RSA NETWITNESS® PLATFORM

60-Drive DAC Setup Guide

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About this Document

This document provides instructions for installing a 60-drive Direct-Attached Capacity (DAC) storage device on Series 4 or Series 5 Decoder, Log Decoder, and Archiver physical hosts, also known as appliances.

This document is for new hardware only. It is not intended for DACs with preexisting data.

The DAC installation script instructions in this guide apply only to NetWitness Platform 11.2 and earlier. For NetWitness Platform 11.3 and later, use the hardware connection information in this guide, but refer to *Storage Guide for RSA NetWitness Platform Version 11.3 and later* for instructions on how to allocate storage for your hardware.

Caution: If you are adding a previously used DAC and would like to preserve the data, DO NOT follow the instructions in this guide. Contact RSA Customer Support. Running the script on a previously used DAC could erase any existing data.

Note: When viewing a printed guide, be aware that a newer version of the guide may be available online at RSA Link in RSA NetWitness Platform under Hardware Setup Guides: https://community.rsa.com/community/products/netwitness/hardware-setup-guides

60-Drive DAC Hardware Description

The RSA 60-drive Direct-Attached Capacity (DAC) storage device is a drive array enclosure powered by EMC2. The DAC is used to extend the usable storage on RSA NetWitness® Platform Series 4 and 5 Decoder, Log Decoder, and Archiver physical hosts.

RSA NetWitness® Platform hosts are shipped with the software to support a DAC installation. The initial setup of a DAC in your network involves these steps:

1. Review site requirements and safety information.
2. Install the DAC.

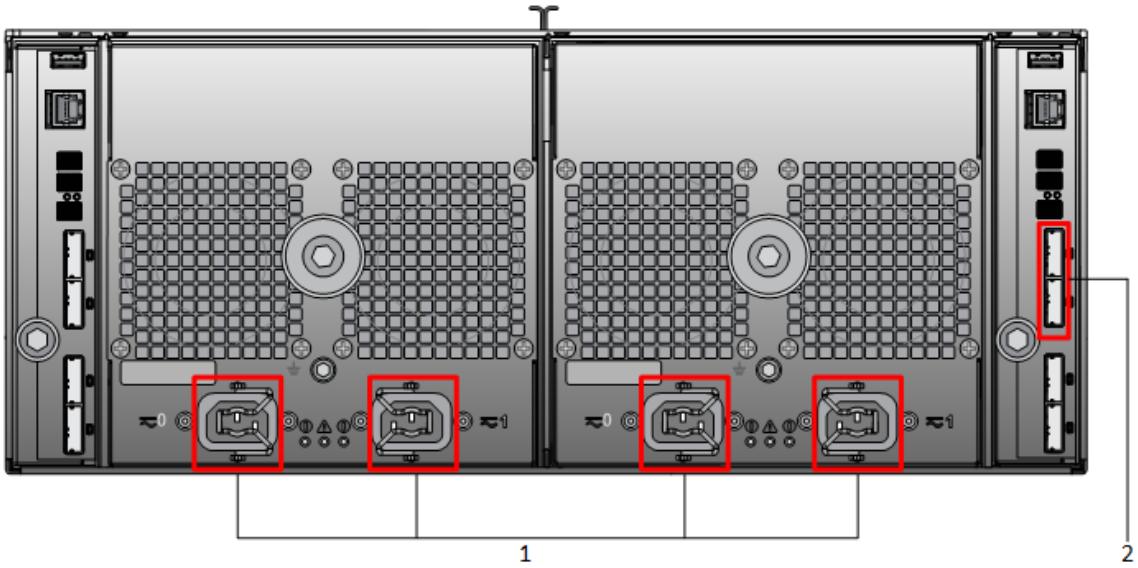
Package Contents

Please refer to the documentation that is included with the DAC.

Customer Supplied Materials

You do not need to supply any materials.

Rear View of the DAC



Key	Description
1	Power input connections
2	Primary SAS ports. There are two sets of SAS ports on each side of the DAC. Each set of ports has two Primary ports and two Expansion ports. In each set, the Primary ports are closer to the top of the chassis. **Note:** Use only the marked SAS primary ports on the right to connect the 60-drive DAC to a host.

