



AWS Installation Guide

for RSA NetWitness® Platform 11.5



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AWS Installation Overview

Before you can deploy RSA NetWitness® Platform in the Amazon Web Services (AWS) you need to:

- Understand the requirements of your enterprise.
- Know the scope of a NetWitness Platform deployment.

When you are ready to begin deployment:

- Make sure that you have a NetWitness Platform "Throughput" license.
- For packet capture in AWS, you can purchase either of the following Third-Party solutions. If you engage one of these third-parties, they will assign an account representative and a professional services engineer to you who will work closely with RSA Support.
 - [Gigamon® GigaVUE](#)
 - [Ixia CloudLens™](#)
 - [f5® BIG-IP](#)

AWS Environment Recommendations

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

- Based on the resource requirements of the different components, follow the best practices to use the system and the dedicated storage Elastic Block Store (EBS) Volumes appropriately.
- Make sure that the compute capacity provides a write speed of 10% greater than the required sustained capture and ingest rate for the deployment.
- Build a Concentrator directory for the index database on the Provisioned IOPS SSD.

Abbreviations and Other Terminology Used in this Guide

Abbreviations	Description
AMI	Amazon Machine Image
AWS	Amazon Web Services
BYOL	Bring your own licensing
CPU	Central Processing Unit

Abbreviations	Description
Dedicated Instance	AWS Dedicated Instances run in a VPC on hardware that is dedicated to a single customer. Dedicated instances are physically isolated at the host hardware level from instances that belong to other AWS accounts. Dedicated instances may share hardware with other instances from the same AWS account that are not Dedicated instances. For more information on the dedicated instances, see AWS "Amazon EC2 Dedicated Instance" documentation (https://aws.amazon.com/ec2/purchasing-options/dedicated-instances/).
EBS Optimization	An Amazon EBS–optimized instance uses an optimized configuration stack and provides additional, dedicated capacity for Amazon EBS I/O. This optimization provides the best performance for your EBS volumes by minimizing contention between Amazon EBS I/O and other traffic from your instance. For more information on EBS-optimized instances, see the AWS "Amazon EBS–Optimized Instances" documentation (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSOptimized.html).
EBS Volume	Elastic Block Store (EBS) volume is a highly available and reliable storage volume that you can attach to any running instance that is in the same Availability Zone. For more information on EBS Volumes, see the AWS "Amazon EBS Volumes" documentation (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumes.html).
EC2 instance	Virtual server in AWS Elastic Compute Cloud (EC2) for running applications on the AWS infrastructure. Also, for more information, see Instance.
Enhanced Networking Enabled	Enhanced networking provides higher bandwidth, higher packet-per-second performance, and consistently lower inter-instance latencies. If your packets-per-second rate appears to have reached its threshold, you must consider moving to enhanced networking because you may have reached the upper thresholds of the virtual machine network interface (VIF) driver. For more information on enhanced networking, see AWS "How do I enable and configure enhanced networking on my EC2 instances" documentation (https://aws.amazon.com/premiumsupport/knowledge-center/enable-configure-enhanced-networking/).
EPS	Events Per Second
GB	Gigabyte. 1GB = 1,000,000,000 bytes
Gb	Gigabit. 1Gb = 1,000,000,000 bits.
Gbps	Gigabits per second or billions of bits per second. It measures bandwidth on a digital data transmission medium such as optical fiber.
GHz	GigaHertz 1 GHz = 1,000,000,000 Hz
HDD	Hard Disk Drive
Instance	A virtual host in the AWS (that is, virtual machine or server in the AWS infrastructure on which you run services or applications). See also EC2 Instance .

Abbreviations	Description
Instance Type	Specifies the required CPU and RAM for an instance. For more information on the instance types, see the AWS "Amazon EC2 Instance Types" documentation (https://aws.amazon.com/ec2/instance-types/).
IOPS	Input/Output Operations Per Second
Mbps	Megabits per second or millions of bits per second. It measures bandwidth on a digital data transmission medium such as optical fiber.
On-Premise	On-premise hosts are installed and run on computers on the premises (in the building) of the organization using the hosts, rather than in the AWS.
PPS	Packets Per Second
RAM	Random Access Memory (also known as memory)
Security Group	Set of firewall rules. For more information and a comprehensive list of the ports you must set up for all NetWitness Platform components, see the "Network Architecture and Ports" documentation on RSA Link (https://community.rsa.com/docs/).
SSD	Solid-State Drive
Tag	A meaningful identifier for AWS instance.
Tap Vendor	Network Tapping Vendor
vCPU	Virtual Central Processing Unit (also known as a virtual processor)
VM	Virtual Machine
VPC	Virtual Public Cloud
vRAM	Virtual Random Access Memory (also known as virtual memory)

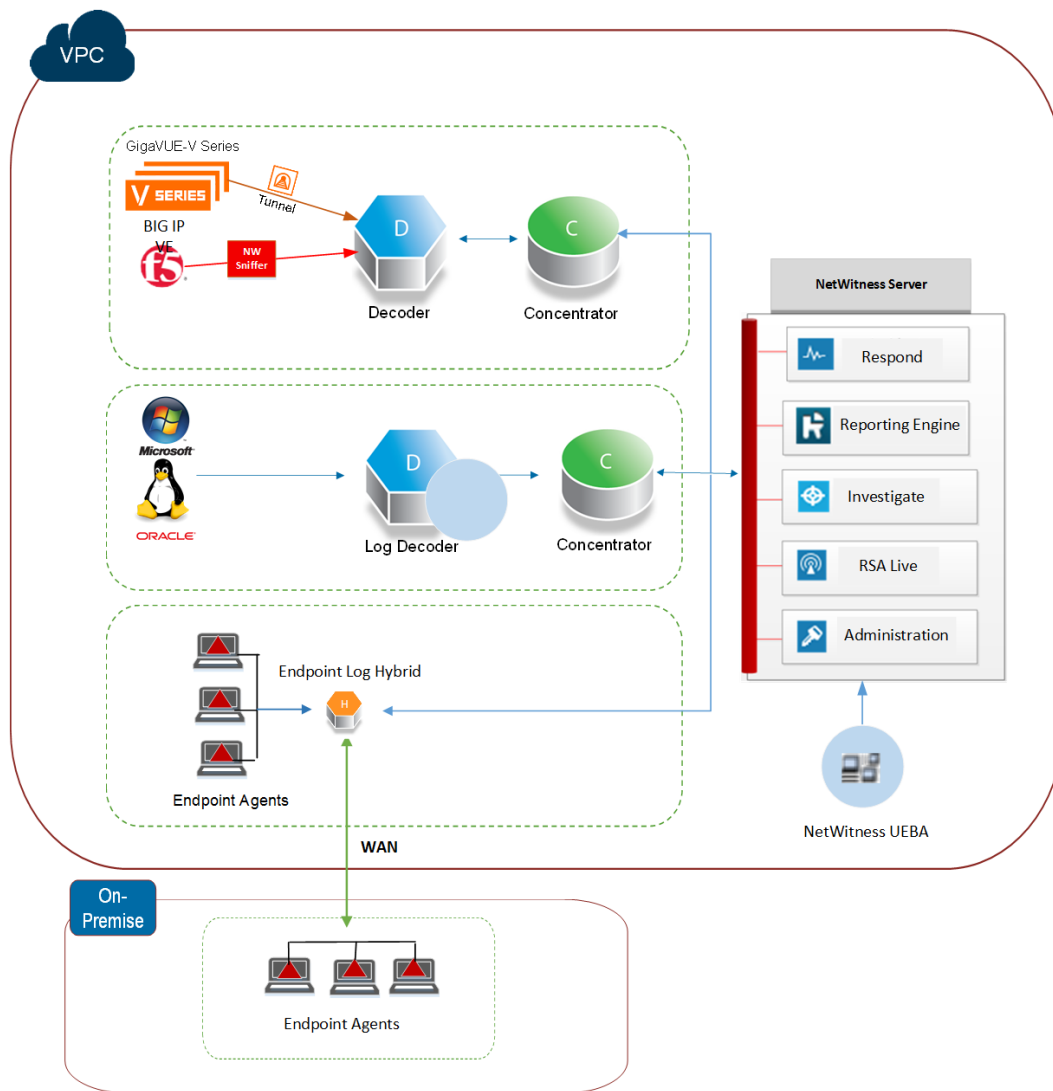
AWS Deployment Scenarios

The following diagrams illustrate some common AWS deployment scenarios. In the diagrams, the:

- **GigaVUE Series** (Gigamon® Solution) is an agent-based solution that uses **Tunneling** (implemented by the NetWitness Platform administrator) to facilitate packet data capture in AWS.
- **CloudLens™** (Ixia® Solution) is an agent-based solution that uses Ixia clients and the CloudLens Docker installed on the Network Decoder to facilitate packet data capture in AWS.
- **BIG-IP** (f5® Solution) is a load balancing solution that uses a Network Decoder acting as a sniffer (customized by the NetWitness Platform administrator) to facilitate packet capture in AWS.
- **Decoder** collects packet data. The **Decoder** captures, parses, and reconstructs all network traffic from Layers 2 – 7.
- **Log Decoder** collects logs. The **Log Decoder** collects log events from hundreds of devices and event sources.
- **Concentrator** indexes metadata extracted from network or log data and makes it available for enterprise-wide querying and real-time analytics while facilitating reporting and alerting.
- **Endpoint Log Hybrid** - collects endpoint data. The Endpoint Log Hybrid is comprised of Endpoint Server, Log Decoder, and Concentrator. Log Decoder captures data from the Endpoint Server and processes the metadata. For more information, see *NetWitness Endpoint Configuration Guide*.
- NetWitness Server (NW) hosts **Respond, Reporting, Investigate, Live Content Management, Administration** and other aspects of the user interface.

Full NetWitness Platform Stack VPC Visibility

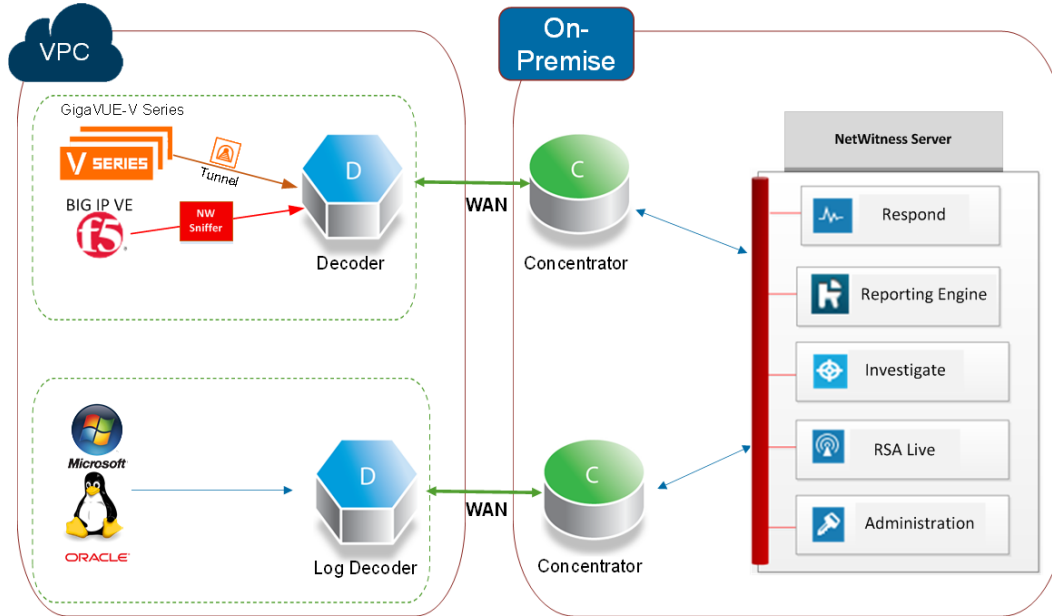
This diagram shows all NetWitness Platform components (full stack) deployed in AWS.



Note: You can add multiple Endpoint Log Hybrids. For a consolidated view of the endpoint data on multiple Endpoint Log Hybrids you must install an Endpoint Broker.

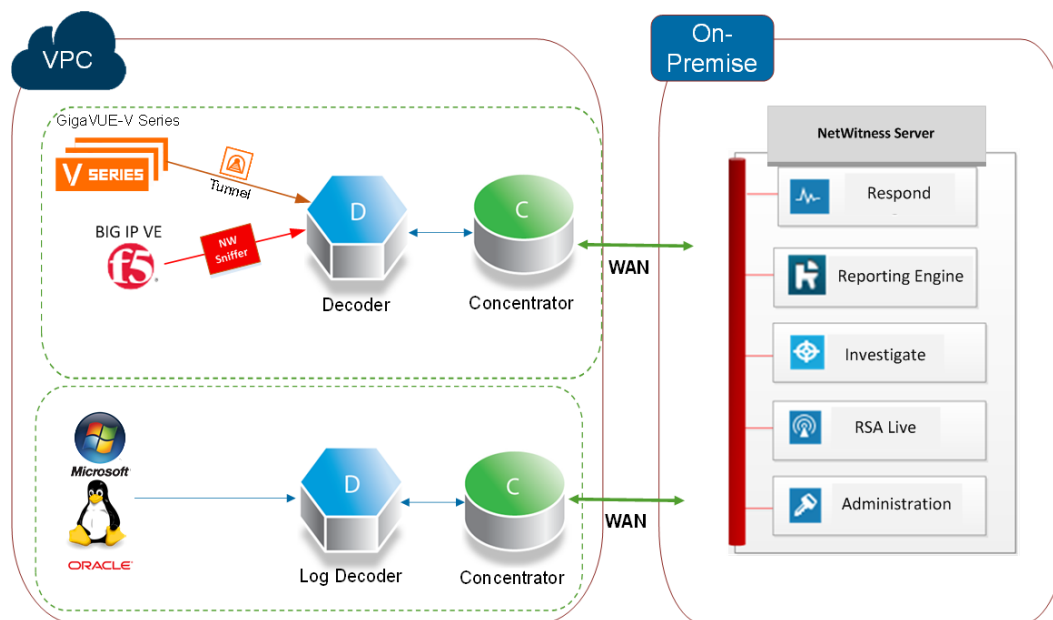
Hybrid Deployment - Decoder and Log Decoder

This diagram shows the Decoder and Log Decoder deployed in AWS with all other NetWitness Platform components deployed on your premises.



