



15-Drive DAC Setup Guide



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About this Document

This document provides instructions for installing a 15-drive Direct-Attached Capacity (DAC) storage device on Series 4, Series 5, or Series 6 Decoder, Log Decoder, Concentrator, Archiver, and Hybrid 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Note: When viewing a printed guide, be aware that a newer version of the guide may be available online at **RSA Link** in RSA NetWitness Platform under Hardware Setup Guides: 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>

15-Drive DAC Hardware Description

The RSA 15-drive Direct-Attached Capacity (DAC) storage device is a drive array enclosure. The DAC is used to extend the usable storage on Series 4, Series 5, or Series 6 Decoder, Log Decoder, Concentrator, Archiver, and Hybrid physical hosts, also known as appliances.

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

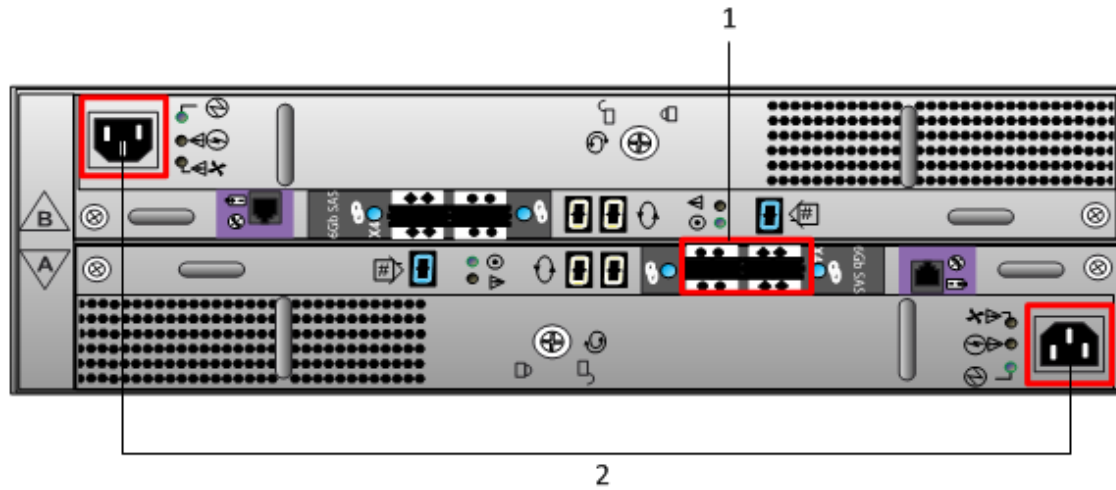
Please refer to the documentation that is included with the DAC.

Note: The DAC comes with four SAS cables. You only need one cable to connect the DAC to the host. **Series 4 hosts require different cables than the Series 5 and 6 hosts.** For Series 5 and 6 hosts, use a cable with the mini-SAS connector.

Customer Supplied Materials

You do not need to supply any materials.

Rear View of the DAC



Key	Description
1	SAS ports. Each set of ports has a Primary port and an Expansion port. In each set, the Primary port is closer to the center of the chassis. The primary ports are marked with circles and the secondary expansion ports are marked with diamonds.
2	Power Input Connections

Install the 15-Drive DAC

This topic describes how to install a 15-drive DAC on Series 4, Series 5, or Series 6 Decoder, Log Decoder, Concentrator, Archiver, and Hybrid physical hosts, also known as appliances. For directions on how to install DACs and PowerVaults on the same host, see the *PowerVault (Dell MD1400) Setup Guide*.

Prerequisites

Make sure that you have the following required software:

- **rsa-sa-tools** - `rsa-sa-tools-11.1.0.2-1806011917.3.59001fc.el7.noarch.rpm` or newer, which contains the script you need to configure the storage. For RSA NetWitness Platform 11.1.0.2 and later, use the version shipped with the product.

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

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

Results example:

```
rsa-sa-tools-11.1.0.2-1806011917.3.59001fc.el7.noarch
```

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

- **RSA NetWitness Platform** - The minimum version is 10.6.6.0 (licensed only). The recommended versions are 10.6.6.x and 11.1.0.2 and later.
To verify the version, in the Administration Services view (Administration > Services or ADMIN > 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-10.6.6.2-182.3.0f6d16e.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.

Introduction

The following table contains the summarized installation instructions for different deployments, and detailed procedures are in individual subsections. The deployment scenarios are:

- Multiple DACs in a Concentrator, Network Decoder, Log Decoder, and Archiver deployment.
- A single DAC in a Hybrid deployment.

High-Level Procedure

The following tables summarize the steps for different deployment scenarios, depending on your NetWitness Platform version.

NetWitness Platform 11.3 and Later

Deployment Scenario	Tasks
Concentrator, Archiver, Decoder, and Log Decoder (Multiple DACs)	<ol style="list-style-type: none">1. Connect the DACs to the host before powering on the host as described in Connect DACs to a Concentrator, Archiver, Decoder, or Log Decoder Host.2. Follow the instructions in the <i>Storage Guide for RSA NetWitness Platform Version 11.3 and Later</i> to allocate storage for your hardware.
Hybrid	<ol style="list-style-type: none">1. Connect the DAC to the host before powering on the host as described in Connect a DAC to a Hybrid.2. Follow the instructions in the <i>Storage Guide for RSA NetWitness Platform Version 11.3 and Later</i> to allocate storage for your hardware.

