

**Dell PowerVault MD Series VMware Storage
Replication Adapter (SRA)
Installation and Configuration Manual (Web Client)**



Notes, cautions, and warnings

-  **NOTE:** A NOTE indicates important information that helps you make better use of your computer.
-  **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.
-  **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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VMware Site Recovery Manager overview

VMware vCenter Site Recovery Manager (SRM) interacts with the storage arrays by using the Storage Replicator Adaptor (SRA) to discover and replicate storage Logical Unit Numbers (LUNs), or virtual disks, between Disaster Recovery (DR) sites. Also, the SRA interacts with the storage array to provide failover and test failover capabilities to the SRM allowing automated failover between DR sites. SRAs are developed and provided by the storage array vendors.

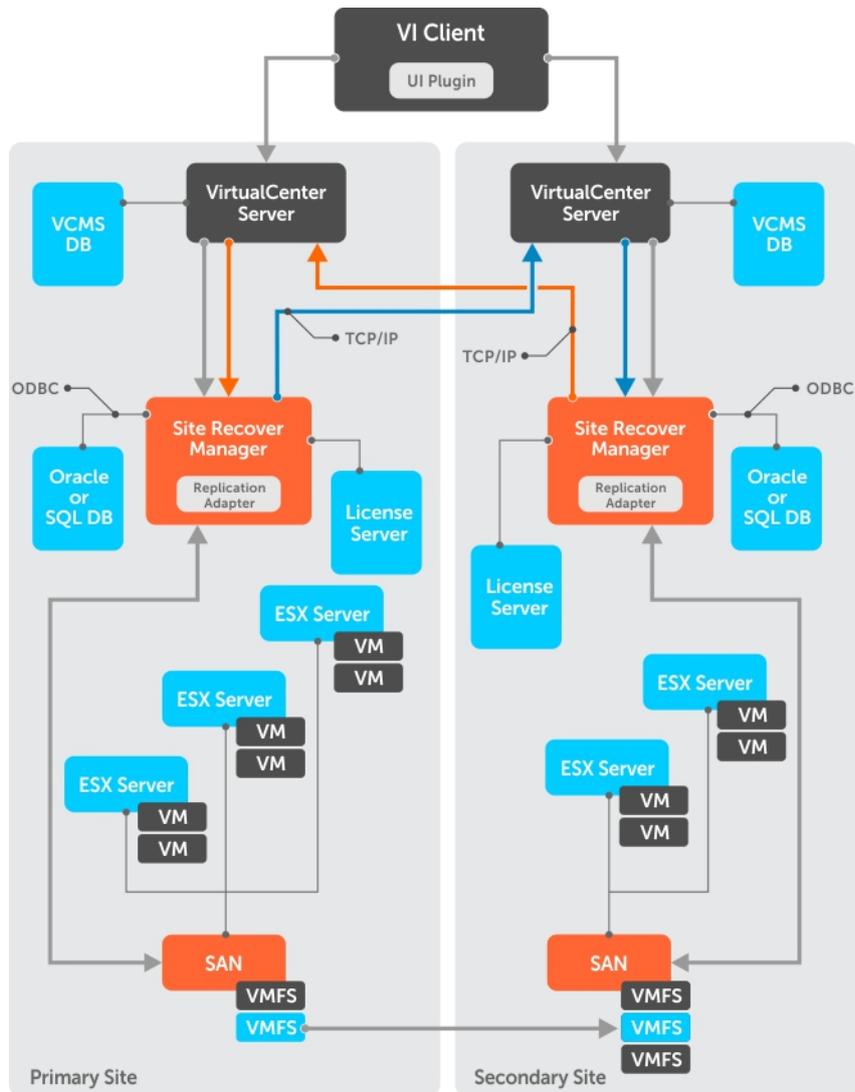


Figure 1. SRM Architecture

There are several tasks that you must complete to configure SRM. Some of these tasks are completed only for vSphere Replication (VR) or for array-based replication. If your environment uses both types of replication, consider all tasks, but if not, you may have to only complete a subset of the total possible set of tasks.

The set of tasks are as follows:

1. Obtain the latest SRM software and any required patches.
2. Configure the SRM databases at each site.
3. Install SRM at the protected site.
4. Install SRM at the recovery site.
5. Pair sites.

If you are using array-based replication, complete the following tasks at both sites:

1. Install SRAs
2. Configure array managers

After you have established the required infrastructure, complete the following steps:

1. Configure inventory mappings.
2. Configure placeholder datastores.
3. If you are using VR, configure datastore mappings.
4. Create protection groups.
5. Protect virtual machines (VMs).
6. Create recovery plans.

New features and changes

The Dell Modular Disk (MD) SRA was updated to work with VMware's vCenter Site Recovery Manager (SRM) 6.0. The new features of the 08.20 firmware make this version of the SRA work with vCenter Server 5.1, 5.5, and 6.0, with VMware SRM 5.1, 5.5, 5.8, and 6.0. This SRA does not work with prior versions of vCenter Server or SRM. Also, this version of the Dell SRA only works with the MD storage arrays.

See the latest Support Matrix available at [Dell.com/support](https://www.dell.com/support) for compatibility versions.

This version of the SRA supports the following features:

- TestFailover
- Failover
- Reprotect
- "Failback" (ability to failover VMs from the recovery site to the original protected site)
- Full management from a single SRM server (no need to switch between protected and recovery)
- Synchronous and Asynchronous Remote Replication Groups

System requirements

The process of implementing Dell MD SRA is described in the following sections.

For more information about the server operating systems (OSs), MD storage arrays, and SRM versions supported with the Dell MD SRA, see the latest Support Matrix available at [Dell.com/support](https://www.dell.com/support).

Storage recommendations

For information about recommended storage array configurations and customized settings, see the *Dell Modular Disk Storage Replication Adapter Best Practices Guide (Web Client)*.

NVSRAM settings

You must change the following nonvolatile random-access memory (NVSRAM) setting to allow the mapping of LUNs to multiple hosts or host groups to support test failover within SRM. During test failover, snapshots are created on the recovery site storage array. You might have to map these snapshots to multiple hosts or host groups within the vSphere environment. To facilitate this process, complete the following procedure to configure multiple LUN mappings.