Install the 60-Drive DAC

This topic tells how to install a 60-drive DAC on the following Series 4 and Series 5 physical hosts:

- Network Decoder (Packet)
- Log Decoder
- Archiver

Prerequisites

Make sure that you have the following required software:

- **rsa-sa-tools** - `rsa-sa-tools-10.5.1.0.82-1.el6.noarch.rpm` or newer, which contains the script you need to configure the storage. For RSA NetWitness Platform 11.0 and later, use the version shipped with the product.

  To verify the rsa-sa-tools version, log in as `root` on the physical host and run the following command:

  ```
  rpm -qa | grep sa-tools
  ```

  Results example:

  ```
  rsa-sa-tools-10.6.1.1-118.4.eb0e5a2.el6.noarch
  ```

  This RPM is updated quarterly. Please contact RSA Customer Support to obtain the most recent version.

- **RSA NetWitness Platform** - The minimum version is 10.3.x (licensed only). The recommended version is 10.4.x or later.

  To verify the version, in the Administration Services view (Administration > Services), the release version is displayed to the right of each service listed. To check the version at the command line, run the following command:

  ```
  rpm -qa | grep nw
  ```

  Results example:

  ```
  nwconcentrator-10.6.0.0.6993-5.el6.x86_64
  ```

Caution: If you are adding a previously used DAC and would like to preserve the data, DO NOT follow the instructions in this guide. Contact RSA Customer Support. Running the script on a previously used DAC could erase any existing data.

High-Level Procedure

The following table summarizes the installation instructions, depending on your NetWitness Platform version.

Hosts	Tasks
Decoder, Log Decoder, and Archiver **(NetWitness Platform 11.3 and later)**	1. Connect the DAC to the host before powering on the host as described in Connect a 60-Drive DAC to a Host. 2. Follow the instructions in the *Storage Guide for RSA NetWitness Platform Version 11.3 and Later* to allocate storage for your hardware.
Decoder, Log Decoder, and Archiver **(NetWitness Platform 11.2 and earlier)**	1. Connect the DAC to the host before powering on the host as described in Connect a 60-Drive DAC to a Host. 2. Run the `NwArrayConfig.py` script as described in Run the DAC Installation Scripts on the Decoder, Log Decoder, or Archiver . 3. Restart the service as described in Restart the Service. 4. License the host's services (if not already licensed). Refer to the *Licensing Guide* available through the application Help option and RSA Link at https://community.rsa.com/docs/DOC-40370 for instructions on licensing RSA physical hosts.

Connect a 60-Drive DAC to a Host

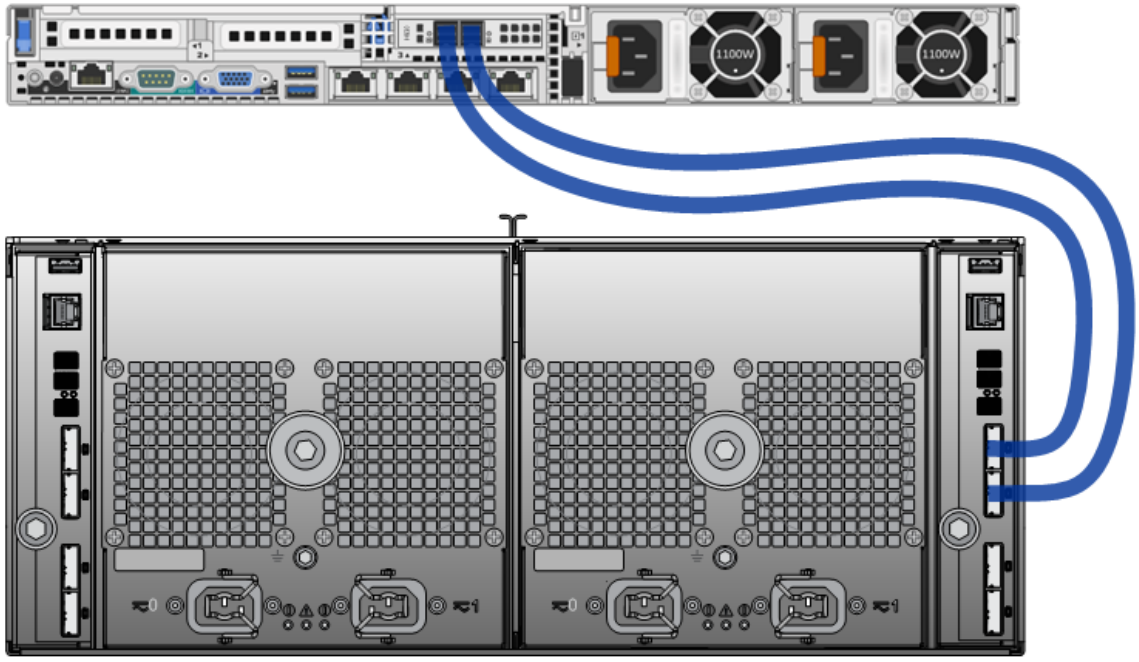
These cabling instructions apply to all Series 4 and Series 5 Decoder, Log Decoder, and Archiver physical hosts.

