RSA NETWITNESS® PLATFORM

Upgrade Guide

for RSA NetWitness® Platform 11.5

Contact Information

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

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March 2021

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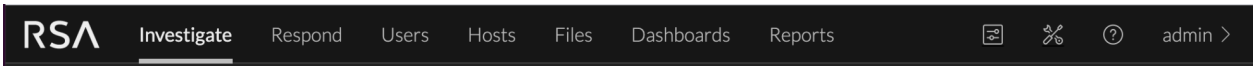
Upgrade Overview

RSA NetWitness® Platform 11.5.0.0 provides enhancements and fixes for all products in NetWitness Platform. The instructions in this guide apply to both physical and virtual hosts (including AWS, Azure Public Cloud, and Google Cloud Platform) unless stated to the contrary.

In 11.5, NetWitness Platform has several new features in the user interface. Administrative tasks are consolidated as icons in the upper right corner to keep administration, configuration, notifications, jobs, and user preferences together. The following figure shows the new top-level navigation. For additional information, refer to "NetWitness Platform Basic Navigation" in the *NetWitness Platform Getting Started Guide*.



Upgrade Paths

The following upgrade paths are supported for NetWitness Platform 11.5.0.0:

- RSA NetWitness® Platform 11.3.x.x to 11.5.0.0 *
- RSA NetWitness® Platform 11.4.x.x to 11.5.0.0

* If you are upgrading from 11.2.x.x, 11.3.0.0, or 11.3.0.1, you must upgrade to 11.3.1.1 before you can upgrade to 11.5.

If you are upgrading from NetWitness Platform version 10.6.6.x, you must upgrade to 11.3.0.2 before you can upgrade to 11.5.

For upgrading from 10.6.6.x to 11.3.0.2, see the following guides that apply to your environment:

- Physical Host Upgrade Guide for 10.6.6.x to 11.3
- Virtual Host Upgrade Checklist and Guide for 10.6.6.x to 11.3
- AWS Upgrade Guide for 10.6.6.x to 11.3
- Azure Upgrade Guide for RSA NetWitness Platform Version 10.6.6 to 11.3

For upgrading from 11.2.x.x, 11.3.0.0, or 11.3.0.1, see the Upgrade Guide for RSA NetWitness Platform 11.3.1.1. This guide applies to both physical and virtual hosts (including AWS and Azure Public Cloud).

Running in Mixed Mode

Running in mixed mode occurs when some services are upgraded to the latest version and some services are on older versions. See "Running in Mixed Mode" in the *RSA NetWitness Platform Hosts and Services Getting Started Guide* for further information.

Note: If you are running Endpoint Log Hybrid in mixed mode, make sure Endpoint Broker is on the same version as one of the Endpoint Servers.

Upgrade Considerations for ESA Hosts

Mixed mode is not supported for ESA hosts in NetWitness Platform version 11.5 and later.

IMPORTANT: The NetWitness server, ESA primary host, and ESA secondary host must all be on the same NetWitness Platform version.

Upgrade Considerations for ESA Analytics

The Event Stream Analytics Server (ESA Analytics) service is not supported or available in NetWitness Platform version 11.5 and later. The Whois Lookup Configuration and ESA Analytics Mapping panels are no longer in the user interface (Admin > System).

Note: Event Stream Analysis (ESA) is not end of life. ESA Correlation rules and the ESA Correlation service are supported. ESA Analytics, which is used for Automated Threat Detection, is different from ESA Correlation Rules and is EOL. In its place, you can use ESA Correlation as is offers more functional capabilities and better performance.

Upgrade Considerations for STIX Custom Feeds

The custom feeds created before version 11.5 are processed automatically. On upgrade, the data sources created for ADHOC, REST and TAXII server and the feeds are pulled automatically. See "Create a STIX Custom Feed" in the *RSA NetWitness Platform Live Service Management Guide* and "Configure STIX as a Data Source" in the *RSA NetWitness Platform Context Hub Configuration Guide*for further information.

Change to Column Groups in the Events View

To improve consistency when loading results in the Events view, the number of columns in a column group is limited to 40.

If you are upgrading from version 11.4 or later, after you upgrade to 11.5, column groups migrated to the Events view from the Legacy Events view still function with more than 40 columns. However, when you edit those groups, you receive a warning that tells you to reduce the number of columns below the limit of 40 columns.

Upgrade or install Windows Legacy Collection

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.

Feedback on Product Documentation

You can send an email to sahelpfeedback@emc.com to provide feedback on NetWitness Platform documentation.

Getting Help with NetWitness Platform

Self-Help Resources

There are several options that provide you with help as you need it for installing and using NetWitness Platform:

- See the documentation for all aspects of NetWitness Platform here: https://community.rsa.com/community/products/netwitness/documentation
- Use the **Search** and **Ask it** fields in RSA Link to find specific information here: https://community.rsa.com/welcome
- See the RSA NetWitness® Platform Knowledge Base: https://community.rsa.com/community/products/netwitness/knowledge-base
- See Troubleshooting the RSA NetWitness® Platform: https://community.rsa.com/community/products/netwitness/documentation/troubleshooting
- See also RSA NetWitness® Platform Blog Posts.
- If you need further assistance, contact RSA Support.

Contact RSA Support

If you contact RSA Support, you should be at your computer. Be prepared to provide the following information:

- The version number of the RSA NetWitness Platform product or application you are using.
- The type of hardware you are using.

Use the following contact information if you have any questions or need assistance.

RSA Link	https://community.rsa.com In the main menu, click **My Cases**.
International Contacts (How to Contact RSA Support)	https://community.rsa.com/docs/DOC-1294
Community	https://community.rsa.com/community/support

Upgrade Preparation Tasks

Complete the following tasks to prepare for the upgrade to NetWitness Platform 11.5.

Task 1. (Optional) Remove Legacy Package Repositories

Perform this task to free up space by removing unused repositories from previous releases from your system.

1. Determine the version of the oldest NetWitness Platform host in your environment by reviewing the host list in the Admin user interface, or by running the following command on the NW Server: `upgrade-cli-client --list`
2. You can safely remove all legacy package repository folders located at `/var/netwitness/common/repo/<version>` on the NW Server for all versions prior the baseline major release version of the oldest active host in the environment.
   - If the oldest host version is 11.4.x.x (for example, 11.4.1.0), you can safely remove 11.0.x.x, 11.1.x.x, 11.2.x.x, and 11.3.x.x repository folders. However, do not remove repository versions greater than or equal to 11.4.0.0.
   - If the oldest host version is 11.3.x.x, you can safely remove 11.0.x.x, 11.1.x.x, and 11.2.x.x repository folders. However, do not remove repository versions greater than or equal to 11.3.0.0.

Task 2. (Optional) Ensure that Any Respond Normalization Script Customizations Are in the Custom Files

Note: This task applies to upgrades from NetWitness Platform version 11.4.x.x to 11.5.0.0.

For upgrades from 11.4 to 11.5.x, there are no backups of the normalization script files since customizations are added to separate `custom_normalize` script files. These script files are in the **`/var/lib/netwitness/respond-server/scripts`** directory. If you have any customizations, add them to the normalization files with the `custom` prefix.

Upgrade Options

Upgrade the systems in your environment in the following order:

1. NW Server hosts
2. Analyst UI hosts
3. ESA Primary hosts
4. ESA Secondary hosts
5. The rest of your component hosts

Note: NW Server, Analyst UI, and ESA Primary and Secondary hosts must all be upgraded on the same day. The rest of your component hosts can be upgraded on the same day or later.

For information about all the host types in NetWitness Platform, see the *Host and Services Getting Started Guide for RSA NetWitness Platform 11.x*. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

Important Notes - Read This First

Synchronize Time on Component Hosts with NW Server Host

Before upgrading your 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*.
- Perform the following steps on each host:

  a. SSH to a component host.

  b. Run the following commands.

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

Mixed Mode Unsupported for ESA Hosts

Mixed mode is not supported for ESA hosts in NetWitness Platform version 11.5 and later. The NetWitness server, ESA primary host, and ESA secondary host must all be on the same NetWitness Platform version.

Endpoint Hybrid Systems Not Supported

For RSA NetWitness Endpoint customers only, Endpoint Hybrid is not supported in 11.3.0.0 and later releases.
If you have deployed an Endpoint Hybrid host in 11.2.x.x and did not install an Endpoint Log Hybrid host in 11.3.x.x or 11.4.x.x, you must install an Endpoint Log Hybrid host in 11.5. See the *Physical Host Installation Guide for RSA NetWitness Platform* or the *Virtual Host Installation Guide for RSA NetWitness Platform* for instructions on how to install an 11.5 Endpoint Log Hybrid on a physical host.

Respond Server Service Not Enabled Until NW Server and Primary ESA Host Upgraded to 11.5

After upgrading the primary NW Server (including the Respond Server service), the Respond Server service is not automatically re-enabled until after the Primary ESA host is also upgraded to 11.5. The Respond post-upgrade tasks only apply after the Respond Server service is upgraded and is in the enabled state.

Network Decoder Doesn't Process Incoming Packets After Upgrade

As part of the upgrade process, packet capture for the Network Decoder service is stopped. When packet capture is stopped, the configured network interface is not brought down (turned off). If you are utilizing an upstream solution (Ixia, for example) that determines when to send traffic to the Network Decoder based on the state of the capture interface, any traffic sent to the Network Decoder while packet capture is turned off is lost. To prevent this from occurring, you should SSH into the Network Decoder host, manually stop capture, and bring the network interface down by issuing an `ifdown` command prior to performing the upgrade on that Network Decoder host.

Upgrade Options

You can choose one of the following upgrade methods based on your Internet connectivity. They are listed in the order recommended by RSA.

- Option 1: User Interface Method with Connectivity to the Internet
- Option 2: User Interface with No Connectivity to the Internet (available for upgrades from 11.3.1 or later)
- Option 3: Command Line Interface (CLI) with No Connectivity to the Internet

The following rules apply when you are upgrading hosts for all of these upgrade methods:

- You must upgrade the NW Server host first.
- You can only apply a version that is compatible with the existing host version.
- The NW Server, ESA primary, ESA secondary, and Analyst UI hosts must all be on the same NetWitness Platform version.

Option 1: User Interface Method with Connectivity to the Internet

You can use this method if the NW Server host is connected to Live Services and if you are able to obtain the package.

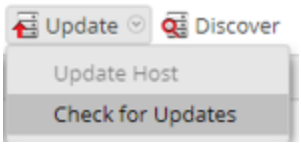
Prerequisites

Make sure that:

1. The **Automatically download information about new upgrades every day** option is selected and is applied in **Admin > System > Updates**.
2. Updates are available. Go to **Admin > Hosts > Update > Check for Updates** to check for updates. The Host view displays the **Update Available** status.
3. 11.5 is available in the **Update Version** column.

Procedure

1. Go to **Admin > Hosts**.
2. Select the NW Server (`nw-server`) host.
3. Check for the latest updates.



4. Update Available is displayed in the **Status** column if you have a version update in your Local Update Repository for the selected host.
5. Select **11.5** from the **Update Version** column. If you:
   - Want to view a dialog with the major features in the upgrade and information on the updates, click the information icon ( ) to the right of the upgrade version number.
   - Cannot find the version you want, select **Update > Check for Updates** to check the repository for any available updates. If an update is available, the message "New updates are available" is displayed and the **Status** column updates automatically to show Update Available. By default, only supported updates for the selected host are displayed.
6. Click **Update** > **Update Host** from the toolbar.
7. Click **Begin Update**.
8. Click **Reboot Host**.
9. Repeat steps 6 to 8 for other hosts.

