EMC RecoverPoint

EMC RecoverPoint Support

EMC RecoverPoint protects storage array logical unit numbers (LUNs) and provides concurrent local and remote data replication. RecoverPoint also provides continuous data protection for operational and disaster recovery by enabling any point-in-time recovery (PITR) for diversified storage environments both within and across pods.

RecoverPoint secures data by providing synchronous and asynchronous replication across heterogeneous arrays for block-based storage protocols. Replication improves reliability, fault-tolerance, and accessibility to data. If data becomes compromised or lost, you can look at data back in time and recover it by extending the vCenter VMware Site Recovery Manager (SRM) functionality with PITR capabilities.

RecoverPoint provides the ability to do the following:

- Enable continuous data protection for any PITR to optimize the recovery point objective (RPO) and recovery time objective (RTO).

- Ensure recovery consistency for inter-dependent applications.

- Provide synchronous or asynchronous replication policies.

- Reduce WAN bandwidth consumption and utilize available bandwidth optimally.

In Cisco UCS Director, you can access the following EMC RecoverPoint reports for Vblock clusters:

- Consistency groups that ensure that there is application-dependent write consistency of application data on VPLEX distributed virtual volumes within the VPLEX system in the event of a disaster.

- Consistency group copies of the initial consistency groups.

- Replication sets that consist of a production source volume and its local or local and remote replica volumes. One or more replication sets makes up a consistency group.

Note   For more details about scalability and configuration options, see the EMC RecoverPoint documentation.

Adding an EMC RecoverPoint Account

Step 1   Choose **Administration** > **Physical Accounts**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Click **Add**.

Step 4   On the **Add Account** screen, do the following:

   a)   From the **Account Type** drop-down list, choose **EMC RecoverPoint**.

   b)   Click **Submit**.

Step 5   On the next **Add Account** screen, complete the following fields:

Name	Description
Account Name field	A unique name for this RecoverPoint account.
Description field	A description of this account.
Server IP field	The IP address of the RecoverPoint system.
Use Credential Policy checkbox	Check this check box if you want to use a credential policy for this account rather than enter the username and password information manually.
Credential Policy drop-down list	If you checked the **Use Credential Policy** check box, choose the credential policy that you want to use from this drop-down list. This field is only displayed if you choose to use a credential policy.
Username field	The username that this account uses to access the RecoverPoint system. This username must be a valid account in the RecoverPoint system. This field is not displayed if you chose to use a credential policy.
Password field	The password associated with the username. This field is not displayed if you chose to use a credential policy.

Protocol drop-down list	Choose one of the following transport types that you want to use for this account:
	
	    • **http**
	
	    • **https**
	
	The default transport type protocol for this account is HTTPS.

Port field	The port used to access the RecoverPoint system. Port 7225 is the default secure HTTPS port through which Cisco UCS Director connects to the RecoverPoint system to obtain data.

Name	Description
API Version drop-down list	Choose the API verson that is supported on the RecoverPoint server. The default is API version 4_0.
Connection Timeout (Seconds) field	The length of time in seconds that Cisco UCS Director will wait to establish a connection to the RecoverPoint server before timing out. The default value is 60 seconds. The valid values are from 0 to 1800. An empty field or a value of 0 is interpreted as an infinite timeout.
Socket Read Timeout (Seconds) field	The length of time in seconds that Cisco UCS Director will wait for data from the RecoverPoint server before timing out. The default value is 60 seconds. The valid values are from 0 to 1800. An empty field or a value of 0 is interpreted as an infinite timeout.
Contact field	The email address that you use to contact the administrator or other person responsible for this account.
Location field	The location of the contact.

Step 6   Click **Submit**.

Cisco UCS Director tests the connection to the EMC RecoverPoint server. If that test is successful, it adds the RecoverPoint account and discovers all infrastructure elements in the storage system that are associated with that account. This discovery process and inventory collection cycle takes few minutes to complete.

The polling interval configured on the **System Tasks** tab on the **Administration** > **System** window specifies the frequency of inventory collection. For more information about configuring the polling interval, see the *Cisco UCS Director Network Devices Management Guide*.

RecoverPoint Appliance Clusters

RecoverPoint Appliance (RPA) clusters are a group of two to eight physical (or virtual) RPAs at the same geographic location. These clusters work together to replicate and protect data.

