

Dell EMC PowerStore SRA Plugin for VMware Site Recovery Manager

Release Notes

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Revision History

Date	Description
May 2020	Initial Release

Product Description

Dell EMC PowerStore Storage Replication Adapter for VMware Site Recovery Manager (SRA) allows VMware Site Recovery Manager (SRM) to implement disaster recovery for PowerStore clusters. Dell EMC PowerStore Storage Replication Adapter (SRA) supports SRM functions such as failing over, failing back, and failover testing using PowerStore as the replication engine.

SRA version 1.0 is for Windows and Linux/Photon OS environments.

Environment and System Requirements

Prerequisites

Before the Dell EMC PowerStore SRA can be installed, the following prerequisites must be met:

- The VMware vCenter and Site Recovery Manager (SRM) must be installed and configured according to the VMware documentation.
- HTTPS TCP port 443 must be opened between the SRM server and PowerStore.

SRA Compatibility Matrix

The following table presents the Dell EMC PowerStore SRA Compatibility Matrix; the latest versions are recommended:

vSphere	SRM
6.5	6.5 (Windows)
6.7	8.1 (Windows)
6.7	8.2 (Photon OS and Windows) and 8.3 (Photon OS and Windows)

For the VMware Administration Guide, refer to VMware Documentation (<http://www.vmware.com/support/pubs>).

Setting up PowerStore Native Replication

To use the VMware Site Recovery Manager, the PowerStore clusters must be configured for native replication. Refer to the *PowerStore Configuring Volumes Guide* for a detailed explanation of setting up the PowerStore clusters for native replication.

Volume Groups and Protection Groups

SRM protection group failover (during testing and actual failover) instructs the Dell EMC PowerStore Storage Replication Adapter to operate on all the LUNs of all the virtual machines in a protection group. PowerStore uses a single volume or volume groups to define groups of LUNs that replicate together. If the SRM protection group LUNs upon which the Dell EMC PowerStore Storage Replication Adapter operates differ from the PowerStore volume group LUNs, then the mismatch may result in unintended behavior or operation failure. The mismatch of LUNs could be the result of LUNs in the SRM protection group that are missing from the PowerStore volume groups, LUNs in the volume groups from another SRM protection group, or LUNs in the volume group from non-SRM protection groups. To avoid unintended behavior or operation failover, it is recommended that you take the following actions:

- Group all the virtual machine LUNs in an SRM protection group in one or more PowerStore volume groups or replicate them as a single volume. Ensure each of these contains only LUNs from that protection group and does not contain LUNs from any other protection group or other application. This ensures that all the SRM protection group's LUNs are handled by SRM. This also ensures that SRM does not attempt to operate concurrently on the same volume group, which may result in SRM operations failing, or unintended behavior.
- Ensure PowerStore volume groups that contain SRM protection group LUNs do not contain non-SRM protection group LUNs. This ensures that SRM does not handle non-SRM protection group LUNs.
- In addition, it is a best practice to avoid concurrently performing operations on the same volume group using VMware SRM or PowerStore Manager as this may cause these operations to interfere with each other.

For further information about PowerStore volume groups and other objects, refer to the *PowerStore Configuring Volumes Guide*.

Note: Before you first launch SRA, verify that all the protected replicated volumes are mapped to hosts. SRA does not report protected replicated volumes that are unmapped to hosts to SRM. For more details about PowerStore native replication objects and settings, refer to the *PowerStore Configuring Volumes Guide*.

Documentation

For the most current VMware vCenter SRM documentation, refer to the VMware web site (<http://www.vmware.com/support/pubs>).

For the most current Dell EMC SRA documentation, on the Dell EMC Online Support Site (<https://dell.com/support>) go to PowerStore > Documentation > Release Notes or contact Dell EMC Customer Support.

Use the release of any of the following documents, available in the Documentation Library on Dell EMC Online Support Site, that matches your installed PowerStore version:

- *PowerStore 1.0 Release Notes*
- *PowerStore Configuring Volumes Guide*

Software media

Once you download the SRM software from the VMware web site and install it, the Dell EMC PowerStore SRA may be downloaded and installed.

The Dell EMC Online Support Site also has the most current Dell EMC PowerStore SRA information.

Installation and Upgrade

Prerequisites

Before you begin to install PowerStore, review the *PowerStore Deployment Checklist*. Download the PowerStore Deployment Checklist from the PowerStore product support page at www.dell.com/support.

Once you have completed all the planning steps in the *PowerStore Deployment Checklist*, you are ready to install your system.

Installation

This section contains important information about downloading, installing, updating, and uninstalling Dell EMC PowerStore Site SRA Installers for Windows and Photon OS operating systems:

- *Downloading and installing Dell EMC PowerStore SRA for Windows*
- *Configuring the Certificate for Windows*
- *Uninstalling Dell EMC PowerStore SRA for Windows*
- *Upgrading Dell EMC PowerStore SRA for Windows*
- *Downloading and installing Dell EMC PowerStore for Photon OS*
- *Configuring the Certificate for Photon OS*
- *Advanced configuration for Photon OS*
- *Uninstalling Dell EMC PowerStore SRA for Photon OS*
- *Upgrading Dell EMC PowerStore SRA for Photon OS*

Downloading and installing Dell EMC PowerStore SRA for Windows

Before installing Dell EMC PowerStore SRA for Windows, ensure that VMware SRM is installed on each Site Recovery Manager Server host. For more information on installing Site Recovery Manager, see the VMware vCenter Site Recovery Manager documentation (<https://pubs.vmware.com>).

Procedure:

1. Verify that PowerStore Clusters are configured to be fully operational, including remote systems, volume groups, and replication sessions.
2. Download the Dell EMC PowerStore SRA installer file, `Dell EMC PowerStore SRA Windows v.1.0.0.exe`.
3. Run the installer file on both the local and remote SRM servers. The installer file can be only run in interactive (InstallShield) mode with no arguments.

