Manage disaster recovery setup by using Site Recovery Manager

VSC, VASA Provider, and SRA 9.7

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You can create and manage the disaster recovery setup in your vCenter Server by using Site Recovery Manager (SRM) along with VMware's Site Recovery Manager (SRM).

This release of VASA Provider now comes built-in with the capabilities of Storage Repliaction Adapter (SRA). If you have configured vVols datastores in your datacenter, then for recovery of vVols datastores, you do not need to install SRA separately for disaster recovery. In Site Recovery Manager(SRM), you must pair the protected and recovery sites. After the site pairing has occurred, the next part of the SRM configuration involves setting up an array pair which enables SRM to communicate with storage system to discover devices and device replication. Before you can configure the array pair, you must first create a site pair in SRM.

Configure VM Storage Policies

You should configure VM storage policies to manage virtual machines that are configured on vVols datastore and to enable services like replication for the virtual disks. For the traditional datastores, it is optional to use these VM storage policies.

About this task

The vSphere web client provides default storage policies. But you can create policies and assign them to the virtual machines.

Steps

1. On the vSphere Client page, click **Menu › Policies and Profiles**.
2. Click **VM Storage Policies › Create VM Storage Policy**.
3. In the Create VM Storage Policy page, provide the following details:
   a. Enter a name and description for the VM Storage Policy.
   b. Select **Enable rules for "NetApp clustered Data ONTAP.VP.vvol" storage**.
   c. Select the required storage capability profile in the **Placement** tab.
   d. Select the **Custom** option to enable Replication.
   e. Click **ADD RULE** to select **Asynchronous** replication and required **SnapMirror Schedule**, and then click **NEXT**.
   f. Verify the compatible datastores listed, and then click **NEXT** in the **Storage compatibility** tab.

      For vVols datastores having data protection FlexVol volumes, compatible datastores check is not performed.
4. Review your VM Storage Policy selection in the **Review and finish** tab, and then click **Finish**.

Configure protection groups

You must create protection groups to protect a group of virtual machines on the protected site.

Before you begin

You should ensure that both the source and target sites are configured for the following:

- Same version of SRM installed
- vVols datastore configured with replication enabled and datastore mounted
- Similar storage capability profiles
- Similar VM Storage Policies with replication capability that must be mapped in SRM
- Virtual machines
- Paired protected and recovery sites
- Source and destination datastores should be mounted on respective sites

Steps

1. Log in to your vCenter Server, and then click **Site Recovery › Protection Groups**.
2. In the **Protection Groups** pane, click **New**.
3. Specify a name and description for the protection group, direction, and then click **NEXT**.
4. In the **Type** field, select one of the following:

For…	Type field option…
Traditional datastore	Datastore groups (array-based replication)
vVols datastore	Virtual Volumes (vVol replication)

   The fault domain is nothing but SVMs with replication enabled. The SVMs that have only peering implemented and with no issues are displayed.

5. In the **Replication groups** tab, select either the enabled array pair or the replication groups that have the virtual machine you configured, and then click **NEXT**.

   All of the virtual machines on the replication group are added to the protection group.

6. Select either the existing recovery plan or create a new plan by clicking **Add to new recovery plan**.
7. In the **Ready to complete** tab, review the details of the protection group that you created, and then click **Finish**.

Pair protected and recovery sites

You must pair the protected and recovery sites created using your vSphere Client to enable Storage Replication Adapter (SRA) to discover the storage systems.

Before you begin

- You must have installed Site Recovery Manager (SRM) on the protected and recovery sites.
- You must have installed SRA on the protected and recovery sites.

About this task

SnapMirror fan-out configurations are those where a source volume is replicated to two different destinations. These create a problem during recovery when SRM needs to recover the virtual machine from destination.

Storage Replication Adapter (SRA) does not support fan-out SnapMirror configurations.

Steps

1. Double-click **Site Recovery** on the vSphere Client home page, and then click **Sites**.
2. Click **Objects › Actions › Pair Sites**.
3. In the **Pair Site Recovery Manager Servers** dialog box, enter the address of the protected site’s Platform Services Controller, and then click **Next**.
4. In the **Select vCenter Server** section, do the following:
    a. Verify that the protected site’s vCenter Server appears as a matching candidate to pair.
    b. Enter the SSO administrative credentials, and then click **Finish**.
5. If prompted, click **Yes** to accept the security certificates.

Results

Both the protected and recovery sites will appear in the Objects dialog box.

Configure protected and recovery site resources

You must configure your resource mappings like VM networks, ESXi hosts, and folders on both sites to enable the mapping of each resource from the protected site to the appropriate resource at the recovery site.