1. In the **Dell MD Storage Replication Adapter** window, click **Tools** → **Execute Script** from the drop-down menu.
2. Enter the following commands in the script editor window:

```
show RAID Controller Module [0] NVSRAMByte[0x3b];  
set RAID Controller Module [0] NVSRAMByte[0x3b]=2;  
show RAID Controller Module [0] NVSRAMByte[0x3b];  
reset RAID Controller Module [0];
```
3. Click **Tools** → **Verify and Execute** from the drop-down menu.
4. To apply the changes to the RAID Controller Module 1, repeat steps 2 and 3, substituting [1] for [0].
5. Exit the script editor after completing the changes for the RAID Controller Module 1.

 **NOTE: It takes several minutes for the controllers to reset and the execution message to complete.**

Licensing requirements

The Dell MD SRA uses either a Synchronous Replication premium feature or an Asynchronous Replication premium feature, or both, along with the Snapshot premium feature to facilitate failover and test Failover. Also, based on your environment, enable the storage partitioning, sufficient for the number of hosts connected to the storage array. VMware vCenter SRM and the Dell MD SRA do not operate without these features enabled on the MD storage array.

Configuration procedures

The only configuration procedure required after the initial installation is to modify the `SraConfigurationData.xml` file, located in the `config` subdirectory of the SRA installation, if your environment uses storage array passwords. If the MD storage arrays do not use passwords, modifications are not required.

To enable password prompting for MD storage arrays, edit the `SraConfigurationData.xml` file, in the `/config` directory of the SRA installation. Locate the `PasswordRequiredForArrayAccess` tag and change the value from “false” to “true”. This change prompts for a password when adding new array managers from within SRM manager.

```
<!--  
    configure how array access is performed.  
    when true, a password will be prompted for once and  
    then used for all array access  
-->  
<PasswordRequiredForArrayAccess>true</PasswordRequiredForArrayAccess>
```

 **NOTE:** For important best practices on configuring virtual disk replication, adjusting SRM settings, and host configurations, see *Dell Modular Disk Storage Replication Adapter Best Practices Guide (Web Client)*.

Installation procedure

To install the Dell MD SRA, download the latest version from the VMware downloads SRM and verify the md5sum of the installation package. To install the SRA, perform the following:

1. Ensure that the SRM Server has been installed at both sites that are participating in DR.
2. At each site on the SRM server, run the **SRAInstaller-xx.xx.xxxx.xxxx.exe** package.
3. To accept the End User License Agreement and installation paths, follow the prompts through the installation wizard.
4. To view the latest README notes for the SRA, select **Yes** or **No**, and then close the wizard.
5. Ensure that the SRAsvc service has been installed and is running from the services.msc console.
6. Ensure that the SRA has been installed to **C:\Program Files\VMware\VMware vCenter Site Recovery Manager\storage\sra\Dell MD Storage Replication Adapter**. This is the SRA scripts directory.
7. Repeat the same process for the peer site for this SRM server.
8. After you install the SRA at both locations, open a vSphere Client (SRM 5.1 and SRM 5.5) or vSphere Web Client (SRM 5.8 and SRM 6.0) connection to one of the vCenter Servers.
9. On the Home screen, in the SRM interface, access the SRM, and then click **Site Recovery**.
10. Pair the two sites within SRM Sites' manager by selecting the **Pair Site** icon or from the drop-down menu.
11. In the left pane, click the protected site, the **Monitor** tab, and then **SRAs**. Ensure that the SRA status and version information is correct. Rescan if necessary.

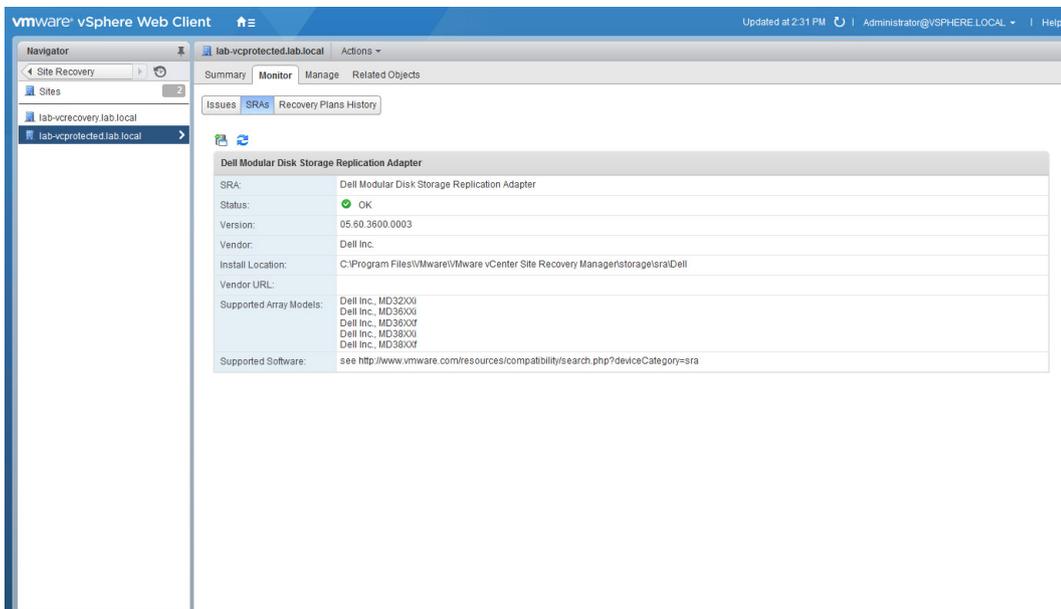


Figure 2. SRA Information

12. On the **Manage** tab, configure resource mappings for both sites, including network mappings, folder mappings, and placeholder datastores.

