

Tintri Storage Replication Adapter for Site Recovery Manager

User Guide

Tintri
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Table of Contents

Tintri Storage Replication Adapter for Site Recovery Manager 1

1 Executive Summary 3

2 Intended Audience 3

 2.1 Prerequisites 3

 2.2 Considerations & Limitations 3

3 Consolidated List of Practices 4

4 Overview 4

 4.1 Tintri Components 5

 4.1.1 ReplicateVM 5

 4.1.2 Storage Replication Adapter 5

5 Installation 6

 5.1 Installing the Tintri SRA on Linux-based SRM 6

6 Conclusion 10

7 References 10

 7.1 Tintri 10

 7.2 VMware 10

1 Executive Summary

Tintri VMstore arrays integrate tightly with VMware Site Recovery Manager (SRM) environments utilizing the Tintri Storage Replication Adapter (SRA). Tintri SRA functionality is enabled when Tintri ReplicateVM is licensed. ReplicateVM provides highly efficient array-based replication between the SRM protected and recovery sites. Replicating unique deduplicated and compressed data, ReplicateVM offloads the SRM replication process from VMware vSphere and minimizes inter-site replication bandwidth requirements.

Implementation is simple and is enabled by the intuitive Tintri user interface. All SRM features are supported and execute flawlessly.

This document details a proven deployment methodology in conjunction with known best practices.

2 Intended Audience

Focused on the successful deployment of Tintri VMstore arrays into a VMware SRM environment, this document targets key best practices and known challenges. Hypervisor administrators and staff members associated with architecting, deploying, and administering a VMware SRM environment with Tintri VMstore arrays are encouraged to read this document.

2.1 Prerequisites

General knowledge of and familiarity with the Tintri VMstore product is essential before architecting a solution or integrating Tintri VMstore arrays into a VMware SRM environment. Outside of the deployed technologies, it is critically important to have a comprehensive understanding of disaster recovery requirements within the organization where the solution is being deployed.

Serial No.	Component	Type	Version
1	vCenter Server	VMware Infrastructure	6.7
2	ESXi	VMware Infrastructure	6.7
2	SRM (Linux)	Site Recovery Manager	8.2
3	VMstore	Storage array	4.6

2.2 Considerations & Limitations

Product compatibility and support matrices should be referenced to confirm that a given configuration is supported before implementation. This includes but is not limited to Tintri and VMware products.

For Tintri support information, please visit support.tintri.com. The Tintri support portal requires login credentials.

Descriptions provided and examples depicted within this document are based on Tintri Operating System version 4.6 and higher in conjunction with VMware SRM version 8.2

This document does not take the place of Tintri product documentation or VMware product documentation.

The scope of the document is constrained to integrating Tintri VMstore arrays into a VMware SRM environment. This document is not a substitute for formal Tintri, VMware, or VMware SRM training.