Note: You can select multiple hosts to upgrade at the same time only after updating and rebooting the NW Server host. All ESA, Endpoint, and Malware Analysis hosts should be upgraded to the same version as that of the NW Server host.

Option 2: User Interface with No Connectivity to the Internet

Caution: The offline User Interface method is only available if you are upgrading a host from the following versions: 11.3.1.0, 11.3.1.1, 11.3.2.0, 11.3.2.1, 11.4.1.1 or 11.4.1.2 to 11.5. If you are upgrading a host on an earlier version, you must use the Upgrade Options method. After you complete Step 5 in Task 2. Apply Upgrades from the Staging Area to Each Host, go to Upgrading from 11.3.1.0, 11.3.1.1, 11.3.2.0, 11.3.2.1, 11.4.1.1 or 11.4.1.2 .

Caution: If you are upgrading a host from 11.4.0.0 or 11.4.0.1 to 11.5 using the offline User Interface method, in Step 5 of Task 2. Apply Upgrades from the Staging Area to Each Host, the upgrade will fail with the message Download error. You can still complete the upgrade successfully by following the steps in Upgrading from 11.4.0.0 or 11.4.0.1 . This issue has been fixed in 11.4.1.0 and later.

Task 1. Populate Staging Folder (`/var/lib/netwitness/common/update-stage/`) with Version Upgrade Files

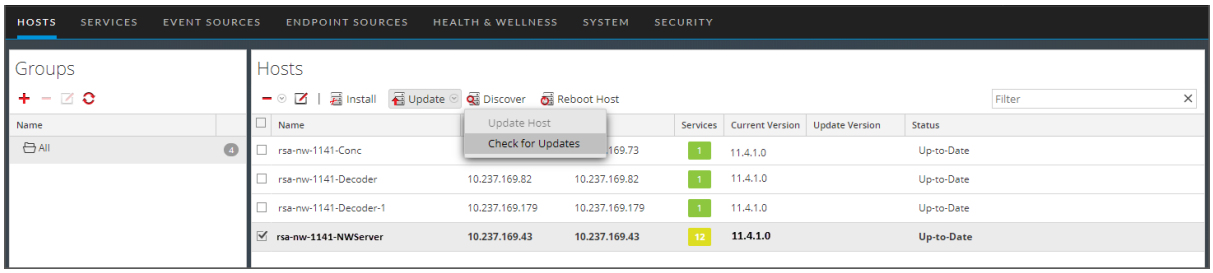
1. Download the upgrade package `netwitness-11.5.0.0.zip` from RSA Link (https://community.rsa.com/) > **Downloads** > **NetWitness Platform** > **Version 11.5** to a local directory:
2. SSH to the NW Server host.
3. Copy `netwitness-11.5.0.0.zip` from the local directory to the `/var/lib/netwitness/common/update-stage/` staging folder.
   For example:
   ```
   sudo cp /tmp/netwitness-11.5.0.0.zip /var/lib/netwitness/common/update-stage/
   ```

   Note: NetWitness Platform unzips the file automatically.

Task 2. Apply Upgrades from the Staging Area to Each Host

Caution: You must upgrade the NW Server host before upgrading any non-NW Server host.

1. Log in to NetWitness Platform.
2. Go to **Admin > Hosts**.
3. Check for updates and wait for the upgrade packages to be copied, validated, and ready to be initialized.

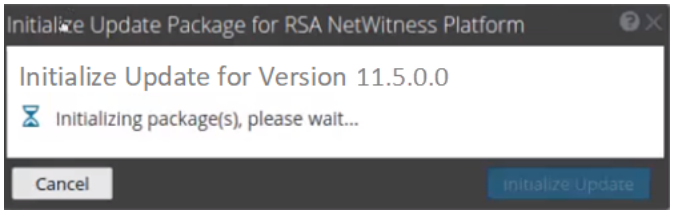


"Ready to initialize packages" is displayed if:

- NetWitness Platform can access the upgrade package.
- The package is complete and has no errors.

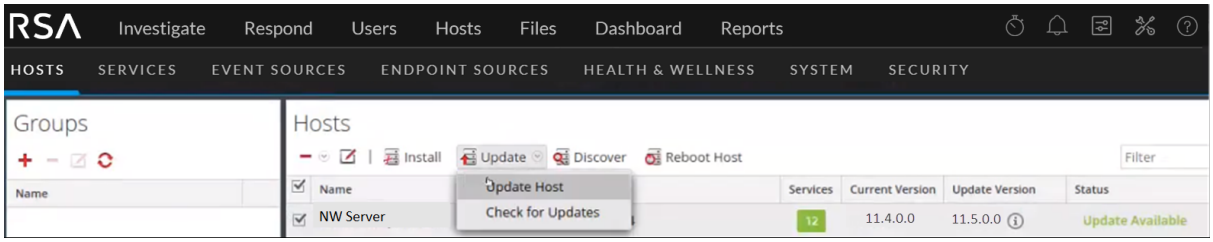
Refer to Troubleshooting Version Installations and Updates for instructions on how to troubleshoot errors (for example, "Error deploying version <version-number>" and "Missing the following update package(s)," are displayed in the **Initiate Update Package for RSA NetWitness Platform** dialog.)

4. Click **Initialize Update**.



It takes some time to initialize the packages because the files are large and need to be unzipped. The time varies depending on how the host is configured.
After the initialization is successful, the **Status** column displays Update Available and you complete the rest of the steps in this procedure to finish the upgrade of the host.

5. Click **Update** > **Update Hosts** from the toolbar.



Upgrading from 11.3.1.0, 11.3.1.1, 11.3.2.0, 11.3.2.1, 11.4.1.1 or 11.4.1.2

After you click **Update Hosts** in step 5, complete these steps:

1. Click **Begin Update** from the Update Available dialog.
   After the host is upgraded, it prompts you to reboot the host.
2. Click **Reboot Host** from the toolbar.

Upgrading from 11.4.0.0 or 11.4.0.1

After you click **Update Hosts** in step 5, the upgrade will fail with the message Download error. You can successfully complete the upgrade by following these steps.

1. In the Command Line Interface (CLI):
   a. SSH to NW Server.
   b. Run the following command:
   ```
   upgrade-cli-client --upgrade --host-key <ID, IP address, hostname or display name of host> --version 11.5.0.0
   ```
2. After the NW Server is successfully updated, log in to the NW Server user interface and go to  **(Admin) > Hosts**, where you are prompted to reboot the host.
3. Click **Reboot Host** from the toolbar.

You can upgrade all the other hosts directly from the user interface:

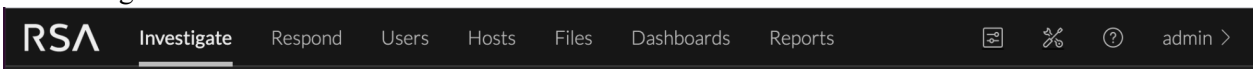
1. Click **Begin Update** from the Update Available dialog.
   After the host is upgraded, it prompts you to reboot the host.
2. Click **Reboot Host** from the toolbar.

Option 3: Command Line Interface (CLI) with No Connectivity to the Internet

Follow the instructions in Appendix A. Offline Method (No Connectivity to Live Services) - Command Line Interface .

Post Upgrade Tasks

After you upgrade to 11.5, NetWitness Platform has several new features in the user interface. Administrative tasks are consolidated as icons in the upper right corner to keep administration, configuration, notifications, jobs, and user preferences together. The following figure shows the new top-level navigation.



The default view is the Springboard landing page. You can change the settings to customize the landing page view. For additional information, refer to "NetWitness Platform Basic Navigation" in the *NetWitness Platform Getting Started Guide*.

Complete the tasks that apply to the hosts in your environment.

- General
- Event Stream Analysis (ESA)
- New Health and Wellness
- Investigate
- Respond
- Reference Log Decoder
- Windows Log Collector
- User Entity Behavior Analytics
- Licensing

General

(Conditional) Configure NAT-Based IP Addresses

If you have a host, such as a VLC, that requires a NAT-based IP address in order to connect to the NW Server host, you must update the host configuration with the following steps.

1. Log in to the host that requires the use of NAT IP addresses, using the console or SSH.
2. Run the following command:
   ```
   nw-manage --enable-nat-usage
   ```
3. To set the NAT address for the NW Server:
   a. Log into the NW Server using the console or SSH.
   b. Run the following command:
   ```
   nw-manage -update-host --host-id <UUID of NW Server> --ipv4-public <NAT IP of NW Server>
   ```

Note: You can find the UUID and view the current NAT IP address of the host by running `nw-manage --list-hosts`.

(Conditional - For Warm-Standby Hosts Only) Register the Secondary IP Address of Warm-Standby Hosts

The Warm-Standby server must be upgraded to 11.5 before completing the following steps.

1. Log in to the NW Server using the console or SSH.
2. Run the following command:
   `nw-manage --add-nws-secondary-ip --ipv4 <ip address of Warm/Standby Server>`

   Note: If the Warm-Standby server requires a NAT-based IP address (IPv4-public) for any host to access it during failover, the NAT IP address must also be registered by running the following command: `nw-manage --add-nws-secondary-ip --ipv4 <NAT-based IP address of Warm Standby Server>`
3. Verify the correct Warm Standby host IP address value by running the following command:
   `nw-manage --get-nws-secondary-ip`

Review Contents of /etc/hosts.user for Obsolete Host Entries

After upgrading the NW Server host or a component host, review the contents of the `/etc/hosts.user` file for any obsolete host entries. The `/etc/hosts.user` file contains system and user-generated entries that are not managed by NetWitness Platform. However, entries from `/etc/hosts.user` are merged with NetWitness Platform-generated host mappings to create and update `/etc/hosts`. To avoid conflicts with NetWitness Platform-generated mappings, and to avoid generating connectivity errors resulting from an IP address change, RSA recommends that you remove any entries in `/etc/hosts.user` that include a non-loopback IP address of a NetWitness Platform host.

After updating `/etc/hosts.user`, you must refresh the system by running the following command:
`nw-manage --refresh-host --host-key <ID, IP, hostname or display name of host>`

Reconfigure DNS Servers

By default, a component host upgraded from 11.4 or earlier is configured with the same system DNS server as the NW Server. If this component host requires a different system DNS address, see "Change Host Network Configuration" in the *System Maintenance Guide* for instructions.

Make Sure Services Have Restarted and Are Capturing and Aggregating Data

Make sure that services have restarted and are capturing data (this depends on whether or not you have auto-start enabled).

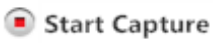
If required, restart data capture and aggregation for the following services:

- Decoder
- Log Decoder
- Broker
- Concentrator
- Archiver

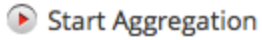
Start Network Capture

1. In the NetWitness Platform menu, 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. In the NetWitness Platform menu, 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. In the NetWitness Platform menu, go to  (Admin) > **Services**.
   The Services view is displayed.
2. For each **Concentrator**, **Broker**, and **Archiver** service:
   a. Select the service.
   b. Under  (actions), select **View** > **Config**.
   c. In the toolbar, click 

Event Stream Analysis (ESA)

Note: Mixed mode is not supported for ESA hosts in NetWitness Platform version 11.5 and later. The NetWitness server, ESA primary host, and ESA secondary host must all be on the same NetWitness Platform version.

