

INFINIDAT

STORAGE REPLICATION ADAPTER FOR VMWARE SRM USER GUIDE

LAST UPDATED: 11/12/2020

Table of Contents

1	Storage Replication Adapter for VMware SRM Release Notes	3
1.1	InfiniBox Storage Replication Adapter 1.x - 5.x Release Notes	3
2	Introduction to INFINIDAT InfiniBox Storage Replication Adapter	13
2.1	What is Infinidat InfiniBox Storage Replication Adapter	13
2.2	Storage Replication Adapter Release Notes	15
3	Configuring the Storage Replication Adapter	16
3.1	Preparing a vSphere environment with SRM	16
3.2	Installing the Storage Replication Adapter	18
3.3	Upgrading the Storage Replication Adapter	19
4	Protecting vSphere using Storage Replication Adapter	21
4.1	Configuring Array Pairs (Array Managers)	21
4.2	Enabling Sync & Async replication protection	22
4.3	Running Recovery plans	23
4.4	Discovering new replicated volumes	25

1 Storage Replication Adapter for VMware SRM Release Notes

1.1 InfiniBox Storage Replication Adapter 1.x - 5.x Release Notes

1.1.1 Table of Contents

1.1.2 Description

About SRA provider

VMware Site Recovery Manager integrates with third party storage arrays and replication appliances to provide a complete integrated Business Continuity solution. This integration is achieved through a unique Storage Replication Adapter (SRA), created by the storage array or replication vendors. Please identify the appropriate SRA required for integration with your specific array or replication appliance.

1.1.3 Product versions

Version	Date released	Date certified
5.2		
5.1	2019-10-06	2019-10-15
5.0	2019-02-19	2019-04-01
4.0	2017-12-05	2018-01-03
3.0.3	2017-04-05	2017-06-08
3.0.1	2016-12-01	2016-12-26
2.2.5	2015-11-26	2016-02-26
2.0.6	2015-06-05	2015-06-18
2.0.4	2015-05-27	2015-06-12
1.0.10	2015-01-07	2015-01-22

Version	Date released	Date certified
1.0.8	2014-11-05	2014-04-18

1.1.4 Files

Version	MD5SUM	SHA1SUM
5.1 Docker	79fafa933b009944416390a0f2ba7306	61fb8f088c405bfe659903b7a3b852a5d29a0c2c
5.0 x64	4016cff3e0ee778b2e45beab6707b106	00408fd1548bfb0b3fd75a889e25cd33c727364b
5.0 x86	b55f984020f21ef860bc200be471ab91	6f6b6cd6fc49bd7637441d67eefdc005e59ccc1a
4.0 x64	2cfa69bf82ae567f6e6997b37ffc7712	f1a9914d5d2bbbbe51e0844b9967e92294080a11
4.0 x86	4dce8989bbb1de8ab37c83cd78f4a6b3	b28cf2d70b776c163177f268093669502b911e98
3.0.3 x64	afc5634b7247b2bb318e56855c845624	920181e236fd916f8160bd32672c1a5377077bcb
3.0.3 x86	1b2b53a69426e001d8d1d2df35f35578	b173e5dd48e8f12c80f778ae87f1a170c9e63d6a
3.0.1 x64	d2106129606a4fb02383d0580d766045	7a19223925c841ebf0a31bb5c7af4dd7d6bc4c56
3.0.1 x86	126a9645918ef480ebce74a7e7d1137d	4fcb039c5c49900270752d8aa67fb09e30f5b085
2.2.5 x64	22ac7037b962e64582ce466e1272548c	b23d039b6b5ebaefcde8e8bb50fa87c6539c6f97
2.2.5 x86	33493a96c306d146420eba8a38c9ab00	89c0e05b29915a731445cf3ba8c17ab1038f0874
2.0.6 x64	ffe11e550cd9493bff8fd67921ec414b	61034a3882831209b32a82b4a2f26b1d7c5a3cd0
2.0.6 x86	acd1bfbe1cf88826df42d930205c9b19	94b436275d0c12929e943f3482135d36c740db50
2.0.4 x64	668d655ea2524b6a863f94f2fd24d80e	3e167403a71838ca28444e9b837f14f540054f8a
2.0.4 x86	def1ea73e0957d4d2a41c51aed561caf	230b8c87886ccd9423b632dbea88d672d74ebf00
1.0.10 x64	4a06297e69725b8211b6f3b82e0ecaed	db1b0e77da066a9fba7487747bc4aea5d42a1ac
1.0.10 x86	f08ee65c0f2681aa12af1c46e80b0f62	10dd0a08980be6a0be0f2e5bc542310fd725b09f

