
5. Verify if all the NW Server VHDs are uploaded into the Azure Cloud.

Note: Alternatively, you can use the Microsoft Azure Storage Explorer windows utility (http://storageexplorer.com/) to verify that all the VHDs from the following location subscription exist. This utility helps you manage the contents of your storage.



a. Log in to the Azure portal (https://portal.azure.com).

b. From the right panel, click **Storage accounts** > **netwitnessazurestorage1** > **Blob service** > **nwazurevhdstore**.

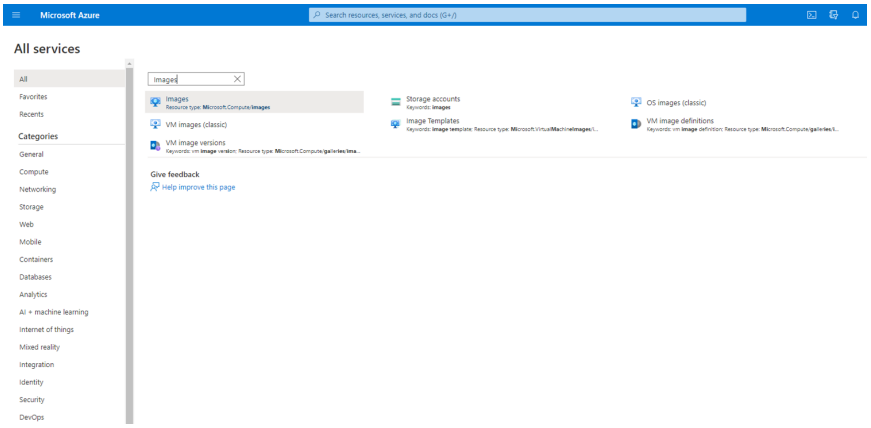


6. (Optional) In the Azure Explorer, go to the **NetWitness** group > **Storage Accounts** > **netwitnessazurestorage1**) > **Blob Containers** > **nwazurevhdstore**).

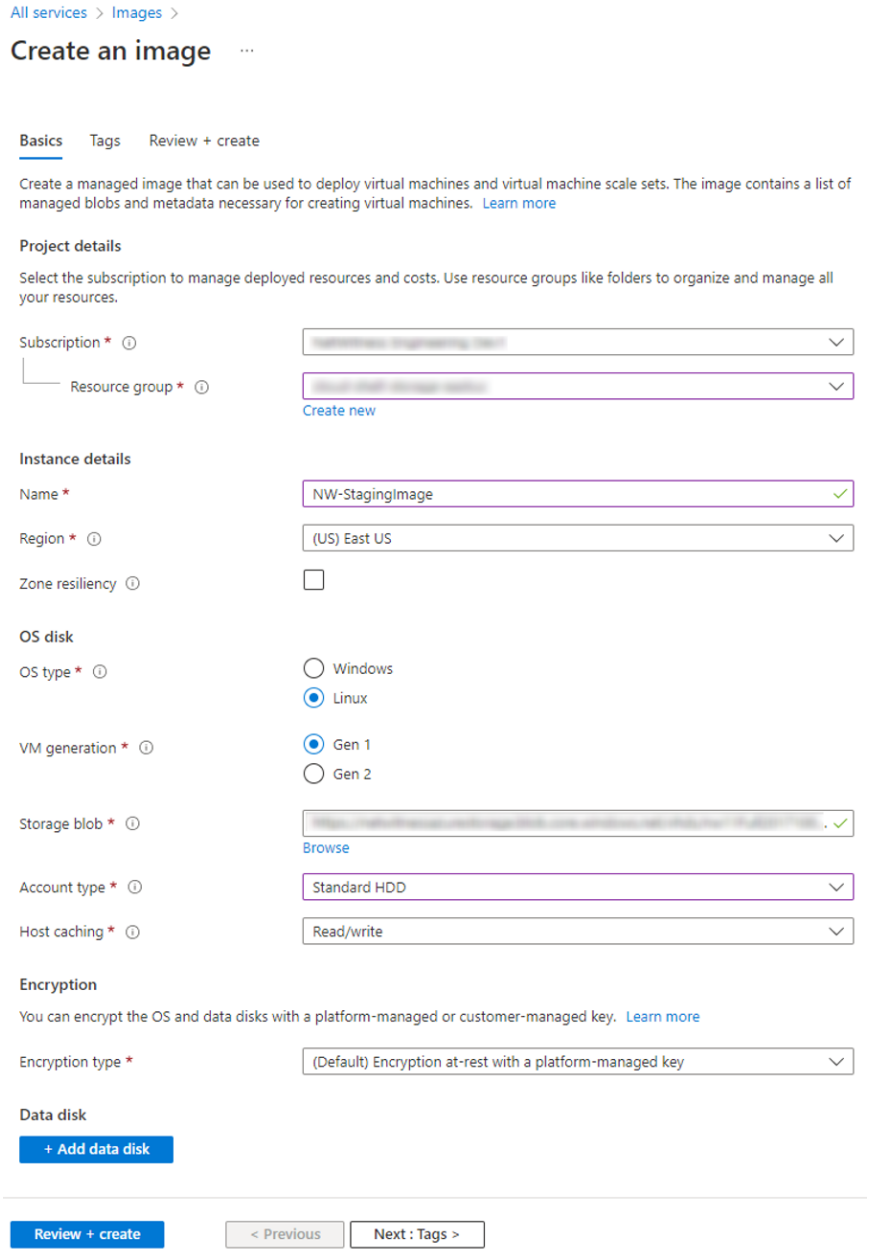
Task 2. - Create NW Server Image

To create a NW Server image in Azure from upload VHDs, perform the following steps:

1. Log in to https://portal.azure.com.
2. From the left panel, click **All Services** and filter by Images.
3. Click **Images**.

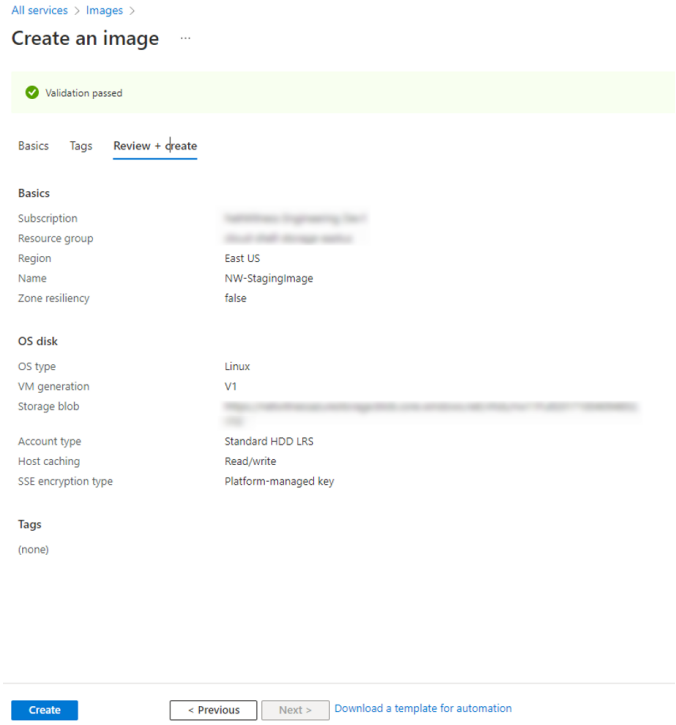


4. To create and configure the Image.
   a. Click **Create**.
   b. Enter an image **Name**, select the correct **Resource Group**, select a valid **Region**, and set the **OS Disk** to Linux.
      In the **Storage blob**, browse to the uploaded location of the VHDs .
   c. Make sure that **Standard (HDD)** is selected for **Account Type**.
      The following screen shot illustrates a completed **Create Image** view.



   d. Click **Next : Tags >** to add the tags for the Image (optional) and then Click **Review + create**.
      Azure does a validation check.

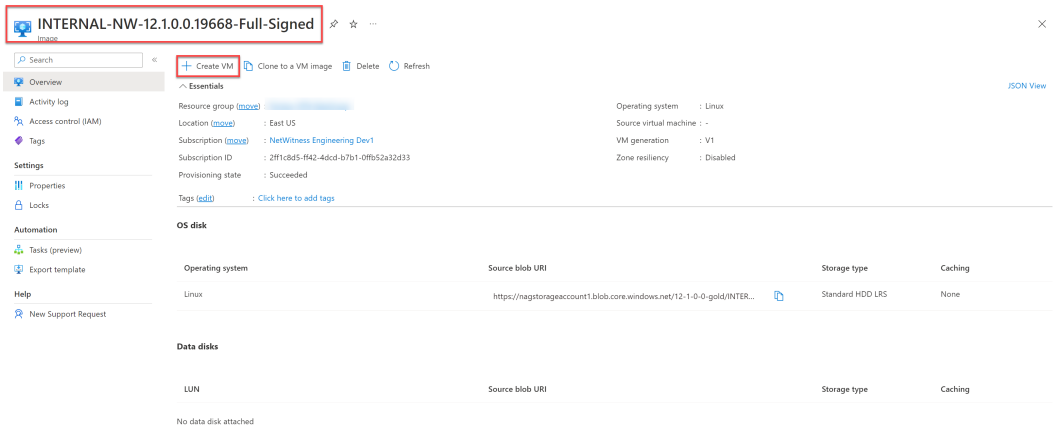
e. Click **Create** to create the image.
Check notifications on top right for the confirmation.



Task 3. Create Virtual Machine (VM)

To create a VM in Azure using the NW Server image:

1. Go to **Images** and click **Create VM**.



The **Basics** tab is displayed.

Microsoft Azure

Home > Images > INTERNAL-NW-12.1.0.0.19668-Full-Signed >

Create a virtual machine ...

Basics | Disks | Networking | Management | Monitoring | Advanced | Tags | Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * : NetWitness Engineering Dev1

Resource group * : [illegible]

Create new

Instance details

Virtual machine name * : ML-QE-DO-[illegible]

Region : (US) East US

Availability options : Availability zone

Availability zone * : Zone 1

Security type : Standard

Image * : INTERNAL-NW-12.1.0.0.19668-Full-Signed - Gen1

See all images | Configure VM generation

VM architecture : Arm64 / x64

Arm64 is not supported with the selected image.

Run with Azure Spot discount : [ ]

Size * : Standard_D16_v3 - 16 vcpus, 64 GiB memory ($504.43/month)

See all sizes

Administrator account

Authentication type : SSH public key / Password

Username * : nwadmin

Password * : ••••••••••••••

Confirm password * : ••••••••••••••

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * : None / Allow selected ports

Select inbound ports : Select one or more ports

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Licensing

License type * : Other

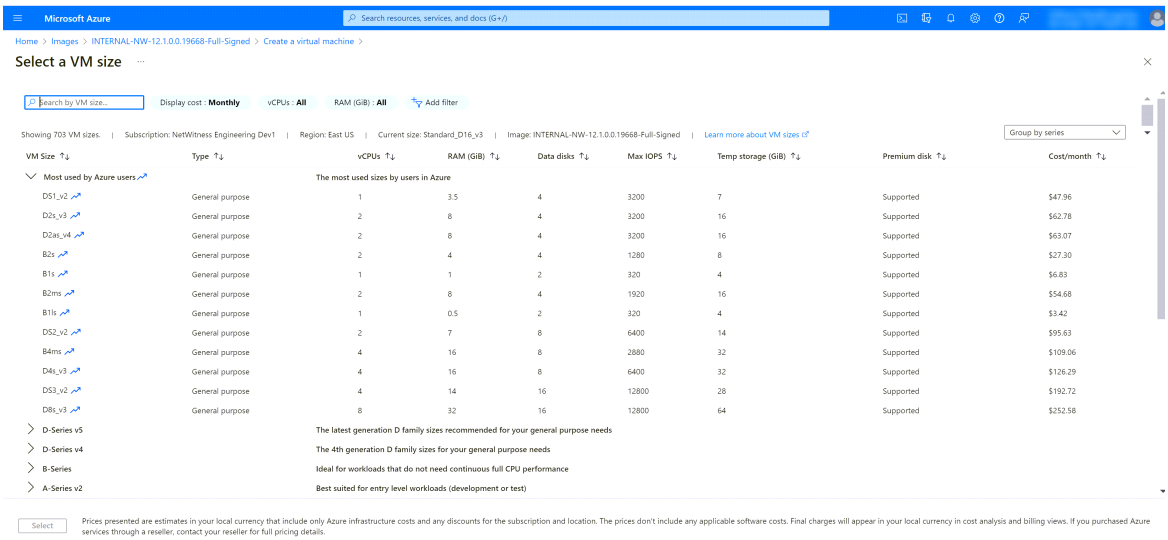
If you are using a RedHat or SLES image, you may be eligible for the Azure Hybrid Benefit and can save money on the license costs. Learn more about this benefit and how to enable it using Azure CLI for custom images from snapshots and Azure compute gallery.

2. Enter the values in following fields.
   a. In the **Name** field, enter a user-defined name (for example, **ML-QE-DO**.

   Caution: The username and password that you define is used to login to the system as a non-administrator user. Do not use the root user (the login does not have superuser permissions). You must change the root password the first time that you log in to the VM by executing the `su passwd root` command. This is a critical step and should not be missed. You cannot use `root` for a username (Azure-specific).

   Note: Make sure the values selected in the **Subscription**, **Resource group**, and **Region** fields are correct.

   b. Click **See all sizes** and select appropriate Size and Instance. The recommended instance for Concentrator is **Standard F8**.



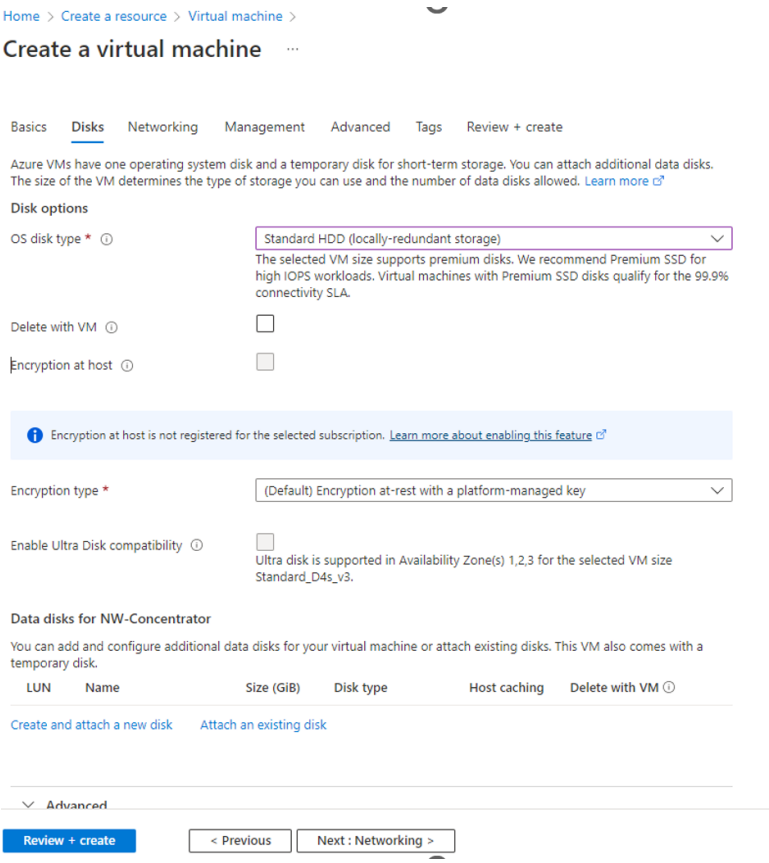
   Note: The sizing is based upon the capacity requirements of your enterprise. For more information on NetWitness VM size recommendations based on log capture rates, see Azure Configuration Recommendations. The minimum size NetWitness recommends for the NW Server is **F8 Standard**.

   c. In the **User name** field, enter a valid username.

   d. In the **Authentication type** field, click **Password** and enter a strong password that is a combination of lowercase, uppercase, numeral and a symbol (for example, **Password@123**).

   e. Click **Next** : **Disks >**.
   The **Disks** tab is displayed.