There are no required post-upgrade tasks for ESA. For ESA troubleshooting, see ESA Troubleshooting Information.

If you want to add support for Endpoint, UEBA, and Live content rules, you must update the `multi-valued` and `single-valued` parameter meta keys on the ESA Correlation service to include all the required meta keys. It is not necessary to make these adjustments during the upgrade; you can make the adjustments later at a convenient time. For detailed information and instructions, see "Update Your ESA Rules for the Required Multi-Value and Single-Value Meta Keys" in the *ESA Configuration Guide*.

New Health and Wellness

Note: New Health and Wellness in 11.5 replaces Next GEN Health and Wellness (BETA) in 11.4.x.x.

Deploy the New Health and Wellness Content from Live

After you upgrade from version 11.4.x.x to 11.5, New Health and Wellness content is not updated. To use the latest (default) content, you must deploy the content through NetWitness Live Services.

Note: RSA recommends you to take a copy of 11.4.x.x Health and Wellness content before you deploy the content from NetWitness Live Services, as it overwrites the existing content.

1. Log in to NetWitness Platform UI.
2. Click  (**CONFIGURE**) > **LIVE CONTENT**.
3. In the **Search Criteria** panel, select the **Resource Types** as:
   - Health and Wellness Dashboards
   - Health and Wellness Monitors
4. Click **Search**.
5. In the **Matching Resources** view, select the checkbox to the left of the resources that you want to deploy.
6. In the **Matching Resources** toolbar, click 

.
7. In the **Deployment Wizard** > **Resources** tab, click **Next**.
8. In the **Services** tab, select the Metrics Server service.
9. Click **Next**.
10. Click **Deploy**.

The **Deploy** page is displayed. The Progress bar turns green when you have successfully deployed the resources to the selected services.

11. Click **Close**.

(Optional) Update UUID of New Health and Wellness Host to Update Service Configuration Documents

If you have configured services for New Health and Wellness from `nw-shell` using set-config API and upgrade NetWitness Platform version from 11.4.x.x to 11.5, you must update IP with UUID for a host on which New Health and Wellness is installed.

1. SSH to Admin Server.
2. Check the UUID of a host on which New Health and Wellness is installed using the command:
   `orchestration-cli-client --list-hosts`

   This lists NetWitness Platform hosts along with the respective UUIDs. Make a note of the UUID of host on which New Health and Wellness is installed.
3. Identify the services on which set-config is invoked using the command:
   `mongo localhost/metrics-server -u deploy_admin -p <deployment_password> --authenticationDatabase admin --eval 'db.metric_config.find({ "createdBy": { $ne: "system" }})'`
   This will list the configuration documents of the services on which set-config is invoked.

Note: If no service documents are listed which means no services are configured before the upgrade, so you can ignore the remaining steps.

4. In the configuration file, update the service document “host” field by replacing IP with the UUID of the host on which New Health and Wellness is installed.
   For example, update the host IP with UUID as below:

`"host" : “e086511c-121c-4e66-95a3-e87e27b12acb”`

5. Log in to `nw-shell` using the command:
   `nw-shell`
6. Connect to metrics-server service using the command:
   `connect --service metrics-server`
7. Enter the log in command:
   `login`
8. Enter the admin username and password.
9. Go to `/rsa/metrics/elastic/set-config` and invoke configuration files using the command:
   `invoke --file /<absolute_path_of_service_config_file>`

(Optional) Uninstall New Health and Wellness

To uninstall New Health and Wellness, perform the following:

1. Take a backup of NetWitness Server host. For more information, see “Disaster Recovery (Back Up and Restore)” topic in the *NetWitness Recovery Tool User Guide*.

   ```
   nw-recovery-tool --export --dump-dir /some/folder --category AdminServer --
   category Search
   ```

   Note: If New Health and Wellness is not installed on NetWitness Server, you must take a backup of the host on which New Health and Wellness is installed.

2. Make sure that the installation or upgrades are not in progress and stop the orchestration server on NetWitness Server host:

   ```
   systemctl stop rsa-nw-orchestration-server
   ```

3. Remove the New Health and Wellness service category (“Search") from the host:

   a. SSH to Admin server

   b. Fetch host details where New Health and Wellness is installed using the following command:
   ```
   mongo localhost/orchestration-server -u deploy_admin -p <deploy_admin-
   password> --authenticationDatabase admin --eval 'db.host.find({
   "installedServices": /.*Search.*/i })'
   ```

   Sample output

   ```
   { "_id" : "56f2a90b-1f03-d09a-fb71-42c2a93958a8", "hostname" :
   "10.10.10.11", "ipv4" : "10.10.10.11", "ipv4Public" : "", "displayName"
   : "adminserver", "version" : { "major" : 11, "minor" : 5, "servicePack"
   : 0, "patch" : 0, "snapshot" : false, "rawVersion" : "11.5.0.0" },
   "lastFailedRefreshAttempt" : NumberLong(0), "refreshAttemptDelayFactor"
   : 0, "thirdParty" : false, "installedServices" : [ "Search",
   "AdminServer" ], "meta" : { "node-zero" : true }, "_class" :
   "com.rsa.asoc.orchestration.host.HostEntity" }
   ```

   c. Remove the "Search" from the `installedServices`.

   IMPORTANT: Do not remove any other category names.

   d. Replace <LIST-OF-CATEGORIES-EXCEPT-SEARCH> with a comma-delimited AND double-quoted list of all the existing installed services found earlier EXCEPT "Search":
   ```
   mongo localhost/orchestration-server -u deploy_admin -p <deploy_admin-
   password> --authenticationDatabase admin --eval 'db.host.update({ "_id"
   : "<hw-node-uuid>" },{$set: {"installedServices" : [ <LIST-OF-
   CATEGORIES-EXCEPT-SEARCH> ]}})'
   ```

   Example
   ```
   mongo localhost/orchestration-server -u deploy_admin -p netwitness --
   authenticationDatabase admin --eval 'db.host.update({ "_id" : "56f2a90b-
   1f03-d09a-fb71-42c2a93958a8" },{$set: {"installedServices" : [
   "AdminServer" ]}})'
   ```

   Sample output

   ```
   MongoDB shell version v4.0.19

   connecting to: mongodb://localhost:27017/orchestration-
   server?authSource=admin&gssapiServiceName=mongodb

   Implicit session: session { "id" : UUID("04e32380-347e-4b7d-a63e-
   a094536d7242") }
   ```

```
MongoDB server version: 4.0.19

WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
```

e. Make sure that the "Search" category is removed in the updated host record in the `installedServices` :

```
mongo localhost/orchestration-server -u deploy_admin -p <deploy_admin-password> --authenticationDatabase admin --eval 'db.host.find({ "_id" : "<hw-node-uuid>" })'
```

Example

```
mongo localhost/orchestration-server -u deploy_admin -p netwitness --authenticationDatabase admin --eval 'db.host.find({ "_id" : "56f2a90b-1f03-d09a-fb71-42c2a93958a8" })'
```

Note: Any inconsistencies can result in unrecoverable errors.

Sample output

```
{ "_id" : "56f2a90b-1f03-d09a-fb71-42c2a93958a8", "hostname" : "10.10.10.11", "ipv4" : "10.10.10.11", "ipv4Public" : "", "displayName" : "adminserver", "version" : { "major" : 11, "minor" : 5, "servicePack" : 0, "patch" : 0, "snapshot" : false, "rawVersion" : "11.5.0.0" }, "lastFailedRefreshAttempt" : NumberLong(0), "refreshAttemptDelayFactor" : 0, "thirdParty" : false, "installedServices" : [ "AdminServer" ], "meta" : { "node-zero" : true }, "_class" : "com.rsa.asoc.orchestration.host.HostEntity" }
```

4. Stop the New Health and Wellness services:

```
systemctl stop rsa-nw-metrics-server elasticsearch opendistro-performance-analyzer kibana
```

5. Disable the New Health and Wellness services:

```
systemctl disable rsa-nw-metrics-server elasticsearch opendistro-performance-analyzer kibana
```

6. Uninstall the New Health and Wellness packages using the command:

```
yum erase -y rsa-nw-metrics-server opendistroforelasticsearch opendistroforelasticsearch-kibana
```

Note: `rsa-nw-shell` (installed with metrics server) is a shared package and should not be removed.

7. Remove the configuration folders or files:

- `/etc/netwitness/metrics-server`
- `/etc/netwitness/platform/elasticsearch`
- `/etc/netwitness/platform/nodeinfo/metrics-server`
- `/etc/netwitness/platform/nodeinfo/elasticsearch-open-distro`
- `/etc/netwitness/platform/nodeinfo/kibana-open-distro`
- `/etc/systemd/system/rsa-nw-metrics-server.service.d`
- `/etc/systemd/system/elasticsearch.service.d`

- /etc/pki/nw/service/bootstrap/metrics-server.completed
- /etc/pki/nw/service/rsa-nw-metrics-server-cert.pem
- /etc/pki/nw/service/rsa-nw-metrics-server.chain
- /etc/pki/nw/elastic
- /etc/pki/nw/kibana
- /var/log/netwitness/metrics-server
- /var/log/kibana
- /etc/collectd.d/rsa-metrics-server.conf
- /etc/logrotate.d/kibana
- /etc/elasticsearch
- /etc/kibana
- /var/lib/elasticsearch
- /var/lib/kibana
- /var/netwitness/elasticsearch

8. Start the orchestration Server on NetWitness Server:
   `systemctl start rsa-nw-orchestration-server`
9. Unregister the New Health and Wellness from the `installedService`:
   a. Find the service IDs for metrics-server, elasticsearch-open-distro, and kibana-open-distro

   Note: Make sure you look for service IDs for the correct host; do not unregister elastic or kibana on an UEBA host.

   ```
   orchestration-cli-client --list-services | grep <hw-node-IP-address>
   ```

   Sample output

   ```
   ID=50082d04-320c-4ce2-8379-00f38ae2d1df, NAME=metrics-server,
   HOST=192.168.1.2:7018, TLS=true

   ID=530ff46a-8793-4e8e-be9c-742193d1705a, NAME=elasticsearch-open-distro,
   HOST=192.168.1.2:9200, TLS=true

   ID=4bad6ea8-e3a4-46ab-a342-34356bea65bb, NAME=kibana-open-distro,
   HOST=192.168.1.2:5601, TLS=true

   ... (other services) ...
   ```

   b. Remove the service IDs returned above for metrics-server, elasticsearch-open-distro, and kibana-open-distro (associated with New Health new Wellness host):

   ```
   orchestration-cli-client --remove-service --id <metrics-server-service-id>

   orchestration-cli-client --remove-service --id <elasticsearch-open-distro-service-id>

   orchestration-cli-client --remove-service --id <kibana-open-distro-service-id>
   ```

c. Verify if the services are removed:

```
orchestration-cli-client --list-services | grep <hw-node-IP-address>
```

10. On all hosts, except for UEBA, stop and disable metricbeat:

```
systemctl stop metricbeat
systemctl disable metricbeat
```

Note: For NetWitness Platform without UEBA, you can stop and disable metricbeat on all hosts through salt:
`salt '*' cmd.run 'systemctl stop metricbeat && systemctl disable metricbeat'`

11. (Optional) - If you are not reinstalling New Health and Wellness (on same or other hosts), you can also remove metricbeat package and configuration:

a. Package to uninstall:
`metricbeat`

b. Service configurations to uninstall:

- `/etc/metricbeat`
- `/var/log/metricbeat`
- `mongo account`
- `systemd configuration`

12. Refresh the New Health and Wellness host:
`nw-manage --refresh-host --host-key <node-ip>`
Make sure that the New Health and Wellness service is not installed or running and metricbeat service is not active on the New Health and Wellness host.