Version	MD5SUM	SHA1SUM
1.0.8 x64	bc4f5c1aff535cf0b9c229cb0945a02e	ce3065db6014a5c653fc94d6b85094997ae9123a
1.0.8 x86	52ebacd5949bc88d3d827e851923d02b	0e73d0dd785cde7c34a0ed32bbabb994b325a1bf

1.1.5 Relevant links

- [VMware Compatibility Guide: sra](#)
- [Introduction to Storage Replication Adapter](#)

1.1.6 User Documentation

- [Storage Replication Adapter for VMware SRM User Guide.pdf](#)

1.1.7 Release Notes

Version 5.2

- Release date: **2020-11-01 - estimated release date**

What's new in this release

- SRA-240 The Storage Replication Adapter now supports protection of the 3rd site in a 3-way replication.
 - For more information and limitations refer to the user guide.

Known issues

- SRA-176 Following a failover, `discoverDevices` displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again

Version 5.1

- Release date: 2019-10-06

What's new in this release

- SRA-227 Support container-based SRM (PhotonOS)

Known issues

- SRA-176 Following a failover, `discoverDevices` displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again

Version 5.1

- Release date: 2019-10-06

What's new in this release

- SRA-227 Support container-based SRM (PhotonOS)

Known issues

- SRA-176 Following a failover, `discoverDevices` displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 5.0

- Release date: 2019-02-19

What's new in this release

- SRA-228 Support for InfiniBox v5.0

Fixed issues

- SRA-220 Test Failover does not clean up volumes with more than 50 host mappings

Known issues

- SRA-176 Following a failover, `discoverDevices` displays the source volume as target if its role was manually changed from target to source

- To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 4.0

- Release date: 2017-12-05

What's new in this release

- SRA-211 Support for InfiniBox 4.0
 - This release provides support for InfiniBox 4.0 and its additional replication features

Improvements

- SRA-182 As of InfiniBox 4.0, the InfiniBox Pool Admin user role can operate the SRA

Fixed issues

- SRA-195 SRA *discoverDevices* returns all replicated devices instead of only those queried by SRM

Known issues

- SRA-220 Test Failover does not clean up volumes with more than 50 host mappings
 - SRA-176 Following a failover, *discoverDevices* displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 3.0.3

- Release date: 2017-04-05

Known issues

- SRA-176 Following a failover, *discoverDevices* displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 3.0.2

- Release date: 2017-03-02

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 3.0.1

- Release date: 2016-12-01

Fixed issues

- SRA-173 Fixed compatability issues with ESXi servers with iSCSI initiators connected to InfiniBox 2.2

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 3.0

- Release date: 2016-11-22

What's new in this release

- SRA-162 Support for InfiniBox 3.0
 - Including support for its new features: iSCSI connectivity and writable snapshots

Fixed issues

- SRA-160 SRA reports an empty error string when failover command fails because the replication is no longer defined in InfiniBox

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 2.2.5

- Release date: 2015-12-02

Fixed issues

- SRA-157 Fixed failover, prepareRestoreReplication and restoreReplication where repeating calls fail due to timeouts when changing role in InfiniBox

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
 - SRA-160 SRA reports an empty error string when failover command fails because the replication is no longer defined in InfiniBox
-