3. In the OS Disk type, select **Standard HDD** from the drop-down list and click **Next : Networking >**.



The **Networking** tab is displayed.

4. Click and define the fields.
   a. In the **Networking** tab, select:
      - A valid **Virtual network** and **Subnet**.

Basics | Disks | Networking | Management | Advanced | Tags | Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.
Learn more

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * — Create new

Subnet * — Manage subnet configuration

Public IP — None — Create new

NIC network security group — None / Basic / Advanced

Public inbound ports * — None / Allow selected ports

Select inbound ports * — HTTPS (443)

Delete NIC when VM is deleted

Accelerated networking — The selected image does not support accelerated networking.

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. Learn more

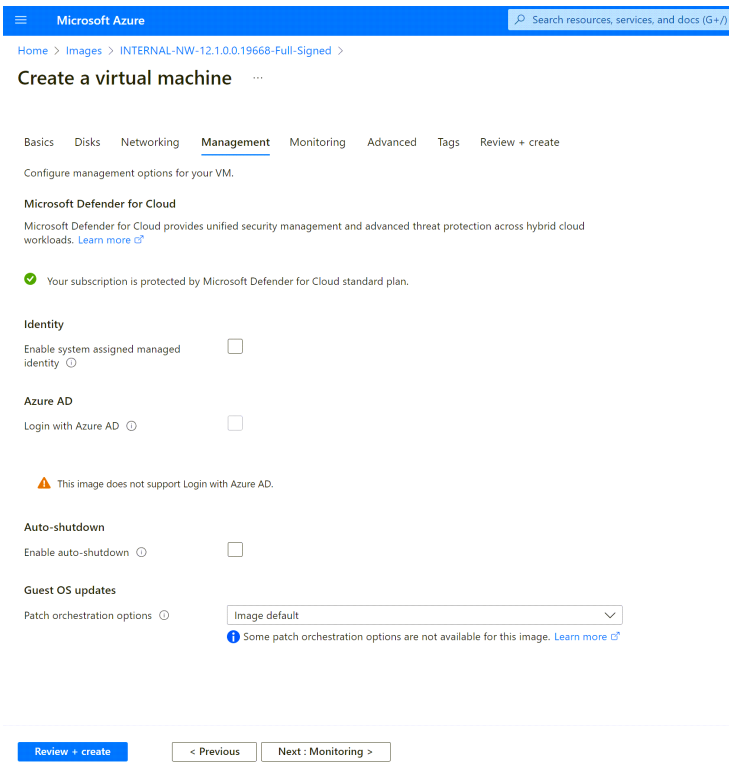
Place this virtual machine behind an existing load balancing solution?

Review + create | < Previous | Next : Management >

      - **None** for the **Public IP address**.
        NetWitness recommends **None** for the **Public IP address** (this is not mandatory). You can assign a public IP address, but it countermands Best Practices to assign a public IP to something that is based in the Azure Cloud.

- A valid **Network security group**.
  For information on Network security groups, see the Microsoft Azure documentation (https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-nsg).

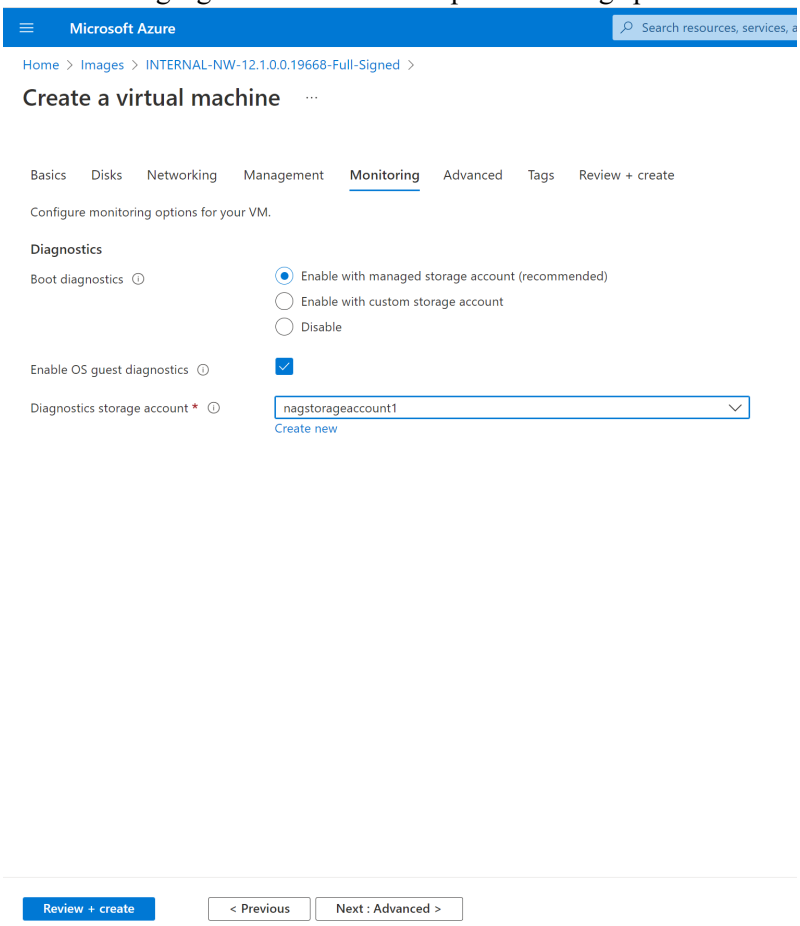
b. (Optional) In the **Management** tab, configure the details if required and click **Review + create**.



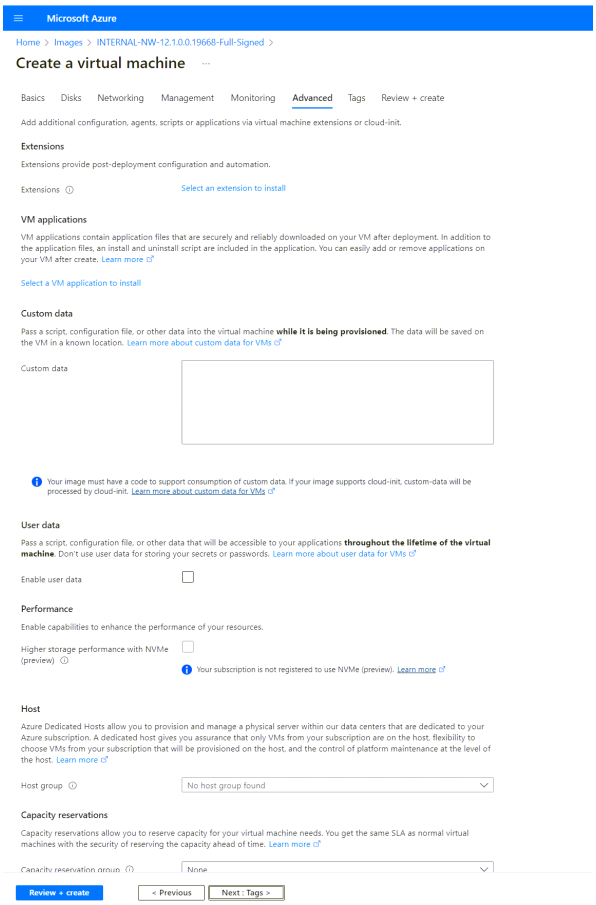
c. In the **Monitoring** tab, under Diagnostics, select:

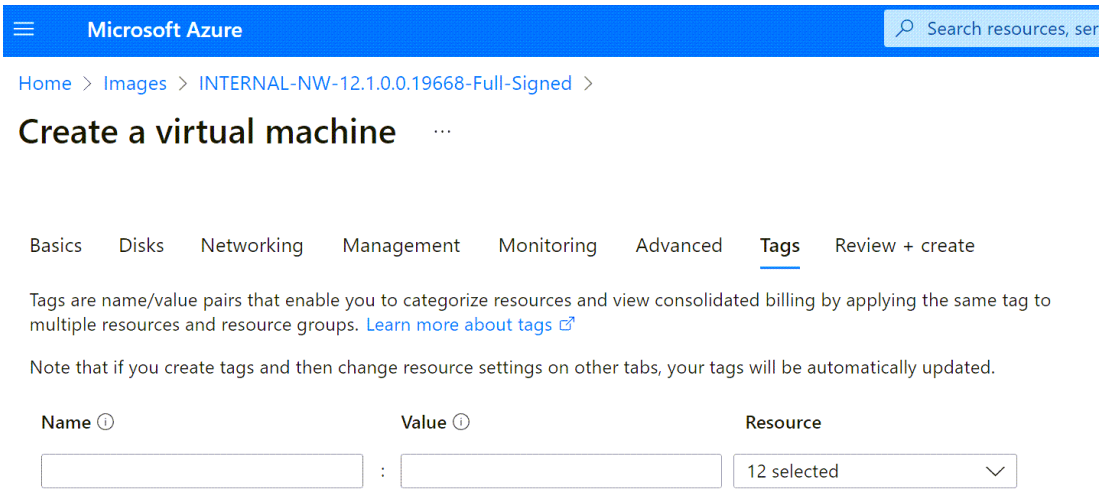
- **On** for **Boot Diagnostics**
- **On** for **OS guest diagnostics**
- a valid **Diagnostics storage account**

The following figure illustrates a completed Settings panel.



Note: By default, the settings remain unchanged in the **Advanced** and **Tags** tab. Add any name and value pairs for tags based on requirement.


Microsoft Azure
Home > Images > INTERNAL-NW-12.1.0.0.19668-Full-Signed >
Create a virtual machine
Basics Disks Networking Management Monitoring Advanced Tags Review + create
Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.
Extensions
Extensions provide post-deployment configuration and automation.
Extensions
Select an extension to install
VM applications
VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. Learn more
Select a VM application to install
Custom data
Pass a script, configuration file, or other data into the virtual machine while it is being provisioned. The data will be saved on the VM in a known location. Learn more about custom data for VMs
Custom data
Your image must have a code to support consumption of custom data. If your image supports cloud-init, custom-data will be processed by cloud-init. Learn more about custom data for VMs
User data
Pass a script, configuration file, or other data that will be accessible to your applications throughout the lifetime of the virtual machine. Don't use user data for storing your secrets or passwords. Learn more about user data for VMs
Enable user data
Performance
Enable capabilities to enhance the performance of your resources.
Higher storage performance with NVMe (preview)
Your subscription is not registered to use NVMe (preview). Learn more
Host
Azure Dedicated Hosts allow you to provision and manage a physical server within our data centers that are dedicated to your Azure subscription. A dedicated host gives you assurance that only VMs from your subscription are on the host, flexibility to choose VMs from your subscription that will be provisioned on the host, and the control of platform maintenance at the level of the host. Learn more
Host group
No host group found
Capacity reservations
Capacity reservations allow you to reserve capacity for your virtual machine needs. You get the same SLA as normal virtual machines with the security of reserving the capacity ahead of time. Learn more
None
Review + create
< Previous
Next : Tags >


Microsoft Azure
Search resources, ser
Home > Images > INTERNAL-NW-12.1.0.0.19668-Full-Signed >
Create a virtual machine ...
Basics Disks Networking Management Monitoring Advanced Tags Review + create
Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. Learn more about tags
Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.
Name
Value
Resource
:
12 selected

5. Under **Review + create** tab, review the specified details and click **Create**.

Home > Images > INTERNAL-NW-12.1.0.0.19668-Full-Signed >

Create a virtual machine

Validation passed

Basics | Disks | Networking | Management | Monitoring | Advanced | Tags | Review + create

INTERNAL-NW-12.1.0.0.19668-Full-Signed Image
Standard D16 v3
16 vcpus, 64 GiB memory

Basics

Subscription	
Resource group	
Virtual machine name	ML-QE-DO-
Region	East US
Availability options	Availability zone
Availability zone	1
Security type	Standard
Image	INTERNAL-NW-12.1.0.0.19668-Full-Signed - Gen1
Size	Standard D16 v3 (16 vcpus, 64 GiB memory)
Authentication type	Password
Username	nwadmin
Azure Spot	No

Disks

OS disk type	Standard SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled
Ephemeral OS disk	No

Networking

Virtual network	
Subnet	
Public IP	None
NIC network security group	NW-Pontus-Default
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No
Delete NIC when VM is deleted	Enabled

Management

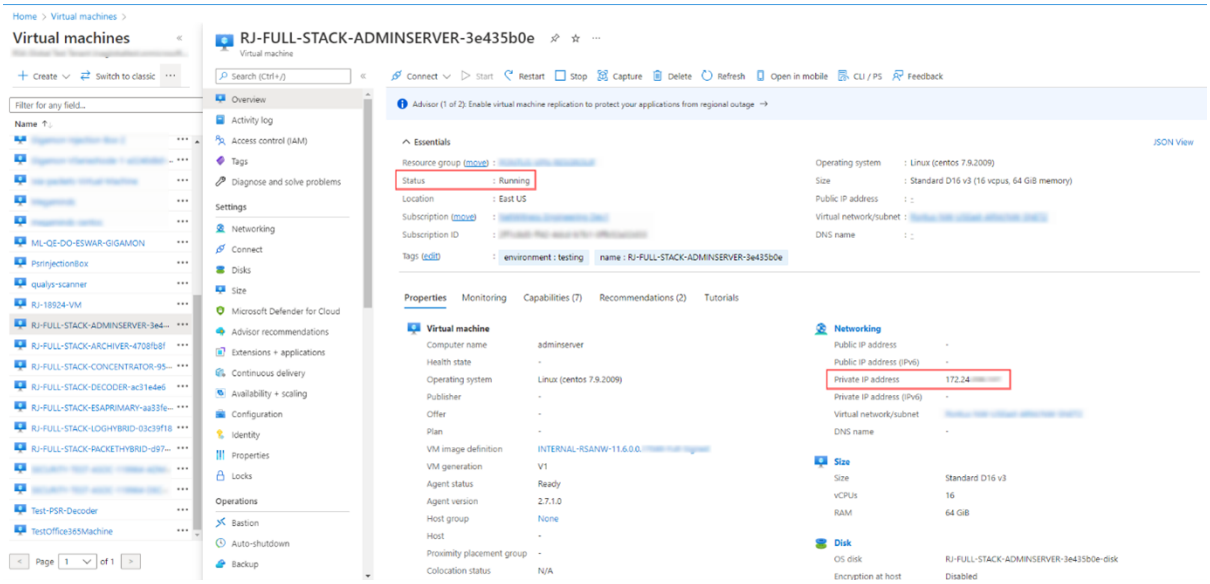
Microsoft Defender for Cloud	Standard
System assigned managed identity	Off
Login with Azure AD	Off
Auto-shutdown	Off
Enable hotpatch	Off
Patch orchestration options	Image Default

Monitoring

Boot diagnostics	On
Enable OS guest diagnostics	Off

The NW Server VM Deployment is successful when you see the VM status as **Running**.

