RSA NETWITNESS® PLATFORM

Virtual Host Upgrade Guide

for RSA NetWitness® Platform 10.6.6 to 11.4

Contact Information

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Contents

Introduction

The instructions in this guide apply to the upgrade of virtual hosts to RSA NetWitness Platform11.3 exclusively. See the*Physical Host Upgrade Guide for RSA NetWitness Platform 11.3* for instructions on how to upgrade your 10.6.6.x physical hosts to 11.3.

NetWitness Platform 11.3.0.2 is a major release that affects all products in the NetWitness Platform. The components of the platform are the NetWitness Server (Admin server, Config server, Integration server, Investigate server, Orchestration server, Respond server, Security sever, and Source server), Archiver, Broker, Concentrator, Context Hub, Decoder, Endpoint Log Hybrid, ESA Primary, ESA Secondary, Log Collector, Log Decoder, Malware Analysis, Reporting Engine, UEBA, Warehouse Connector, and Workbench.

Note: NetWitness Platform version 11.3.0.2, replaces the NetWitness Platform 11.3.0.0 release. This release contains all the 11.3.0.0 features with significant improvements for Event Stream Analysis (ESA).For information about ESA, see Event Stream Analysis in the Releases Notes for RSA NetWitness Platform 11.3.

Refer to the *Getting Started Guide for NetWitness Platform* to become familiar with the major changes to the 11.x User interface. Refer to the *Deployment Guide* to become familiar with the major platform changes in 11.x.

Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

Note: The Reporting Engine is installed on the NW Server host, Workbench is installed on the Archiver host, and Warehouse Connector can be installed on the Decoder host or Log Decoder host.

CentOS6 to CentOS7 Upgrade

NetWitness Platform 11.3.0.2 is a major release that involves upgrading to a newer version of the operating system (CentOS6 to CentOS7). In addition, the 11.3.0.2 platform environment has been improved greatly to accommodate current and future physical and virtual deployment types. These changes require an upgrade to the new environment and an upgrade of the functionality.

RSA NetWitness® Platform 11.3.0.2 Upgrade Path

The earliest supported upgrade path for RSA NetWitness® Platform 11.3.0.2 is Security Analytics 10.6.6.x. 11.3.0.2 is not intended for customers who have already upgraded to the 11.3.0.0 or later release.

- If you are running a version of NetWitness Platform that is prior to 10.6.6.x, you must update to 10.6.6.x before you can upgrade to 11.3.0.2. See the *RSA Security Analytics 10.6.6 Update Guide* (https://community.rsa.com/docs/DOC-95880) on RSA Link.
- If you are already running 11.3.x.x, upgrade to 11.3.1.1 to ensure that you are running the latest version of the 11.3.x.x platform.

Supported Host Upgrade Path

You must upgrade a host to the same host type:

- Same Series RSA Physical Appliance to Same Series RSA Physical Appliance (that is, Series 4 to Series 4, Series 5 to Series 5).
  RSA does not support third-party physical hosts in 11.3.0.2.
- On-Prem Virtual to On-Prem Virtual

Caution: The 11.3.0.2 upgrade does not support mixed-platform upgrades (for example, it does not support physical to virtual).

Hardware, Deployments, Services, and Features Not Supported in 11.3.0.2

RSA does not support upgrade of the following hardware, deployments, services, and features to 11.3.0.2.

- RSA All-in-One (AIO) Appliance
- Multiple NetWitness Server Deployment
- IPDB service
- Malware Analysis service co-located on the SA Server (upgrade of Malware Analysis Enterprise is supported in 11.3.0.2.)
- Standalone Warehouse Connector service (Upgrade of a co-located Warehouse Connector is supported in 11.3.0.2.)
- Custom Health & Wellness policy in 10.6.x for the Context Hub Service
  After you upgrade to NetWitness 11.3.0.2, your custom policy is not present. In its place, there is the out-of-the-box Context Hub Server Monitoring Policy in the user interface, which is specific for version 11.3.0.2.
- Defense Information Strategic Agency-Security Technical Information Guide (DISA-STIG) hardened deployments.
- Warehouse Analytics (Data Science)

Event Stream Analysis (ESA) Upgrade Considerations

In RSA NetWitness® Platform 11.3.0.2, RSA changed how ESA Correlation Rules store and transmit the alerts the system generates. In 11.3.0.2, ESA sends all alerts to a central Alert system. The local MongoDB storage in ESA 10.6.6.x has been removed.

Note: If you did not use Incident Management in 10.6.6.x, you cannot view the 10.6.6.x ESA alerts in the 11.3.0.2 Respond component without running a migration script. Use the ESA Alert Migration script to migrate these alerts to the location in 11.3.0.2 that will allow Respond to view them. See the *ESA Alert Migration Instructions* knowledge base article (https://community.rsa.com/docs/DOC-84102) in RSA Link for instructions on how to run this script.

Upgrade Considerations for ESA Rule Deployments

Caution: In NetWitness Platform 11.3.0.2, the ESA Correlation service contains data source changes that require changes to migrated ESA rule deployments. The 11.3.0.2 ESA Correlation service replaces the Event Stream Analysis service in earlier versions.

After you upgrade to 11.3.0.2, migrated ESA rule deployments have the following changes.

1. If an ESA rule deployment contains two services before you upgrade to 11.3.0.2, the deployment splits into two deployments. You can only have one ESA Correlation service in an ESA rule deployment in version 11.3.0.2.
2. If an ESA service has multiple ESA rule deployments before you upgrade to 11.3.0.2, they are combined into one deployment in version 11.3.0.2.

You can still access your old deployments. For a detailed example, see the *ESA Configuration Guide for RSA NetWitness Platform 11.3*.

Upgrade Phases

RSA recommends that you stagger host upgrades as described in this section. The update to CentOS7 and the need of a physical or iDRAC access cause the 11.3.0.2 upgrade to take more time than most upgrades.

Caution: If you stagger the upgrade, you:
- Must upgrade the hosts in Phase 1 first, in the order shown.
- May not have all the features operational until you update your entire deployment.
- Will not have service administrative features available until you upgrade all the hosts in your deployment.

Phase 1

You perform Phase 1 first. You must upgrade the hosts in the following order:

1. Security Analytics Server host
2. Event Stream Analysis hosts
3. Malware Analysis hosts
4. Broker hosts (if you do not have a Broker, upgrade your Concentrator hosts)
   The 11.3.0.2 NetWitness Server (NW Server) cannot communicate with 10.6.6.x core services for the new Investigate functionality. This is why you must upgrade the Broker or Concentrator hosts in Phase 1.

Phase 2

Upgrade the rest of your hosts.

RSA recommends that you follow the order in Phase 2 to reduce:

- Functionality loss during investigation.
- Downtime that results in the loss of network and log capture.

Note: Other than Log Collection hosts with downstream event destinations, there is no technical reason to upgrade your hosts in the order shown in Phase 2.

This is the Phase 2 host upgrade order recommended by RSA.

1. Decoder hosts
2. Concentrator hosts
3. Archiver hosts
4. Log Collection hosts - Log Collectors on Log Decoder hosts (LDs), Virtual Log Collectors (VLCs) and Legacy Windows Collectors (LWCs)
   Before you upgrade a log collection host, you must prepare it for the upgrade. Part of this preparation ensures that no event data remains in the queues. This requires you to keep the downstream destinations of event data (Log Collectors, Virtual Log Collectors and Log Decoders) up and functioning properly.

   If you have event data destinations downstream from the Log Decoder, you must prepare and upgrade Log Collectors in the following order.

   a. LDs (one LD at a time)

   b. VLCs and LWCs

   If you do not have event data destinations downstream from the Log Decoder, you can prepare and upgrade multiple LDs, VLCs, and LWCs together.
5. All other hosts

See "Running in Mixed Mode" under "The Basics" in the *RSA NetWitness Platform Hosts and Services Getting Started Guide* for:

- Functionality gaps encountered while running in this mode.
- Examples of staggered upgrades.

Phase 3 (Optional)

After you have upgraded all hosts in your deployment to 11.3.0.2, you can install a Warm Standby NW Server. Refer to "Warm Standby NW Server Host" under "Deployment Option Setup Procedures" in the *Deployment Guide for NetWitness Platform for 11.3* for instructions on how to set up a Warm Standby NW Server.

Investigate in Mixed Mode

Mixed mode occurs when the NW Server host and Broker hosts are on the latest version (for example, 11.3.0.2) and the other core services such as Concentrators and Decoders are on any older version (for example, 10.6.6.x or 11.1.x.x-11.2.x.x). You must follow the host upgrade sequence as shown in Upgrade Phases to ensure complete Investigate functionality.

The 11.3.0.2 Investigate server is installed when you upgrade the SA Server, but Broker hosts need to be upgraded to 11.3.0.2 to access the Event Analysis view. If the Broker is not upgraded, analysts see a warning icon next to the Broker, and no data aggregated to that Broker can be displayed.

Mixed mode (that is, some services are upgraded to 11.3.0.2 and some are still at 10.6.6.x) also affects the functionality of Role-Based Access Control (RBAC). In mixed mode, when an analyst conducts an investigation, RBAC is not applied uniformly to viewing and downloads. After you upgrade all services to 11.3.0.2, when an analyst conducts an investigation, Role-Based Access Control of downloads works consistently to limit access to restricted data.

In mixed mode, if the `sdk.packets` setting has not been disabled on the 10.6.6.x services, analysts with SDK meta and roles permissions in place to restrict viewing and reconstructing an event's content can download the packet capture (PCAP) file of an event that has content restrictions. Other types of downloads appear to be successful, then generate errors due to insufficient permissions, and the data is still protected.

During a phased update, you can disable the `sdk.packets` setting on 10.6.6.x services to prevent analysts from downloading any PCAPs or logs. After you update all services to 11.3.0.2 and re-enable `sdk.packets`, RBAC works consistently across all services.

The following table identifies what users with the analysts role can see and download when the NW Server is at version 11.3.0.2, and the 11.3.0.2 Broker is connected to Concentrators and Decoders at version 10.6.6.x.

Investigate Views Affected	Information Analysts Can See	Restricted Content Analysts Can Download	Restricted Content Analysts Can Download with Errors
Events View	RBAC permitted items	PCAP	File archive (cannot unzip it)
Event Reconstruction View	RBAC permitted items	PCAP	File archive (cannot unzip it)
Event Analysis View	RBAC permitted items	PCAP	Payload (any option: all payloads, request only, response only)

Virtual Host Upgrade Workflow

The following diagram illustrates the RSA NetWitness® Platform 11.3 Virtual Host upgrade workflow.

Contact Customer Support

Refer to the Contact RSA Customer Support page (https://community.rsa.com/docs/DOC-1294) in RSA Link for instructions on how to get help on RSA NetWitness Platform 11.3.

Upgrade Preparation Tasks

Complete the following tasks to prepare for the upgrade to NetWitness Platform 11.3.0.2. These tasks are organized by the following categories.

- General
- Event Stream Analysis (ESA)
- Reporting Engine
- Respond
- Warehouse Connector

Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

General

Task 1 - Review Core Ports and Open Firewall Ports

The following tables list new ports in 11.3.0.2.

Caution: Make sure that the new ports are implemented and tested before upgrading so that upgrade does not fail due to missing ports.

NW Server Host

Source Host	Destination Host	Destination Ports	Comments
NW Hosts	NW Server	TCP 4505, 4506	Salt Master Ports
NW Hosts	NW Server	TCP 27017	MongoDB
Admin Workstation	NW Server	TCP 15671	RabbitMQ Management UI
NW Hosts	NW Server	TCP 15671	RabbitMQ Management UI

ESA Host

Source Host	Destination Host	Destination Ports	Comments
NW Server, NW Endpoint, ESA Secondary	ESA Primary	TCP 27017	MongoDB

Endpoint Log Hybrid

Source Host	Destination Host	Destination Ports	Comments
Endpoint Log Hybrid	NW Server	TCP 5672	Message Bus
Endpoint Server	NW Server	TCP 27017	MongoDB

All NetWitness Platform core ports are listed in the "Network Architecture and Ports" topic in the *Deployment Guide* in case you need to reconfigure NetWitness Platform services and firewalls.

Task 2 - Record Your 10.6.6.x `admin user` Password

Record your 10.6.6.x `admin user` password. You will need it to complete the upgrade.

Task 3 - Create a Backup of the `/etc/fstab` File

Copy the `/etc/fstab` file from all the physical hosts and into your local machine (backup host or remote machine).

Note: You need this file to restore a physical host with external storage mounts.

Task 4 - Make Sure Password Strength Settings Check Boxes Are Set in 10.6.6.x

Note: You can skip this task if you do not want to migrate the password strength setting to 11.3.0.2.

The check box to the left of the **Password Strength Settings** in the **Administration** > **Security** > **Settings** tab must be set in 10.6.6.x or these settings will not be migrated to 11.3.0.2.

If you do not require a setting (for example, **Non-Latin Alphabetic Characters**) in your password for 11.3.0.2, you do not need to check this box. The **Minimum Password Length** is 3 or larger in version 10.6.6.x and 4 in version 11.3.0.2. This means that if you set the Minimum Password Length to 3 (default) in 10.6.6.x, you must set it 4 or larger for 11.3.0.2.

Complete the following task to make sure that the Password Strength Settings check boxes are set in 10.6.6.x.

1. In Security Analytics 10.6.6.x, go to the **Administration** > **Security** > **Settings** tab.
2. Make sure that the required check boxes to the left of the **Password Strength Settings** are set and click **Apply**.
   The following example shows the required check boxes as set (required in 10.6.6.x before upgrading to 11.3.0.2).

Task 5 (Conditional) - Extract 10.6.x Public Key Infrastructure (PKI) Certificates

Before you upgrade to from 10.6.6.x to 11.3.0.2, complete the following procedure to extract the existing 10.6.x PKI keystores that contain server certificates with private keys, and the truststores that contain the trusted CA certificates.

1. Download the `rsa-nw-pki-migration-10.6.6.zip` file from **RSA Link** > **RSA NetWitness Platform** > **Downloads** > **RSA NetWitness LOGS & NETWORK** > **Version 11.3.0.2**.
2. Extract the `pki-migration-1.0.jar` file from the `rsa-nw-pki-migration-10.6.6.zip` file.
3. SSH to the 10.6.6.x Security Analytics Server host and log in with the root credentials.
4. Copy the `pki-migration-1.0.jar` file into `/tmp` folder.
5. Run the following command strings to extract the certificates.

   ```
   cd /tmp
   java -jar pki-migration-1.0.jar
   extract
   ```

   This :

   - Creates the `rsa-pki-migration-tool-<yyyy-MM-dd-hh-mm>` directory under the `tmp` directory.
   - Extracts output files into the `/tmp/rsa-pki-migration-<yyyy-MM-dd-hh-mm>` directory.
   - Creates a keystore (for example, `<keystore-x>.p12`) for each server certificate.
     The keystore is encrypted with **netwitness** as the password.
   - Creates a certificate file (for example, `<certificate-X>.cer`) for each trusted CA certificate in truststore.

   > **Note:** Refer to the line in the console output to find the storage location of the
   >
   > - server certificate (`<keystore-X>.p12`). For Example:
   > - trusted CA certificate (`<certificate-x>.cer`). For example
   >
   > This process does not modify the original keystores and trusted CA certificates of 10.6.6.x. You can run these steps multiple times, if required.

6. Open any keystore and display its contents to verify that the extracted keystores and the trusted CA certificates are correct.

   ```
   cd rsa-pki-migration-tool-<yyyy-MM-dd-hh-mm>
   ls –ltrh
    Openssl x509 -in <certificate-X>.cer -inform DER
   ```

   The certificate in displayed in PEM (Base64) format. For example:

   ```
   keytool -list -keystore <keystore-X>.p12 -storetype PKCS12 – storepass
   netwitness
   ```

   The following is an example of the output.

   ```
   Keystore type: PKCS12
   Keystore provider: <XXXXX>
   ```

7. Exit the keystore.

   ```
   exit
   ```

You can use:

- One of the `.p12` keystore files as a server certificate. Refer to the command output to find `.p12` file that corresponds to the server certificate you must use.
- The extracted certificate files (.cer) as trusted CA certificates.

For instructions on how to configure PKI authentication, see the "*System Security and User Management Guide*".

Event Stream Analysis (ESA)

Task 6 - Record Any String Array Type Meta Keys on the Event Stream Analysis Service

Record any string array type meta keys in the **`ArrayFieldNames`** parameter on the **Event Stream Analysis** service.

1. In Security Analytics 10.6.6.x, go **Administration > Services**.
2. In the Services view, select an **Event Stream Analysis** service and then select ⚙ ⌄ **> View > Explore**.
3. In the **Explore** view node list, select **Workflow > Source > netgenAggregationSource**.
4. In the **`ArrayFieldNames`** parameter field, make a note of the string array type meta keys listed so you can verify that they are on the ESA Correlation service after the upgrade.