Version 2.2.4

- Release date: 2015-11-12

Fixed issues

- SRA-155 Fixed a case where the syncOnce operation hangs, without showing any errors, and without a way to stop
- SRA-154 Failover fails when there is only a single device in a consistency group

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 2.2.3

- Release date: 2015-11-02

Fixed issues

- SRA-153 discoverDevices fails in case of empty consistency groups

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 2.2.2

- Release date: 2015-10-29

Fixed issues

- SRA-149 Fixed the documentation link in the installation wizard

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 2.2.1

- Release date: 2015-10-29

Fixed issues

- SRA-152 Fixed a case where a failover and test fail if there is a consistency group which contains a volume that does not take part in the recovery plan
- SRA-151 Fixed a case where discoverArrays failed when there are multiple redundant links between two InfiniBox systems

Known issues

- SRA-176 Following a failover, discoverDevices displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

Version 2.2

- Release date: 2015-10-26

What's new in this release

- SRA-141 Support for InfiniBox 2.2
 - This release supports InfiniBox 2.2 new replication features: consistency groups and sync-now.

Known issues

- SRA-176 Following a failover, `discoverDevices` displays the source volume as target if its role was manually changed from target to source
 - To workaround this issue, remove the metadata key *sra-promoted-target* from the recovered/target volume by using the InfiniShell or the InfiniBox GUI and run *discoverDevices* again
-

1.1.8 Open-source Licensing information

The SRA uses the following open-source packages:

blinker 1.2: MIT License

Brownie 0.5.1: BSD License

capacity 1.3.4: BSD License

certifi 14.05.14: ISC

colorama 0.3.1: BSD License

contextlib2 0.4.0: PSF License

docopt 0.6.2: MIT License

emport 1.0.0: BSD License

flux 1.2.4: BSD License

gevent 1.0.1: MIT License

greenlet 0.4.4: MIT License

json-rest 0.1.6: BSD License

lxml 3.3.6: BSD License

mock 1.0.1: BSD License

msgpack-python 0.4.2: Apache Software License

munch 2.0.2: MIT License

pyforge 1.2.0: BSD License

pyformance 0.2.4: Apache Software License

python-cjson 1.1.0: GNU Library or Lesser General Public License (LGPL)

pyzmq 14.3.1: GNU Library or Lesser General Public License (LGPL), BSD License

requests 2.4.1: Apache Software License

sentinels 0.0.6: BSD License

setuptools 5.7: Zope Public License, Python Software Foundation License

six 1.8.0: MIT License

tabulate 0.7.2: MIT License
urlobject : Unlicense (<http://unlicense.org/>)
waiting 1.0.0: BSD License
xmltodict 0.9: MIT License
zerorpc 0.4.4.1: MIT License

2 Introduction to INFINIDAT InfiniBox Storage Replication Adapter

2.1 What is Infinidat InfiniBox Storage Replication Adapter

2.1.1 Infinidat InfiniBox Storage Replication Adapter for VMware SRM

The Infinidat InfiniBox Storage Replication Adapter (SRA) is a software add-on that integrates with the VMware vCenter Site Recovery Manager (SRM) platform, enabling site-to-site failovers over InfiniBox systems that are deployed on remote sites. The InfiniBox SRA extends the VMware vCenter Site Recovery Manager capabilities by leveraging the InfiniBox replication feature, assuring continuous storage availability at both the primary site and secondary site.

Infinidat InfiniBox Storage Replication Adapter is a trademark of Infinidat.

Terminology

InfiniBox	The Infinidat storage system whose data is replicated by the VMware SRM.
Pool	The pool is a logical space that contains volumes, snapshots and clones. The pool allocates physical and virtual storage space for these entities. The pool also determines a policy for automatic extension in case of space depletion.
Volume	A set of disk blocks presented to an operating environment as a range of consecutively numbered logical blocks with disk-like storage and I/O semantics.
Host PowerTools for VMware	Infinidat Host PowerTools™ for VMware is an application that provides the VMware administrator with provisioning capabilities by assisting and easing the process of volumes backup and recovery.
Array Manager	The way the VMware vCenter Site Recovery Manager (SRM) refers to InfiniBox.

