

INFINIDAT Storage Replication Adapter 4.0 User Guide

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Introduction to Storage Replication Adapter 4.0

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INFINIDAT Storage Replication Adapter for VMware SRM

The INFINIDAT Storage Replication Adapter 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 INFINIDAT SRA extends the VMware vCenter Site Recovery Manager capabilities by employing the INFINIDAT remote replication feature, assuring continuous InfiniBox storage availability at both the primary site and secondary site.

INFINIDAT 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.

Installation prerequisites

INFINIDAT Storage Replication Adapter for VMware SRM is installed along with VMware SRA and has no additional requirements.

Download site for the installation package

The INFINIDAT Storage Replication Adapter for VMware SRM installation packages are available from <http://repo.infinidat.com>

Supported InfiniBox versions

INFINIDAT Storage Replication Adapter for VMware SRM supports InfiniBox 4.0 (for the complete support matrix, see: [INFINIDAT software compatibility](#)) replication features:

- Synchronous replication for volumes
- Asynchronous replication for filesystems

- Asynchronous replication for volumes and consistency groups

Related documentation

INFINIDAT Support Site

- All INFINIDAT user documentation is available on support.infinidat.com.
 - [INFINIDAT Host PowerTools for VMware user guide](#)
 - [InfiniBox 4.0 User Documentation](#)
 - [InfiniBox 3.0 User Documentation](#)
 - [InfiniBox 2.2 User Documentation](#)

VMware relevant documentation

- To read more about VMware SRM Recovery Plans, see:
 - http://www.vmware.com/pdf/srm_admin_5_0.pdf
 - Search the PDF for “Recovery Plans and ReProtection”.

Help on the InfiniSRA tool

Getting help on the tool:

```
infinisra_tools -h
```

The following help is displayed on screen:

```

INFINIDAT SRA for VMware SRM v{version}

Usage:
infinisra_tools replicate-volume <source-box> <source-volume> <target-box>
                                <target-pool>[--rpo=<rpo>]
[--interval=<interval>]
infinisra_tools remove-replication <source-box> <source-volume>
                                <target-box> <target-volume>
infinisra_tools volume-status <box> <volume>... [--watch=<interval>]
infinisra_tools pool-status <box> <pool>... [--watch=<interval>]
[--detailed]
infinisra_tools connectivity-test <source-box> <target-box>
infinisra_tools logs-collect [--interactive] [--file=FILE]
[--timestamp=DATETIME]
                                [--span=TIME]
infinisra_tools set-credentials <box> [<username> [<password>]]

Options:
    -h --help                show this screen.
    -v --version             show version.
    --rpo=<rpo>              RPO in seconds
[default: 300]
    --interval=<interval>   interval seconds
[default: 60]
    --watch=<interval>     watch interval in
seconds

More information:
    infinisra_tools link-pools                write SRM/RMR
metadata on Pool objects
    infinisra_tools replicate-volume          configures
replication for a volume in the source array to a new volume in the linked
target pool
    infinisra_tools logs-collect             collect SRM and SRA
logs
    infinisra_tools status                   print replication
status about the volume from source and target boxes

```

Installing the Storage Replication Adapter

- [About this task](#)
- [Instructions](#)