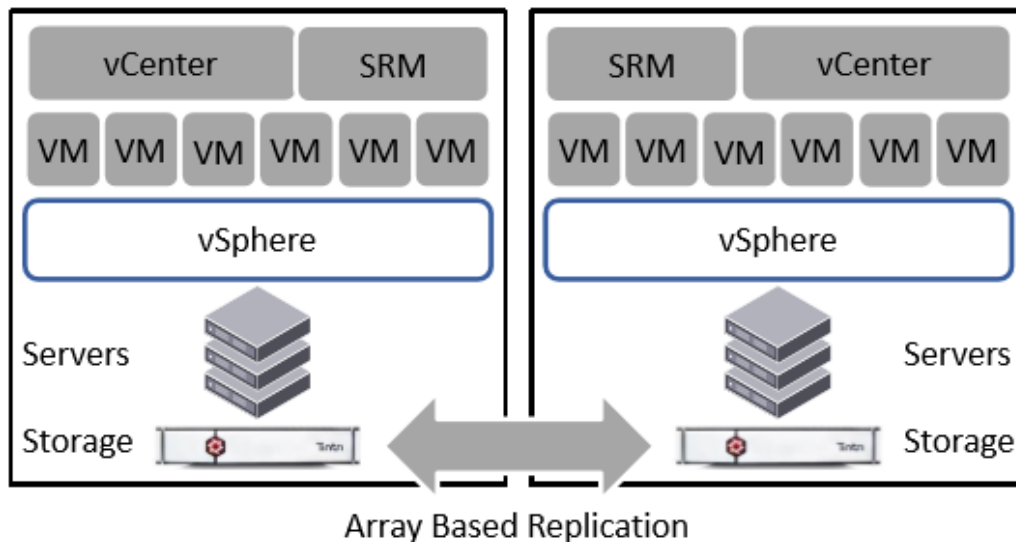
3 Consolidated List of Practices

The table below includes the recommended practices in this document. Click the text on any of the recommendations to jump to the section that corresponds to each recommendation for additional information.

- Add the vCenter server associated with the first VMware SRM site (typically the “Protected Site”) to the Tintri VMstore located at the first site. Add the vCenter server associated with the second VMware SRM site (typically the “Recovery Site”) to the Tintri VMstore located at the second site. Use the “Test all vCenters” button to confirm hypervisor connectivity and login at both sites.
- Assure that a ReplicateVM license has been applied to the Tintri VMstore arrays that will use SRM array-based replication.
- Use the “Test Paths” function to confirm that the replication settings and replication path are correct.
- Create a Tintri datastore for each SRM protection group by creating a subfolder within “/tintri” and mounting it as a datastore.
- Make sure that at least one VM resides in a new datastore before configuring that datastore within a Tintri service group.
- VMs created in, or migrated to a datastore that will be configured within a Tintri service group should not have an individual VM snapshot schedule or replication configuration. A Tintri service group will be configured to create snapshots and perform replication between VMstores.
- Do not manually create a destination folder for a Tintri service group on the Tintri VMstore at the recovery site. The destination folder will be automatically created by SRM as required.
- Make sure that the replicated device group associated with a given Tintri service group can be discovered and displayed within the array manager hosting the service group before creating a protection group for the replicated device group.

4 Overview

VMware SRM is a disaster recovery management solution. The solution automates operations such as disaster recovery testing, failover, reprotect, and failback between two sites.



A designated group of VMs (virtual machines) is considered disaster recovery “ready” when properly configured in SRM within a protection group. Simplified, this configuration consists of a protected site and a recovery site. Recent copies of the VMs in the protected site are replicated to the recovery site. VMware provides a replication solution referred to as “vSphere Replication” to facilitate creating recent copies of VMs within the recovery site.

Array-based replication augments SRM by leveraging array vendor native replication technology utilizing an SRA. The SRA enables SRM to control array functions necessary for recovery plan testing, failover, reprotect, and failback operations.

Array vendor native replication technology is generally considered more efficient than vSphere replication because it bypasses VMware vSphere. In effect, the replication data path required for maintaining recent copies of VMs on the protected site is direct, between two arrays, and does not place additional resource load on hypervisor host nodes. Additionally, when more functions are handled by the hypervisor, more complexity is introduced to hypervisor planning, maintenance, upgrades, and scaling. Array vendor native replication may introduce additional efficiencies dependent on the array vendor's replication implementation.

4.1 Tintri Components

In addition to VMware SRM deployment requirements, integration of Tintri VMstore arrays includes a small number of components. Specifically, those components consist of:

- Two or more Tintri VMstore arrays
- Tintri ReplicateVM licenses for each Tintri VMstore array
- Tintri SRA installation on VMware SRM Server hosts

4.1.1 ReplicateVM

Tintri asynchronous replication is trademarked as “ReplicateVM”. Replication occurs at the VM level and is based on individual VM snapshots. ReplicateVM is a licensed feature that requires enablement with a license key.