Note: The 60-drive DAC comes with four SAS cables. You use two of them to connect the 60-drive DAC to a host, as shown in the following figure. Series 4 and Series 5 hosts require different cables. For Series 5 hosts, use the cables with the mini-SAS connector.

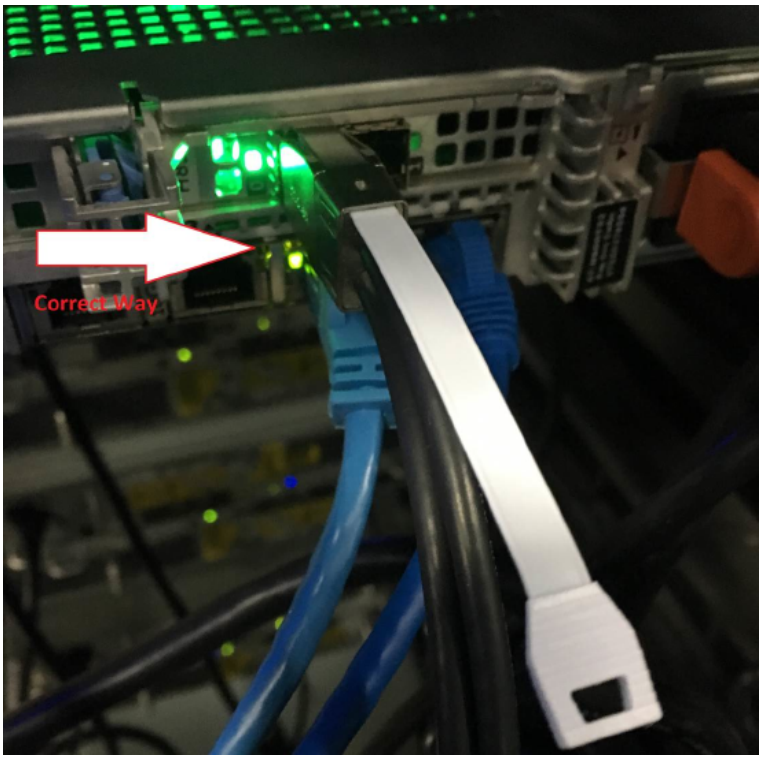
1. Ensure that the host is powered off.
2. Connect one end of each SAS cable to the ports of the RAID controller on the back of the Archiver, Decoder, or Log Decoder host.
3. Connect the other end of the SAS cable to the 60-drive DAC unit.
   When you connect the 60-drive DAC to the RAID controller, make sure that you insert the cables into the Primary SAS ports on the 60-drive DAC as shown in the following figures.

Series 5 Hosts

This figure shows a Series 5 host connected to a 60-Drive DAC.