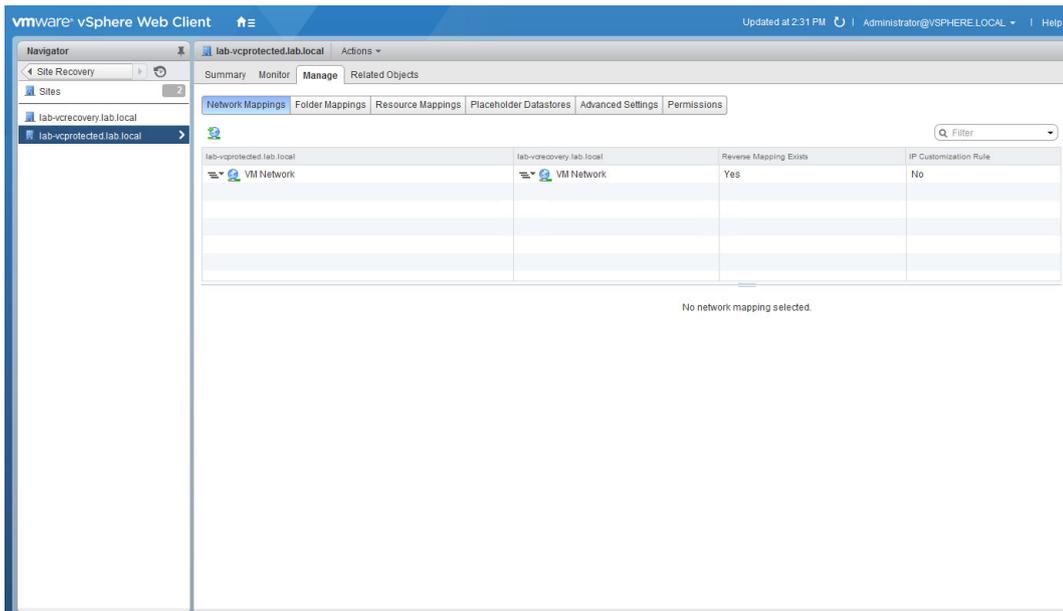


Figure 3. SRM Resource Mappings

13. Select **Advanced Settings**, and then select **Storage Provider**. Click **Edit** and modify the following storage provider settings:
 - storageProvider.fixRecoveredDatastoreNames: **Enabled**
 - storageProvider.hostRescanDelaySec: **30**
 - storageProvider.hostRescanRepeatCnt: **2**
 - storageProvider.hostRescanTimeoutSec: **900**

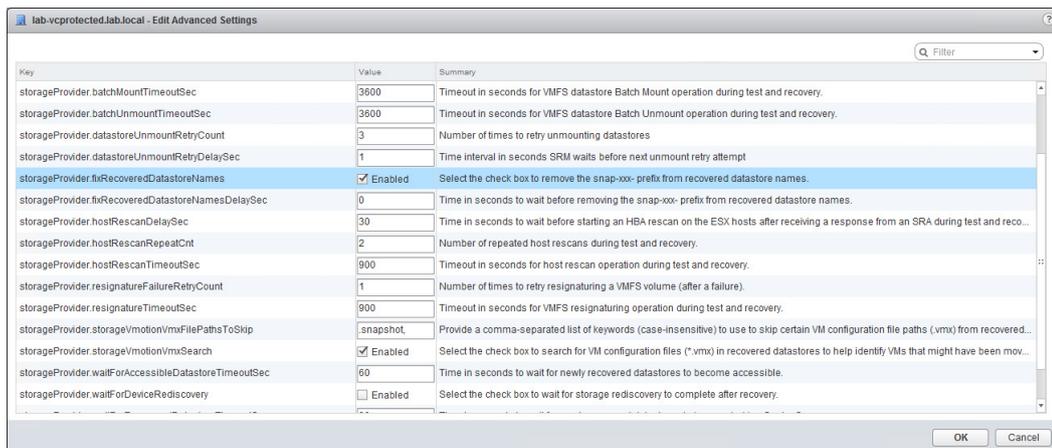


Figure 4. Advanced SRM Settings

14. Select the recovery site and repeat step 13.
15. Click **Permissions** and verify list of authorized users for SRM for protected and recovery sites.

Configuring storage arrays

1. On the **Related Objects** tab, click **Array Based Replication**.

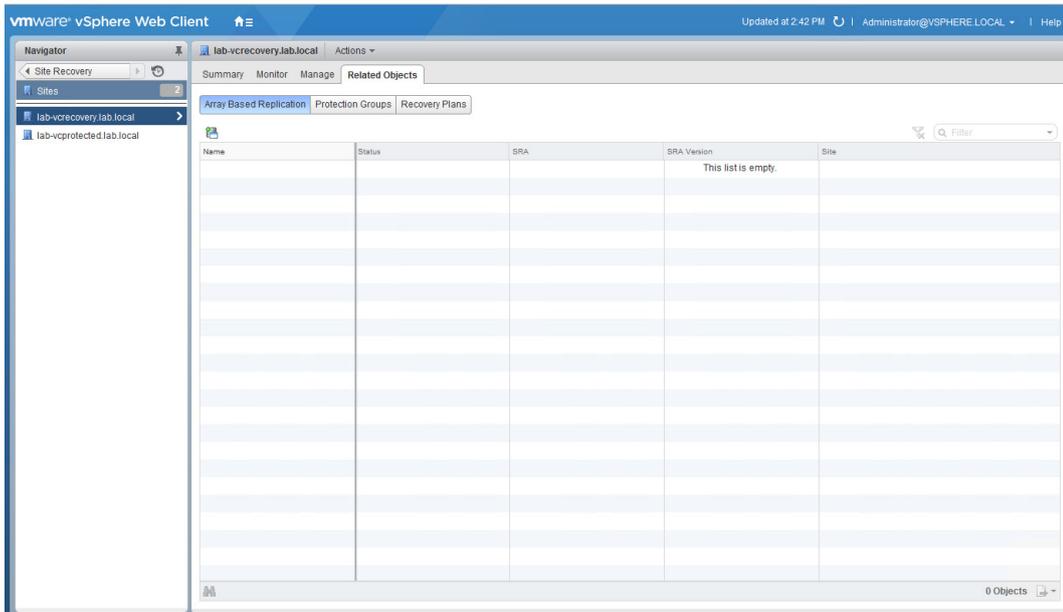


Figure 5. Site's Related Objects tab

2. Click the **Add Array Manager** icon.
3. In the **Add Array Manager** wizard, (Figure 6), click the **Add a pair of array managers'** option button (default).
4. Verify the location information, and then click **Next**.
5. Select the Dell MD SRA, and then click **Next**.
6. Type the display name for the selected site MD storage array.