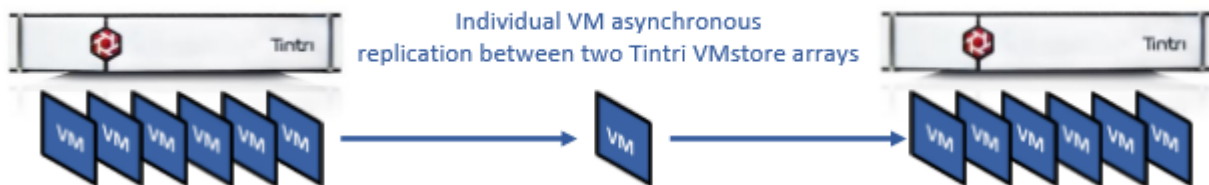
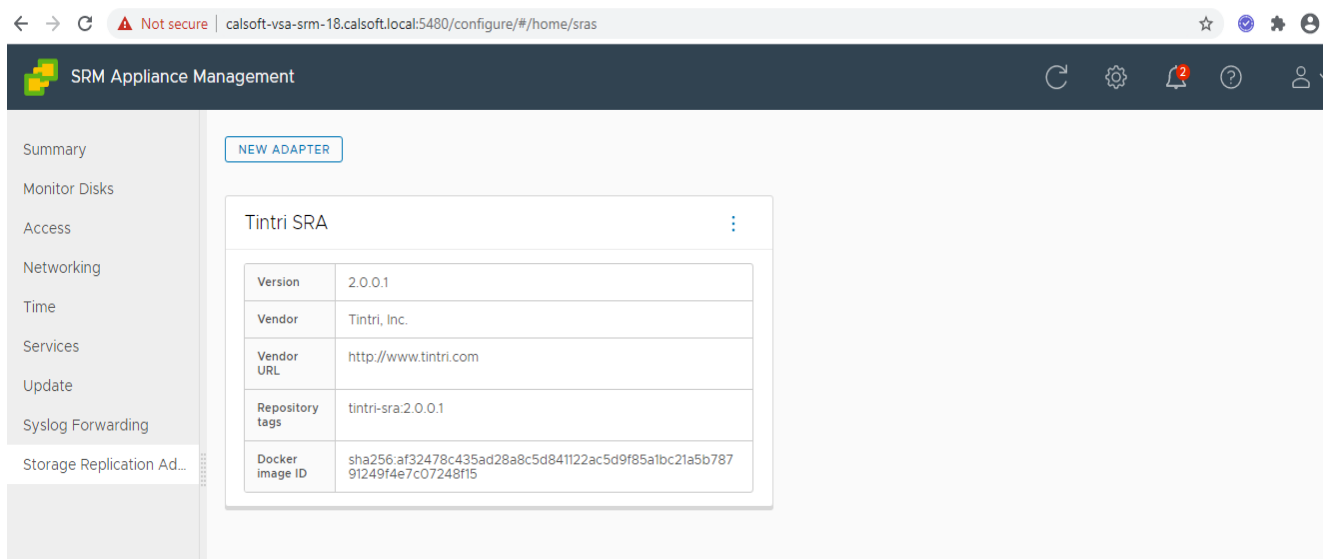


Fig. 2

Replication efficiency is important from several perspectives. One perspective deals with the fact that a replicated snapshot becomes a recovery point for an individual VM on a destination VMstore. It represents a disaster recovery copy of the VM, and the point at which the replication operation completes becomes the point at which the VM enters a “disaster recovery ready” state. Another perspective involves network bandwidth usage. Tintri replication sends only changed blocks between snapshots after deduplication and compression to reduce the amount of data sent over a WAN connection by up to 95 percent.

4.1.2 Storage Replication Adapter

Tintri SRA functionality is enabled when a ReplicateVM license is installed. The Tintri SRA integrates with VMware SRM and ReplicateVM to enable SRM workflows that automate the recovery plan test, failover, reprotect, and failback operations.