13. If you are not reinstalling New Health and Wellness on another host, you must refresh UI hosts (NetWitness Server host and Analyst UI) to update NGNIX:

```
nw-manage --refresh-host --host-key <node-ip>
```

Note: After uninstalling New Health and Wellness, if you want to install New Health and Wellness again, see "New Health and Wellness" in the *Deployment Guide*.

Investigate

(Conditional - For Custom Roles Only) Adjust investigate-server Permissions for Custom User Roles

After upgrading to Version 11.5, the built-in user roles for analysts (and others) using Investigate have the `investigate-server.event.filter` permission enabled, but the upgrade process does not enable the permission for custom user roles. Users who are assigned a custom user role that does not have this permission enabled cannot see the Filter Events panel, a new panel in 11.5 where they can drill into metadata.

Note: When upgrading from Version 11.3.x.x or earlier, the built-in user roles for analysts using Investigate have three additional permissions added in Version 11.4 enabled, but the upgrade process does not enable the permissions for custom user roles. Users who are assigned a custom user role that does not have these permissions cannot see the Navigate view and Legacy Events view in the Investigate menu. The three permissions that need to be enabled for custom user roles are: `investigate-server.columngroup.read`, `investigate-server.metagroup.read`, and `investigate-server.profile.read`

To enable the permissions for a user role:

1. Go to  (Admin) > **Security** and click the **Roles** tab.
2. Select the custom user role that needs to be edited and click  (edit icon).
3. In the Edit Role dialog, ensure that these four permissions are enabled:
   `investigate-server.event.filter`
   `investigate-server.columngroup.read`
   `investigate-server.metagroup.read`
   `investigate-server.profile.read`
4. Click **Save** to save your changes. When analysts with the custom user role log in to the NetWitness Platform, the changes are in effect.

Respond

The Primary ESA server must be upgraded to 11.5 before you can complete these tasks.

Note: After upgrading the primary NW Server (including the Respond Server service), the Respond Server service is not automatically re-enabled until after the Primary ESA host is also upgraded to 11.5. The Respond post-upgrade tasks only apply after the Respond Server service is upgraded and is in the enabled state.

(Conditional) Restore Any Respond Service Custom Keys in the Aggregation Rule Schema

Note: If you did not manually customize the incident aggregation rule schema, you can skip this task.

If you added custom keys in the `var/lib/netwitness/respond-server/data/aggregation_rule_schema.json` file for use in the `groupBy` clause for 11.x, modify the `/var/lib/netwitness/respond-server/data/aggregation_rule_schema.json` file and add the custom keys from the automatic backup file.

The backup file is located in `/var/lib/netwitness/respond-server/data` and it is in the following format:
`aggregation_rule_schema.json.bak-<time of the backup>`

(Conditional) Restore any Customized Respond Service Normalization Scripts

Note: If you did not manually customize any alert normalization scripts, you can skip this task. This procedure applies to upgrades from 11.3.x to 11.5. (For upgrades from 11.4.x to 11.5, there are no backups of the normalization script files since customizations are in separate `custom_normalize` script files, which are not overwritten during the upgrade.

To prevent overwriting future customizations, custom normalization script files are available in NetWitness Platform 11.4 and later. Add any custom logic to the **`custom_normalize_<alert type>.js`** files.

1. Locate any custom logic from the backup Respond normalization scripts located in the **`/var/lib/netwitness/respond-server/scripts.bak-<timestamp>`** directory, where `<timestamp>` is the time that the backup completed:
   ```
   data_privacy_map.js
   normalize_alerts.js
   normalize_core_alerts.js
   normalize_ecat_alerts.js
   normalize_ma_alerts.js
   normalize_ueba_alerts.js
   normalize_wtd_alerts.js
   utils.js
   ```
2. Edit the new 11.4 or later script files in the **`/var/lib/netwitness/respond-server/scripts`** directory to include any logic from the back up files. If you have any customizations in the normalization files, add them to the normalization files with the `custom` prefix.
   ```
   data_privacy_map.js
   custom_normalize_alerts.js
   custom_normalize_core_alerts.js
   custom_normalize_ecat_alerts.js
   custom_normalize_ma_alerts.js
   custom_normalize_ueba_alerts.js
   custom_normalize_wtd_alerts.js
   utils.js
   ```

   For Example, the `custom_normalize_core_alerts.js` is the normalization script for ESA to add any custom logic. This java script file has a function '`normalizeAlert`' with the parameters `headers`, `rawAlert`, and `normalizedAlert`. The variable '`normalized`' is an immutable copy object, which has an embedded object of a list of normalized events. So if you have any custom meta keys configured for the events then you have to iterate through the '`normalized.events`' to populate the appropriate meta keys with values from the '`rawAlert.events`' object. Below is the sample code.

```
normalizeAlert = function (headers, rawAlert, normalizedAlert) {
// normalizedAlert is the immutable copy of ootb normalizer alert, make
sure you use
// normalized object to update/set the values in your scripts
var normalized = Object.assign(normalizedAlert);
var custom_events;
if(normalized.events !== undefined) {
```

```
custom_events = normalized.events;


} else {
custom_events = new Array([]);


}
for (var i = 0; i < rawAlert.events.length; i++) {
custom_events[i].legalentity=Utils.stringValue(rawAlert.events[i].isgs_
legalentity);
custom_events[i].companycode=Utils.stringValue(rawAlert.events[i].isgs_
companycode);


}


if(normalized.events === undefined){
normalized.events = custom_events;
}
return normalized;
};
```

You can also look at the built-in Respond normalization script files for reference, such as `normalize_alerts.js`. For more information, see "Configure Custom Respond Server Alert Normalization" in the *NetWitness Respond Configuration Guide*.

Reference Log Decoder

For full functionality, make sure your reference Log Decoder is at 11.5 or later. If you never set up a reference Log Decoder, there is no need to take action. For details, see the *Log Parser Customization Guide*.

Windows Log Collector

Update the Windows Log Collector UUID

After upgrading to 11.5, for each Windows Log Collector configured in your environment, run the following command on the NW Server:

```
wlc-cli-client --update-to-uuid --host <WLC host address>
```

User Entity Behavior Analytics

IMPORTANT: Every UEBA deployment when upgraded requires additional steps to complete the upgrade process. When you upgrade from 11.3.0.0 to 11.3.2.0 to 11.5.0.0, you must follow UEBA instructions in the *Upgrade Guide for 11.3.2.0*, before you upgrade to 11.5.0.0.

Note: When you upgrade to 11.5.0.0 from 11.4.x, you don't need to rerun the UEBA system for the last 28 days, if you don't update the current processing schemas. When you upgrade to 11.5.0.0 from a version prior to 11.4.x, the UEBA system runs a rerun automatically.

1. (For Virtual Machines Only) Update the airflow parallelism on VM.
   If the UEBA system is running on VM, update the airflow parallelism to be 64 by running the following command as root from the UEBA host.

   ```
   sed -i "s|parallelism = 256|parallelism = 64|g"
   /var/netwitness/presidio/airflow/airflow.cfg
   ```

2. Update the UEBA configuration using the following command from the UEBA machine.
   ```
   python /var/netwitness/presidio/airflow/venv/lib/python2.7/site-
   packages/presidio_workflows-1.0-py2.7.egg/presidio/resources/rerun_ueba_
   server_config.py
   ```

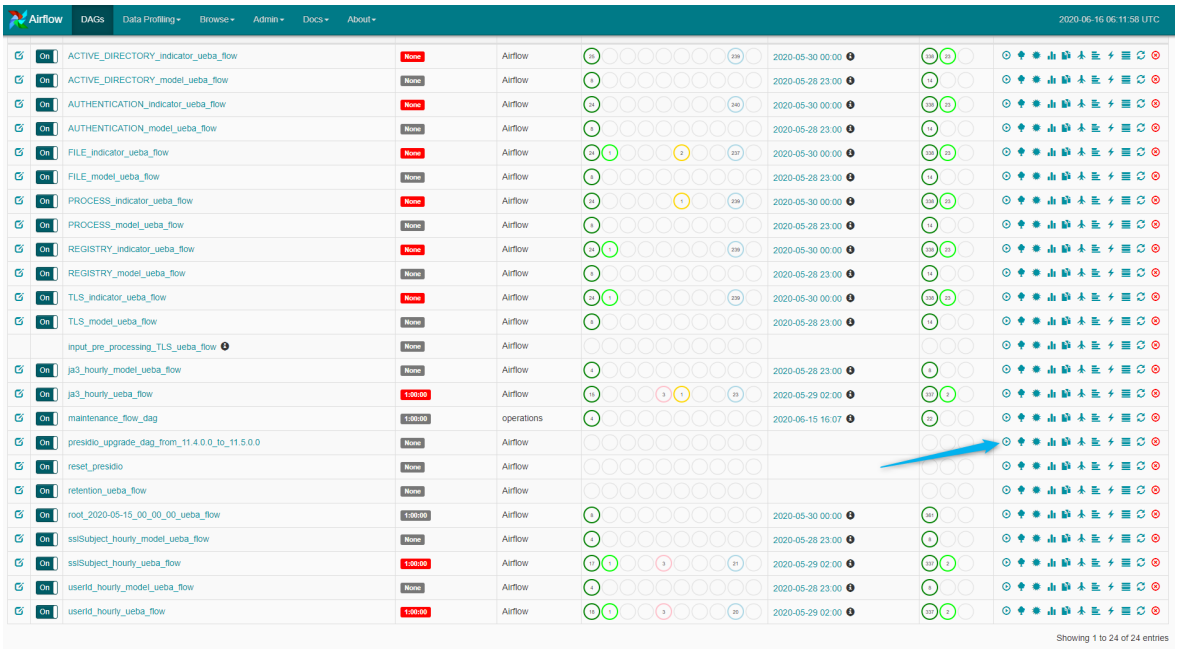
3. (Optional) Update the UEBA processing schema, using the reset_presidio.py script.

   RSA recommends that the UEBA start date is set to 28 days earlier than the current date. For UEBA systems that intend to process TLS data, you must make sure that the start date is set to no later than 14 days earlier than the current date.

   For more information, see the "reset-presidio script" section in the *UEBA Configuration Guide*.

   Note: If you have upgraded from 11.5.x versions you can add a schemes without rerunning the UEBA. For more information, see the "Add a Schema without Rerunning the UEBA" section in the *UEBA Configuration Guide*.

4. Run the airflow upgrade DAG.
   - Go to Airflow main page `https://<UEBA-host-name>/admin`
   - Enter the admin username and password.
   - Click the **Play** in `presidio_upgarde_dag_from_<previous_version> to_11.5.0.0`.