NetWitness Platform 11.2 and Earlier

Deployment Scenario	Tasks
Concentrator, Archiver, Decoder, and Log Decoder (Multiple DACs)	<ol style="list-style-type: none"> 1. Connect the DACs to the host before powering on the host as described in Connect DACs to a Concentrator, Archiver, Decoder, or Log Decoder Host. 2. Run the <code>NwArrayConfig.py</code> script as described in Run the DAC Installation Scripts on the Decoder, Log Decoder, Concentrator, or Archiver. 3. Restart the services as described in Restart the Service. 4. License the services for this host (if they are not already licensed). Refer to the <i>Licensing Guide</i> available through the application Help option and RSA Link at https://community.rsa.com/docs/DOC-40370 for instructions on licensing RSA hosts.
Hybrid	<ol style="list-style-type: none"> 1. Connect the DAC to the host before powering on the host as described in Connect a DAC to a Hybrid. 2. Run the <code>NwArrayConfig.py</code> script as described in Run the DAC Installation Scripts on a Hybrid. 3. Restart the service as described in Restart the Service. 4. License the services for this host (if they are not already licensed). Refer to the <i>Licensing Guide</i> available through the application Help option and RSA Link at https://community.rsa.com/docs/DOC-40370 for instructions on licensing RSA hosts.

Connect DACs to a Concentrator, Archiver, Decoder, or Log

Decoder Host

You can connect one or more DACs to a Series 4, Series 5, or Series 6 Concentrator, Archiver, Decoder, or Log Decoder host. You can only add four DACs per port for a total of eight DACs per PERC H840 (Series 6) RAID controller, eight DACs per PERC H830 (Series 5) RAID controller, and five DACs per PERC H810 (Series 4) RAID controller.

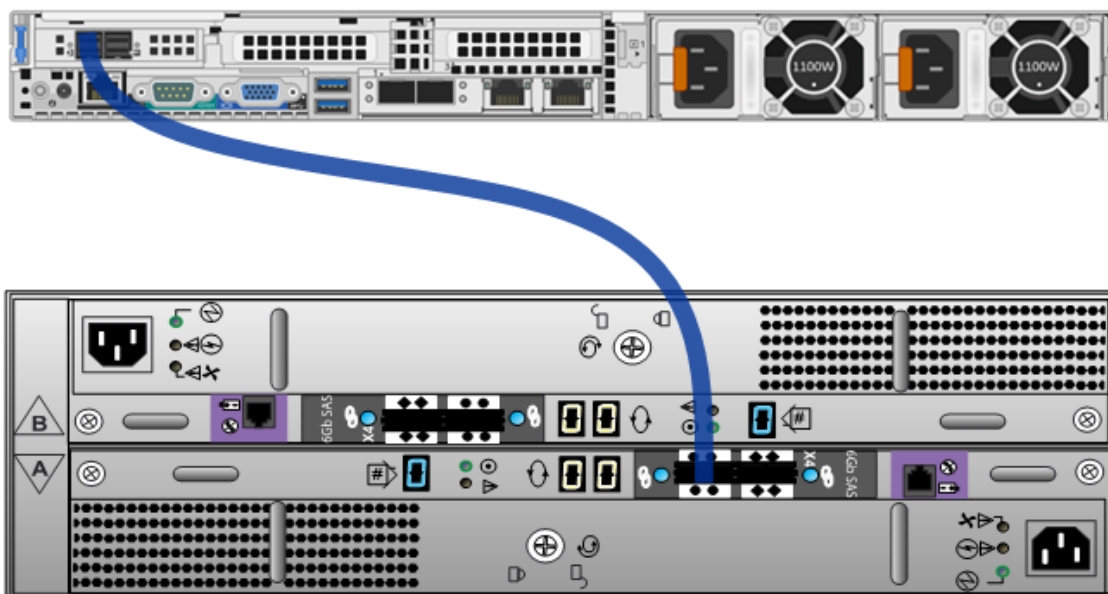
Note: The DAC comes with four SAS cables. You only need one cable to connect the DAC to the host. **Series 4 hosts require different cables than Series 5 and 6 hosts.** For Series 5 and 6 hosts, use a cable with the mini-SAS connector.

1. Ensure that the host is powered off.
2. Connect one end of the SAS cable to the **left** port (Port 0) of the RAID controller on the back of the Concentrator, Archiver, Decoder, or Log Decoder hosts.
3. Connect the other end of the SAS cable to the DAC unit.

When you connect the first DAC to the RAID controller, make sure that you insert the cable into the **Primary SAS port** on the DAC as shown in the following figures.