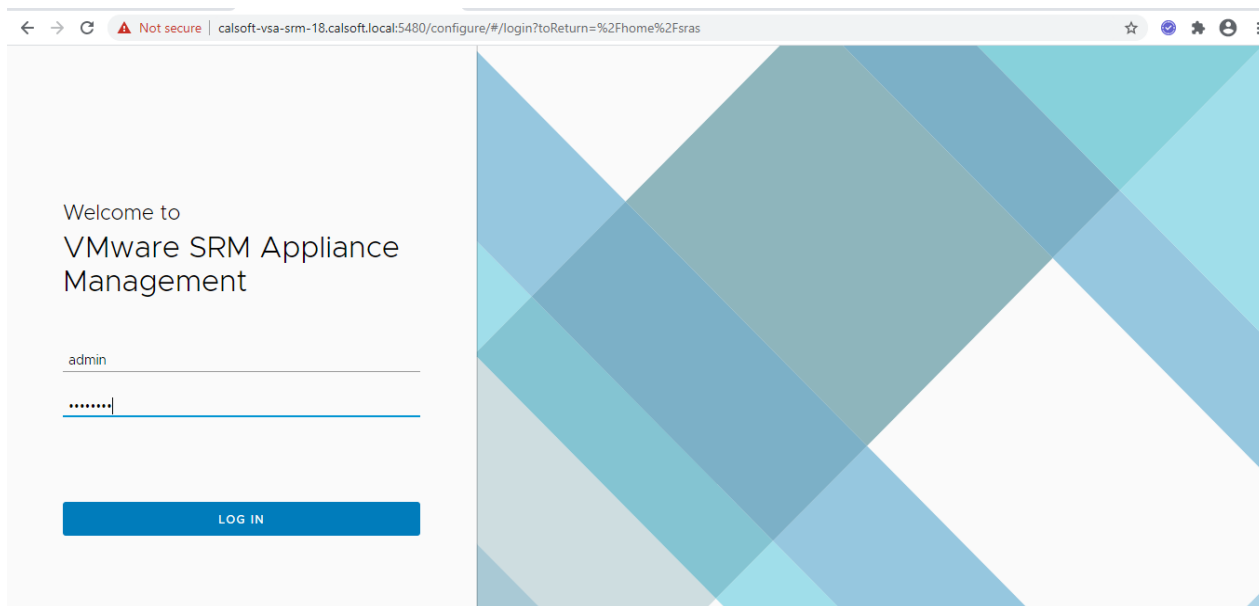
The Tintri SRA is transparent, in that once it is installed on the SRM Server hosts, no further action or direct administration is required.

5 Installation

5.1 Installing the Tintri SRA on Linux-based SRM

To install the Tintri SRA on a Linux-based SRM, execute the following steps:

1. Log in to the VMware SRM Appliance Management with the credentials (User name and Password) provided to you. Click LOG IN.



The SRM Application Management window displays.

The screenshot shows the SRM Appliance Management web interface. The left sidebar contains a menu with the following items: Summary, Monitor Disks, Access, Networking, Time, Services, Update, Syslog Forwarding, and Storage Replication Ad... (partially visible). The main content area displays the Summary tab. At the top right of the main area are three buttons: RESTART, DOWNLOAD SUPPORT BUNDLE, and STOP. Below these are two tables. The first table contains the following data:

Product	VMware vCenter Site Recovery Manager
Version	8.2.0
Build	14761906

The second table contains the following data:

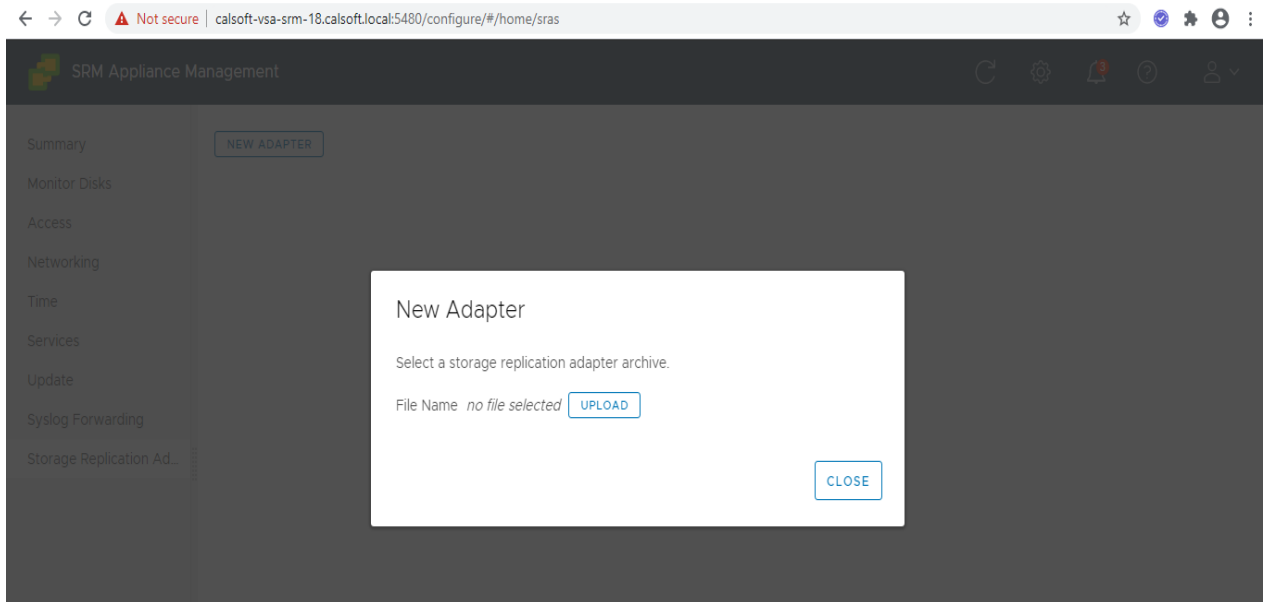
Site name	calsoft-vsa-srm-18
Extension key	com.vmware.vcDr
Platform Services Controller	https://calsoft-vcsa-srm-16.calsoft.local:443
vCenter Server	calsoft-vcsa-srm-16.calsoft.local
Connection thumbprint	⚠ E1:1C:9C:32:4E:3A:FD:D7:0A:11:17:CF:A1:B7:4D:21:D5:78:74:65

At the bottom right of the main content area are two buttons: RECONFIGURE and UNREGISTER.