6. Click **Overview** on the Virtual Machine to view all the required details such as VM status and IP Address.



7. SSH to the VM using the username that you specified in Step 2d of Task 3 and reset the **root** password. Use the `su passwd root` command string to reset the root password.

```
[psradmin@12 ~]$ sudo passwd root
[sudo] password for psradmin:
Changing password for user root.
New password:
BAD PASSWORD: The password contains more than 4 characters of the same class consecutively
Retype new password:
passwd: all authentication tokens updated successfully.
```

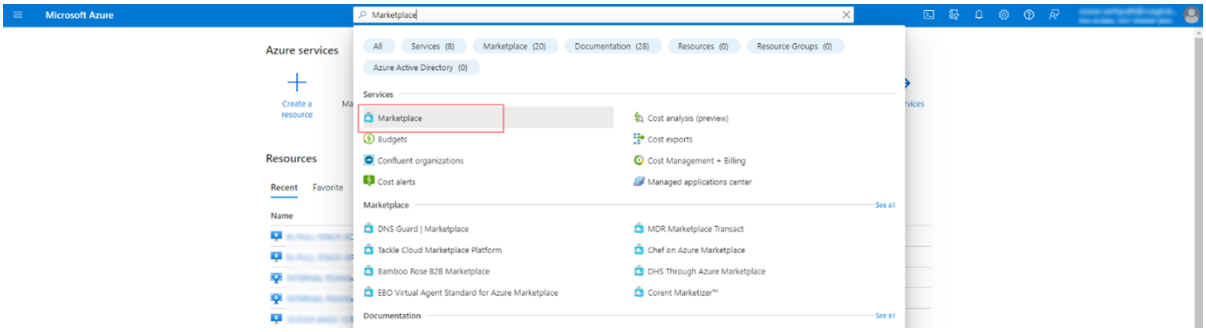
8. Close the current SSH session and open a new SSH session with **root** using the username and the password created in the previous step.

> **Note:** Step 8 is a critical, one-time step for a new deployment. If you do not complete this step, the NetWitness User Interface will not load.

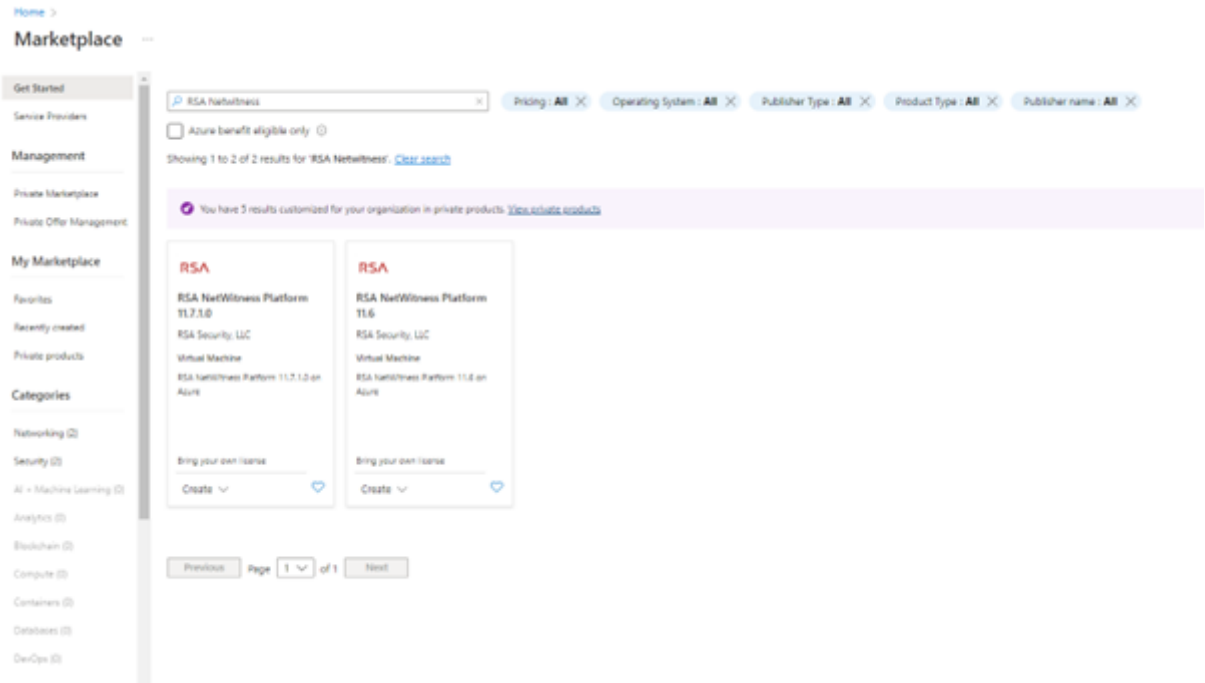
Deploy NW Component Hosts in Azure

You must perform the following tasks to configure a NW Component Host on a Virtual Machine (VMs) in the Azure Cloud environment.

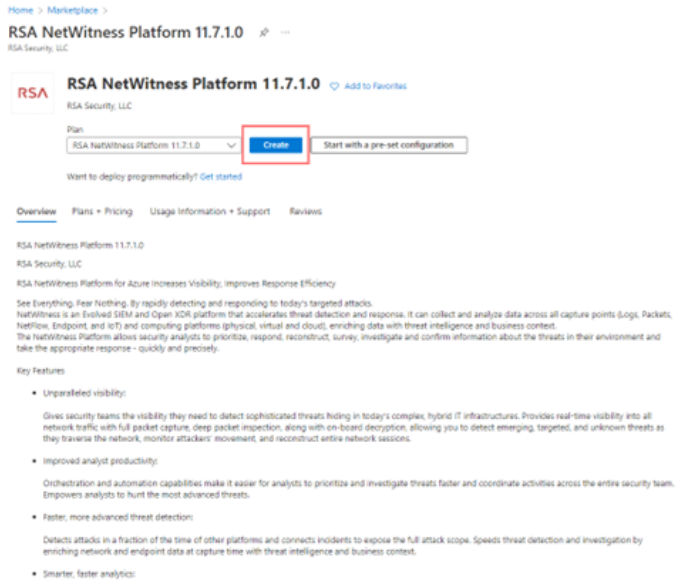
1. Search for Marketplace in Azure portal.



2. Search for **RSA NetWitness**.

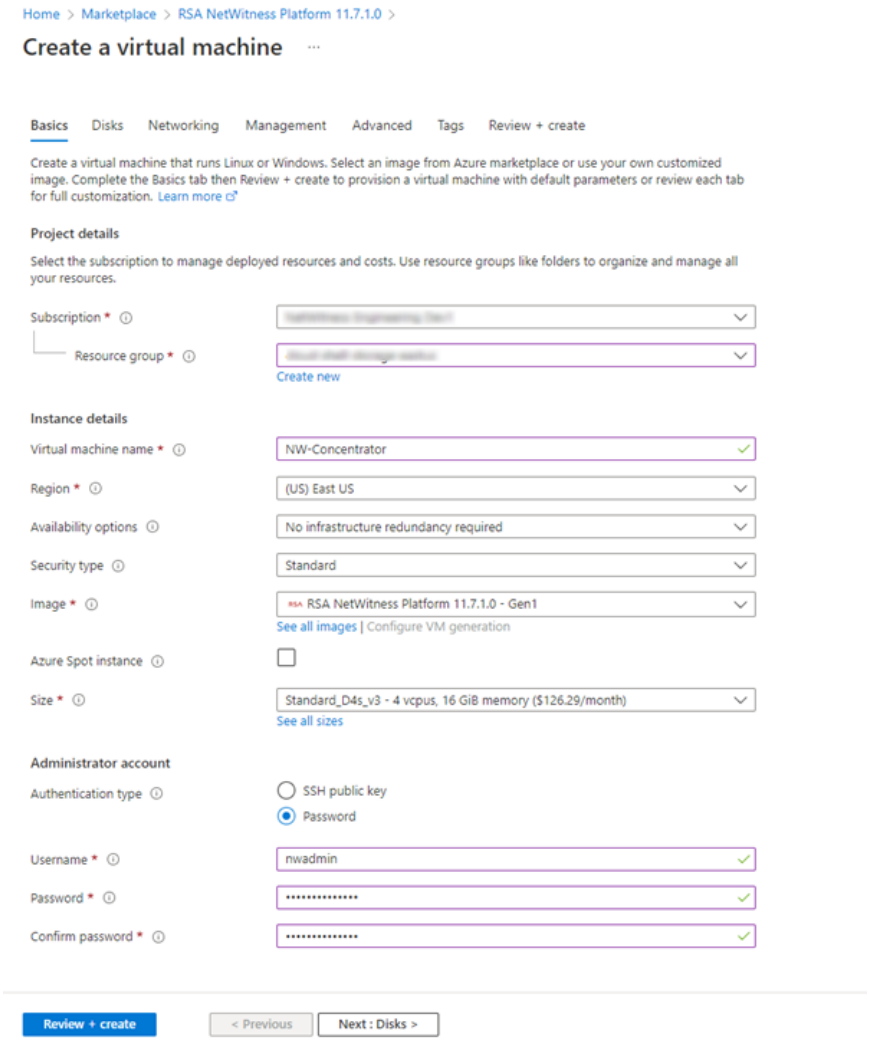


3. Select RSA NetWitness Platform 12.1.0.0 and click **Create**.



The **Create virtual machine** wizard opens and displays the **Basics** tab.

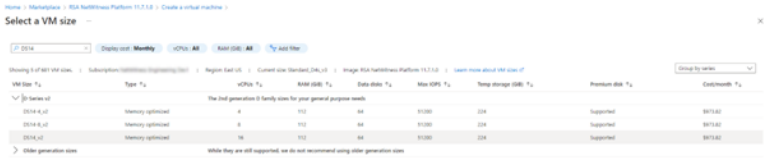
4. Enter the values in the following fields:
   a. Specify a VM **Name** (for example, **NW-Concentrator**).
   b. Select **Password** for **Authentication type**.
   c. Enter your credentials (**User name** and **Password**) and **Confirm Password**.
   d. Click **OK**.



Azure validates the **Basic** specifications and the **2 Size** page is displayed.

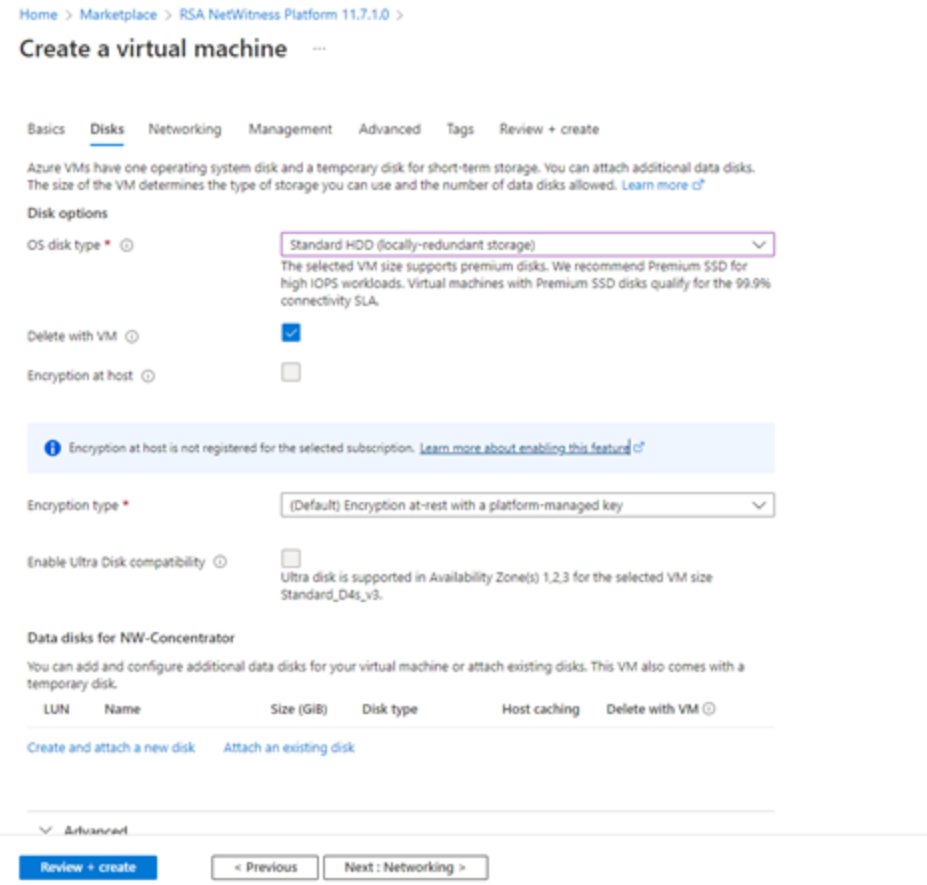
5. Click on the appropriate VM size (for example, **Standard DS14 v2** for the Concentrator) for the service and click **Select** for a VM **Size**.

   For more information on NetWitness recommendations of the VM sizes for each service, see Azure Configuration Recommendations.



   Azure validates the **Size** specifications. Click **Next : Disks >**.

6. Under **Disks** tab, Select **SSD** for the **VM disk type** of the Concentrator or **HDD** for all other components. Solid State Disk (SSD) performs better than a Hard Drive (HDD).



Click **Next : Networking >**.