Note: If Windows Server 2016 issues a security warning and blocks the installer from running, then unblock the installer: right-click the installer file, choose Properties, and in the General tab click Unblock. For more information about unblocking a downloaded file, refer to the Microsoft Developers Network (<https://blogs.msdn.microsoft.com/delay/p/unblockingdownloadedfile/>).

- a. Run `Dell EMC PowerStore SRA Windows v.1.0.0.exe`; when the Install Wizard appears, click **Next**.

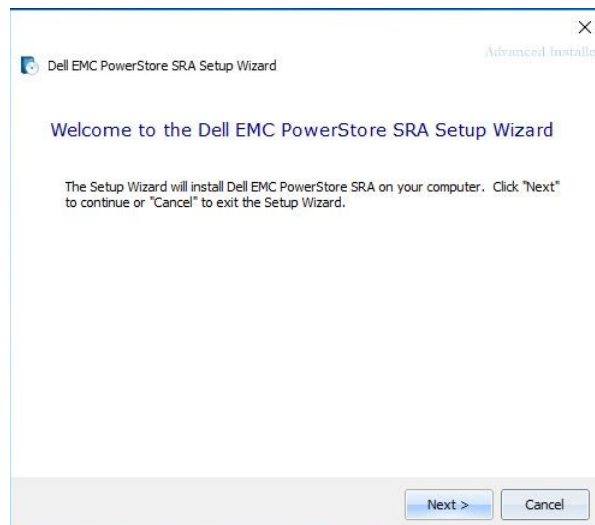


Figure 1: Getting Started Dialog

- b. Accept the license agreement.

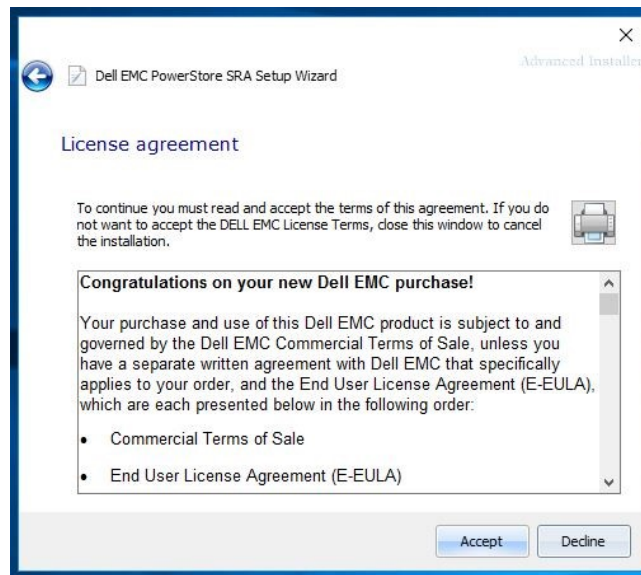


Figure 2: License Agreement

- c. Begin the installation.

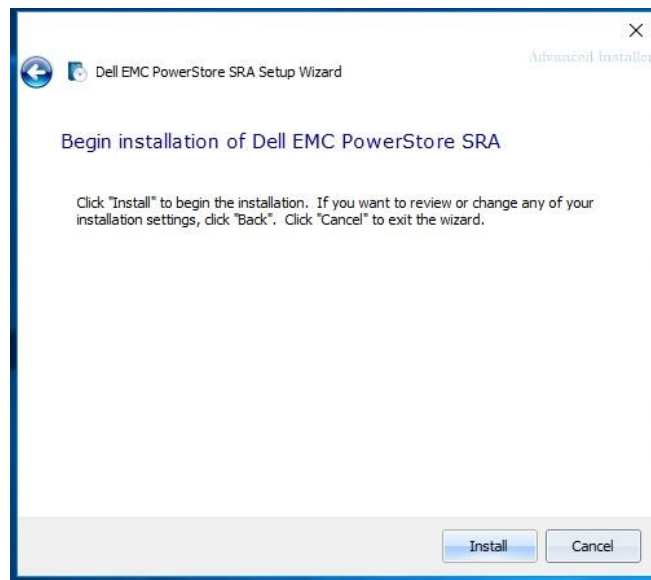


Figure 3: Begin Installation Dialog

- d. If you are installing without administrator privileges, the Windows UAC prompt appears; click **Yes**.
- e. After successful installation, click **Finish**.

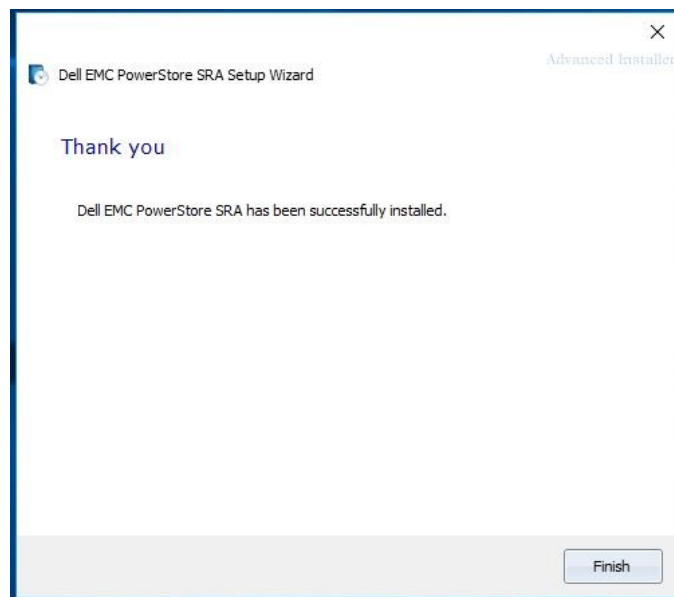


Figure 4: A Successful Installation

4. On both sites, add PowerStore as the array manager using IP or FQDN.
5. Authenticate using a PowerStore User with administrative privileges, ensuring that the replication sessions to be used with SRM are enabled and active.
6. Following the instructions of the *VMware Site Recovery Manager Administration Guide*, build your recovery plans and run failover or failover tests through vSphere.
7. Follow the instructions in the Site Recovery Manager On-Line Help or in the *VMware Site Recovery Manager Administrator's Guide* for installing the Dell EMC PowerStore Storage Replication Adapter, specifying the array manager, and configuring protection groups.