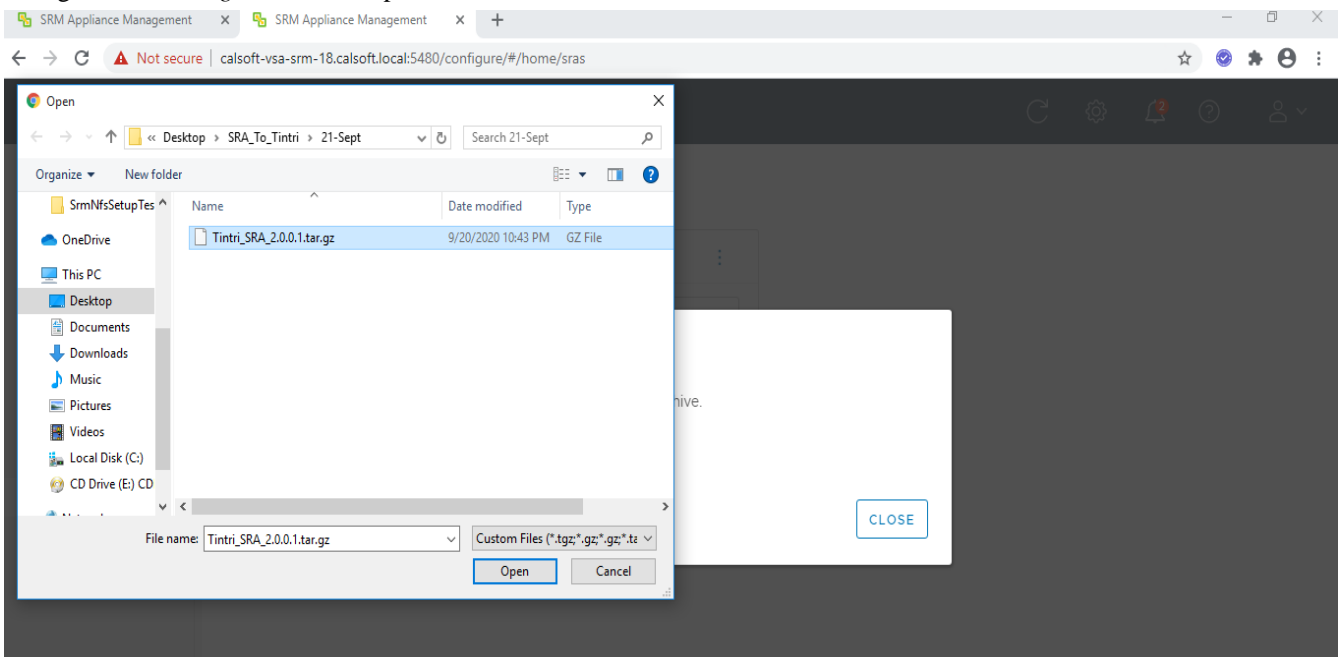
2. Select the Storage Replication Adapter tab on the left panel. Click NEW ADAPTER on the right panel.

The screenshot shows the SRM Appliance Management web interface with the Storage Replication Adapter tab selected in the left sidebar. The main content area is mostly empty, but a button labeled "NEW ADAPTER" is visible at the top left. A red arrow points to this button.

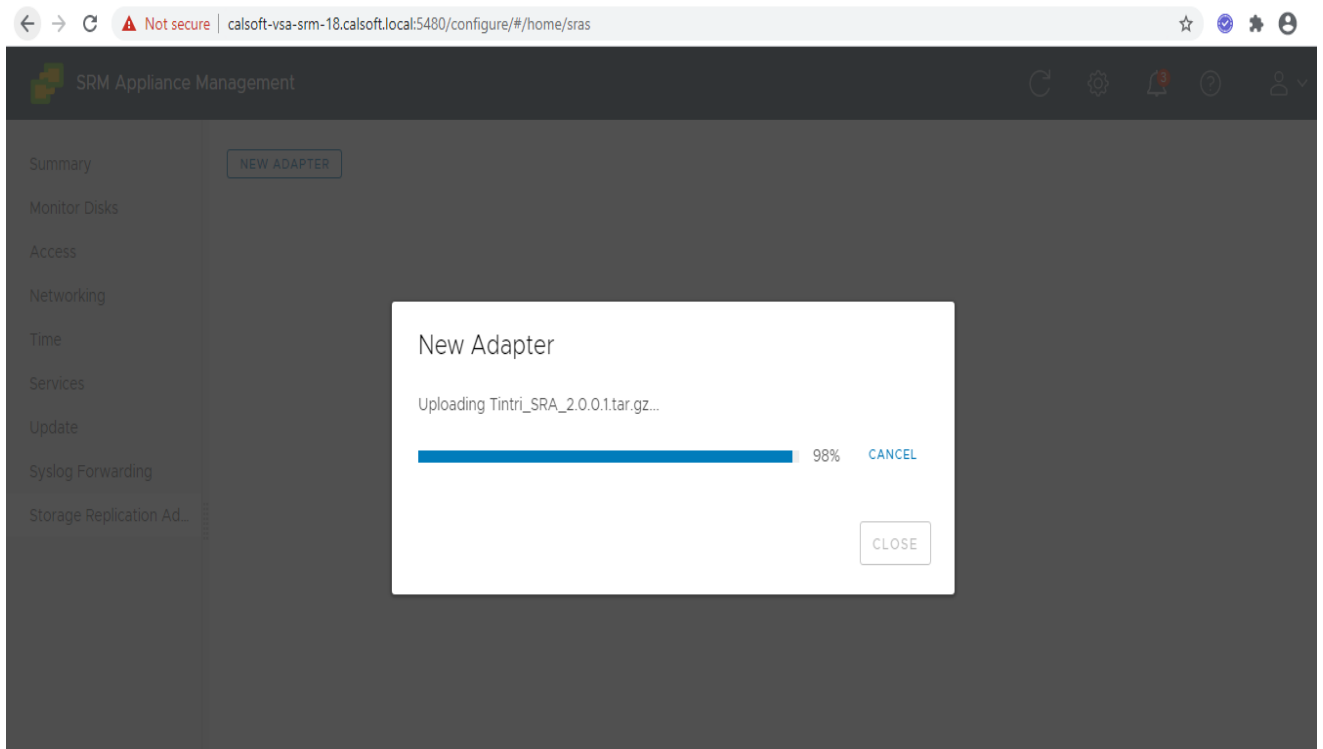
3. The New Adapter window displays. Click UPLOAD