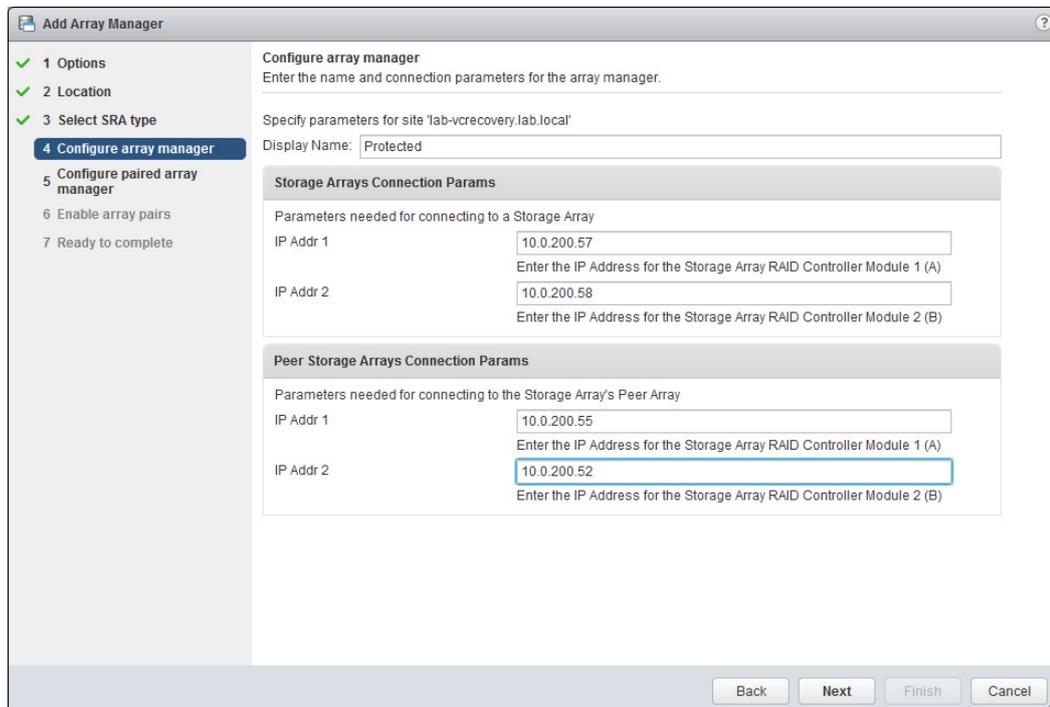


Figure 6. Add Array Managers

7. Under **Array Connections Params**, type the IP addresses for the local site's MD storage array.
8. Under **Peer Array Connection Params**, type the IP addresses for the remote site's MD storage array.
9. Click **Next**.

10. Ensure that the array was added successfully.
11. Click **Next**.
12. Repeat step 7 for the peer site's storage array.
13. Ensure that the array pair check box is selected, and then click **Next**.
14. Verify the summary information, and then click **Finish**.

Not all the SRM setup procedures are complete, just the SRA portion. Create Protection Groups and Recovery Plans for your environment to complete the process. For more information about configuration steps, see the *VMware Site Recovery Manager Administrator Guide*.

https://www.vmware.com/support/pubs/srm_pubs.html

Configuring protection groups

1. From the **Sites** list, select one of the site names to configure.
2. On the **Related Objects** tab, click **Protection Groups**, and then click the **Create Protection Group** icon.
3. In the **Create Protection Group** wizard, type a name for the protection group that you want to create.
4. Verify the protection group type settings, and then click **Next**.
5. To add to the protection group and verify the VMs for the protection group, select the Datastore Groups.

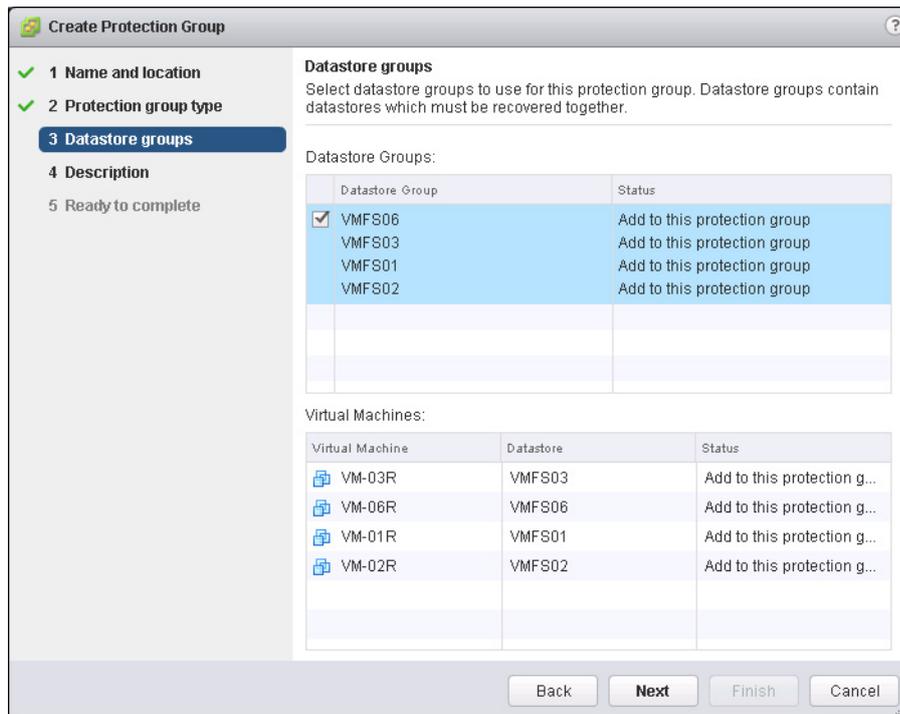


Figure 7. Create Protection Group

6. Type a description for this protection group, if necessary.
7. Review summary information, and then click **Finish**.
8. Repeat steps 1-6 for any other protection groups that you require.