Hybrid Deployment - Decoder, Log Decoder, and Concentrator

This diagram shows the Decoder, Log Decoder, and the Concentrator deployed in AWS with all other NetWitness Platform components deployed on your premises.



Prerequisites

You need the following items before you begin the installation process:

- Ixia account (<https://login.ixiacom.com/>)
- Access to AWS console
- Network rout-able (and proper AWS Security Groups) for the containers to transfer data to the NetWitness Platform Decoder.

Supported Services

RSA provides the following NetWitness Platform services.

- NetWitness Server
- Admin Server
- Archiver
- Broker
- Concentrator
- Config Server

- Event Stream Analysis
- Investigate Server
- Orchestration Server
- Reporting Engine
- Respond Server
- Security Server
- Log Decoder
- Decoder
- Remote Log Collector
- Endpoint Server
- User and Entity Behavior Analytics (UEBA)

AWS Deployment

This topic contains the rules and high-level tasks you must follow to deploy RSA NetWitness® Platform components in the AWS.

Rules

You must adhere to the following rules when deploying NetWitness Platform in AWS.

- SSH to the NetWitness Platform instance at least once after deployment to initialize the system.
- Do not interrupt the execution of **netconfig.sh** script during the first SSH console login to any NetWitness Platform AWS instance.
- Before you enable the out-of-the-box (OOTB) dashboards, set the default data source in the Reporting Engine configuration page.
- If you reboot the Network Decoder instance, the tunnel is not retained. Create the tunnel on Network Decoder again and restart the Decoder service.
- Always use private IP addresses when you provision AWS NetWitness Platform instances.

Note: If you assign a public IP to the NW Server Host, update the `/etc/nginx/conf.d/nginx.conf` configuration file as follows:

```
location /nwrpmrepo
{
alias /var/lib/netwitness/common/repo;
index index.html index.htm;
allow <Subnet-Gateway>/Subnet mask ;
#example
# allow 10.0.0.1/25;
deny all;
autoindex on;
}
```

Checklist

Step	Description	✓
1	Establish AWS Environment	
2	Find NetWitness Platform AMIs	
3	Launch an Instance and Configure a Host	
4	Configure Hosts (Instances) in NetWitness Platform	
5	Configure Packet Capture	

Establish AWS Environment

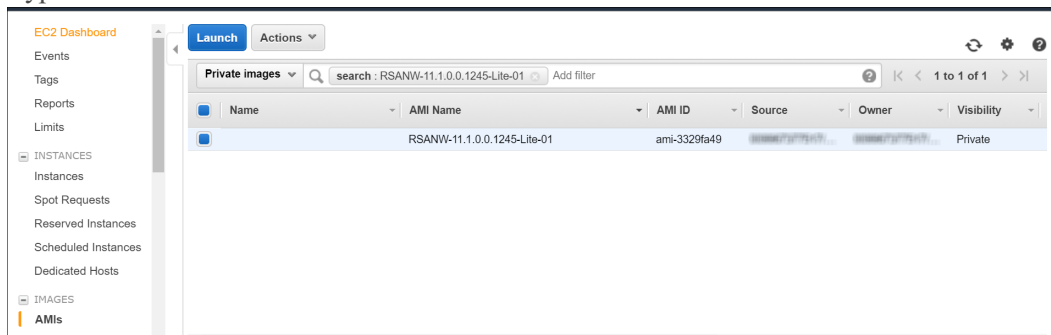
1. Make sure that you have an AWS environment with the capacity to meet or exceed the NetWitness Platform performance guidelines described in [AWS Instance Configuration Recommendations](#).
2. Go to [Find NetWitness Platform AMIs](#).

Find NetWitness Platform AMIs

You can search for NW- AMI files within the Public/Shared/Community repository, using the keyword "RSANW".

Note: For more information, see AWS **Finding Shared AMIs** documentation (<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/usingsharedamis-finding.html>).

1. Open the Amazon EC2 console (New Subscriber Account) at <https://console.aws.amazon.com/ec2/>.
2. In the navigation pane, choose AMIs.
3. In the first filter, choose Public images.
4. Type "RSANW" in the search field to find the NetWitness Platform AMIs.



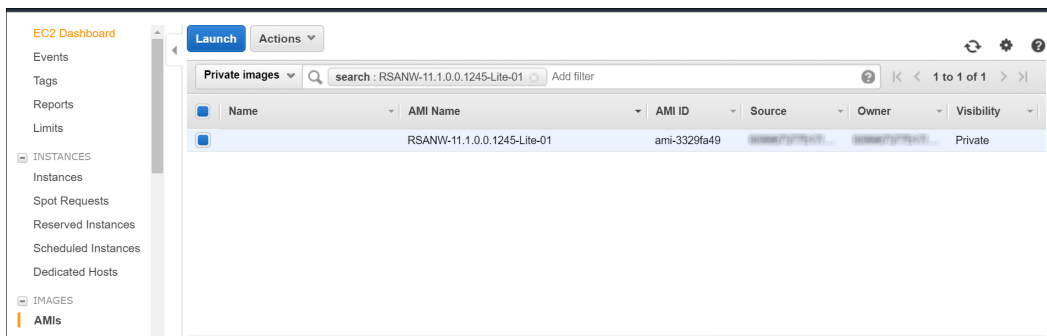
Note: Contact RSA Customer Support (<https://community.rsa.com/docs/DOC-1294>) to obtain access to the **RSA-11.5.0.0.10816-Full-01**.

5. Go to [Launch an Instance and Configure a Host](#).

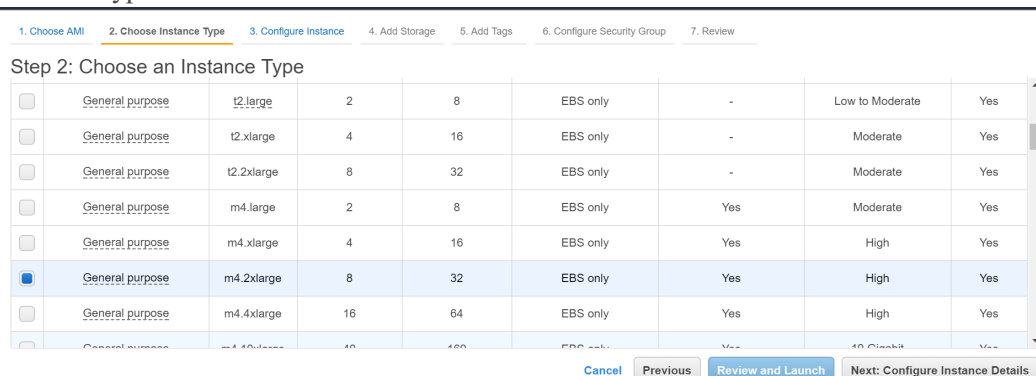
Launch an Instance and Configure a Host

Note: For more information, see AWS "Launching an Instance" documentation (<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/launching-instance.html>).

1. Select an instance from the grid (for example, **RSA-NW-Concentrator-11.5.0.0-01**) and click **Launch**.



2. Choose the RAM and CPUs by selecting the instance type. For more information, see [AWS Instance Configuration Recommendations](#) for guidelines on how to configure the EC2 Instance based on the requirements of the NetWitness Platform component (that is, service) for which you are launching an instance. The following example has the **m4.2xlarge** instance type selected with **8 CPUs** and **32 GB** of RAM.



3. Click **Next: Configure Instance Details** at the bottom right of the **Step 2: Choose an Instance Type** page. The **Step 3. Configure Instance Details** page is displayed.

For NetWitness Platform, the subnet and VPC are defaulted to the values.

- Click **Next: Add Storage** at the bottom right of the **Step 3: Configure Instance Details** page.

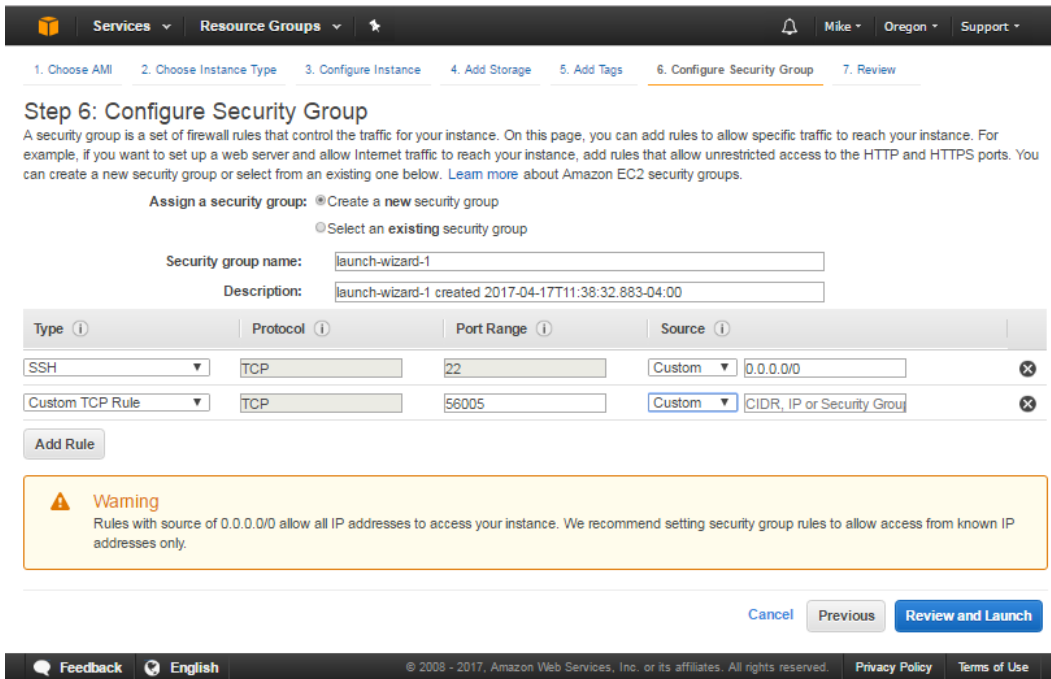
The **Step 4. Add Storage** page is displayed.

For more information, see [AWS Instance Configuration Recommendations](#) for guidelines on how to configure storage based on the requirements of the NetWitness Platform component (that is, service) for which you are launching an instance.

- Click **Next: Add Tags** at the bottom right of the **Step 4: Add Storage** page. The **Step 5. Add Tags** page is displayed. Enter the name of your Instance.
- Click **Next: Configure Security Group** at the bottom right of the **Step 5: Add Tags** page. The **Step 6. Configure Security Group** page is displayed.

- a. Select the "Create a **new** security group" radio button.
- b. Create a rule that opens all the firewall ports for the NetWitness Platform component. You must configure the security group correctly to configure the instance (host) from the NetWitness Platform User Interface and SSH to it.

Note: For more information, see the "Network Architecture and Ports" documentation on RSA Link (<https://community.rsa.com/docs/DOC-83050>) for a comprehensive list of the ports you must set up for all NetWitness Platform components..



Note: After you configure a Security Group, you can change it at any time.

7. Click **Review and Launch** at the bottom right of the **Step 6: Configure Security Group** page. The **Step 7. Review Instance Launch** page is displayed.
8. Click **Launch** at the bottom right of the **Step 7. Review Instance Launch** page. The **Select an existing key pair or create a new key pair** dialog is displayed.
9. Choose **Proceed without key pair**.

10. Click **Launch Instance**.

AWS displays the following information as it builds the Instance.

The screenshot shows the 'Step 6: Configure Security Group' interface in the AWS console. It includes a breadcrumb trail: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, 7. Review. Below the breadcrumb, it says 'Select an existing security group'. A table lists several security groups, with 'RSA-NW-Concentrator-11.1.0.0-01' selected. Below this, a table shows the inbound rules for the selected security group 'sg-2e631b54'.

Security	Name	Description
sg-2fb15152	allow-all-traffic	allow-all-traffic
sg-326dfd4f	CentOS 6 (x86_64) - with Updates HVM-1602-AutogenByAWSMP	This security group was generated by AWS Marketplace and is based on recommended settings for CentOS 6 x86_64
sg-2e631b54	RSA-NW-Concentrator-11.1.0.0-01	launch-wizard-1 created 2016-09-22T10:48:22.210-04:00
sg-81a282f9	default	default VPC security group
sg-8f215af5	Gigamon	launch-wizard-1 created 2016-09-22T15:33:51.373-04:00
sg-8d4602f7	launch-wizard-1	launch-wizard-1 created 2016-09-23T13:26:20.056-04:00
sg-4f32de32	launch-wizard-2	launch-wizard-2 created 2016-10-25T13:30:32.303-04:00
sg-48c0fd34	launch-wizard-3	launch-wizard-3 created 2017-02-22T12:30:46.309-05:00
sg-f8dbe182	SMTP	smtp

Type	Protocol	Port Range	Source
Custom TCP Rule	TCP	50120	0.0.0.0/0
Custom TCP Rule	TCP	50040	0.0.0.0/0
Custom TCP Rule	TCP	50020	0.0.0.0/0

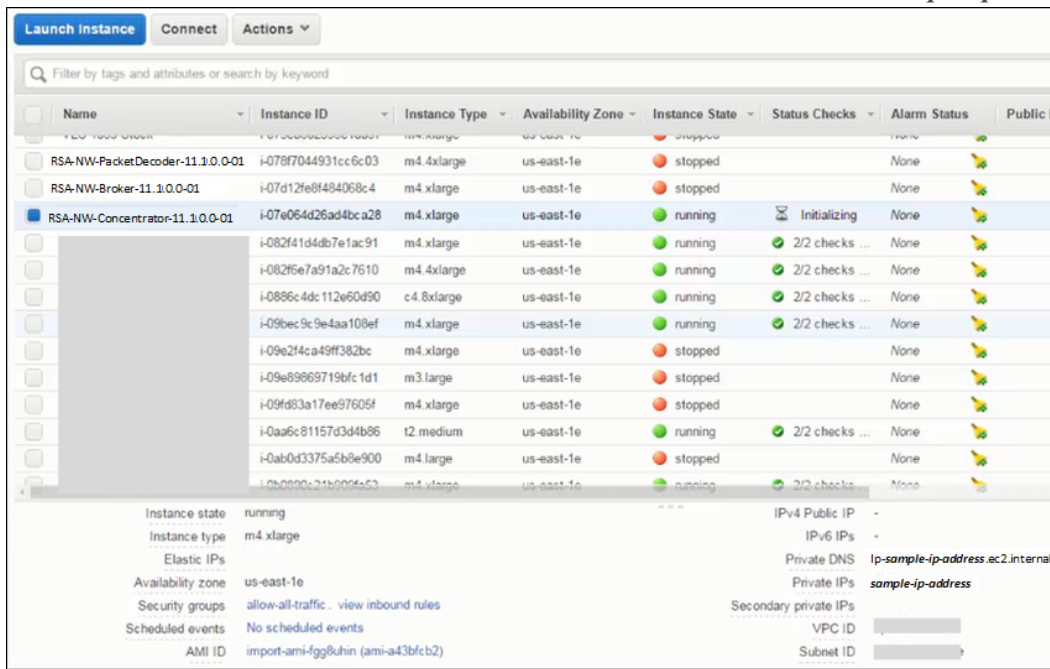
11. Click **View Instances**.