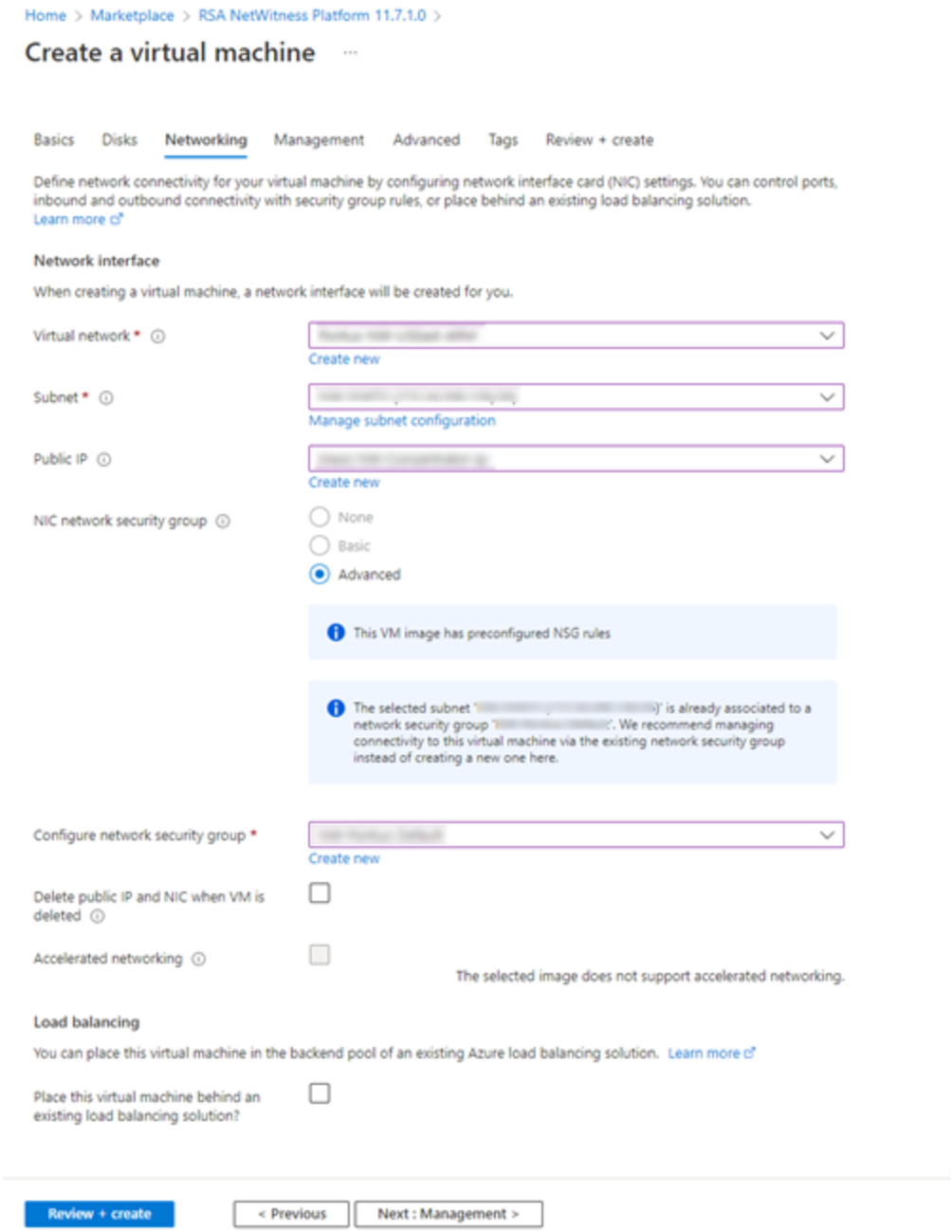
7. In the **Networking** tab:

   a. Adjust **Virtual network**, **Subnet**, and **Public IP address** according to the requirements of your network.

   b. Enabling **Accelerated Networking** is recommended for Decoder hosts with higher line rates (> **800**Mbps).

   c. Specify a valid **Network Security group**.

   > **Note:** For information on Network security groups, see the Microsoft Azure documentation (https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-nsg). Refer to *Deployment: Network Architecture and Ports* (https://community.netwitness.com/t5/netwitness-platform-online/network-architecture-and-ports/ta-p/668996) for a comprehensive list of the ports you must set up for all NetWitness components.

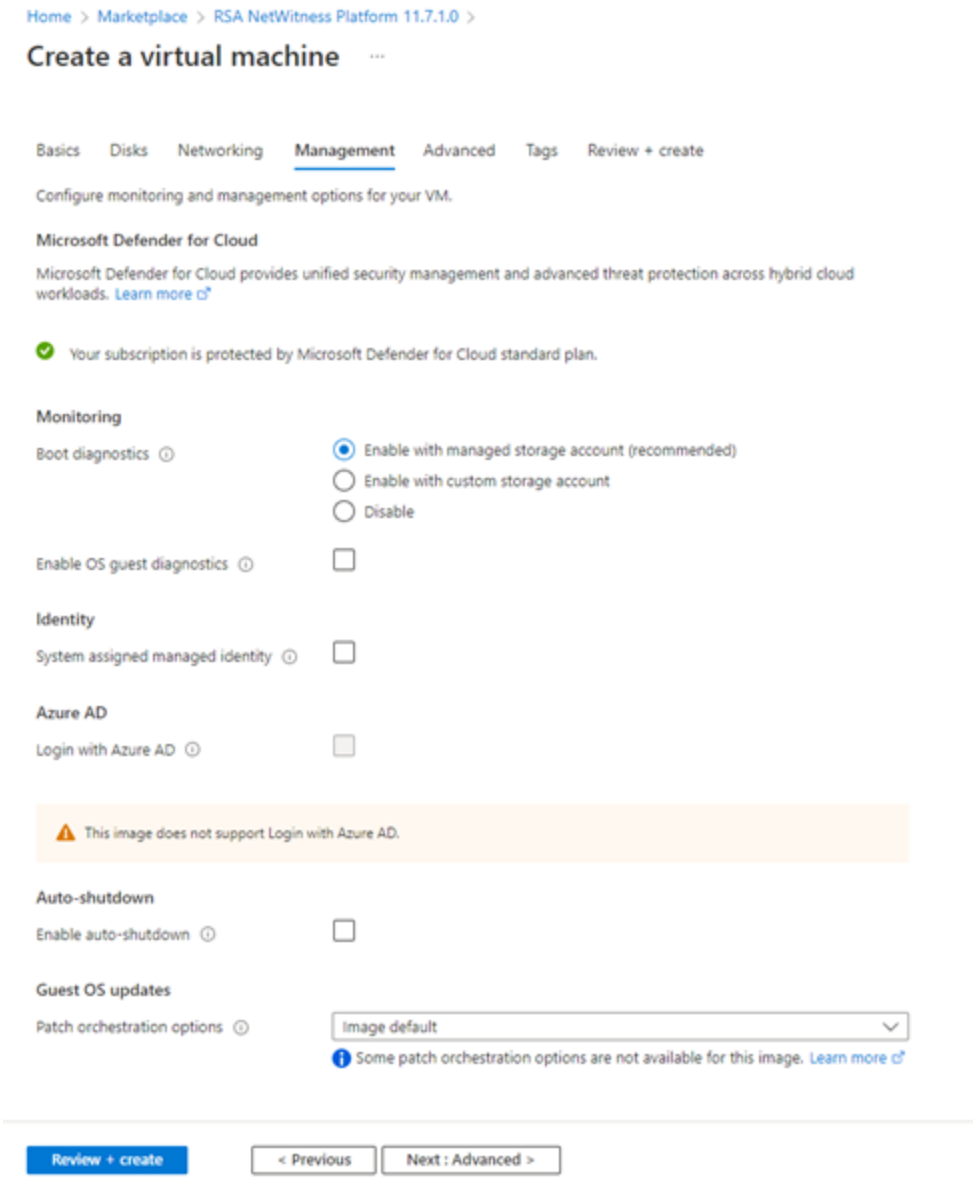


d. After completing the configurations, click **Next : Management >**.

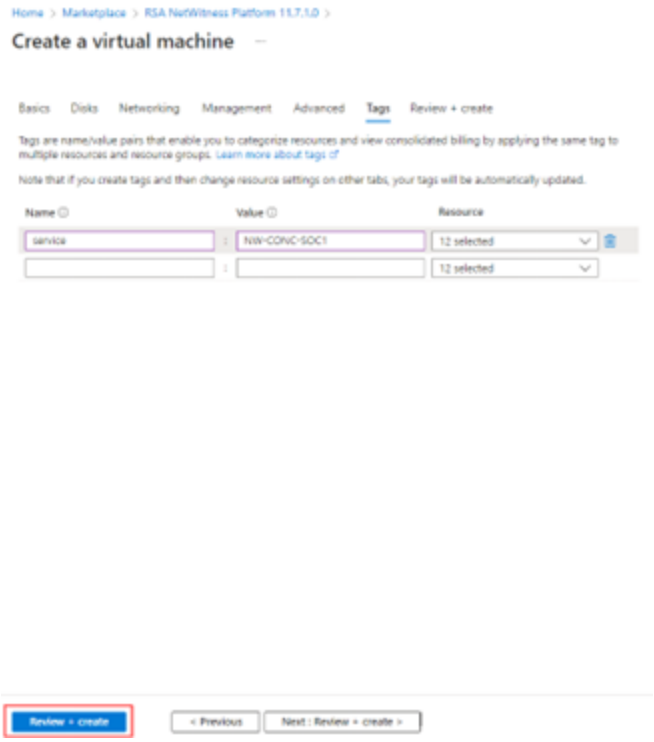
8. In the **Management** Tab:

   a. Enable Boot diagnostics and OS guest diagnostics.

   b. Configure Identity based on your requirements.



9. Click **Next : Advanced >** to enter **Advanced** settings tab. Make the required changes if any and click **Next : Tags >**.
10. In the **Tags** menu, add **Name**, **Value** pairs if any and click **Review + create**.



Azure validates the VM and displays the status check.

Home > Images > INTERNAL-RSANW-12.0.0.0. >

Create a virtual machine ...

Validation passed

Basics | Disks | Networking | Management | Advanced | Tags | Review + create

INTERNAL-RSANW-12.0.0.0. Image	Standard DS14-4 v2 4 vcpus, 112 GiB memory

Basics

Subscription	
Resource group	
Virtual machine name	RSA-NW-Server
Region	East US
Availability options	No infrastructure redundancy required
Security type	Standard
Image	INTERNAL-RSANW-12.0.0.0.
Size	Standard DS14-4 v2 (4 vcpus, 112 GiB memory)
Authentication type	Password
Username	nwadmin
Public inbound ports	HTTPS
Azure Spot	No

Disks

OS disk type	Standard HDD LRS
Use managed disks	Yes
Delete OS disk with VM	Disabled
Ephemeral OS disk	No

Networking

Virtual network	
Subnet	
Public IP	None
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No
Delete NIC when VM is deleted	Disabled

Management

Microsoft Defender for Cloud	Standard
Boot diagnostics	On
Enable OS guest diagnostics	On
Diagnostics storage account	
System assigned managed identity	Off
Login with Azure AD	Off
Auto-shutdown	Off
Enable hotpatch	Off
Patch orchestration options	Image Default

Advanced

Extensions	None
VM applications	None
Cloud init	No
User data	No
Proximity placement group	None
Capacity reservation group	None

Create | < Previous | Next > | Download a template for automation

11. Click **Create** to deploy the NW-Concentrator VM in Azure.
12. Configure the host VM in NetWitness 12.1.0.0.
13. Repeat steps 1 through 12 inclusive for the rest of the core NetWitness component services.

Installation Tasks

Before you begin the installation tasks make sure you open the firewall ports. For more information on the lists of all the ports in a deployment, see the"Network Architecture and Ports" topic in the *Deployment Guide for NetWitness Platform XDR 12.1*.

Caution: Do not proceed with the installation until the ports on your firewall are configured.

Install 12.1 on the NetWitness Server (NW Server) and Component Hosts

Note: You can perform this task for **INTERNAL-NW-12.1.0.0.19668-Full-Signed** instance.

Caution: If you want to install the Endpoint Relay Server, do not run the `nwsetup-tui` script. Follow the instructions in "(Optional) Installing and Configuring Relay Server" in the *NetWitness Endpoint Configuration Guide*.

IMPORTANT: In NetWitness Platform version 11.6 or later, deployment account password must contain at least one number, one upper and lower case letter, and one special characters (!@#%^,+ .) along with the existing policy. The same password policy applies while updating deploy_admin password using `nw-manage script`. If `deploy_admin` password is changed on Primary NW Server, It must be changed on the Warm Standby Server if it exists.

1. Log in to the host with the `root` credentials and run the `nwsetup-tui` command to set up the host.

   This initiates the `nwsetup-tui` (Setup program) and the EULA is displayed.

   Note: Use the following options to navigate the Setup prompts.
   1.) When you navigate through the Setup program prompts, use the down and up arrows to move among fields, and use the Tab key to move to and from commands (such as **<Yes>**, **<No>**, **<OK>**, and **<Cancel>**). Press **Enter** to register your command response and move to the next prompt.
   2.) The Setup program adopts the color scheme of the desktop or console you use to access the host.
   3.) If you specify DNS servers during the Setup program (`nwsetup-tui`) execution, they MUST be valid (valid in this context means valid during setup) and accessible for the `nwsetup-tui` script to proceed. Any misconfigured DNS servers cause the Setup program to fail. If you need to reach a DNS server after setup that is unreachable during setup, (for example, to relocate a host after setup that would have a different set of DNS Servers), see "Change Host Network Configuration" topic in the System Maintenance Guide.
   If you do not specify DNS Servers during setup (`nwsetup-tui`), you must select **1 The Local Repo (on the NW Server)** in the **NetWitness Update Repository** prompt in step 12 (the DNS servers are not defined so the system cannot access the external repo).

```
By clicking "Accept", you (the "Customer") hereby agree, on behalf of your
company or organization, to be bound by the terms and conditions of the
End User License Agreement (the "EULA") located at
https://www.rsa.com/content/dam/rsa/PDF/shrinkwrap-license-combined.pdf
with RSA Security LLC ("RSA", or appropriate affiliate entity in the
relevant jurisdiction).  In addition, Customer hereby agrees and
acknowledges that, if Customer chooses to host its data with any third
party or in a public cloud environment, RSA has no responsibility for the
storage or protection of any Customer data or for any associated security
breach notifications. The terms herein and in the EULA shall supersede any
relevant terms in any other agreement between the Customer and RSA.  For
customers of the RSA NetWitness® products, all data analyzed in connection
herewith shall be at a cost to Customer based on RSA's then current
                                                                      92%
                    <Accept >            <Decline>
```

2. Tab to **Accept** and press **Enter**.
   The **Is this the host you want for your 12.1 NW Server** prompt is displayed.

```
You must setup an NW Server before setting up
any other NetWitness Platform components.

Is this the host you want for your 12.1 NW
Server?

            < Yes >        < No  >
```

3. Tab to **Yes** and press **Enter** to install 12.1 on the NW Server.
   Tab to **No** and press **Enter** to install 12.1 on other component hosts.

   Caution: If you choose the wrong host for the NW Server and complete the Setup, you must restart the Setup Program (step 2) and complete steps all the subsequent steps to correct this error.