Respond

Task 7 - Check Aggregation Rules Match Conditions for “Domain” or “Domain for Suspected C&C”

Make a note of any Incident Management aggregation rules that have match conditions using Domain or Domain for Suspected C&C in the drop-down list in the rule builder. You will need to add back these conditions after you upgrade to 11.3.0.2 as described in the "Respond" Post Upgrade Tasks later in this document.

Complete the task for each aggregation rule.

1. In Security Analytics 10.6.6.x, go to **Incidents** > **Configure** > **Aggregation Rules** tab and edit the rules to view the matching conditions.
2. In the **Match Conditions** section, look for **Domain** or **Domain for Suspected C&C** listed in the drop-down lists for the conditions.
3. Make a note of the rule name and the entire condition that uses **Domain** or **Domain for Suspected C&C**, including operators and values.

Task 8 - Set Data Retention Run Interval to ≥ 24 Hours

In Security Analytics 10.6.6.x, the Data Retention run interval does not have any minimum value check. In 11.3.0.2, RSA added a validation check to make sure that it is run at least every 24 hours. When you upgrade to 11.3.0.2, if this value is less than 24 hours, the Respond service will not start.

Complete the following task to ensure that the Respond service starts after upgrading to 11.3.0.2.

1. In Security Analytics 10.6.6.x, go to **ADMIN** > **Services**.
2. Select the **Incident Management** service, and then select ⚙ > **View** > **Explore**.
3. In the Incident Management **Explore** view, go to **`Service`** > **`Configuration`** > **`dataRetentionConfiguration`.**
4. Make sure that the `FrequencyInHours` parameter is ≥ **24**.

Reporting Engine

(Conditional) Task 9 - Unlink External Storage

If the Reporting Engine has external storage, such as Storage Area Network (SAN) or Network Attached Storage (NAS) for storing reports, complete the following task to unlink the storage.

> **Note:** In these steps:
> `/home/rsasoc/rsa/soc/reporting-engine/` is the Reporting Engine home directory.
> `/externalStorage/` is where the external storage is mounted.

1. SSH to the Reporting Engine host and log in with your `root` credentials.
2. Stop the Reporting Engine service.
   ```
   stop rsasoc_re
   ```
3. Switch to `rsasoc` user.
   ```
   su rsasoc
   ```
4. Change to the Reporting Engine the home directory.
   ```
   cd /home/rsasoc/rsa/soc/reporting-engine/
   ```
5. Unlink the `resultstore` directory mounted to external storage.
   ```
   unlink /externalStorage/resultstore
   ```
6. Unlink the `formattedReports` directory mounted to external storage.
   ```
   unlink /externalStorage/formattedReports
   ```

Warehouse Connector

(Conditional) Task 10 - Copy `keytab` files in `root` or `etc` Directory Stored in Other Directory

Complete the following task to copy the `keytab` files in the `root` or `etc` directory if it is stored in another directory.

1. Record the absolute path of NFS mount directory and the `keytab` file.
   You need this information to restore the Warehouse Connector after upgrade.

2. Unmount the NFS directory.
    a. SSH to the Warehouse Connector and log in with `root` credentials.
    b. Submit the following command to unmount the NFS directory.

    ```
    umount <NFS-absolute-path>
    ```

There are no other tasks for a 10.6.6.x to 11.3 Virtual Host upgrade.

Backup Instructions

Backing up your configuration data for all your hosts from 10.6.6.x is the first step in upgrading from Security Analytics 10.6.6.x releases to NetWitness Platform 11.3.0.2. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

Note: 1.) It is important that you place Custom Certificate files and any other certificate authority (CA) files in the `/root/customcerts` folder to ensure that these certificate files are backed up. Your custom certificate files that are placed in this directory will be automatically restored during the upgrade process. After upgrading to 11.3.0.2, your custom certificate files will be located in `/etc/pki/nw/trust/import`. For more information about backing up these types of files, see step 1 in For All Host Types. 2.) Disable your Public Key Infrastructure (PKI) settings before starting the backup.

Caution: These services are not supported in the 10.6.6.x backup and upgrade process.
- IPDB
- All in One servers
- Malware Analysis Co-Located on the Security Analytics Server
- Standalone Warehouse Connector
- Warehouse Analytics (Datascience)

The following types of hosts can be backed up and are automatically restored during the upgrade process:

- **Security Analytics Admin Server**
- **Standalone Malware Analysis**
- **Archiver**
- **Broker**
- **Event Stream Analysis** (including Context Hub and Incident Management database)
- **Concentrator**
- **Log Decoder** (including Local Log Collector and Warehouse Connector, if installed)
- **Log Hybrid**
- **Network Decoder** (including Warehouse Connector, if installed)
- **Network Hybrid**
- **Virtual Log Collector**

The following types of files are automatically backed up but must be restored manually after the upgrade process:

- PAM configuration files: For information about restoring the PAM configuration files, refer to "Task 8 - Reconfigure Pluggable Authentication Module (PAM) in 11.3.0.2", in the "General" section of the *Post Upgrade Tasks*.
- `/etc/pfring/mtu.conf` and `/etc/init.d/pf_ring`: To restore these files you must manually retrieve them. The `/etc/pfring/mtu.conf` files will be located in `/var/netwitness/database/nw-backup/restore/etc/pfring/mtu.conf`, and the `/etc/init.d/pf_ring` files will be located in `/var/netwitness/database/nw-`

`backup/restore/etc/init.d/pf_ring`. Complete the following steps to restore the files.

1. Restore the `pf_ring` file to `/etc/init.d/` directory in 11.3.0.2.
   `/etc/init.d/pf_ring`
2. Restore the `mtu.conf` file to `/etc/pf_ring/` directory in 11.3.0.2.
   `/etc/pf_ring/mtu.conf`

The following diagram shows the high-level task flow of the steps you perform to back up your hosts.

The following sections describe each of these tasks:

- Task 1 - Set up an External Host for Backing up Files
- Task 2 - Create a List of Hosts to Back up
- Task 3 - Set up Authentication Between Backup and Target Hosts
- Task 4 - Check for Backup Requirements for Specific Types of Hosts
- Task 5 - Check for Adequate Space for the Backup
- Task 6 - Back up Your Host Systems
- Post Backup Tasks

Task 1 - Set up an External Host for Backing up Files

You must set up an external host to use for backing up files. The host must be running CentOS 6 (including the "openssh-clients" package) with connectivity through SSH to the Security Analytics stack of hosts. CentOS 6 Minimal does not include the "openssh-clients" package.

Note: If you are not able to use an external host for backing up files, contact RSA Customer Support (https://community.rsa.com/docs/DOC-1294) for assistance.

Ensure that the host names for the systems to be backed up are resolvable on the backup host machine, either by DNS or listed in the `/etc/hosts` file.

Note: These scripts are designed to run on CentOS 6 only. You must execute these scripts on CentOS 6 machines.

There are several scripts that you run during the backup process. You must download the zip file that contains the scripts `(nw-backup-v4.3.zip` or later) from RSA Link at this location: https://community.rsa.com/docs/DOC-81514 and copy it over to your CentOS 6 backup system. Extract the zip file to access the scripts. The scripts are:

- `get-all-systems.sh`: Creates the `all-systems` file, which contains a list of all your Security Analytics Servers and host systems to be backed up.

  Caution: When performing a mixed-mode upgrade, retain a master copy of the `all-systems` file upgrade until all the hosts in your deployment are upgraded to 11.3.0.2. You cannot run the `get-all-systems.sh` a second time because the NW Server, the first host that must be upgraded in mixed mode, will have CentOS7 as an operating system .

- `ssh-propagate.sh`: Automates sharing keys between the systems you are backing up and the backup host system so that you are not prompted for passwords multiple times.
- `nw-backup.sh`: Performs the backup of your hosts.
- `azure-mac-retention.ps1`: Applies only if you are using AZURE. See the *Azure Installation Guide* on for more information.

> **Note:** 1.) If you have used the 10.6.x versions of the backup and restore scripts on your 10.6.6 hosts, you must still run all the scripts listed here.
> 2.) Do NOT use the scripts in the `nw-backup-v4.3.zip` (on later version of the nw-backup script) file for regular backups. These scripts are specifically designed for upgrading from 10.6.6.x to 11.3.0.2.
> 3.) The backup scripts do not support backing up data for STIG-hardened hosts.

Task 2 - Create a List of Hosts to Back up

The script that you use to back up your files depends on the `all-systems` and `all-systems-master-copy` files, which contain a list of the hosts that you want to back up. The `all-systems-master-copy` file contains a list of all your hosts. The `all-systems` file is used for each backup session, and contains only those hosts which are being backed up for a particular session. You run the `get-all-systems.sh` script to generate these files. RSA recommends that you back up your hosts in groups, and not all at once. The recommended order and grouping of hosts for backup sessions is shown in the following diagram:

Limit each backup session to five hosts to ensure that you do not run out of space for the backup files. You create `all-systems` files for your backup sessions by using the `all-systems-master-copy` file as a reference and then manually editing the `all-systems` file to contain specific hosts.

To generate the `all-systems` and the `all-systems-master-copy` files:

1. From the host on which you are running the backup process, make the `get-all-systems.sh` script executable by running the following command:
   ```
   chmod u+x get-all-systems.sh
   ```
2. At the root level, run the `get-all-systems.sh` script:
   ```
   ./get-all-systems.sh <IP-Address-of-SA-Admin-Server>
   ```
   You will be prompted for the password for each host system once per host.
   This script saves the `all-systems` file and the `all-systems-master-copy` file to `/var/netwitness/database/nw-backup/`.
3. Validate that the `all-systems` and `all-systems-master-copy` files were generated and that they contain the right hosts.
4. Edit the `all-systems` file to contain only the systems you are backing up. You can do this by using the `all-systems-master-copy` file as a reference, and then opening the `all-systems` file in an editor (such as vi) and modifying it to include only the systems you want to back up. RSA recommends that you comment out the hosts that you do not want to back up (add the number sign (#) to the beginning of the line that contains the host that will not be backed up).
   The following examples shows how to comment out the 10.6.6 Security Analytics Server:
   ```
   loghybrid,loghyb,172.16.0.1,45fe9de1-1a82-49d7-9bb1-7ac5fa1d18d8,10.6.6.0
   #nwserver,nwserv106,172.31.255.23,67a9a0eb-1300-4fba-838f-
   7be4d8cf5e65,10.6.6.0
   ```

> **Note:** If you use vi, be sure to include the path to the location of the `all-systems` file.

Here is an example of an `all-systems-master-copy` file:

```
nwserver,my-nw-server,10.0.0.1,af922b9f-cd61-49cd-afdc-a48e558cec3e,10.6.6.0
archiver,my-nw-archiver,10.0.0.2,a65c1236-5e46-4117-8529-8ea837074bd0,10.6.6.0
concentrator,my-nw-concentrator,10.0.0.3,dc620e94-bcf5-4d51-83fe-
c003cdfcd7a6,10.6.6.0
esa,my-nw-esa,10.0.0.4,8b608c0d-a7f9-40c0-baee-8407dec774ab,10.6.6.0
logdecoder,my-nw-logdecoder,10.0.0.5,c8be5d45-e19e-4a8d-90ce-
1cb2fe60077a,10.6.6.0
malwareanalysis,my-nw-malwareanalysis,10.0.0.6,2edc9585-7081-48c3-8f8c-
e0d02aa0a2fd,10.6.6.0
packetdecoder,my-nw-packetdecoder,10.0.0.7,a8f2f574-3dd0-4b65-9cf7-
d8141b78a192,10.6.6.0
vlc,my-nw-vlc,10.0.0.8,3ffefc4e-0b31-4951-bb77-dea5869fa98c,10.6.6.0
broker,my-nw-broker,10.0.0.9,0b65e7ce-61d5-4177-9647-c56ccfb0f737,10.6.6.0
```

And here is an example of an `all-systems` file that could be used in the first backup session, where only the Security Analytics Server, ESA host, and Malware Analysis host are backed up:

```
nwserver,my-nw-server,10.0.0.1,af922b9f-cd61-49cd-afdc-a48e558cec3e,10.6.6.0
#archiver,my-nw-archiver,10.0.0.2,a65c1236-5e46-4117-8529-
8ea837074bd0,10.6.6.0
#concentrator,my-nw-concentrator,10.0.0.3,dc620e94-bcf5-4d51-83fe-
c003cdfcd7a6,10.6.6.0
esa,my-nw-esa,10.0.0.4,8b608c0d-a7f9-40c0-baee-8407dec774ab,10.6.6.0
#logdecoder,my-nw-logdecoder,10.0.0.5,c8be5d45-e19e-4a8d-90ce-
1cb2fe60077a,10.6.6.0
malwareanalysis,my-nw-malwareanalysis,10.0.0.6,2edc9585-7081-48c3-8f8c-
e0d02aa0a2fd,10.6.6.0
#packetdecoder,my-nw-packetdecoder,10.0.0.7,a8f2f574-3dd0-4b65-9cf7-
d8141b78a192,10.6.6.0
#vlc,my-nw-vlc,10.0.0.8,3ffefc4e-0b31-4951-bb77-dea5869fa98c,10.6.6.0
#broker,my-nw-broker,10.0.0.9,0b65e7ce-61d5-4177-9647-c56ccfb0f737,10.6.6.0
```

Troubleshooting Information

Be sure to save copies of the `all-systems` and `all-systems-master-copy` files in a safe location. Follow these recommendations.

- Do not edit the `all-systems-master-copy` file.
- If you create several different versions of the `all-systems` file (for example, for several backup sessions), be sure that each version of the file lists only those hosts that are currently being backed up, and the other hosts are commented out. For more information, see Post Backup Tasks.

If any host systems are down while you are running the `get-all-systems.sh` script, the script creates a list of hosts for which it cannot find information. After the script completes and the `all-systems` file is created, you must edit the `all-systems` file manually and add the missing information for these hosts.

The `get-all-systems.sh` script generates a list of hosts that were defined in the Security Analytics user interface. Ensure that all hosts and services are provisioned properly. If any hosts or services are not provisioned properly, they will not be backed up. RSA recommends that when you add hosts and services to Security Analytics, you use the Security Analytics user interface to ensure that they are provisioned properly. However, if there are any hosts or services that were not defined in the user interface, you must add them to the `all-systems` file manually.

At the end of the `get-all-systems.sh` script, the script will check for any differences between the systems that the Security Analytics Server has listed, and the ones for which the script was able to find all the required information. If any Node ID's or system names are listed as missing, verify the existence of those systems, that their services are all running, and that they are properly communicating with the Security Analytics Server. (Any Windows Legacy Collectors or AWS Cloud Collectors will not be added to the `all-systems` file, and may account for discrepancies. **DO NOT add these items to the `all-systems` file manually**.)

If the syntax in the `all-systems` file is incorrect, the script will fail. For example, if there is an extra space at the beginning or the end of a host entry, the script will fail.

Task 3 - Set up Authentication Between Backup and Target Hosts

RSA recommends that you run the `ssh-propagate.sh` script to automate sharing keys between the backup host and the host systems.

> **Note:** If you have SSH keys that are protected with pass phrases, you can use `ssh-agent` to save time. For more information, refer to the main page for `ssh-agent`.

Complete the following task to set up authentication between backup and target hosts.

1. On the external backup host system, make the `ssh-propagate.sh` script executable by running the following command:
   ```
   chmod u+x ssh-propagate.sh
   ```
2. At the root directory, run the following command, where `<path-to-all-systems-file>` is the path to the directory where the `all-systems` file is stored:
   ```
   ./ssh-propagate.sh <path-to-all-systems-file>
   ```
3. You are prompted for a password once on every host, but you will not need to enter it repeatedly later during the backup process.

Task 4 - Check for Backup Requirements for Specific Types of Hosts

After you create the `all-systems` file to use for backup, you must check to see if any of the hosts listed in the file have requirements that must be met before you run the backup process.

For All Host Types

Perform the following steps for all host types.