12. Select **Instances** from the left navigation panel to review all instances that AWS is initializing (for example, the **NW-Concentrator**).

The screenshot shows the 'Instances' page in the AWS console. It features a search bar and a table of instances. The instance 'RSA-NW-Concentrator-11.1.0.0-01' is highlighted, showing its state as 'pending' and 'Initializing'.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public
RSA-NW-Blocker-11.1.0.0-01	i-078f7044931cc6c03	m4.xlarge	us-east-1e	stopped	2/2 checks ...	None	Public
RSA-NW-Broker-11.1.0.0-01	i-07d12fe8f494058c4	m4.xlarge	us-east-1e	stopped	2/2 checks ...	None	Public
RSA-NW-Concentrator-11.1.0.0-01	i-07e064d26ad4bca28	m4.xlarge	us-east-1e	pending	Initializing	None	Public
RSA-NW-Archiver-11.1.0.0-01	i-082f41d4db7e1ac91	m4.xlarge	us-east-1e	running	2/2 checks ...	None	Public

The IP Address for the new **RSA-NW-Concentrator-11.5.0.0-01** host is *sample-ip-address*.



- SSH to the newly-created instance using the default NetWitness Platform credentials.
- Go to [Configure Hosts \(Instances\) in NetWitness Platform](#).

Partition Recommendations

This topic contains the recommended AWS partition.

Admin Server, ESA Primary, ESA Secondary and Malware Analysis

For an extension of `/var/netwitness/` partition, attach an external volume.

Run `lsblk` to get the physical volume name.

If you attach 2 TB disk, run the following commands:

- `pvcreate <pv_name>` (for example, `pv_name` is `/dev/sdc`)
- `vgextend netwitness_vg00 /dev/sdc`
- `lvextend -L 1.9T /dev/netwitness_vg00/nwhome`
- `xfs_growfs /dev/netwitness_vg00/nwhome`

RSA recommends the following partition definitions. However, you can change these values based on the retention days.

LVM	Folder	EBS
<code>/dev/netwitness_vg00/nwhome</code>	<code>/var/netwitness/</code>	Refer to the EBS Volume (storage) tables.

Log Collector

For an extension of `/var/netwitness/` partition, attach an external volume

Run `lsblk` to get the physical volume name.

If you attach one 500 GB volume, run the following commands:

1. `pvcreate <pv_name>` (for example, `pv_name` is `dev/sdc`)
2. `vgextend netwitness_vg00 /dev/sdc`
3. `lvextend -L 600G /dev/netwitness_vg00/nwhome`
4. `xfs_growfs /dev/netwitness_vg00/nwhome`

RSA recommends the following partition definitions. However, you can change these values based on the retention days.

LVM	Folder	EBS
<code>/dev/netwitness_vg00/nwhome</code>	<code>/var/netwitness/</code>	Refer to the EBS Volume (storage) tables.

Decoder

For an extension of `/var/netwitness/` partition, attach an external volume and other external volumes for the Decoder database partitions.

Note: No other partition should reside on this Decoder partition and should be used only for `/var/netwitness/` partition.

Run `lsblk` to get the physical volume name.

If you attach 2 TB disk, run the following commands:

1. `pvcreate <pv_name>` (for example, `pv_name` is `dev/sdc`)
2. `vgextend netwitness_vg00 /dev/sdc`
3. `lvextend -L 1.9T /dev/netwitness_vg00/nwhome`
4. `xfs_growfs /dev/netwitness_vg00/nwhome`

Other Partitions Required

The following partitions should be on the volume group **decodersmall**.

Folder	LVM	Volume Group
<code>/var/netwitness/decoder</code>	<code>decoroot</code>	<code>decodersmall</code>
<code>/var/netwitness/decoder/index</code>	<code>index</code>	<code>decodersmall</code>
<code>/var/netwitness/decoder/metadb</code>	<code>metadb</code>	<code>decodersmall</code>
<code>/var/netwitness/decoder/sessiondb</code>	<code>sessiondb</code>	<code>decodersmall</code>

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md0`
2. `vgcreate -s 32 decodersmall /dev/md0`
3. `lvcreate -L <disk_size> -n <lvm_name> decodersmall`
4. `mkfs.xfs /dev/decodersmall/<lvm_name>`
5. Repeat the above steps for all the LVMs mentioned above.

The following partition should be on the volume group **decoder**.

Folder	LVM	Volume Group
<code>/var/netwitness/decoder/packetdb</code>	packetdb	decoder

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md1`
2. `vgcreate -s 32 decoder /dev/md1`
3. `lvcreate -L <disk_size> -n packetdb decoder`
4. `mkfs.xfs /dev/decoder/packetdb`

RSA recommends the following partition definitions. However, you can change these values based on the retention days.

LVM	Folder	EBS
<code>/dev/netwitness_vg00/nwhome</code>	<code>/var/netwitness/</code>	Refer to the EBS Volume (storage) tables.
<code>/dev/decodersmall/decoroot</code>	<code>/var/netwitness/decoder</code>	Refer to the EBS Volume (storage) tables.
<code>/dev/decodersmall/index</code>	<code>/var/netwitness/decoder/index</code>	Refer to the EBS Volume (storage) tables.
<code>/dev/decoderssmall/metadb</code>	<code>/var/netwitness/decoder/metadb</code>	Refer to the EBS Volume (storage) tables.
<code>/dev/decoderssmall/sessiondb</code>	<code>/var/netwitness/decoder/sessiondb</code>	Refer to the EBS Volume (storage) tables.
<code>/dev/decoder/packetdb</code>	<code>/var/netwitness/decoder/packetdb</code>	Refer to the EBS Volume (storage) tables.

Create each directory and mount the LVM on it in a serial manner, except `/var/netwitness`, which is already created.

After mounting the directory, add the following entries in `/etc/fstab` in the same order:

1. `/dev/decoderssmall/decoroot /var/netwitness/decoder xfs noatime,nosuid 1 2`
2. `/dev/decoderssmall/index /var/netwitness/decoder/index xfs noatime,nosuid 1 2`

3. `/dev/decoderssmall/metadb /var/netwitness/decoder/metadb xfs noatime,nosuid 1 2`
4. `/dev/decoderssmall/sessiondb /var/netwitness/decoder/sessiondb xfs noatime,nosuid 1 2`
5. `/dev/decoder/packetdb /var/netwitness/decoder/packetdb xfs noatime,nosuid 1 2`

Log Decoder

For an extension of `/var/netwitness/` partition, attach an external volume and other external volumes for the Log Decoder database partitions.

Note: No other partition should reside on this Log Decoder partition and should be used only for `/var/netwitness/` partition.

Run `lsblk` to get the physical volume name.

If you attach a 2 TB disk, run the following commands:

1. `pvcreate <pv_name>` (for example, `pv_name` is `dev/sdc`)
2. `vgextend netwitness_vg00 /dev/sdc`
3. `lvextend -L 1.9T /dev/netwitness_vg00/nwhome`
4. `xfs_growfs /dev/netwitness_vg00/nwhome`

Other Partition Required

The following partition should be on the volume group **logdecodersmall**.

Folder	LVM	Volume Group
<code>/var/netwitness/logdecoder</code>	<code>decoroot</code>	<code>logdecoderssmall</code>
<code>/var/netwitness/logdecoder/index</code>	<code>index</code>	<code>logdecoderssmall</code>
<code>/var/netwitness/logdecoder/metadb</code>	<code>metadb</code>	<code>logdecoderssmall</code>
<code>/var/netwitness/logdecoder/sessiondb</code>	<code>sessiondb</code>	<code>logdecoderssmall</code>

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md0`
2. `vgcreate -s 32 logdecoderssmall /dev/md0`
3. `lvcreate -L <disk_size> -n <lv_name> logdecoderssmall`
4. `mkfs.xfs /dev/logdecoderssmall/<lv_name>`
5. Repeat the above steps for all the LVMs mentioned above.

The following partition should be on the volume group **logdecoder**.

Folder	LVM	Volume Group
/var/netwitness/logdecoder/packetdb	packetdb	logdecoder

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md1`
2. `vgcreate -s 32 logdecoder /dev/md1`
3. `lvcreate -L <disk_size> -n packetdb logdecoder`
4. `mkfs.xfs /dev/logdecoder/packetdb`

RSA recommends the following partition definitions. However, you can change these values based on the retention days.

LVM	Folder	EBS
/dev/netwitness_vg00/nwhome	/var/netwitness/	Refer to the EBS Volume (storage) tables.
/dev/logdecodersmall/decoroot	/var/netwitness/logdecoder	Refer to the EBS Volume (storage) tables.
/dev/logdecodersmall/index	/var/netwitness/logdecoder/index	Refer to the EBS Volume (storage) tables.
/dev/logdecodersmall/metadb	/var/netwitness/logdecoder/metadb	Refer to the EBS Volume (storage) tables.
/dev/logdecodersmall/sessiondb	/var/netwitness/logdecoder/sessiondb	Refer to the EBS Volume (storage) tables.
/dev/logdecoder/packetdb	/var/netwitness/logdecoder/packetdb	Refer to the EBS Volume (storage) tables.

Create each directory and mount the LVM on it in a serial manner, except `/var/netwitness`, which is already created.

After mounting the directory, add the following entries in `/etc/fstab` in the same order:

1. `/dev/logdecodersmall/decoroot /var/netwitness/logdecoder xfs noatime,nosuid 1 2`
2. `/dev/logdecodersmall/index /var/netwitness/logdecoder/index xfs noatime,nosuid 1 2`
3. `/dev/logdecodersmall/metadb /var/netwitness/logdecoder/metadb xfs noatime,nosuid 1 2`
4. `/dev/logdecodersmall/sessiondb /var/netwitness/logdecoder/sessiondb xfs noatime,nosuid 1 2`
5. `/dev/logdecoder/packetdb /var/netwitness/logdecoder/packetdb xfs noatime,nosuid 1 2`

Concentrator

For an extension of `/var/netwitness/` partition, attach an external disk and other external disks for the Concentrator database partitions.

Note: No other partition should reside on this Concentrator partition and should be used only for `/var/netwitness/` partition.

Run `lsblk` to get the physical volume name.

If you attach 2 TB disk, run the following commands:

1. `pvcreate <pv_name>` (for example, `pv_name` is `dev/sdc`)
2. `vgextend netwitness_vg00 /dev/sdc`
3. `lvextend -L 1.9T /dev/netwitness_vg00/nwhome`
4. `mkfs.xfs /dev/logdecoder/packetdb`

Other Partition Required

The following partition should be on the volume group concentrator.

Folder	LVM	Volume Group
<code>/var/netwitness/concentrator</code>	root	concentrator
<code>/var/netwitness/concentrator/sessiondb</code>	index	concentrator
<code>/var/netwitness/concentrator/metadb</code>	metadb	concentrator

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md0`
2. `vgcreate -s 32 logdecodersmall /dev/md0`
3. `lvcreate -L <disk_size> -n <lvm_name> logdecodersmall`
4. `mkfs.xfs /dev/logdecoderssmall/<lvm_name>`
5. Repeat the above steps all the LVMs mentioned

The following partition should be on volume group index.

Folder	LVM	Volume Group
<code>/var/netwitness/concentrator/index</code>	index	index

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md1`
2. `vgcreate -s 32 lindex /dev/md1`
3. `lvcreate -L <disk_size> -n index index`
4. `mkfs.xfs /dev/index/index`

RSA recommends the following partition. However, you can change these values based on the retention days.

LVM	Folder	EBS
/dev/netwitness_vg00/nwhome	/var/netwitness/	Refer to the EBS Volume (storage) tables.
/dev/concentrator/decroot	/var/netwitness/concentrator	Refer to the EBS Volume (storage) tables.
/dev/concentrator/metadb	/var/netwitness/concentrator/metadb	Refer to the EBS Volume (storage) tables.
/dev/concentrator/sessiondb	/var/netwitness/concentrator/sessiondb	Refer to the EBS Volume (storage) tables.
/dev/index/index	/var/netwitness/concentrator/index	Refer to the EBS Volume (storage) tables.

Create each directory and mount the LVM on it in a serial manner, except `/var/netwitness`, which is already created.

After mounting the directory, add the following entries in `/etc/fstab` in the same order:

1. `/dev/concentrator/root /var/netwitness/concentrator xfs noatime,nosuid 1 2`
2. `/dev/concentrator/sessiondb /var/netwitness/concentrator/sessiondb xfs noatime,nosuid 1 2`
3. `/dev/concentrator/metadb /var/netwitness/concentrator/metadb xfs noatime,nosuid 1 2 2`
4. `/dev/index/index /var/netwitness/concentrator/index xfs noatime,nosuid 1 2`

Archiver

For an extension of `/var/netwitness/` partition, attach an external volume and other external disks for the Archiver database partitions.

Note: No other partition should reside on this Archiver partition and should be used only for `/var/netwitness/partition`.

Run `lsblk` to get the physical volume name.

If you attach 2 TB disk, run the following commands:

1. `pvcreate <pv_name>` (for example, `pv_name` is `dev/sdc`)
2. `vgextend netwitness_vg00 /dev/sdc`
3. `lvextend -L 1.9T /dev/netwitness_vg00/nwhome`
4. `xfs_growfs /dev/netwitness_vg00/nwhome`

Other Partition Required

The following partition should be on the volume group archiver.