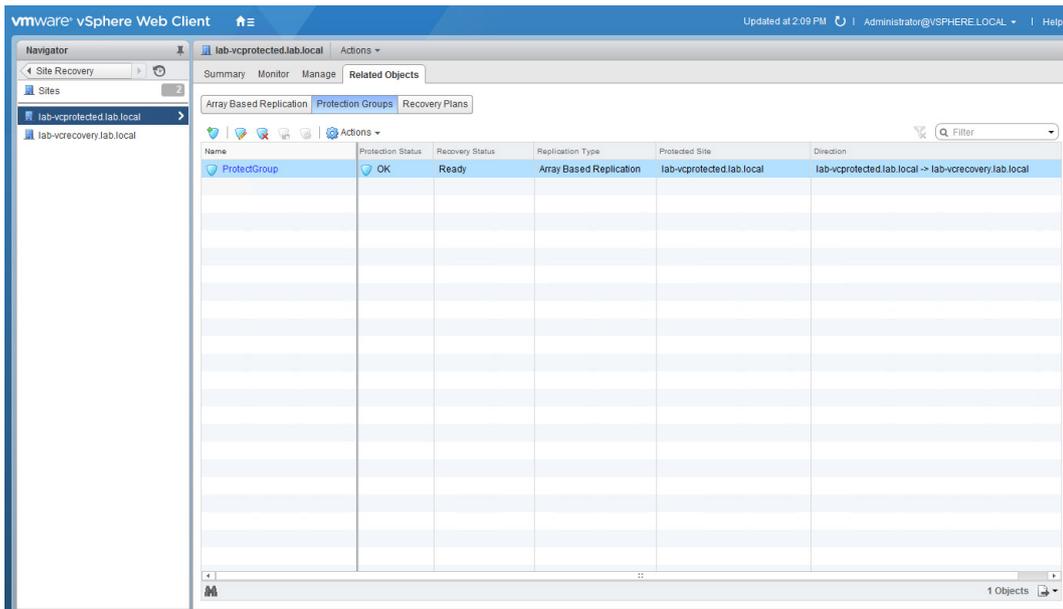


Figure 8. Protection Group Status

9. Ensure that protection group status is correct or resolve any mapping issues.

Configuring recovery plans

1. From the **Sites** list, select one of the site names to configure.
2. On the **Related Objects** tab, click **Recovery Plans**, and then click the **Create Recovery Plan** icon.
3. In the **Create Recovery Plan** wizard, type a name for the new recovery plan, and then click **Next**.
4. Select the recovery site location option button for this recovery plan, and then click **Next**.
5. Select the check box next to the protection groups that you want to use with this recovery plan, and then click **Next**.

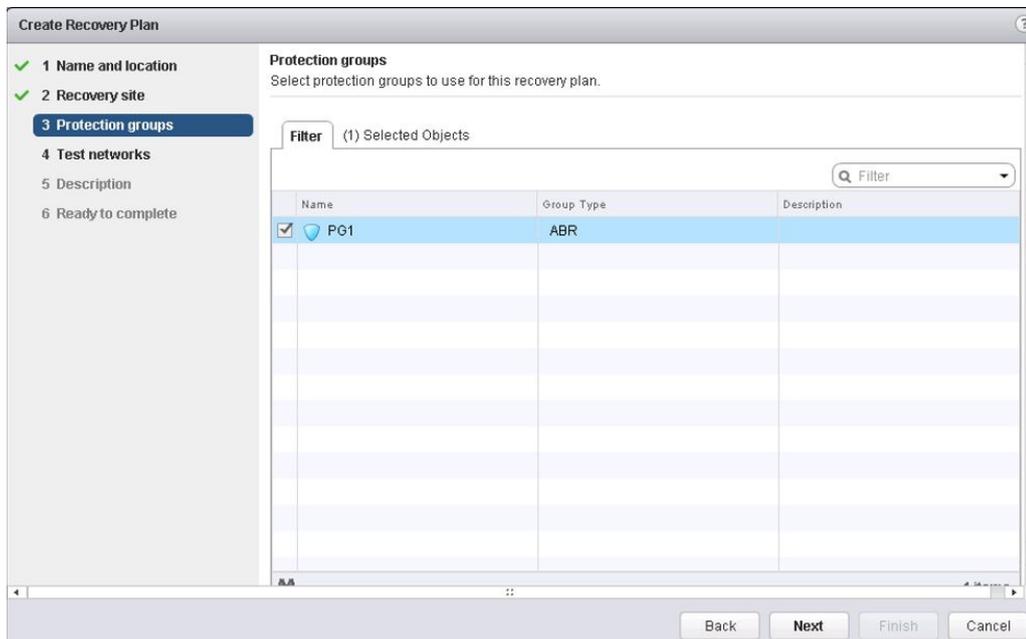


Figure 9. Create Recovery Plan wizard

6. To use for the test failover workflow, and then click **Next**, select the network.

7. Type a description for the recovery plan, if necessary, and then click **Next**.
8. Review summary information, and then click **Finish**.

Upgrade procedure

The Dell MD SRA version 05.xx.xxxx.xxxx is not compatible with the earlier LSI SRA version 01.01.xx.xx. If upgrading an SRM 4.1 environment to SRM 5.0, 5.1, 5.5, or 5.8, uninstall the LSI SRA adapter and install the Dell MD SRA version 05.60.3000.xxxx. SRM 5.8 and 6.0 use VMware vSphere Web Client to manage SRM.

Troubleshooting information

All logging for the Dell MD SRA is output to the SRM log files at `C:\ProgramData\VMware\VMware vCenter Site Recovery Manager \Logs` along with SRA logs at `C:\Program Files\VMware\VMware vCenter Site Recovery Manager\storage\sra\ Dell MD Storage Replication Adapter \logs`. Any errors encountered during any procedure are logged to these files. To resolve an issue, contact Dell technical support and provide the following information:

- A detailed description of the issue encountered.
- All software version numbers (vCenter Server, ESXi hosts, SRM Servers, and SRAs)
- Export of the SRM System Logs from both sites.