Revision

Last updated on: October 16, 2019.

InfiniBox SRA release types

- **InfiniBox SRA for SRM Windows** - Windows installer.
 - Latest version - 5.0. (Final release)

- **InfiniBox SRA for Photon-OS SRM** (SRM Appliance) - Docker container.
 - Starting from version 5.1.

Installation prerequisites

Infinidat InfiniBox Storage Replication Adapter for VMware SRM can be installed directly on the VMware SRA and has no additional requirements.

Download

InfiniBox SRA for Windows SRM

The InfiniBox Storage Replication Adapter installation packages are available on <https://repo.infinidat.com/home/main-stable#infinidat-infinibox-storage-replication-adapter>

InfiniBox SRA for SRM Appliance (Photon-OS)

The InfiniBox Storage Replication Adapter for Photon-OS packages are available on <https://repo.infinidat.com/home/main-stable#infinidat-infinibox-storage-replication-adapter-photonos>


- The InfiniBox SRA for Photon OS is packed as a Docker container.
- The Docker SRA files are distributed as .tar.gz archives.

Support matrix

For the complete support matrix of the InfiniBox Storage Replication Adapter with VMware SRM and InfiniBox versions please visit: [Infinidat Interoperability Matrix](#).

Supported replication types

- Synchronous and asynchronous replication for volumes.
- Asynchronous replication for filesystems.

 InfiniBox SRA supports 3-way replication between systems. This feature is especially useful when a DR is required

If you are using 3-way replication, administrators should be aware that the workload cannot be reprotected after using SRM.

To reprotect the system, the administrator must recreate the replication.

This limitation only applies to sites using InfiniBox SRA with 3-way replication.

For more information contact Infinidat support.

Guide supported versions

This guide applies to Infinidat InfiniBox Storage Replication Adapter 4.0 or later.

Related documentation

- All Infinidat user documentation is available on support.infinidat.com.
- For more information about SRM, see VMware documentation: <https://docs.vmware.com/en/Site-Recovery-Manager>/The most up-to-date version of this document can be found on the Infinidat Support site: <https://support.infinidat.com/hc/en-us/articles/360001598638>

2.2 Storage Replication Adapter Release Notes

For the release notes please visit: [InfiniBox Storage Replication Adapter Release Notes](#)