Folder	LVM	Volume Group
/var/netwitness/archiver	archiver	archiver

Run `lsblk` to get the physical volume name and run the following commands:

1. `pvcreate /dev/md0`
2. `vgcreate -s 32 archiver /dev/md0`
3. `lvcreate -L <disk_size> -n archiver archiver`
4. `mkfs.xfs /dev/archiver/archiver`

RSA recommends the following partition. However, you can change these values based on the retention days.

LVM	Folder
/dev/netwitness_vg00/nwhome	/var/netwitness/
/dev/archiver/archiver	/var/netwitness/archiver

Create each directory and mount the LVM on it in a serial manner, except `/var/netwitness`, which is already created.

After mounting the directory, add the following entries in `/etc/fstab` in the same order:

1. `/dev/archiver/archiver /var/netwitness/archiver xfs noatime,nosuid 1 2`

Endpoint Log Hybrid

For an extension of `/var/netwitness/` partition, attach an additional volume, and make sure that no other partition resides on this Endpoint Hybrid or Endpoint Log Hybrid. Also, attach other additional volumes for the endpoint database partitions.

Run `lsblk` to get the physical volume name.

If you attach 1 TB disk, run the following commands:

1. `pvcreate <pv_name>` (for example, `pv_name` is `dev/sdc`)
2. `vgextend netwitness_vg00 /dev/sdc`
3. `lvextend -L 1T /dev/netwitness_vg00/nwhome`
4. `xfs_growfs /dev/netwitness_vg00/nwhome`

Other Partition Required

The following partition should be on the volume group endpoint and should be in a single RAID 0 array.

Folder	LVM	Volume Group
/var/netwitness/mongo	hybrid-mongo	endpoint
/var/netwitness/concentrator	concentrator-concroot	endpoint

Folder	LVM	Volume Group
/var/netwitness/concentrator/index	hybrid-concinde	endpoint
/var/netwitness/logdecoder	hybrid-ldecroot	endpoint

Run `lsblk` to get the physical volume name and run the following commands:

- `pvcreate /dev/md0`
- `vgcreate -s 32 endpoint /dev/md0`
- `lvcreate -L <disk_size> -n <lvm_name> endpoint`
- `mkfs.xfs /dev/ endpoint /<lvm_name>`
- Repeat the above steps for all the LVMs mentioned.

RSA recommends the following partition. However, you can change these values based on the retention days.

LVM	Folder	EBS
/dev/netwitness_vg00/nwhome	/var/netwitness/	Refer to the EBS Volume (storage) tables.
/dev/endpoint/hybridmongo	/var/netwitness/mongo	Refer to the EBS Volume (storage) tables.
/dev/endpoint/concentratorconroot	/var/netwitness/concentrator	Refer to the EBS Volume (storage) tables.
/dev/endpoint/hybridconcinde	/var/netwitness/concentrator/index	Refer to the EBS Volume (storage) tables.
/dev/endpoint/hybridldecroot	/var/netwitness/logdecoder	Refer to the EBS Volume (storage) tables.

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 RSA NetWitness Platform Guide*.

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

Task 1 - Install 11.5.0.0 on the NW Server Host and Component Hosts

Complete the following steps to install 11.5 on NW Server host and other component hosts. Steps that are specific to the NW Server host or to component hosts are noted.

Note: You can perform this task for RSANW-11.5.0.0.14000-Full 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*.

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 "(Optional) Task 1 - Re-Configure DNS Servers Post 11.5" in [Post Installation Tasks](#).

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 Platform 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 11.5 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 11.5 NW
Server?
```

< Yes >

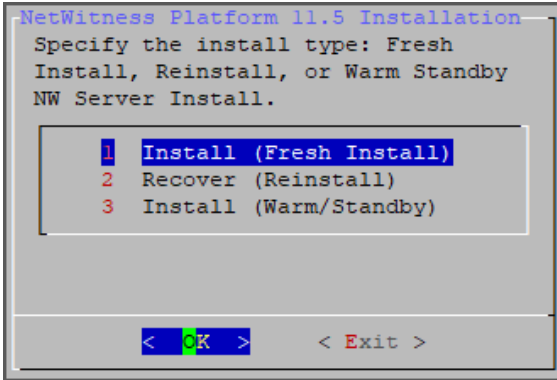
< No >

3. Tab to **Yes** and press **Enter** to install 11.5 on the NW Server.
Tab to **No** and press **Enter** to install 11.5 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 11.5 Disaster Recovery.).

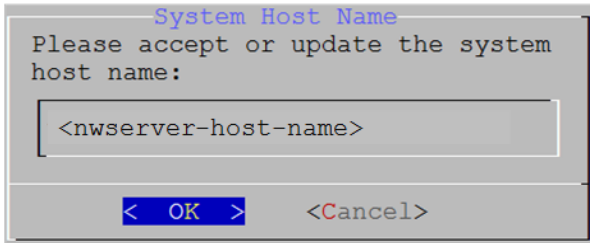
NW Server Host prompt:



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:

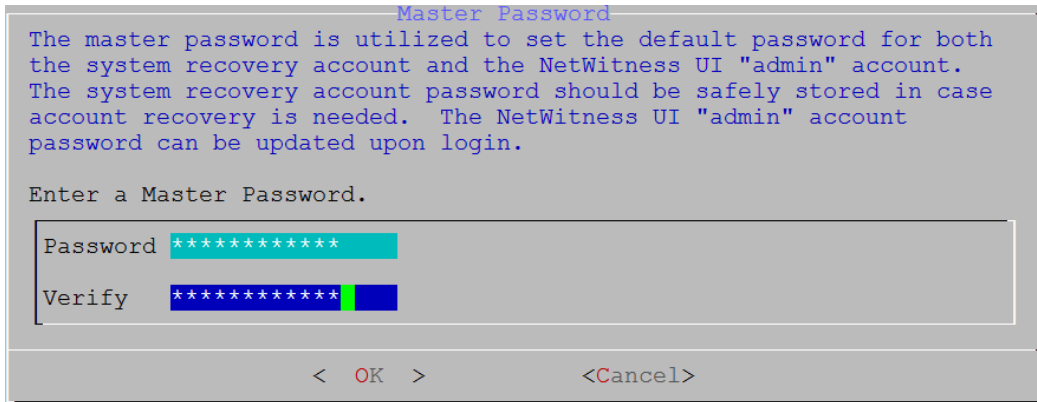


Other Component Hosts prompt says <non-nwserver-host-name>

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

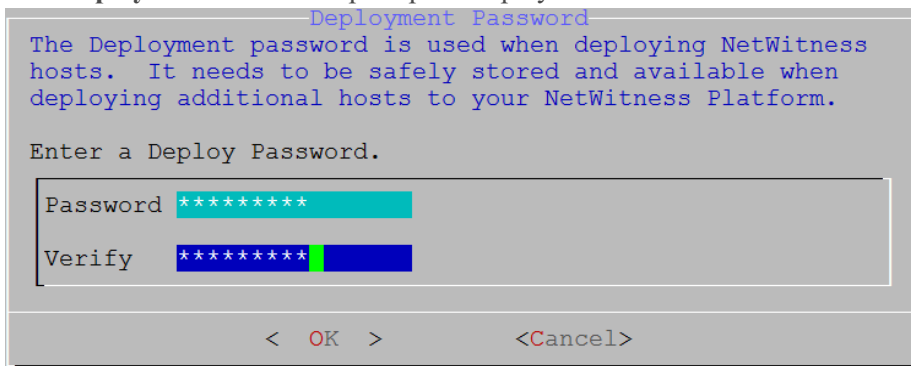
No ambiguous characters are supported for Master Password and Deployment Password. For example:

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.**

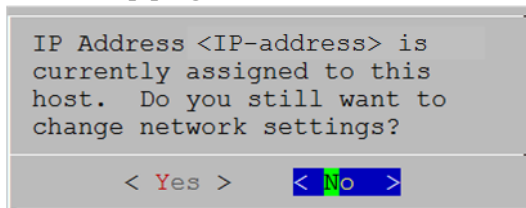
The **Deployment Password** prompt is displayed.



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.

```
NetWitness Platform Network Configuration
WARNING - You are currently running the
NetWitness installation over an SSH
connection. Network configuration
updates will result in restarting the
network service which may cause the SSH
session to terminate.

< OK >
```

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 to 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.

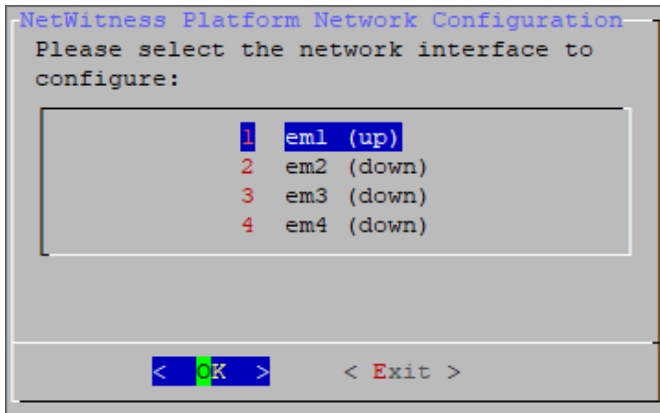
```
NetWitness Platform Network Configuration
The IP address of the NW Server is used by all other NetWitness
Platform components. RSA recommends that you use a Static IP
Configuration for the NW Server IP address over DHCP. After the
IP address is assigned, record it for future use. You need this
address to set up other components.

Select an IP address configuration for the NW Server.

1 Static IP Configuration
2 Use DHCP

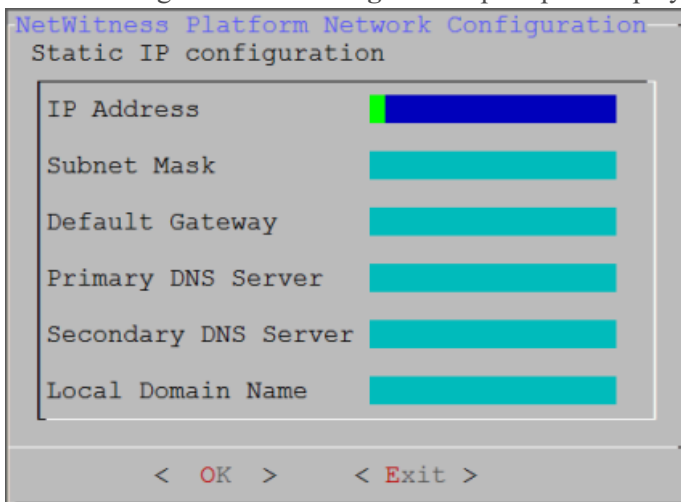
< OK > < Exit >
```

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**.

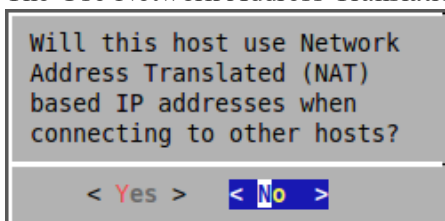
The following **Static IP Configuration** prompt is displayed.



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.

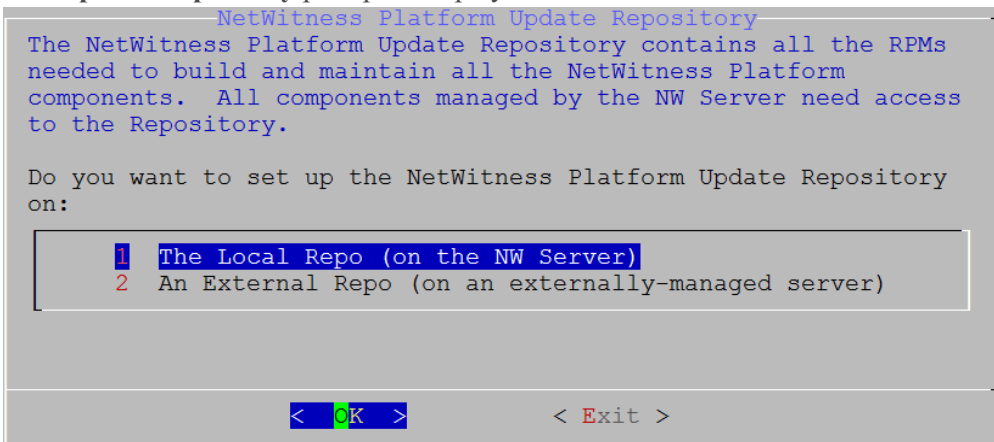
11. The Use Network Address Translation (NAT) prompt is displayed.



For the NW Server, tab to **No** and press **Enter**.

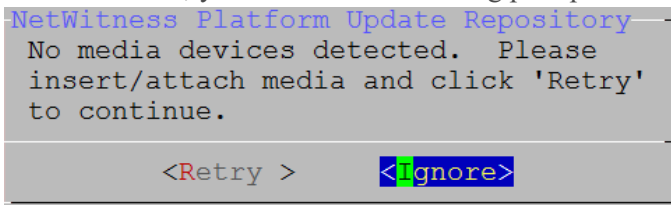
For component hosts, if this host requires the use of NAT-based addresses to communicate with the NW Server, tab to **Yes**. Otherwise, tab to **No** and press **Enter**.

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

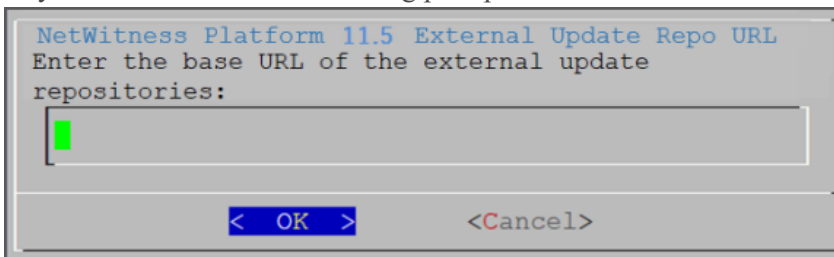


For the NW Server:

- 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 Platform 11.5. 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](#) for instructions on how to create this repo and its external repo URL so you can enter it in the following prompt.

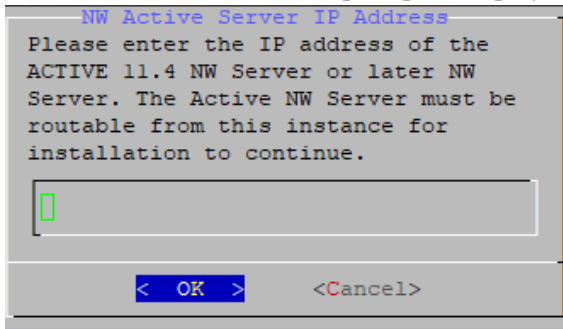


Enter the base URL of the NetWitness Platform external repo and click **OK**. The **Start Install** prompt is displayed.

For component hosts:

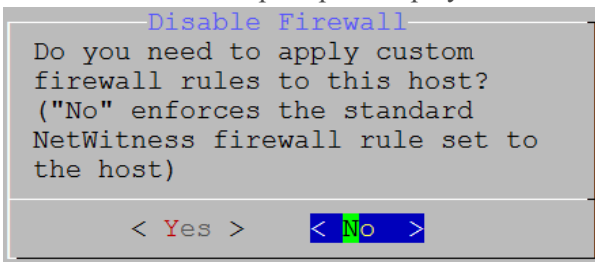
- Select the same repo that you selected when you installed the NW Server host and follow the steps above.

- The NW Server IP Address prompt is displayed.



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

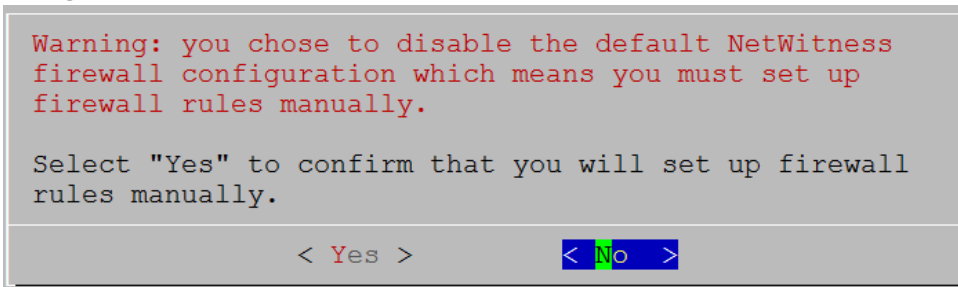
- The Disable firewall prompt is displayed.



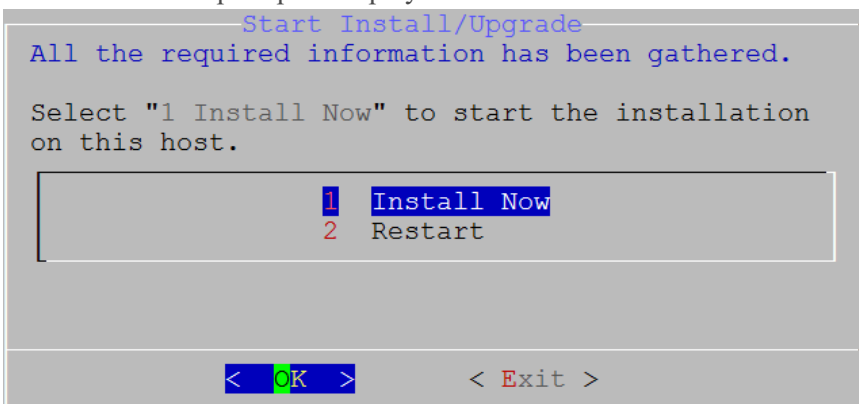
Tab to **No** (default), and press **Enter** to use the standard firewall configuration.

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.



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



- Press **Enter** to install 11.5.

When **Installation complete** is displayed, you have installed 11.5 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)
```