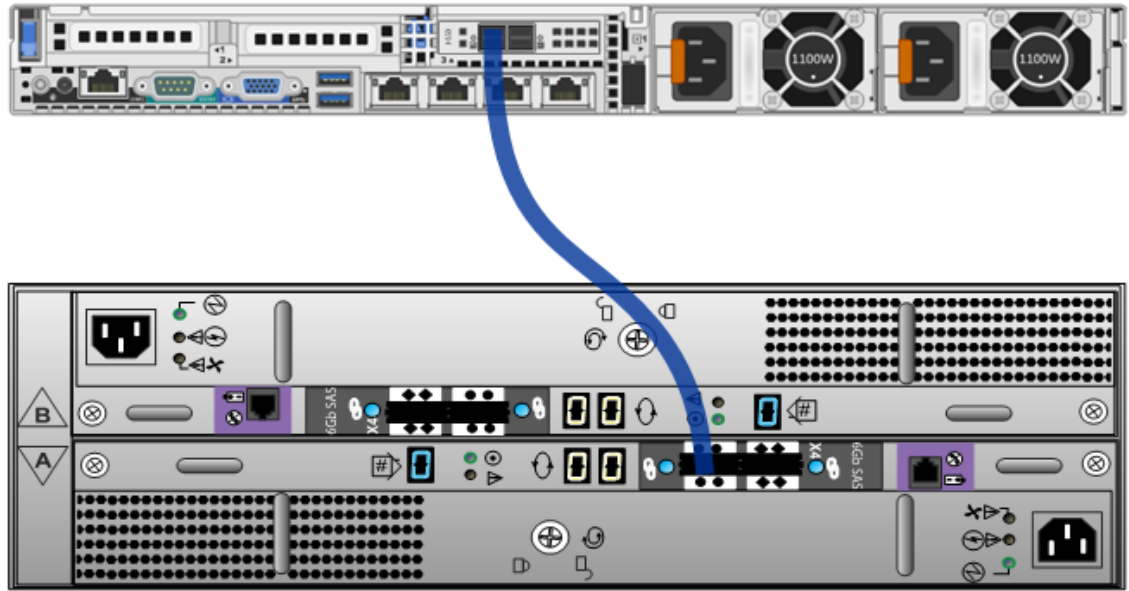
Series 6 Hosts

This figure shows a Series 6 host connected to a 15-Drive DAC.



Series 5 Hosts

This figure shows a Series 5 hosts connected to a 15-Drive DAC.

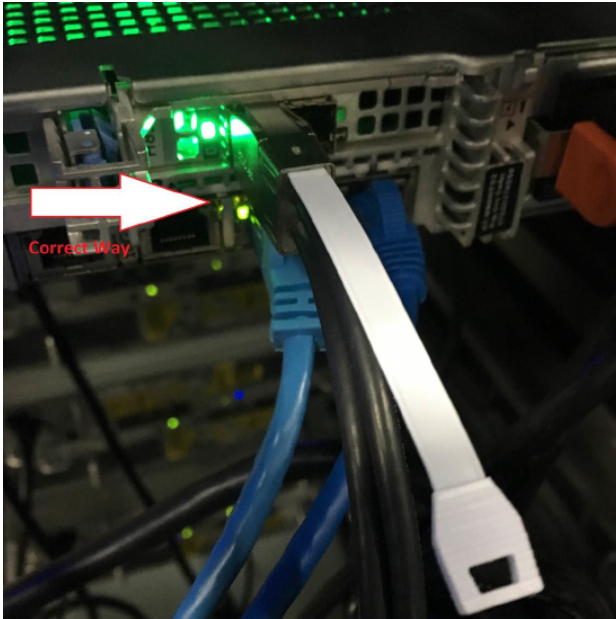


Series 5 and Series 6 SAS Cable Connections

Series 5 and Series 6 hosts use a mini SAS cable connector.



Ensure that you connect the Series 5 or Series 6 SAS cable to the host properly. It should click in place and a green LED should illuminate indicating a live connection, as shown in the following figure.



(Correct)