Configuring the certificate for Windows

Procedure:

1. Get the root certificate of the PowerStore instance; the certificate format should be **PEM**.
2. Rename the `root_ca.pem` file to `root_ca.cer`.
3. Right-click the `root_ca.cer` file to begin the installation.
4. In the Certificate window, click **Install Certificate**.

Note: You can ignore the warning that the CA Root certificate is not trusted.

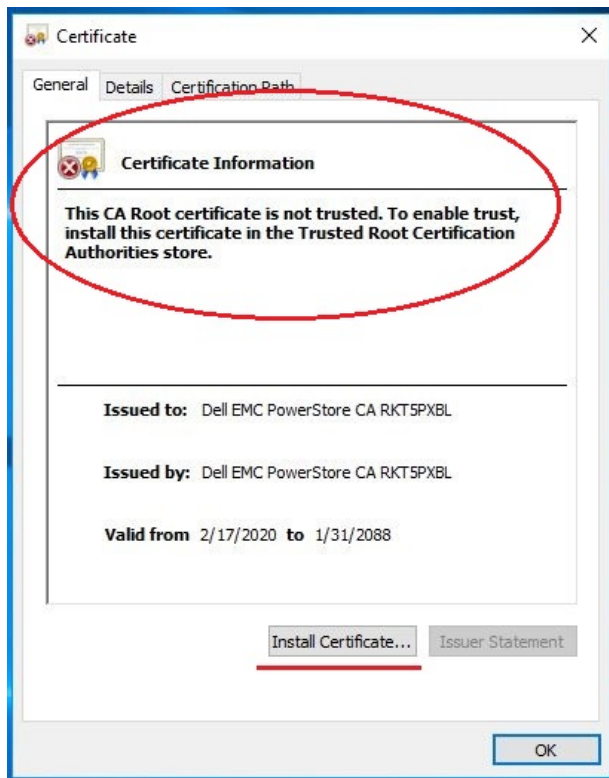


Figure 5: Install Certificate Dialog

The Certificate Import Wizard should open.

5. Select **Local Machine** as the Store Location and click **Next**.
6. For the Certificate store, specify the Trusted Root Certification Authorities and click **Next**.

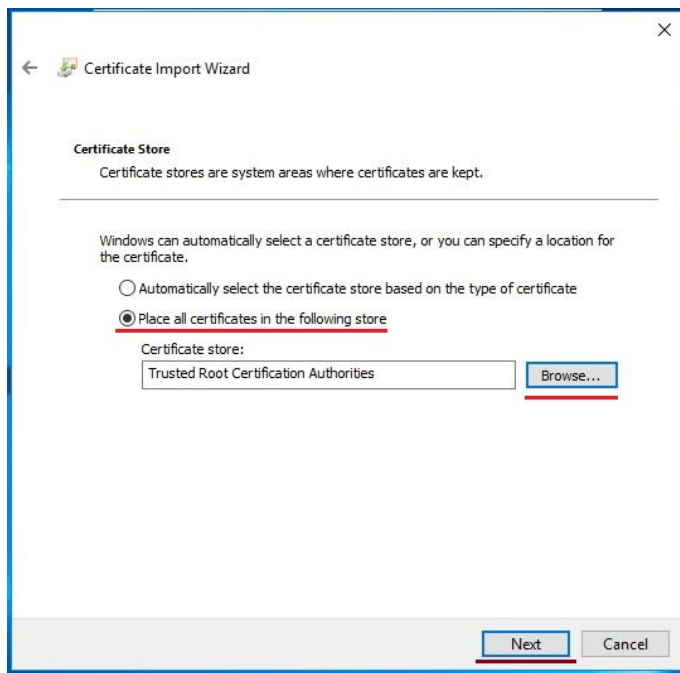


Figure 6: Certificate Store

7. Click **Finish**.

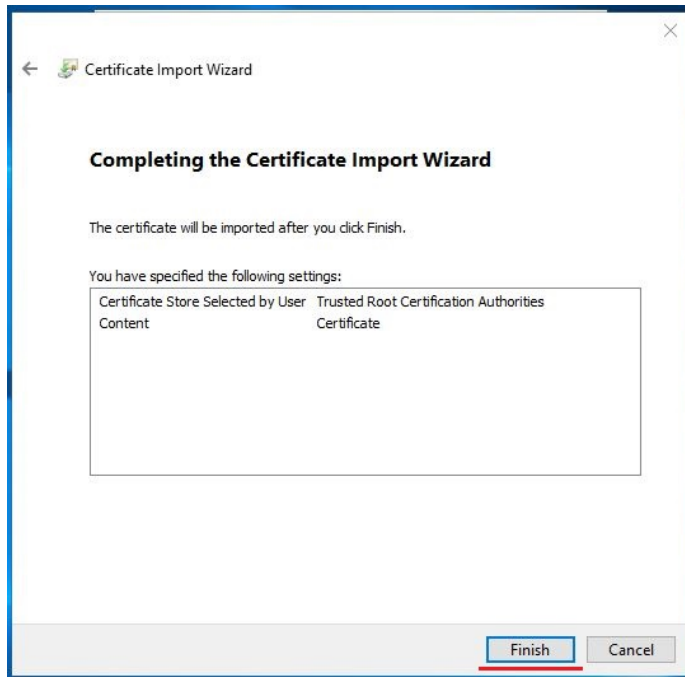


Figure 7: The Certificate and Settings Specified

Uninstalling Dell EMC PowerStore SRA for Windows

Procedure:

1. On systems running the SRM Server, from the Start menu, select **Settings > Control Panel > Add or Remove Programs**.

2. Select "Dell EMC PowerStore SRA" and click **Remove**.

Upgrading Dell EMC PowerStore SRA for Windows

To upgrade the SRA, follow the instructions for installing the SRA (**Downloading, Installing, Updating and Uninstalling Dell EMC PowerStore SRA for Windows**). The older version is automatically removed, and the newer version is installed.