You must complete the following resource configurations:

- Network mappings
- Folder mappings
- Resource mappings
- Placeholder datastores

Configure network mappings

You must map your networks on the protected site and the recovery site to enable communication between them.

Before you begin

You must have connected the protected and recovery sites.

Steps

1. Log in to your vCenter Server and click on **Site Recovery › Sites**.
2. Select your protected site, and then click **Manage**.
3. In the Manage tab, select **Network Mappings**.
4. Click the icon to create a new network mapping.

    The Create Network Mapping wizard appears.

5. In the Create Network Mapping wizard, perform the following:
    a. Select **Automatically Prepare Mappings for Networks with Matching Names**, and click **Next**.
    b. Select the required data center objects for the protected and recovery sites, and click **Add Mappings**.
    c. Click **Next** after mappings are created successfully.
    d. Select the object that was used earlier to create reverse mapping, and then click **Finish**.

Results

The Network Mappings page displays the protected site resources and the recovery site resources. You can follow the same steps for other networks in your environment.

Configure folder mappings

You must map your folders on the protected site and recovery site to enable communication between them.

Before you begin

You must have connected the protected and recovery sites.

Steps

1. Log in to your vCenter Server, and click on **Site Recovery › Sites**.
2. Select your protected site, and then click **Manage**.
3. In the Manage tab, select **Folder Mappings**.
4. Click the 📁 icon to create a new folder mapping.

    The Create Folder Mapping wizard appears.

5. In the **Create Folder Mapping** wizard, perform the following:
    a. Select **Automatically Prepare Mappings for Folders with Matching Names**, and click **Next**.
    b. Select the required data center objects for the protected and recovery sites, and click **Add Mappings**.
    c. Click **Next** after mappings are created successfully.
    d. Select the object that was used earlier to create reverse mapping, and then click **Finish**.

Results

The **Folder Mappings** page displays the protected site resources and the recovery site resources. You can follow the same steps for other networks in your environment.

Configure resource mappings

You must map your resources on the protected site and recovery site so that virtual machines are configured to fail over into one group of hosts or the other.

Before you begin

You must have connected the protected and recovery sites.

About this task

> In Site Recovery Manager (SRM), resources can be resource pools, ESXi hosts, or vSphere clusters.

Steps

1. Log in to your vCenter Server, and click on **Site Recovery › Sites**.
2. Select your protected site, and then click **Manage**.
3. In the Manage tab, select **Resource Mappings**.
4. Click the icon to create a new resource mapping.

   The Create Resource Mapping wizard appears.

5. In the **Create Resource Mapping** wizard, perform the following:
   a. Select **Automatically Prepare Mappings for Resource with Matching Names**, and click **Next**.
   b. Select the required data center objects for the protected and recovery sites, and click **Add Mappings**.
   c. Click **Next** after mappings are created successfully.
   d. Select the object that was used earlier to create reverse mapping, and then click **Finish**.

Results

The Resource Mappings page displays the protected site resources and the recovery site resources. You can follow the same steps for other networks in your environment.

Map storage policies

You should map the storage policies on the protected site to the storage policies on the recovery site for your recovery plan to place the recovered virtual machines on the appropriate datastores based on your mappings. After the virtual machine is recovered on recovery site, mapped VM Storage Policy will be assigned to virtual machine.

Steps

1. On the vSphere Client, click **Site Recovery › Open Site Recovery**.
2. In the **Site Pair** tab, click **Configure › Storage Policy Mappings**.
3. Select the required site, and then click **New** to create a new mapping.
4. Select the option **Automatically prepare mappings for storage policies with matching names**, and then click **NEXT**.

   SRM will select storage policies on the protected site for which a storage policy with the same name exists on the recovery site. But if you select the manual mapping option, you can select multiple storage policies.

5. Click **Add mappings**, and the click **NEXT**.
6. In the **Reverse mapping** section, select the required check boxes for mapping, and then click **NEXT**.
7. In the **Ready to complete** section, review your selections and click **FINISH**.

Configure placeholder datastores

You must configure a placeholder datastore to hold a place in the vCenter inventory at the recovery site for the protected virtual machine (VM). The placeholder datastore does not need to be large as the placeholder VMs are small and use only a few hundred or fewer kilobytes.

Before you begin

- You must have connected the protected and recovery sites.
- You must have configured your resource mappings.

Steps

1. Log in to your vCenter Server, and click on **Site Recovery › Sites**.
2. Select your protected site, and then click **Manage**.
3. In the Manage tab, select **Placeholder Datastores**.
4. Click the icon to create a new placeholder datastore.
5. Select the appropriate datastore, and then click **OK**.

   ⓘ Placeholder datastores can be local or remote and should not be replicated.