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

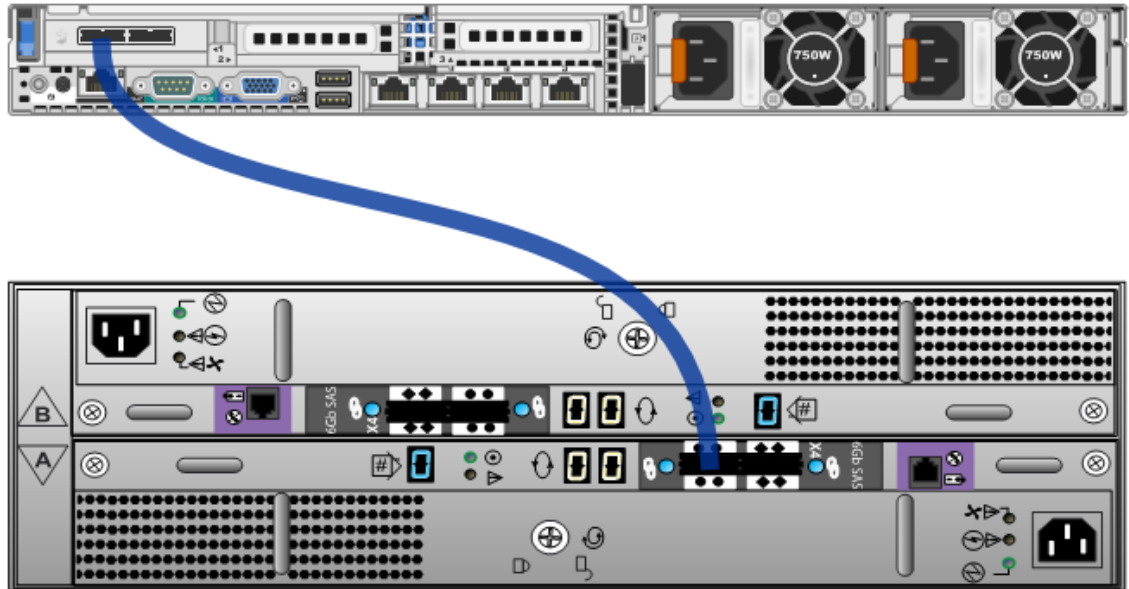


(Incorrect)

Note: On the Series 6 R740xd Hybrid, the PERC H840 card is installed inverted (upside down) in slot 4, which means that port 0 is on the right and port 1 is on the left on the R740xd Hybrid. You must attach cables to the R740xd with the connector's white tab on the bottom. See [Connect a DAC to a Hybrid](#).

Series 4/Series 4S Hosts

This figure shows a Series 4 host connected to a 15-Drive DAC.



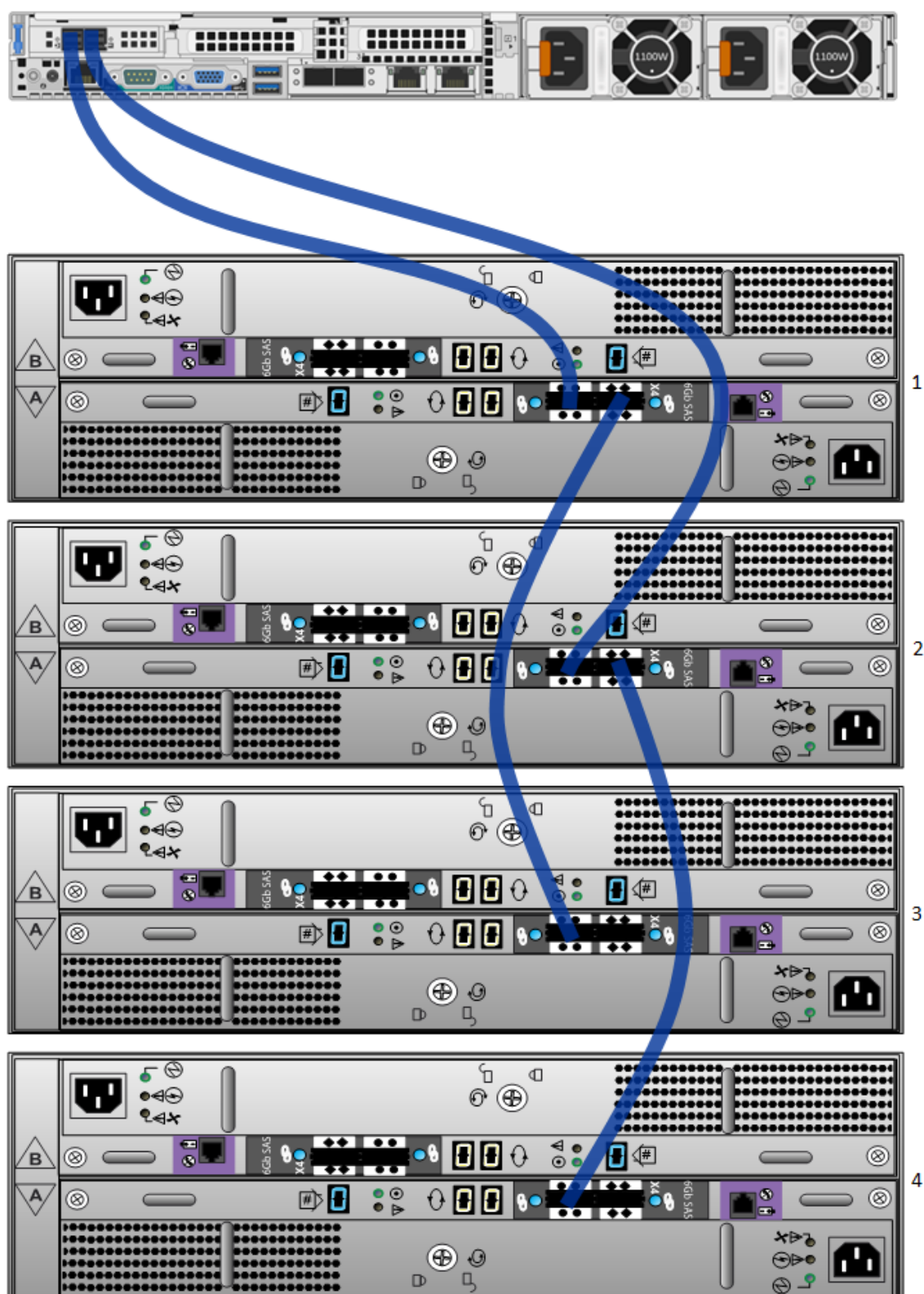
Ensure that you connect the Series 4 cable to the host in the correct direction. You can see a circle on one end of the Series 4 cable and a diamond on the other as shown in the following figure.