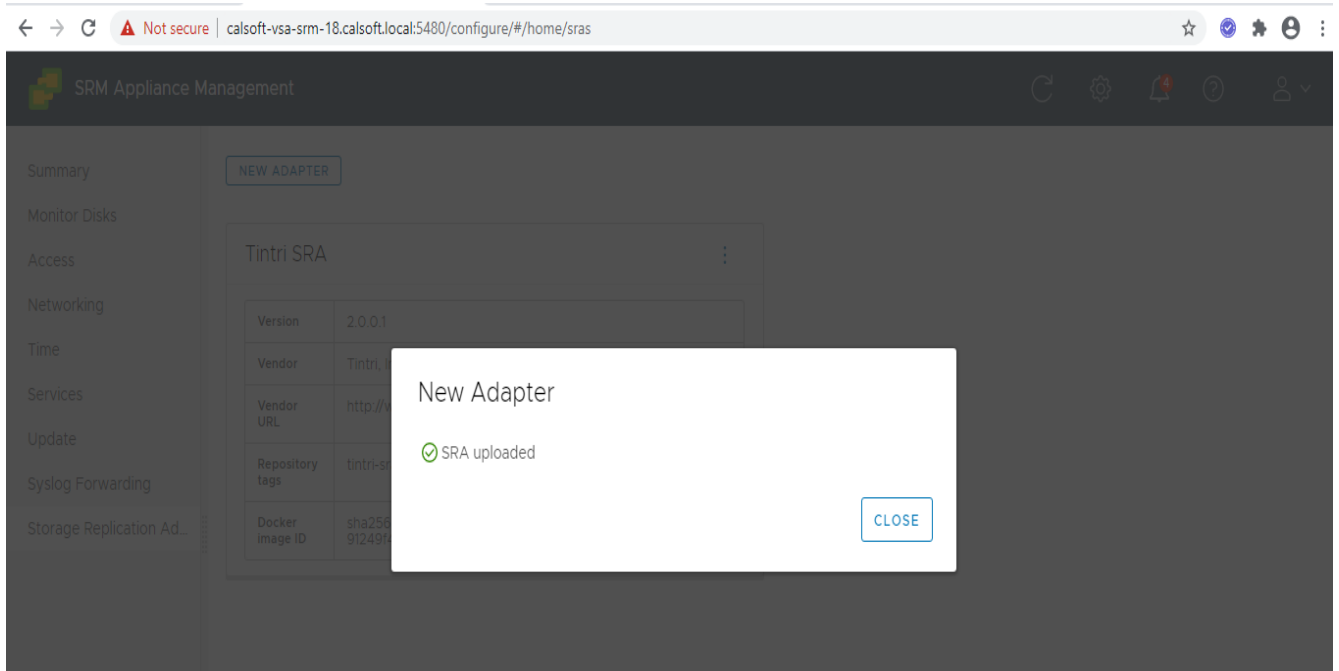
4. Navigate to the `.tar.gz` file. Click Open.