Assigning a RecoverPoint Cluster to a Pod

You can assign a RecoverPoint cluster to a pod in Cisco UCS Director. This configuration is optional.

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account that contains the cluster you want to assign to a pod.

Step 5   Click **View Details**.

Step 6   Click **Clusters**.

Step 7   Click the row with the cluster that you want to assign and then click **Assign to Pod**.

Step 8   On the **Assign Pod to Cluster** screen, choose a pod type from the **Select Pod** drop-down list and click **Submit**.

Repeat the previous steps if you need to assign another cluster to a pod.

What to do next

You can double-click a RecoverPoint cluster to view the cluster summary, cluster gateway, splitters, RPAs, VMware vCenter servers and filters, the repository volume, and other cluster volume information.

Unassigning a RecoverPoint Cluster from a Pod

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account that contains the cluster you want to unassign.

Step 5   Click **Clusters**.

Step 6   Click the row with the cluster that you want to unassign.

Step 7   Click **Unassign from Pod** and then click **Submit**.

Replication Through Consistency Groups

In EMC RecoverPoint, volumes are protected by consistency groups. A consistency group ensures that updates to production volumes are also written to copies in a consistent and correct write-order. This configuration ensures that the copy can always be used to continue working from, or to restore the production source. The volumes must be replicated together in one consistency group to guarantee that at any point in time, the saved data is in true form. If two data sets are dependent on each other (such as a database and a database log), they should be part of the same consistency group.

EMC RecoverPoint also supports simultaneous bidirectional replication. With this type of replication, the same RecoverPoint appliance (RPA) can serve as the source RPA for one consistency group and the target RPA for another consistency group.

For more detailed guidelines about RecoverPoint consistency groups, see the *EMC RecoverPoint Administrator's Guide*, which can be obtained from EMC.

Setting Up Replication

This procedure provides an overview of how to set up replication with a RecoverPoint consistency group in Cisco UCS Director.

Step 1   Create a consistency group with a production copy.

See Creating a Consistency Group, on page 5.

Step 2 Create a consistency group copy to act as the replica for the production copy.

    See Creating a Consistency Group Copy, on page 9.

Step 3 Create a replication set for each production volume that you want to replicate.

    See Creating a Replication Set, on page 13.

Step 4 Add one or more user volumes to the consistency group copy in a replication set.

    The user volume is the primary volume in a replication set that contains the data you want to protect. See Adding a User Volume to a Consistency Group Copy, on page 14.

Step 5 Add one or more journal volumes to the consistency group copy in a replication set

    Journal volumes hold system information or point in time history and can be either a copy journal or a production journal. See Adding a Journal Volume to a Consistency Group Copy, on page 15.

Step 6 Add a link to a consistency group copy.

    This link is used to transfer data between the production copy and the replication copies. See Adding a Link Between Consistency Group Copies, on page 16.

Step 7 Enable the consistency group.

    See Enabling a Consistency Group, on page 7.

Step 8 Enable the consistency group copy.

    See Enabling a Consistency Group Copy, on page 11.

Step 9 Start the data transfer.

    You must initiate the first data transfer. It does not start automatically. See Starting Data Transfer for a Consistency Group, on page 18 and Starting a Transfer for a Consistency Group Copy, on page 18.

Creating a Consistency Group

Step 1 Choose **Physical** > **Storage**.

Step 2 On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3 Choose **EMC RecoverPoint**.

Step 4 Click the row with the EMC RecoverPoint account where you want to create the consistency group.

Step 5 Click **View Details**.

Step 6 Click **Consistency Groups**.

Step 7 Click **Create**.

Step 8 On the **Create Consistency Group** screen, complete the following fields:

Name	Description
Consistency Group Name	A group name that is unique among all clusters.
Production Name	A descriptive name for the production copy.

