

BLUE-ARC® Storage Replication Adapter for VMware Site Recovery Manager



Installation and Users Guide

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About This Guide

This document describes how to use the BlueArc Replication Adapter (SRA) for the BlueArc NAS Storage System. This document revision applies to the BlueArc Storage Replication Adaptor (SRA) for BlueArc Servers, version 01.0.0

Intended Audience

This document is intended for anyone who wants to install the BlueArc Replication Adapter (SRA) for the BlueArc NAS Storage System. It is written for experienced Microsoft® Windows system administrators who are familiar with virtual machine technology and data center operations. This document assumes familiarity with VMware Virtual Infrastructure, including ESX Server 3.x, VirtualCenter Server 2.5 and the VI Client. Readers also need a working knowledge of storage network technology, specifically the BlueArc NAS Storage System and how Virtual Infrastructure interacts with it.

A full analysis to determine the specific bandwidth and redundancy requirements of the environment you intend to replicate must be conducted by BlueArc Technical Assistance Center (TAC). This service provides you with a high-level design for your distance replication solution and a detailed analysis of workload and performance characteristics to help you support potentially expensive bandwidth decisions.

Related Documents

System Administration Guide: In PDF and HTML format, this guide provides a full description of the system and instructions on how to administer storage servers and clusters using Web Manager.

Browser Support

Any of the following browsers can be used to run Web Manager, the System Management Unit (SMU) web-based graphical user interface.

- Microsoft Internet Explorer: version 7.0 or later.
- Mozilla Firefox: version 1.5 or later.

Note that the SMU uses cookies and sessions to remember user selections on various pages. Therefore, you should open only one web browser window or tab to the SMU from any given workstation/PC. If multiple tabs/windows are opened from the same workstation/PC, a change made in one tab/window may unexpectedly affect the other tab/window.

The following Java Runtime Environment is required to enable some advanced Web Manager functionality.

- Sun Microsystems Java Runtime Environment: version 5.0, update 6, or later.

A copy of all product documentation is included for download or viewing through Web Manager. The following software is required to view this documentation:

- Adobe Acrobat: version 7.0.5 or later.



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Setting Up and Configuring the System Replication Adapter

This document explains how to set up and configure the BlueArc NAS Storage System Replication Adapter (SRA) for the VMware Site Recovery Manager (SRM). The following topics are discussed:

- ["Overview of the BlueArc System Replication Adapter"](#)
- ["Supported Operating Systems"](#)
- ["Supported models"](#)
- ["Replication Requirements and Recommendations"](#)
- ["Configuring the Setup"](#)
- ["Installing the Adapter"](#)
- ["Uninstalling the Adapter"](#)
- ["Verifying the Adapter in the SRM GUI"](#)

Overview of the BlueArc System Replication Adapter

Complex distance recovery solutions traditionally require customized, site-specific scripting. Testing these solutions also often requires multiple steps, each separately and manually executed. BlueArc and VMware now offer a compelling solution that provides user-friendly site recovery testing and failover for VMware environments. The solution integrates VMware host-side intelligence and robust, market proven storage system-based replication from BlueArc.

VMware's Site Recovery Manager (SRM) is a host-based graphical user interface (GUI) application with intelligence about VMware virtual machines and virtual disks and the association of virtual machines and storage. The integration component connecting the VMware SRM to BlueArc NAS Storage System-based replication is called the BlueArc NAS Storage System Replication Adapter (SRA) for NAS. The SRA allows BlueArc NAS Storage System customers to take advantage of the disaster recovery capabilities of SRM.

This document describes the configuration details required to deploy the SRA within an SRM environment using BlueArc NAS Storage System replication. It serves as a supplementary implementation guide, describing how to deploy SRM on an existing distance replication solution.

Supported Operating Systems

The BlueArc NAS Storage System Replication Adapter supports the following operating systems:

- Microsoft Windows Server 2003 SP2
- Microsoft Windows Server 2003 R2

- Microsoft Windows Server 2008
- Microsoft Windows Server 2008 SP2

Supported models

The BlueArc Storage Replication Adapter supports the following models:

- BlueArc Mercury servers or clusters: All
- BlueArc Titan servers or clusters: models 3100 and 3200

Replication Requirements and Recommendations

A number of requirements must be addressed in a storage replication environment before you deploy the Storage Replication Adapter within the VMware SRM. In addition, follow the best practice recommendations in this document to ensure successful deployment and maintenance of the replication environment.