4. The **Install** prompt is displayed (**Recover** does not apply to the installation. It is for 12.1 Disaster Recovery.).
   NW Server Host prompt:

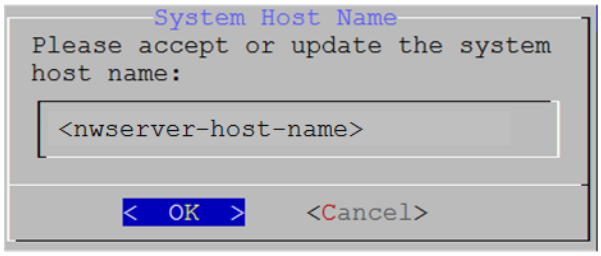
```
NetWitness Platform 12.1 Installation
Specify the install type: Fresh
Install, Reinstall, or Warm Standby
NW Server Install.

    1  Install (Fresh Install)
    2  Recover (Reinstall)
    3  Install (Warm/Standby)

        <  OK  >      < Exit >
```

Other Component Hosts, the prompt is the same, but does not include option 3 Install (Warm/Standby)

5. Press **Enter**. **Install (Fresh Install)** is selected by default.
   The **System Host Name** prompt is displayed.
   NW Server prompt:

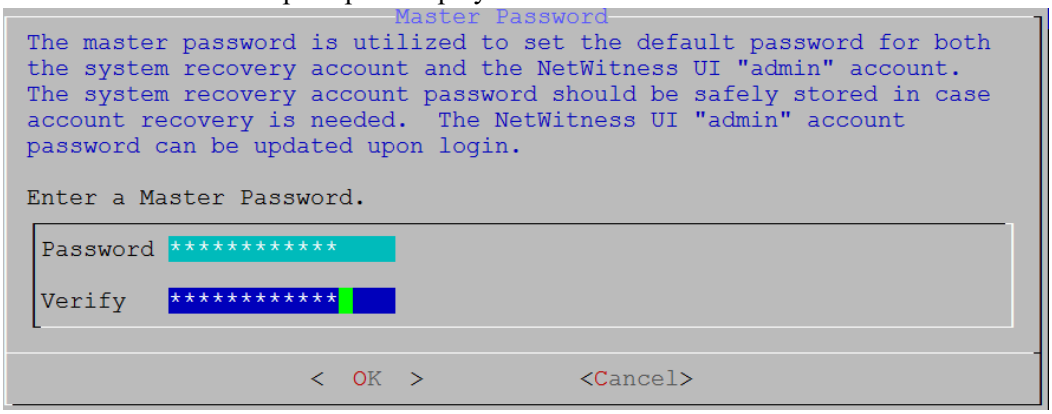


   Other Component Hosts prompt says <non-nwserver-host-name>

   Caution: If you include "." in a host name, the host name must also include a valid domain name.

   Press **Enter** if want to keep this name. If not, edit the host name, tab to **OK**, and press **Enter** to change it.

6. **This step applies only to NW Server hosts**.
   The **Master Password** prompt is displayed.



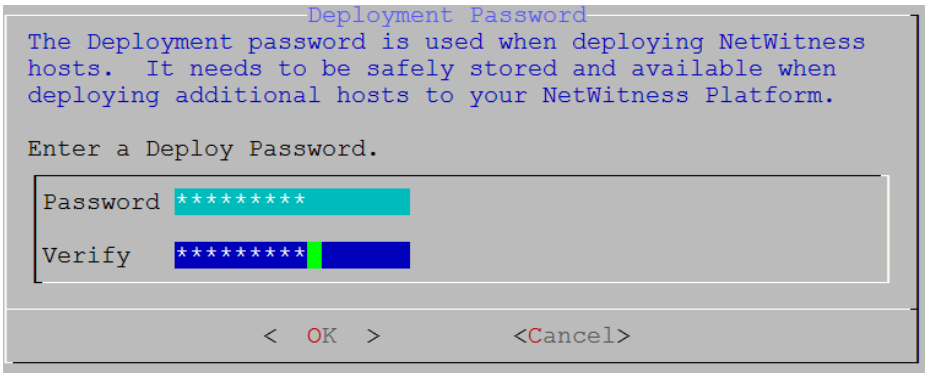
   The following list of characters are supported for Master Password and Deployment Password:

   - Symbols: **! @ # % ^ +**
   - Numbers: **0-9**
   - Lowercase Characters: **a-z**
   - Uppercase Characters: **A-Z**

   No ambiguous characters are supported for Master Password and Deployment Password. For example:
   space { } [ ] ( ) / \ ' " ` ~ ; : . < > -

   Type the **Password**, down arrow to **Verify**, retype the password, tab to **OK**, and press **Enter**.

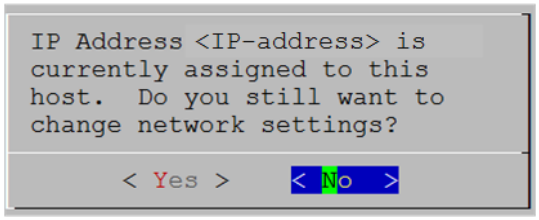
7. **This step applies to both NW Server hosts and component hosts.**
   The **Deployment Password** prompt is displayed.



Type the **Password**, down arrow to **Verify**, retype the password, tab to **OK**, and press **Enter**.

8. One of the following conditional prompts is displayed.

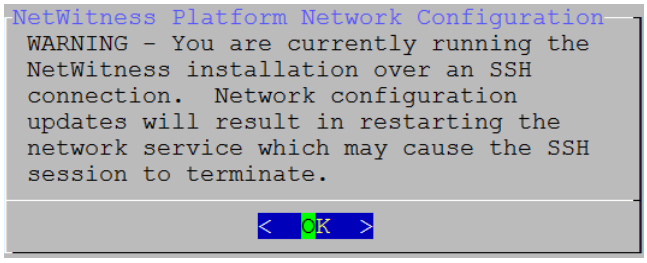
- If the Setup program finds a valid IP address for this host, the following prompt is displayed.



Press **Enter** if you want to use this IP and avoid changing your network settings. Tab to **Yes** and press **Enter** if you want to change the IP configuration on the host.

- If you are using an SSH connection, the following warning is displayed.

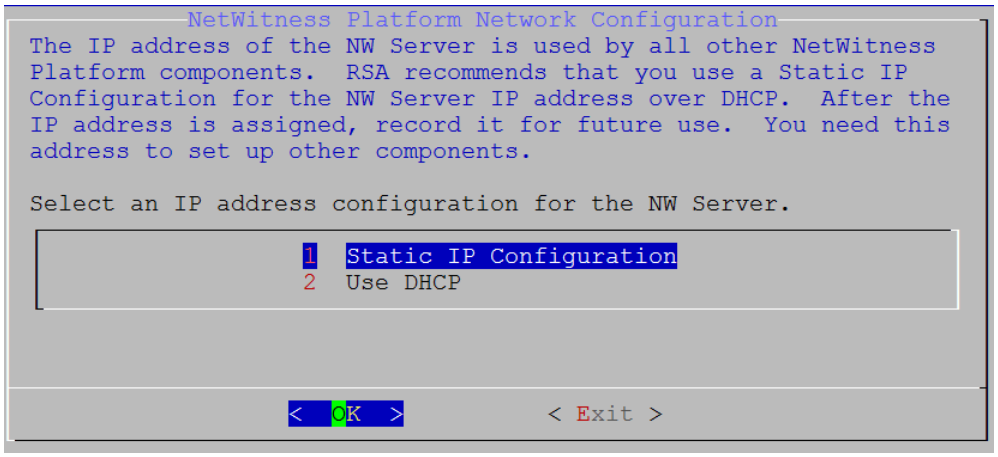
Note: If you connect directly from the host console, the following warning is not displayed.



Press **Enter** to close warning prompt.

- If the Setup Program finds an IP configuration and you choose to use it, the **Update Repository** prompt is displayed. Go to step 12 and complete the installation.
- If the Setup Program did not find an IP configuration or if you choose to change the existing IP configuration, the **Network Configuration** prompt is displayed.

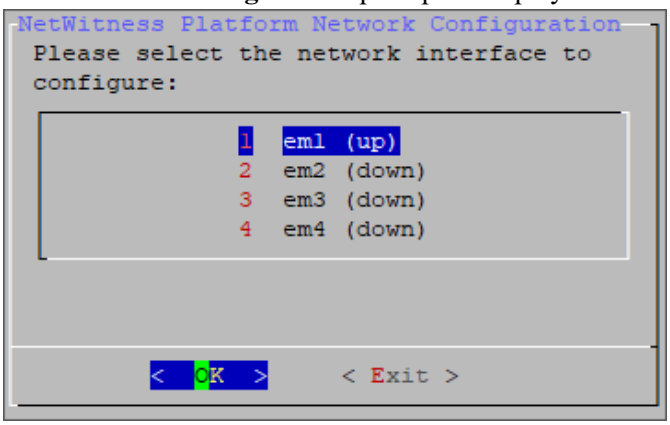
Caution: Only select "**Use DHCP**" as an IP address configuration for the NW Server if DHCP issues static IP addresses.



Tab to **OK** and press **Enter** to use **Static IP**.

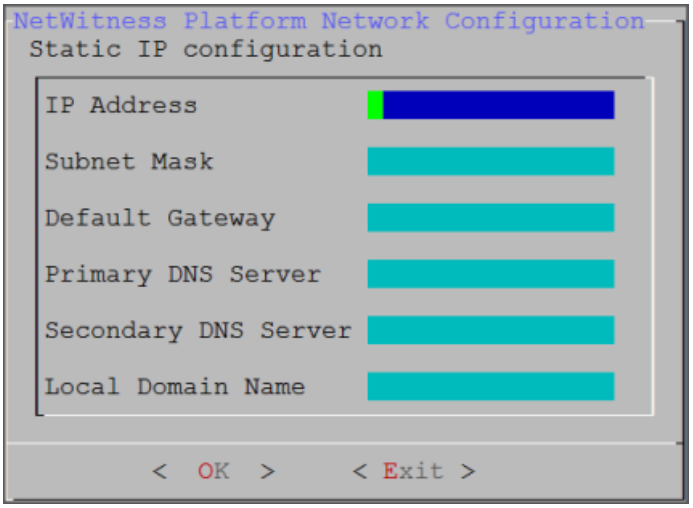
If you want to use DHCP, down arrow to **2 Use DHCP** and press **Enter**.

The **Network Configuration** prompt is displayed.



9. Down arrow to the network interface you want, tab to **OK**, and press **Enter**. If you do not want to continue, tab to **Exit.**

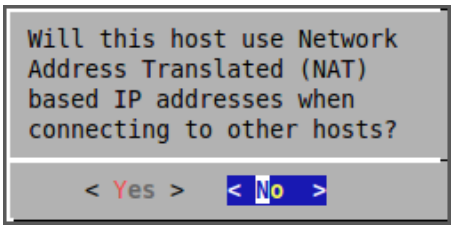
   The following **Static IP Configuration** prompt is displayed.



10. Type the configuration values, tab to **OK**, and press **Enter**. If you do not complete all the required fields, an `All fields are required` error message is displayed (**Secondary DNS Server** and **Local Domain Name** fields are not required). If you use the wrong syntax or character length for any of the fields, an `Invalid <field-name>` error message is displayed.

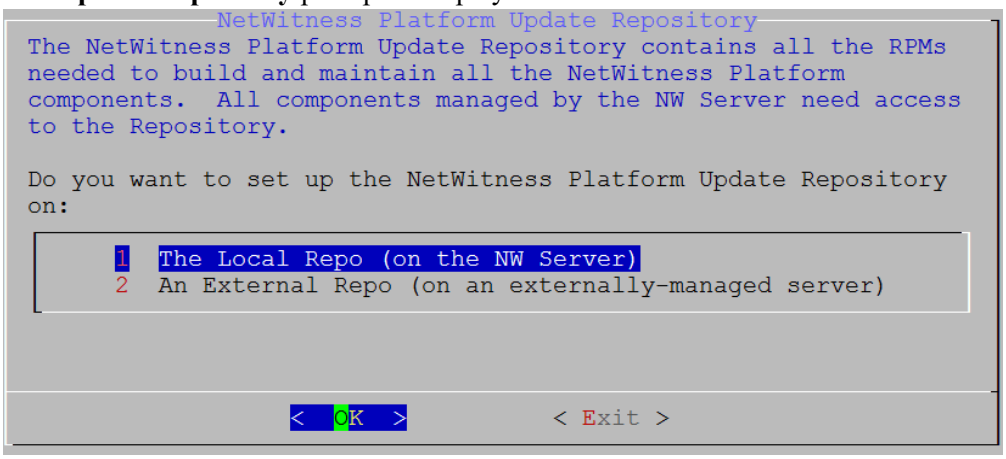
    Caution: If you select **DNS Server**, make sure that the DNS Server is correct and the host can access it before proceeding with the installation.

11. The Use Network Address Translation (NAT) prompt is displayed.



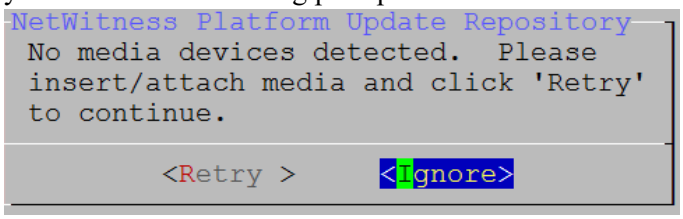
    For the NW Server, tab to **No** and press **Enter**.
    For component hosts, if this host requires the use of NAT-based addresses to communicate with the NW Server, tab to **Yes**. Otherwise, tab to **No** and press **Enter**.

12. The **Update Repository** prompt is displayed.

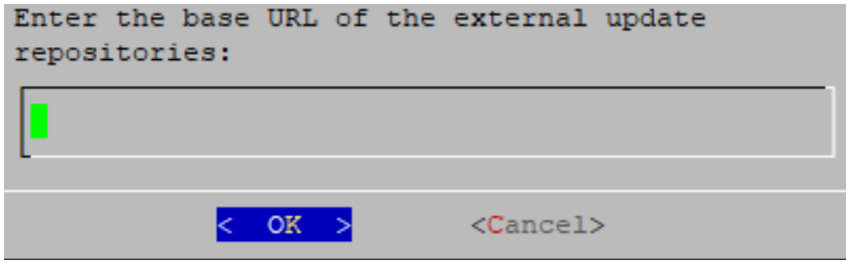


    For the NW Server:

    - Press **Enter** to choose the **Local Repo**.
    - If you want to use an external repo, down arrow to **External Repo**, tab to **OK**, and press **Enter**. If you select **1 The Local Repo (on the NW Server)** in the Setup program, make sure that you have the appropriate media attached to the host (media that contains the ISO file, for example a build stick) from which it can install NetWitness 12.1. If the program cannot find the attached media, you receive the following prompt.



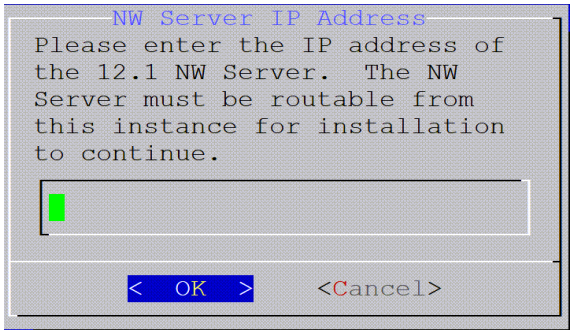
- If you select **2 An External Repo (on an externally-managed server)**, the UI prompts you for a URL. The repositories give you access to RSA updates and CentOS updates. Refer to "Appendix B. Create an External Repo" in this guide for instructions on how to create this repo and its external repo URL so you can enter it in the following prompt.