- (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:

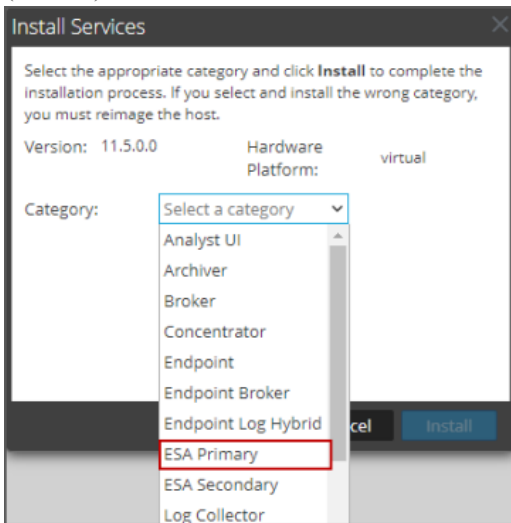
```
nw-manage --update-host --host-id <NW Server Host UUID> --ipv4-public <NAT IP address>
```

Set Up ESA Hosts

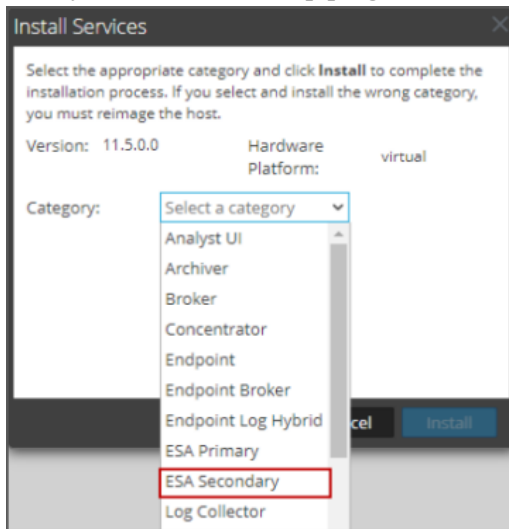
After you install your NW Server and component hosts, follow these steps to set up your ESA hosts.

- Install your primary ESA host following the instructions in [Launch an Instance and Configure a Host](#), 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.

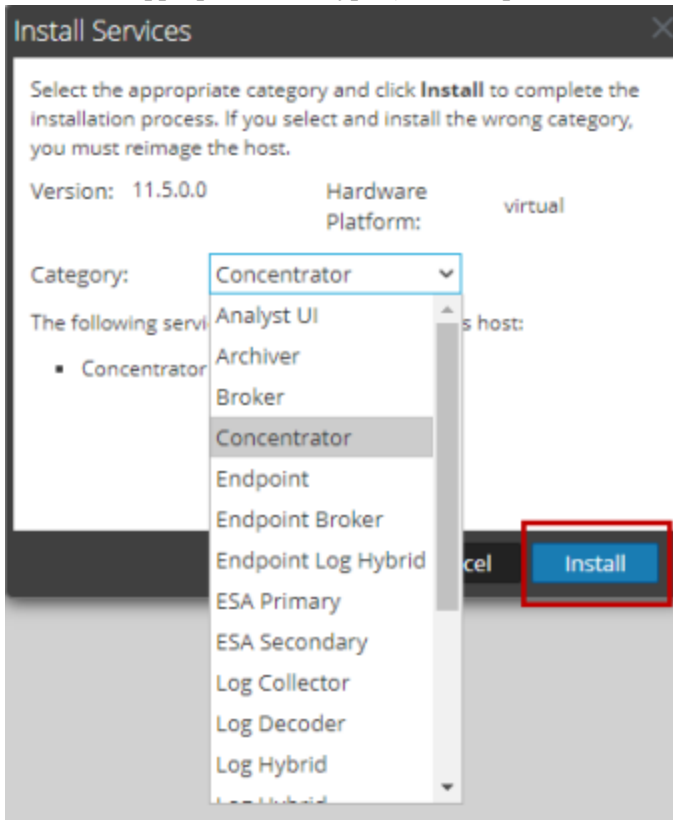
1. Install a component service on the host.

- a. Log into NetWitness Platform 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 11.5 Licensing Management Guide* for more information. Go to the [Master Table of Contents](#) to find all RSA NetWitness Platform 11.x documents.

(Optional) Install Warm Standby NW Server

Refer to "Warm Standby NW Server Host" under "Deployment Option Setup Procedures" in the *Deployment Guide for RSA NetWitness Platform 11.5* for instructions on how to set up a Warm Standby NW Server.

Configure Hosts (Instances) in NetWitness Platform

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

Note: After you successfully launch an instance, AWS assigns a default hostname to it. For more information on how to change a hostname, see "Change the Name and Hostname of a Host" documentation on RSA Link (<https://community.rsa.com>).

Configure Packet Capture

You can integrate any of the following Third-Party solutions with the Network Decoder to capture packets in the AWS cloud:

- [Gigamon® GigaVUE](#)
- [Ixia CloudLens™](#)
- [f5® BIG-IP](#)
- [VPC Traffic Mirroring](#)

Integrate Gigamon GigaVUE with the Network Decoder

There are two main tasks to configure the Gigamon® third-party Tap vendor packet capture solution:

[Task 1. Integrate the Gigamon® solution.](#)

[Task 2. Configure a tunnel on Network Decoder](#)

Task 1. Integrate the Gigamon Solution

Gigamon® Visibility Platform on AWS will be available through the AWS Marketplace and activated by a BYOL license. A thirty-day free trial is also available.

For more information on the Gigamon® solution, see "Gigamon® Visibility Platform for AWS Data Sheet" <https://www.gigamon.com/sites/default/files/resources/datasheet/ds-gigamon-visibility-platform-for-aws-4095.pdf>.

For more information on the deployment details, see "Gigamon® Visibility Platform for AWS Getting Started Guide" <https://www.gigamon.com/sites/default/files/resources/deployment-guide/dg-visibility-platform-for-aws-getting-started-guide-4111.pdf>.

After the “Monitoring Session” is deployed within the Gigamon GigaVUE-FM, you can configure the Network Decoder Tunnel.

Task 2. Configure Tunnel on the Network Decoder

1. SSH to the Decoder.

2. Submit the following command strings.

```
$ sudo ip link add tun0 type gretap local any remote <ip_address_of_
VSERIES_NODE_TUNNEL_INTERFACE> ttl 255 key 0

$ sudo ip link set tun0 up mtu <MTU-SIZE>

$ sudo ifconfig (to verify if the tunnel tun0 is being listed in the list
of interfaces)

$ sudo lsmod | grep gre ( to make sure if the below kernel modules are
running:

ip_gre 18245 0
ip_tunnel 25216 1)
```

If they are not running then execute the below commands to enable the modules

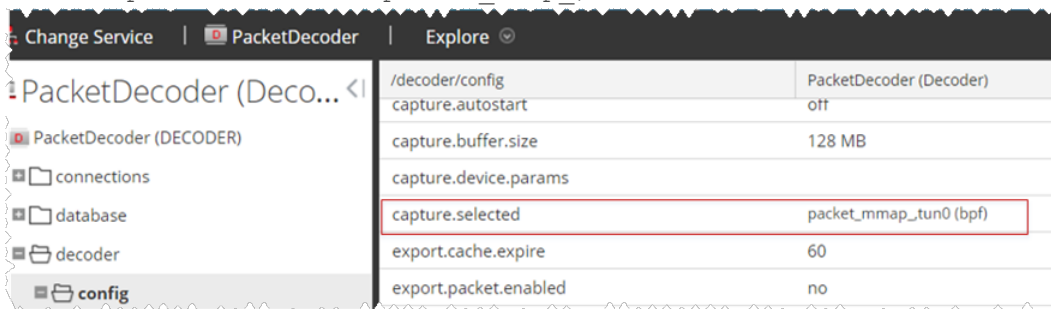
```
$ sudo modprobe act_mirred
$ sudo modprobe ip_gre
```

3. Create a firewall rule in the Network Decoder to allow traffic through the tunnel.

- a. Open the iptables file.
`vi /etc/sysconfig/iptables`
- b. Append the line `-A INPUT -p gre -j ACCEPT` before the `commit` statement
- c. Restart iptables by executing the following commands.
`service iptables restart`
`service ip6tables restart`

4. Set the interface in the Network Decoder.

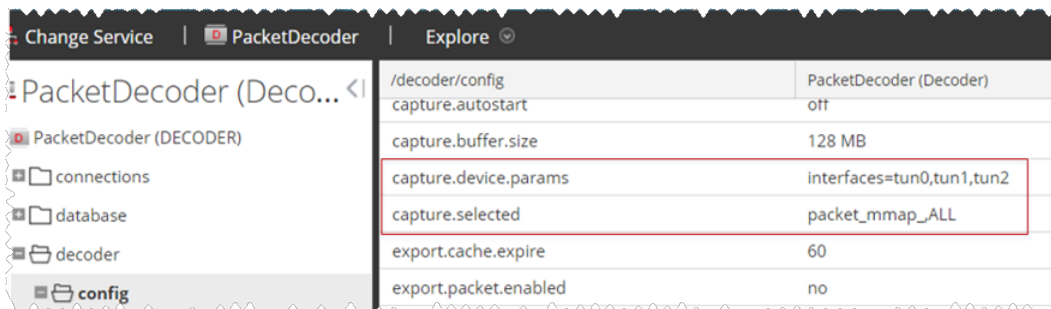
- a. Log in NetWitness Platform, select the `decoder/config` node in Explorer view for the Network Decoder service.
- b. Set the `capture.selected = packet_mmap_, tun0`.



5. (Conditional) - If you have multiple tunnels on the Network Decoder.

- a. Restart Decoder service after you create the tunnel in Network Decoder.
- b. Log in to NetWitness Platform, select the `decoder/config` node in Explorer view for the Network Decoder service, and set the following parameters.

```
capture.device.params = interfaces=tun0,tun1,tun2
capture.selected = packet_mmap_,All
```



6. Restart decoder service.

```
$ sudo restart nwdecoder
```

The user should be all set to capture the network traffic in Decoder.