Name	Description
Cluster	Choose the RecoverPoint cluster where you want to create the group and then click **Validate**.
Modify Group Policy check box	(Optional) Check this check box if you want to modify the default group policy options and choose the primary and secondary RPAs for the consistency group.
Modify Copy Policy check box	(Optional) Check this check box if you want to modify the default production copy policy options.
Group Policy—Displayed only if you checked the **Modify Group Policy** check box.	
Primary RPA	Choose the primary RecoverPoint appliance for this group.
Priority drop-down list	Choose the priority for the consistency group.
Distribute Group check box	Check this box if you want to create a group that can write across multiple RPAs. Each RecoverPoint system allows a maximum of eight distributed consistency groups.
Secondary RPAs	If you checked the **Distribute Group** check box, choose one or more secondary RPAs that you want to distribute data writes to.
Copy Policy—Displayed only if you checked the **Modify Copy Policy** check box.	
Host OS drop-down list	Choose the host operating system.
Journal Policy—Displayed only if you checked the **Modify Copy Policy** check box.	
Journal Compression drop-down list	Choose the journal compression level.
Maximum Journal Lag drop-down list	Choose the maximum journal lag.
Required Protection Window check box	Check this check box if you want to enable a protection window.
Protection Window	If you checked the **Required Protection Window** check box, enter the length of time for the protection window.
Window unit drop-down list	If you checked the **Required Protection Window** check box, choose the window time unit.
Enable Snapshot Consolidation check box	Check this box if you want to enable snapshot consolidation.
Do not consolidate snapshots for at least below period	If you checked the **Enable Snapshot Consolidation** check box, enter the length of time for which snapshot consolidation should not be performed.
Unit (Consolidation Period) drop-down list	If you checked the **Enable Snapshot Consolidation** check box, choose the consolidation period unit.

Name	Description
consolidate to one snapshot per day	If you checked the **Enable Snapshot Consolidation** check box, enter the number of days to consolidate snapshots that are older than the consolidation period.
Indefinitely check box	If you checked the **Enable Snapshot Consolidation** check box, check this check box if you want to consolidate snapshots for an indefinite number of days.
consolidate to one snapshot per week	If you checked the **Enable Snapshot Consolidation** check box, enter the number of weeks to consolidate snapshots that are older than the consolidation period.
Indefinitely check box	If you checked the **Enable Snapshot Consolidation** check box, check this check box if you want to consolidate snapshots for an indefinite number of weeks.

Step 9   Click **Submit**.

Enabling a Consistency Group

Enable each consistency group after you add the links between the consistency group copies.

Before you begin

Add the links between the consistency group copies. See .

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account with the consistency group that you want to enable.

Step 5   Click **Consistency Groups**.

Step 6   Click the row with the consistency group that you want to enable.

Step 7   From the **More Actions** drop-down list, choose **Enable**.

Step 8   On the **Enable Consistency Group** screen, click **Submit**.

Applying a Bookmark to a Consistency Group

A bookmark is a text label that uniquely identifies a consistency group. You can bookmark a consistency group at any time. However, you cannot bookmark a disabled consistency group. Bookmarks are useful to mark particular points in time, such as an event in an application, or a point in time to fail over.

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account with the consistency group you want to bookmark.

Step 5   Click **View Details**.

Step 6   Click **Consistency Groups**.

Step 7   Click the row with the consistency group that you want to bookmark.

Step 8   From the **More Actions** drop-down list, choose **Apply Bookmark**.

Step 9   On the **Apply Bookmark** screen, complete the following fields:

Name	Description
Bookmark Name field	A unique name for the bookmark.
Consistency Type drop-down list	Choose one of the following consistency types: • **Crash-Consistent**—Creates snapshots (points in time) that are crash-consistent for data files, control files, and logs that are in the same RecoverPoint consistency group. This is the default type. • **Application-Consistent**—Used to bookmark Microsoft Volume Shadow Copy Service (VSS)-aware applications in many consistency groups. VSS guarantees that the applications are in a consistent state at the point-in-time when each bookmark is applied to an image. As a result, recovery using an image with a KVSS bookmark is faster than recovering from normal RecoverPoint images. The RecoverPoint KVSS utility is a command-line utility that enables applying bookmarks to Windows 2003 and 2008-based applications that support Microsoft Volume Shadow Copy Service (VSS).
Consistency Policy drop-down list	Choose from the following consistency policies applied to this snapshot: • **Never Consolidate**—The snapshot is never consolidated. • **Daily**—The snapshot policy is applied daily. • **Weekly**—The snapshot policy is applied weekly. • **Monthly**—The snapshot policy is applied monthly. • (Default) **Always Consolidate**—The snapshot is consolidated the next time that the consolidation process runs.