About this task

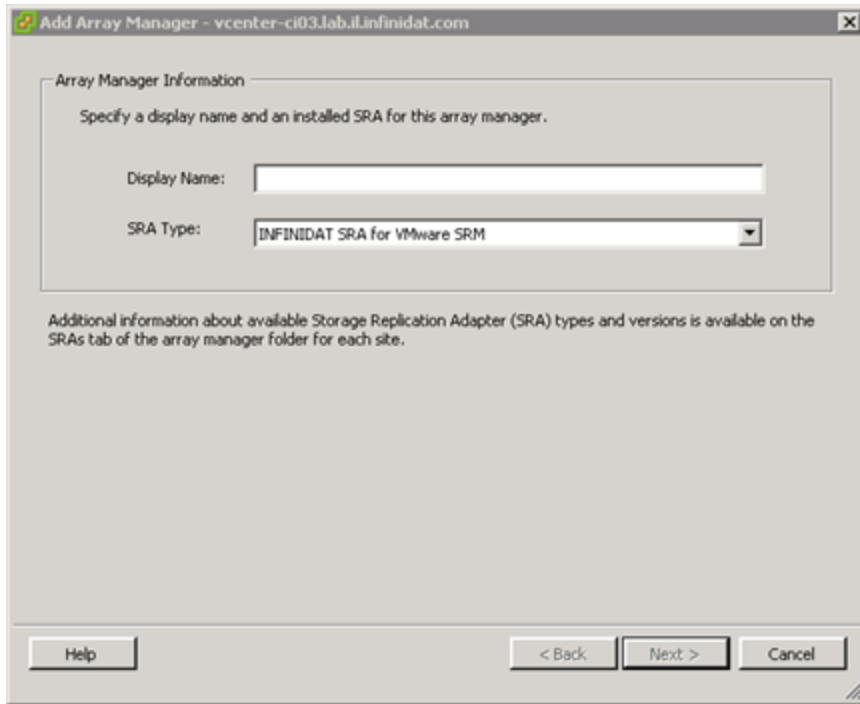
This section instructs you how to download and install the SRA. The following illustration depicts the way the SRA relates to the SRM, vSphere, ESX and to the other INFINIDAT components.