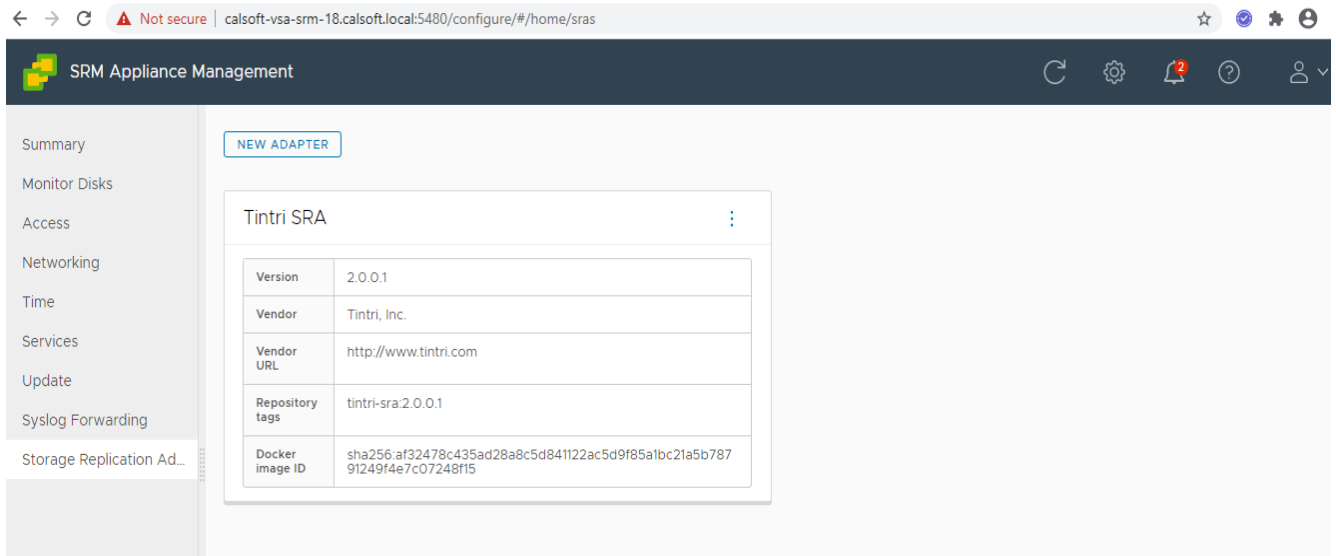
The new SRA adapter uploading started.



5. On the successful upload of the SRA adapter, the following window displays. Click CLOSE.



A new Tintri SRA adapter is successfully added to the SRM.



6 Conclusion

The Tintri SRA enables tight, full-featured integration between Tintri VMstore arrays and VMware SRM. Initial configuration and deployment are simple and straightforward. Array-based replication leverages Tintri ReplicateVM and offloads the replication workload from the hypervisor. Recovery plan test, failover, reprotect, and failback operations execute flawlessly.

7 References

7.1 Tintri

Tintri reference documentation is available on the support portal at support.tintri.com. Accessing the Tintri support portal requires login credentials.

- Tintri Storage Replication Adapter
 - SRA download
 - Tintri SRA Plugin Release Notes
 - Tintri OS and External Compatibility Guide
- Tintri VMstore All Flash/Hybrid System Administration Manual

7.2 VMware

VMware Site Recovery Manager Documentation is available at docs.vmware.com/en/Site-Recovery-Manager.

- Site Recovery Manager Compatibility Matrices
- Site Recovery Manager Installation and Configuration
- Site Recovery Manager Administration

The VMware SRM download portal is at <https://my.vmware.com>.