1. On the Security Analytics Server, place Custom Certificate files and any other certificate authority (CA) files in the `/root/customcerts` folder to ensure that these certificate files are backed up. Your custom certificate files that are placed in this directories will be automatically restored during the upgrade process. After upgrading to 11.3.0.2, your custom certificate files will be located in `/etc/pki/nw/trust/import`.
   You can convert CA certificates and keys to different formats to make them compatible with specific types of servers or software using OpenSSL. For example, you can convert a normal PEM file that would work with Apache to a PFX (PKCS#12) file and use it with Tomcat or IIS. To convert the files, SSH to the Security Analytics Server and run the following command strings to perform the conversions listed.
   Convert a DER file (.crt .cer .der) to PEM
   ```
   openssl x509 -inform der -in certificate.cer -out certificate.pem
   ```
   Convert a PEM file to DER

```
openssl x509 -outform der -in certificate.pem -out certificate.der
```

Convert a PEM Certificate File and a Private Key to PKCS#12 (.pfx .p12)

```
openssl pkcs12 -export -out certificate.pfx -inkey privateKey.key -in
certificate.crt -certfile CACert.crt
```

Convert a PKCS#12 File (.pfx .p12) Containing a Private Key and Certificates to PEM

```
openssl pkcs12 -in keyStore.pfx -out keyStore.pem -nodes
```

> **Note:** Add the following qualifier to the command string to:
> `-nocerts` convert private keys exclusively.
> `-nokeys` convert certificates exclusively.

2. Manually record any custom configurations made to CentOS 6 (for example, driver customizations) for restoration after you update to CentOS 7. Custom configurations to CentOS 6 are not automatically backed up and restored.

For ESA Hosts with Mongo Databases

The default 10.6.x Mongo database password is `netwitness`. If you have customized this password, you could encounter an error while running the backup script. You can either use your custom Mongo database password during the backup, or you could change that password back to `netwitness` before running the `nw-backup.sh` script.

1. Find out if the Mongo database password is `netwitness` or if it has been modified.
2. If it has been modified, either change it back to `netwitness`, or be sure you know what the customized password is so that you can enter it during the backup.

For Decoder, Concentrator, or Broker Hosts: Stop Data Capture and Aggregation

In addition to the tasks described in For All Host Types, for Decoder, Concentrator, or Broker hosts, stop data capture and aggregation on all the systems that you are backing up. For instructions, refer to "Appendix B. Stopping and Restarting Data Capture and Aggregation ."

Log Collectors (LC) and Virtual Log Collectors (VLCs): Run `prepare-for-migrate.sh`

> **Caution:** This task stops log collection so you must perform this step immediately before you upgrade to minimize the loss of event collection. Complete this task in accordance with the backup and upgrade tasks in this guide.

Prerequisites

You need the following information before you prepare LCs and VLCs for upgrade.

- If Lockbox was initialized on the LC and VLC, you must know the Lockbox password. It is required to reconfigure the Lockbox after the upgrade.
- If you set the password for `logcollector` user for RabbitMQ, you must know the password so you can set it again after the upgrade.
- Read For File Collection Event Sources later in this chapter. You may need to restore some SSHD configuration settings from the 10.6.x LC/VLC.
- Read For Bluecoat Event Sources later in this chapter. You may need to backup VSFTPD key material manually.

Prepare LCs and VLCs for Upgrade

Complete the following task to prepare Log Collectors and Virtual Log Collectors for the upgrade.

1. SSH to the Log Collector.
2. Submit the following command string.

   ```
   # /opt/rsa/nwlogcollector/nwtools/prepare-for-migrate.sh --prepare
   ```

   This command:

   - Stops the Puppet Agent service.
   - Disables the file collection accounts (“sftp” and all users in the group “upload”) used for uploading log files to the Log Collector. The log files accumulate on the event sources until the Log Collector has been upgraded to 11.3.0.2.
   - Stops all the collection protocols in the Log Collector service.
   - Saves the list of Plugin accounts and RabbitMQ accounts.
   - Configures the RabbitMQ server so that new events cannot be published to it any longer. Consumers of events in the queues, such as shovels and Log Decoder Event Processors, will continue to run.
   - Waits until the Log Collector queues are empty.
   - Stops the Log Collector service.
   - Creates a marker file indicating that the Log Collector has been successfully prepared for upgrade.

Troubleshooting Information

The `prepare-for-migrate.sh` script:

- Sends informational, warning, and error messages to the console.
- Saves a session log in the `/var/log/backup/` directory.

You must fix any of the following errors and resume the preparation. Contact RSA Customer Support (https://community.rsa.com/docs/DOC-1294) for assistance.

- Log Collector queues with events but without consumers are found.
- Unable to stop the Puppet Agent service.
- Unable to stop a collection protocol in the Log Collector service.
- Unable to block event publishers to the RabbitMQ server.
- Unable to or taking too long for queue events to be consumed. The script makes 30 attempts waiting for the events to be consumed. After each attempt, it sleeps for 30 seconds.
- Unable to stop the Log Collector service.

For more information about troubleshooting, see Appendix A. Troubleshooting.

For File Collection Event Sources

If you are using older Windows and UNIX SFTP agents to upload log files, they may not be able to connect to the SSHD on the upgraded 11.x LC/VLC if they are using older Ciphers, MACs and Key Exchange Algorithms. If possible, upgrade to the latest Windows and UNIX SFTP agents. If you cannot upgrade to the latest Windows and UNIX SFTP agents, note the Ciphers, MACs and Key Exchange Algorithms, if any, from the `/etc/ssh/sshd_config` file on the 10.6.x LC/VLC on the 10.6.x LC/VLC so that they can be added back to the file after upgrade.

For Bluecoat Event Sources

Bluecoat ProxySG event sources use FTPS protocol to upload log files to the Log Collector (LC) and Virtual Log Collector (VLC). The Event Source Documentation on RSA Link contains the steps to configure VSFTPD service on the LC and VLC.

- If key material exists in the `/root/vsftpd/` directory in 10.6.6.x, this material area will be backed up and restored. If the material was in another location, you must back it up and restore it manually.
- If the `/etc/vsftpd/vsftpd.conf` file exits in 10.6.6.x, it is backed up and restored.

For Integrations with Web Threat Detection, Archer Cyber Incident & Breach Response or NetWitness Endpoint - List RabbitMQ Usernames and Passwords

On the 10.6.6.x Security Analytics Server host, you must get a list of all RabbitMQ usernames and passwords so that after you perform the 11.3.0.2. upgrade, you can restore RabbitMQ user accounts.

To get a list of RabbitMQ usernames and passwords, run the following command:

```
rabbitmqctl list_users >> /root/rabbitmq_users.txt
```

To restore RabbitMQ user accounts, refer to "Task 42 - For Integrations with Web Threat Detection, RSA Archer® Cyber Incident & Breach Response or NetWitness Endpoint" in the "NetWitness Platform Integrations" in the *Post Upgrade Tasks*.

Task 5 - Check for Adequate Space for the Backup

You can run the backup test script to check the amount of disk space that is required for the backup using the -t option described in Test Options. You run the script without actually backing up files or stopping any services. RSA recommends that you perform this step to ensure that you provide adequate space for the backup so that the backup captures all your data.

Complete the following task to check for adequate disk space.

1. Make the backup script executable by running the following command:
   ```
   chmod u+x nw-backup.sh
   ```
2. Run the following command at the root directory level:
   ```
   ./nw-backup.sh -t
   ```
   The output displays the amount of disk space that is required for the backup.

> **Note:** The `./nw-backup.sh -t` command runs with the `-d` option by default. However, if you are looking for more accurate disk space results, you can override the `-d` option by using `-D`. Using the `-D` option will show how much space is required on each host for the data that will be backed up, but does not show how much space is available. If there is not enough space available, the `-D` option will throw an error. If you want to know how much space is available on the target host, you must run the `df -h` command on the host.

The following figure shows an example of the output from using the -t option.

Task 6 - Back up Your Host Systems

Before you run the backup script to do the actual backup, be sure that you have plenty of space. To back up your hosts, you run the `nw-backup.sh` script using the `-u` option. This option is required for upgrading to 11.3.0.2.

> **Note:** The script will stop services as it runs. However, you can stop services manually before you run the script if needed.

When you run the backup script, you can choose from several options that are described in the following sections.

Usage

```
./nw-backup.sh [-u -t -d -D -l -x -e] <external-mnt> -b <backup file path>
```

General Options

```
-u : This option is required for upgrading to 11.3.0.2. Enables the upgrade
flag to run backup for upgrading to 11.3.0.2. It also enables disk space check
(-d), backing up reporting engine reports (-r) and stores backup content
locally (-l). Default: (no)
```

```
-d : enables disk space check in 'fast' mode (quick estimate of space using
uncompressed data). Default: (no)
```

```
-D : enables disk space check in 'full' mode (estimate of space using
compressed data, ~10X slower). Default: (no)
```

```
-l : stores backup content locally on each host (automatically set if -u is
used). Default: (no)
```

```
-e <path to mount point> : copies backup files of all devices onto an external
mount point. Default: (/mnt/external_backup)
```

```
-x : move all backup files to an external mount point. Default: (no) - COPY
```

```
-b <path to write backups> : path to the location for storing backup files on
a backup server. For upgrading to 11.3.0.2, please use the default location!
Default: (/var/netwitness/database/nw-backup)
```

Note: 1.) Do **not** change the backup path in upgrade (-u) mode. 2.) When you run a backup with the `-u` option, all services are stopped. If you need to continue to use the 10.6.x machine after running the backup, reboot the 10.6.x system so that services are restarted.

Advanced Content Selection Options

```
-c : back up Colocated Malware Analysis on SA servers. Default: (no)
```

```
-i : back up IPDB data (/var/netwitness/ipdbextractor). Default: (no)
```

```
-m : back up Malware Analysis File Repository. Default: (no)
```

```
-r : back up Reporting Engine Report Repository (automatically set if -u is
used). Default: (no)
```

```
-v : back up system logs (/var/log). Default: (no)
```

```
-y : back up YUM Web Server & RPM Repository. Default: (no)
```

```
-S : If set: DISABLES back up of SMS RRD files. Default: (not-set)
```

```
-C : If set: DISABLES back up of Context-Hub configuration and database.
Default: (not-set)
```

```
-E : If set: DISABLES back up of ESA Mongo database. Default: (not-set)
```

Test Options

```
 -t : performs script test run for disk space check only. Services are not
stopped and excludes execution of backup. Can be combined with (-d) or (-D)
and other flags. Default: (-t)
```

For example, the command:
`./nw-backup.sh`
would run the backup with options as set in the Header of the script itself.
OR, the command:
`./nw-backup.sh -ue /mnt/external_backup`
would run a normal backup using the backup path defined in the script, with the following options:

```
-u : enables the upgrade flag to run backup for upgrading to 11.3.0.2. It also
enables disk space check (-d), backing up reporting engine reports (-r) and
stores backup content locally (-l). Default: (no)
```

```
-e : Copy the backup files to external mount point, mounted on /mnt/external_
backup
```

```
For Help: ./nw-backup.sh –h
```

When you run the script, the following text is displayed at the top of the script:

> **Caution:** RSA `nw-backup` script backs up configuration files, data, and logs on the options provided in the script. It tars the content, with options to store the backup files on the backup server, move or copy them to external storage on a mount point (USB/NFS/SMB), or SCP them back to the target host.
> This backup script has been qualified on the following versions of Security Analytics:
> 10.6.6.x
> Use of this script on any other versions of the product may not give expected results and may not be supported by RSA Customer Service.
> **Note:** All non-RSA custom files, scripts, Cronjobs and other important files should be placed in `/root`, `/home/'user'`, OR `/etc` to be included in the backup.

Complete the following task to back up your hosts.

1. Ensure that the `all-systems` file contains only the hosts to back up. For information, see Task 2 - Create a List of Hosts to Back up.

2. Make the backup script executable by running the following command:
   ```
   chmod u+x nw-backup.sh
   ```

3. Begin the backup process by running the following command at the root directory level:
   ```
   ./nw-backup.sh -u
   ```

   > **Note:** You must use the `-u` option so that your files will be restored correctly during the upgrade to 11.3.0.2. Do NOT make any changes to the header of the backup script for the backup path because the path is specific to the upgrade, and that data needs to be in a specific place.

   When the text "`Backup completed with no errors`" is displayed, the backup has completed successfully.

   A log file, with a name similar to the following example, is created in the backup directory which provides information on the files being backed up:
   `rsa-nw-backup-2018-03-15.log`

4. When the backup has completed, to ensure that the intended files were backed up, you can run the following command to see a list of all the files that were backed up:
   ```
   tar -tzvf hostname-ip-address-backup.tar.gz
   ```
   The following archive files are created:
   For all hosts:
   `<hostname-IPaddress>-root.tar.gz`
   `<hostname-IPaddress>-backup.tar.gz`
   `tar checksum` files
   `<hostname-IPaddress>-network.info.txt`
   For Security Analytics Servers:
   `<hostname-IPaddress>-root.tar.gz`
   `<hostname-IPaddress>-backup.tar.gz`
   `<All ESA hostname-IPaddress>-mongodb.tar.gz`
   `tar checksum` files
   `<hostname-IPaddress>-network.info.txt`
   For ESA Hosts:
   `<hostname-IPaddress>-root.tar.gz`
   `<hostname-IPaddress>-backup.tar.gz`
   `<hostname-IPaddress>-mongodb.tar.gz`

`<hostname-IPaddress>-controldata-mongodb.tar.gz`
`tar checksum` files
`<hostname-IPaddress>-network.info.txt`

The archived files are located in the `/var/netwitness/database/nw-backup` directory. If any of the tar files appear smaller than expected, open them to be sure that the files were properly backed up.

Post Backup Tasks

Task 1 - Save a Copy of the `all-systems` File and the Backup Tar files

Make copies of the `all-systems` file, the `all-systems-master-copy` file, and the backup tar files and put the copies in a secure location. You cannot regenerate these files after you upgrade the Security Analytics Server (specifically the Admin service) to 11.3.0.2.

Task 2 - Ensure Required Backup Files Were Generated

After you run the backup scripts, several files are generated. These files are required for the 11.3.0.2 upgrade process. Before you begin the upgrade process, you must ensure that the required backup files are on the hosts that you are upgrading, and that you perform the following tasks.

The following files are generated on all hosts by the backup scripts:

- `all-systems`
- `all-systems-master-copy`
- `appliance_info`
- `service_info`
- `<hostname>-<host-IP-address>-backup.tar.gz`
- `<hostname>-<host-IP-address>-backup.tar.gz.sha256`
- `<hostname>-<host-IP-address>-root.tar.gz`
- `<hostname>-<host-IP-address>-root.tar.gz.sha256`
- `<hostname>-<host-IP-address>-network.info.txt`

In addition to the files listed above, the following files will be generated on the Security Analytics Server and ESA hosts:

- `<hostname>-<host IP address>-mongodb.tar.gz`
- `<hostname>-<host IP address>-mongodb.tar.gz.sha256`

The backup script will also generate the following `controldata-mongodb.tar.gz` files.

> **Note:** The backup script copies the following files from all ESA hosts to the Security Analytics Server's backup path.

- `<esa hostname>-<esa hostip>-controldata-mongodb.tar.gz`
- `<esa hostname>-<esa hostip>-controldata-mongodb.tar.gz.sha256`

Task 3 - (Conditional) For Multiple ESA Hosts, Copy `mongodb tar` files to Primary ESA Host

If your environment has multiple ESA appliances, when you executed the `nw-backup.sh` script, it should have moved all the ESA files to the appropriate folders. Make sure that the ESA host (Where the Context Hub service is running) is designated as primary and that the `controldatamongodb.tar.gz.*` files were copied from the secondary ESAs to designated primary ESA default backup path.

Task 4 - Ensure All Required Backup Files are on Each Host

Before you upgrade to 11.3.0.2, ensure that the appropriate files exist on the hosts that you are upgrading as described in the following lists.