2 SRA Installation

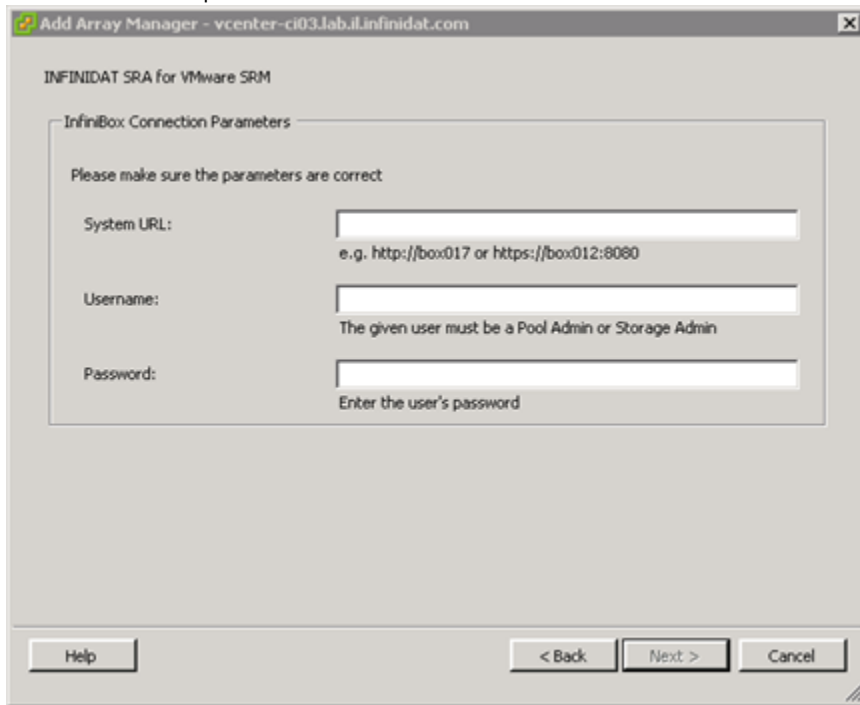


Instructions

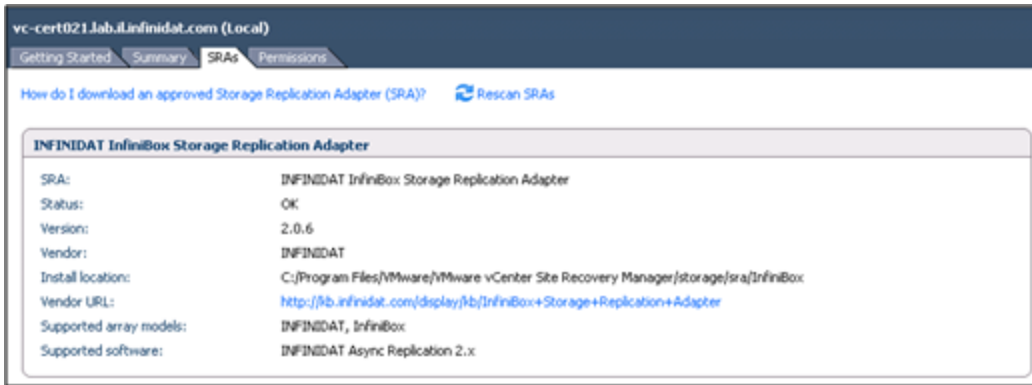
1. Make sure you have admin privileges for both InfiniBox systems.
2. Fulfill the installation prerequisites ([See here](#)).
3. Download the SRA ([See here](#)).
4. Install the INFINIDAT SRA on the SRM servers in both sites.
5. After the installation is complete, open the Site Recovery solution in the vSphere client, and rescan the SRAs.
6. Use the Add Array Manager wizard to configure the storage array in each site.
7. Specify a name for each Array Manager.



8. Insert the connection parameters.



The SRA installation details are displayed on the vCenter Array Managers tab.



9. View the details of the SRA installation.
 The Summary tab displays the InfiBox, the SRA and the details of the array manager.

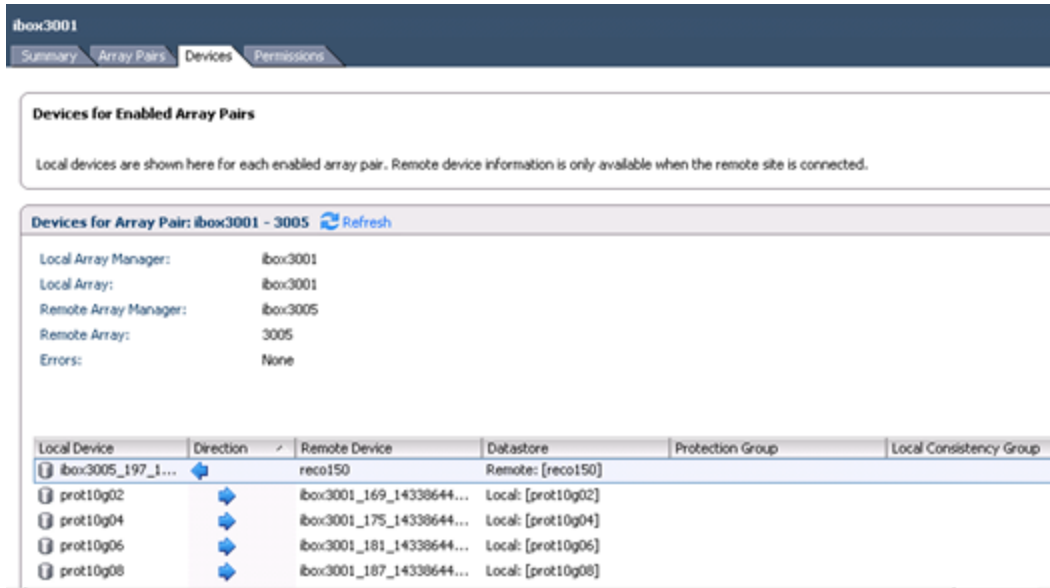


The **Array Pairs** tab displays pairs of InfiBox systems and pools. The local and remote arrays of each pair are displayed.

- On each site you see the local array listed as: <system-name>.
- The remote pool array is listed as: <remote-system-id>.
- The **Enable** button tells the SRM to manage this array pair. See Enabling the replication for detailed instructions.



- The **Devices** tab displays the volumes in each Array Pair, and whether it is currently transferring data from one array to the other.