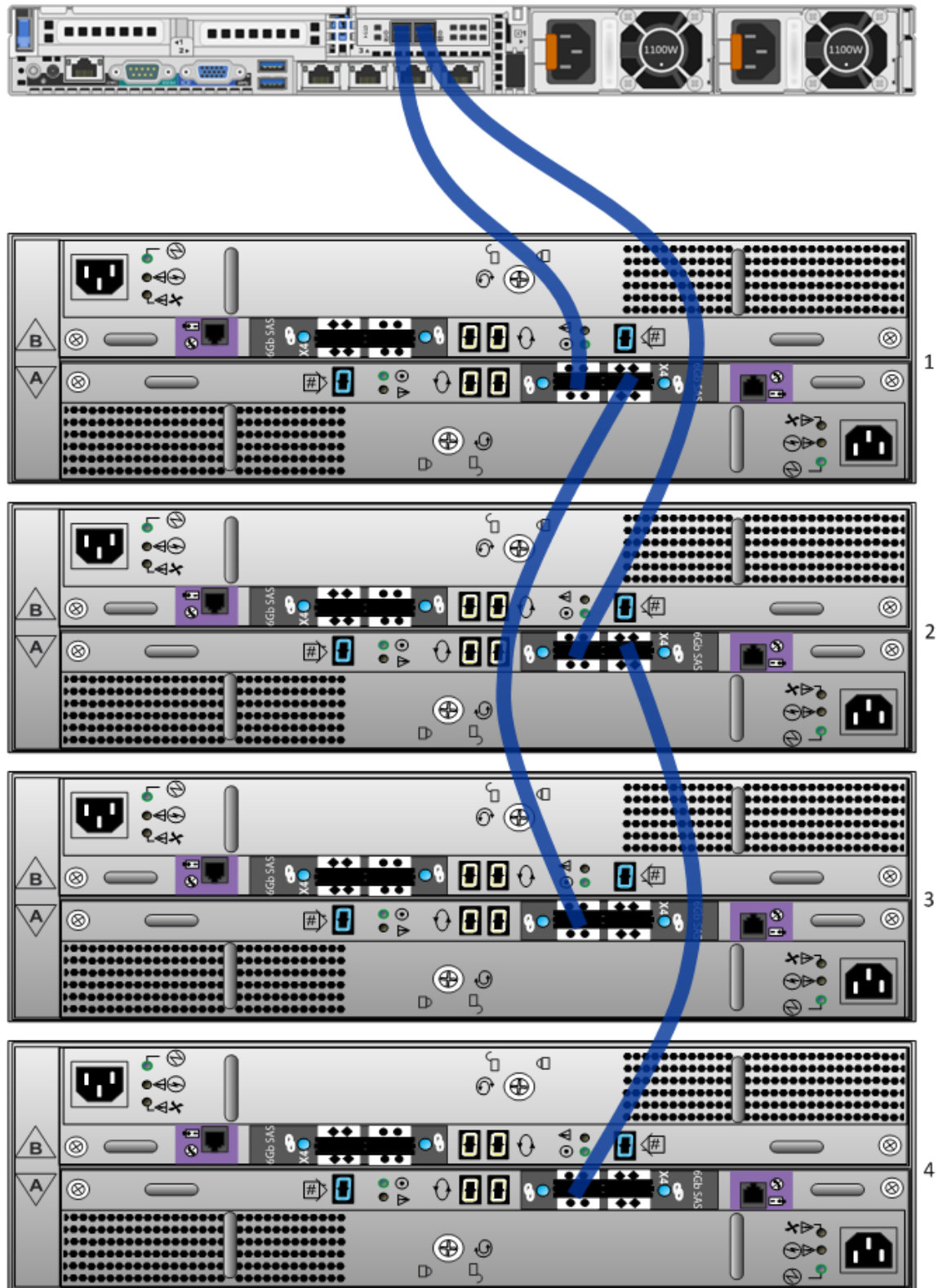
Plug the diamond end of the cable into the host and plug the circle end into the primary port (circle port) on the DAC.

4. When you connect two or more DACs to the RAID controller, make sure that you:
 - a. Connect the **Primary** port of the first DAC to the left port of the Decoder RAID controller.
 - b. Connect the **Primary** port of the second DAC to the right port of the Decoder RAID controller.
 - c. Connect the **Primary** port of the third DAC to the **Secondary** port of the first DAC.
 - d. Connect the **Primary** port of the fourth DAC to the **Secondary** port of the second DAC.
 - e. Continue in this pattern up to a total of eight DACs per PERC H840 (Series 6), eight DACs per PERC H830 (Series 5), or five DACs per PERC H810 (Series 4) RAID controller.