> **Note:** The default paths for backup files are:
> - Security Analytics Servers:`/var/netwitness/database/nw-backup`
> - ESA hosts:`/opt/rsa/database/nw-backup`
> - Malware hosts: `/var/lib/rsamalware/nw-backup`

Required Files for NetWitness Servers

- `all-systems-master-copy`
- `<hostname>-<host-IP-address>-backup.tar.gz`
- `<hostname>-<host-IP-address>-backup.tar.gz.sha256`
- `<hostname>-<host-IP-address>-root.tar.gz`
- `<hostname>-<host-IP-address>-root.tar.gz.sha256`
- `<hostname>-<host-IP-address>-network.info.txt`
- `<hostname>-<host-IP-address>-mongodb.tar.gz`
- `<hostname>-<host-IP-address>-mongodb.tar.gz.sha256`
- `<esa-hostname>-<esa-host-IP-address>-controldata-mongodb.tar.gz`
- `<esa-hostname>-<esa-host-IP-address>-controldata-mongodb.tar.gz.sha256`

Required Files for ESA Hosts

- `all-systems-master-copy`
- `<hostname>-<host-IP-address>-backup.tar.gz`
- `<hostname>-<host-IP-address>-backup.tar.gz.sha256`

- `<hostname>-<host-IP-address>-root.tar.gz`
- `<hostname>-<host-IP-address>-root.tar.gz.sha256`
- `<hostname>-<host-IP-address>-network.info.txt`
- `<hostname>-<host-IP-address>-mongodb.tar.gz`
- `<hostname>-<host-IP-address>-mongodb.tar.gz.sha256`

Required Files for All Other Hosts

- `all-systems-master-copy`
- `<hostname>-<host-IP-address>-backup.tar.gz`
- `<hostname>-<host-IP-address>-backup.tar.gz.sha256`
- `<hostname>-<host-IP-address>-root.tar.gz`
- `<hostname>-<host-IP-address>-root.tar.gz.sha256`
- `<hostname>-<host-IP-address>-network.info.txt`

Note: The following files are located in the `<hostname>-<host-IP-address>-backup.tar.gz` tar on all hosts:
`appliance_info`
`service_info`

Note: The paths to the location of the backup and restore files for iptables, NAT configurations, user accounts, and crontab entries are shown in the following list:
Backup paths:
`BUPATH=/opt/rsa/database/nw-backup` for the ESA Correlation Engine
`BUPATH=/var/lib/rsamalware/nw-backup` for the Malware Service
`BUPATH=/var/netwitness/database/nw-backup` for all other services
Restore locations:
`BUPATH/restore/etc/sysconfig` for Iptable rules
`BUPATH/restore/etc/sysconfig` for NAT configurations
`BUPATH/restore/etc` for Crontab entries
`BUPATH/restore/etc` for User Accounts (users are located in the `passwd` file, and groups are located in the `group` file. These are not restored during the upgrade process but can be restored manually.
`BUPATH/restore/etc/ntp.conf` for NTP configurations (must be restored using the NetWitness Platform UI)

Migrate Disk Drives from 10.6.6.x to 11.3

Caution: 1) You cannot perform the migration if you have a snapshot for your VM.
2). Run the backup immediately before you upgrade hosts for each phase so that the data is not out-dated.
3.) This guide applies to virtual host upgrades exclusively. If have both physical and virtual hosts in your deployment, see the *Physical Host Upgrade Instructions for RSA NetWitness Platform 11.3* for the steps you must complete to upgrade physical hosts.

Note: The machines must be in VMware ESX.

Note: Before upgrading the hosts make sure that the time on each host is synchronized with the time on the NetWitness Server.
To synchronize the time do one of the following:
- Configure the NTP Server. For more information, see"Configure NTP Servers" in the *System Configuration Guide*.
- Run the following commands on each hosts:
1. SSH to NW host.
2. Run the following commands.

```
systemctl stop ntpd
ntpdate nw-node-zero
systemctl start ntpd
```

There are five tasks you must complete to migrate your Virtual Machine (VM) deployment disk drives from 10.6.6.x to 11.3:

Task 1 - Back up data in your 10.6.6.x VMs.

Task 2 - Deploy the same VM Stack in 11.3 as you have in 10.6.6.x.

Task 3 - Copy the VMDK Files and add them as a hard disk to the new VMs.

Task 4 - Retain MAC address of upgraded SA Server VM.

Task 5 - Restore backup data in 10.6.6.x to 11.3 VMs.

Task 1 - Back Up Data in 10.6.6.x VMs

1. Prepare Log Collector for the migration:
   a. Log in to the Log Collector using root credentials.
   b. Go to the `/opt/rsa/nwlogcollector/nwtools/` directory and run the following command.
      ```
      sh prepare-for-migrate.sh --prepare
      ```
      See Virtual Log Collector Host (VLC) for detailed instructions on how to upgrade the VLC.
2. Download and extract the `.zip` file that contains the 10.6.6.x backup scripts from RSA Link https://community.rsa.com/docs/DOC-81514)) to the external backup host.

   Note: You must set up an external host to use for backing up files. The host must be running CentOS 6 with connectivity through SSH to the NetWitness Platform stack of hosts.

3. Update the permission of the script file, run the following commands:
   a. `cd <Script file>`
   b. `chmod 777 *`

4. Run the following commands from the `nw-backup/scripts` directory (see Backup Instructions for a detailed descriptions of the backup scripts).

```
./get-all-systems.sh <SA-IP>
./ssh-propagate.sh <path-to-backup-directory/all-systems>
./nw-backup.sh -u
```

   (if you have a Malware VM, substitute `-m -u` for `-u` in this command string (for example, `./nw-backup.sh -m -u`).

Task 2 - Deploy Same 10.6.6.x VM Stack in 11.3

You must set up the same virtual host stack in 11.3 that you had in 10.6.6.x. See the *RSA NetWitness® Platform 11.3 Virtual Host Installation Guide* for instructions.

The following steps are the high-level steps on how to deploy an OVA host in the ESXi environment.

Download the 11.3 OVA, from RSA Link > NetWitness > Download to a local directory.

1. Log on to the ESXi environment.
2. In the **File** drop-down, select **Deploy OVF Template**.

   The Deploy OVA Template dialog is displayed.
3. Browse your local directory for the 11.3 OVAs you downloaded.
4. Select the to deploy in the virtual environment , and click **Next**.
5. Select the appropriate Configuration for the VM and click **Next**.
6. Power on the VM, go to Console, and log in to the machine.
   The VM now has the 11.3 base image required to run the Setup Program (that is, `nwsetup-tui`).

Task 3 - Copy VMDK Files and Add Them as Hard Disk to New VMs

1. Power off both the 10.6.6.x and 11.3 VMs.
2. Go to the desired ESX server, click the **Configuration** tab > **Storage**.
3. Right-click the required datastore and click **Browse Datastore**.
4. Navigate to the existing 10.6.6.x VM in the datastore.
5. Select all the VMDK files in the datastore, right-click, and click **Copy**.

> **Caution:** Do not copy the base VMDK file (for example, `Data_106_SA`) because it contains CentOS6.
>
> You must copy all the numbered VMDK files. For example, if the 10.6.6.x VM name is `Data_106_SA`, you would copy all the `Data_106_SA_1`, `Data_106_SA_2`, `Data_106_SA_3`, etc files.

6. Navigate to the new 11.3 VM in the datastore.
7. Right-click and click **Paste**.

> **Note:** You must wait until all the VMDK files from the previous VM are completely copied into the datastore of the new VM.

8. Select the 11.3 VM, click **Edit Settings** > **Add**.
9. In the dialog box, click **HardDisk** > **Next**.
10. Click **Already existing hard disk** > **Next**.
11. Click **Browse** and browse to the datastore location to which you copied the vmdk files.
12. Select the VMDK file from the 11.3 VM that you want to add as a disk.
13. Repeat steps 8 through 12 for each disk you want to add.
14. Click **OK**.

Task 4 - Retain MAC Address of Upgraded SA Server VM

To retain the MAC address of migrated Security Analytics (SA) Server Virtual Machine (VM):

Note: These steps apply to the SA Server VM (created with "Automatic" MAC address assignment selected) to the 11.3 NetWitness Server. For VMs with a Static MAC address, you can change the MAC address by going to Edit Settings for a VM and typing in the MAC address.

1. Log in to vCenter server.

   Note: The supported versions of vCenter is 5.5 through 6.5 inclusive.

2. (Conditional) If vCenter server are powered on, **Power Off** both VMs (NetWitness 10.6.6.x and 11.3).
3. Click **Summary** tab, right-click **Datastore** and browse for the datastore location.
4. Go to the VM folder and download the `.vmx` file of 10.6.6.x and 11.3 to the local repository.
   By default, the VM generated with the MAC address is created in the format (as shown in the below figure).

   Note: 00:0c:29:XX:YY:ZZ – 00:0c:29 is the unique identifier for an automatically generated MAC address. **00:50:56:XX:YY:ZZ – 00:50:56** is the unique identifier for a static or manually generated MAC address. This is valid only if the vCenter is not deployed. If vCenter is deployed, this MAC address denotes the unique identifier for an automatically generated MAC address.

5. Using a text editor, copy the `uuid.location` and `ethernet0.generatedAddress` values from 10.6.6.x **.vmx** file into the 11.3 **.vmx** file.

   Note: If you deployed the 10.6.6.x stack on the ESX server directly (not through VCenter), you must copy the value for `uuid.bios` in addition to `uuid.location` and `ethernet0.generatedAddress` from 10.6.6.x **.vmx** file into the 11.3 **.vmx** file.

6. Remove both the 10.6.6.x and the 11.3 VMs from inventory.
   a. Navigate to the vCenter server.
   b. Right-click both the 10.6.6.x and the 11.3 VMs.
   c. Select Remove from Inventory.
7. Upload the modified 11.3 **.vmx** file to the datastore location by replacing it with the existing **.vmx** file.
8. From the datastore, right-click the 11.3 **.vmx** file and select Add to Inventory.
9. Navigate to the vCenter server and **Power On** the 11.3 VM.
   The following message is displayed.
   The virtual machine might have been moved or copied. In order to configure certain management and networking features, VMware ESX needs to know if this virtual machine was moved or copied. If you don't know, answer "I Copied it."

10. Right-click the VM and select **Guest** > **Answer Question**.
    The following figure is displayed.

11. Select **I Moved It**.

12. Click **OK**.
    The MAC address is retained to the MAC address from 10.6.6.x to 11.3.

Task 5 - Restore Backup Data in 10.6.6.x to 11.3 VMs

Complete the following steps to **Power On** the 11.3 VM.

1. Copy backed-up data from the `nw-backup` directory to the 11.3 VMs.

- For the NW Server:

> **Note:** See Virtual Log Collector Host (VLC) for detailed instructions on how to upgrade the VLC.

a. Create the `nwhome` directory under `/tmp`.

b. Mount `VolGroup00-nwhome` on `/tmp/nwhome/`.

```
mount /dev/mapper/VolGroup00-nwhome /tmp/nwhome/
```

c. Copy the contents of `/tmp/nwhome/` directory to `/var/netwitness/`.

```
cp -r /tmp/nwhome/* /var/netwitness/
```

d. Mount `VolGroup02-redb` on `/var/netwitness/database`.

```
mount /dev/mapper/VolGroup02-redb /var/netwitness/database/
```

> **Note:** Make sure that the `/var/netwitness/database/nw-backup` directory exists with backup tarballs of the appliance.

e. Unmount `VolGroup00-nwhome` from `/tmp/nwhome/`.

```
umount /tmp/nwhome
```

- For the Archiver, Broker, Concentrator, Log Decoder, Log Collector, and Network Decoder:

> **Note:** If your 10.6.6.x Decoder or Log Decoder had multiple network interfaces:
> 1. **Power Off** the 11.3 VM 11.3 Decoder or Log Decoder VM.
> 2. Go to **Edit Settings** for the VM and add the required number of Ethernet Adapters.
> 3. **Power On** the VM.
> 4. Add the ethernet adapters before restoring the backup data.

a. Create the `nwhome` directory under `/tmp`.

b. Create a temporary mount `VolGroup00-nwhome` on `/tmp/nwhome/`.

```
mount /dev/mapper/VolGroup00-nwhome /tmp/nwhome/
```

c. Copy the contents of `/tmp/nwhome/` directory to `/var/netwitness/`.

```
cp -r /tmp/nwhome/* /var/netwitness/
```

d. Unmount `VolGroup00-nwhome` from `/tmp/nwhome/`.

```
umount /tmp/nwhome
```

- For Malware Analysis (Co-located Malware Not Supported in 11.3 Upgrade):

a. Create the `apps` directory under `/tmp/`.

b. Create a temporary mount `VolGroup01-apps` on `/tmp/apps/`.

```
mount /dev/mapper/VolGroup01-apps /tmp/apps/
mkdir /var/netwitness/database
```

   c. Copy the `nw-backup` directory to `/var/netwitness/`.
   ```
   cp -r /tmp/apps/nw-backup /var/netwitness/database
   ```
   d. Unmount `VolGroup01-apps` from `/tmp/apps/`.
   ```
   umount /tmp/apps
   ```

- For Event Stream Analysis:
   a. Create the `apps` directory under `/tmp/`
   b. Create a temporary mount `VolGroup01-apps` on `/tmp/apps/`.
   ```
   mount /dev/mapper/VolGroup01-apps /tmp/apps/
   mkdir /var/netwitness/database
   ```
   c. Copy the `nw-backup` directory to `/var/netwitness`.
   ```
   cp -r /tmp/apps/nw-backup /var/netwitness
   ```
   d. Unmount `VolGroup01-apps` from `/tmp/apps/`.
   ```
   umount /tmp/apps
   ```

2. Mount the disks.

   Note: If you have configured any external mount points on the VMs in the stack for any of the following directories, re-mount the external mount points in place of the following mounts.

- For the NW Server:
```
mount /dev/mapper/VolGroup01-ipdbext /var/netwitness/ipdbextractor/
```

Note: Make sure that the `/var/netwitness/database/nw-backup` directory exists with backup tarballs of the appliance.

- For the Log Decoder/Log Collector:

Note: The following mounts are not required for the Virtual Log Collector.

```
mount /dev/mapper/VolGroup01-decoroot /var/netwitness/logdecoder
mount /dev/mapper/VolGroup01-index /var/netwitness/logdecoder/index
mount /dev/mapper/VolGroup01-sessiondb /var/netwitness/logdecoder/sessiondb
mount /dev/mapper/VolGroup01-metadb /var/netwitness/logdecoder/metadb
mount /dev/mapper/VolGroup01-logcoll /var/netwitness/logcollector
mount /dev/mapper/VolGroup01-packetdb /var/netwitness/logdecoder/packetdb
```

- For the Network Decoder:
```
mount /dev/mapper/VolGroup01-decoroot /var/netwitness/decoder
mount /dev/mapper/VolGroup01-sessiondb /var/netwitness/decoder/sessiondb
mount /dev/mapper/VolGroup01-index /var/netwitness/decoder/index
mount /dev/mapper/VolGroup01-metadb /var/netwitness/decoder/metadb
mount /dev/mapper/VolGroup01-packetdb /var/netwitness/decoder/packetdb
```

- For the Concentrator:
```
mount /dev/mapper/VolGroup01-concroot /var/netwitness/concentrator
mount /dev/mapper/VolGroup01-sessiondb
/var/netwitness/concentrator/sessiondb
mount /dev/mapper/VolGroup01-index /var/netwitness/concentrator/index
mount /dev/mapper/VolGroup01-metadb /var/netwitness/concentrator/metadb
```

- For the Archiver:
  ```
  mount /dev/mapper/VolGroup01-archiver /var/netwitness/archiver
  mount /dev/mapper/VolGroup02-workbench /var/netwitness/workbench
  ```
- For the Broker:
  ```
  mount /dev/mapper/VolGroup01-broker /var/netwitness/broker
  ```

3. Add the following mount entries to `/etc/fstab`.

   - For the NW Server:
     ```
     /dev/mapper/VolGroup01-ipdbext /var/netwitness/ipdbextractor/ xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup02-redb /var/netwitness/database/ xfs
     defaults,noatime,nosuid 1 2
     ```
   - For the Log Decoder/Log Collector:

     Note: The following mounts are not required for the Virtual Log Collector.

     ```
     /dev/mapper/VolGroup01-decoroot /var/netwitness/logdecoder ext4
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-index /var/netwitness/logdecoder/index xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-sessiondb /var/netwitness/logdecoder/sessiondb xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-metadb /var/netwitness/logdecoder/metadb xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-logcoll /var/netwitness/logcollector xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-packetdb /var/netwitness/logdecoder/packetdb xfs
     defaults,noatime,nosuid 1 2
     ```
   - For the Network Decoder:
     ```
     /dev/mapper/VolGroup01-decoroot /var/netwitness/decoder ext4
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-sessiondb /var/netwitness/decoder/sessiondb xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-index /var/netwitness/decoder/index xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-metadb /var/netwitness/decoder/metadb xfs
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-packetdb /var/netwitness/decoder/packetdb xfs
     defaults,noatime,nosuid 1 2
     ```
   - For the Concentrator:
     ```
     /dev/mapper/VolGroup01-concroot /var/netwitness/concentrator ext4
     defaults,noatime,nosuid 1 2
     /dev/mapper/VolGroup01-sessiondb /var/netwitness/concentrator/sessiondb
     xfs defaults,nosuid,noatime 1 2
     /dev/mapper/VolGroup01-index /var/netwitness/concentrator/index xfs
     defaults,noatime,nosuid 1 2
     ```

```
/dev/mapper/VolGroup01-metadb /var/netwitness/concentrator/metadb xfs
defaults,noatime,nosuid 1 2
```

- For the Archiver:
  ```
  /dev/mapper/VolGroup01-archiver /var/netwitness/archiver xfs
  defaults,nosuid,noatime 1 2
  /dev/mapper/VolGroup02-workbench /var/netwitness/workbench xfs
  defaults,nosuid,noatime 1 2
  ```
- For the Broker:
  ```
  /dev/mapper/VolGroup01-broker /var/netwitness/broker xfs
  defaults,nosuid,noatime 1 2
  ```

Set Up Virtual Hosts in 11.3

There two phases to set up your 11.3 virtual stack as shown in the order below.