Replication Architecture

The BlueArc SRA is designed to work with the BlueArc server or cluster IP replication. You must configure your BlueArc NAS Storage System to perform IP replication using incremental replication.

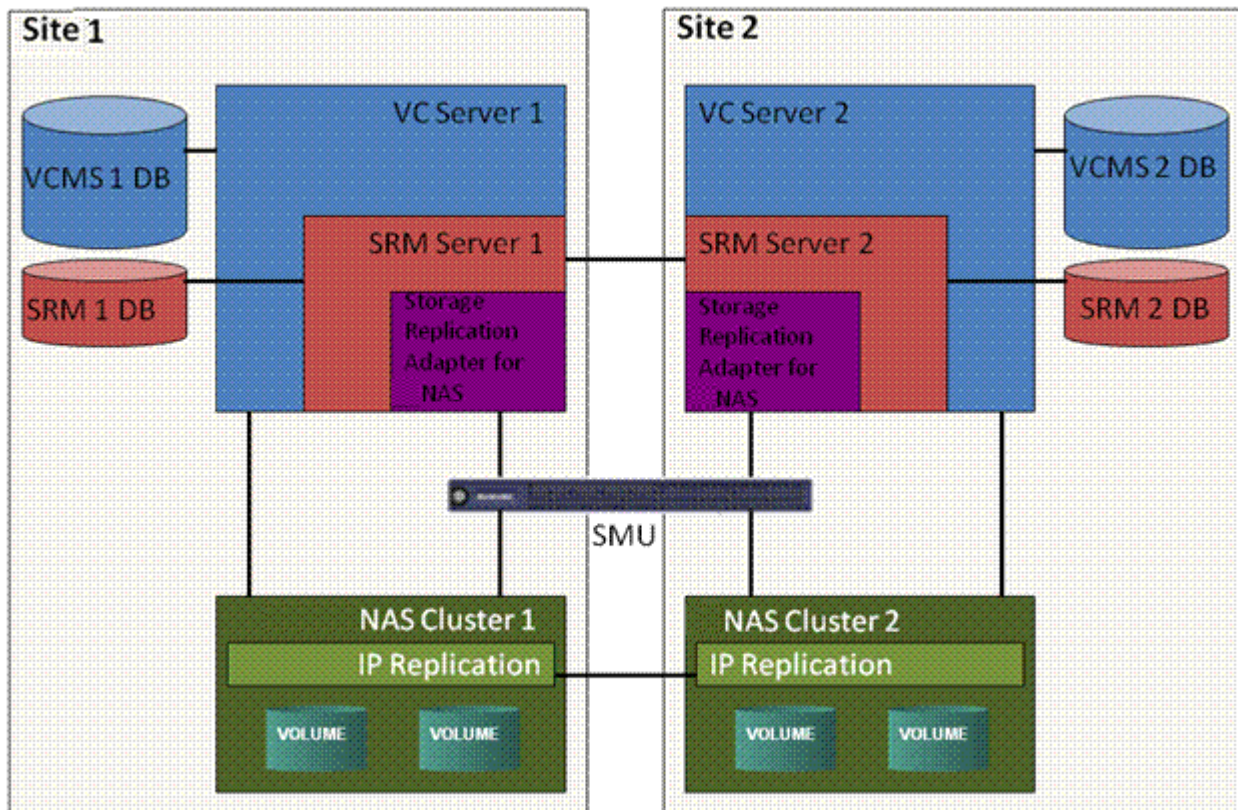
Recommended Configuration for the BlueArc NAS Storage System

In order for the BlueArc NAS Storage System and the SRA to work seamlessly together, we suggest you follow the recommendations listed below:

- Each EVS configured on the BlueArc NAS cluster will be discovered as an individual “array.” Also note that each EVS should have only one IP address assigned to it. This is based on the recommendation from VMware for the SRM implementation.
- The Array ID will be a combination of the BlueArc NAS Entity IP and EVS ID.
- A VMWare LUN should be mapped to one NFS export:
 - Each NFS export should be unique. There should not be two NFS exports pointing to the same NAS file system path.
 - Each LUN ID will be uniquely represented by the BlueArc NAS Storage System file system ID and file system path.
 - RM/SRA NFS name is the BlueArc NAS Storage System NFS Export Name.
- The replicated file system must not be syslocked.