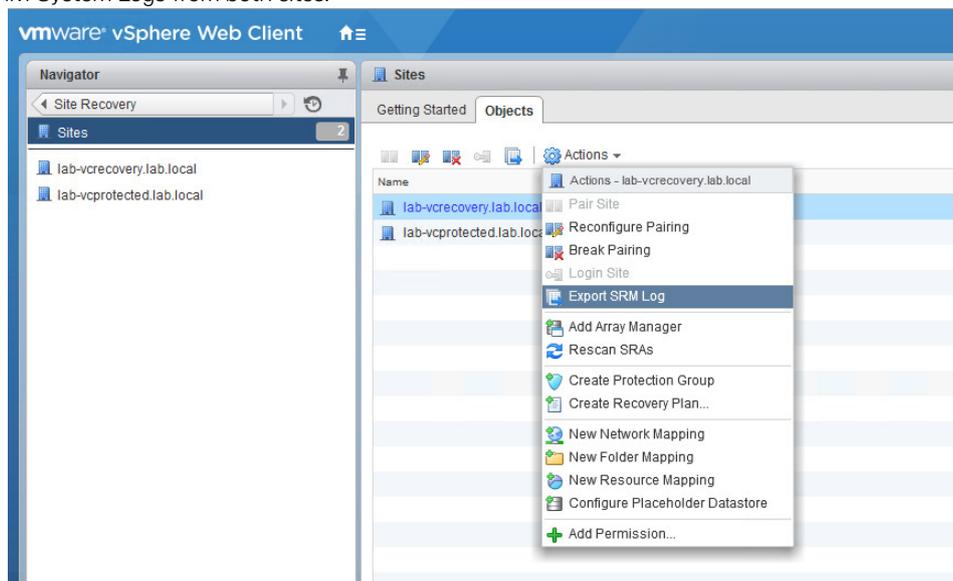


Figure 10. SRM Log Collections

An export of the failed recovery plan and one (if any) successful runs before it.

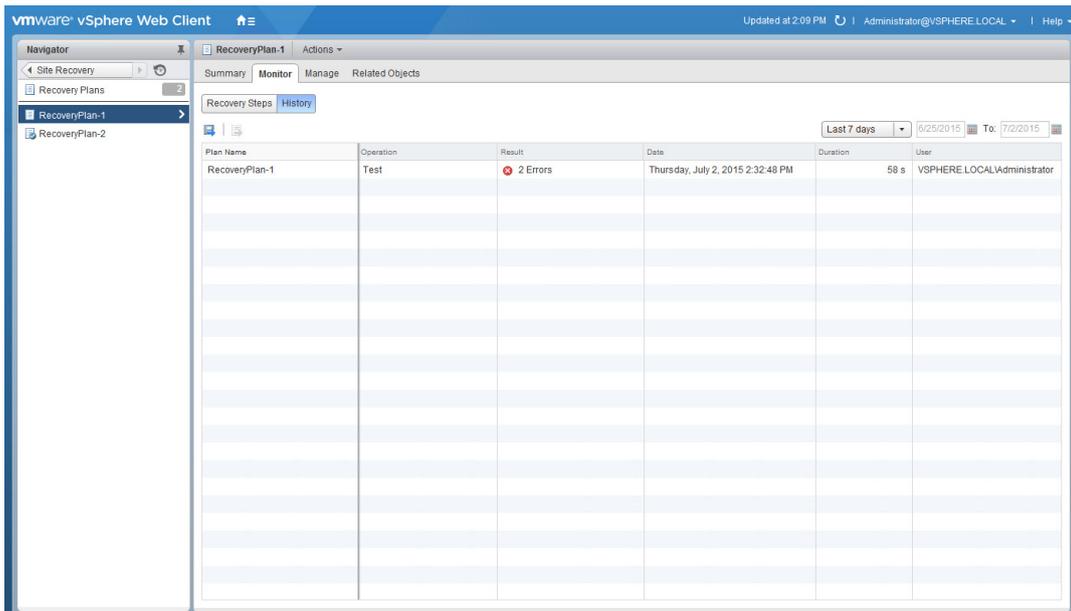


Figure 11. Recovery Plan History Export

Storage array support bundle from each storage array.

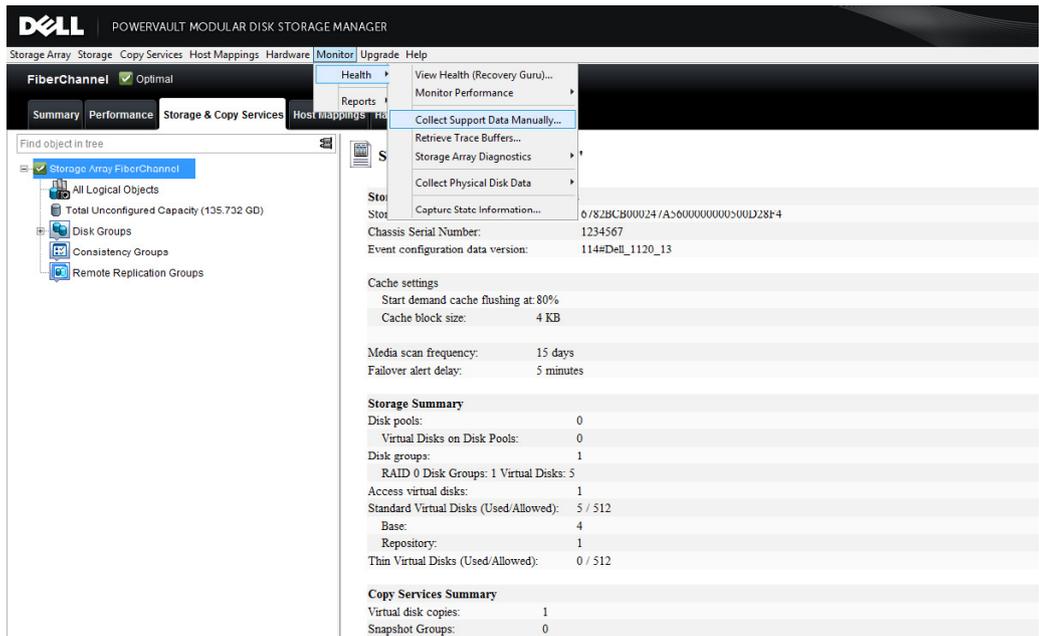


Figure 12. Storage Array Support Bundle

(Optional) A screen capture of a mapped volume showing path configuration.