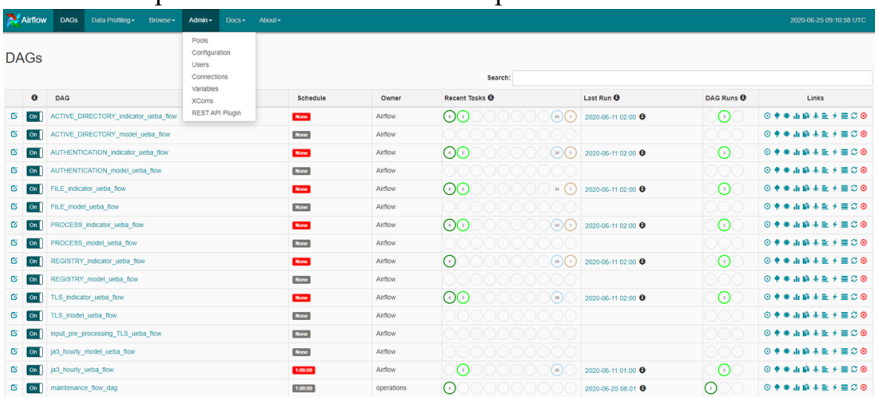
Note: A light green circle will appear next to the upgrade DAG row during the upgrade. If the upgrade process is completed successfully the light green circle changes to green. If the upgrade process fails, the light green circle changes to red.

5. Set the appropriate "Boot Jar Pools" slots:

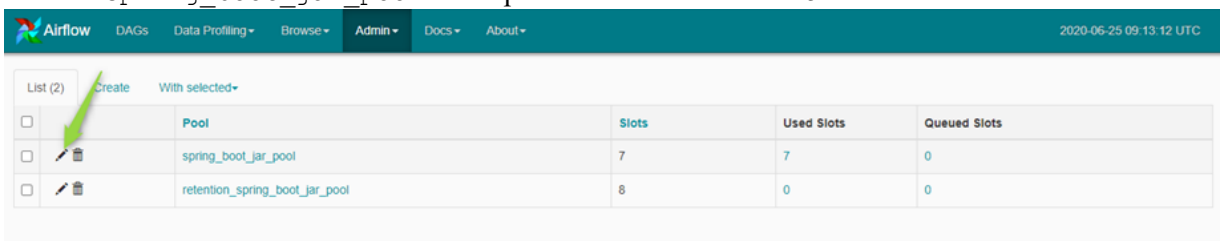
   - **Physical Appliance**: Update the `spring_boot_jar_pool` slot value be 18.
   - **Virtual Appliance**: Update the `spring_boot_jar_pool` and the `retention_spring_boot_jar_pool` slot values to 5.
     To update the “Spring Boot Jar Pools” slots, Go to the Airflow main page, tap the “Admin” tab at the top bar and tap “Pools”.

   a. To access the Airflow UI, go to `https://<UEBA_host>/admin` and enter the credentials.
      User: admin
      Password: The environment deploy admin password.

   b. Click on the pencil mark of the Pools to update the slot values.



- Edit the `spring_boot_jar_pool` and update the slots amount to 5.



Licensing

After upgrade the prior entitlements usage for packet data will be deleted as the stats for calculating the usage are updated. In case of mixed mode deployment, the stats obtained will not be accurate as the Decoders send the data based on the old calculation. Packet write bytes will not be sent by Decoders and also the capture bytes processed will be different.

Endpoint Upgrade Tasks

Install the 11.5 Relay Server

If you have configured Relay Server, perform the following:

1. You must upgrade the Relay Server to 11.5 by downloading the Relay Server installer from the upgraded Endpoint Server. For more information see "(Optional) Installing and Configuring Relay Server" section in the *Endpoint Configuration Guide*. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.
2. Restart the Endpoint Server using the command:

   ```
   systemctl restart rsa-nw-endpoint-server
   ```

Upgrade Endpoint Agents

See "Upgrade Agents" in the *Endpoint Agent Installation Guide for NetWitness Platform 11.5* for instructions on how to upgrade agents.

Start Using New Features

There are many exciting new features that you can enable after you have upgraded to 11.5. The following is a list of the new features for each area of NetWitness Platform. For a detailed description of the new features in this release, see the *Release Notes for RSA NetWitness Platform 11.5*. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.

- Investigation - SIEM and Network Traffic Analysis
- User Entity Behavior Analytics
- Incident Response
- Health and Wellness
- Endpoint Investigation
- Endpoint Configuration
- Broker, Concentrator, Decoder and Log Decoder Services
- Event Stream Analysis (ESA)
- Administration and Configuration
- Context Hub
- Log Collection
- Logstash Integration

Investigation - SIEM and Network Traffic Analysis

- Springboard - Unified View for Detections and Signals
- Expanded Network Visibility with Endpoint Data
- Improved Navigation to Help Analysts Quickly Detect and Respond to Threats
- A Powerful New Way to Filter Events in the Events View by Pivoting Through the Associated Metadata (BETA)
- Separation of Each User's Private Investigate Content and Content That Is Shared between Users
- Meta Groups Allow Analysts to Optimize the Attributes per Event in the Events View
- Added Protection When Downloading Email Attachments and Files
- Updated Context Menu Actions When Right-Clicking a Meta Value in the Events View
- Added Ability to Download All Metadata in the Events View for Further Analysis or Evidence
- Added Convenience with Optional Human-Readable Time Format in Downloads from the Events View
- Details in the Jobs Queue Identify the Action or Query That Initiated a Failed Job

User Entity Behavior Analytics

- Pivot from UEBA to view Network Events
- Support for additional indicators for VPN Logs and Azure Active Directory
- Enhanced Performance For Physical Deployments
- New network indicators

Incident Response

- Saved Filters are Available for the Incidents and Alerts Lists in the Respond View

Health and Wellness

- Enhanced Health Monitoring and Visualization

Endpoint Investigation

- Extended Linux Agent Support with Ubuntu
- Extended Windows Agent Support for Windows 10, version 2004
- Improved Visibility for Files on the Host
- Ability to View Agent History
- Support to Download Any Files

Endpoint Configuration

- Throttle Network Bandwidth Parameter

Broker, Concentrator, Decoder and Log Decoder Services

- Selective Network Data Collection
- Expanded Coverage of Snort Rules
- Network and Log Decoders Import Data While Capturing
- Multiple Adapter Packet Capture
- User Account and Aggregation Account Information Available in Audit Logs
- Decoders Include the Decoder Identifier Value in Session Metadata Lists
- Configure Packets and Logs to be Parsed Without Being Written

Event Stream Analysis (ESA)

- Configure Memory Thresholds Individually for Each ESA Rule
- Validate ESA rules within the Rule Builder or Advanced EPL Rule Builder
- Esper Version Upgraded from version 8.2.0 to 8.4.0
- A Filter Option is Available for ESA Rule Deployment Data Sources
- Advanced EPL Rules Can Dynamically Update Context Hub Lists

Administration and Configuration

- New Permissions for Investigate to Filter Events and Manage Meta Groups in the Events View
- Manage Permissions for the New Respond Saved Filters for Incidents and Alerts Lists
- Reporting Engine Content Administrator Role for Deploying Reporting Engine Content
- New Tool for Reporting Engine Service Auto-Recovery
- Option to Stop a Running Scheduled Reporting Engine Report
- Improved Process for Changing IP Addresses
- Warm Standby NW Server Can Have Different IP Address Than Active NW Server

Context Hub

- Expand Threat Detection With Improved Threat Intel (Via STIX) Integrations

Log Collection

- Native JSON Log Support & BETA UI
- Raw Pass-through Options for Log Collector Plugins

Logstash Integration

- Logstash Support

Appendix A. Offline Method (No Connectivity to Live Services) - Command Line Interface

You can use this method if the NW Server host is not connected to Live Services.

Prerequisites

Make sure that you have downloaded the `netwitness-11.5.0.0.zip` file from RSA Link (https://community.rsa.com/) > **NetWitness Platform** > **RSA NetWitness Logs and Network** > **Downloads** > RSA Downloads to a local directory:

Procedure

You must perform the upgrade steps for NW Server hosts and for component servers.

Note: If you copy and paste the commands from PDF to Linux SSH terminal, the characters do not work. It is recommended to type the commands.

1. Stage the 11.5.0.0 files to prepare them for the upgrade.
   - Log into the NW Server as `root` and create the following directory:
     `/tmp/upgrade/11.5.0.0`
     and then copy the package zip files to the `/root` directory of the NW Server and extract the package files from `/root` to the appropriate directories using the following command: `unzip netwitness-11.5.0.0.zip -d /tmp/upgrade/11.5.0.0`

   Note: If you copied the .zip file to the created staging directory to unzip, make sure that you delete the initial .zip file that you copied to the staging location after you extract it.
2. Initialize the upgrade, using the following command:
   `upgrade-cli-client --init --version 11.5.0.0 --stage-dir /tmp/upgrade`
3. Upgrade the NW Server host, using the following command:
   `upgrade-cli-client --upgrade --host-<ID, name or address> <ID / display name / (hostname/ IP address)> --version 11.5.0.0`
4. When the NW Server host upgrade is successful, reboot the host from NetWitness Platform user interface in the Hosts view.
5. (Conditional) If Warm Standby Server is deployed, repeat steps 1 to 4 on the Warm Standby Server host.
6. Repeat steps 3 and 4 for each component host, changing the IP address to the component host which is being upgraded.

Note: You can check versions of all the hosts, using the command `upgrade-cli-client --list` on the NW Server host. If you want to view the help content of `upgrade-cli-client`, use the command `upgrade-cli-client --help`.

Note: If the following error is displayed during the upgrade process:
`2017-11-02 20:13:26.580 ERROR 7994 — [ 127.0.0.1:5671] o.s.a.r.c.CachingConnectionFactory : Channel shutdown: connection error; protocol method: #method<connection.close>(reply-code=320, reply-text=CONNECTION_FORCED - broker forced connection closure with reason 'shutdown', class-id=0, method-id=0)`
the service pack will install correctly. No action is required. If you encounter additional errors when updating a host to a new version, contact Customer Support for assistance (https://community.rsa.com/docs/DOC-1294).

External Repo Instructions for CLI upgrade

1. Stage the 11.5.0.0 files to prepare them for the upgrade.
   - Log into the NW Server as `root` and create the following directory:
     `/tmp/upgrade/11.5.0.0`
     and then copy the package zip files to the `/root` directory of the NW Server and extract the package files from `/root` to the appropriate directories using the following command: `unzip netwitness-11.5.0.0.zip -d /tmp/upgrade/11.5.0.0`

   Note: If you copied the .zip file to the created staging directory to unzip, make sure that you delete the initial .zip file that you copied to the staging location after you extract it.
2. Initialize the upgrade, using the following command:
   `upgrade-cli-client --init --version 11.5.0.0 --stage-dir /tmp/upgrade`
3. Upgrade the NW Server host using the following command:
   `upgrade-cli-client --upgrade --host-<ID, name or address> <ID / display name / (hostname/ IP address)> --version 11.5.0.0`
4. When the NW Server host upgrade is successful, reboot the host from NetWitness UI.
5. (Optional) If Warm Standby Server is deployed, repeat steps 1 to 4 on the Warm Standby Server host.
6. Repeat steps 3 and 4 for each component host, changing the IP address to the component host which is being upgraded.