Integrate Ixia with the Network Decoder

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

[Task 1. Deploy Client Machines](#)

[Task 2. Create CloudLens Project](#)

[Task 3. Install Docker Container on Decoder](#)

[Task 4. Install Docker Container on Clients](#)

[Task 5. Map Network Decoder to Ixia Clients](#)

[Task 6. Validate CloudLens Packets Arriving at Decoder](#)

[Task 7. Set Interface in Network Decoder](#)

Task 1. Deploy Client Machines

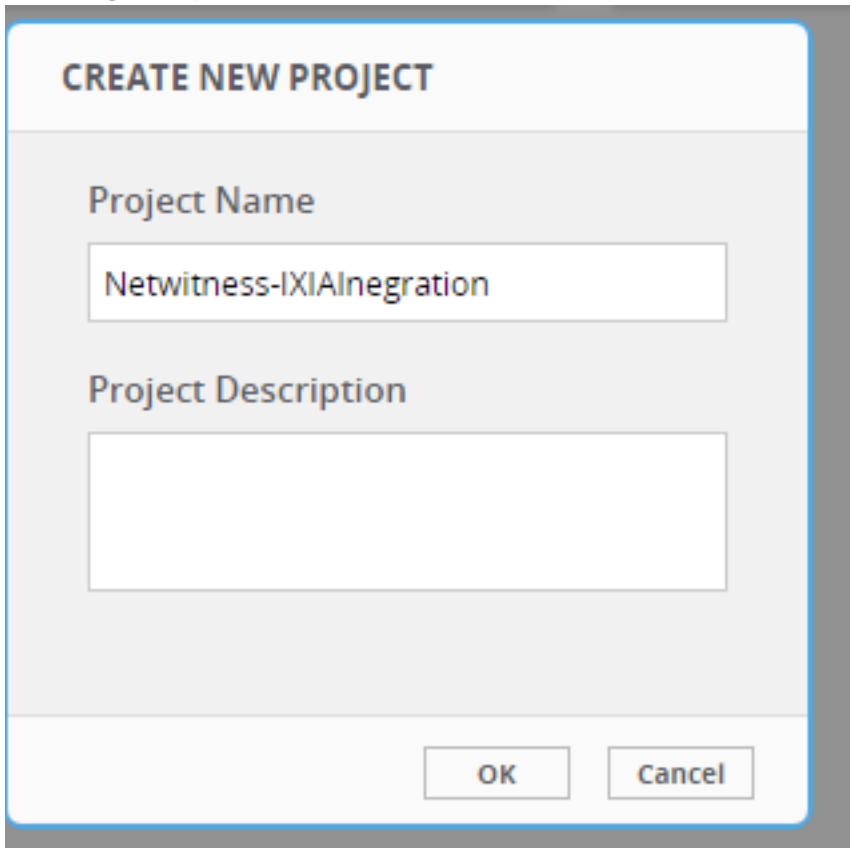
- Deploy client machines onto which you want to route the traffic to the Network Decoder. See the Ixia CloudLens documentation (<https://www.ixia.cloud/help/Default.htm>) for specifications needed for supported client machines.
- For Client Machines (as well as Decoder machine) the following ports must be opened on AWS Security Group Inbound Rules; UDP 19993 from all, TCP 22 from Admin IP.

Task 2. Create CloudLens Project

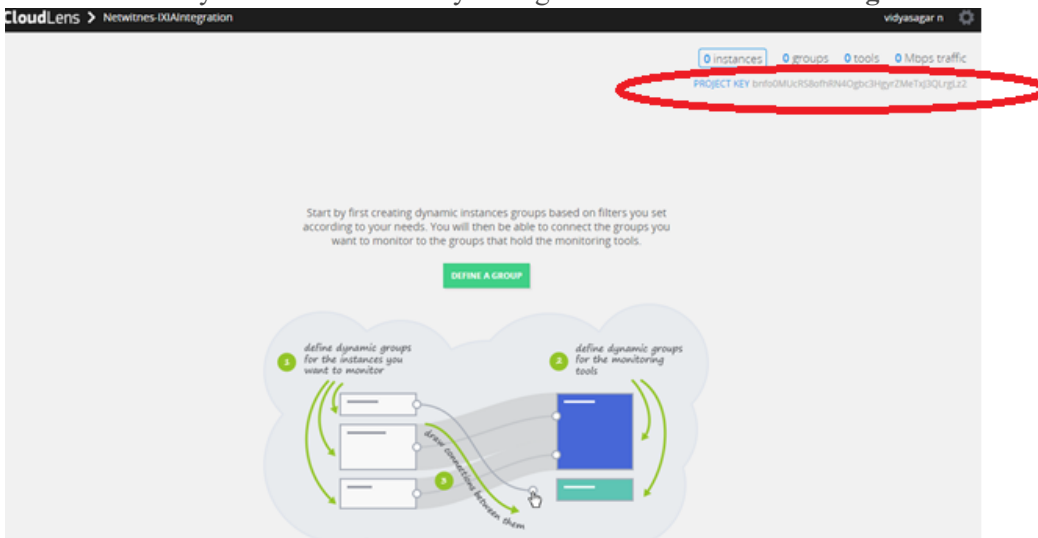
Complete the following steps to create a new project and get your project key.

1. Get Cloudlens login credentials and access to a free trial.
 - a. Create an Ixia login account at <https://www.ixiacom.com/products/cloudlens-trial-a>.
2. Go to the Cloudlens public site (<https://www.ixia.cloud>).

3. Click + (add) to create a new project with a name of your choosing (for example, **NetWitness-IxiaIntegration**).



4. Click on your newly created project and make note of your Project Key. You need the key later for the API key configured on the **Host & Tool agents**.



Task 3. Install Docker Container on Decoder

Complete the following steps to install the Docker container onto the Network Decoder.

1. SSH to the Network Decoder.
2. Enter the following commands to complete the install the Docker service on the Decoder.


```
#yum clean all
# yum -y install docker
```
3. Enter the following command string to start the Docker service.


```
# service docker start
```
4. Enter the following commands to:
 - Access the Ixia repository and obtain the `cloudlens-agent` container.
 - Replace the **ProjectKeyFromIxiaProjectPortal** variable, which identifies your project key in Ixia portal, with the Project Key you created in [Task 2. Create CloudLens Project](#).

```
sudo docker run \
--name cloudlens \
-v /:/host \
-v /var/run/docker.sock:/var/run/docker.sock \
-d --restart=always \
--net=host \
--privileged \
ixiacom/cloudlens-agent:latest \
--server agent.ixia.cloud \
--accept_eula y \
--apikey ProjectKeyFromIxiaProjectPortal \
```

Task 4. Install Docker Container on Clients

Complete the follow steps to Y install the Docker Container onto the client machines for which you want to route the traffic to the Network Decoder.

1. SSH to the AWS Client instance.
2. Enable root access to OS CLI (for example `sudo su -`).
3. Enter the following commands to install Docker.

```
# yum -y install docker
```

Caution: The above example of the installed docker engine is for CentOS7. The instructions may vary slightly for different Linux Distributions. For more information, see the Docker docs at <https://docs.docker/install>.

4. Enter the following commands to start the Docker service.


```
# service docker start
```
5. Enter the following commands to:
 - Access the Ixia repository and obtain the **cloudlens-agent** container.
 - Replace the variable **ProjectKeyFromIxiaProjectPortal**, which identifies your project key in Ixia portal, with the Project Key you created in the previous section.

```
sudo docker run \
--name cloudlens \
-v /:/host \
-v /var/run/docker.sock:/var/run/docker.sock \
-d --restart=always \
```

```
--net=host \  
--privileged \  
ixiacom/cloudlens-agent:latest \  
--server agent.ixia.cloud \  
--accept_eula y \  
--apikey ProjectKeyFromIxiaProjectPortal \  

```

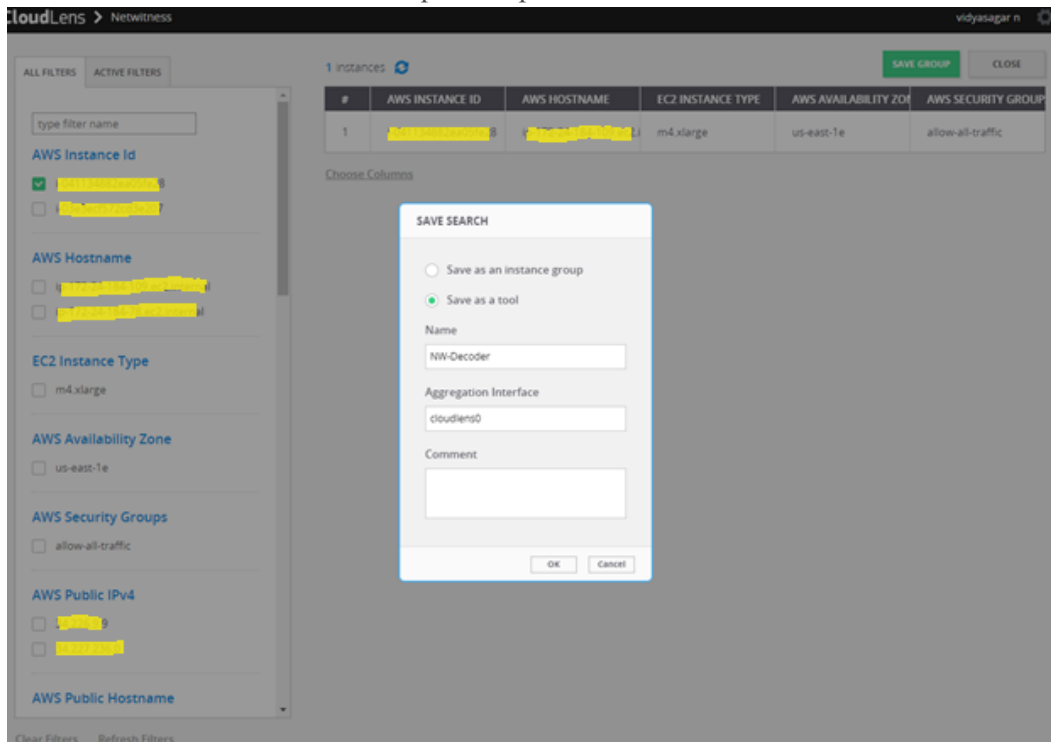
Warning: If you cut and paste commands from a PDF, first paste them into a test editor such as Notepad to confirm the syntax before pasting into the OS CLI. Direct cut and paste between PDF and CLI can contain dashes or other special characters that should not be part of the commands.

Task 5. Map the Network Decoder to Ixia Clients

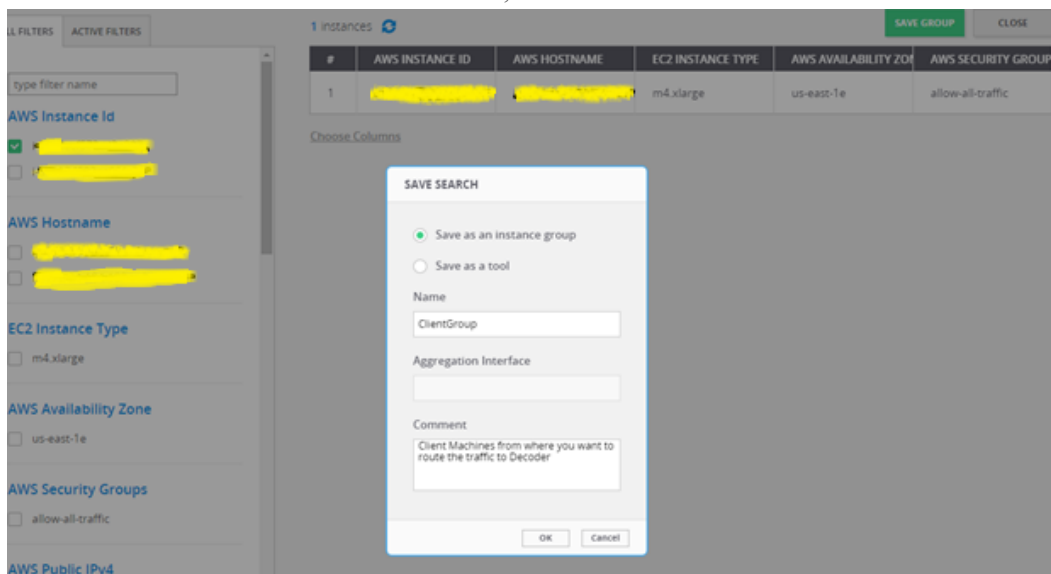
Complete the following steps to map the Network Decoder to the client machines to route the traffic to the Network Decoder.

1. Go to the Cloudlens public site (<https://www.ixia.cloud>).
2. Double-click on your project to open it.
3. Click the **Define Group** button or the Instances count.
You should see two instances listed, one for your decoder and the other for the client machines.
4. Filter for the decoder instance and click **Save Search**.
5. Choose **Save as a tool**.
6. Specify a name for the tool, and the **Aggregation Interface**.
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.

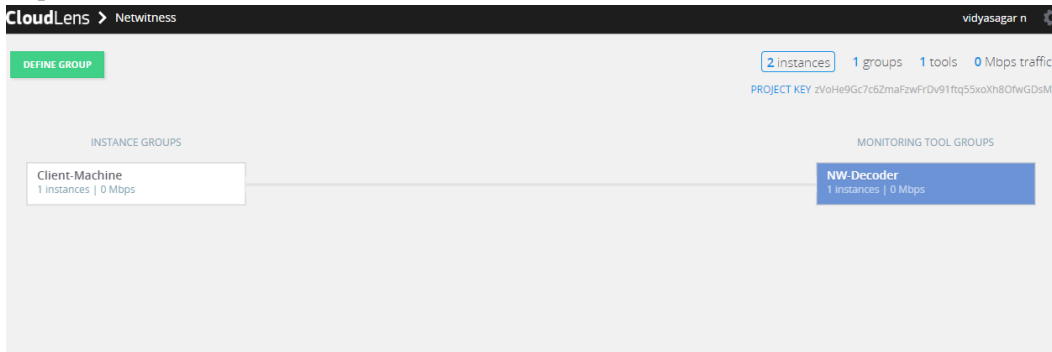


7. Filter the client host instance from the list, and click **Save Search**.



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 your 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 packets are actually arriving at the Network Decoder.