The following figure shows you how to connect multiple DACs to a **Series 6** host.



The following figure shows you how to connect multiple DACs to a **Series 5** host.



You connect multiple DACs to a **Series 4** host in the same way. When using a Series 4 cable, plug the diamond end into the host and plug the circle end into the primary port (circle port) on the DAC. When connecting additional DACs, connect the diamond end of the cable to the secondary (diamond port) on the first DAC and the circle end to the primary (circle port) on the next DAC.

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

Connect a DAC to a Hybrid

You can connect only one DAC to a Hybrid.

Note: The DAC comes with four SAS cables. You only need one cable to connect the DAC to the host. **Series 4 hosts require different cables than Series 5 and 6 hosts.** For Series 5 and 6 hosts, use a cable with the mini-SAS connector.

On the Series 6 R740xd Hybrid, the PERC H840 card is installed inverted (upside down) in slot 4, which means that port 0 is on the right and port 1 is on the left on the R740xd Hybrid. You must attach cables to the R740xd with the connector's white tab on the bottom.

To connect a DAC to a Series 6 Hybrid host:

The PERC H840 card is installed inverted (upside down) in slot 4 on the Series 6 Hybrid, which means that port 0 is on the right and port 1 is on the left on the R740xd Hybrid. You must attach cables to the R740xd with the connector's white tab on the bottom.

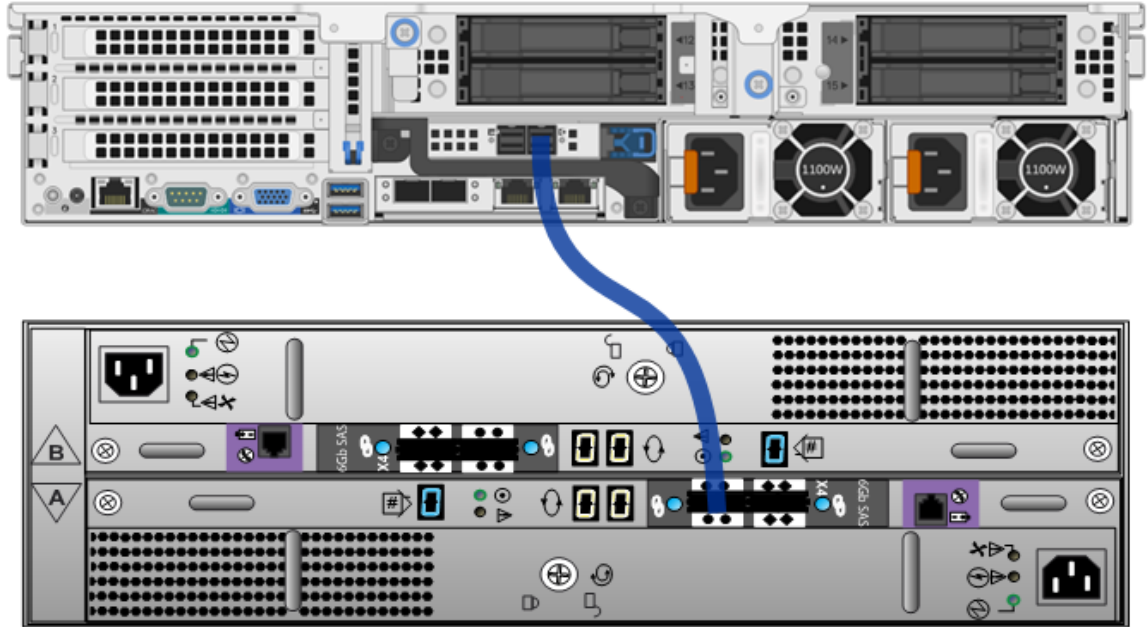


1. Ensure that the host is powered off.
2. Connect one end of the SAS cable to the **right** port (port 0) of the RAID controller on the back of the Series 6 Hybrid host. **You must attach the cable to the R740xd with the connector's white tab on the bottom** because the PERC H840 is inverted in slot 4 as shown in the following figure.



3. Connect the other end of the SAS cable to the DAC unit with the connector's white tab on the top.

When you connect the DAC to the RAID controller, make sure that you insert the cable into the **Primary SAS port** on the DAC as shown in the following figure.