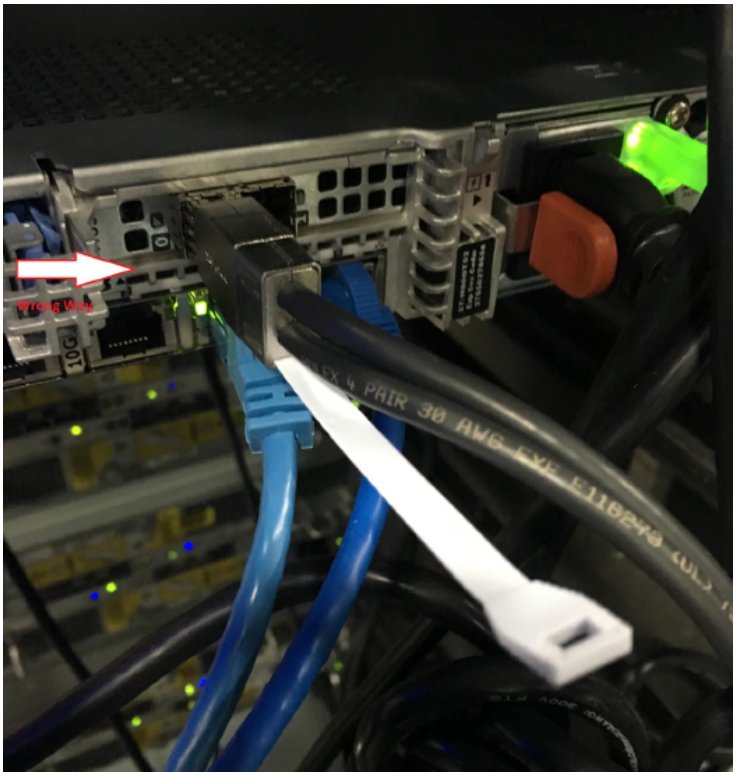


Ensure that you connect the SAS cables to the host properly. They should click in place and a green LED should illuminate, as shown in the following figure. The figure shows one SAS cable connected to the host, but you will have two SAS cables connected to the 60-Drive DAC.



(Correct)

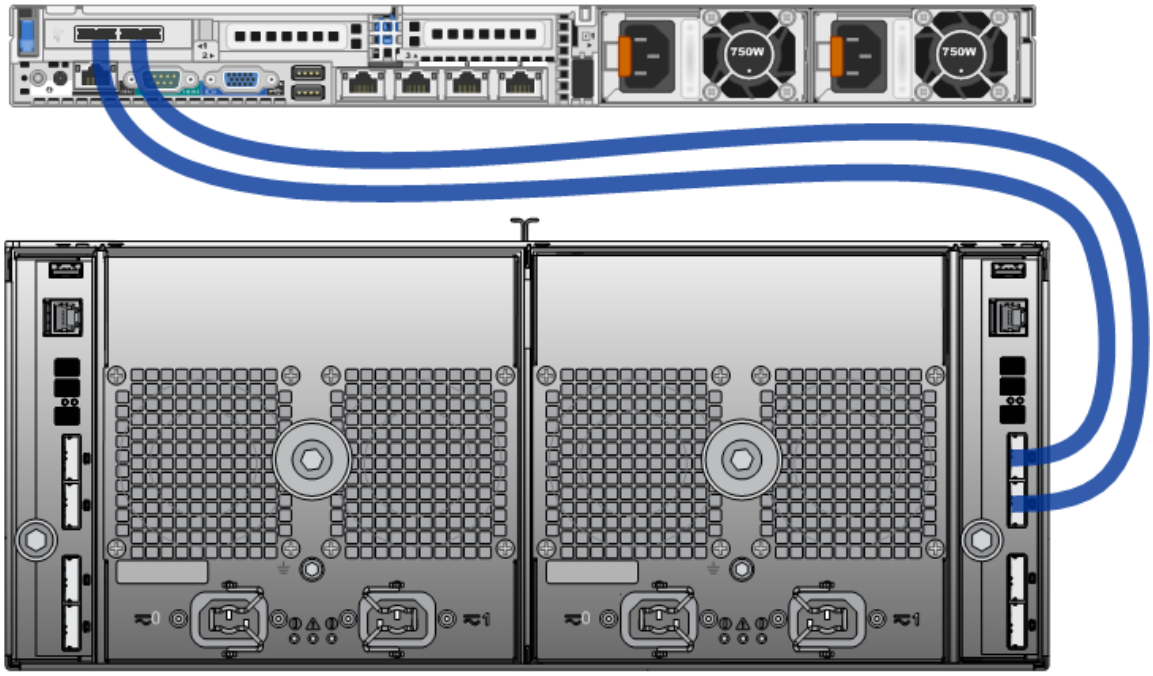
The following figure shows an incorrect connection with the SAS cable upside down.