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

```
ifconfig
```

The new aggregation interface you created is displayed.

```
[root@ip-172-24-214-20 ~]# ifconfig
cloudlens0 Link encap:Ethernet HWaddr 08:00:27:00:00:00
   inet6 addr: fe80::0001:0001:fe04:6e02/64 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-172-24-214-20 ~]# wget https://172.24.214.204 --no-check-certificate
--2017-06-19 14:33:05-- https://172.24.214.204/
connecting to 172.24.214.204:443... connected.
WARNING: cannot verify 172.24.214's certificate, issued by 欵樁N=Puppet CA: cc4bfb66-8746-4b2f-88ee-3f82862c7069欵?
Unable to locally verify the issuer's authority.
WARNING: certificate common name 欵樁c4bfb66-8746-4b2f-88ee-3f82862c7069欵? doesn't match requested host name 欵? 172.24.214.204欵?
HTTP request sent, awaiting response... 302 Found
location: https://172.24.214.204/login [following]
--2017-06-19 14:33:05-- https://172.24.214.204/login
Reusing existing connection to 172.24.214.204:443.
HTTP request sent, awaiting response... 200 OK
length: unspecified
Saving to: 欵樁index.html.7欵?

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

2017-06-19 14:33:05 (246 MB/s) - 欵樁index.html.7欵? saved [2062]
```

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

5. Enter the following commands to look for suitable results in the tcpdump.

```
tcpdump -i Cloudlens0
```

```



14 packets dropped by kernel
root@ip-172-24-164-103 ~]# 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

11:37:11.408308 IP 175.2.141.156 > ip-172-24-164-103.ec2.internal: ICMP echo request, id 132, seq 32849, length 8
11:37:11.408318 IP ip-172-24-164-103.ec2.internal > 175.2.141.156: ICMP echo reply, id 132, seq 32849, length 8
11:37:11.781923 IP 175.2.141.156 > ip-172-24-164-103.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 to use for the Ixia integration.

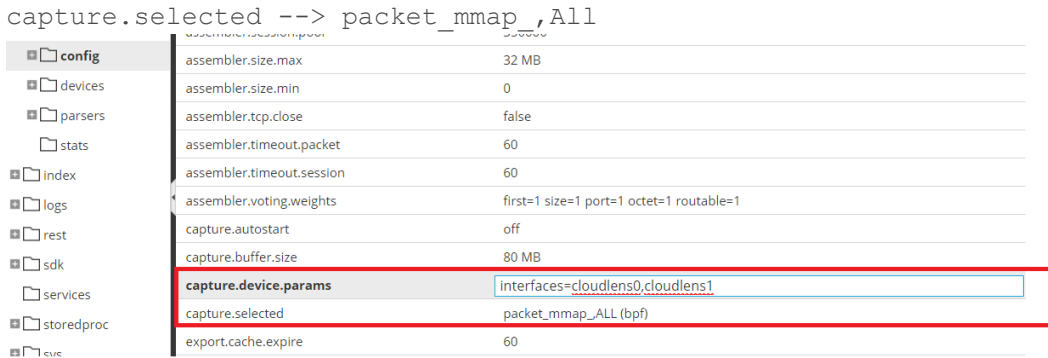
1. SSH to the Network Decoder.
2. Enter the following commands to restart decoder service.
\$ sudo restart nwdecoder
The Network Decoder is now set to capture network traffic.
3. Log in to NetWitness Platform and click  (Admin) > Services.
4. Select a Decoder service and click  > View > Explore.
5. Expand 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)

connections	assembler.timeout.packet	ou
database	assembler.timeout.session	60
decoder	assembler.voting.weights	first=1 size=1 port=1 octet=1 routable=1
config	capture.autostart	off
recovery	capture.buffer.size	32 MB
rules	capture.device.params	
devices	capture.selected	packet_mmap_cloudlens0 (bpf)
parsers	export.cache.expire	
	export.packet.enabled	Current capture device and interface. Change takes effect immediately.

7. (Conditional) - If you have multiple capture interfaces on the Network Decoder, set the parameters with the following values.

```
capture.device.params --> interfaces=cloudlens0,cloudlens1
```



- Restart the Decoder service after you set the `capture.selected` parameter.

Integrate f5® BIG-IP with the Network Decoder

IG-IP Virtual Edition (VE) is an inline virtual server and load balancer. A common use case would be for the f5® box to be a virtual web server that presents a single IP address / host name that manages requests to a pool of web servers in the cloud.

All traffic to RSA NetWitness® Platform flows through the f5® BIG-IP VE virtual server.

The virtual server functions of the BIG-IP clone all traffic to a designated computer by re-writing mac addresses and loading them into a subnet shared with the destination sniffer. This guide describes how to set up the Decoder as the sniffer.

f5® BIG-IP VE Deployment Information

f5® BIG-IP VE on AWS will be available through the AWS Marketplace and activated by a BYOL license. A thirty-day free trial is also available.

For more information on this solution refer to the f5® BIG-IP DNS Data Sheet (<https://www.f5.com/pdf/products/big-ip-dns-datasheet.pdf>).

Task 1: Set Up a BIG-IP VE Virtual Server Instance

Set up a BIG-IP VE Virtual Server Instance according to the instructions in the "BIG-IP Virtual Edition 12.1.0 and Amazon Web Services: Multi-NIC Manual" (https://support.f5.com/kb/en-us/products/big-ip_ltm/manuals/product/bigip-ve-multi-nic-setup-amazon-ec2-12-1-0.html). Complete all the steps through the last steps, "Creating a virtual server."

This virtual server performs packet capture. You may need to create multiple virtual servers to depending on your volume.

As part of creating the virtual server, you must have at least one server in your NetWitness Platform domain to handle the traffic routed by the virtual server (for example, you can create another instance in AWS to host the internal server).

Task 2: Create a Clone Pool

- Make sure that your Decoder has a network interface on the same subnet as one of the network interfaces on the BIG-IP VE instance.
The clone pool sends packets to the Decoder by rewriting MAC addresses and sending them out a

network interface. MAC address rewriting can be used to route packets to another subnet.

2. Set up the clone pool within the BIG-IP VE virtual server according to the instructions in "K13392: Configuring the BIG-IP system to send traffic to an intrusion detection system (11.x - 13.x)" article (<https://support.f5.com/kb/en-us/solutions/public/13000/300/sol13392.html>).

This document explains how to create the clone pool, and how to make an existing virtual server copy traffic to the clone pool. In this case, we will place the Decoder instance in the clone pool.

Guidelines

The following guidelines will help you to configure packet capture correctly using BIG-IP VE.

- The Decoder instance must have its own IP address on one of the same subnets as BIG-IP VE. BIG-IP uses that IP address to identify the Decoder as being part of the clone pool.
- When adding the Decoder instance to the clone pool, BIG-IP asks for a port number in addition to the IP address. This port number does not matter for the cloned traffic. The Decoder will receive all the cloned traffic, regardless of what port number was used here.
- By default, the AWS subnet shared by the Decoder and BIG-IP VE will not allow the cloned traffic to travel from the BIG-IP VE interface to the Decoder interface. You must disable the **source/dest. check** on both the Decoder and BIG-IP VE network interfaces in AWS.
- The Decoder instance must have a single network interface, `eth0`, by default. The Decoder captures traffic on this interface, but it may also receive administrative traffic on this interface. RSA recommends using network rules to filter out `ssh` and `nwdecoder` traffic from the capture stream. These are ports 22 (`ssh`) and 50004/56004 (`nwdecoder`).

Troubleshooting Tips

There are areas to troubleshoot if packets are not being accepted by the Decoder.

- Make sure that the BIG-IP VE is sending the packets out of the correct interface.
The BIG-IP VE instance contains `tcpdump`. Use it to verify the cloned packets are being sent out the expected interface. If they are not, there is a problem in the setup of the clone pool or the virtual server.
- Make sure that the Decoder is receiving packets.
The Decoder has `tcpdump` installed on it. Use it to verify that the Decoder is receiving packets. If the Decoder is not capturing packets, make sure that
 - The AWS **source/dest. check** is turned off.
 - The Decoder is on the same subnet as the interface the BIG-IP VE is using to clone packets.

Integrate VPC Traffic Mirroring with the Network Decoder

VPC Traffic Mirroring allows users to capture and inspect network traffic to analyze packets without using any third-party packet forwarding agents. The solution provides insight and access to network traffic across VPC infrastructure. Users can copy network traffic at any ENI (Elastic Network Interfaces) in VPC, and send it to NetWitness Platform to analyze, monitor, and troubleshoot performance issues.

Task 2. Configure a VPC Traffic Mirroring Filter

You must configure a VPC Traffic Mirroring Filter to send only the required packets to the Network Decoder. You can determine if the inbound or outbound traffic needs to be captured or not.

Note: Make sure the UDP port 4789 is open on the AWS instance of Network Decoder.

The screenshot shows the AWS Management Console interface for creating a traffic mirror filter. The breadcrumb navigation is 'VPC > Traffic mirror filters > Create traffic mirror filter'. The main heading is 'Create traffic mirror filter'.

Filter settings
Set description and enabled network services

Name tag - optional: TRAFFIC MIRROR FILTER

Description - optional: Filter the traffic you need to analyse

Network services - optional: amazon-dns

Inbound rules - optional Sort rules

Number	Rule action	Protocol	Source port range	Destination port range	Source CIDR block	Destination CIDR block	Description
100	accept	TCP (6)			0.0.0.0/0	0.0.0.0/0	Allow all traffic

Outbound rules - optional Sort rules

Number	Rule action	Protocol	Source port range	Destination port range	Source CIDR block	Destination CIDR block	Description
100	accept	All protocols	N/A	N/A	0.0.0.0/0	0.0.0.0/0	Allow all traffic

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key: Name Value - optional: TRAFFIC MIRROR FILTER

Task 3. Configure a VPC Traffic Mirroring Session

You must configure a VPC Traffic Mirroring Session to mirror the traffic by a communication channel between source ENI and destination ENI.

VPC > Traffic mirror sessions > Create traffic mirror session

Create traffic mirror session

Session settings
Set description, source, and target

Name tag - optional
TRAFFIC MIRROR SESSION

Description - optional
Create the mirror session , which binds the source and destination interfaces

Mirror source
The resource that you want to monitor.
eni-Q...
Only network interfaces of type "interface" are allowed.

Mirror target
A network interface, or a network load balancer that is the destination for mirrored traffic.
tnt-Q... Create target

Additional settings

Session number
The order sessions for the same resource are evaluated
1
Number between 1 and 32768

VNI - optional
A random unique VNI will be chosen unless specified.
Number between 0 and 16777215
The vxlan id is automatically assigned, if not assign maunally

Packet length - optional
The number of bytes in each packet to mirror.
eg 255 bytes - the entire packet is default
If not specified, the entire packet will be mirrored

Filter
Determines what traffic gets mirrored.
tnt-Q... Create filter

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
Name	TRAFFIC MIRROR SESSION	Remove tag

Add tag

Cancel Create

Task 4. Set Up a new VXLAN Interface on the Network Decoder

To capture the UDP enabled traffic you must create an interface and tunnel it to Network Decoder by performing the following steps.

1. SSH to the Decoder.
2. Enter the following commands.

```
sudo ip link add tun0 type vxlan id <VXNLAN ID> local any dev <primary interface ex: eth0> dstport 4789

sudo ip link set tun0 up

ifconfig
```

```
tun0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 8951
    inet6 fe80::bc58:aff:fe06:ec29 prefixlen 64 scopeid 0x20<link>
    ether be:58:af:06:ec:29 txqueuelen 1000 (Ethernet)
    RX packets 989 bytes 74140 (72.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 8 overruns 0 carrier 0 collisions 0
```

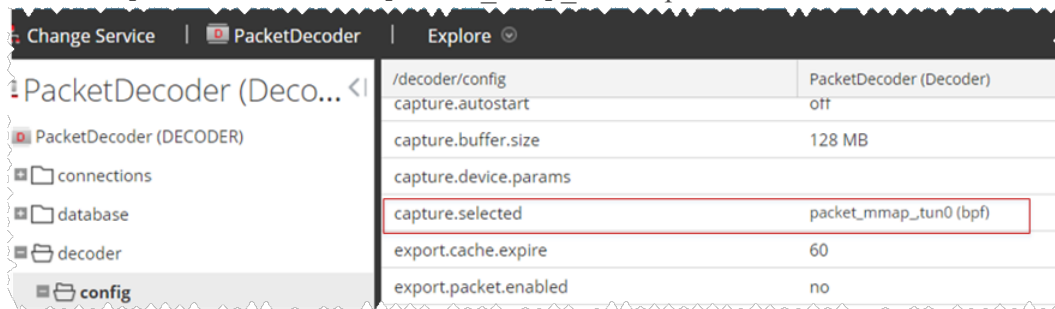
3. To create a firewall rule in the Network Decoder to allow traffic through the tunnel.

- a. Open the IP tables file using the command `vi /etc/sysconfig/iptables`.
- b. Append the line `-I INPUT -p udp -m udp --dport 4789 -j ACCEPT`.
- c. Restart IP tables by using the following commands.


```
service iptables restart
service iptables status
```

4. To set the interface in the Network Decoder.

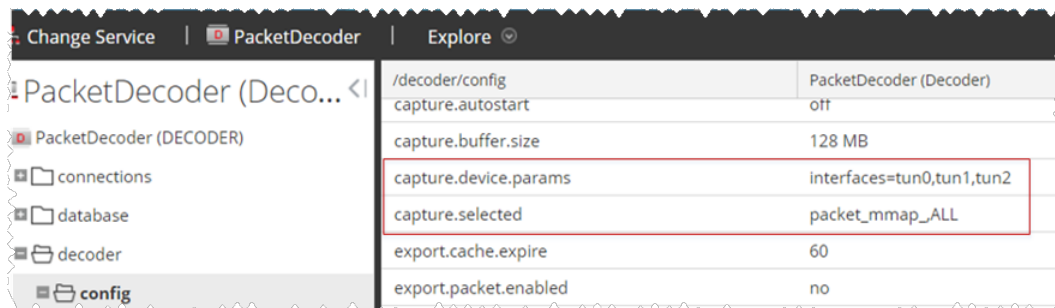
- a. Log in to NetWitness Platform, select the `decoder/config` node in Explorer view of the Network Decoder service.
- b. Set the `capture.selected = packet_mmap_, tun0` parameter.



5. (Conditional) If you have multiple tunnels on the Network Decoder.

- a. Restart the Decoder service after you create the tunnel in Network Decoder.
- b. Log in to NetWitness Platform, select the `decoder/config` node in Explorer view of the Network Decoder service, and set the following parameters.

```
capture.device.params = interfaces=tun0,tun1,tun2
capture.selected = packet_mmap_,All
```



- Restart the Decoder service.

```
$ sudo restart nwdecoder
```

The user should be all set to capture the network traffic in the Network Decoder.

Task 5. Validate VPC Traffic Mirroring Packets Arriving at the Network Decoder

Perform the following steps to validate if the Network Decoder is receiving the network data (packets) successfully.

- Generate traffic from the client OS instance CLI (for example, wget <http://www.google.com/>).