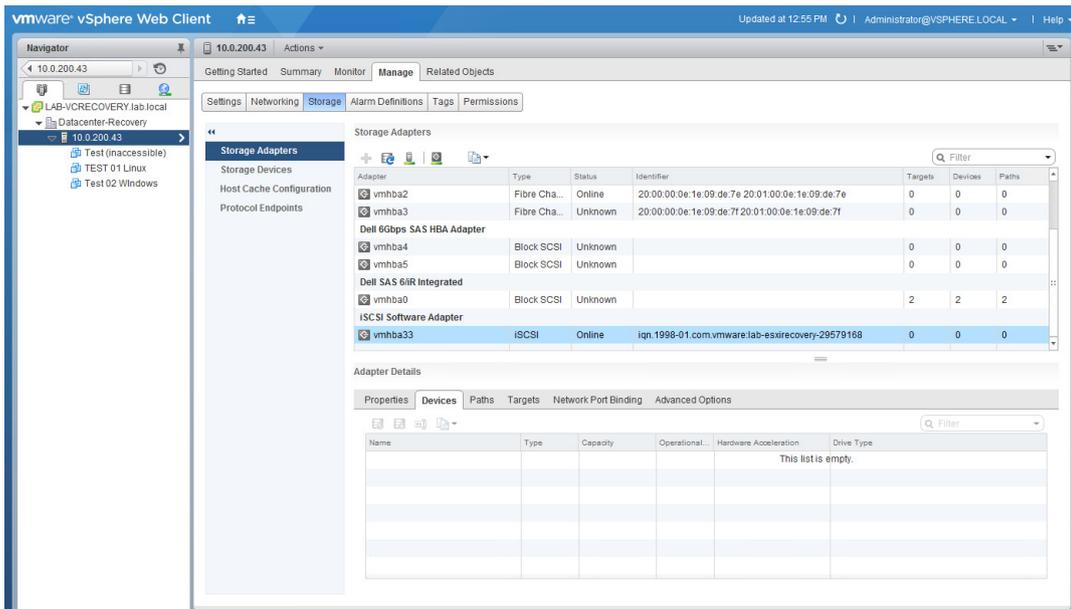


Figure 13. Storage Array Mapping View

Flow diagram

discoverArrays

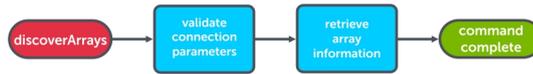


Figure 14. Discover Arrays Function

discoverLUNs

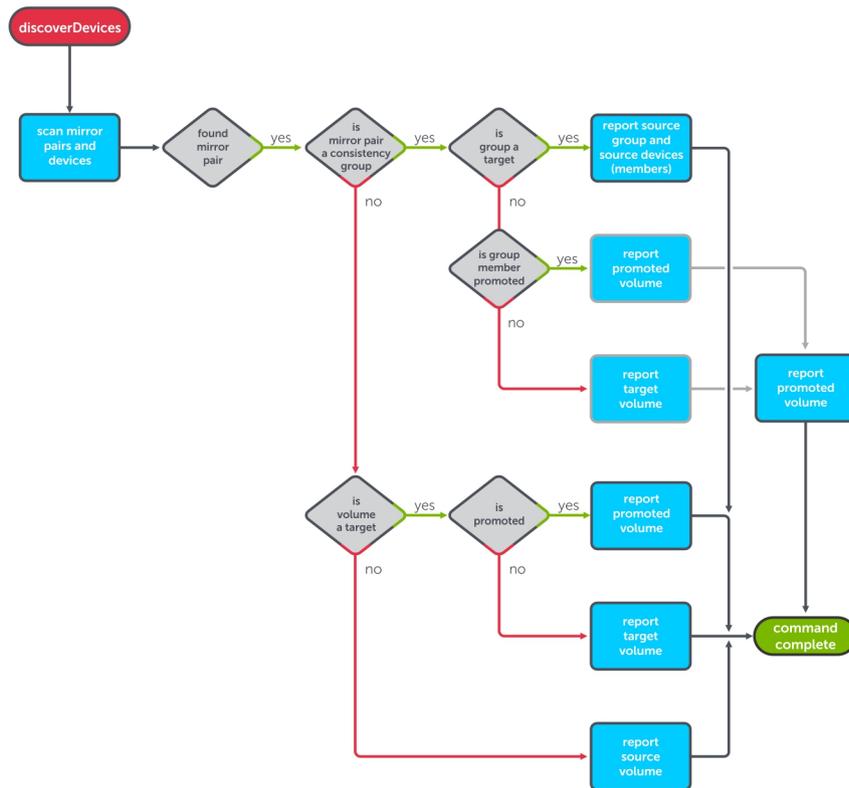


Figure 15. discoverLUNs Function

testFailover (Start)

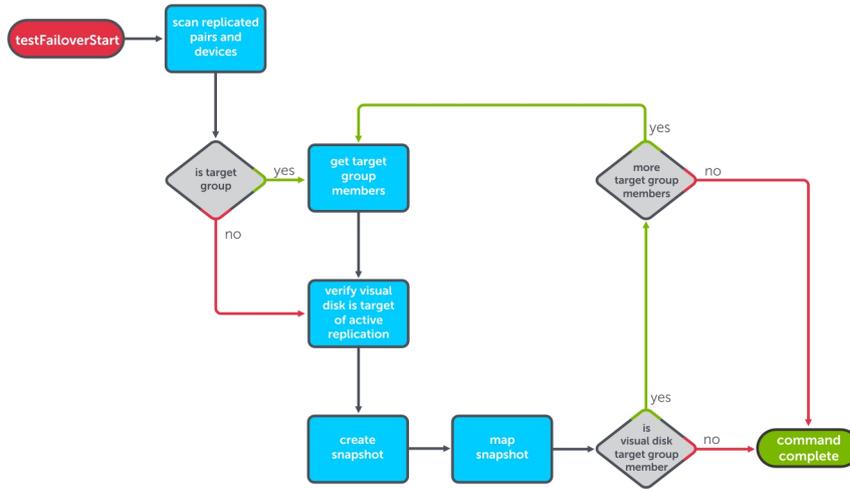


Figure 16. testFailover (Start) Function

testFailover (Stop)