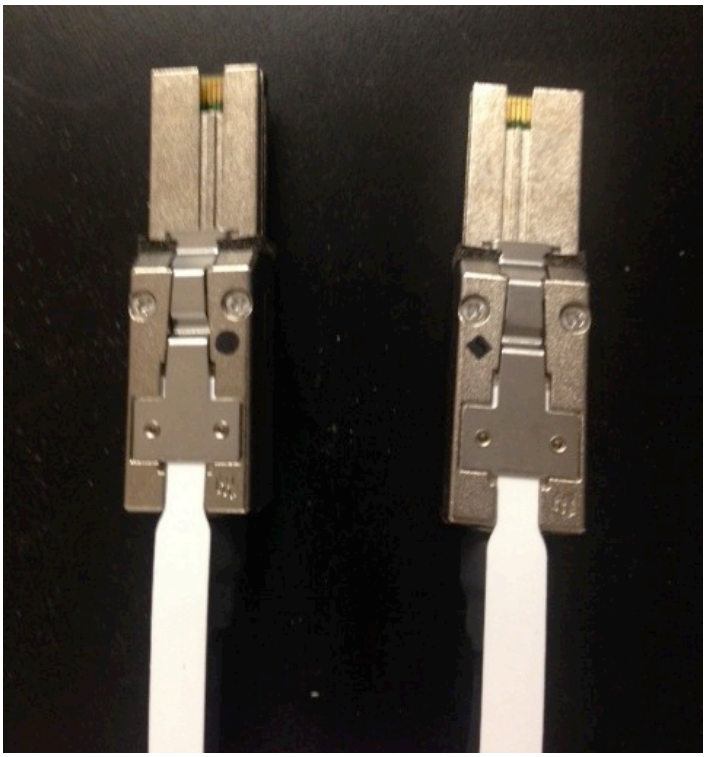
(Incorrect)

Series 4/Series 4S Hosts

This figure shows a Series 4 host connected to a 60-Drive DAC.



Ensure that you connect the Series 4 cables to the host in the correct direction. You can see a circle on one end of the Series 4 cable and a diamond on the other as shown in the following figure.



Plug the diamond end of the cable into the host and plug the circle end into the DAC.

4. When you finish the cabling, ensure that the DAC is powered on and then power on the host.

Run the DAC Installation Scripts on the Decoder, Log Decoder, or Archiver

This procedure only applies to NetWitness Platform 11.2 and earlier.

Note: For NetWitness Platform 11.3 and later, refer to *Storage Guide for RSA NetWitness Platform Version 11.3 and later* for instructions on how to allocate storage for your hardware.

Caution: After configuring the DAC the first time for a service, there is a possibility of background RAID initialization running for at least 24 hours. During this initialization, disk I/O performance may be affected.

1. Log in as `root` and verify that the **rsa-sa-tools** package is installed by running the following command:

   ```
   rpm -qa | grep sa-tools
   ```

   Results example:

   ```
   rsa-sa-tools-10.6.1.1-118.4.eb0e5a2.el6.noarch
   ```

   If the package is not installed, contact RSA Customer Support to obtain a copy of the RPM and install it.

2. Change the directory to the rsa-sa-tools RPM base directory:

   ```
   cd /opt/rsa/saTools
   ```

3. Execute the following command:

   ```
   ./nwraidutil.pl | more
   ```

4. **Important**: Check the results and resolve ALL conditions before running the script:

   a. Ensure that there are no foreign configurations and no drives with an `Unconfigured (bad)` state on the DAC drives.