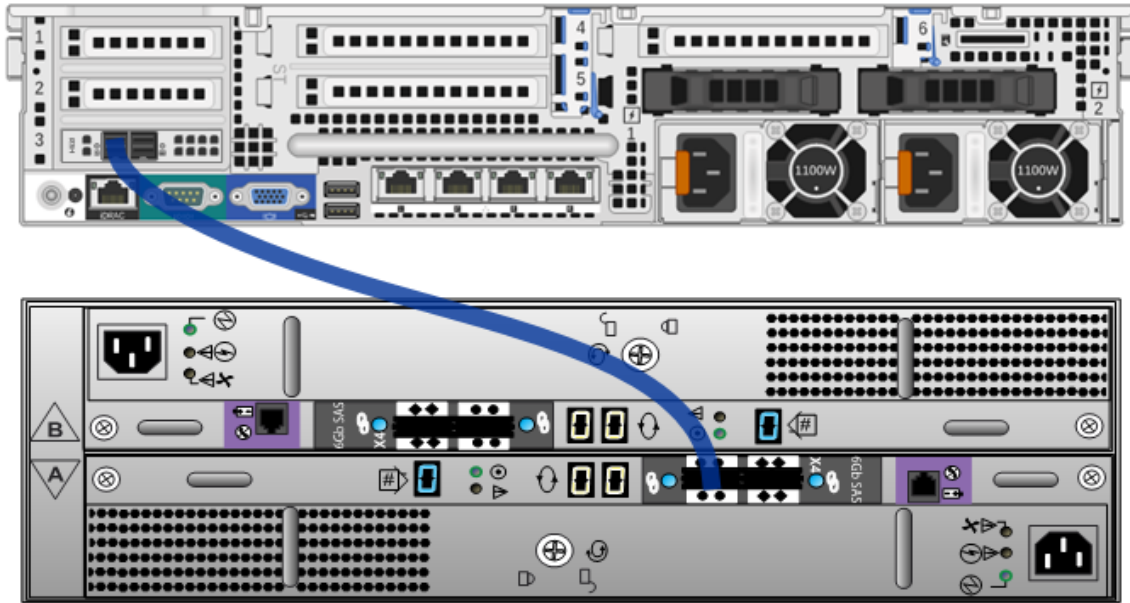
You know if the cable is properly connected when you hear a click as the cable locks into place and see the green port light illuminate on the R740xd.

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

To connect a DAC to a Series 5 Hybrid host:

1. Ensure that the host is powered off.
2. Connect one end of the SAS cable to the **left** port (port 0) of the RAID controller on the back of the Series 5 Hybrid host. **You must attach the cable to the R730xd with the connector's white tab on the top.**
3. Connect the other end of the SAS cable to the DAC unit.

When you connect the DAC to the RAID controller, make sure that you insert the cable into the **Primary SAS port** on the DAC as shown in the following figure.



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

To connect a DAC to a Series 4S Hybrid:

Follow the instructions in the [Connect DACs to a Concentrator, Archiver, Decoder, or Log Decoder Host](#) procedure and connect the Series 4S Hybrid host to only one DAC.

Run the DAC Installation Scripts on the Decoder, Log Decoder, Concentrator, 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, the background RAID initialization may run over 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 H840 Adapter) enclosure 160 slots found: 15
```

```
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	6	(U)	0	3.638 TB	SEAGATE	ST4000NXCLAR4000GS1CZ1Z6S4DP
160	7	(U)	0	3.638 TB	SEAGATE	ST4000NXCLAR4000GS1CZ1Z6S64N

```

160  8      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6RFD1
160  9      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4AY
160 10      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4ZV
160 11      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6S66M
160 12      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6S67F
160 13      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6S6B3
160 14      (U)      0      3.638 TB  SEAGATE ST4000NXCLAR4000GS1CZ1Z6S5B1

```

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 15.

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

```

Adapter 1 (PERCH840 Adapter) enclosures found: 1
Adapter 1 (PERCH840 Adapter) enclosure 160 slots found: 15

```

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

```

Adapter 1 (PERCH840 Adapter) enclosures found: 1
Adapter 1 (PERCH840 Adapter) enclosure 121 slots found: 14
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 the 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 versions 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. On Concentrator hosts, this script adds the database types of 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\|concentrator\|archiver\|Filesystem'
```

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

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/mapper/decodersmall-decoroot	10G	62M	10G	1%	/var/netwitness/decoder
/dev/mapper/decodersmall-index	30G	33M	30G	1%	/var/netwitness/decoder/index
/dev/mapper/decodersmall-metadb	6.6T	107G	6.5T	2%	/var/netwitness/decoder/metadb
/dev/mapper/decodersmall-sessiondb	746G	4.1G	742G	1%	/var/netwitness/decoder/sessiondb
/dev/mapper/decoder-packetdb	95T	3.9T	91T	5%	/var/netwitness/decoder/packetdb
/dev/mapper/decodersmall10-sessiondb	746G	4.1G	742G	1%	/var/netwitness/decoder/sessiondb0
/dev/mapper/decodersmall10-metadb	6.6T	105G	6.5T	2%	/var/netwitness/decoder/metadb0
/dev/mapper/decoder0-packetdb	95T	3.8T	91T	5%	/var/netwitness/decoder/packetdb0

- c. Ensure that there is an entry for each DAC added. An individual `packetdb#`, `metadb#`, and `sessiondb#` is created for each DAC, where `#` is the number associated with the DAC in the order it was added. For the first DAC that you add, `#` is blank and does not have a number appended. The second DAC that you add is appended with `0`. For example, the first DAC entries are `metadb`, `sessiondb`, and `packetdb`. The second DAC 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 DAC 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`.