Note: You can check versions of all the hosts, using the command `upgrade-cli-client --list` on the NW Server host. If you want to view the help content of `upgrade-cli-client`, use the command `upgrade-cli-client --help`.

Note: If the following error displays during the upgrade process:
`2017-11-02 20:13:26.580 ERROR 7994 — [ 127.0.0.1:5671] o.s.a.r.c.CachingConnectionFactory : Channel shutdown: connection error; protocol method: #method<connection.close>(reply-code=320, reply-text=CONNECTION_FORCED - broker forced connection closure with reason 'shutdown', class-id=0, method-id=0)`
the service pack will install correctly. No action is required. If you encounter additional errors when updating a host to a new version, contact Customer Support for assistance (https://community.rsa.com/docs/DOC-1294).

Appendix B. Set Up External Repo

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. (Conditional) Complete this step if you have an external repo and you want to override it.
   - Case 1: You bootstrapped the host from an external repo and you want to upgrade using a local repo on the Admin Server.
     a. Create the `/etc/netwitness/platform/repobase` file.
        `vi /etc/netwitness/platform/repobase`
     b. Edit the `repobase` file so that the only information in the file is the following URL.
        `https://nw-node-zero/nwrpmrepo`
     c. Complete the instructions on how to run the upgrade using the `upgrade-cli-client` tool.
   - Case 2: You bootstrapped the host from local repo on the Admin server (NW Server host) and you want to use an external repo for the upgrade.
     a. Create the `/etc/netwitness/platform/repobase` file.
        `vi /etc/netwitness/platform/repobase`
     b. Edit the `repobase` file so that the only information in the file is the following URL.
        `https://<webserver-ip>/<alias-for-repo>`
     c. Complete the instructions on how to run the upgrade using the `upgrade-cli-client` tool. The instructions are in "Appendix A. Offline Method (No Connectivity to Live Services) - Command Line Interface" in the *Upgrade Guide for RSA NetWitness Platform*. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents.
2. Set up the external repo.
   a. Log in to the web server host.
   b. Create directory to host the NW repository (`netwitness-11.5.0.0.zip`), for example `ziprepo` under `web-root` of the web server. For example, /var/netwitness is the web-root, run the following command string.
      `mkdir -p /var/netwitness/<your-zip-file-repo>`
   c. Create the 11.5.0.0 directory under `/var/netwitness/<your-zip-file-repo>`.
      `mkdir -p /var/netwitness/<your-zip-file-repo>/11.5.0.0`
   d. Create the `OS` and `RSA` directories under `/var/netwitness/<your-zip-file-repo>/11.5.0.0`.
      `mkdir -p /var/netwitness/<your-zip-file-repo>/11.5.0.0/OS`
      `mkdir -p /var/netwitness/<your-zip-file-repo>/11.5.0.0/RSA`
   e. Unzip the `netwitness-11.5.0.0.zip` file into the `/var/netwitness/<your-zip-file-repo>/11.5.0.0` directory.

```
unzip netwitness-11.5.0.0.zip -d /var/netwitness/<your-zip-file-repo>/11.5.0.0
```

Unzipping `netwitness-11.5.0.0.zip` results in two zip files (`OS-11.5.0.0.zip` and `RSA-11.5.0.0.zip`) and some other files.

f. Unzip the:
`OS-11.5.0.0.zip` into the `/var/netwitness/<your-zip-file-repo>/11.5.0.0/OS` directory.
```
unzip /var/netwitness/<your-zip-file-repo>/11.5.0.0/OS-11.5.0.0.zip -d /var/netwitness/<your-zip-file-repo>/11.5.0.0/OS
```

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

g. Unzip the:
`RSA-11.5.0.0.zip` into the `/var/netwitness/<your-zip-file-repo>/11.5.0.0/RSA` directory.
```
unzip /var/netwitness/<your-zip-file-repo>/11.5.0.0/RSA-11.5.0.0.zip -d /var/netwitness/<your-zip-file-repo>/11.5.0.0/RSA
```

h. (Conditional - For Azure) Follow these steps for Azure update.

   i. `mkdir -p /var/netwitness/<your-zip-file-repo>/11.5.0.0/OS/other`

   ii. `unzip nw-azure-11.3-extras.zip -d /var/netwitness/<your-zip-file-repo>/11.5.0.0/OS/other`

   iii. `cd /var/netwitness/<your-zip-file-repo>/11.5.0.0/OS`

   iv. `createrepo`

i. 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 11.5.0.0 Setup program (`nwsetup-tui`) prompt.

Appendix C. Troubleshooting Version Installations and Upgrades

This section describes the error messages displayed in the Hosts view when it encounters problems updating host versions and installing services on hosts in the Hosts view. If you cannot resolve an update or installation issue using the following troubleshooting solutions, contact Customer Support (https://community.rsa.com/docs/DOC-1294).

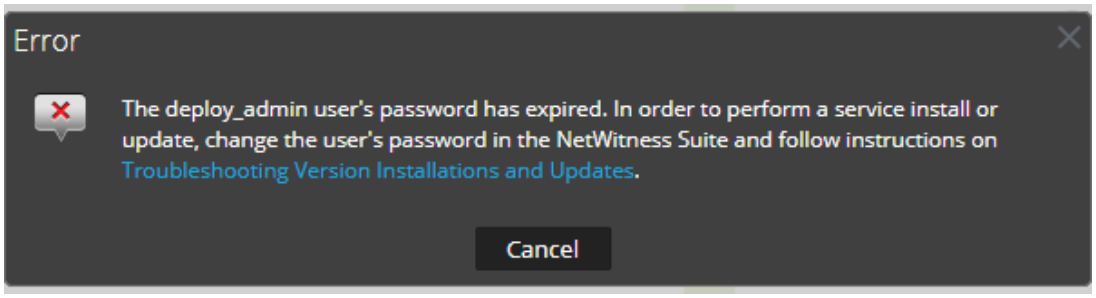
Troubleshooting instructions for the following errors that may occur during the upgrade are described in this section.

- deploy_admin Password Expired Error
- Downloading Error
- Error Deploying Version <version-number> Missing Update Packages
- Upgrade Failed Error
- External Repo Update Error
- Host Installation Failed Error
- Host Update Failed Error
- Missing Update Packages Error
- OpenSSL 1.1.x Error
- Patch Update to Non-NW Server Error
- Reboot Host After Update from Command Line Error
- Reporting Engine Restarts After Upgrade

Troubleshooting instructions are also provided for errors for the following hosts and services that may occur during or after an upgrade.

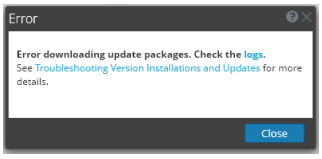
- Log Collector Service
- NW Server
- Orchestration
- Reporting Engine
- Event Stream Analysis

deploy_admin User Password Has Expired Error

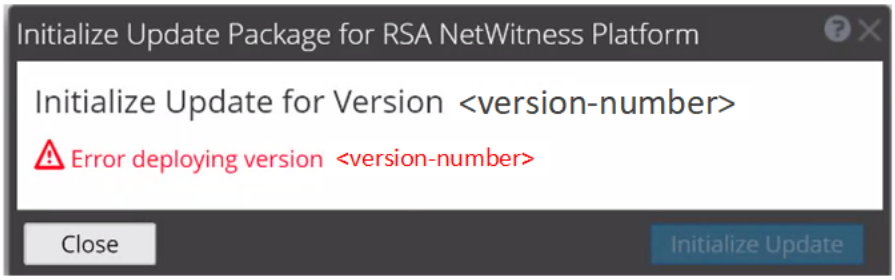
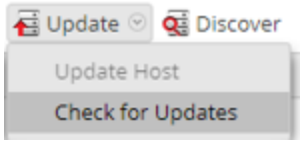
Error Message	
Cause	The `deploy_admin` user password has expired.

Solution	Reset your `deploy_admin` password password.
	1. On the NW Server host only, run the following command.
	`nw-manage --update-deploy-admin-pw`
	`Please enter the new deploy_admin account password: <new-deploy-admin-password>`
	`Please confirm the new deploy_admin account password: <new-deploy-admin-password>`
	2. Review the output of the `nw-manage --update-deploy-admin-pw` command to verify the `deploy_admin` password was successfully updated on all hosts. If an NW host is down or fails for any reason as displayed by the output of the `nw-manage --update-deploy-admin-pw` command, run `nw-manage --sync-deploy-admin-pw --host-key <host-identifier>` to synchronize the password between the NW Server and the host that failed once the communication failure is resolved.
	3. On the host that failed installation or orchestration, run the `nwsetup-tui` command and use the new **deploy_admin** password in response to the **Deployment Password** prompt.

Downloading Error

Error Message	
Problem	When you select an update version and click **Update** >**Update Host**, the download starts but fails to complete.
Cause	Version download files can be large and take a long time to download. If there are communication issues during the download it will fail.
Solution	1. Try to update again. 2. If it fails again with the same error, try to update using the offline methods as described in "Offline Method from Hosts View" or "Offline Method Using Command Line Interface" in the *Upgrade Guide for NetWitness Platform 11.5*. Go to the Master Table of Contents to find all RSA NetWitness Platform 11.x documents. 3. If you are still not able to update, contact Customer Support (https://community.rsa.com/docs/DOC-1294).

Error Deploying Version <version-number> Missing Update Packages

Error Message	
Problem	Error deploying version <version-number> is displayed in the **Initialize Update Package for RSA NetWitness Platform** dialog after you click on **Initialize Update** if the update package is corrupted.
Solution	1. Click **Close** to close the dialog. 2. Remove the version folder from staging folder. 3. Make sure that the salt-master service is running. 4. Recopy the update package zip file to the staging folder. 5. In the Hosts view toolbar, select Check for Updates again.  6. Click **Initialize Update**. 7. Click **Update** > **Update Hosts** from the toolbar. 8. Click **Begin Update** from the **Update Available** dialog. After the host is updated, it prompts you to reboot the host. 9. Click **Reboot** from the toolbar.

Upgrade Failed Error

Error Message	While updating/installing a device to version 11.2 or above, the following error can occur and be found in /var/log/netwitness/config-management/chef-solo.log: [2019-04-16T20:55:32+00:00] ERROR: Running exception handlers [2019-04-16T20:55:32+00:00] ERROR: Exception handlers complete [2019-04-16T20:55:32+00:00] FATAL: Stacktrace dumped to /var/lib/netwitness/config-management/cache/chef-stacktrace.out [2019-04-16T20:55:32+00:00] FATAL: Please provide the contents of the stacktrace.out file if you file a bug report [2019-04-16T20:55:32+00:00] ERROR: ruby_block[resolve ips] (nw-dns-client::config line 69) had an error: Resolv::ResolvError: no address for 889e5752-6ae3-4286-33f4ccbc [2019-04-16T20:55:32+00:00] FATAL: Chef::Exceptions::ChildConvergeError: Chef run process exited unsuccessfully (exit code 1)

Cause	The reason can be because the target host is unable to communicate to the Admin Server on port 53 as it is attempting to use the dnsmasq service on the Admin Server to resolve, in this case, 889e5752-6ae3-4286-a944-c182 33f4ccbc. This is the salt minion id of the admin server. You can see this by running "cat /etc/salt/minion" on the Admin Server to compare. Example output:
	`[root@S5-NWAdmin ~]# cat /etc/salt/minion`
	`master: localhost`
	`hash_type: sha256`
	`log_level: info`
	`id: 889e5752-6ae3-4286-a944-c18233f4ccbc`

Solution	If possible, configure any firewalls between the target host and the Admin Server host to be able to communicate on port 53. If this is not possible, the workaround is to include the minion id in the /etc/host file on the component hosts and starting in the 11.4 release, modify the chef recipe not to overwrite this workaround.
Workaround	Refer to Install/Upgrade fails in RSA NetWitness Platform because Resolv::ResolvError: no address for a particular host KB Article.