   ```
   Adapter 1 (PERC H810 Adapter) enclosure 160 slots found: 30
   Encl Slot State P.Fail.Count Raw Size   Inquiry Data
   160  0    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S5EL
   160  1    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4A4
   160  2    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6RF9W
   160  3    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S2PS
   ```

```
160  4    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S50X
160  5    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4RX
160  12   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4DP
160  13   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S64N
160  14   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6RFD1
160  15   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4AY
160  16   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4ZV
160  17   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S66M
160  24   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S67F
160  25   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S6B3
160  26   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S5B1
...


Adapter 1 (PERC H810 Adapter) enclosure 165 slots found: 30
Encl Slot State P.Fail.Count Raw Size   Inquiry Data
165  6    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S5EL
165  7    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4A4
165  8    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6RF9W
165  9    (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S2PS
165  10   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S50X
165  11   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4RX
165  18   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4DP
165  19   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S64N
165  20   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6RFD1
165  21   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4AY
165  22   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4ZV
165  23   (U)     0         3.638 TB   SEAGATE ST4000NXCLAR4000GS1CZ1Z6S66M
...
```

If a drive is in a foreign state, it shows `F` in the `State` column. If a drive is in a bad state, it shows `B` in the `State` column. A DAC that has never been used before should show `U` for unconfigured.

b. Ensure that the number of drives listed in the results equals 30. (The Ultra DAC has 2 enclosures with 30 drives each.)

   The following example lines from the results show the correct number of drives:

```
Adapter 1 (PERCH810 Adapter) enclosures found: 1
```

```
Adapter 1 (PERCH810 Adapter) enclosure 160 slots found: 30
```

The following example lines from the results show that there is a bad drive:

```
Adapter 1 (PERCH810 Adapter) enclosures found: 1
Adapter 1 (PERCH810 Adapter) enclosure 121 slots found: 29
WARNING: Physical disk problems have been found.
```

It is also important that all drives appear numerically in the `nwraidutil` output. It is possible that a bad drive may not show up at all in the output. You will see a jump in the Slot count. For example, if one enclosure has 15 drives, but you only see slots 0 - 13, it means that slot 14 is bad and cannot be seen by the RAID controller. Contact RSA Customer Support before running the script because an RMA may be necessary.

5. To run the `NwArrayConfig.py` script using the default parameters, use one of the following commands

   For RSA NetWitness® Platform versions 10.6.x and earlier, run the following command:

   ```
   ./NwArrayConfig.py
   ```

   For RSA NetWitness® Platform 11.0 and later, run the following command:

   ```
   OWB_ALLOW_NON_FIPS=1 ./NwArrayConfig.py
   ```

   If you are not using the defaults, the following options are available:

   ```
   [root@<hostname> saTools]# ./NwArrayConfig.py -h
   Usage: NwArrayConfig.py [options]
   Options:
   -h, --help            show this help message and exit
   -s SRVC, --service=SRVC
                         Enter the service type to use 3rd party storage with.
                         You will be prompted to chose a volume group to use
                         for each DB. (decoder | logdecoder | concentrator |
                         archiver)
   -d DRVS, --drives=DRVS
                         Number of drives for the concentrator service on
                         hybrid or for the meta on logdecoder. (3-11) [3]
   -r REST, --rest=REST  Configured REST port if different from default
   -u USER, --user=USER  The user name for logging into the service. [admin]
   -w PSWD, --password=PSWD
                         Password for user or enter 'ask' to be prompted.
                         [netwitness]
   -c CRYP, --ssl=CRYP   Is SSL enabled? (0|1) [0]
   [root@P<hostname> saTools]#
   ```

This script discovers all available DACs; creates all the necessary virtual drives, logical volumes, and the directory structure; and writes the debug messages to **/opt/rsa/saTools/arrayCfg.log**. On Log Decoder and (Packet) Decoder hosts, this script adds the database types of packetdb, metadb, and sessiondb.