  Enter the base URL of the NetWitness external repo and click **OK.** The **Start Install** prompt is displayed.

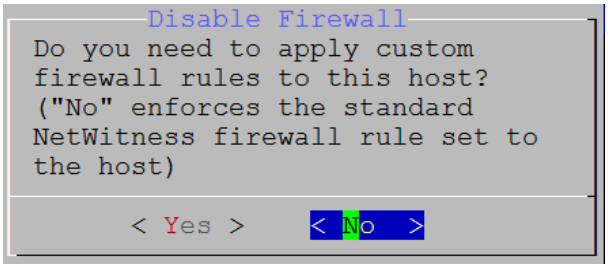
For component hosts:

- Select the same repo that you selected when you installed the NW Server host and follow the steps above.
- The NW Server IP Address prompt is displayed.



  Type the NW Server IP address. Tab to **OK** and press **Enter**.

13. The Disable firewall prompt is displayed.



Tab to **No** (default), and press **Enter** to use the standard firewall configuration.
To disable the standard firewall configuration, tab to **Yes**, and press **Enter**.
If you select **Yes**, confirm your selection(select **Yes** again) or select **No** to use the standard firewall

configuration.

```
Warning: you chose to disable the default NetWitness
firewall configuration which means you must set up
firewall rules manually.

Select "Yes" to confirm that you will set up firewall
rules manually.

                < Yes >          < No  >
```

14. The **Start Install** prompt is displayed.

```
                Start Install/Upgrade
All the required information has been gathered.

Select "1 Install Now" to start the installation
on this host.

                1  Install Now
                2  Restart

             <  OK  >        < Exit >
```

15. Press **Enter** to install 12.1.
    When **Installation complete** is displayed, you have installed 12.1 on this host.

> **Note:** Ignore the hash code errors similar to the errors shown in the following figure that are displayed when you initiate the `nwsetup-tui` command. Yum does not use MD5 for any security operations so they do not affect the system security.

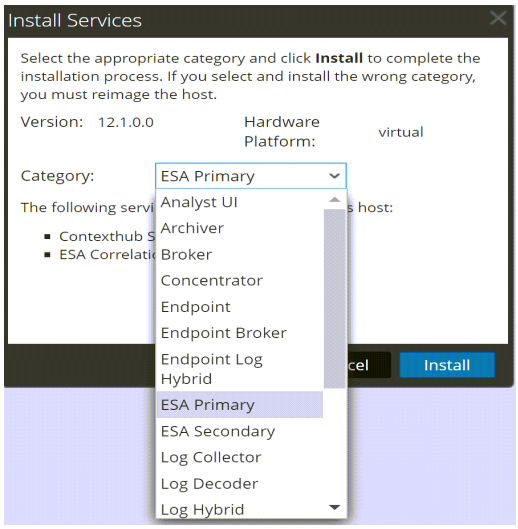
```
ValueError: error:3207A06D:lib(50):B_HASH_init:cr new
Checksum type 'md5' disabled
 (skipped due to only_if)
    * file[/etc/yum.repos.d/CentOS-Base.repo] action delete (up to date)
    * ruby_block[yum-cache-reload-CentOS-Base] action nothing (skipped due to action :nothing)
     (up to date)
  * yum_repository[Remove CentOS-CR repository] action delete
    * execute[yum clean all CentOS-CR] action runERROR:root:code for hash md5 was not found.
Traceback (most recent call last):
  File "/usr/lib64/python2.7/hashlib.py", line 129, in <module>
    globals()[__func_name] = __get_hash(__func_name)
  File "/usr/lib64/python2.7/hashlib.py", line 98, in __get_openssl_constructor
    f(usedforsecurity=False)
```

16. (Optional) If your system configuration requires that a component host must use a NAT IP address to reach the NW Server host, you must configure the NAT IP address of the NW Server by running the following command:
    `nw-manage --update-host --host-id <NW Server Host UUID> --ipv4-public <NAT IP address>`

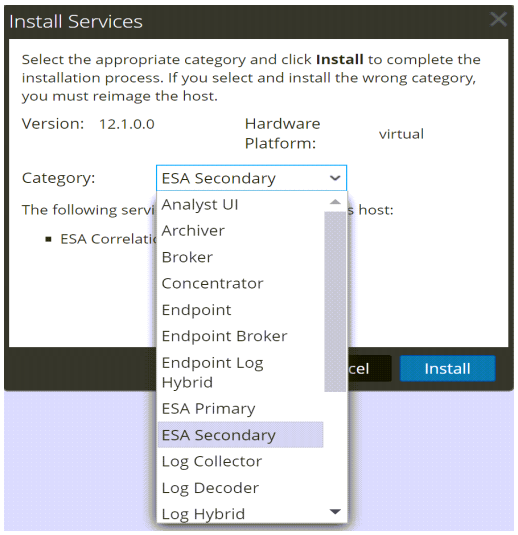
Set Up ESA Hosts

After you install your NW Server and component hosts, follow these steps to set up your ESA hosts.

- Install your primary ESA host following the instructions in "Install 12.1 on the NetWitness Server (NW Server) Host and Other Component Hosts" in this guide, and install the **ESA Primary** service on it after you finish the Set Up program in the UI in (Admin) > **Hosts** > Install:



- (Conditional) If you have a secondary ESA host, install it and install the **ESA Secondary** service on it after you finish the Set Up program in the UI in (Admin) > **Hosts** > Install:



Install Component Services on Hosts

After you have installed NW Server and component hosts, and set up your ESA hosts, follow these steps to install component services, such as Decoders and Concentrators, on your host systems.

1. Install a component service on the host:

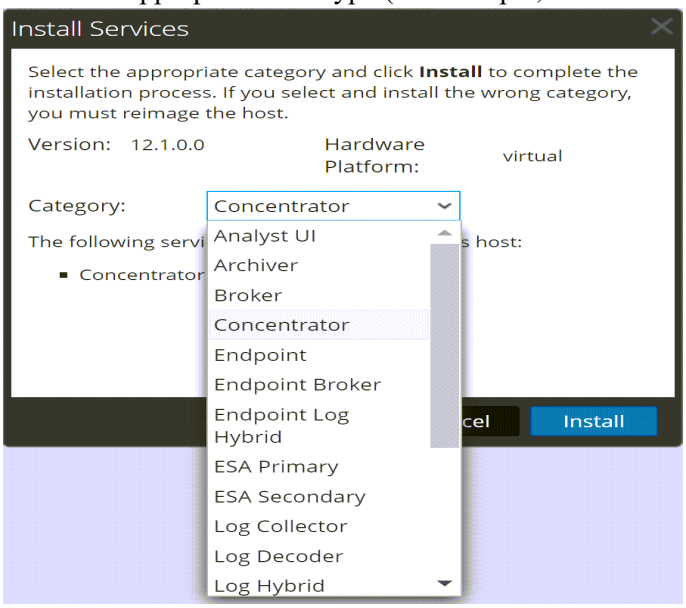
   a. Log into NetWitness and go to (Admin) > **Hosts**.
   The **New Hosts** dialog is displayed with the **Hosts** view grayed out in the background.

   Note: If the **New Hosts** dialog is not displayed, click **Discover** in the Hosts view toolbar.

   b. Select the host in the **New Hosts** dialog and click **Enable**.
   The **New Hosts** dialog closes and the host is displayed in the **Hosts** view.

   c. Select that host in the **Hosts** view and click Install .
   The **Install Services** dialog is displayed.

   d. Select the appropriate host type (for example, **Concentrator**) in **Category** and click **Install**.



Complete Licensing Requirements

Complete licensing requirements for installed services. See the *NetWitness Platform 12.1 Licensing Management Guide* for more information. Go to the NetWitness All Versions Documents page and find NetWitness Platform guides to troubleshoot issues.

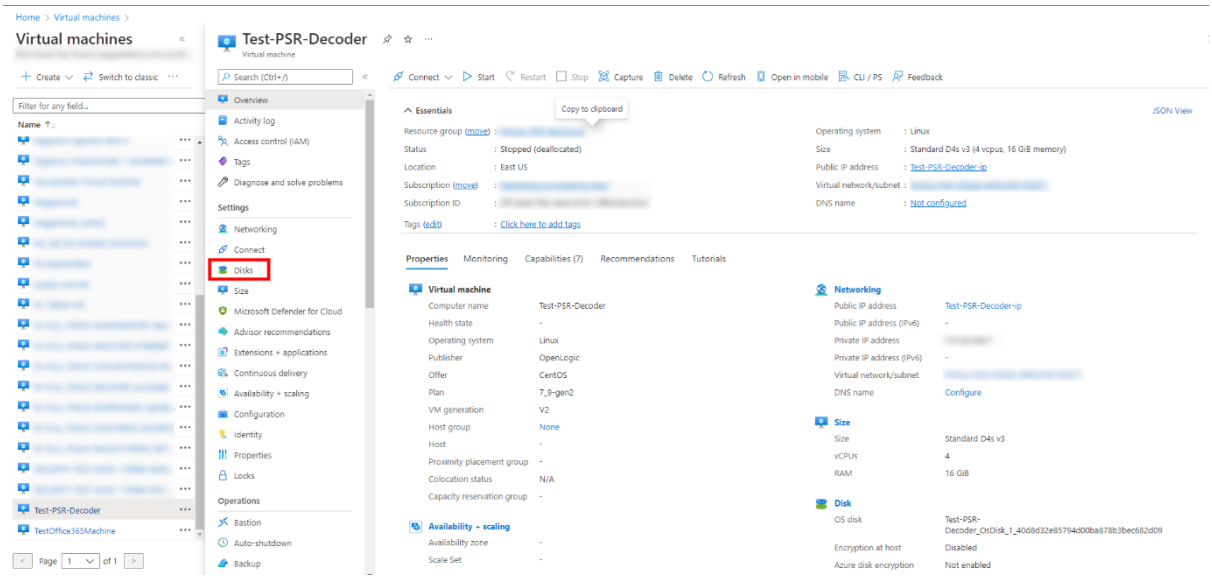
(Optional) Install Warm Standby NW Server

Refer to "Warm Standby NW Server Host" under "Deployment Option Setup Procedures" in the *Deployment Guide for NetWitness Platform XDR 12.1* for instructions on how to set up a Warm Standby NW Server.

NetWitness Azure Storage Allocation Procedure

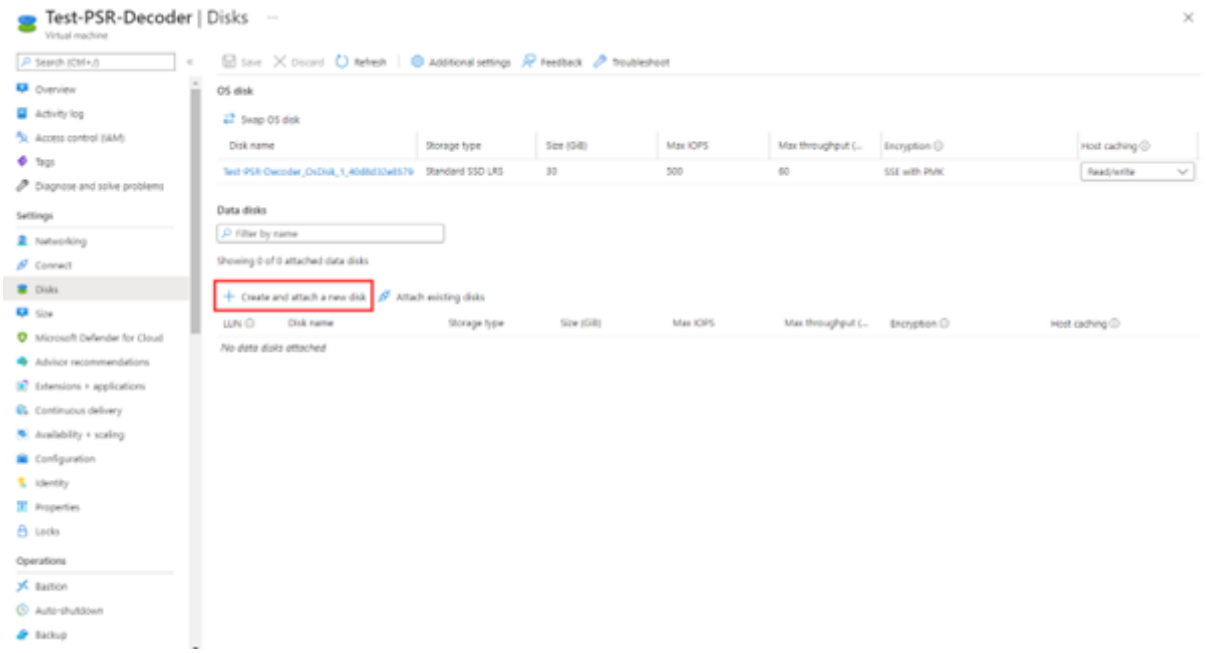
To allocate storage in NetWitness Platform 12.1.0.0, perform the following steps:

1. In Microsoft Azure portal (https://portal.azure.com/), go to **Virtual Machines**.
2. Click the required VM > **Disks**.



3. Click **Create and attach a new disk**.

> **Note:** You need to add the appropriate amount of disks / IOPS to meet the retention requirements. If you need to add more than a single disk, a RAID configuration is needed.



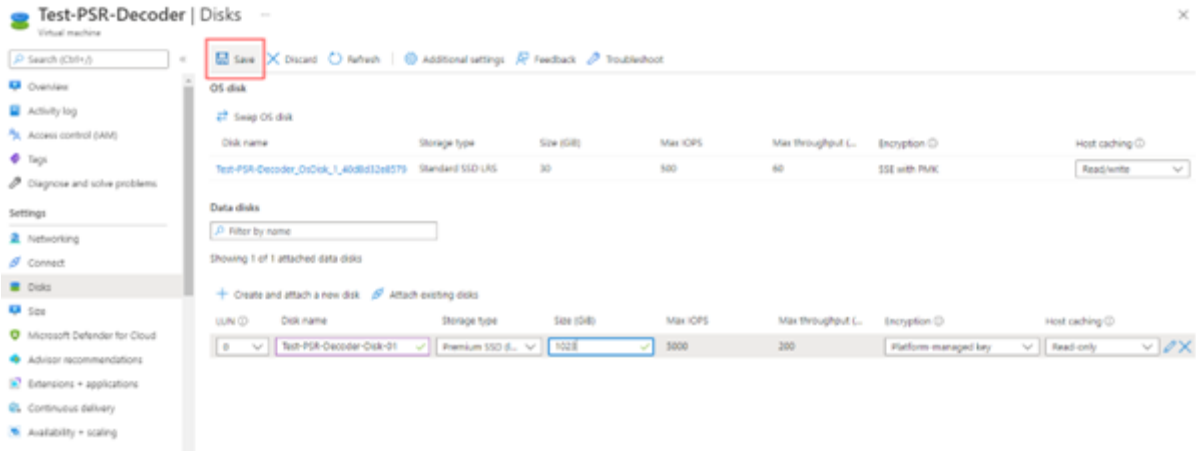
4. In the Disks view,
   a. Enter the Disk name.
   b. Select the storage type of disk.