Downloading and Installing Dell EMC PowerStore SRA for Photon OS

Before installing the Dell EMC PowerStore SRA for Linux, make sure that VMware SRM is installed on each Site Recovery Manager Server host. For more information on installing Site Recovery Manager, see the VMware vCenter Site Recovery Manager documentation (<https://pubs.vmware.com>).

Procedure:

1. Verify that PowerStore clusters are configured to be fully operational, including remote systems, volume groups, and replication sessions.
2. Download the Dell EMC PowerStore SRA file: `Dell EMC PowerStore_SRA_Linux_v.1.0.0.tar.gz`
3. Go to the SRM web UI and click **Launch SRM Appliance Management**.

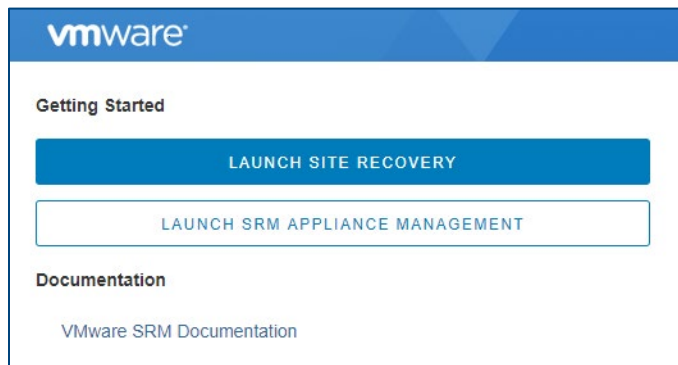


Figure 8: VMware Getting Started Dialog

4. The Welcome to VMware Appliance Management dialog box appears.

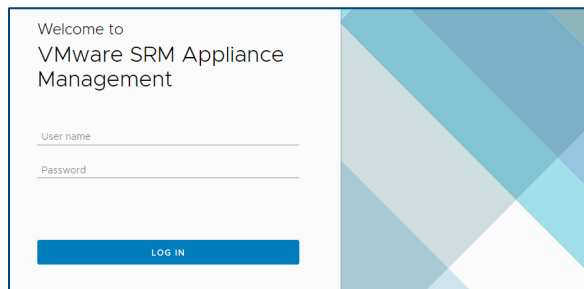


Figure 9: Welcome to VMware Appliance Management Dialog

5. Enter your credentials (default administrator user is admin), and click **LOG IN**.

Note: Authenticate using SRM administrative user as configured during the SRM installation stage with administrative privileges. Make sure that the replication sessions to be used with SRM are enabled and active.

6. In the SRM Appliance Management dialog box, click **Storage Replication Adapters**.

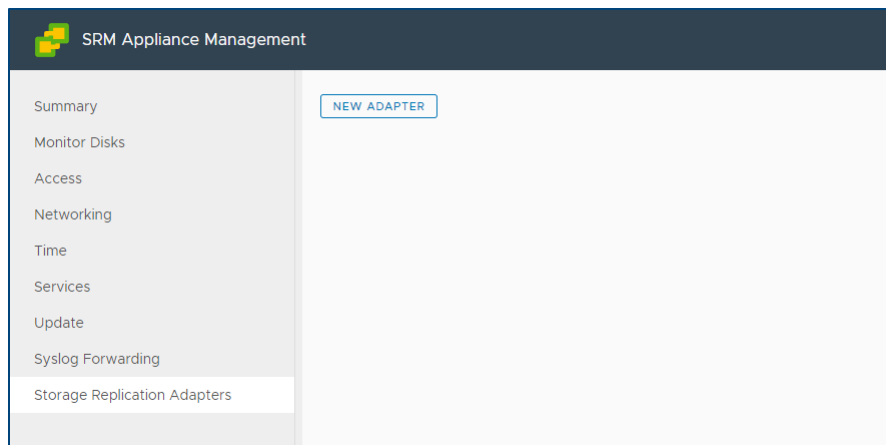


Figure 10: Dell EMC PowerStore SRA Dialog Box – New Adapter

- Click **NEW ADAPTER**; the New Adapter dialog box appears.

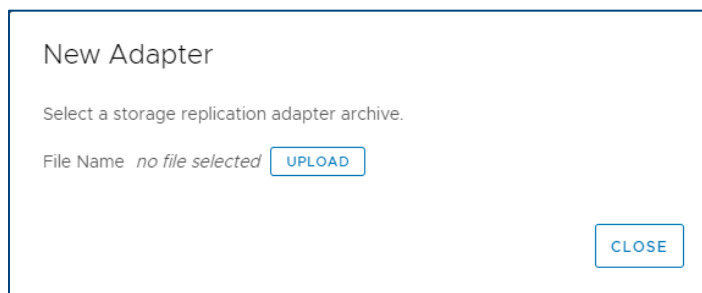


Figure 11: New Adapter Dialog

- Click **UPLOAD**, and in the resulting file browser, navigate to and select the `Dell EMC PowerStore SRA Linux v.1.0.0.tar.gz` file; the upload begins.
- Upon completion, click **CLOSE** in the resulting window.

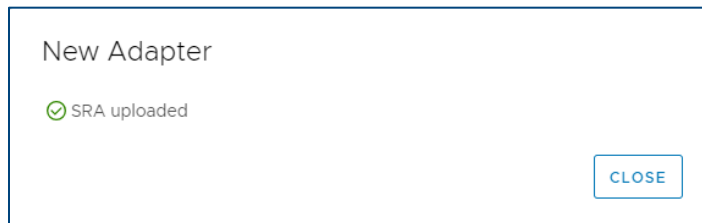


Figure 12: New Adapter SRA Uploaded Dialog

Configuring the certificate for Photon OS

Procedure:

- Get the **root** certificate of the PowerStore instance; the certificate format should be **PEM**.
- Go to the SRM configuration web user interface; the UI should be communicating with the PowerStore instance.