- Phase 1 - Set Up NW Server, Event Stream Analysis, Malware Analysis, and Broker or Concentrator Hosts

  > **Note:** For Event Stream Analysis, if you had C2 modules enabled in 10.6.6.x, the modules will enter a warm-up after you upgrade the Event Stream Analysis service to 11.3 and they will not be available until the warm up completes.

- Phase 2 - Set Up The Rest of the Component Hosts

Phase 1 - Set Up NW Server, Event Stream Analysis, Malware Analysis, and Broker or Concentrator Hosts

Task 1 - Set Up 11.3 NetWitness Server

Follow the instructions under Set Up 11.3 NW Server Host.

Task 2 - Set Up 11.3 ESA

> **Caution:** If you had C2 modules enabled in 10.6.6.x, the modules will enter a warm-up after you upgrade the Event Stream Analysis service to 11.3 and they will not be available until the warm up completes.

Follow the instructions under Set Up 11.3 Component Host to set up your ESA hosts.

1. Set up your primary ESA host through the Setup program and install **ESA Primary** on the host in the user interface on the **Admin Hosts** view.

   > **Note:** If you have multiple ESA hosts in your enterprise, you must upgrade the ESA Primary host, where all the `mongodb` (Mongo Database) backup tar files are located, first, before you upgrade ESA Secondary hosts.

2. (Conditional) If you have a secondary ESA host, set it up through the Setup program and install **ESA Secondary** on the host in the user interface on the **Admin Hosts** view.

Task 3 - Set Up 11.3 Malware Analysis

Follow the instructions under Set Up 11.3 Component Host.

Task 4 - Set Up 11.3 Broker or Concentrator

Follow the instructions under Set Up 11.3 Component Host.

Note: If you do not have a Broker, upgrade your Concentrator hosts. The 11.3 NW Server cannot communicate with 10.6.6.x core services for the new Investigate functionality. This is why you must upgrade the Broker or Concentrator hosts in Phase 1.

Phase 2 - Set Up The Rest of the Component Hosts

See Appendix B. Stopping and Restarting Data Capture and Aggregation for instructions on how to stop and restart data capture and aggregation when upgrading the Decoder, Concentrator, and Log Collection hosts.

Decoder and Concentrator Hosts

1. Stop data capture and aggregation.
2. Complete the steps in Set Up 11.3 Component Host.
3. Restart data capture and aggregation.

Log Decoder Host

1. Make sure you have prepared the Log Collector as described in the "Log Collectors (LC) and Virtual Log Collectors (VLCs): Run prepare-for-migrate.sh" in the **Backup Instructions**.
2. Stop data capture on the Log Decoder.
3. Complete the steps in Set Up 11.3 Component Host.
4. Restart data capture on Log Decoder.

   Note: After you upgrade, you will restart log collection after completing the Task 34 - Update Incident Rules Identified in the Domain Matching Conditions Upgrade Preparation Task in the **Post Upgrade Tasks**

Virtual Log Collector Host

1. Make sure you have prepared the Virtual Log Collector as described in the "Log Collectors (LC) and Virtual Log Collectors (VLCs): Run prepare-for-migrate.sh" in the **Backup Instructions**.
2. Back up your 10.6.6.x VLC by editing the `all-systems` file on host where you performed the backup.
   a. Make sure your `all-systems` file contents has this information before you perform this step.
      ```
      vlc,<host-name>,<IP-address>,<UUID>,10.6.6.x
      ```
   b. Run the following command to create backup.
      ```
      ./nw-backup.sh -u
      ```
      See Backup Instructions for detailed procedures on how to back up the host.
3. Make sure the backup host contains the VLC backup in the following format.
   ```
   <hostname>-<IPaddress>-root.tar.gz
   ```

```
<hostname>-<IPaddress>-root.tar.gz.sha256
<hostname>-<IPaddress>-backup.tar.gz
<hostname>-<IPaddress>-backup.tar.gz.sha256
<hostname-IPaddress>-network.info.txt
all-systems-master-copy
```

4. Power off the 10.6.6.x VLC so that a new 11.3 VM can be created with the same network configuration.

5. Deploy a fresh Component Host using the 11.3 NetWitness Platform ova.

6. Connect to the VM console of the new VLC.

7. Update the network configuration to be the same as the 10.6.6.x VLC.
   This information is stored in the `<hostname-IPaddress>-network.info.txt` 10.6.6.x VLC backup file.

   Note: Make sure IPv6 is disabled.

   a. Edit the `/etc/sysconfig/network-scripts/ifcfg-eth0` file and update the settings.
      Contents of `ifcfg-eth0` should be as follows.

      ```
      TYPE=Ethernet
      DEFROUTE=yes
      NAME=eth0
      UUID=<uuid>
      DEVICE=eth0
      DNS1=<nameserver from <hostname>-<ipaddress>-network-info.txt>
      DNS2=<nameserver from <hostname>-<ipaddress>-network-info.txt>
      BOOTPROTO=static
      IPADDR=<ipaddress from <hostname>-<ipaddress>-network-info.txt>
      NETMASK=<netmask from <hostname>-<ipaddress>-network-info.txt>
      GATEWAY=<gateway from <hostname>-<ipaddress>-network-info.txt>
      NM_CONTROLLED=no
      ONBOOT=yes
      ```

   b. Submit the following command string.

      ```
      systemctl restart network.service
      ```

8. Create the backup directory.

   ```
   # mkdir -p /var/netwitness/database/nw-backup/
   ```

9. Copy the backup from the backup host from `/var/netwitness/database/nw-backup` to the new VLC in the `/var/netwitness/database/nw-backup` directory.

10. Complete the steps 2 through 12 inclusive in Set Up 11.3 Component Host for the rest of the NetWitness Platform components . Make sure that you select **Log Collector** for the service in step 12.

Set Up 11.3 NW Server Host

Make sure that you have backed up 10.6.6.x data for the SA Server host. You must follow the instructions in Backup Instructions to back up the host.

Caution: Run the backup immediately before upgrading the SA Server to 11.3 so that the data is as recent as possible. You must create the **all-systems** file before you upgrade the SA Server because you cannot do this after the SA Server has been upgraded to 11.3.

Complete the following steps to set up the 11.3 NW Server host.

1. Log in to 11.3 NW Server VM's console and run the `nwsetup-tui` command.
   This initiates the Setup program and the EULA is displayed.

   Note: 1.) When you navigate through the Setup program prompts, use the down and up arrows to move among fields, use Tab key to move to and from commands (such as **<Yes>**, **<No>**, **<OK>**, and **<Cancel>**. Press the Enter key 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 access the host.

2. Tab to **Accept** and press **Enter**.

   The **Is this the host you want for your 11.3 NW Server** prompt is displayed.

   Caution: If you choose the wrong host for the NW Server and complete the upgrade, you must repeat steps 1 through 11 of Set Up 11.3 NW Server Host to correct this error.

3. Tab to **Yes** and press **Enter**.

   Choose **No** if you already upgraded the NW Server to 11.3.
   The **Install or Upgrade** prompt is displayed.

4. Use down arrow to select **2 Upgrade (From Previous Vers.)**, tab to **OK**, and press **Enter**.

   The **Backup** path prompt is displayed.

   Caution: The backup path in the following prompt must be the same as the path in which your backup is stored. For example, the backup script assigns **/var/netwitness/database/nw-backup** as the default path. If you used the default backup path during backup and did not change it subsequently, you must keep **/var/netwitness/database/nw-backup** as the path in the following prompt.

5. Tab to **OK** and press **Enter** if want to keep this path. If not, edit the path, tab to **OK** and press **Enter** to change it.
   This table lists the backup and restore paths by host/service
   .

Host	Backup Path	Restore Path
Malware	`/var/lib/rsamlware/nw-backup`	`/var/netwitness/malware_analytics_server/nw-backup/restore`

Host	Backup Path	Restore Path
Event Stream Analysis	`/opt/rsa/database/nw-backup`	`/var/netwitness/database/nw-backup/restore`
NW Server	`/var/netwitness/database/nw-backup`	`/var/netwitness/restore`
All Other Hosts	`/var/netwitness/database/nw-backup`	`/var/netwitness/database/nw-backup/restore`

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 { } [ ] ( ) / \ ' " ` ~ ; : .< > -

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

   The **Deployment Password** prompt is displayed.

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

   The **Update Repository** prompt is displayed.
   You must use the same repo that you used for the NW Server hosts for all hosts.

8. Use the down and up arrows to select **2 An External Repo (on an externally-managed server)**.

   The **External Update Repo URl** prompt is displayed.

   Refer to Appendix D. Create External Repository for instructions. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

9. Enter the base URL of the NetWitness Platform external repo (for example, **http:/testserver/netwitness-repo**)and click **OK**.

   The **Disable** or use standard **Firewall** configuration prompt is displayed.

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

    - If you select **Yes**, confirm your selection or **No** to use the standard firewall configuration.

The **Install** or **Upgrade** prompt is displayed (**Recover** does not apply to the installation. It is for 11.3 Disaster Recovery).

11. Select 1 **Upgrade Now**, tab to **OK**, and press Enter.

    When **Installation complete** is displayed, you have upgraded the 10.6.6.x SA Server to the 11.3 NW Server.

    Note: Ignore the hash code errors similar to the errors shown in the following screen shot 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.

12. Complete the Post Upgrade Tasks before you upgrade any of the Component Hosts to 11.3.

Set Up 11.3 Component Host

Make sure that you Back up your 10.6.6.x data for the host. **You must follow the instructions in** Backup Instructions **to back up the host.**

Caution: Run the backup immediately before upgrading the host to 11.3 so that the data is as recent as possible.

Complete the following steps to set up an 11.3 Component Host.

1. Log in to 11.3 Component Host VM console and run the `nwsetup-tui` command.
   This initiates the Setup program and the EULA is displayed.
2. Tab to **Accept** and press **Enter**.

   The **Is this the host you want for your 11.3 NW Server** prompt is displayed.

   Caution: If you choose the wrong the host for the NW Server and complete the upgrade, you must repeat steps 1 through 11 of Set Up 11.3 NW Server Host to correct this error.
3. Tab to **No** and press **Enter**.

   The **Install** or **Upgrade** prompt is displayed (**Recover** does not apply to the installation. It is for 11.3 Disaster Recovery).
4. Use down arrow to select **2 Upgrade (From Previous Vers.)**, tab to **OK**, and press **Enter**.

   The **Backup** path prompt is displayed.
5. Tab to **OK** and press **Enter** if want to keep this path. If not, edit the path, tab to **OK** and press **Enter** to change it.

   This table lists the backup and restore paths by host/service.

Host	Backup Path	Restore Path
Malware	`/var/lib/rsamlware/nw-backup`	`/var/netwitness/malware_analytics_server/nw-backup/restore`
Event Stream Analysis	`/opt/rsa/database/nw-backup`	`/var/netwitness/database/nw-backup/restore`
NW Server	`/var/netwitness/database/nw-backup`	`/var/netwitness/restore`
All Other Hosts	`/var/netwitness/database/nw-backup`	`/var/netwitness/database/nw-backup/restore`

The **Deployment Password** prompt is displayed.

> **Note:** You must use the same deployment password that you used when you upgraded the NW Server.

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

   The **Update Repository** prompt is displayed.

7. Use the down and up arrows to select **2 An External Repo (on an externally-managed server)**, tab to **OK**, and press **Enter**.

   The **External Update Repo URL** prompt is displayed.
   The repositories give you access RSA updates and CentOS updates.

8. Enter the base URL of the NetWitness Platform external repo (for example, **http://testserver/netwitness-repo**)and click **OK**. Refer to Appendix D. Create External Repository for instructions on how to create this repo and its external repo URL so you can enter it in the following prompt.

   The **NW Server IP Address** is displayed.

9. Type the IP address of the NW Server, tab to **OK**, and press **Enter**.

   The **Disable** or use standard **Firewall** configuration prompt is displayed.

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

    - If you select **Yes**, confirm your selection.

    - If you select **No**, the standard firewall configuration is applied.

The **Install** or **Upgrade** prompt is displayed (**Recover** does not apply to the installation. It is for 11.3 Disaster Recovery).

11. Select 1 **Upgrade Now**, tab to **OK**, and press **Enter**.

    When **Installation complete** is displayed, you have upgraded the host to the 11.3.

12. Install the service on this host:

    a. Log into NetWitness Platform and click **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. Click on 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 service (for example, **ESA Primary**) and click **Install**.

    You have completed the upgrade of the Component Host in NetWitness Platform

    > **Note:** When you upgrade a Respond host from 10.6.6.x to 11.3, it takes a period of time for Respond to come back online. This is caused by Respond indexing data while it is restored. The size of the data in the Mongo database will determine the time.

Update or Install Legacy Windows Collection

IMPORTANT: If you are currently running NW 11.2.0 with a Windows Legacy Collector (WLC) in your environment and are planning on upgrading to NW 11.4.x, you must first upgrade all components including WLC to 11.2.1 or 11.3, and then you can upgrade all components and WLC to NW 11.4.x.

Refer to the *Windows Legacy Collection Guide for RSA NetWitness 11.x* (https://community.rsa.com/docs/DOC-103165).

Note: After you update or install Windows Legacy Collection, reboot the system to ensure that Log Collection functions correctly.

Post Upgrade Tasks

You must complete the following tasks after you upgrade your hosts from 10.6.6.x to 11.3.0.2. These tasks are organized by the following categories.

- General
- Event Stream Analysis
- Investigate
- Log Collection
- Log Decoder and Decoder
- Malware Analysis
- Reporting Engine
- Respond
- Warehouse
- RSA Archer® Cyber Incident & Breach Response
- RSA NetWitness® Endpoint
- RSA NetWitness® UEBA
- NetWitness Platform Integrations

Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

General

General tasks apply to all customers regardless of the NetWitness Components you deploy.

Task 1 - Remove Backup-Related Files from Host Local Directories

Caution: 1) You must retain a copy of all backup files on an external host. 2) Validate that you have all your data from your backup restored in 11.3.0.2 before you remove the backup-related files from the local directories on your 11.3.0.2 hosts.

Backup `.tar` Files

After all the hosts are upgraded to 11.3.0.2, you must remove:

- The backup files from the local directories on the hosts.
- All the files from `nw-backup` and `restore` directories on the hosts.

Host	Backup Path	Restore Path
Malware	`/var/lib/rsamlware/nw-backup`	`/var/netwitness/malware_analytics_server/nw-backup/restore`

Host	Backup Path	Restore Path
Event Stream Analysis	`/opt/rsa/database/nw-backup`	`/var/netwitness/database/nw-backup/restore`
NW Server	`/var/netwitness/database/nw-backup`	`/var/netwitness/restore`
All Other Hosts	`/var/netwitness/database/nw-backup`	`/var/netwitness/database/nw-backup/restore`

Task 2 - Make Sure Port 15671 Is Configured Correctly

Port 15671 is new in 11.x, but you do not need to open a firewall for this port. Make sure that port 15671, and all ports, are configured as shown in the "Network Architecture and Ports" topic in the *Deployment Guide*.

(Optional) Task 3 - Reissue Certificates for Your Hosts

In 11.3.0.2, RSA introduced a `cert-reissue` command line command and its arguments to reissue host certificates. After you update all your hosts to 11.3.0.2, you should reissue certificates for all of them as soon as possible to avoid having them expire. If the certificates expire, this places your NetWitness deployment in a bad security state. Refer to the *Security Configuration Guide* for instructions on how to use the `cert-reissue` command.

(Conditional) Task 4 - Restore Custom Analysts Roles

If you had custom analyst roles in 10.6.6.x, you must reinstate them in 11.3.0.2. See "Add a Role and Assign Permissions" in the *System Security and User Management Guide*.

(Conditional) Task 5 - If NetWitness Platform Has No Web Access, Upload Response `.bin` File Again (License Server)

If your NetWitness Deployment does not have Internet access, after you upgrade to 11.3.0.2, you must upload the response `.bin` file again to view the license information in the **ADMIN** > **System** > **Licensing** view in the NetWitness Platform User Interface. See “Upload an Offline Capability Response to NetWitness Platform” in the *Licensing Management Guide* for instructions.

Task 6 - Migrate Active Directory (AD)

The first time you log into the NetWitness Platform 11.3.0.2 User Interface, you must click on the Migrate button to complete the migration of AD.

1. Log in to NetWitness Platform 11.3.0.2 with your `admin user` credentials.
2. Go to **ADMIN** > **SECURITY** and click the **Settings** tab.
   The following dialog is displayed.