3 Configuring the Storage Replication Adapter

3.1 Preparing a vSphere environment with SRM

3.1.1 About

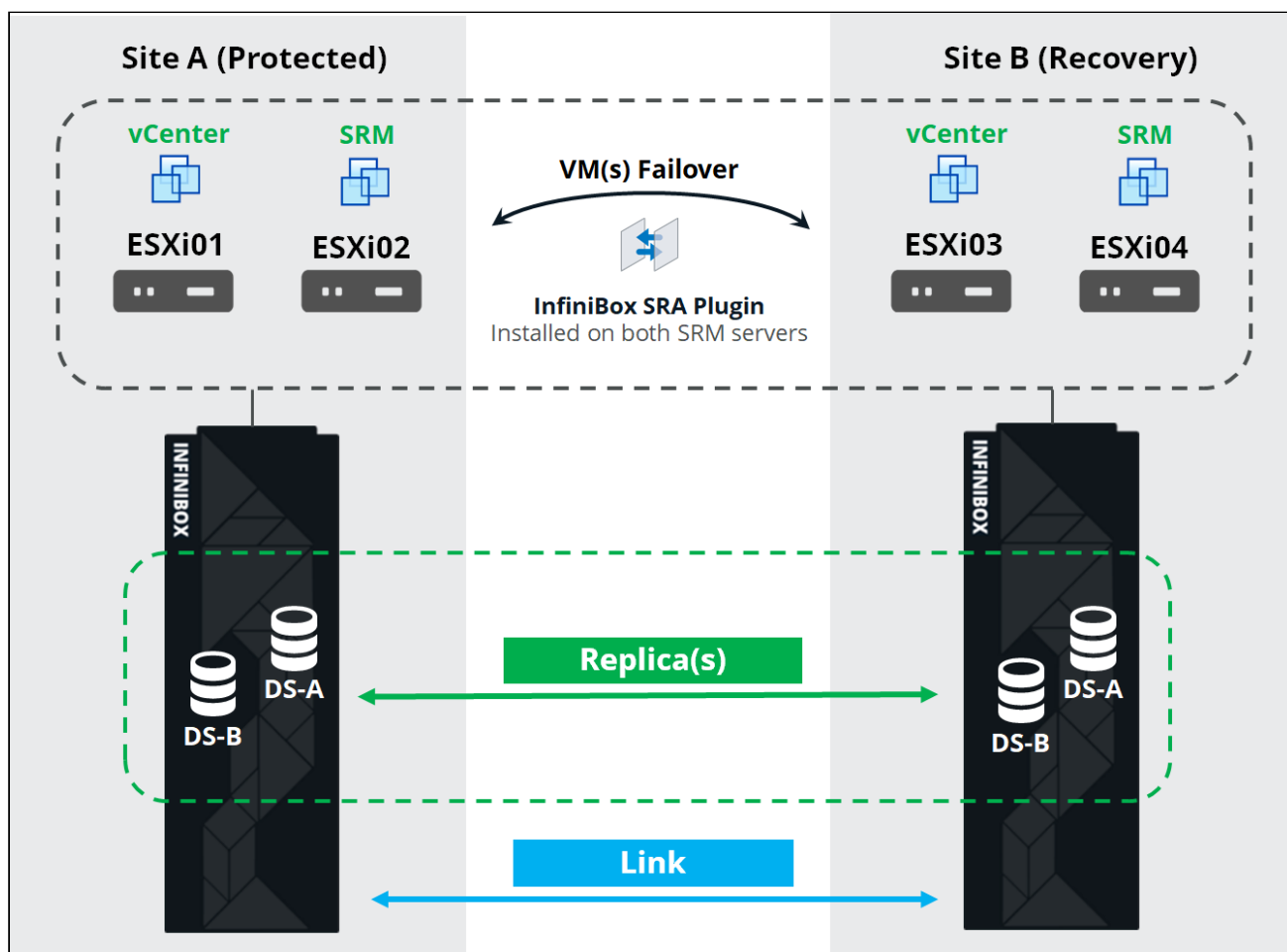
Protecting vSphere environment using SRM (with SRA installed) is based on the storage array replication (InfiniBox replication) along with SRM orchestration capabilities.

- The vSphere environment has to be configured according to SRM requirements in advance.
 - At least two InfiniBox systems are required.
 - For more information about SRM requirements, see VMware SRM documentation.

3.1.2 Environment configuration

SRM configuration consists of:

1. Two InfiniBox systems, one in each site. (Protected and Recovery)
 - The InfiniBox systems should be configured with a replication link.
 - For more information on how to configure links, see: [InfiniBox Best Practices for Setting up Services](#)
2. vCenter server in both sites.
3. ESXi server(s) in both sites.
4. SRM server in both sites.
 - After SRM is installed in both sites, a site pair should be created.
5. It is strongly recommended to deploy Host PowerTools for VMware in both sites.



3.1.3 Setting InfiniBox Best Practices for vSphere environment

Validate that the vSphere clusters and hosts are configured according to the InfiniBox best practices for vSphere:

- The simplest method to apply the InfiniBox best practices is by using Host PowerTools for VMware. For instruction see the following guide: [ESXi hosts and clusters readiness](#)
- In order to manually configure the ESXi hosts according to InfiniBox best practices, please refer to the following guide: [List of items being checked by Host PowerTools for VMware](#)

Using INFINIDAT Host PowerTools for VMware

It is highly recommended to install Host PowerTools for VMware with every vCenter Server. Host PowerTools for VMware provides:

- Ease-of-use.
- Storage and host automation.
- Best practices validation.