Configuring the Setup

The following figure illustrates a SRM/SRA setup for performing disaster recovery:



SRM is designed as a plug-in to VirtualCenter so that DR tasks can be executed inside the same management tool as other VM administration tasks such as creation, migration, deletion, etc. To summarize, following are the typical configurations for a SRM setup, as illustrated by the above figure:

2 VC servers (one per site)

2 SRM servers (one per site)

4 databases (two per site, one for VC and one for SRM)

Pre-configured array-based replication

Configuring SMU Permissions

The SRA utilizes the IP replication features of the BlueArc NAS Storage System, and uses the System Management Unit (SMU) of a BlueArc NAS installation to influence the replication relationships and to connect to the BlueArc NAS Storage System nodes. In an installation without an SRA, the replication can only be influenced using the SMU, because special permissions need to be granted to the SRA. The following procedure describes this process.

In order to allow the BlueArc SRA to run the commands which are required to influence the replications, the following line needs to be appended to the sudoers file:

```
manager          ALL=(root) NOPASSWD:
/opt/smu/adc_replic/replication_schedule.sh ,
/opt/smu/adc_replic/replication_recovery.sh, /bin/ls
/opt/smu/adc_replic/conf/* , /bin/cat /opt/smu/adc_replic/conf/*
```

Please note that the above statement represents one single line in the `/etc/sudoers` file. Also changes to the `/etc/sudoers` file can only be performed by root.

To Configure SMU Permissions

To Configure SMU Permissions:

1. Use `ssh` to log onto the smu as user manager. Acquire root privileges by using "`su -`".
2. Change permissions of `/etc/sudoers` to 0660.
3. Append additional permissions to `/etc/sudoers`.
4. Change permissions of `/etc/sudoers` to 0440.
5. Exit root shell.

Example:

The following example shows the use of the above commands:

```
[manager@smu01 ~]$
[manager@smu01 ~]$ su -
Password:
[root@smu01 ~]# chmod 0660 /etc/sudoers
[root@smu01 ~]# echo "manager          ALL=(root) NOPASSWD: |
/opt/smu/adc_replic/replication_schedule.sh ,
/opt/smu/adc_replic/replication_recovery.sh, /bin/ls
/opt/smu/adc_replic/conf/* , /bin/cat /opt/smu/adc_replic/conf/*" >>
/etc/sudoers
[root@smu01 ~]# chmod 0440 /etc/sudoers
[root@smu01 ~]#
[root@smu01 ~]#exit
[manager@smu01 ~]$
```

Installing the Adapter

The SRA is available as an msi installer file. The adapter should be installed on the server where the SRM server is running. The installation will copy the SRA scripts and binaries to the SRM plugin install folder which is typically:

```
C:\Program Files\VMware\VMware vCenter Site Recovery  
Manager\scripts\SAN\NAS
```

Please note that the Adapter should be installed on the primary and secondary SRM server machines.

Uninstalling the Adapter

To uninstall the Adapter:

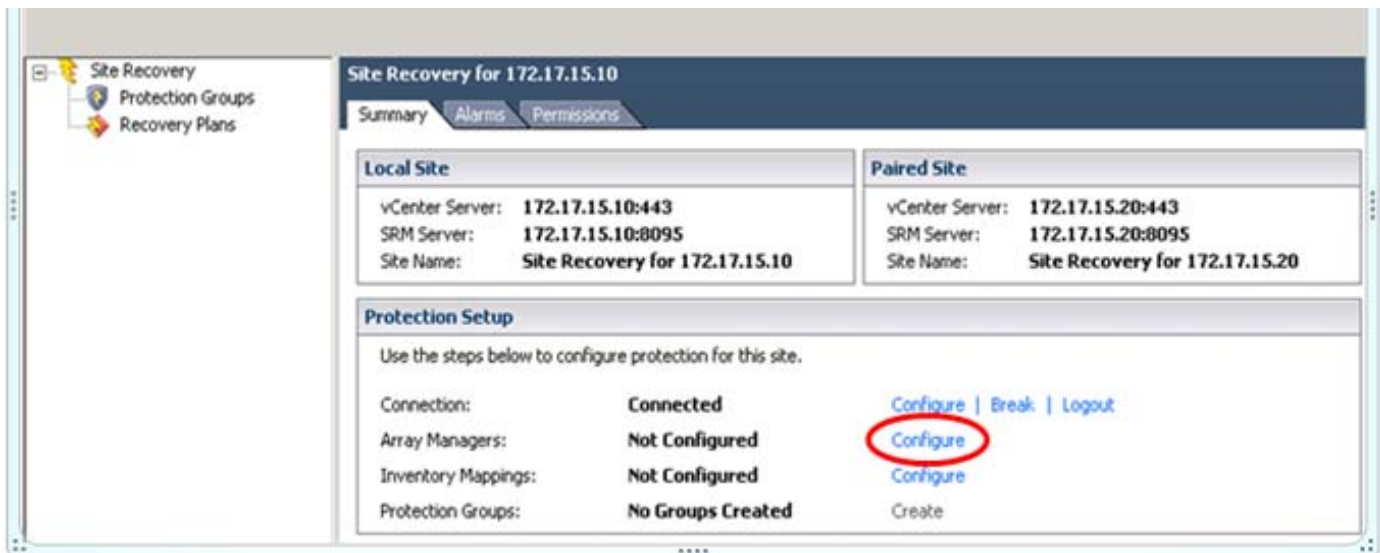
1. **Open Add/Remove Programs.**
2. **Select the application BlueArc Storage Replication Adapter for NAS.**
3. **Click Remove.**

Verifying the Adapter in the SRM GUI

The following steps explain how to verify the Adapter in the SRM GUI.

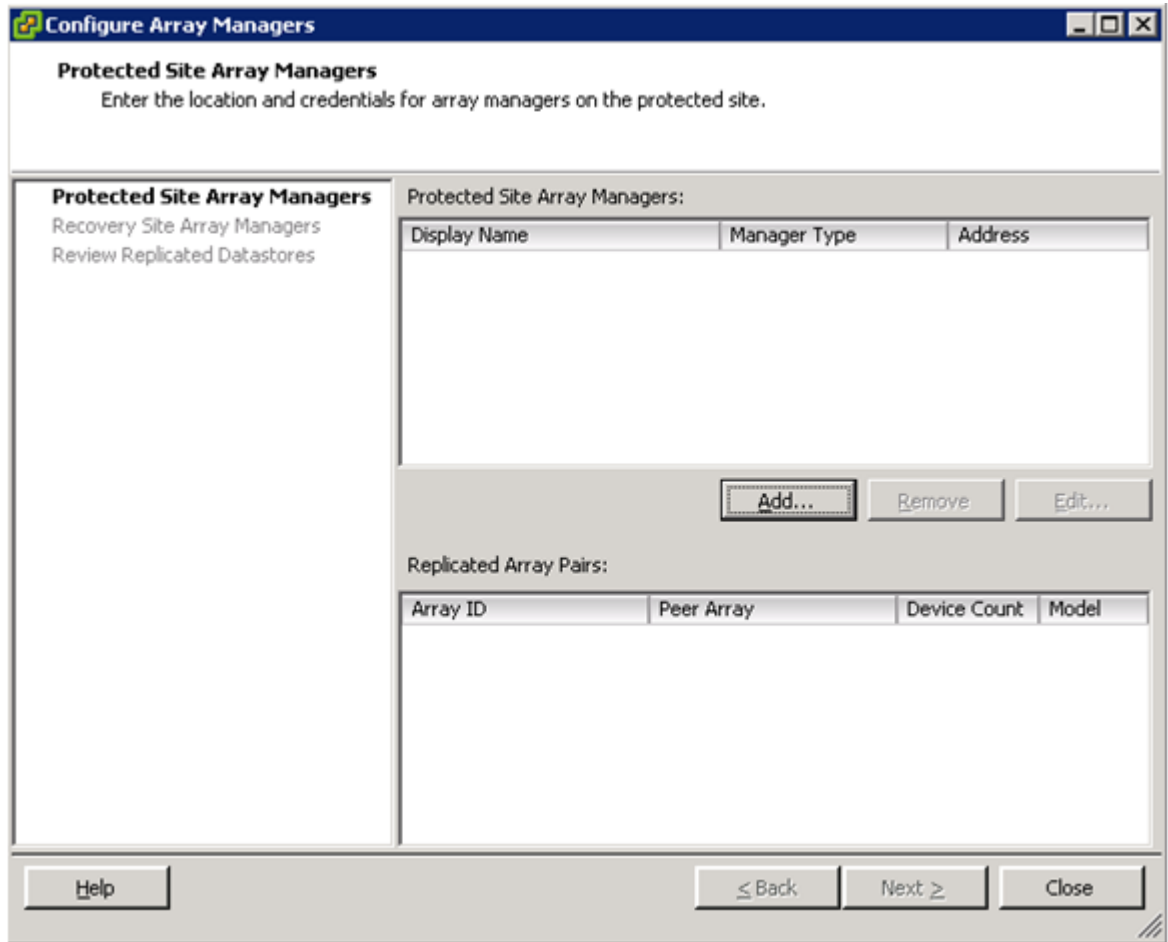
To start the SRM GUI, from the vSphere Client GUI navigate to:

1. **View/Solutions and Applications/Site Recovery, and then click on Connect to VMware vCenter Site Recovery Manager.**

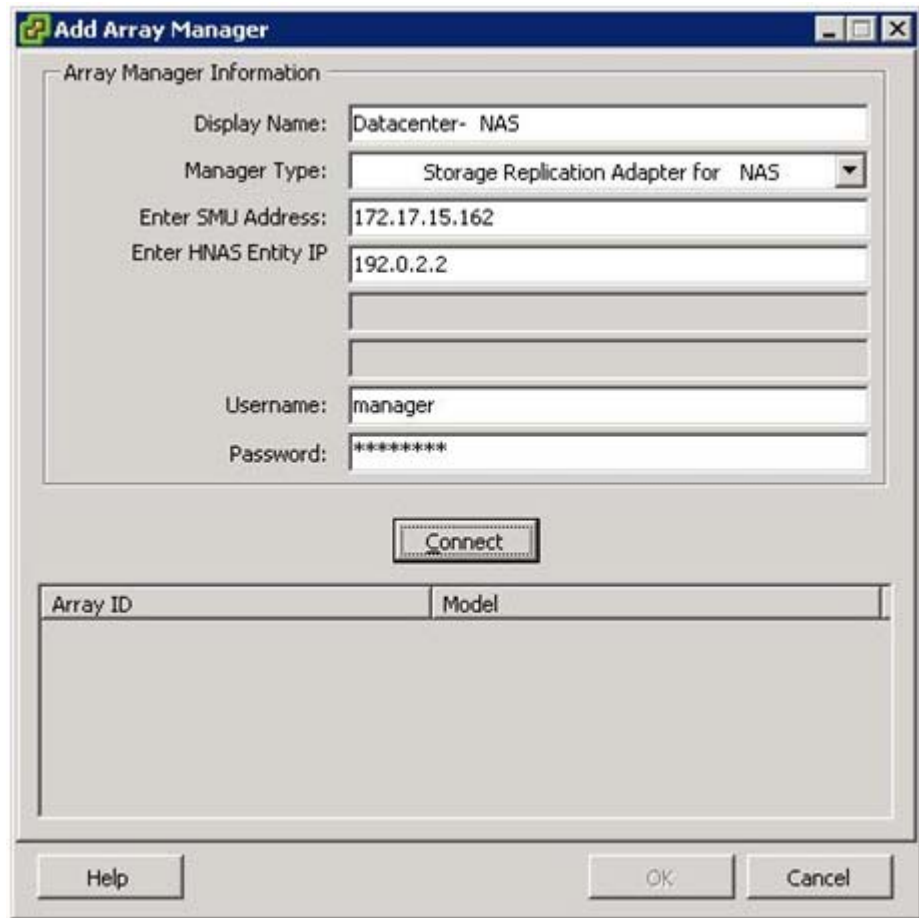


The Array Managers needs to be configured for SRM to configure/identify the replicated volumes. Click **Configure** under Array Manager as highlighted in the above figure and follow the steps below to configure the SRM/SRA for the BlueArc NAS Storage System.