6. Repeat the steps 3 to 5 to configure a placeholder datastore for the recovery site.

Configure SRA using array manager

You can configure Storage Replication Adapter (SRA) by using the **Array Manager** wizard of Site Recovery Manager (SRM) to enable interactions between SRM and storage virtual machines (SVMs).

Before you begin

- You must have paired the protected sites and recovery sites in SRM.
- You must have configured your storage before configuring the array manager.
- You must have configured and replicated the SnapMirror relationships between the protected sites and recovery sites.
- You must have enabled the SVM management LIFs to enable multitenancy.

About this task

SRA supports cluster-level management and SVM-level management. If you add storage at a cluster level, then you can discover and perform operations on all of the SVMs in the cluster. If you add storage at an SVM level, then you can manage only that specific SVM.

ⓘ VMware does not support NFS4.1 protocol for SRM.

Steps

1. In SRM, click **Array Managers**, and then click **Add Array Manager**.
2. Enter the following information to describe the array in SRM:
   a. Enter a name to identify the array manager in the **Display Name** field.
   b. In the **SRA Type** field, select **NetApp Storage Replication Adapter for ONTAP**.
   c. Enter the information to connect to the cluster or the SVM:

- If you are connecting to a cluster, you should enter the cluster management LIF.
- If you are connecting directly to an SVM, you should enter the IP address of the SVM management LIF.

> ⓘ When configuring the array manager, you must use the same connection and credentials for the storage system that was used to add the storage system in Virtual Storage Console's **Storage Systems** menu. For example, if the array manager configuration is SVM scoped, then the storage under VSC must be added at SVM level.

d. If you are connecting to a cluster, enter the name of the SVM in the **SVM name** field.

   You can also leave this field blank.

e. **Optional:** Enter the volumes to be discovered in the **Volume include list** field.

   You can enter the source volume at the protected site and the replicated destination volume at the recovery site. You can enter either the full volume name or the partial volume name.

   For example, if you want to discover volume *src_vol1* that is in a SnapMirror relationship with volume *dst_vol1*, you must specify *src_vol1* in the protected site field and *dst_vol1* in the recovery site field.

f. **Optional:** Enter the volumes to be excluded from discovery in the **Volume exclude list** field.

   You can enter the source volume at the protected site and the replicated destination volume at the recovery site. You can enter either the full volume name or the partial volume name.

   For example, if you want to exclude volume *src_vol1* that is in a SnapMirror relationship with volume *dst_vol1*, you must specify *src_vol1* in the protected site field and *dst_vol1* in the recovery site field.

g. Enter the user name of the cluster-level account or SVM-level account in the **Username** field.

h. Enter the password of the user account in the **Password** field.

3. Click **Next**.
4. Verify that the array is discovered and displayed at the bottom of the **Add Array Manager** window.
5. Click **Finish**.

After you finish

You can follow the same steps for the recovery site by using the appropriate SVM management IP addresses and credentials. On the **Enable Array Pairs** screen of the **Add Array Manager** wizard, you should verify that the correct array pair is selected, and that it shows as ready to be enabled.

Verify replicated storage systems

You must verify that the protected site and recovery site are successfully paired after configuring Storage Replication Adapter (SRA). The replicated storage system must be discoverable by both the protected site and the recovery site.

Before you begin

- You must have configured your storage system.
- You must have paired the protected site and recovery site by using the SRM array manager.

- You must have enabled FlexClone license and SnapMirror license before performing the test failover operation and failover operation for SRA.

Steps

1. Log in to your vCenter Server.
2. Navigate to **Site Recovery › Array Based Replication**.
3. Select the required SVM, and then verify the corresponding details in the **Array Pairs**.

   The storage systems must be discovered at the protected site and recovery site with the Status as "Enabled".

Protect unprotected virtual machines

You can configure protection for your existing unprotected virtual machines that were created using VM storage Policy with replication disabled. To provide protection, you should change the VM storage policy and assign a replication group.

About this task

If SVM is having both IPv4 and IPv6 LIFs, then you should disable IPv6 LIFs and later perform disaster recovery workflows.

Steps

1. Click the required virtual machine and verify that it is configured with default VM storage policy.
2. Right-click the selected virtual machine, and click **VM Policies › Edit VM Storage Policies**.
3. Select a VM Storage policy that has replication enabled from the **VM storage policy** drop-down.
4. Select a replication group from the **Replication group** drop-down, and then click **OK**.

   Verify the Summary of the virtual machine to confirm that the virtual machine is protected.

   > ⓘ This release of virtual appliance for VSC, VASA Provider, and SRA does not support hot clone of protected virtual machines. You should power off the virtual machine and then perform the clone operation.

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