For more information on how to install and use Host PowerTools for VMware see: [Host PowerTools for VMware](#)

3.2 Installing the Storage Replication Adapter

3.2.1 Installation Procedure

This section instructs you how to download and install the SRA.

- Make sure you have admin privileges for both InfiniBox systems.

SRM for Windows

1. Download the InfiniBox SRA for Windows SRM.
2. Install the InfiniBox SRA on the SRM servers in both sites.
3. After the installation is complete, log in to SRM, and run **Rescan Adapters**.

SRM Appliance (Photon-OS)


Download the InfiniBox SRA for Photon-OS.

The following steps should be applied on SRM in both sites:

1. Log in to the **SRM Appliance Management** Interface as admin.
2. In the Site Recovery Manager Appliance Management Interface, click **Storage Replication Adapters**, and click **New Adapter**.
3. Click **Upload**, navigate to the directory where you saved the updated InfiniBox Docker SRA file, and select it.
4. When the process finishes, click **Close**.
 - The Storage Replication Adapter card should appear in the Site Recovery Manager Appliance Management Interface.
5. Log in to **SRM**.
6. Select a **site pair**, and click **View Details**.
7. In the Site Pair tab, go to Configure → Array Based Replication → Storage Replication Adapters , and click the **Rescan Adapters** button.

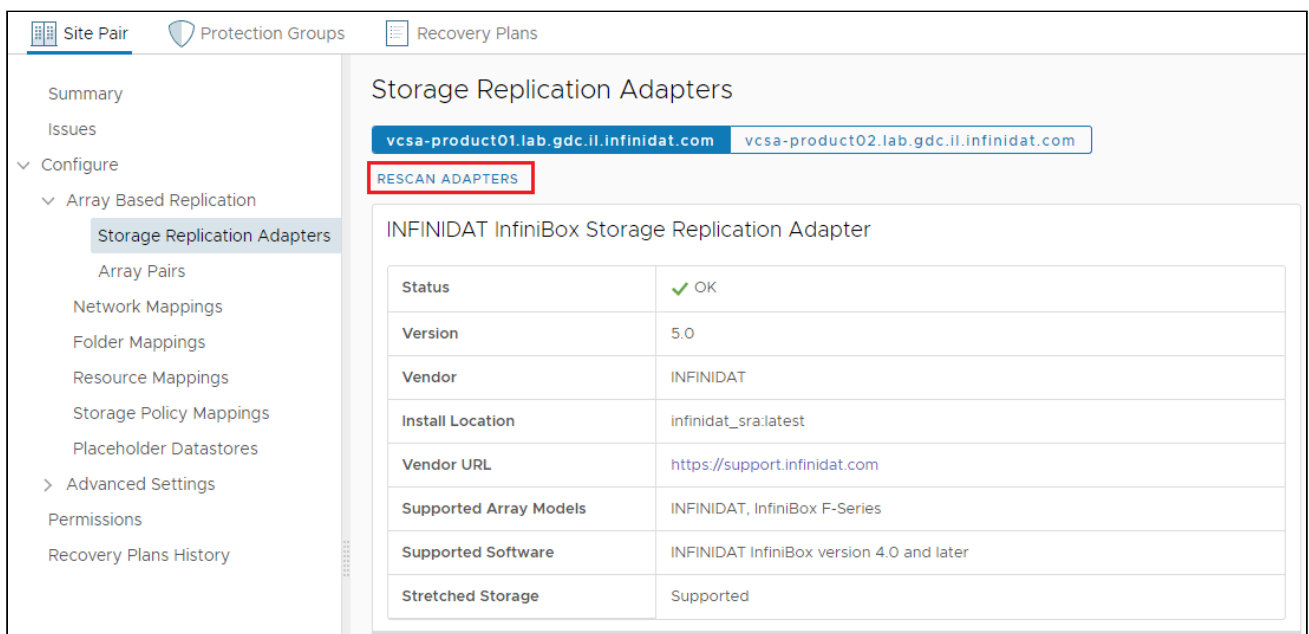
3.3 Upgrading the Storage Replication Adapter

3.3.1 Upgrade instructions

 Perform SRA upgrades only when no SRM operations are running.