Run the DAC Installation Scripts on a Hybrid

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, the background RAID initialization may run over 24 hours. During this initialization, disk I/O performance may be affected.

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Results example:

```
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```

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 H840 Adapter) enclosure 160 slots found: 15
```

```
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	6	(U)	0	3.638 TB	SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4DP
160	7	(U)	0	3.638 TB	SEAGATE ST4000NXCLAR4000GS1CZ1Z6S64N
160	8	(U)	0	3.638 TB	SEAGATE ST4000NXCLAR4000GS1CZ1Z6RFD1
160	9	(U)	0	3.638 TB	SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4AY

```

160 10 (U) 0 3.638 TB SEAGATE ST4000NXCLAR4000GS1CZ1Z6S4ZV
160 11 (U) 0 3.638 TB SEAGATE ST4000NXCLAR4000GS1CZ1Z6S66M
160 12 (U) 0 3.638 TB SEAGATE ST4000NXCLAR4000GS1CZ1Z6S67F
160 13 (U) 0 3.638 TB SEAGATE ST4000NXCLAR4000GS1CZ1Z6S6B3
160 14 (U) 0 3.638 TB SEAGATE ST4000NXCLAR4000GS1CZ1Z6S5B1

```

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 15.

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

```

Adapter 1 (PERCH840 Adapter) enclosures found: 1
Adapter 1 (PERCH840 Adapter) enclosure 160 slots found: 15

```

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

```

Adapter 1 (PERCH840 Adapter) enclosures found: 1
Adapter 1 (PERCH840 Adapter) enclosure 121 slots found: 14
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 the 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, enter one of the following commands.

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

```
./NwArrayConfig.py --drives <N>
```

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

```
OWB_ALLOW_NON_FIPS=1 ./NwArrayConfig.py --drives <N>
```

where <N> is the number of drives to be assigned to the Concentrator service. By default <N> is 3. If this is a Log Decoder Hybrid, RSA recommends using a value of 7 to more efficiently allocate the storage between the two services.

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**.

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\|concentrator\|Filesystem'
```

The following is an example of the results that are displayed for a Hybrid Packet Decoder:

Filesystem	Size	Used	Avail	Use%
Mounted on				
/dev/mapper/concentrator-root	30G	47M	30G	1%
/var/netwitness/concentrator				
/dev/mapper/index-index	929G	9.6G	919G	2%
/var/netwitness/concentrator/index				
/dev/mapper/concentrator-sessiondb	2.0T	18G	1.9T	1%
/var/netwitness/concentrator/sessiondb				
/dev/mapper/concentrator-metadb	18T	483G	17T	3%
/var/netwitness/concentrator/metadb				
/dev/mapper/decodersmall-decoroot	10G	62M	10G	1%
/var/netwitness/decoder				
/dev/mapper/decodersmall-index	30G	33M	30G	1%
/var/netwitness/decoder/index				

```

/dev/mapper/decodersmall-metadb      6.6T 107G 6.5T 2%
/var/netwitness/decoder/metadb

/dev/mapper/decodersmall-sessiondb 746G 4.1G 742G 1%
/var/netwitness/decoder/sessiondb



/dev/mapper/decoder-packetdb         95T 3.9T 91T 5%
/var/netwitness/decoder/packetdb

/dev/mapper/decodersmall0-sessiondb746G 4.1G 742G 1%
/var/netwitness/decoder/sessiondb0

/dev/mapper/decodersmall0-metadb     6.6T 105G 6.5T 2%
/var/netwitness/decoder/metadb0

/dev/mapper/decoder0-packetdb        95T 3.8T 91T 5%
/var/netwitness/decoder/packetdb0

```

- c. Ensure that there is an entry for the added DAC. An individual packetdb0, metadb0, and sessiondb0 is created for the added DAC. Verify that the size listed for /var/netwitness/decoder/packetdb0 is what you would expect with the extended storage arrays attached. **Write this value down** so that you can verify it in the NetWitness Platform 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 Decoder or Log Decoder and then select   > **View > Explore**.
- f. Expand the **database** folder and select the **config** folder.
- g. Look at the **packet.dir** node and expand it fully. Ensure there is an entry for the added DAC and the size of the packetdb is as follows:
/var/netwitness/decoder/packetdb#=<n>
where <n> is similar to the size of the new storage.
- h. Follow steps 6 e-g and verify the **meta.dir** node on the Concentrator.

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, Concentrator, 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 a Concentrator or 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, nwconcentrator, nwlogdecoder> (Wait until this completes.)
```

```
start <nwdecoder, nwarchiver, nwconcentrator, nwlogdecoder>
```

For RSA NetWitness Platform 11.0 and later:

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

```
service <nwdecoder, nwarchiver, nwconcentrator, nwlogdecoder> start
```

2. Make sure that 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 select  > **View > System**.
 - c. If you see the **Start Capture** or **Start Aggregation** icon in the toolbar, click the icon to start it.