3. Click **Migrate**.
   The migration is complete and the dialog closes.

Task 7 - Modify Migrated AD Configuration to Upload Certificate

If you authenticated through Active Directory (AD) server, and enabled SSL for the AD connection in 10.6.6.x, you must modify the migrated AD configuration to upload the Active Directory server certificate.

Complete the following procedure to modify the migrated AD configuration to upload the certificate.

1. Log in to **NetWitness Platform** 11.3.0.2, go to **ADMIN** > **Security** and click the **Settings** tab.
2. Under **Active Directory Settings**, select an AD configuration and click ✎.
   The Edit Configuration dialog is displayed.
3. Go to the **Certificate File** field, click **Browse**, and select a certificate from your network.
4. Click **Save**.

Task 8 - Reconfigure Pluggable Authentication Module (PAM) in 11.3.0.2

You must reconfigure PAM after you upgrade to 11.3.0.2.

These are the high-level tasks you must complete to configure PAM login capability:

1. Configure and test the PAM module.
2. Configure and test the NSS service.
3. Enable PAM in NetWitness Server.
4. Create group mappings in NetWitness Server.

See "Configure PAM Login Capability" in the *System Security and User Management Guide* for the detailed instructions.

You can refer to your 10.6.6.x PAM configuration files in the **/etc** directory in the your 10.6.6.x backup data for guidance.

Task 9 - Restore NTP Servers

You must use the NetWitness Platform 11.3.0.2 user interface to restore NTP server configurations. NTP server configuration information is located in `$BUPATH/restore/etc/ntp.conf`. Use the NTP server name and hostname from the `/var/netwitness/restore/etc/ntp.conf` file. See "Configure NTP Servers" in the *System Configuration Guide* for detailed instructions on how to add NTP servers.

Task 10 - Restore Licenses for Environments without FlexNet Operations-On Demand Access

If your environment does not have access to FlexNet Operations-On Demand, you need to re-download your NetWitness Platform licenses. Refer to "Step 1. Register the NetWitness Server" in the *Licensing Management Guide* for instructions on how to re-download licenses.

(Conditional) Task 11 - If You Disabled Standard Firewall Config - Add Custom IPtables

During the upgrade, you have the option of using these rules or disabling them. If you disabled them, follow these instructions as a baseline to create user-managed firewall rule sets on all the hosts for which you disabled the standard firewall configuration.

> **Note:** You can refer to the `$BUPATH/restore/etc/sysconfig/iptables` and `$BUPATH/restore/etc/sysconfig/ip6tables` in the restore folder of the backup to update the `ip6tables` and `iptables` files. The `/etc/netwitness/firewall.cfg` file contains the standard `iptables` firewall rules.

1. SSH to each host and log in with your root credentials.
2. Update the following `ip6tables` and `iptables` files with the custom firewall rules.
   ```
   /etc/sysconfig/iptables
   /etc/sysconfig/ip6tables
   ```
3. Reload the `iptables` and `ip6tables` services.
   ```
   service iptables reload
   service ip6tables reload
   ```

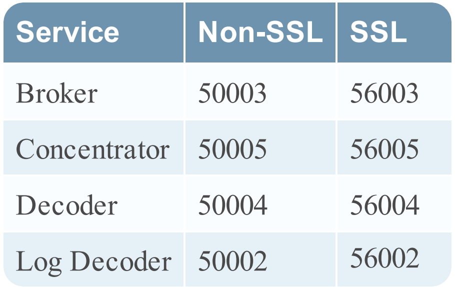
(Conditional) Task 12 - Specify SSL Ports If You Never Set Up Trusted Connections

Complete this task only if you never set up Trusted Connections. You would not have set up Trusted Connections if you:

- Used the base ISO image for 10.3.2 or earlier.
- Updated the system using RPMs exclusively to get to 10.6.6.x.

NetWitness Platform 11.3.0.2 cannot communicate with the Core services if you are using a non-SSL port 500XX. You must update the Core service ports to an SSL port in the Edit Service dialog.

1. Log in to **NetWitness Platform** and go to **ADMIN** > **Services**.
2. Select each core service and change the ports from Non-SSL to SSL ports.



Service	Non-SSL	SSL
Broker	50003	56003
Concentrator	50005	56005
Decoder	50004	56004
Log Decoder	50002	56002

3. Click ✎ (Edit icon) from the SERVICES view toolbar.
   The Edit Service dialog is displayed.
4. Change the port from Non-SSL to SSL as shown in the table and click **Save** (for example, change the Broker port from 50003 to 56003).

Task 13 (Conditional) Reconfigure Public Key Infrastructure (PKI) Certificates

If you had PKI keystores that contained server certificates with private keys and the truststores that contain the trusted CA certificates, you must reconfigure after you upgrade to 11.3.0.2. For instructions on how to configure PKI authentication, see the "*System Security and User Management Guide*".

Event Stream Analysis (ESA)

Task 14 - Reconfigure Automated Threat Detection for ESA

If you used Automated Threat Detection in 10.6.6.x, you must complete the following steps to reconfigure it using the ESA Analytics service in 11.3.0.2.

1. Log in to **NetWitness Platform** and go to **ADMIN** > **System** > **ESA Analytics**.
   The Suspicious Domains modules, Command and Control (C2) for Network data and C2 for Logs, require a whitelist named “**domains_whitelist**”.
2. Conditional - If your previous Automated Threat Detection whitelist appears on the **Lists** tab of the Context Hub service:
   a. Go to **ADMIN** > **Services**, select the Context Hub service, in the action commands (⚙ ⌄) drop-down menu, click **View** > **Config** > **Lists** tab.
   b. Rename your old Automated Threat Detection whitelist to “`domains_whitelist`” for the Suspicious Domains module.

For more information, see the *Automated Threat Detection Guide* and the "Configure ESA Analytics" section of the *ESA Configuration Guide*.

Task 15 - Verify the String Array Type Meta Keys on the ESA Correlation Service and Next Steps

1. Verify that your existing string array meta keys migrated to the ESA Correlation Service.
   a. Go to **ADMIN** > **Services**, and in the Services view, select an ESA Correlation service and then select ⚙ ⌄ > **View** > **Explore**.
   b. In the Explore view node list for an ESA Correlation service, select **correlation** > **stream**.
   c. Verify that the previously recorded **`ArrayFieldNames`** values are the same as in the **`multi-valued`** parameter. The **`multi-valued`** parameter shows the string array meta keys currently used for your ESA rules.
2. Your ESA rules continue to work, but if you are using Live, UEBA, or Endpoint rules, follow the Task 18 - (Conditional) Update the Multi-Valued and Single-Valued Parameter Meta Keys for the latest Endpoint, UEBA, and RSA Live Content Rules procedure.

To support Endpoint, UEBA, and RSA Live content, a data change from single-value (string) to multi-value (string array) is required for several meta keys within the ESA Correlation service for 11.3 and later. Additional string meta keys are also required.

If the meta keys used for your ESA rules are different from the required default multi-value meta keys, your ESA rules continue to work, but you should update your ESA rules to use the required meta keys as soon as possible to ensure that your rules continue to deploy properly.

The ESA Correlation service has the following multi-valued (string array) and single-valued (string) parameters:

- **`multi-valued`** - Shows the string array meta keys currently used for your ESA rules. For an upgrade to NetWitness Platform 11.3.0.2, it shows the existing string array meta keys before the upgrade. (This parameter is equivalent to the Event Stream Analysis service ArrayFieldNames parameter in NetWitness Platform versions 11.2 and earlier.)
- **`single-valued`** - Shows the string meta keys currently used for your ESA rules. For an upgrade to NetWitness Platform 11.3.0.2 from versions prior to 11.3.0.2, this parameter value is empty.
- **`default-multi-valued`** - Shows the required string array meta keys for the latest version.
- **`default-single-valued`** - Shows the required string meta keys for the latest version.

Note: If you have the same value in the `single-valued` and `multi-valued` parameter fields, the `single-valued` meta key value takes precedence over the `multi-valued` meta key value.

To use the latest Endpoint, UEBA, and Live content rules, you must update the **`multi-valued`** parameter on the ESA Correlation service to include all of the meta keys in the **`default-multi-valued`** field. You must also update the **`single-valued`** parameter field to include all of the meta keys in the **`default-single-valued`** field. To do this, follow the Task 18 - (Conditional) Update the Multi-Valued and Single-Valued Parameter Meta Keys for the latest Endpoint, UEBA, and RSA Live Content Rules procedure.

Caution: Any changes that you make to the `multi-valued` parameter may cause an error when you deploy your existing rules. You can update the `multi-valued` parameter, resync your meta keys, and update the ESA rules at your convenience. You may want to add a couple meta keys at a time to reduce the number of reported errors.

Note: If you are using multiple ESA Correlation services, the `multi-valued` and `single-valued` parameters should be the same on each ESA Correlation service.

Task 16 (Conditional) Update RSA Live ESA Rules with Meta Type Changes from String to Array

The following table lists ESA rules from RSA Live that had meta key type changes from String to Array in NetWitness Platform 11.3.0.2 and later.

Rule #	Rule Name	Array Type Meta Keys in 11.3.x
1	RIG Exploit Kit	threat_category
2	AWS Critical VM Modified	alert
3	Multiple Successful Logins from Multiple Diff Src to Same Dest	host.src and host.dst
4	Multiple Successful Logins from Multiple Diff Src to Diff Dest	host.src and host.dst

Rule #	Rule Name	Array Type Meta Keys in 11.3.x
5	Multiple Failed Logins from Multiple Diff Sources to Same Dest	host.src and host.dst
6	Multiple Failed Logins from Multiple Users to Same Destination	host.src and host.dst
7	User Login Baseline	host.src and host.dst

1. If you:
   - Deployed these rules before version 11.3.0.2:
     a. Note any rule parameters that you have changed so you can adjust the rules for your environment.
     b. Download the updated rules from RSA Live.
     c. Reapply any changes to the default rule parameters and deploy the rules.
     (For instructions, see “Download RSA Live ESA Rules” in the *Alerting with ESA Correlation Rules User Guide*.)
   - Are deploying these rules for the first time in version 11.3.0.2, follow the customization directions within the ESA rule descriptions. Rules 3 to 7 in the above table require that the Context Hub lists for `User_Whitelist`, `Host_Whitelist` and `IP_Whitelist` to be added as enrichments to ESA. (See “Configure Context Hub List as an Enrichment Source” in the *Alerting with ESA Correlation Rules User Guide*.)
2. Deploy the ESA rule deployment that contains these rules. (See “ESA Rule Deployment Steps” in the *Alerting with ESA Correlation Rules User Guide*.)

Task 17 Verify the ESA Rule Deployments

After you upgrade to 11.3.0.2, verify your ESA rule deployments. For every ESA host, a new deployment is created in the format “`<ESA-Hostname>` – ESA Correlation”.

1. Make sure that a new deployment was created.
2. Make sure that the new deployment contains an ESA Correlation service, data sources, and rules for all previous deployments on that ESA host.
3. Make sure that the ESA Correlation service has status of “Deployed”.
4. If the ESA rule status shows “Disabled” or shows the ❗ icon in the Status column, you need to determine the issue to fix the rule. If a disabled rule has an error message, it now shows ❗ in the Status field. You can hover over the rule to view the error message tooltip without going to the error log. (The ESA Correlation Service log files are located at `/var/log/netwitness/correlation-server/correlation-server.log`)
   See ESA Troubleshooting Information.

5. Check the status of the overall ESA rule deployment. If the ESA rule deployment is successful, the ESA Services and ESA Rules show a status of "Deployed," the Data Sources show a green circle, and the **Deploy Now** button is disabled.

For a detailed example, see the *ESA Configuration Guide*. For Deployment information, see "ESA Rule Deployment Steps" in the *Alerting with ESA Correlation Rules User Guide*. For troubleshooting information, see the *Alerting with ESA Correlation Rules User Guide*.

Task 18 - (Conditional) Update the Multi-Valued and Single-Valued Parameter Meta Keys for the latest Endpoint, UEBA, and RSA Live Content Rules

To use the latest Endpoint, UEBA, and Live content rules, you must update the **multi-valued** parameter field on the ESA Correlation service to include all of the meta keys in the **default-multi-valued** field. You must also update the **single-valued** parameter field to include all of the meta keys in the **default-single-valued** field.

Caution: Any changes that you make to the `multi-valued` parameter may cause an error when you deploy your existing rules. You can update the `multi-valued` parameter, resync your meta keys, and update the ESA rules at your convenience. You may want to add a couple meta keys at a time to reduce the number of reported errors.

Note: If you see a warning message in the ESA Correlation server error logs that means there is a difference between the default-multi-valued parameter and multi-valued parameter meta key values, the new Endpoint, UEBA, and Live content rules will not work. Completing this procedure should fix the issue. For example warning messages, see Example ESA Correlation Server Warning Message for Missing Meta Keys.

1. After an upgrade to 11.3.0.2 or later, go to **ADMIN** > **Services**, and in the Services view, select an ESA Correlation service and then select ⚙ ⌄ > **View** > **Explore**.
2. In the Explore view node list for the ESA Correlation service, select **correlation** > **stream**.
3. Compare the **`multi-valued`** parameter meta keys with the required **`default-multi-valued`** meta keys. Copy and paste the missing string array meta keys from the **`default-multi-valued`** parameter to the **`multi-valued`** parameter. (You may want to copy only a couple meta keys at one time to reduce the number of reported errors).
4. Copy and paste the string meta keys from the **`default-single-valued`** parameter to the **`single-valued`** parameter.
5. Apply the changes on the ESA Correlation service:
6. Go to **CONFIGURE** > **ESA Rules** and click the **Settings** tab.
   - In the Meta Key References, click the Meta Re-Sync (Refresh) icon (⟳).
   - If you have multiple ESA Correlation services, make the same meta key changes on each ESA Correlation service.

7. If you are using any of the **`default-multi-valued`** or **`default-single-valued`** meta keys in your ESA Advanced rules, update the rule syntax. See also Task 19 - (Conditional) Adjust Custom ESA Rule Builder and ESA Advanced Rules .
8. If you used any meta keys in the ESA rule notification templates from the **`default-multi-valued`** parameter list, update the templates with the meta key changes. See "Configure Global Notification Templates" in the *System Configuration Guide*.
9. Deploy your ESA rule deployments.
10. Check your rules for error messages in the ESA Rules section of the ESA rule Deployment or check the ESA Correlation error logs for errors.
    - To access the error messages in the ESA rule deployment, go to **CONFIGURE** > **ESA Rules** > **Rules** tab, select a deployment in the options panel on the left, and go to the **ESA Rules** section.
    - To access the ESA Correlation service logs, you can use SSH to get in the system and go to: `/var/log/netwitness/correlation-server/correlation-server.log`.

Task 19 - (Conditional) Adjust Custom ESA Rule Builder and ESA Advanced Rules

Update your ESA Rule Builder and ESA Advanced rules to work with the string and string array meta keys listed in the `default-multi-valued` and `default-single valued` parameter fields for the ESA Correlation service. You can add additional meta keys to the `multi-valued` and `single-valued` parameters.

For example, if you use ec.outcome as a single-valued meta key in your ESA rule as shown below:

```
@RSAAlert
SELECT * FROM Event((ec_outcome IN ( 'Success' )))
.win:time_length_batch(2 Minutes, 2)
HAVING COUNT(*) >= 2;
```

If you add ec.outcome to the **`multi-valued`** parameter field, you need to update your rule as shown below:

```
@RSAAlert
SELECT * FROM Event(( 'Success' = ANY( ec_outcome ) ))
.win:time_length_batch(2 Minutes, 2)
HAVING COUNT(*) >= 2;
```

For more information, see “Configure Meta Keys as Arrays in ESA Correlation Rule Values” in the *ESA Configuration Guide*.

ESA Troubleshooting Information

Note: To avoid unnecessary processing overhead, the Ignore Case option has been removed from the ESA Rule Builder - Build a Statement dialog for meta keys that do not contain text data values. During the upgrade to 11.3.0.2, NetWitness Platform does not modify existing rules for the Ignore Case option. If an existing Rule Builder rule has the Ignore Case option selected for a meta key that no longer has the option available, an error occurs if you try to edit the statement and try to save it again without clearing the checkbox.

To support Endpoint and UEBA content as well as changes to ESA rules from Live, a data change from single-value (string) to multi-value (string array) is required for several meta keys within the ESA Correlation service. In NetWitness Platform 11.3.0.2 and later, ESA automatically adjusts the operator in the rule statement when there is a change from string to string array, but you still may need to make manual adjustments to adjust for the string array changes.

To change the string type meta keys to string array type meta keys manually in 11.3.0.2 and later, see “Configure Meta Keys as Arrays in ESA Correlation Rule Values” in the *ESA Configuration Guide*.