SRM for Windows

1. Download and install the updated package of the InfiniBox SRA on the SRM servers in both sites.
2. Log in to **SRM** and run **RESCAN ADAPTERS**.



SRM Appliance (Photon-OS)

The Following steps should be applied on SRM in both sites:

1. Log in to the **SRM Appliance Management** Interface as admin.
2. In the Site Recovery Manager Appliance Management Interface, click **Storage Replication Adapters**, and click **New Adapter**.
3. Click **Upload**, navigate to the directory where you saved the updated InfiniBox Docker SRA file, and select it.
4. When the process finishes, click Close.

- The Storage Replication Adapter card appears in the Site Recovery Manager Appliance Management Interface.
5. **Delete** the old adapter instance.
 6. Log in to **SRM**.
 7. Select a **site pair**, and click **View Details**.
 8. In the Site Pair tab, go to Configure → Array Based Replication → Storage Replication Adapters , and click the **Rescan Adapters** button.
 - Run **Rescan Adapters** on both sites.

4 Protecting vSphere using Storage Replication Adapter

4.1 Configuring Array Pairs (Array Managers)

4.1.1 About

Once you pair the protected and the recovery site (site pair), their respective InfiniBox storage arrays should be configured so that SRM can discover the replicated devices. (and later initiate storage operations)


- You typically configure array managers (storage array pair) only once after you connect the sites.
- You do not need to reconfigure them unless storage array connection information or credentials change, or you want to use a different set of arrays.

Prerequisites

- Site pair was created. (sites are connected)
- SRA is installed at both sites.
- The InfiniBox systems to pair are linked.

Instructions

Use the Add Array Pair wizard to configure the InfiniBox arrays pair. (the InfiniBox in each site)

-  Provide the credentials for an InfiniBox administrator with Admin or Pool Admin role.
Set the same credentials (user and password) for both InfiniBox systems.

1. Log in to **SRM** user interface.
2. On the Site Recovery home tab, click **View Details** of the desired site pair.
3. On the Site Pair tab, click Configure → Array Based Replication → Array Pairs.
4. Click the **Add** button to add an array manager.
5. Select the "**INFINIDAT InfiniBox Storage Replication Adapter**" storage replication adapter and click Next.
 - If the InfiniBox SRA does not appear, rescan for SRAs or validate that you have installed the InfiniBox SRA on the SRM Server.
6. Enter a name for the **local** InfiniBox array, provide the required information, and click Next.
 - Use a descriptive name that makes it easy to identify the InfiniBox associated with this array manager.
7. Enter a name for the **remote** InfiniBox array, provide the required information and click Next.
 - **Note:** Set the same credentials (user and password) as the local InfiniBox system.
8. On the Array pairs page, select the **array pair** to enable, then click Next.

9. Review the configuration and click **Finish**.

4.2 Enabling Sync & Async replication protection

4.2.1 About

Protecting VMs using Sync & Async replication.

4.2.2 Step1: InfiniBox Configuration

First, set InfiniBox replication for the corresponding volumes (the volumes on which the datastores reside).

- InfiniBox Synchronous / Asynchronous replication should be set for each datastore to protect.

InfiniBox Replication

InfiniBox replication is set directly from the InfiniBox management consoles (InfiniShell, GUI).

- Instructions for setting up replication using the InfiniBox management consoles, are available on the INFINIDAT support site: [InfiniBox Replication](#)
- No other steps are required on the InfiniBox side.