2. **Click on Add to configure the array manager information for the Protected Site, as shown below.**



3. Enter Array Manager Information for the Protected Site.



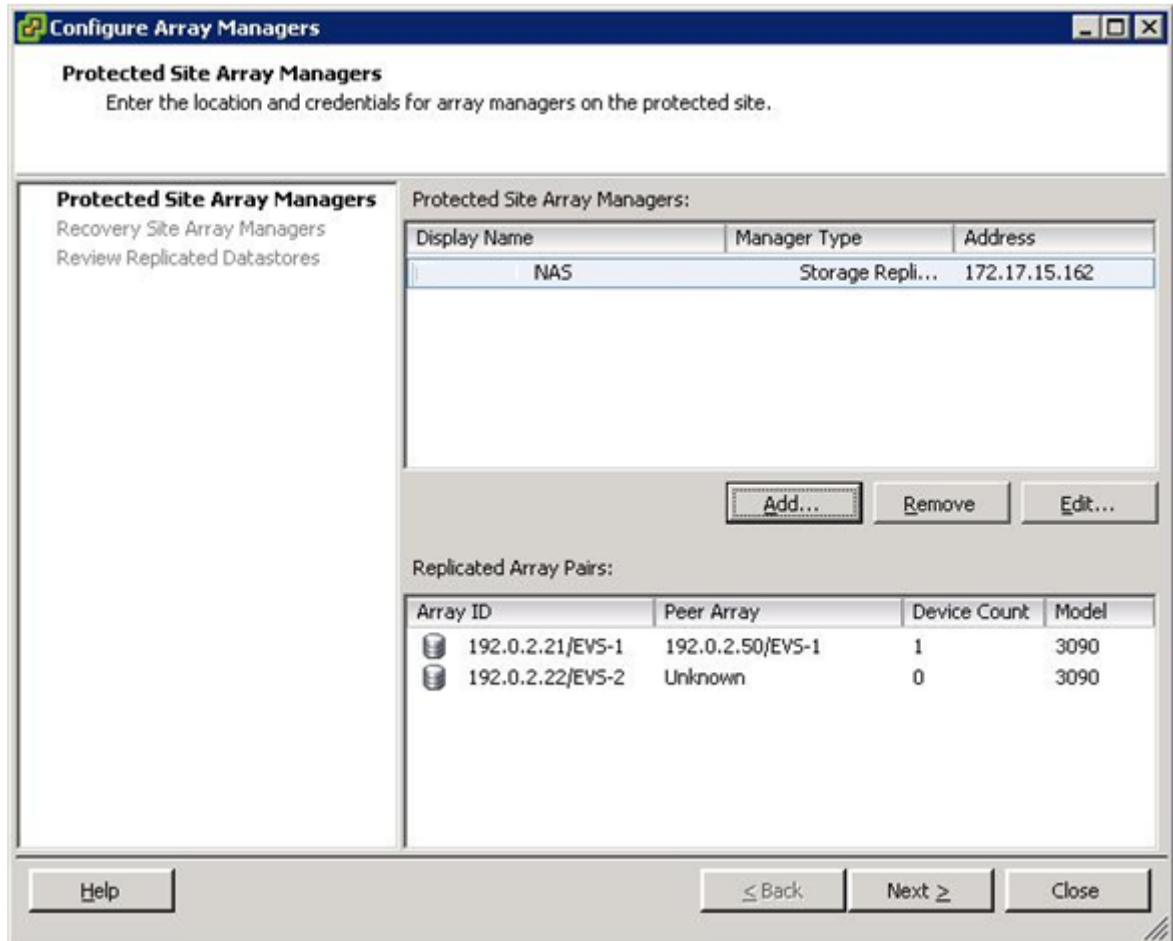
In the above screen, make sure that you select the BlueArc NAS Storage System Replication adapter. Provide the SMU IP address, the NAS entity IP address (the NAS cluster IP or a standalone NAS that will be hosted on the protected site), SMU user name and SMU password. The SMU user name and password might be different from the username/password that is provided to the web based GUI.