To use the latest Endpoint, UEBA, and Live content rules, the following default **multi-valued** meta keys are required on the ESA Correlation service in NetWitness Platform version 11.3.0.2 and later:

```
action , alert , alert.id , alias.host , alias.ip , alias.ipv6 , analysis.file
, analysis.service , analysis.session , boc , browserprint , cert.thumbprint ,
checksum , checksum.all , checksum.dst , checksum.src , client.all , content ,
context , context.all , context.dst , context.src , dir.path , dir.path.dst ,
dir.path.src , directory , directory.all , directory.dst , directory.src ,
email , email.dst , email.src , eoc , feed.category , feed.desc , feed.name ,
file.cat , file.cat.dst , file.cat.src , filename.dst , filename.src , filter
, function , host.all , host.dst , host.orig , host.src , host.state ,
inv.category , inv.context , ioc , ip.orig , ipv6.orig , netname , OS , param
, param.dst , param.src , registry.key , registry.value , risk , risk.info ,
risk.suspicious , risk.warning , threat.category , threat.desc , threat.source
, user.agent , username
```

The following default **single-valued** meta keys are also required on the ESA Correlation service in NetWitness Platform 11.3.0.2 and later:

```
accesses , context.target , file.attributes , logon.type.desc , packets
```

If you used any meta keys in the ESA rule notification templates from the Required String Array or String Meta Keys list, update the templates with the meta key changes. See "Configure Global Notification Templates" in the *System Configuration Guide*.

Note: Advanced EPL rules may get disabled and are not automatically updated so they must be fixed manually.

For additional troubleshooting information, see “Troubleshoot ESA” in the *Alerting with ESA Correlation Rules User Guide for RSA NetWitness Platform*.

Example ESA Correlation Server Warning Message for Missing Meta Keys

If you see a warning message in the ESA Correlation server error logs that means there is a difference between the `default-multi-valued` parameter and `multi-valued parameter` meta key values, the new Endpoint, UEBA, and Live content rules will not work. Completing the Task 18 - (Conditional) Update the Multi-Valued and Single-Valued Parameter Meta Keys for the latest Endpoint, UEBA, and RSA Live Content Rules procedure should fix the issue.

Multi-Valued Warning Message Example

```
2019-08-23 08:55:07,602 [ deployment-0] WARN Stream|[alert, alert_id,
browserprint, cert_thumbprint, checksum, checksum_all, checksum_dst, checksum_
src, client_all, content, context, context_all, context_dst, context_src, dir_
path, dir_path_dst, dir_path_src, directory, directory_all, directory_dst,
directory_src, email_dst, email_src, feed_category, feed_desc, feed_name,
file_cat, file_cat_dst, file_cat_src, filename_dst, filename_src, filter,
function, host_all, host_dst, host_orig, host_src, host_state, ip_orig, ipv6_
orig, OS, param, param_dst, param_src, registry_key, registry_value, risk,
risk_info, risk_suspicious, risk_warning, threat_category, threat_desc,
threat_source, user_agent] are still MISSING from multi-valued
```

Single Value Warning Message Example

```
2019-08-23 08:55:07,602 [ deployment-0] WARN Stream|[accesses, context_target,
file_attributes, logon_type_desc, packets] are still MISSING from single-
valued
```

Investigate

Task 20 - Make Sure Customized User Roles Have `Investigate-server` Permissions for Event Analysis Access

After you upgrade to 11.3.0.2, any customized user role does not have `investigate-server.*` permission enabled by default. Complete the following procedure to make sure that the appropriate user roles have permission to access Event Analysis.

1. Log in to NetWitness Platform 11.3.0.2 with your `Admin user` credentials and go to **ADMIN** > **Security**.
2. Click the **Roles** tab.
3. Select the roles that need `investigate-server.*` permissions and click ✎ (Edit icon).
4. Select the **Investigate-server** tab under under **Permissions**.
5. If the **investigate-server** checkbox is not set, set it for the Roles that require Event Analysis access.
6. Click **Save**.

Log Collection

Task 21 - Reset Stable System Values for Log Collector after Upgrade

Complete the following tasks to reset stable system values for the Log Collector after you upgrade it to 11.3.0.2 to ensure that all collection protocols resume normal operation.

Reset Stable System Values for the Lockbox

The Lockbox stores the key for encrypting event source and other passwords for the Log Collector. The Log Collector service cannot open the Lockbox because of the stable system value changes. As a result, you must Reset Stable System Values for the Lockbox . See "Log Collection: Step 3. Set Up a Lockbox" in the *Log Collection Configuration Guide* for instructions.

Update Log Collector Service RabbitMQ User Account Password

If the `logcollector` service RabbitMQ user account password was changed, you must reenter it after the 11.3.0.2 upgrade.

1. Log in to **NetWitness Platform** and go to **ADMIN** > **Services**.
2. Select the Log Collector service.
3. Click ⚙ (Actions) > **View** > **Explore**.
4. Right click `event-broker` > **Properties** .
5. Select `passwd` from the drop-down list, enter `newpw=><newpassword>` in Parameters (where `<newpassword>` is the RabbitMQ user account password), and click **Send**.

Task 22 - (Conditional) Update SSHD Configuration after Upgrade with Older Windows and UNIX SFTP Agents

This task applies if you have Log Collection, Log Collector (LC) and or Virtual Log Collector (VLC), with File Collection event sources.

If all the event sources:

- Resume collection after upgrade, you do not need to do anything.
- Do not resume collection after the upgrade, you may have to restore Cipher, MACs and Key Exchange Algorithms to the SSHD configuration from the original LC/VLC. Change the `/etc/ssh/sshd_config` file.
  1. Make the following changes to `/etc/ssh/sshd_config` file.
     a. If the `KexAlgorithms` line:
        - Exists, append “`,diffie-hellman-group1-sha1`” to the file.
        - Does not exist, add “`KexAlgorithms +diffie-hellman-group1-sha1`” line.

b. If the `Ciphers` line:

- Exists, append “`,aes128-cbc`” to the file.
- Does not exist, add the “`Ciphers +aes128-cbc`” line to the file.

2. Restart SSHD service.
3. If collection still fails, edit the `/etc/systemd/system/sshd.service.d/sshd-opts-managed.conf` file and change “`OWB_ALLOW_NON_FIPS=on`” to “`OWB_FIPS_MODE=off`” in the Environment line and restart SSHD service.
4. If collection still fails, contact RSA Customer Support (https://community.rsa.com/docs/DOC-1294).

Task 23 - Enable FIPS Mode

> **Note:** This task is optional for Upgrades from 10.6.6.x with FIPS enabled for Log Collectors, Log Decoders and Network Decoders)

FIPS is enabled on all services except Log Collector, Log Decoder, and Decoder. FIPS cannot be disabled on any services except Log Collector, Log Decoder, and Decoder.

Log Decoder and Decoder

(Conditional) Task 24 - Enable Metadata for GeoIP2 Parser

By default, the GeoIP2 parser generates less metadata than the GeoIP parser did. After updating to 11.3.0.2, if you require any of the additional metadata, you must enable them (once only) for each Decoder. This can also be altered post-upgrade. Note that the `isp` and `org` meta fields usually produce an equivalent value to `domain`.

To enable metadata:

1. Go to **ADMIN** > **Services**.
2. In the **Administration services** view, select a Log Decoder or a Decoder.
3. Click the settings icon (⚙ ⌄) and select **View** > **Config**. The Parsers Configuration panel is displayed, from which you can select **GeoIP2** to enable the desired metadata.

For more information about GeoIP2 parsers, see the "GeoIP2 and GeoIP Parsers" topic in the *Decoder and Log Decoder Configuration Guide*.

Malware Analysis

Task 25 - Enable Threat - Malware Indicators Dashboard

In 11.3.0.2, the 10.6.6.x **Threat -Indicators Dashboard** was renamed to **Threat - Malware Indicators Dashboard**. If you used this dashboard in 10.6.6.x, you must:

1. Enable the **Threat - Malware Indicators Dashboard** in 11.3.0.2.
2. Set datasource for new dashlets.
   See "Dashlets" in RSA Link (https://community.rsa.com/docs/DOC-81463) for a description of Dashlets in the context of NetWitness Platform.

> **Note:** After upgrading to 11.3.0.2, both the Threat-Indicators and the Threat-Malware Indicators dashboards can be displayed in the User Interface. If this is the case, disable the Threat-Indicators dashboard, and enable the Threat-Malware Indicators report charts and dashboard. For information about disabling dashboards, see the "Managing Dashboards" topic in the *NetWitness Getting Started Guide*.

Reporting Engine

(Conditional) Task 26 - Restore the CA certificates for External Syslog Servers for Reporting Engine

You must restore CA certificates after the upgrade from the backup you made prior to the upgrade. The Backup script backs up the 10.6.6.x CA certificates into the `/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.111-0.b15.el6_8.x86_64/jre/lib/security/cacerts` directory.

Complete the following procedure to restore the CA certificates in 11.3.0.2.

1. SSH to the NW Server host.
2. Export the CA certificates.
   ```
   keytool -export -alias <alias_name> -keystorepath_to_keystore_file -rfc -
   file path_to_certificate_file
   ```
3. Copy the CA PEM file into `/etc/pki/nw/trust/import` directory.

(Conditional) Task 27 - Restore External Storage for Reporting Engine

If you have external storage for the Reporting Engine (such as SAN or NAS for storing reports), you must restore the mount you unlinked before the upgrade. See "Reporting Engine: Add Additional Space for Large Reports" in the *Reporting Engine Configuration Guide* for instructions.

Respond

Task 28 - Restore Respond Service Custom Keys

In 10.6.6.x, if you added custom keys for use in the **groupBy** clause, the `alert_rules.json` file was modified. The `alert_rules.json` file contains aggregation rule schema. RSA moved the `alert_rules.json` file to the following new location:
`/var/lib/netwitness/respond-server/scripts`

1. Copy the custom keys from `/opt/rsa/im/fields/alert_rules.json` file in the backup directory.
   This directory is where the `alert_rules.json` file is restored from the 10.6.6.x backup.
2. Go to the `/var/lib/netwitness/respond-server/data/aggregation_rule_schema.json` in 11.3.0.2.
   This is the new file for 11.3.0.2.
3. Edit the `/var/lib/netwitness/respond-server/data/aggregation_rule_schema.json` to include the custom keys you copied in step one.

Task 29 - Restore Customized Respond Service Normalization Scripts

RSA re-factored the Respond service normalization scripts in 11.3.0.2 and moved them to the following new location:
`/var/lib/netwitness/respond-server/scripts`
If you customized these scripts in 10.6.6.x, you must:

1. Go to the to the `/opt/rsa/im/scripts` directory.
   This directory is where the following Respond service normalization scripts are restored from the 10.6.6.x backup.
   `data_privacy_map.js`
   `normalize_alerts.js`
   `normalize_core_alerts.js`
   `normalize_ecat_alerts.js`
   `normalize_ma_alerts.js`
   `normalize_wtd_alerts.js`
   `utils.js`
2. Copy any custom logic from the 10.6.6.x scripts.
3. Go to the `/var/lib/netwitness/respond-server/scripts` directory.
   This directory is where NetWitness Platform 11.3.0.2 stores the re-factored scripts.
4. Edit the new scripts to include the custom logic you copied in step 2 from the 10.6.6.x scripts.
5. Copy any custom logic from `/opt/rsa/im/fields/alert_rules.json` file.
   The `alert_rules.json` file contains aggregation rule schema.

Task 30 - Add Respond Notification Settings for Custom Roles

Respond Notification Setting permissions enable Respond Administrators, Data Privacy Officers, and SOC Managers to access Respond Notification Settings (**CONFIGURE** > **Respond Notifications**), which enable them to send email notifications when incidents are created or updated.

To access these settings, you will need to add additional permissions to your existing built-in NetWitness Platform user roles. You will also need to add permissions to your custom roles. See the "Respond Notification Settings Permissions" topic in the *NetWitness Respond Configuration Guide*. For detailed information about user permissions, see the *System Security and User Management Guide*.

Task 31 - Manually Configure Respond Notification Settings

The Incident Management notification settings in NetWitness Platform 10.6.6.x are different from the Respond notification settings available in 11.3.0.2, so your existing 10.6.6.x settings will not migrate to 11.3.0.2.

NetWitness Respond notification settings enable email notifications to be sent to SOC Managers and the Analyst assigned to an incident when an incident is created or updated.

To manually configure the Respond Notification Settings, go to **CONFIGURE** > **Respond Notifications.** See the "Configure Respond Email Notification Settings" procedure in the *NetWitness Respond Configuration Guide*.

Notification Servers from 10.6.6.x will not display in the Email Server drop-down list. The email servers must be edited and saved in the Global Notification Servers panel (**ADMIN** > **System** > **Global Notifications** > **Server** tab).

1. Log in to **NetWitness Platform** and go to **CONFIGURE** > **Respond Notifications**.
   The Respond Notifications Settings view is displayed. Notice that the email notification servers do not appear in the EMAIL SERVER drop-down list.
2. Click the **Email Server Settings** link.
   You will see the Global Notifications panel.
3. Click the **Servers** tab.
4. For each of your email notification servers:
   a. Select the Email notification server and click ✎ (Edit icon).
   b. In the Define Email Notification Server dialog, click **Save**.
5. Go back to **CONFIGURE** > **Respond Notifications**. Your servers will appear in the **EMAIL SERVER** drop-down list.
   Custom Incident Management notification templates cannot be migrated to 11.3.0.2. No custom templates are supported in 11.3.0.2.

Task 32 - Update Default Incident Rule Group By Values

The following default incident rules now use "Source IP Address" as the Group By value.

- **High Risk Alerts: Reporting Engine**
- **High Risk Alerts: Malware Analysis**
- **High Risk Alerts: ESA**

To update the above default rules, change the Group By value to “Source IP Address.”

> **Note:** If you already updated the Group By values for the default rules listed above in 11.1 or later, you do not have to do it again.

The **High Risk Alerts: NetWitness Endpoint** default incident rule now uses Host Name as the Group By value. If you have NetWitness Endpoint you can use this rule. Change the Group By value of the default NetWitness Endpoint rule to "Host Name."

1. In the **NetWitness Platform** menu, select **CONFIGURE** > **Incident Rules** and click on the rule that you want to update in the **Name** column. The **Incident Rule Details** view is displayed.
2. In the **GROUP BY** field, select the new Group By value from the drop-down list.
3. Click **Save** to update the rule.

To aggregate NetWitness Endpoint alerts based on the File Hash, complete the following steps to clone the default NetWitness Endpoint incident rule and change the Group By value.

1. In the **NetWitness Platform** menu, select **CONFIGURE** > **Incident Rules**. The **Incident Rules List** view is displayed.
2. Select the **High Risk Alerts: NetWitness Endpoint** default incident rule and click **Clone**. You will receive a message that you successfully cloned the selected rule.
3. Change the Name of the rule to an appropriate name, such as High Risk Alerts: NetWitness Endpoint File hash.
4. In the **GROUP BY** field, remove the previous Group By value and add **File MD5 Hash**. It is important that File MD5 Hash is the only Group By value listed.
5. Click **Save** to create the rule.

For detailed information, see the *Respond Configuration Guide*.

Task 33 - Add Group By Field to Incident Rules

The **Group By** field is not required in 10.6.6, but it is required in 11.3.0.2. After you upgrade to 11.3.0.2, some incident rules will not have a **Group By** field, so you must add them to the rules or the rules will not work and they will not create incidents.

Complete the following steps for each incident rule:

1. Log in to NetWitness Platform.
2. Go to **CONFIGURE** > **Incident Rules** and click the link in the Name column for the rule that you want to update.
3. In the Group By field, verify that a Group By value is selected. If not, select a Group By value.

4. Click **Save** to update the rule.
   For information about incident rules, see the *NetWitness Respond Configuration Guide*.

Task 34 - Update Incident Rules Identified in the Domain Matching Conditions Upgrade Preparation Task

Modify the incident rules that you identified in the "Task 4 - Check Aggregation Rules Match Conditions for “Domain” or “Domain for Suspected C&C” in Upgrade Preparation Tasks, which contained Domain or Domain for Suspected C&C in the matching conditions in rule builder.

For each rule that you previously identified:

1. Log in to **NetWitness Platform**, go to **CONFIGURE** > **Incident Rules** and click the link in the Name column for the rule that you want to update.

2. In the **Match Conditions** section, in the blank fields, select **Domain** and **Domain for Suspected CC** in the drop-down list and then select the conditions that you previously identified in the pre-upgrade tasks.

3. Click **Save** to update the rule.
   For information about incident rules, see the *NetWitness Respond Configuration Guide*.