Protecting VMs that span on multiple datastores

All the corresponding volumes must be in the same consistency group.

- The InfiniBox replication than should be set on the consistency group level.

Viewing the replication status

The replication status is available directly from the InfiniBox management consoles.

4.2.3 Step 2: SRM Configuration

Once the InfiniBox replication is configured:

- Validate that SRM successfully discovered the new replicated volumes. For instruction see: [Discovering new replicated volumes](#)
- Create **protection groups** so that SRM can protect virtual machines, and a **recovery plan** which coordinates how virtual machines should be recovered.

SRM Protection groups and Recovery plans

Creating protection groups and recovery plans is performed directly from the VMware SRM user interface.

- For more information, see VMware documentation for SRM.

4.3 Running Recovery plans

4.3.1 About


SRM allows running the recovery plans using one of the following modes:

- Planned migration, Disaster recovery and Test.
- For more information about each mode, see VMware documentation for SRM: <https://docs.vmware.com/en/Site-Recovery-Manager/>

Running recovery plans is performed directly from the VMware SRM user interface.

- When VMware SRM carries out the selected recovery plan it sends the relevant commands to the InfiniBox system on the Recovery / Protect site through the InfiniBox SRA.
- The commands are described below.

4.3.2 Test

 Running a plan in Test mode will attempt to recover the virtual machines in a test environment on the recovery site.

If "Replicate recent changes to recovery site" is used, the Test mode validates that the recent changes were successfully synced from the protected to the recovery site.

The Test mode performs the following actions on the InfiniBox in the **Recovery** site:


1. For each volume in the protection group - a **snapshot** is created on the replication target.
2. **Create** a child snapshot(s) on the previously created snapshot(s).
3. Make the child snapshot(s) **Write-enabled**.
4. **Map** the child snapshot(s) to an ESXi host.

Cleanup

Cleanup performs the following actions on the InfiniBox in the **Recovery** site:

1. **Unmap** the child snapshot(s) from the ESXi host(s).
2. **Delete** the snapshot(s) and the child snapshots(s).

4.3.3 Planned migration and Disaster recovery

-  Running a plan in one of these modes will attempt to shut down the VMs at the protected site and recover the VMs at the recovery site.
- Then, when running the Reprotect operation SRM will commit the results of the recovery and configure protection in the reverse direction.

Planned migration

Both sites and the InfiniBox replication must be connected and available.

- Validates that the recent changes were replicated to the **Recovery** site.
- If errors are encountered the recovery process ceases.

Disaster recovery

Attempt to replicate recent changes to the recovery site, but otherwise use the most recent synchronized data that exists on the recovery site.

- The recovery process continues even if errors are encountered.

4.3.4 Recovery process for Async & Sync protection

Both modes performs the following action on InfiniBox:

On the Protected site

- Make the volume(s) in the protection group **Write-protected**. (if possible)

-  During Planned migration the replication state of the volume(s) in the protection group will become **Auto Suspended**.

On the **Recovery** site

1. For each volume in the protection group (replication target) - **Suspend** the replication.
 - Volume's replication state becomes **Suspended**.
2. Make the volume(s) **Write-enabled**.
3. **Map** each volume to an ESXi host.

Reprotect

When running Reprotect, the InfiniBox replication is resumed in the reverse direction.

Reprotect performs the following InfiniBox actions:

On the **Protected** site

- **Unmap** each volume in the protection group from the ESXi host(s).

On the Recovery site

- **Resuming** the replication in the reverse direction.
 - The volume(s) are now the replication source.

 At the end of the Reprotect process, the Protected and the Recovery sites are swapped.

4.4 Discovering new replicated volumes

4.4.1 About

See the instruction below in order to make SRM discover new replicated volumes.

Instructions

1. Log in to **SRM**.
2. Select the desired **site pair**, and click **View Details**.
3. In the Site Pair tab, go to Configure → Array Based Replication → Array Pairs , and click the **Discover Devices** button.