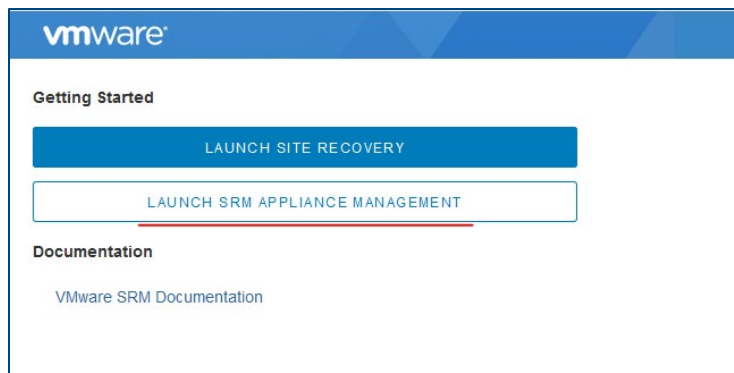


Figure 13: Getting Started Dialog

3. Log in.
4. Go to **Storage Replication Adapters**.

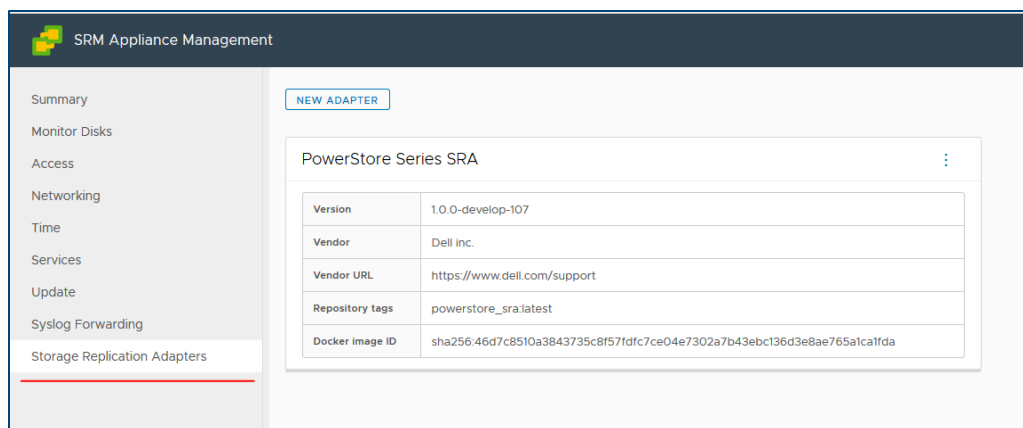


Figure 14: The SRM UI Dialog

5. Click the ellipses (...), and then click **Download configuration archive**.

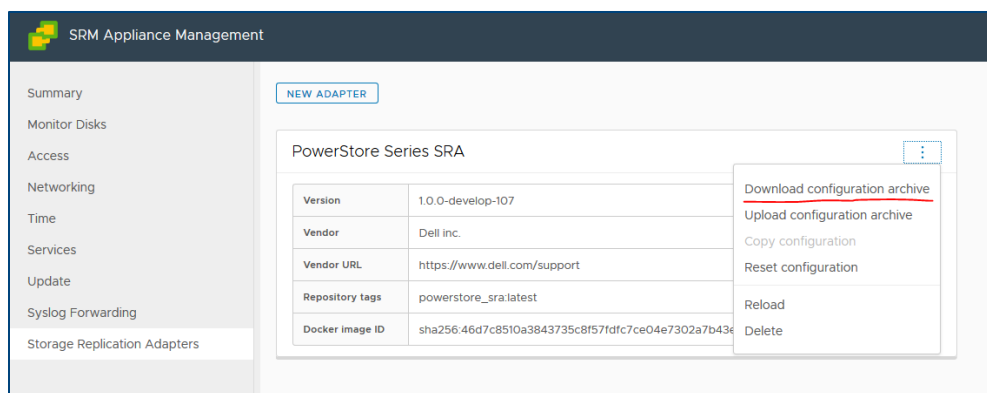


Figure 15: Download Configuration Archive

6. Extract the archive content.

Name	Date modified	Type	Size
config.ini	12/4/2019 3:12 PM	Configuration sett...	1 KB
sra-configuration-version.txt	12/4/2019 3:11 PM	Text Document	1 KB

Figure 16: The config.ini file

- Place the root SSL certificate beside the config.ini file.

Name	Date modified	Type	Size
config.ini	12/4/2019 3:15 PM	Configuration sett...	1 KB
root_ca.pem	12/3/2019 3:01 PM	PEM File	2 KB
sra-configuration-version.txt	12/4/2019 3:11 PM	Text Document	1 KB

Figure 17: The root.cs.pem File with the config.ini File

- Open the config.ini file, specify the location for the root_ca.pem certificate, and then save the config.ini file.

```

1 ; Use only UTF-8 encoding for this file!
2
3 [client]
4 ; specify in seconds
5 connection_timeout = 20.0
6 connection_attempts = 3
7
8 [ssl]
9 verify = True
10 ca_path = root_ca.pem
11 ; if you're using a self-signed certificate you should install a root certificate to windows trust store.
12 protocols = tls1.2
13 ;
14 ;     tls1.1 (deprecated)
15
16 [ssl:tls1.2]
17 ; the cipher list consists of one or more openssl cipher strings separated by colons.
18 ciphers = AESGCM:-aNULL:-DH:-kRSA:@STRENGTH
19
20 [ssl:tls1.1]
21 ; the cipher list consists of one or more openssl cipher strings separated by colons.
22 ciphers = AESGCM:-aNULL:-DH:-kRSA:@STRENGTH
23 ; to see detailed list use command: openssl ciphers -v "aesgcm:-aNULL:-dh:-krsa:@strength"
24
25 [polling]
26 ; specify in seconds
27 poll_delay = 3.0
28 poll_attempts = 10

```

Figure 18: Setting ca.path to root.ca_pem

- Pack the configuration to a new gzipped tarball.