Warehouse

Task 35 - Restore `keytab` Files, Mount NFS, Install Service

1. Restore the `keytab` files from `<backup-path>/restore` directory.
2. Restore the Kerberos Realm Configuration from the `<backup-path>/restore/etc/krb5.conf` into `/etc/krb5.conf`.
3. (Conditional) If you perform the upgrade from a Non - FIPS environment and the `isCheckValidationRequired` parameter is not enabled in the destination, to configure the SFTP destination:

   a. SSH to the Warehouse Connector host and submit the following commands:
   ```
   cd /root/.ssh/
    mv id_dsa id_dsa.old
   OWB_FORCE_FIPS_MODE_OFF=1 openssl pkcs8 -topk8 -v2 des3 -in id_dsa.old -
   out id_dsa
   ```
   You are prompted for the pass phrase.

   b. Enter the Encryption password.

   c. Run the following command.
   ```
   chmod 600 id_dsa
   ```

4. Install the Warehouse Connector.
   See the *Warehouse Connector Configuration Guide* for instructions.

Task 36 - Refresh Warehouse Connector Lockbox and Start Stream

Note: If the streams have auto start turned on in 10.6.6.x, there will be a small delay before you will see the Warehouse Connector service in the NetWitness Platform User Interface.

1. Refresh the Lockbox of Warehouse Connector.
2. SSH to the Warehouse Connector and log in with root credentials.
3. Restart the service.
   ```
   service nwwarehouseconnector restart
   ```
4. (Conditional) If the auto start was not enabled in 10.6.6.x, you must start the stream manually after the service restarts.

Task 37 - Update Hive Version

After you update to 11.3.0.2, you must update to the Hive version that is compatible with the 11.3.0.2 Warehouse (either Hive version 0.12 or version 1.0).

- Hive Version 0.12
  SSH to the NW Server and run the following command.
  ```
  rpm -ivh rsa-nw-hive-jdbc-0.12.0-1.x86_64.rpm
  ```
- Hive Version 1.0
  SSH to the NW Server and run the following command.
  ```
  rpm -ivh rsa-nw-hive-jdbc-1.0.0-1.x86_64.rpm
  ```

RSA Archer Cyber Incident & Breach Response

Task 38 - Reconfigure RSA Archer Cyber Incident & Breach Response Integration

For information on how to reconfigure RSA Archer Cyber Incident & Breach Response for Event Stream Analysis, Reporting Engine, and Respond, see *RSA Archer Integration Guide*.

RSA NetWitness® Endpoint

Task 39 - Reconfigure Endpoint Alerts Via Message Bus

1. On the NetWitness Endpoint Server, modify the virtual host configuration in the `C:\Program Files\RSA\ECAT\Server\ConsoleServer.exe` file to reflect the following configuration.
   ```
   <add key="IMVirtualHost" value="/rsa/system" />
   ```

> **Note:** In NetWitness Platform 11.3.0.2, the virtual host is `/rsa/system`. For 10.6.6.x and earlier versions, the virtual host is `/rsa/sa`.

2. Restart the API Server and Console Server.
3. SSH to the NW Server and log in with `root` credentials.
4. Submit the following command to add all certificates to the truststore.
   ```
   orchestration-cli-client --update-admin-node
   ```
5. Submit the following command to restart the RabbitMQ server.
   ```
   systemctl restart rabbitmq-server
   ```
   The NetWitness Endpoint account should automatically be available on RabbitMQ.
6. Import the `/etc/pki/nw/ca/nwca-cert.pem` and `/etc/pki/nw/ca/ssca-cert.pem` files from the NW Server and add them to the Trusted Root Certification stores in the Endpoint Server.

Task 40 - Reconfigure Recurring Feed Configured from Legacy Endpoint Because Java Version Changed

You must reconfigure the Legacy Endpoint recurring feed due to the change in Java version. Complete the following step to fix this problem.

- Import the NetWitness Endpoint CA certificate into the NetWitness Platform Trusted store as described in "Export the NetWitness Endpoint SSL Certificate" under the "Configure Contextual Data from Endpoint via Recurring Feed" topic in the *RSA NetWitness Endpoint Integration Guide* to import the certificate.

(Optional) Task 41 - Install Endpoint Log Hybrid and Endpoint Agents

See:

RSA NetWitness Platform 11.3.0.2 Physical Host Installation Guide for instructions for installation on a physical host.

RSA NetWitness Platform 11.3.0.2 Virtual Host Installation Guide for instructions for installation on a virtual host.

RSA NetWitness® UEBA

Task 42 - Install NetWitness UEBA

NetWitness UEBA is new a new feature as of NetWitness Platform 11.3.0.2.

See:

RSA NetWitness Platform 11.3.0.2 Physical Host Installation Guide for instructions for installation on a physical host.

RSA NetWitness Platform 11.3.0.2 Virtual Host Installation Guide for instructions for installation on a virtual host.

RSA NetWitness UEBA User Guide for information about NetWitness UEBA.

NetWitness Platform Integrations

(Conditional) Task 43 - For Integrations with Web Threat Detection, RSA Archer® Cyber Incident & Breach Response or NetWitness Endpoint.

If you integrate with Web Threat Detection, Archer Cyber Incident & Breach Response or NetWitness Endpoint, you must configure Mutually Authenticated SSL on each integrated system so that the application can authenticate itself when connecting to the RabbitMQ message bus.

> **Note:** Use the RabbitMQ usernames and passwords that were obtained when you backed up your 10.6.6.x data (see Backup Instructions).

1. Create a user on the host system that is integrating with NetWitness Platform by logging into the host and running the following `rabbitmqctl` command.
   ```
   > rabbitmqctl add_user <username> <password>
   ```
2. Set permissions for users by running the following command (use the username from step 1).
   ```
   > rabbitmqctl set_permissions -p /rsa/system <username> ".*", ".*", ".*"
   ```
   For example:
   ```
   > rabbitmqctl set_permissions -p /rsa/system wtd-incidents ".*", ".*", ".*"
   ```

Task 43 - Remap Virtual NW Server License to 10.6.6.x MAC Address

If you are upgrading a Security Analytics server running on a virtual machine, change the 11.3 NW Server virtual host to the 10.6.6.x MAC address to retain licensing. Refer to "Licensing: Step 1. Register the NetWitness Server" in the *RSA NetWitness Platform Licensing Management Guide* for instructions on remapping a license to a new MAC address." Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

Appendix A. Troubleshooting

This section describes solutions to problems that you may encounter during installations and upgrades. In most cases, NetWitness Platform creates log messages when it encounters these problems.

Note: If you cannot resolve an upgrade issue using the following troubleshooting solutions, contact Customer Support (https://community.rsa.com/docs/DOC-1294).

This section has troubleshooting documentation for the following services, features, and processes.

- Command Line Interface (CLI)
- Event Stream Analysis
- NetWitness UEBA

Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

Command Line Interface (CLI)

Error Message	Command Line Interface (CLI) displays: "Orchestration failed." `Mixlib::ShellOut::ShellCommandFailed: Command execution failed. STDOUT/STDERR suppressed for sensitive resource in/var/log/netwitness/config-management/chef-solo.log`
Cause	Entered the wrong `deploy_admin` password in `nwsetup-tui`.
Solution	Retrieve your `deploy_admin` password. 1. SSH to the NW Server host. `security-cli-client --get-config-prop --prop-hierarchy nw.security-client --prop-name deployment.password` SSH to the host that failed. 2. Run the `nwsetup-tui` again using correct `deploy_admin` password.

Error Message	`ERROR com.rsa.smc.sa.admin.web.controller.ajax.health. AlarmsController - Cannot connect to System Management Service`
Cause	NetWitness Platform sees the Service Management Service (SMS) as down after successful upgrade even though the service is running.
Solution	Restart SMS service. `systemctl restart rsa-sms`

Error Message	You receive a message in the User Interface to reboot the host after you update and reboot the host offline.
Cause	You cannot use CLI to reboot the host. You must use the User Interface.
Solution	Reboot the host in the Host View in the User Interface.

Event Stream Analysis

- For ESA Correlation troubleshooting information, see the *Alerting with ESA Correlation Rules User Guide*.
- For ESA Analytics troubleshooting information, see the *Automated Threat Detection Configuration Guide*.

NetWitness UEBA

Problem	The User Interface is not accessible.
Cause	You have more than one NetWitness UEBA service existing in your NetWitness deployment and you can only have NetWitness UEBA service in your deployment.

Solution	Complete the following steps to remove the extra NetWitness UEBA service.
	1. SSH to NW Server and run the following commands to query the list of installed NetWitness UEBA services.
	`# orchestration-cli-client --list-services|grep presidio-airflow`
	`... Service: ID=7e682892-b913-4dee-ac84-ca2438e522bf,`
	`NAME=presidio-airflow, HOST=xxx.xxx.xxx.xxx:null, TLS=true`
	`... Service: ID=3ba35fbe-7220-4e26-a2ad-9e14ab5e9e15,`
	`NAME=presidio-airflow, HOST=xxx.xxx.xxx.xxx:null, TLS=true`
	2. From the list of services, determine which instance of the `presidio-airflow` service should be removed (by looking at the host addresses).
	3. Run the following command to remove the extra service from Orchestration (use the matching service ID from the list of services):
	`# orchestration-cli-client --remove-service --id <ID-for-presidio-airflow-form-previous-output>`
	4. Run the following command to update NW Server to restore NGINX:
	`# orchestration-cli-client --update-admin-node`
	5. Log in to NetWitness Platform, go to **ADMIN** > **Hosts**, and remove the extra NetWitness UEBA host.

Appendix B. Stopping and Restarting Data Capture and Aggregation

RSA recommends that you stop network and log capture and aggregation before upgrading a Decoder, Concentrator, and Broker host to 11.3.0.2. If you do this, you must restart network and log capture and aggregation after updating these hosts.

Stop Data Capture and Aggregation

Stop Network Capture

1. Log in to NetWitness Platform and go to **ADMIN** > **Services**.
   The Services view is displayed.
2. Select each **Decoder** service.
3. Under ⚙ (actions), select **View** > **System**.
4. In the toolbar, click .

Stop Log Capture

1. Log in to NetWitness Platform and go to **ADMIN** > **Services**.
   The Services view is displayed.
2. Select each **Log Decoder** service.
3. Under ⚙ (actions), select **View** > **System**.
4. In the toolbar, click .

Stop Aggregation

1. Log in to NetWitness Platform and go to **ADMIN** > **Services**.
2. Select the **Broker** service.
3. Under ⚙ (actions), select **View** > **Config**.
4. The **General** tab is displayed.
5. Under **Aggregated Services** click ■ Stop Aggregation .

Start Data Capture and Aggregation

Restart network and log capture and aggregation after updating to 11.3.0.2.

Start Network Capture

1. Log in to **NetWitness Platform** and go to **ADMIN** > **Services**.
   The Services view is displayed.
2. Select each **Decoder** service.
3. Under ⚙ (actions), select **View** > **System**.
4. In the toolbar, click .

Start Log Capture

1. Log in to **NetWitness Platform** and go to **ADMIN** > **Services**.
   The Services view is displayed.
2. Select each **Log Decoder** service.
3. Under ⚙ (actions), select **View** > **System**.
4. In the toolbar, click .

Start Aggregation

1. Log in to **NetWitness Platform** and go to **ADMIN** > **Services**.
   The Services view is displayed.
2. For each Concentrator and Broker service.
   a. Select the service.
   b. Under ⚙ (actions), select **View** > **Config**.
   c. In the toolbar, click ▶ Start Aggregation .

Appendix C. Using iDRAC

Many customers have remote sites with limited physical access and limited bandwidth from the administrator's desktop. If this the case, you may want to use iDRAC with the ISO Image shared out from an NFS share that is local to the devices being upgraded or installed. This also gives you the ability to use an existing NetWitness device as the sharing host.

For example:

- You have a Concentrator and Decoder at a site in a remote geographic location.
- The bandwidth is relatively low to that site from the administrator's site.
- Shipping a USB stick and arranging to have person to go plug it into the boxes while you upgrade is not practical.

In this situation, you can:

1. Install the nfs-utils RPM.
2. Configure the NFS share.
3. Configure iDRAC to connect to that share.
   Make sure that you update your iDRAC firmware supported Windows and Linux operating systems. Download and run the Dell Update Packages for supported Windows and Linux operating systems from the Dell Support website at http://www.support.dell.com. For more information, see the Dell Update Package User's Guide available on the Dell Support website at http://topics-cdn.dell.com/pdf/dell-update-packages-v17.10.00_User's%20Guide_en-us.pdf.

4. Boot to the virtual media that contains the ISO file and continue with the upgrade.

Configure NFS Server - NFS Server config File

1. Install NFS and its common utilities using yum.
   ```
   yum install nfs-utils
   ```
2. Configure the NFS service to run at boot.
   ```
   chkconfig nfs on
   ```
3. Configure the rpcbind service to run at boot.
   This service is required by NFS and must be running before NFS can be started.
   ```
   chkconfig rpcbind on
   ```
4. Start the rpcbind service.
   ```
   service rpcbind start
   ```
5. Start the NFS service.
   ```
   service nfs start
   ```
6. Create a directory for our first export.
   ```
   mkdir /exports/files
   ```
7. Open the NFS exports file into a text editor.
   ```
   vi /etc/exports
   ```

8. To export the directory to everyone with read-only access, add the following line.
   `/exports/files *(ro)`
9. Save your changes and exit the editor.
   `:wq!`
10. Export the directory defined above.
    `exportfs -a`
11. Disable firewall rules while performing upgrades.
    `service iptables stop`
12. Copy install media that contains the ISO file to `/exports/files` directory.

Boot iDRAC to NFS Configuration

Note: You must verify that the iDRAC firmware is at least 1.57.57 for Series 4 (R620).

1. Log in to the iDRAC interface.
2. Attach media using Remote File Share.
   `<server ip>:/export/files/11.3.0.2.iso`
   For example: `10.10.10.10:/exports/files/rsa-11.3.0.2.1948.el7-usb.iso`
3. Click **Connect**.
4. Launch **Console**.
5. From the **next boot** menu, select **Virtual DVD/CD**.
6. Reboot the device.

Appendix D. Create External Repository

Complete the following procedure to set up an external repository (Repo).

> **Note:** 1.) You need an unzip utility installed on the host to complete this procedure. 2.) You must know how to create a web server before you complete the following procedure.

1. Log in to the web server host.
2. Create a directory to host the NW repository (`netwitness-11.4.0.0.zip`), for example `ziprepo` under `web-root` of the web server. For example, if `/var/netwitness` is the `web-root`, submit the following command string.
   ```
   mkdir -p /var/netwitness/<your-zip-file-repo>
   ```
3. Create the 11.4.0.0 directory under `/var/netwitness/<your-zip-file-repo>`.
   ```
   mkdir -p /var/netwitness/<your-zip-file-repo>/11.4.0.0
   ```
4. Create the `OS` and `RSA` directories under `/var/netwitness/<your-zip-file-repo>/11.4.0.0`.
   ```
   mkdir -p /var/netwitness/<your-zip-file-repo>/11.4.0.0/OS
   mkdir -p /var/netwitness/<your-zip-file-repo>/11.4.0.0/RSA
   ```
5. Unzip the `netwitness-11.4.0.0.zip` file into the `/var/netwitness/<your-zip-file-repo>/11.4.0.0` directory.
   ```
   unzip netwitness-11.4.0.0.zip -d /var/netwitness/<your-zip-file-repo>/11.4.0.0
   ```
   Unzipping `netwitness-11.4.0.0.zip` results in two zip files (`OS-11.4.0.0.zip` and `RSA-11.4.0.0.zip`) and some other files.
6. Unzip the:
   a. `OS-11.4.0.0.zip` into the `/var/netwitness/<your-zip-file-repo>/11.4.0.0/OS` directory.
      ```
      unzip /var/netwitness/<your-zip-file-repo>/11.4.0.0/OS-11.4.0.0.zip -d
      /var/netwitness/<your-zip-file-repo>/11.4.0.0/OS
      ```
      The following example illustrates how the Operating System (OS) file structure will appear after you unzip the file.

b. `RSA-11.4.0.0.zip` into the `/var/netwitness/<your-zip-file-repo>/11.4.0.0/RSA` directory.

```
unzip /var/netwitness/<your-zip-file-repo>/11.4.0.0/RSA-11.4.0.0.zip -d
/var/netwitness/<your-zip-file-repo>/11.4.0.0/RSA
```

The following example illustrates how the RSA version update file structure will appear after you unzip the file.

The external URL for the repo is `http://<web server IP address>/<your-zip-file-repo>`.

7. Use the `http://<web server IP address>/<your-zip-file-repo>` in response to **Enter the base URL of the external update repositories** prompt from NW 11.4.0.0 Setup program (`nwsetup-tui`) prompt.

Revision History

Revision	Date	Description	Author
1.0	10-Apr-19	GA	IDD