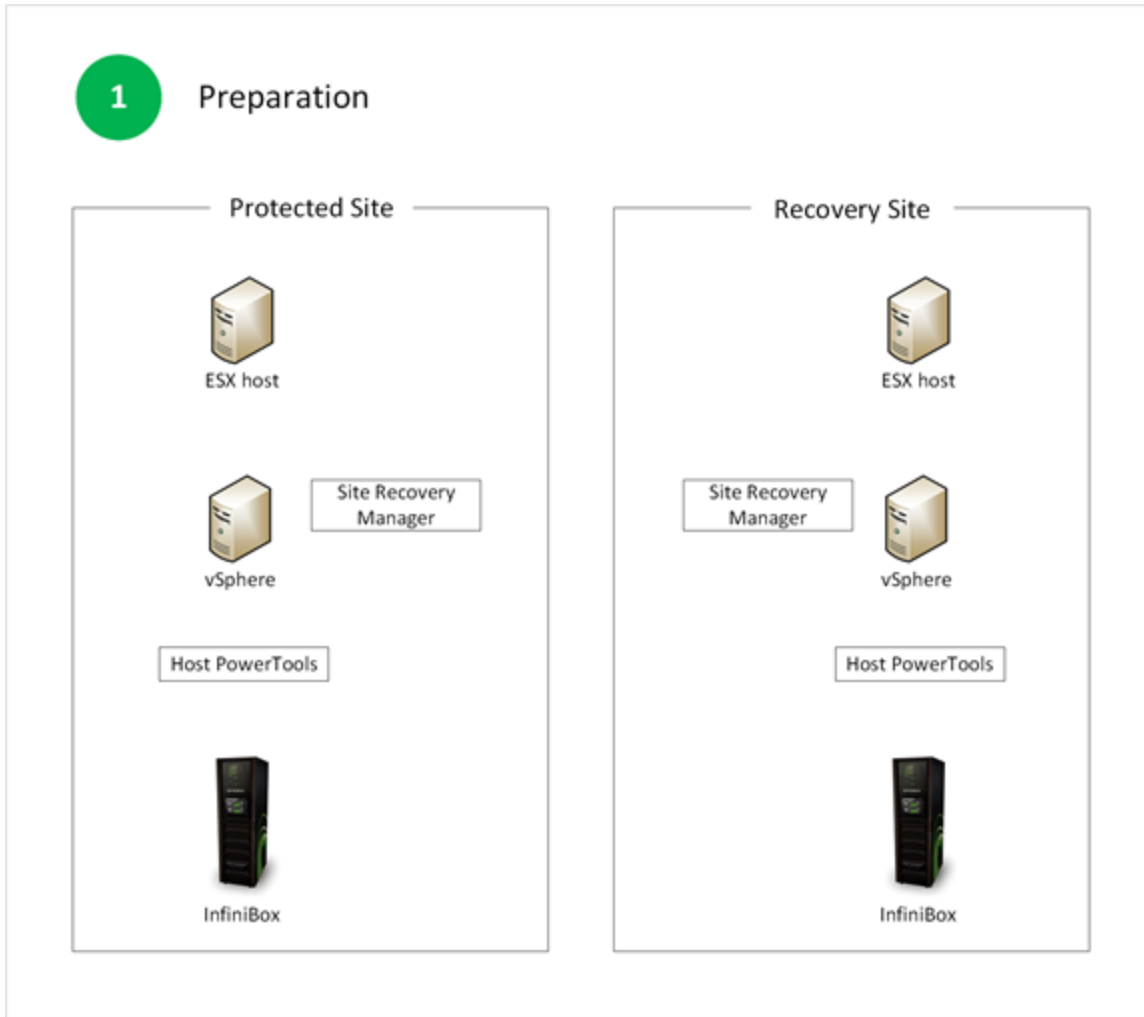
Preparing the Storage Replication Adapter environment

- Deploying the InfiniBox systems
- Prepare the ESX hosts to work with InfiniBox
- Provision a volume in the primary site

Deploying the InfiniBox systems

The SRA operates in an environment that has to be prepared in advance. The following steps need to be complete prior to the installation of INFINIDAT SRA:

1. Deploy InfiniBox in both (source and destination) sites
 - **Note:** use the same credentials (user and password) on both InfiniBox systems
2. Deploy VMware vSphere, ESX and server(s) in both sites
3. Deploy and configure SRM in both sites
4. Deploy Host PowerTools in each site



Prepare the ESX hosts to work with InfiniBox

Use HostPowerTools for VMware to register all the ESX hosts for the InfiniBox system they are attached to.