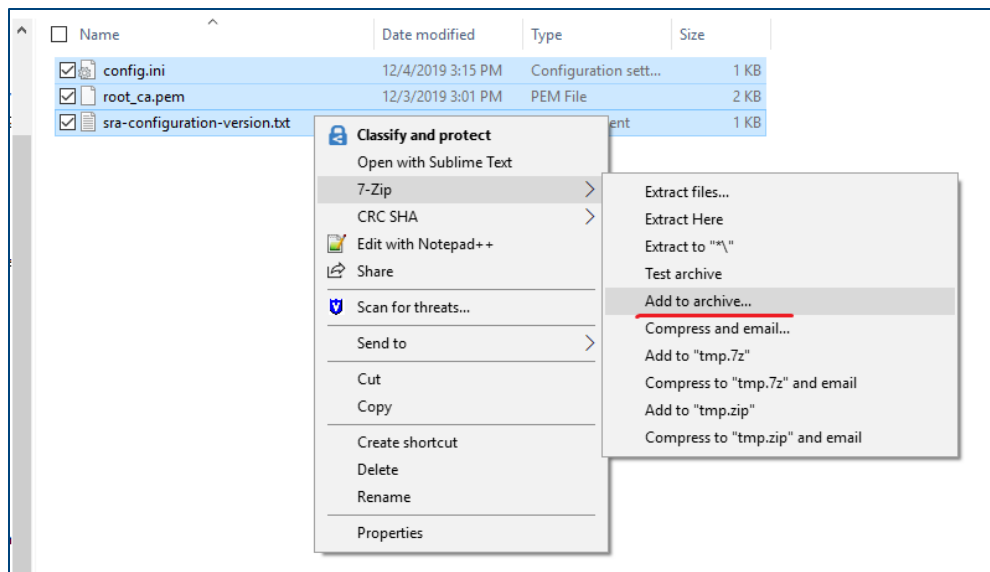


Figure 19: Ready to Pack the Configuration

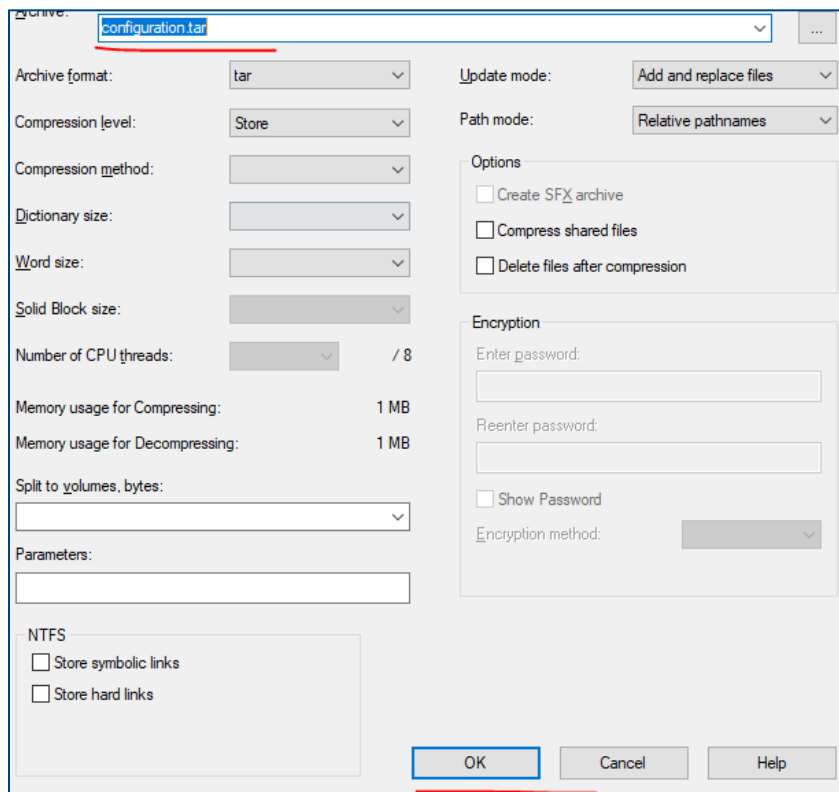


Figure 20: Packing the Configuration

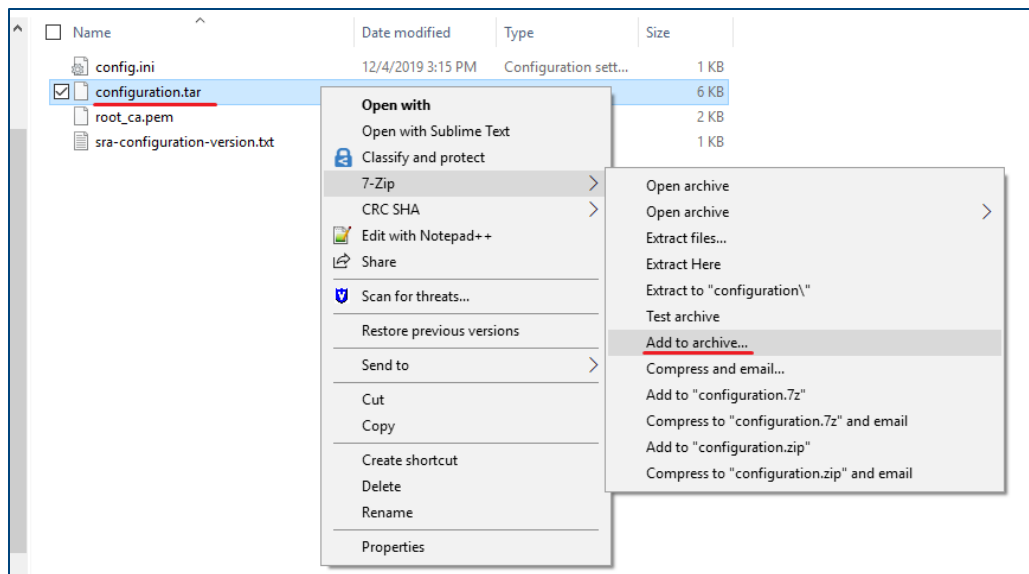


Figure 21: Adding the Configuration to the Archive

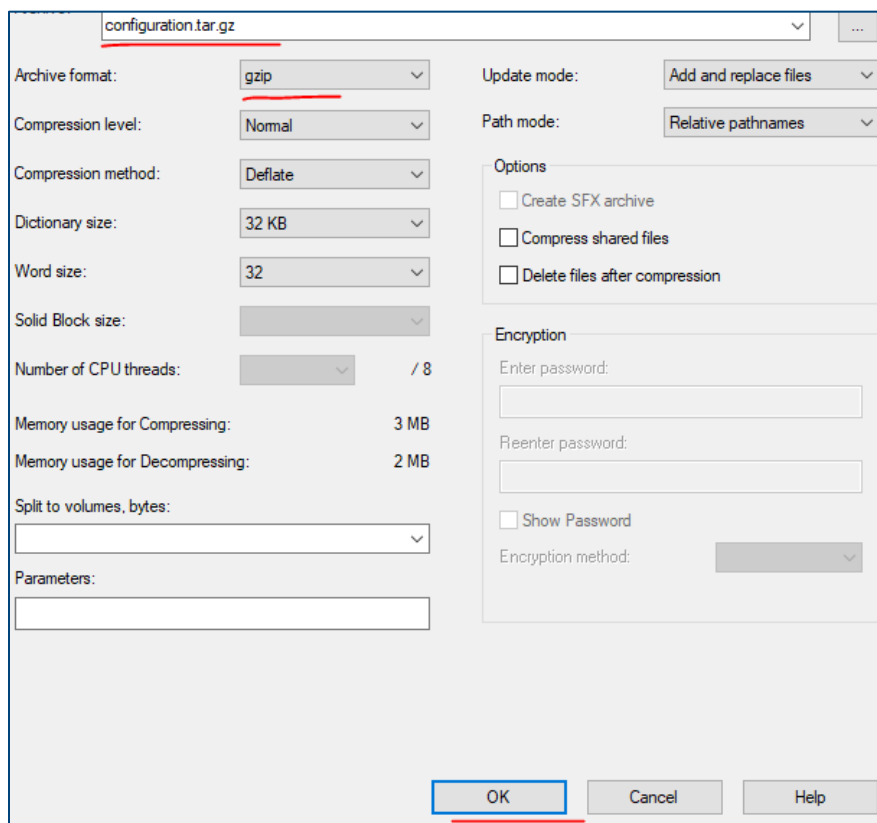


Figure 22: Putting the Configuration into a gzipped Tarball

- Go back to SRM and upload the new configuration (`configuration.tar.gz`).