> **Note:** Premium SSD with high throughput / IOPS is recommended for Concentrator-IndexDB, Decoder-PacketDB.

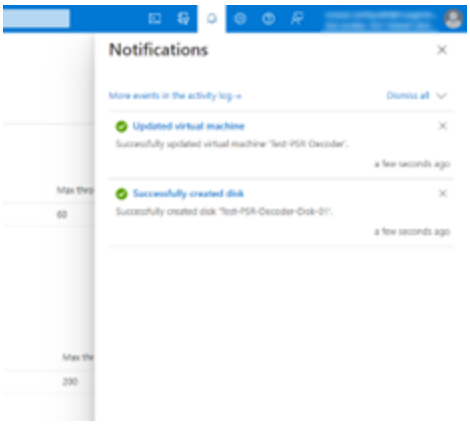
c. Select appropriate disk tier and size based on IOPS / Required retention. For more information, refer Azure Managed Disks documentation (https://docs.microsoft.com/en-us/azure/virtual-machines/disks-types).

d. Enable **Read/write** caching.

5. Click **Save** to finish adding the disk.



6. Once the disk is saved, the success notification messages are displayed in the **Notifications** view.



RAID Creation

NetWitness recommends striping the disks to get better performance / IOPS with added disks for deployments that require high IOPS/ throughput (for example: a packet decoder with 1.5Gbps). **Mdadm** Utility is used to create a raid array.

Parameters related to Raid Array Creation

- `--create`: Name of the managed disk you want to create. Usually, the name begins with /dev/md0, /dev/md1, and /dev/md2.
- `--level`: Raid level for creating an array. It can be 0, 1, 5, 6, or 10.
- `--raid-devices`: Total count of the disks to be configured in an array along with device names separated by space.

  For Example: `--raid-devices=5` /dev/sdc /dev/sdd /dev/sde /dev/sdf /dev/sdg

Steps to create a Raid Array

Follow the steps below after the required disks are added to the Host VM

1. Identify the name of the newly added disks. Run the command `lsblk`.

   For Example: **/dev/sde** and **/dev/sdf**

2. Select the set of disks as part of your RAID-5 configuration.

   For example: Select the disks **/dev/sde**, **/dev/sdf**, **/dev/sdg**, **/dev/sdh** as part of your PacketDB for Decoder.

3. Run the command `mdadm --create /dev/md0 --assume-clean --level 5 --raid-devices=4 /dev/sde /dev/sdf /dev/sdg /dev/sdh`.
4. Check the status of the disks once the RAID configuration is created. Run the following command

   `mdadm--detail`

5. Run the command `vgcreate -s 32 decodersmall1 /dev/md0` to create a volume group **decodersmall1** which will span across the entire RAID configuration.
6. Run the command `lvcreate -L 4T -n packetdb decodersmall1` to create a logical volume **PacketDB** on **decodersmall1**.
7. Run the command `mkfs.xfs /dev/mapper/decodersmall1-packetdb` to format the newly created logical volume to an xfs partition required by the NetWitness services.
8. Make entries in the `/etc/fstab` configuration file to mount the logical volume (created) and retain the logical volumes even after a system reboot.
9. Run the command `mdadm --detail --scan > /etc/mdadm.conf` to create and store the information about the RAID configurations in the file. On system reboot, the RAID configuration is retained.
10. Run `reconfig api` on the core-service database node to update the database directory settings.

Example Scenario

The below commands describe the steps to configure a RAID-5 for PacketDB with 4 disks.

```
mdadm --create /dev/md0 --assume-clean --level 5 --raid-devices=4 /dev/sdc /dev/sdd /dev/sde /dev/sdf
```

```
vgcreate -s 32 decoder /dev/md0
```

```
lvcreate -L 3.9T -n packetdb decoder
```

```
mkfs.xfs /dev/mapper/decoder-packetdb
```

```
echo "/dev/decoder/packetdb /var/netwitness/decoder/packetdb xfs
noatime,nosuid 1 2" >> /etc/fstab
mount -a
mdadm --detail --scan > /etc/mdadm.conf
```

Note: For more information regarding Azure Disks, see Azure managed disk types, Configure software RAID, Performance tiers for managed disks, and Change the performance of Azure managed disks using the Azure portal.

Configure Hosts (Instances) in NetWitness Platform XDR

Configure individual hosts and services as described in NetWitness *Host and Services Getting Started Guide*. This guide also describes the procedures for applying updates and preparing for version upgrades.

Note: After you successfully launch an instance, Azure assigns a default hostname to it. For more information, see "Change Host Network Configuration" in the *System Maintenance Guide* for instructions on changing a hostname. Go to the NetWitness All Versions Documents page and find NetWitness Platform guides to troubleshoot issues.

Configure Packet Capture

You can integrate one of the following third-party solutions with the Network Decoder to capture packets in the Azure cloud environment.

- Gigamon GigaVUE
- Ixia CloudLens

Integrate Gigamon GigaVUE with the Network Decoder

You can access Gigamon Visibility Platform through the Azure Marketplace on the Azure portal. It is activated by a BYOL license. A thirty-day free trial is also available. For more information on the Gigamon solution, see GigaVUE Cloud Suite for Azure.

For more information regarding GigaVUE Deployment, see https://docs.gigamon.com/doclib515/Content/GV-Cloud-Azure/preface-Azure.html?tocpath=GigaVUE%20Cloud%20Suites%7CAzure%7C_____0.

You will see the traffic incoming on NW Decoder Host once the **Monitoring Session** is deployed within the **Gigamon GigaVUE-FM** with Decoder receiver NIC as tunnel.

Integrate Ixia with the Network Decoder

Keysight Ixia CloudLens SaaS is a Network Visibility platform. For more information on the CloudLens solution, see https://www.keysight.com/in/en/products/network-visibility/cloud-visibility/cloudlens/cloudlens-saas.html.

You must complete the following tasks to integrate the Network Decoder with Ixia CloudLens.

Task 1. Deploy Client Machines

Task 1. Deploy Client Machines

- Deploy client machines from which you want to route the traffic to the Network Decoder. See the Ixia CloudLens documentation (**https:<CloudLensManager_IP>/cloudlens/docs/Default.htm**) for specifications needed for supported client machines.

Note: <CloudLensManager_IP> is the respective CloudLens Manager instance.

Note: Modify the VM's network security group to allow incoming traffic on following ports:
- **TCP: 22 (SSH)**: Connection to the instance / VM.
- **IP Protocol: 47 (GRE)**: Required by CloudLens Sensor Tap to send the tapped traffic to the Sensor Tool.
- **UDP Protocol: 19993 (Encrypted Tunnel)** – Required by CloudLens Sensor Tap to send the tapped traffic to the Sensor Tool.

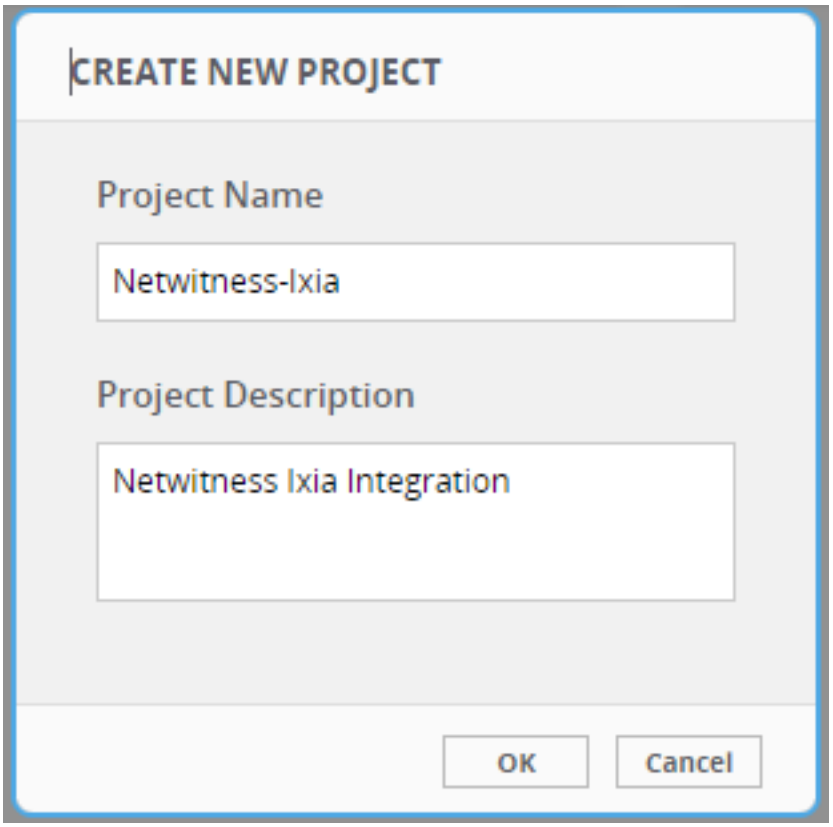
For more information, see https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-nsg.

Task 2. Create CloudLens Project

1. Login to **Ixia Cloudlens Manager** and go to the **Configure** Page.
2. Click + (add) to create a new project.
3. In the **CREATE NEW PROJECT** view,
   - Enter the Project Name

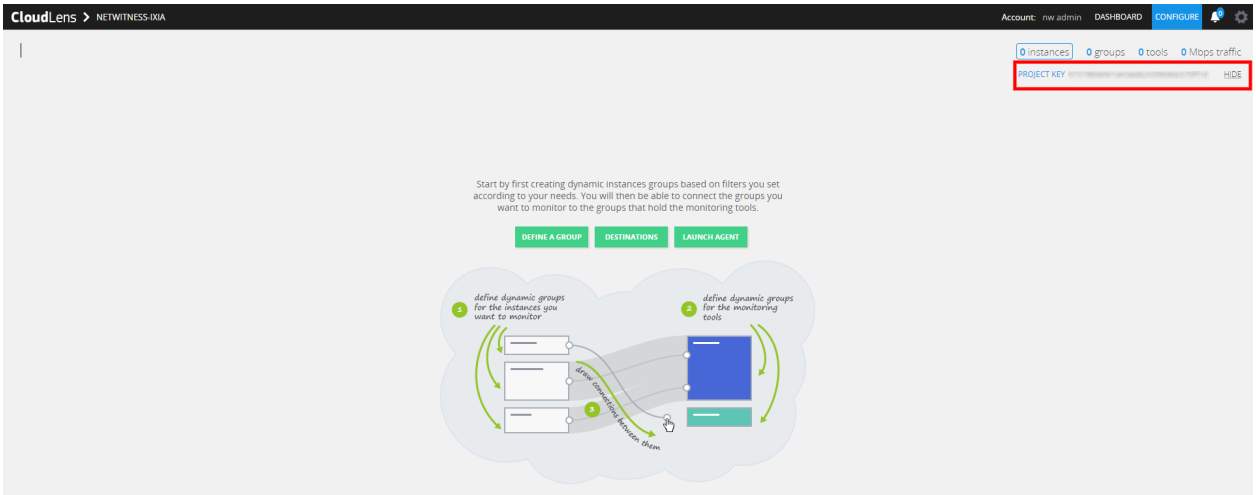
     For Example: **Netwitness-Ixia**.
   - Enter the Project Description

     For Example: **Netwitness Ixia Integration**.



4. Click **OK**.
5. Click **SHOW PROJECT KEY** to get the API Key for the project.

   The key is required to configure the **Host and Tool agents**.



Task 3. Install Docker Container on Decoder

1. SSH to Network Decoder.
2. Setup the docker. For more information on how to setup the docker, see https://docs.docker.com/engine/install/centos/.
3. Run the following commands to setup Docker insecure-registry parameter and pull the sensor image from CloudLens:

```
echo "{\"insecure-registries\":[\"<CloudLens_IP_here>\"]}" | sudo tee /etc/docker/daemon.json
```

```
sudo systemctl enable docker.service
```

```
sudo service docker restart
```

4. Pull the CloudLens agent docker image. Run the following command:

```
sudo docker pull <CloudLens_IP_here>/sensor
```

5. Start the CloudLens agent with **ProjectKeyFromIxiaProjectPortal** retrieved from Task 2. Create CloudLens Project and CloudLens Manager IP. Run the following command:

```
sudo docker run -v /lib/modules:/lib/modules -v /var/log:/var/log/cloudlens -v /:/host -v /var/run/docker.sock:/var/run/docker.sock --cap-add SYS_MODULE --cap-add SYS_RESOURCE --cap-add NET_RAW --cap-add NET_ADMIN --name cloudlens-agent -d --restart=on-failure --net=host --log-opt max-size=50m --log-opt max-file=3 <CloudLens_IP_here>/sensor --accept_eula yes --project_key ProjectKeyFromIxiaProjectPortal --server <CloudLens_IP_here> --ssl_verify no
```

Task 4. Install Docker Container on Clients

1. SSH to Azure VM with root privileges.
2. Setup the docker for the OS / Distributions. For more information, see https://docs.docker.com/engine/install/.
3. Run the following commands to setup Docker insecure-registry parameter and pull the sensor image from CloudLens:

```
echo "{\"insecure-registries\":[\"<CloudLens_IP_here>\"]}" | sudo tee /etc/docker/daemon.json
```

```
sudo systemctl enable docker.service
```

```
sudo service docker restart
```

4. Pull the CloudLens agent docker image. Run the following command.

```
sudo docker pull <CloudLens_IP_here>/sensor
```

5. Start the CloudLens agent with **ProjectKeyFromIxiaProjectPortal** retrieved from Task 2. Create CloudLens Project and CloudLens Manager IP. Run the following command.

```
sudo docker run -v /lib/modules:/lib/modules -v /var/log:/var/log/cloudlens
-v /:/host -v /var/run/docker.sock:/var/run/docker.sock --cap-add SYS_
MODULE --cap-add SYS_RESOURCE --cap-add NET_RAW --cap-add NET_ADMIN --name
cloudlens-agent -d --restart=on-failure --net=host --log-opt max-size=50m -
-log-opt max-file=3 <CloudLens_IP_here>/sensor --accept_eula yes --project_
key ProjectKeyFromIxiaProjectPortal --server <CloudLens_IP_here> --ssl_
verify no
```