1. Click on Connect to display the list of array ID.

Please note that the number of Array ID will be equal to the number of NAS cluster ID and the EVS ID.

2. Validate the Protected Array Manager Replicated pair information, as shown below.

3.

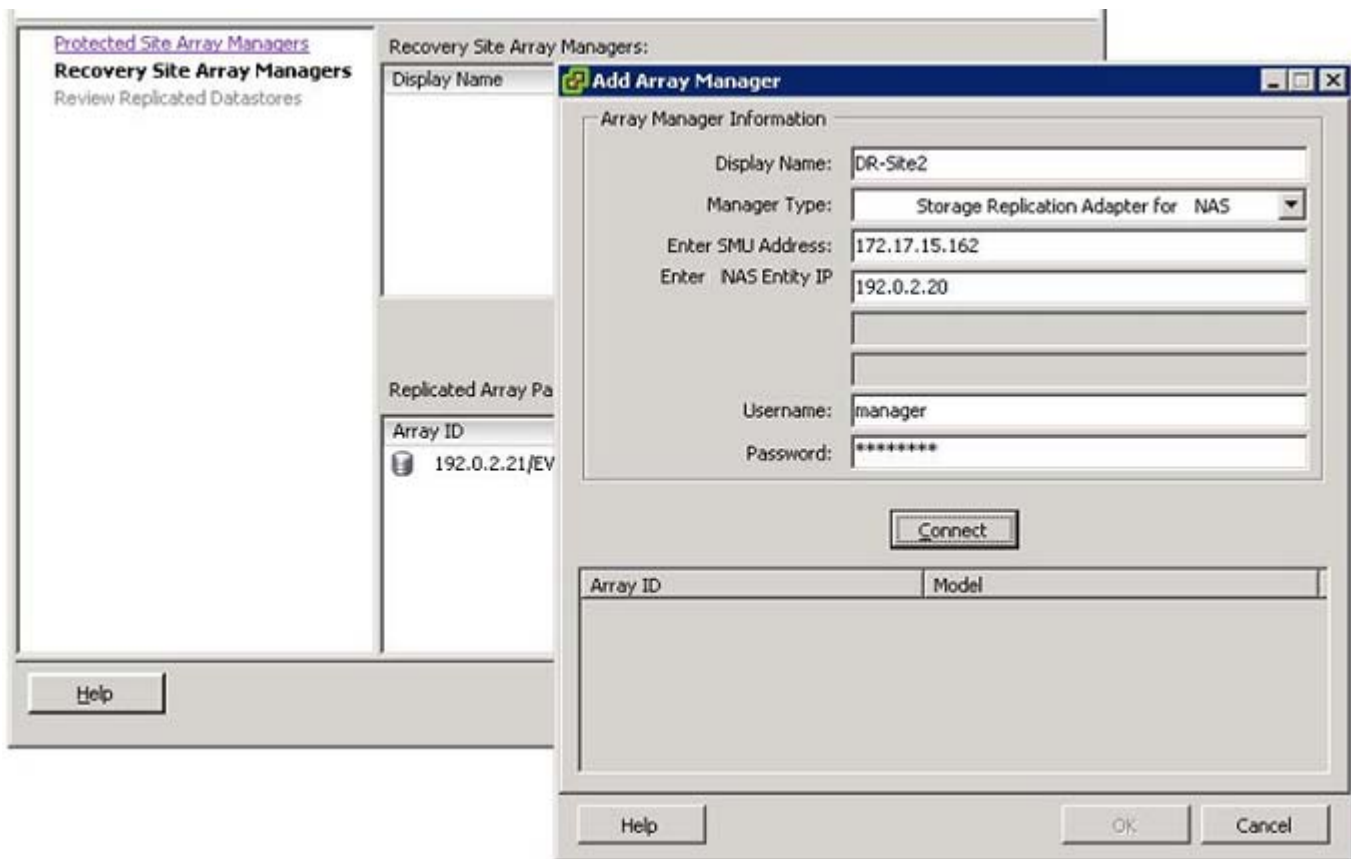


Now validate that the pair count in the SRM GUI is the same as the replications configured on the BlueArc NAS Storage System for an EVS. Selected arrays that do not have any replication pairs will have the **Peer Array** set to **Unknown**.