6. Verify the results:

   a. Ensure that the script did not produce any errors by viewing the **/opt/rsa/saTools/arrayCfg.log** file:

      ```
      more /opt/rsa/saTools/arrayCfg.log
      ```

   b. Run the following command to verify the new sizes of the databases:

      ```
      df -hP | grep 'decoder\|archiver\|Filesystem'
      ```

      The following is an example of the results that are displayed:

      ```
      Filesystem                          Size Used Avail Use%
        Mounted on
      /dev/mapper/decodersmall-decoroot    10G  33M  10G 1%
        /var/netwitness/decoder
      /dev/mapper/decodersmall-index       30G  33M  30G 1%
        /var/netwitness/decoder/index
      /dev/mapper/decodersmall-metadb     6.6T  33M 6.6T 1%
        /var/netwitness/decoder/metadb
      /dev/mapper/decodersmall-sessiondb 746G  33M 746G 1%
        /var/netwitness/decoder/sessiondb
      /dev/mapper/decoder-packetdb         91T  35M  91T 1%
        /var/netwitness/decoder/packetdb
      /dev/mapper/decodersmall0-sessiondb746G  33M 746G 1%
        /var/netwitness/decoder/sessiondb0
      /dev/mapper/decodersmall0-metadb    6.6T  33M 6.6T 1%
        /var/netwitness/decoder/metadb0
      /dev/mapper/decoder0-packetdb        91T  35M  91T 1%
        /var/netwitness/decoder/packetdb0
      ```

   c. Ensure that there is an entry for every new partition that was added. An individual `packetdb#`, `metadb#`, and/or `sessiondb#` can be created, where `#` is the number associated with the enclosure in the order it was added. For the first enclosure that was added, `#` is blank and does not have a number appended. The second enclosure that was added is appended with `0`. For example, the first entries are `metadb`, `sessiondb`, and `packetdb`. The second entries are `metadb0`, `sessiondb0`, and `packetdb0`.

Verify that the size listed for `/var/netwitness/decoder/packetdb#` is what you would expect with the extended storage arrays attached. **Write this value down** so that you can verify it in the user interface.

d. Log in to RSA NetWitness Platform and go to **Administration > Services** or **ADMIN > Services**.
The Administration Services view is displayed.

e. Select the appropriate service and then select  **> View > Explore**.

f. Expand the **database** folder and select the **config** folder.

g. Look at **packet.dir**, **meta.dir**,and **session.dir** as applicable to your service. Compare the output of the `df - hP` command to the database/config values shown in NetWitness Platform. Make sure that there is an entry for each partition added and the size of the `db` for each service is as follows:

`/var/netwitness/decoder/packetdb#=<n>`

where `<n>` is similar to the size of the new storage.

For Archiver, the **packet.dir**, **meta.dir**, and **packet.dir** are found by default in the following locations:

10.6.x and later: **/archiver/collections/default/database/config**

10.5.x and earlier: **/database/config**

In Archiver, the `<n>` value is `0B`. For example, `/var/netwitness/archiver/database0/alldata/metadb=0B`.

Restart the Service

This procedure only applies to NetWitness Platform 11.2 and earlier.

Note: For NetWitness Platform 11.3 and later, refer to *Storage Guide for RSA NetWitness Platform Version 11.3 and later* for instructions on how to allocate storage for your hardware.

You must restart the Decoder, Log Decoder, or Archiver service so that the service can recognize the new volumes.

Note: If this host has a Log Decoder or (Packet) Decoder service which is currently capturing, it is a best practice to stop capture before restarting these services (to ensure database writes are completed). If this host has an Archiver service which is aggregating, it is recommended to stop aggregation before restarting these services (to allow the indexes in memory to be saved to disk).

1. To restart the service, run the following commands using the appropriate service name for your service.

   For RSA NetWitness Platform versions 10.6.x and earlier:

   `stop <nwdecoder, nwarchiver, nwlogdecoder>` (Wait until this completes.)

   `start <nwdecoder, nwarchiver, nwlogdecoder>`

   For RSA NetWitness Platform 11.0 and later:

   `service <nwdecoder, nwarchiver, nwlogdecoder> stop` (Wait until this completes.)

   `service <nwdecoder, nwarchiver, nwlogdecoder> start`

2. Make sure the service comes back online and begins capture.

   a. In the NetWitness Platform Services view (**Administration > Services** or **ADMIN > Services**), verify that the service status is green.

   b. Select the service and then  **> View > System**.

   c. If you see the **Start Capture** or **Start Aggregation** icon in the toolbar, click the icon to start it.