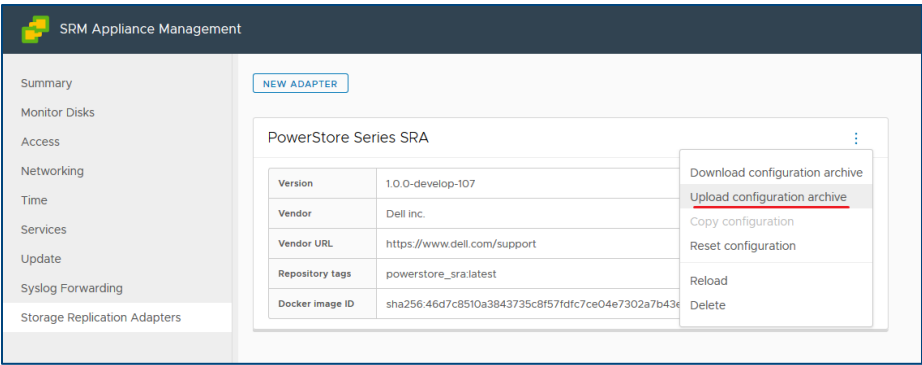


Figure 23: Preparing to Upload the Configuration

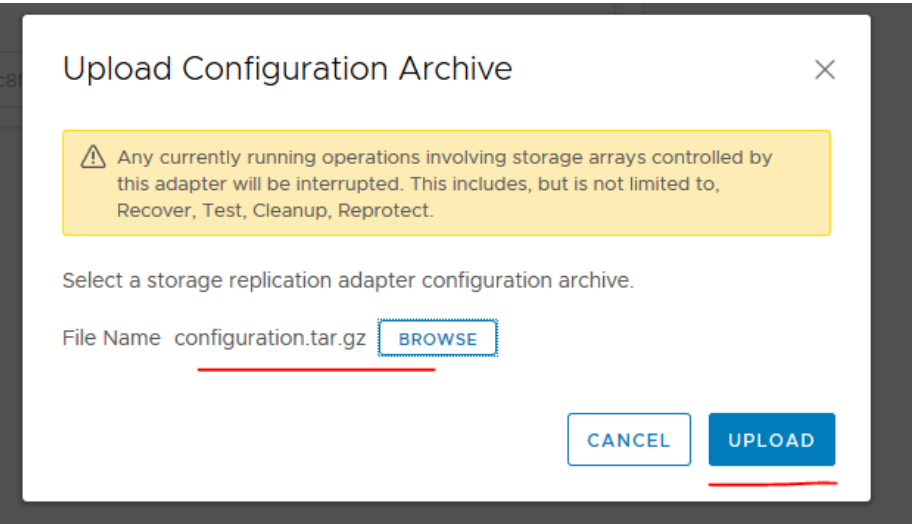


Figure 24: Uploading the configuration.tar.gz File

11. The configuration is complete. SRA should be using a secure connection.

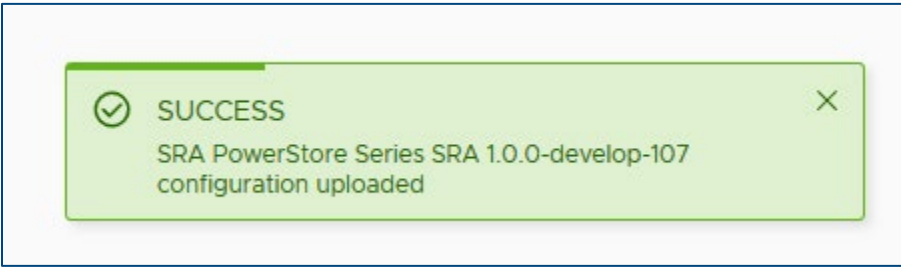


Figure 25: Configuration complete

Advanced Configuration for Photon OS

The following table shows the advanced configuration parameters for PowerStore:

Section	Parameter	Default Value	Description
client	connection_timeout	20 seconds	The connection_timeout parameter determines how long SRA

			<p>attempts to connect before a timeout error occurs. In addition, the parameter determines how long SRA waits before making another attempt if the connection is interrupted.</p> <p>This parameter is measured in seconds.</p> <p>You can adjust this parameter according to your network configuration.</p>
	connection_attempts	3 attempts	<p>The <code>connection_attempts</code> parameter determines the maximum number of attempts SRA performs if the connection times out.</p> <p>You can adjust this parameter according to your network configuration.</p>
polling	poll_delay	3 seconds	<p>The <code>poll_delay</code> parameter determines how long SRA waits until a job or a replication session becomes the expected state. This parameter is measured in seconds.</p>
	poll_attempts	10 attempts	<p>The <code>poll_attempts</code> parameter determines the maximum number of attempts SRA performs if a replication session does not achieve the expected state.</p>
ssl	verify	False	<p>The <code>verify</code> parameter determines whether SRA validates a server SSL certificate. If the parameter set to True, SRA performs the validation. If the parameter is set to False, SRA does not perform the validation.</p> <p>NOTE: You must adjust this parameter if you want a secure connection.</p>
	ca_path	N/A	<p>The <code>ca_path</code> parameter specifies a path to a root certificate.</p> <p>If <code>verify</code> is enabled and you are using a self-signed certificate, you should export the root certificate from the storage host, place it beside the downloaded config file and set <code>ca_path</code></p>

			<p>to the certificate name if you are using the Linux version.</p> <p>For the Windows version of the SRA, do not set the <code>ca_path</code> parameter. You must import the certificate through the Windows Trust Store.</p> <p>NOTE: You must adjust this parameter if you want a secure connection.</p>
	<code>protocols</code>	<code>tls1.2</code>	<p>The <code>protocols</code> parameter specifies a list of SSL protocols that SRA can use. SRA uses the first protocol in which a connection succeeded, from first to last through the list. You can use TLS1.2 and TLS1.1, although TLS1.1 is deprecated.</p>
<code>ssl:tls.1.2</code>	<code>ciphers</code>	<code>AESGCM:-aNULL:-DH:-kRSA:@STRENGTH</code>	<p>For each protocol, you can set a cipher list consisting of one or more OpenSSL cipher strings separated by colons. It specifies in the cipher's parameter in each protocol section.</p> <p>CAUTION: Adjusting these parameters without consulting Dell EMC technical support is NOT recommended.</p>
<code>ssl:tls1.1</code>			

To configure SRA parameters:

1. In the SRM Appliance Management dialog box, select **Storage Replication Adapters**.
2. From the Dell EMC PowerStore Storage Replication Adapter menu, select **Download configuration archive**. The archive file contains the following files:
 - `sra.configuration.version`
 - `config.ini`
3. Modify the configuration parameters in the `config.ini` file.
4. From the Dell EMC PowerStore Storage Replication Adaptor menu, select Upload Configuration Archive.
5. The Upload Configuration dialog box opens:

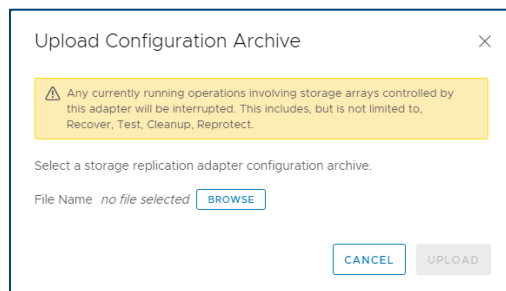


Figure 26: Upload Configuration Archive Dialog

6. Click **Browse** and navigate to the original archive location.
7. Click **Open**; the Success window appears, confirming a successful upload.

Resetting the SRA Configuration to the Factory Defaults

Procedure:

1. In the SRM Appliance Management dialog box, select **Storage Replication Adapters**.
2. From the Dell EMC PowerStore Storage Replication Adaptor menu, select **Reset configuration**. The Reset Adapter Configuration dialog box opens.
3. Click **Reset**; the Success window appears, confirming a successful reset.

Uninstalling Dell EMC PowerStore SRA for Photon OS

Procedure:

1. In the SRM Appliance Management dialog box, select **Storage Replication Adapters**.
2. Locate the relevant SRA, and from the Dell EMC PowerStore Storage Replication Adaptor menu, select **Delete**. The Delete Adapter dialog box appears.
3. Select the checkboxes and click **DELETE**; the selected SRA is uninstalled.

Upgrading Dell EMC PowerStore SRA for Photon OS

To upgrade the SRA, follow the instructions for installing the SRA (Downloading and Installing Dell EMC PowerStore SRA for Photon OS). The newer version is installed. Deletion of the old SRA is done through the web interface.

Where to Get Help?

Support, product, and licensing information can be obtained as follows:

- **Product information**

For product and feature documentation or release notes, go to the PowerStore Documentation page at <https://dell.com/support>.

- **Troubleshooting**

For information about products, software updates, licensing, and service, go to <https://dell.com/support> and locate the appropriate product support page.

- **Technical support**

For technical support and service requests, go <https://dell.com/support> and locate the Service Requests page. To open a service request, you must have a valid support agreement. Contact your Sales Representative for details about obtaining a valid support agreement or to answer any questions about your account.

Where to Get Help?

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