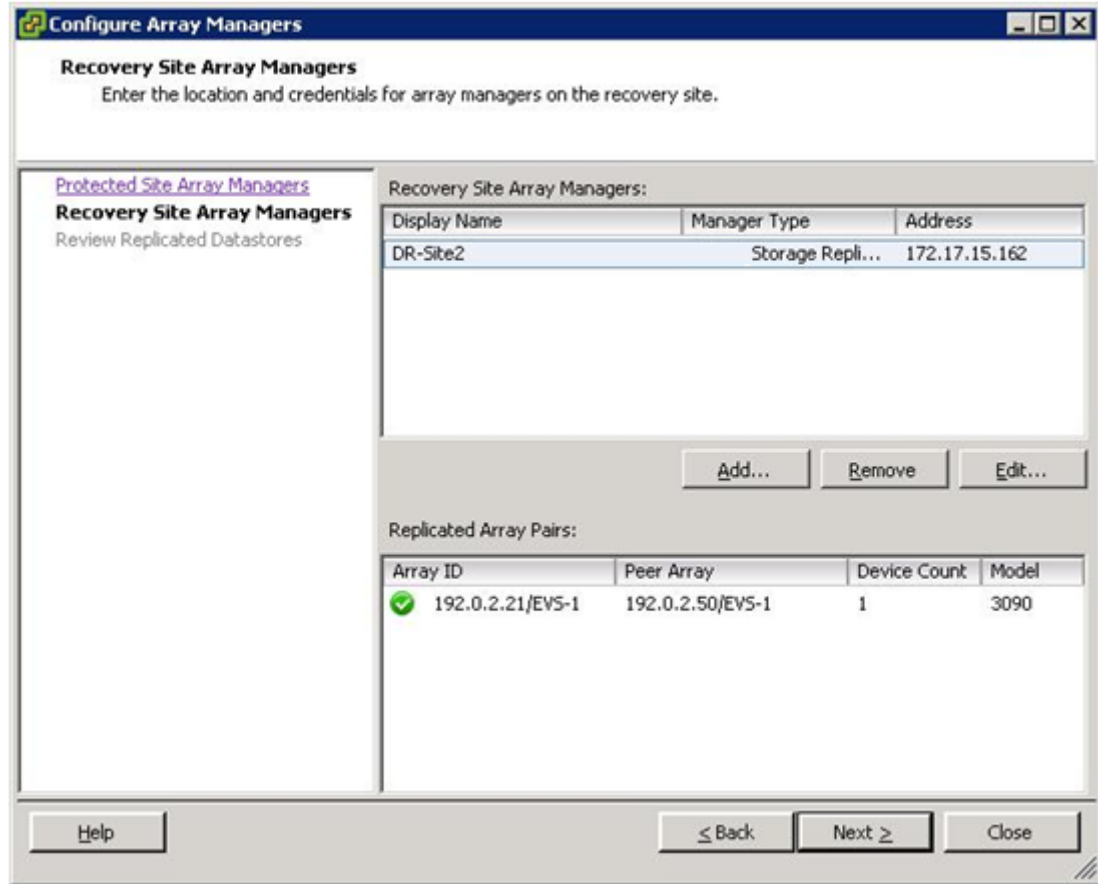
4. Enter Array Manager Information for the Recovery Site.
5. Click on Next in the Configure Array Managers screen (shown above) to configure the Array Manager information for the replicated site.

Verifying the Adapter in the SRM GUI

Make sure that you enter the correct information for the NAS entity IP address (the NAS cluster IP or a standalone NAS that will be hosted on the recovery site).



6. Confirm the Replicated pair information.



Troubleshooting

The following lists possible problems you may encounter and suggests possible solutions.

Problem	Possible Cause
When the SRA is called by SRM nothing happens. In the SRM log the SRA seems to be stuck; eventually the SRM action times out.	SRA permissions in /etc/sudoers have not been adjusted. Follow the instructions in the chapter, Configuring SMU Permissions, to set up the required permissions.
After a test failover or a failover the storage pools are available but VM cannot start due to denied write access.	Replication target may be syslocked. Sysunlock the replication target Filesystem.