Error Message	Received an error in the error log similar to the following when trying to update to version 11.5.1 : `FATAL: Chef::Exceptions::Package: yum_package[rsa-protobufs-rt] (rsa-audit::packages line 11) had an error: Chef::Exceptions::Package: No version specified, and no candidate version available for rsa-protobufs-rt`
Cause	Custom builds/rpms installed for certain components installed on hosts, such as in the case of installing Hotfixes.

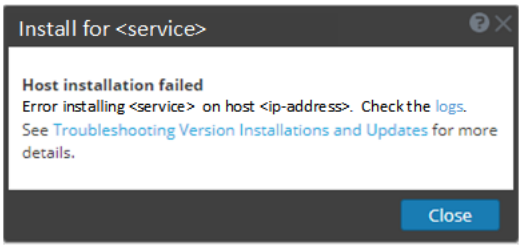
Solution	To resolve the issue, follow the below steps.
	1. SSH to Admin Server.
	2. Locate the component descriptor file by running the following command.
	`cd /etc/netwitness/component-descriptor/`
	3. Open the component descriptor file by running the following command.
	`vi nw-component-descriptor. json`
	4. Search for “packages” section for the component you have custom build/rpm. For example, below shown is the package details for “concentrator” host that has custom build/rpm.
	`“concentrator”: {`
	`“cookbook_name”: “rsa-concentrator”,`
	`“service_names”: [“rsa-nw-concentrator”],`
	`“family”: “launch”,`
	`“default_port”: xxxx, “description”: “Concentrator”,`
	`“packages”:[{ “name”: “rsa-nw-concentrator”,`
	`“version” : “11.5.1.0-2003001075220.5.cecf24b.e.17.centos”`
	`},`
	5. Delete the complete version details including (,) character in the packages section. For

	example, it should look like as shown below after you delete the version details. "packages": [{ "name": "rsa-nw-concentrator" }, **Note:** You must delete the version details for all the host that has custom builds/rpms in the component descriptor of the admin server. 6. Run the upgrade process again.

External Repo Update Error

Error Message	Received an error similar to the following error when trying to update to a new version from the : .Repository 'nw-rsa-base': Error parsing config: Error parsing "baseurl = 'https://nw-node-zero/nwrpmrepo /<version-number>/RSA'": URL must be http, ftp, file or https not ""
Cause	There is an error the path you specified.
Solution	Make sure that: • the URL does exist on the NW Server host. • you used the correct path and remove any spaces from it.

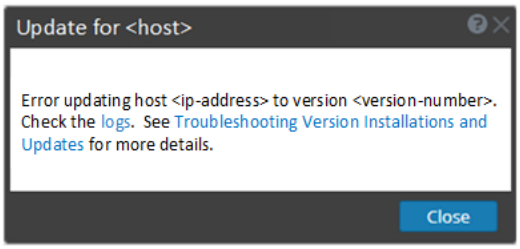
Host Installation Failed Error

Error Message	
Problem	When you select a host and click **Install** the install service process fails.

Solution	1. Try to install the service again.
	Often this is all you need to do.
	2. If you still cannot install the service:
	a. Monitor the following logs on NW Server as it progresses (for example, submit the `tail -f` command string from the command line'):
	`/var/netwitness/uax/logs/sa.log`
	`/var/log/netwitness/orchestration-server/orchestration-server.log`

	`/var/log/netwitness/deployment-upgrade/chef-solo.log`
	`/var/log/netwitness/config-management/chef-solo.log`
	`/var/lib/netwitness/config-management/cache/chef-stacktrace.out`
	The error appears in one or more of these logs.
	b. Try to resolve the issue and reinstall the service.
	• Cause 1 - Entered the wrong `deploy_admin` password in the nwsetup-tui.
	Solution - Reset your `deploy_admin` password password.
	1. On the NW Server host and all other hosts on 11.x, run the following command.
	`/opt/rsa/saTools/bin/set-deploy-admin-password`
	2. On the host that failed installation or orchestration, run the `nwsetup-tui` command and use the new **deploy_admin** password in response to the **Deployment Password** prompt.
	• Cause 2 -The `deploy_admin` password has expired.
	Solution - Reset your `deploy_admin` password password.
	1. On the NW Server host and all other hosts on 11.x, run the following command.
	`/opt/rsa/saTools/bin/set-deploy-admin-password`
	2. On the host that failed installation or orchestration, run the `nwsetup-tui` command and use the new **deploy_admin** password in response to the **Deployment Password** prompt.
	3. If you still cannot apply the update, gather the logs from step 2 and contact Customer Support (https://community.rsa.com/docs/DOC-1294).

Host Update Failed Error

Error Message	
Problem	When you select an update version and click **Update** > **Update Host**, the download process is successful, but the update process fails.
Solution	1. Try to apply the version update to the host again. Often this is all you need to do. 2. If you still cannot apply the new version update:

a. Monitor the following logs on NW Server as it progresses (for example, run the `tail -f` command from the command line):
`/var/netwitness/uax/logs/sa.log`
`/var/log/netwitness/orchestration-server/orchestration-server.log`
`/var/log/netwitness/deployment-upgrade/chef-solo.log`
`/var/log/netwitness/config-management/chef-solo.log`
`/var/lib/netwitness/config-management/cache/chef-stacktrace.out`
The error appears in one or more of these logs.

b. Try to resolve the issue and reapply the version update.

- Cause 1 - `deploy_admin` password has expired.
  Solution - Reset your `deploy_admin` password .
  Complete the following steps to resolve Cause 1.

  1. In the NetWitness Suite menu, select  **(Admin) > Security > Users** tab.
  2. Select the `deploy_admin` and click **Reset Password**.
  3. (Conitional) If NetWitness Suite does not allow you to expired `deploy_admin` password in the **Reset Password** dialog, complete the following steps.
     a. Reset `deploy_admin` to use a new password.
     b. On all non-NW Server hosts on 11.x , run the following command using the matching `deploy_admin` password from NW Server host.
     `/opt/rsa/saTools/bin/set-deploy-admin-password`

- Cause 2 -The `deploy_admin` password was changed on NW Server host but not changed on non-NW Server hosts.
  Complete the following step to resolve Cause 2.
  - On all non-NW Server hosts on 11.x , run the following command using the matching `deploy_admin` password from NW Server host.
    `/opt/rsa/saTools/bin/set-deploy-admin-password`

3. If you still cannot apply the update, gather the logs from step 2 and contact Customer Support (https://community.rsa.com/docs/DOC-1294).

Missing Update Packages Error

Error Message	**Initialize Update for Version xx.x.x.x** Missing the following update package(s) Download Packages from RSA Link
Problem	Missing the following update package(s) is displayed in the **Initialize Update Package for RSA NetWitness Platform** dialog when you are updating a host from the **Hosts** view

	offline and there are packages missing in the staging folder.
Solution	1. Click Download Packages from RSA Link in the **Initialize Update Package for RSA NetWitness Platform** dialog. The RSA Link page that contains the update files for the selected version is displayed. 2. Select the missing packages from the staging folder. The **Initialize Update Package for RSA NetWitness Platform** dialog is displayed telling you that it is ready to initialize the update packages.

OpenSSL 1.1.x

Error Message	The following example illustrates an ssh error that can occur when the ssh client is run from a host with OpenSSL 1.1.x installed: `$ ssh root@10.1.2.3` **`ssh_dispatch_run_fatal: Connection to 10.1.2.3 port 22: message authentication code incorrect`**

Problem	Advanced users who want to ssh to a NetWitness Platform host from a client that is using OpenSSL 1.1.x encounter this error because of incompatibility between CENTOS 7.x and OpenSSL 1.1.x. For example:
	`$ rpm -q openssl`
	`openssl-1.1.1-8.el8.x86_64`

Solution	Specify the compatible cipher list on the command line. For example:
	`$ ssh -oCiphers=aes128-ctr,aes192-ctr,aes256-ctr root@10.1.2.3`
	`I've read & consent to terms in IS user agreement.`
	`root@10.1.2.3's password:`
	`Last login: Mon Oct 21 19:03:23 2019`

Patch Update to Non-NW Server Error

Error Message	The `/var/log/netwitness/orchestration-server/orchestration-server.log` has an error similar to the following error: **`API|Failure /rsa/orchestration/task/update-config-management [counter=10 reason=IllegalArgumentException::Version '11.x.x.n' is not supported`**
Problem	After you update the NW Server host to a version, you must update all non-NW Server hosts to the same version. For example, if you update the NW Server from 11.4.0.0 to 11.5.0.0 , the only update path for the non-NW Server hosts is the same version (that is, 11.5.0.0). If you try to update any non-NW Server host to a different version (for example, from 11.4.0.0 to an 11.4.x.x) you will get this error.
Solution	You have two options: • Update the non-NW Server host to 11.5.0.0, or • Do not update the non-NW Server host (keep it at its current version)

Reboot Host After Update from Command Line Error

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.

Reporting Engine Restarts After Upgrade

Problem	In some cases, after you upgrade to 11.5 from versions of 11.x, such as 11.3, the Reporting Engine service attempts to restart continuously without success.
Cause	The database files for live charts, alert status, or report status may not be loaded successfully as the files may be corrupted.
Solution	To resolve the issue, do the following: 1. Check which database files are corrupted: Navigate to the file located at `/var/netwitness/reserver/rsa/soc/reporting-engine/logs/reporting-engine.log` and check the following blocks: • If the live charts db file is corrupted, the following logs are displayed: Attempt Failed!!! Clearing pending acquires. While trying to acquire a needed new resource, we failed to succeed more than the maximum number of allowed acquisition attempts (30). Last acquisition attempt exception: org.h2.jdbc.JdbcSQLException: File corrupted while reading record: null. Possible solution: use the recovery tool [90030-196] at org.h2.message.DbException.getJdbcSQLException(DbException.java:345) at org.h2.message.DbException.get(DbException.java:168) org.springframework.beans.factory.BeanCreationException: Error creating bean with name 'chartSummaryDAOImpl': Invocation of init method failed; nested exception is com.rsa.soc.re.exception.ReportingException: java.sql.SQLException: Connections could not be acquired from the underlying database! • If the alert status db file is corrupted, the following logs are displayed: Attempt Failed!!! Clearing pending acquires. While trying to acquire a needed new resource, we failed to succeed more than the maximum number of allowed acquisition attempts (30). Last acquisition attempt exception: org.h2.jdbc.JdbcSQLException: File corrupted while reading record: null. Possible solution: use the recovery tool [90030-196] at org.h2.message.DbException.getJdbcSQLException(DbException.java:345) at org.h2.message.DbException.get(DbException.java:168) org.springframework.beans.factory.UnsatisfiedDependencyException: Error creating bean with name 'alertStatusHandler': Unsatisfied dependency expressed through field 'alertExecutionStatsDAO'; nested exception is org.springframework.beans.factory.UnsatisfiedDependencyException: Error creating bean with name 'alertExecutionStatsDAOImpl': Unsatisfied dependency expressed through field 'persistedAlertExecutionStatsDAO'; nested exception is org.springframework.beans.factory.BeanCreationException: Error creating bean with name 'persistedAlertExecutionStatsDAOImpl'

	• If the report status db file is corrupted, the following logs are displayed: `org.h2.jdbc.JdbcSQLException: File corrupted while reading record: null. Possible solution: use the recovery tool [90030-196]` 2. To resolve the live charts database file corruption, perform the following steps: a. Stop the Reporting Engine service. b. Move the `livechart.mv.db` file from `/var/netwitness/reserver/rsa/soc/reporting-engine/livecharts` folder to a temporary location. c. Restart the Reporting Engine service. **Note:** Some live charts data may be lost on performing the above steps. To resolve the alert status or report status database file corruption, perform the following steps: a. Stop the Reporting Engine service. b. Replace the corrupted db file with the latest `alertstatusmanager.mv.db` or `reportstatusmanager.mv.db` file from `/var/netwitness/reserver/rsa/soc/reporting-engine/archives` folder. c. Restart the Reporting Engine service. For more information, see the Knowledge Base article Reporting Engine restarts After upgrade to RSA NetWitness Platform 11.4.