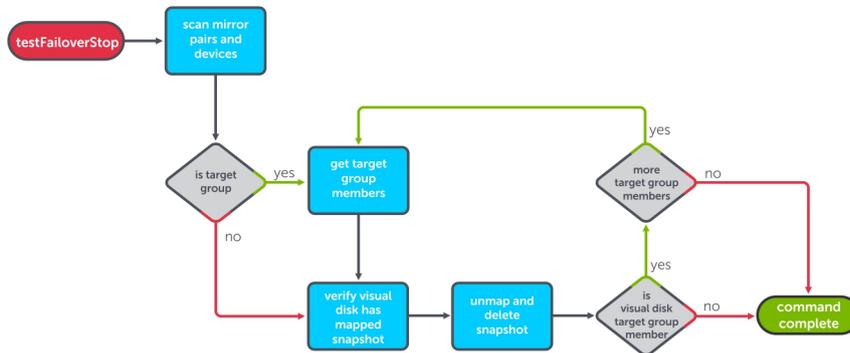


Figure 17. testFailover (Stop) Function

SyncOnce

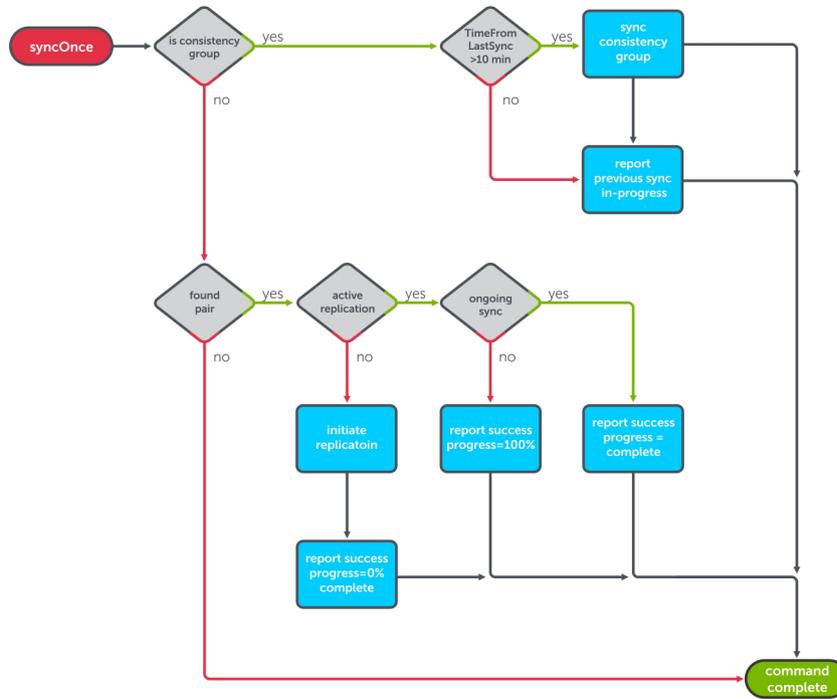


Figure 18. SyncOnce Function

Failover

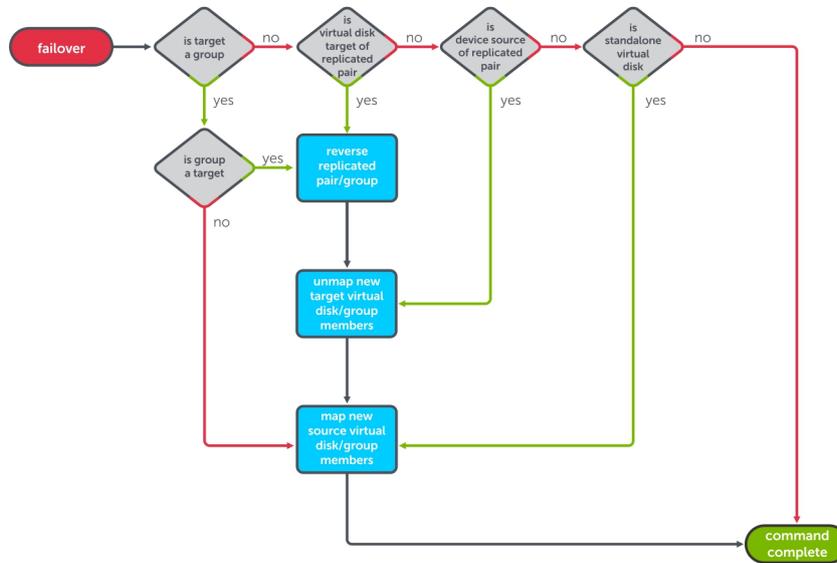


Figure 19. Failover Function Flow Diagram

Getting help

Documentation matrix

The documentation matrix provides information about documents that you can refer to for setting up and managing your system.

Dell documentation

- For all PowerEdge and PowerVault documentation, go to **Dell.com/support** and enter the system Service Tag to get your system documentation.
- For all Virtualization documents, go to **Dell.com/virtualizationsolutions**.
- For all operating system documents, go to **Dell.com/operatingsystemmanuals**.
- For all storage controllers and PCIe SSD documents, go to **Dell.com/storagecontrollermanuals**.
- For Dell Support Forums, go to **en.community.dell.com/support-forums/default.aspx**.
- For Dell Advanced Search, go to **search.dell.com/index.aspx**.

VMware documentation

- For vCenter SRM 6.0 documentation, go to
https://www.vmware.com/support/pubs/srm_pubs.html
- For vSphere 6.0 Documentation (ESXi, ESX, and vCenter Server), go to
<https://www.vmware.com/support/pubs/vsphere-esxi-vcenter-server-6-pubs.html>
- For information about VMware Knowledge Base (Searchable Support Issues), go to
<http://kb.vmware.com/selfservice/microsites/microsite.do>
- For information about VMware Communities (Help Forums), go to
<https://communities.vmware.com/welcome>
- For VMware Compatibility Guide, go to
<http://www.vmware.com/resources/compatibility/search.php?deviceCategory=io>

Contacting Dell

Dell provides several online and telephone-based support and service options. If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer-service issues:

1. Go to **Dell.com/support**.
2. Select your country from the drop-down menu on the bottom right corner of the page.
3. For customized support:
 - a. Enter your system Service Tag in the **Enter your Service Tag** field.
 - b. Click **Submit**.

The support page that lists the various support categories is displayed.

4. For general support:
 - a. Select your product category.
 - b. Select your product segment.
 - c. Select your product.

The support page that lists the various support categories is displayed.

Locating your system Service Tag

Your system is identified by a unique Express Service Code and Service Tag number. The Express Service Code and Service Tag are found on the front of the system by pulling out the information tag. This information is used by Dell to route support calls to the appropriate personnel.