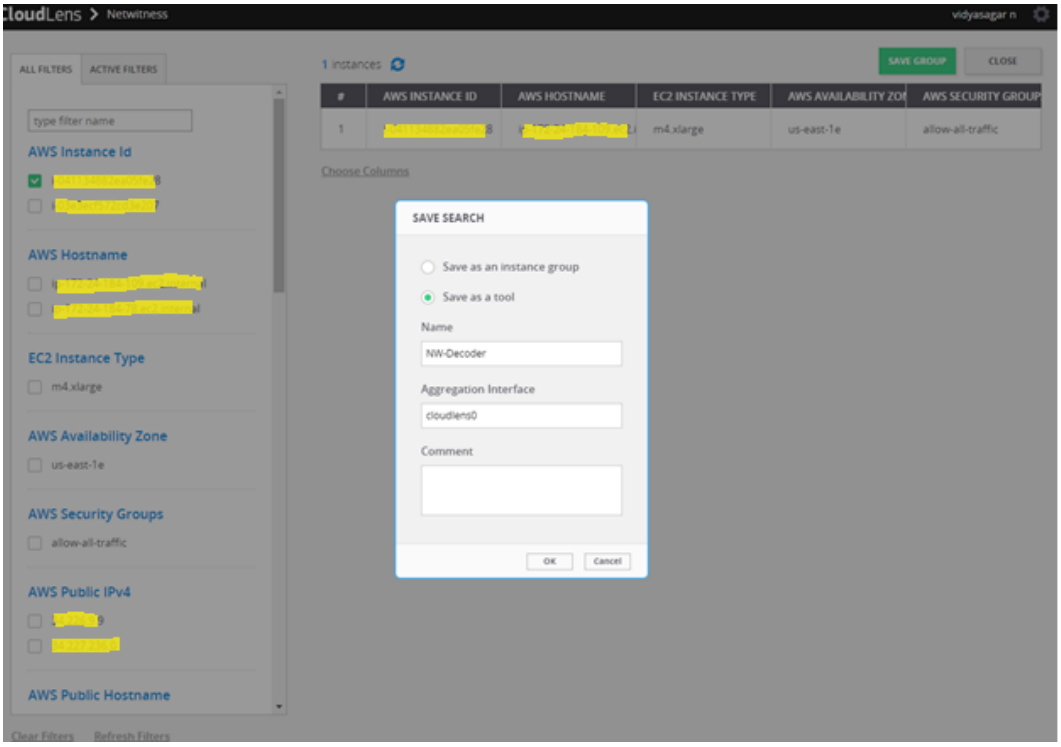
Task 5. Map Network Decoder to Ixia Clients

Map the Network Decoder to the client machines to route the traffic to the Network Decoder. Do the following:

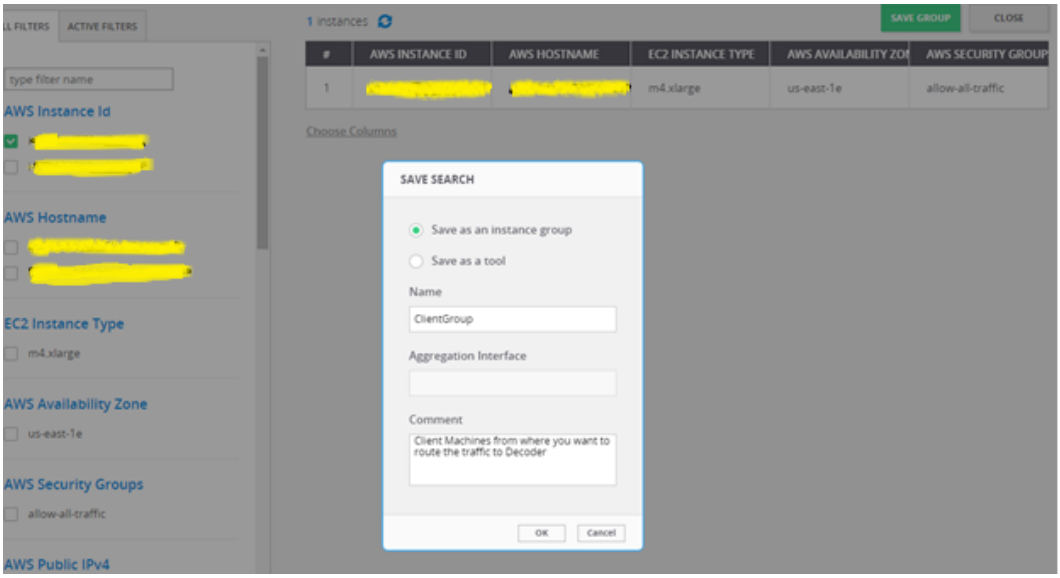
1. Go to the **CloudLens Manager** UI.
2. Click on your project and open it.
3. Click **Define Group** or the Instances count.

   You should see two instances listed, one for your decoder and the other for the client machines.
4. Apply filter for the decoder instance and click **Save Search**.
5. Select **Save as a tool**.
6. Specify a name for the tool and the **Aggregation Interface**.

> **Note:** Use a meaningful name for the Aggregation Interface (for example **cloudlens0**. This is a virtual interface that appears in the OS where your Tool is installed. You need to instruct your tool to 'listen' to that interface in a subsequent step.



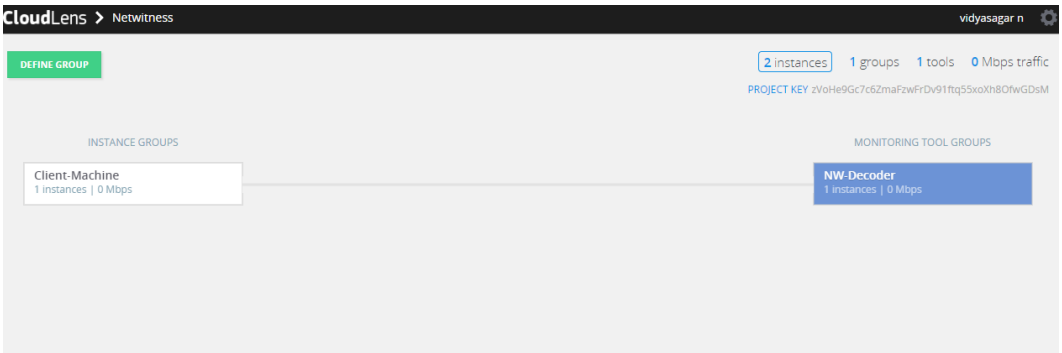
7. Apply filter for the client host instance from the list and click **Save Search**.



8. Navigate back to the top-level view of the project.

   Your client machine instance and Decoder instance are now displayed.

9. Drag a connection between the client machine instance and Decoder instance to allow the flow of packets.



Task 6. Validate CloudLens Packets Arriving at Decoder

Complete the following steps to validate that the packets are actually arriving at the Network Decoder.

1. SSH to the Network Decoder.
2. Run the following command.

   ```
   ifconfig
   ```

   The new aggregation interface you created is displayed.

```
[root@ip-[illegible] ~]# ifconfig
cloudlens0 Link encap:Ethernet  HWaddr [illegible]
          inet6 addr: [illegible] Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:9100  Metric:1
          RX packets:6 errors:0 dropped:0 overruns:0 frame:0
          TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:468 (468.0 b)  TX bytes:468 (468.0 b)
```

3. Generate traffic from the client OS instance CLI (for example: `wget http://www.google.com/`).

```
root@ip-[illegible] [illegible]-user]# wget https://[illegible] --no-check-certificate
--2017-06-19 14:33:05--  https://[illegible]/
Connecting to [illegible]... connected.
WARNING: cannot verify [illegible]'s certificate, issued by 鈥榓N=Puppet CA: cc4bfb66-8746-4b2f-88ee-3f82862c7069鈥?
  Unable to locally verify the issuer's authority.
    WARNING: certificate common name 鈥榓c4bfb66-8746-4b2f-88ee-3f82862c7069鈥? doesn't match requested host name 鈥? 72.24
214鈥?
HTTP request sent, awaiting response... 302 Found
Location: https://[illegible]/login [following]
--2017-06-19 14:33:05--  https://[illegible]/login
Reusing existing connection to 172.24.4.214:443.
HTTP request sent, awaiting response... 200 OK
Length: unspecified
Saving to: 鈥榓ndex.html.7鈥?

index.html.7                        [ <=>                                   ]   2.01K  --.-KB/s    in 0s

2017-06-19 14:33:05 (246 MB/s) - 鈥榓ndex.html.7鈥? saved [2062]
```

4. SSH to the Network Decoder and go to your Network Decoder instance CLI.

5. Run the following command to look for suitable results in the tcpdump.

   `tcpdump -I Cloudlens0`

```
74 packets dropped by kernel
root@ip-[illegible] ~]# tcpdump -i cloudlens0
tcpdump: WARNING: cloudlens0: no IPv4 address assigned
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on cloudlens0, link-type EN10MB (Ethernet), capture size 65535 bytes



14:37:11.408308 IP 175.2.141.156 > ip-172-24-[illegible]-ec2.internal: ICMP echo request, id 132, seq 32849, length 8
14:37:11.408318 IP ip-172-24-184-[illegible].internal > 175.2.141.156: ICMP echo reply, id 132, seq 32849, length 8
14:37:11.781923 IP 175.2.141.156 > ip-172-24-184-[illegible].ec2.internal: ICMP 175.2.141.156 protocol 1 unreachable, length 36
```

Task 7. Set the Interface in the Network Decoder

Complete the following steps in the Network Decoder to set the interface for the Ixia integration.

1. SSH to the Network Decoder.

2. Run the following command to restart the decoder service:

   `$ sudo restart nwdecoder`

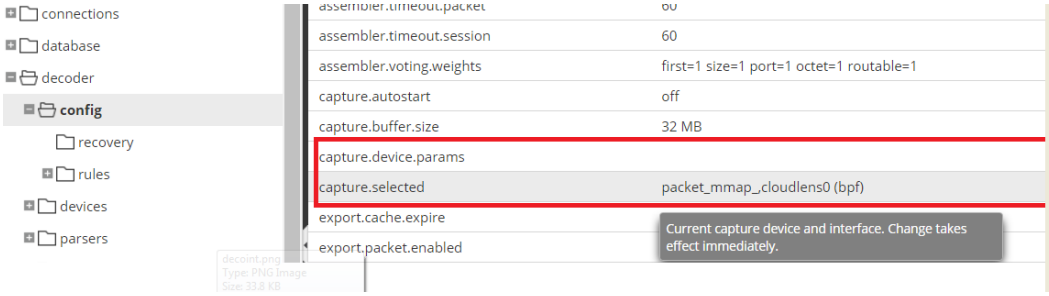
   The Network Decoder is now set to capture the network traffic.

3. Log in to NetWitness and click  **(Admin) > Services**.

4. Select a Decoder service and click  > **View > Explore**.

5. Expand the **decoder** node and click **config** to view the configuration settings.

6. Set the **capture.selected** parameter to the following value.
   packet_mmap_,cloudlens0(bpf)



7. Restart the Decoder service after you set the **capture.selected** parameter.

Appendix A. Silent Installation Using CLI

You can use the following Command Line Interface commands to run the installation script (`nwsetup-tui`) without getting prompted for inputs. This enables you to automate the installation of a host by supplying response to the scripts prompts through the command line.

1. After you have created a base image on the host, log in to the host with the `root` credentials.
2. Submit the `nwsetup-tui` script with the `--silent` command and the arguments that you want to apply.

   The following command string is an example of how you would install a basic NW Server host.

   ```
   nwsetup-tui --silent --is-head=true --host-name=new-host --master-pass=netwitness --deploy-pass=netwitness --repo-type=1 --custom-firewall=false --ip-override=false --eula=true
   ```

Note: In NetWitness Platform version 11.6 or later, deployment account password must contain at least one number, one upper and lower case letter, and one special characters (!@#%^,+ .) along with the existing policy. The same password policy applies while updating deploy_admin password using `nw-manage script`.
If `deploy_admin` password is changed on Primary NW Server, It must be changed on the Warm Standby Server if it exists.

3. (Conditional - For Component Hosts Only) Install the appropriate service **Category** on the newly provisioned host in the NetWitness Platform Hosts view.

   a. Log into NetWitness and go to **(Admin)** > **Hosts**.

      The **New Hosts** dialog is displayed with the **Hosts** view grayed out in the background

      Note: If the **New Hosts** dialog is not displayed, click **Discover** in the Hosts view toolbar.

   b. Select the host in the **New Hosts** dialog and click **Enable**.

      The **New Hosts** dialog closes and the host is displayed in the **Hosts** view.

   c. Select that host in the **Hosts** view (for example, **Event Stream Analysis**) and click Install.

      The **Install Services** dialog is displayed.

   d. Select the appropriate host type in **Category** and click **Install**.

Arguments

Argument	Description
`--help-install-opts`	Display all the arguments in this table.

Argument	Description
`--eula`	Accept or decline the End User License Agreement (EULA). Specify: • `true` (default) to accept the agreement • `false` to decline it and cancel the installation. For example: `--eula=true`
`--is-head`	Designate the host as the NW Server host or a component host. Specify: • `true` for NW Server host. • `false` for Component host. For example: `--is-head=true`
`--host-name`	Specify new hostname. If you do not specify this argument, NetWitness Platform retains the existing hostname. For example: `--host-name=<hostname>`
`--master-pass`	Enter master password. For example: `--master-pass=<password>`
`--deploy-pass`	Enter deployment password. For example: `--deploy-pass=<password>`
`--iface-name`	Specify network interface. For example: `--iface-name=eth0`
`--ip-override`	Accept or override IP address found for this host or change the IP configuration found on the host. Specify: • `true` provide IP address. • `false` use IP address found on the host. For example: `--ip-override=false`
`--ip-type`	Select ip address configuration type. Specify: • `1` Static IP Configuration) • `2` DCHP For example: `--ip-type=1`
`--ip-addr`	For Static IP configuration, enter IP Address for static address. For example: `--ip-addr=<ip-address>`
`--ip-netmask`	For Static IP configuration, enter Subnet Mask for static address. For example: `--ip-gateway=<subnet-mask>`

Argument	Description
`--ip-gateway`	For Static IP configuration, enter default gateway for static address. For example: `--ip-gateway=<default-gateway>`
`--ip-nameserver`	IP address assigned to DNS server. `--ip-nameserver=<ip-address>`
`--ip-nameserver-secondary`	Optional - IP address assigned to a secondary DNS server. For example: `--ip-nameserver-secondary=<ip-address>`
`--ip-domain`	For Static IP configuration, enter Local Domain Name for static address. For example: `--ip-domain=<default-gateway>`
`--repo-type`	Select type of update repository. Specify: • `1` Local repository • `2` External repository For example: `--repo-type=1`
`--repo-url`	For an external update repository, specify the url of the repository. For example: `--repo-url=<url>`
`--head-ip`	For a component host, specify IP Address of the NW Server. For example: `--head-ip=<ip-address>`
`--custom-firewall`	Disable default firewall configuration and use your custom configuration. Specify: • `true` use custom firewall configuration. • `false` use default firewall configuration. For example: `--custom-firewall=true`
`--use-nat`	Configure the host to use Network Address Translation (NAT) based IP addresses: • `true` use NAT IPs to connect to other hosts • `false` do not use NAT IPs to connect to other hosts (default) For example: `--use-nat=false`