Problem	After you upgrade to version 11.5, the Reporting Engine service does not restart.
Cause	The Reporting Engine service may not start due to any of the following reasons. - workspace.xml not updated. - Time is not converted properly in livechart h2 database. - JCR (Jackrabbit repository) is corrupted with primary key violation.

Solution	To resolve the issue, run the Reporting Engine Migration Recovery tool (`rsa-nw-re-migration-recovery.sh`) on the Admin Server where the Reporting Engine service is installed.
	Note: You can find the Reporting Engine Migration Recovery tool in the below location.
	`/opt/rsa/soc/reporting-engine-11.5.0.0-<Tag>/nwtools`
	1. SSH to Admin Server.
	2. Untar the RE (Reporting Engine) tool, run the following command.
	`tar -xvf rsa-nw-re-recovery-tool-bundle.tar`
	3. (Optional) If you want to untar the RE tool file in some other directory, you can create a directory and untar the RE tool. Run the following commands.
	`mkdir <NAME OF THE DIRECTORY>`
	`tar -xvf rsa-nw-re-recovery-tool-bundle.tar --directory <PATH OF THE DIRECTORY>`

	4. Run the script, run the following command. `./<PATH OF THE DIRECTORY>/rsa-nw-re-recovery-tool.sh` For more information, see the Knowledge Base article **Reporting Engine Migration Recovery Tool**.

Log Collector Service (`nwlogcollector`)

Log Collector logs are posted to `/var/log/install/nwlogcollector_install.log` on the host running the `nwlogcollector` service.

Error Message	`<timestamp>.NwLogCollector_PostInstall: Lockbox Status : Failed to open lockbox: The lockbox stable value threshold was not met because the system fingerprint has changed. To reset the system fingerprint, open the lockbox using the passphrase.`
Cause	The Log Collector Lockbox failed to open after the update.
Solution	Log in to NetWitness Platform and reset the system fingerprint by resetting the stable system value password for the Lockbox as described in the "Reset the Stable System Value" topic under "Configure Lockbox Security Settings" topic in the *Log Collection Configuration Guide*.

Error Message	`<timestamp> NwLogCollector_PostInstall: Lockbox Status : Not Found`
Cause	The Log Collector Lockbox is not configured after the update.
Solution	If you use a Log Collector Lockbox, log in to NetWitness Platform and configure the Lockbox as described in the "Configure Lockbox Security Settings" topic in the *Log Collection Configuration Guide*.

Error Message	`<timestamp>: NwLogCollector_PostInstall: Lockbox Status : Lockbox maintenance required: The lockbox stable value threshold requires resetting. To reset the system fingerprint, select Reset Stable System Value on the settings page of the Log Collector.`
Cause	You need to reset the stable value threshold field for the Log Collector Lockbox.
Solution	Log in to NetWitness Platform and reset the stable system value password for the Lockbox as described in "Reset the Stable System Value" topic under "Configure Lockbox Security Settings" topic in the *Log Collection Configuration Guide*.

Error Message	Decoder tries to start capture events but fails. `Aug 27 01:44:41 nwdecoder NwDecoder[8052]: [Decoder] [failure] The PF_RING driver is not installed.`

Solution	To resolve the issue, do the following steps,
	1. SSH to the Decoder host.
	2. Run the following commands.
	`yum reinstall pfring*`
	`systemctl restart nwdecoder`

NW Server

These logs are posted to `/var/netwitness/uax/logs/sa.log` on the NW Server Host.

Problem	After upgrade, you notice that Audit logs are not getting forwarded to the configured Global Audit Setup; or, The following message seen in the `sa.log`. `Syslog Configuration migration failed. Restart jetty service to fix this issue`
Cause	NW Server Global Audit setup migration failed to migrate from 11.3.x.x. to 11.5.0.0.
Solution	1. SSH to the NW Server. 2. Submit the following command. `orchestration-cli-client --update-admin-node`

Orchestration

The orchestration server logs are posted to `/var/log/netwitness/orchestration-server/orchestration-server.log` on the NW Server Host.

Problem	1. Tried to upgrade a non-NW Server host and it failed. 2. Retried the upgrade for this host and it failed again. You will see the following message in the `orchestration-server.log`. `"'file' _virtual_ returned False: cannot import name HASHES""`
Cause	Salt minion may have been upgraded and never restarted on failed non-NW Server host

Solution	1. SSH to the non-NW Server host that failed to upgrade.
	2. Submit the following commands.
	`systemctl unmask salt-minion`
	`systemctl restart salt-minion`
	3. Retry the upgrade of the non-NW Server host.

Reporting Engine Service

Reporting Engine Update logs are posted to to`/var/log/re_install.log` file on the host running the Reporting Engine service.

Error Message	`<timestamp> : Available free space in /var/netwitness/re-server/rsa/soc/reporting-engine [ ><existing-GB ] is less than the required space [ <required-GB> ]`
Cause	Update of the Reporting Engine failed because you do not have enough disk space.
Solution	Free up the disk space to accommodate the required space shown in the log message. See the "Add Additional Space for Large Reports" topic in the *Reporting Engine Configuration Guide* for instructions on how to free up disk space.

Event Stream Analysis

Problem	After upgrading to version 11.5, the ESA correlation server does not aggregate events from the configured data sources.
Error Message	`Invalid username or password at com.rsa.netwitness.streams.base.RecordSourceSubscription.run (RecordSourceSubscription.java:173)`
Solution	To resolve the issue, do the following steps. In the NetWitness Platform user interface,

1. Go to  **(Configure) > ESA Rules**.
   ESA Rules panel is displayed with **Rules** tab open.
2. In the Rules tab options panel, under Deployments, select a deployment.
3. In the **Data Sources** section, select the data source and click  in the toolbar.
4. In the **Edit Service** dialog, type the password for that data source.
5. Click the **Test Connection** button to make sure that it can communicate with the ESA service and then click **OK**.

Note: Do the above procedure for all the configured data sources.

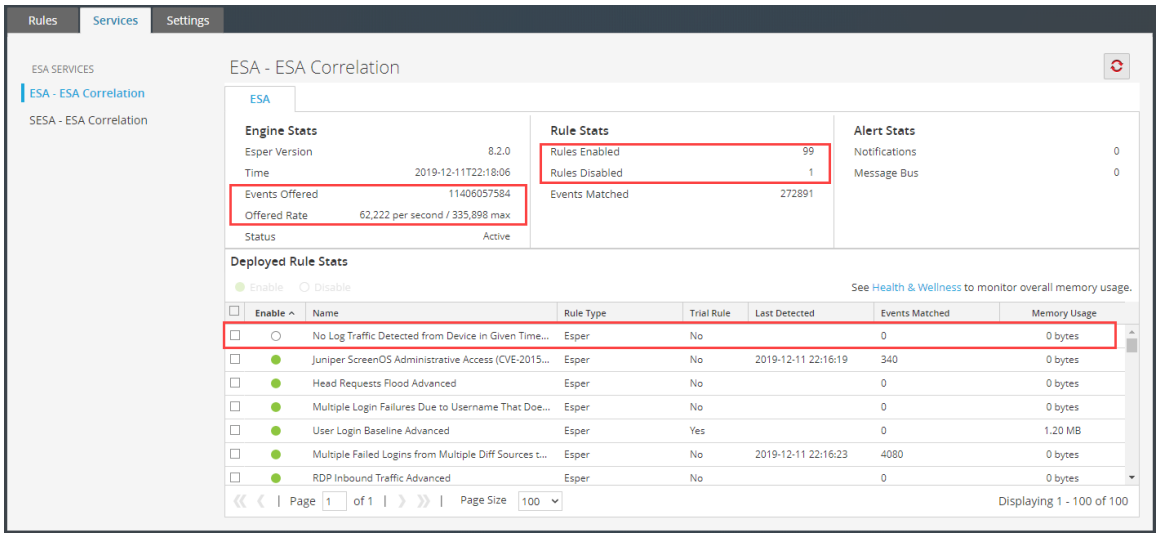
6. After you finish making changes to the deployment, click **Deploy Now** to redeploy the ESA rule deployment.

ESA Troubleshooting Information

ESA Rules are Not Creating Alerts

If you are not seeing any alerts, check the status of the ESA rule deployments.

1. Go to  **(Configure) > ESA Rules > Services** tab.
   The Services view is displayed, which shows the status of your ESA services and deployments.
2. In the options panel on the left, select an ESA service.
3. For each service listed, look at the deployment tabs in the panel on the right. Each tab represents a separate ESA rule deployment.
4. For each ESA rule deployment:
   a. In the **Engine Stats** section, look at the **Events Offered** and the **Offered Rate**. They confirm that the data is being aggregated and analyzed properly. If you see 0 for Events Offered, nothing is coming in for the deploymIent.
   b. In the **Rule Stats** section, look at the **Rules Enabled** and **Rules Disabled**. If there are any disabled rules, look in the **Deployed Rule Stats** section below to view the details of the disabled rules. Disabled rules show a white circle. Enabled rules show a green circle.



5. If you notice any disabled rules that should be enabled:

   a. Go to **(Configure) > ESA Rules > Rules** tab and redeploy the ESA rule deployments that contain disabled rules.

   b. Go back to the **Services** tab and check to see if the rules are still disabled. If the rules are still disabled, check the ESA Correlation service log files, which are located at `/var/log/netwitness/correlation-server/correlation-server.log`.

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 11.4 or later, 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.

Endpoint, UEBA, and Live Content Rules are Not Working

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 11.4 or 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 11.4 or 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 11.4 or 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 11.4 or later:

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

To update your meta keys, see "Update the Multi-Valued and Single-Valued Parameter Meta Keys for the latest Endpoint, UEBA, and RSA Live Content Rules" in the *ESA Configuration Guide*.

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

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

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 "Update the Multi-Valued and Single-Valued Parameter Meta Keys for the latest Endpoint, UEBA, and RSA Live Content Rules" procedure in the *ESA Configuration Guide* 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
```