```
[ec2-user@ip-172-24-194-246 ~]$ wget https://www.google.com
--2019-07-30 11:28:19-- https://www.google.com/
Resolving www.google.com (www.google.com)...
Connecting to www.google.com (www.google.com)[172.217.164.132]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html.4'

[ <> ] 11,376 --.-K/s in 0s
2019-07-30 11:28:19 (91.6 MB/s) - 'index.html.4' saved [11376]
```

- Enter the `tcpdump -i tun0` command to look for suitable results in the tcpdump.

```
[root@Decoder ~]# tcpdump -i tun0
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on tun0, link-type EN10MB (Ethernet), capture size 262144 bytes
11:27:53.783452 IP iad30s24-in-f4.le100.net.https > ip-...: Flags [P.], seq 2623:4041, ack 580, win 24
4, options [nop,nop,TS val 2760342315 ecr 1565731130], length 1418
11:27:53.783455 IP iad30s24-in-f4.le100.net.https > ip-...: Flags [P.], seq 4041:5459, ack 580, win 24
4, options [nop,nop,TS val 2760342315 ecr 1565731130], length 1418
11:27:53.783474 IP iad30s24-in-f4.le100.net.https > ip-...: Flags [.], seq 5459:6977, ack 580, win 244
, options [nop,nop,TS val 2760342315 ecr 1565731130], length 1418
11:27:53.783476 IP iad30s24-in-f4.le100.net.https > ip-...: Flags [.], seq 6877:8295, ack 580, win 244
, options [nop,nop,TS val 2760342315 ecr 1565731130], length 1418
11:27:53.783478 IP iad30s24-in-f4.le100.net.https > ip-...: Flags [P.], seq 8295:9713, ack 580, win 24
4, options [nop,nop,TS val 2760342315 ecr 1565731130], length 1418
11:27:53.783481 IP ip-... > iad30s24-in-f4.le100.net.https: Flags [.], ack 5459, win 314, options [nop
,nop,TS val 1565731179 ecr 2760342315], length 0
11:27:53.783484 IP ip-... > iad30s24-in-f4.le100.net.https: Flags [.], ack 9713, win 380, options [nop
,nop,TS val 1565731179 ecr 2760342315], length 0
```

- The NetWitness Platform reflects meta values as shown below.

<pre> 2019-07-30T11:25:14 Network SSL 17 KB </pre>	<pre> <-> 0A:1088E407C0 -> 0A:0473E6EC60 <-> 172.24.184.246 -> 172.217.164.132 *** 43922 -> 443 <-> sessionid: 607 payload: 15715 medium: 1 <-> eth.type: IP <-> ip.proto: TCP *** tcp.flags: 27 🚩 service: SSL streams: 2 packets: 28 🕒 lifetime: 0 netname: private src netname: other dst direction: outbound 📍 country.dst: United States 📍 org.dst: Google client: HTTPS 🔒 crypto: TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 did: decoder rid: 607 eth.all: 0A:1088E407C0 eth.all: 0A:0473E6EC60 ip.all: 172.24.184.246 ip.all: 172.217.164.132 <-> ipv6.proto: TCP port.src.all: 43922 port.all: 43922 port.dst.all: 443 www.url: 443 </pre>
---	---

Note: You can mirror traffic from an EC2 instance that is supported by the AWS Nitro system (A1, C5, C5d, C5n, I3en, M5, M5a, M5ad, M5d, p3dn.24xlarge, R5, R5a, R5ad, R5d, T3, T3a, and z1d).

Note: For more information, see "New – VPC Traffic Mirroring" documentation at <https://aws.amazon.com/blogs/aws/new-vpc-traffic-mirroring/>.

AWS Instance Configuration Recommendations

Note: These recommendations can be used as a baseline for 11.5.0.0 and adjusted as needed.

Note: For a description of terms and abbreviations used in this topic, refer to [Abbreviations and Other Terminology Used in this Guide](#).

This topic contains the minimum AWS instance configuration settings recommended for the RSA NetWitness® Platform virtual stack components.

- EC2 Instance:
 - Minimum instance type - **m4-2xlarge** is the minimum instance type required for any NetWitness Platform component AMI so that it can function.
 - Instance type adjustments -you must adjust instance types according to your ingestion rate, content and parsers, dashboard reports, scheduled reports, investigations, and active users.
 - Recommended settings - the recommended settings in the SA component instance tables below were calculated under the following conditions.
 - Ingestion rates of 15,000 EPS and 1.5 Gbps were used.
 - All the components were integrated.
 - The Log stream includes a Log Decoder, Concentrator, and Archiver.
 - The Packet stream includes a Network Decoder and Concentrator.
 - The Endpoint Hybrid stream includes a Endpoint Server, Concentrator and Log Decoder.
 - Respond is receiving alerts from the Reporting Engine and Event Stream Analysis.
 - The background load includes reports, charts, alerts, investigation, and respond.

- EBS Volumes (Storage)

Contact RSA Customer Support (<https://community.rsa.com/docs/DOC-1294>) for assistance on how to increase the number of volumes based on your storage requirements using the RSA Sizing & Scoping Calculator.

Note: The Concentrator index volume must be allocated on Provisioned IOPS SSD.

- Index
- Meta
- Session
- Packet

Archiver

EC2 Instance			
EPS	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
5,000	m4.xlarge No of CPU: 4 Memory: 16 GB	No	Yes
10,000	m4.2xlarge No of CPU: 8 Memory: 32 GB	No	Yes
15,000	m4.4xlarge No of CPU: 16 Memory: 64 GB	No	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
archiver	/dev/sdg	Throughput Optimized HDD	240 MB/s
workbench	/dev/sdh	Throughput Optimized HDD	N/A

Broker

EC2 Instance		
Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
m4.xlarge No of CPU: 4 Memory: 16 GB	No	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
broker	/dev/sdg	General Purpose SSD	N/A

Concentrator - Log Stream

EC2 Instance			
EPS	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
5,000	m4.xlarge No of CPU: 4 Memory: 16 GB	No	Yes
10,000	m4.2xlarge No of CPU: 8 Memory: 32 GB	No	Yes
15,000	m4.4xlarge No of CPU: 16 Memory: 64 GB	No	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
index	/dev/sdg	Provisioned IOPS	10,000
session, metadb	/dev/sdh	Throughput Optimized HDD	240 MB/s

Packet Stream Solutions

Concentrator - Gigamon Solution

EC2 Instance			
Mbps/Gbps	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
500 Mbps	c4.xlarge No of CPU: 16 Memory: 30 GB	No	Yes
1,000 Mbps	c4.8xlarge No of CPU: 36 Memory: 60 GB	No	Yes
1.5 Gbps	m4.10xlarge No of CPU: 40 Memory: 160 GB	No	Yes

Concentrator - f5 BIG-IP Solution

To be updated when f5 BIG-IP performance testing is complete.

EC2 Instance			
Mbps/Gbps	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
230 Mbps	m4.xlarge No. of CPU: 16 Memory: 64 GB	No	No

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
index	/dev/sdg	Provisioned IOPS	15,000
session, metadb	/dev/sdh	Throughput Optimized HDD	240 MB/s

Decoder - Gigamon Solution

EC2 Instance			
Mbps/Gbps	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
500 Mbps	c4.2xlarge No of CPU: 8 Memory: 15 GB	Yes	Yes
1000 Mbps	c4.4xlarge No of CPU: 16 Memory: 30 GB	Yes	Yes
1.5 Gbps	c4.8xlarge No of CPU: 36 Memory: 60 GB	Yes	Yes

Decoder - f5 BIG-IP Solution

To be updated when f5 BIG-IP performance testing is complete.

EC2 Instance			
Mbps/Gbps	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
230 Mbps	m4.4xlarge No. of CPU: 16 Memory: 64 GB	No	No

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
index,session,meta	/dev/sdg	Throughput Optimized HDD	240 MB/s
packet	/dev/sdh	Throughput Optimized HDD	240 MB/s

Concentrator - Ixia Solution

To be updated when Ixia performance testing is complete.

Decoder - Ixia Solution

To be updated when Ixia performance testing is complete.

ESA and Context Hub on Mongo Database

EPS	EC2 Instance		
	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
9,000	m4.2xlarge No of CPU: 8 Memory: 32 GB	No	Yes
18,000	r4.2xlarge No of CPU: 8 Memory: 61 GB	No	Yes
30,000 Aggregation Rate	r4.4xlarge No of CPU: 16 Memory: 122 GB	No	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
apps (/opt/rsa)	/dev/sdg	General Purpose SSD	N/A

Log Collector (Syslog, Netflow, and File Collection Protocols)

EC2 Instance			
EPS	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
30,000 NON SSL	c4.2xlarge No of CPU: 8 Memory: 15 GB	No	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
logcollector	/dev/sdg	General Purpose SSD	N/A

Log Decoder

EC2 Instance			
EPS	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
5,000	c4.2xlarge No of CPU: 8 Memory: 15 GB	Yes	Yes
10,000	c4.4xlarge No of CPU: 16 Memory :30 GB	Yes	Yes
15,000	c4.8xlarge No of CPU: 36 Memory: 60GB	Yes	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
index,session,meta	/dev/sdg	Throughput Optimized HDD	240 MB/s
packet	/dev/sdh	Throughput Optimized HDD	240 MB/s

NW Server, Reporting Engine, Respond and Health & Wellness

EC2 Instance		
Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
m4.2xlarge No of CPU: 8 Memory: 32 GB	No	Yes
m4.4xlarge No of CPU: 16 Memory: 64 GB	No	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
uax,ipdb	/dev/sdg	General Purpose SSD	N/A
redb,rehome	/dev/sdh	General Purpose SSD	N/A

NetWitness Endpoint Hybrid

EC2 Instance			
Agents	Instance Type	Enhanced Networking Enabled	Tenancy Type - Dedicated - Run a Dedicated Instance
15,000 agents	m4.10xlarge No of CPU: 40 Memory: 160 GB RAM	Yes	Yes

EBS Volumes (Storage)			
Volumes	Device	Volume Type	IOPS/Baseline Throughput
/ (root)	/dev/sda1	General Purpose SSD	N/A
usr,var,opt,home,tmp	/dev/sdf	General Purpose SSD	N/A
index,session,meta (Log Decoder)	/dev/sdg	Throughput Optimized HDD	240 MB/s
packet (Log Decoder)	/dev/sdh	Throughput Optimized HDD	240 MB/s
index (Concentrator)	/dev/sdi	Provisioned IOPS	10,000
session,meta (Concentrator)	/dev/sdj	Throughput Optimized HDD	240 MB/s
mongoDB	/dev/sdl	Throughput Optimized HDD	240 MB/s

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
```

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 Platform 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
<code>--help-install-opts</code>	Display all the arguments in this table.
<code>--eula</code>	Accept or decline the End User License Agreement (EULA). Specify: <ul style="list-style-type: none"> • <code>true</code> (default) to accept the agreement • <code>false</code> to decline it and cancel the installation. For example: <code>--eula=true</code>

Argument	Description
<code>--is-head</code>	<p>Designate the host as the NW Server host or a component host. Specify:</p> <ul style="list-style-type: none"> • <code>true</code> for NW Server host. • <code>false</code> for Component host. <p>For example: <code>--is-head=true</code></p>
<code>--host-name</code>	<p>Specify new hostname. If you do not specify this argument, NetWitness Platform retains the existing hostname.</p> <p>For example: <code>--host-name=<hostname></code></p>
<code>--master-pass</code>	<p>Enter master password. For example: <code>--master-pass=<password></code></p>
<code>--deploy-pass</code>	<p>Enter deployment password. For example: <code>--deploy-pass=<password></code></p>
<code>--iface-name</code>	<p>Specify network interface.</p> <p>For example: <code>--iface-name=eth0</code></p>
<code>--ip-override</code>	<p>Accept or override IP address found for this host or change the IP configuration found on the host. Specify:</p> <ul style="list-style-type: none"> • <code>true</code> provide IP address. • <code>false</code> use IP address found on the host. <p>For example: <code>--ip-override=false</code></p>
<code>--ip-type</code>	<p>Select ip address configuration type. Specify:</p> <ul style="list-style-type: none"> • 1 Static IP Configuration) • 2 DHCP <p>For example: <code>--ip-type=1</code></p>
<code>--ip-addr</code>	<p>For Static IP configuration, enter IP Address for static address.</p> <p>For example: <code>--ip-addr=<ip-address></code></p>
<code>--ip-netmask</code>	<p>For Static IP configuration, enter Subnet Mask for static address.</p> <p>For example: <code>--ip-gateway=<subnet-mask></code></p>
<code>--ip-gateway</code>	<p>For Static IP configuration, enter default gateway for static address. For example: <code>--ip-gateway=<default-gateway></code></p>
<code>--ip-nameserver</code>	<p>IP address assigned to DNS server.</p> <p><code>--ip-nameserver=<ip-address></code></p>

Argument	Description
<code>--ip-nameserver-secondary</code>	Optional - IP address assigned to a secondary DNS server. For example: <code>--ip-nameserver-secondary=<ip-address></code>
<code>--ip-domain</code>	For Static IP configuration, enter Local Domain Name for static address. For example: <code>--ip-domain=<default-gateway></code>
<code>--repo-type</code>	Select type of update repository. Specify: <ul style="list-style-type: none">• 1 Local repository• 2 External repository For example: <code>--repo-type=1</code>
<code>--repo-url</code>	For an external update repository, specify the url of the repository. For example: <code>--repo-url=<url></code>
<code>--head-ip</code>	For a component host, specify IP Address of the NW Server. For example: <code>--head-ip=<ip-address></code>
<code>--custom-firewall</code>	Disable default firewall configuration and use your custom configuration. Specify: <ul style="list-style-type: none">• <code>true</code> use custom firewall configuration.• <code>false</code> use default firewall configuration. For example: <code>--custom-firewall=true</code>
<code>--use-nat</code>	Configure the host to use Network Address Translation (NAT) based IP addresses: <ul style="list-style-type: none">• <code>true</code> use NAT IPs to connect to other hosts• <code>false</code> do not use NAT IPs to connect to other hosts (default) For example: <code>--use-nat=false</code>