- [Host PowerTools for VMware documentation](#)

Provision a volume in the primary site

Use HostPowerTools for VMware to provision a volume in the primary site; then, you can create virtual machines on this volume.

Enabling the Replication

- [About this task](#)
- [Instructions](#)

About this task

This task includes:

- Enabling the replication
- Creating a protection for virtual machines on the primary site
- Creating a recovery plan for a protection group in the secondary site

Instructions

1. Click on the **Enable** button under the **Actions** tab to enable the array-based replication on one of the sites.
This will also enable the replication on the other site.
2. Open the **Protection groups** view.
Click on the **Create Protection Group** icon to open up the wizard and configure the SRM protection for the virtual machines that are stored on the replicated volume.
3. Open the **Recovery plans** view.
Click on **Create Recovery Plan** icon to open up the wizard and create a recovery plan for the protection groups created in the previous step.

Recovery plans

Failover and recovery are performed through the VMware SRM user interface. VMware SRM carries out the recovery plan and sends the relevant commands to the INFINIDAT Storage Replication Adapter.

- To read more about VMware SRM Recovery Plans, see: http://www.vmware.com/pdf/srm_admin_5_0.pdf
- Search the PDF for "Recovery Plans and ReProtection".

Setting up the Replication

- [About this task](#)

About this task

The replication is set up from the InfiniBox management consoles (InfiniAPI, InfiniShell, GUI). Instructions for using the InfiniBox management consoles are provided on the [user documentation that is available on the Support site](#).

Viewing the Replication status

- [About this task](#)
- [Viewing the pool status](#)
 - [Instructions](#)
 - [The pool status](#)
- [Viewing the volume status](#)
 - [Instructions](#)
 - [The volume status](#)

About this task

Throughout the replication, the INFINIDAT SRA provides the status of the replication.

- The pool status provides an overview of all replications
- The volume status provides the status of a specific replication

Viewing the pool status

Instructions

Run:

```
infinisra_tools pool-status <box> <pool name>
```

You will be prompted to provide access credentials to the InfiniBox system.

The pool status

The status of the pool includes the following information:

- Volume name – the name of the replicating volume
- Role – the role of the replicating volume, either source or target
 - Not found in RMR – the volume is not part of a replication pair
 - MB/S – the throughput of the replication
 - Last Sync – the last time the source and target volumes were synchronized
 - Status:
 - OK – the last replication went OK
 - Error – the volume cannot be replicated right now due to an error
 - n/a – the volume is not part of a replication pair

```
C:\>infinisra_tools pool-status ibox514 ppool04
Please provide username for ibox514 [admin]:
Please provide password user admin:
=====
=====
VOLUME NAME                ROLE                MB/S  LAST SYNC  STATUS
=====
=====
c10g03                      not found in RMR    0     n/a        n/a
c10g04                      source              0     0h15m ago  ok
c10g05                      source              0     Current    ok
c10g06                      source              0     Current    ok
c10g07                      source              0     Current    ok
c10g08                      source              0     Current    ok
c10g09                      source              0     Current    ok
c10g10                      source              0     Current    ok
c150                        source              0     Current    ok
=====
=====
```

Viewing the volume status

Instructions

Run:

```
infinisra_tools volume-status <box> <volume name>
```

You will be prompted to provide access credentials to the InfiniBox system.

The volume status

The status of the volume includes the following information:

- Volume name, ID and size
- Role – either source or target
- Enabled – denotes whether the volume is part of a replication pair
- Running – denotes whether the replication is currently running
- State:

- Ready – the volume is not sending or receiving data right now
- Sending (for a source volume) – the volume is currently sending data to the target
- Receiving (for a target volume) – the volume is currently receiving data from the source
- Throughout (MB/S)
- Transferred in current job – the amount of data that was send / received
- Last sync – a timestamp of the last time that data was sent / received

```
C:\>infinisra_tools volume-status ibox514 c10g05
Please provide username for ibox514 [admin]:
Please provide password user admin:
Volume c10g05, ID 939736, size 13*GB:
    role:                source
    enabled:             yes
    running:             no
    state:               ready
    throughput (MB/S):   0.00
    transferred in current job: 90*MB
    last sync:           2014-08-24 11:43:54
```