Step 10   Click **Submit**.

Updating a Snapshot for a Consistency Group

You can collect the latest snapshot image for a consistency group.

A snapshot is a point in time marked by the system for recovery purposes. A snapshot includes only the data that has changed from the previous snapshot. Once the system distributes the snapshot to the remote storage system, the snapshot creates a new current image on the remote storage system. A snapshot is the difference between one consistent image of stored data and the next consistent image of stored data.

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account where you want to update the snapshots for a consistency group.

Step 5   Click **View Details**.

Step 6   Click **Consistency Groups**.

Step 7   Click the row with the consistency group where you want to update the snapshots.

Step 8   From the **More Actions** drop-down list, choose **Update Snapshots**.

Step 9   On the **Update Snapshots** screen, click **Submit**.

Consistency Group Copies

A consistency group copy includes all volumes in a consistency group. The volumes can be one of the following types:

- Production copy—A volume that is the source of the data you want to replicate.

- Local copy—A volume that is the target for the data replication.

Creating a Consistency Group Copy

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account where you want to create the consistency group copy.

Step 5   Click **Consistency Groups Copies**.

Step 6   Click **Create**.

Step 7   On the **Create Consistency Group Copy** screen, complete the following fields:

Name	Description
Consistency Group field	Expand the field, check the box for the consistency group that you want to copy, and click **Validate**.
Copy Name field	A unique name for the consistency group copy.

Name	Description
Cluster field	Expand the field, check the box for the cluster where the consistency group copy will be created, and click **Validate**. The consistency group copy does not need to be on the same cluster as the production copy.
Copy Policy	
Host OS drop-down list	Choose the host operating system.
Journal Policy	
Journal Compression drop-down list	Choose the journal compression level.
Maximum Journal Lag drop-down list	Choose the maximum journal lag.
Required Protection Window check box	Check this check box if you want to enable a protection window.
Protection Window	If you checked the **Required Protection Window** check box, enter the value of time for the protection window.
Window unit drop-down list	If you checked the **Required Protection Window** check box, choose the window time unit.
Enable Snapshot Consolidation check box	Check this check box if you want to enable snapshot consolidation.
Do not consolidate snapshots for at least below period	If you checked the **Enable Snapshot Consolidation** check box, enter the value of time for which snapshot consolidation should not be performed.
Unit (Consolidation Period) drop-down list	If you checked the **Enable Snapshot Consolidation** check box, choose the consolidation period unit.
consolidate to one snapshot per day	If you checked the **Enable Snapshot Consolidation** check box, enter the number of days to consolidate snapshots that are older than the consolidation period.
Indefinitely check box	If you checked the **Enable Snapshot Consolidation** check box, check this check box if you want to consolidate snapshots for an indefinite number of days.
consolidate to one snapshot per week	If you checked the **Enable Snapshot Consolidation** check box, enter the number of weeks to consolidate snapshots that are older than the consolidation period.
Indefinitely check box	If you checked the **Enable Snapshot Consolidation** check box, check this check box if you want to consolidate snapshots for an indefinite number of weeks.

Step 8 Click **Submit.**

Enabling a Consistency Group Copy

Enable each consistency group copy after you add the links between the consistency group copies.

Before you begin

Add the links between the consistency group copies. See Adding a Link Between Consistency Group Copies, on page 16.

Step 1 Choose **Physical** > **Storage**.

Step 2 On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3 Choose **EMC RecoverPoint**.

Step 4 Click the row with the EMC RecoverPoint account with the consistency group copy that you want to enable.

Step 5 Click **Consistency Groups Copies**.

Step 6 Click the row with the consistency group copy that you want to enable.

Step 7 Click **Enable** or **Disable**.

Step 8 From the **More Actions** drop-down list, choose **Enable**.

Step 9 On the **Enable Consistency Group Copy** screen, click **Submit**.

Enabling Image Access

You can enable image access to verify, backup, clone, or analyze data in a consistency group copy before failover or production recovery.

✎

Note You cannot enable image access on production copies.

Step 1 Choose **Physical** > **Storage**.

Step 2 On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3 Choose **EMC RecoverPoint**.

Step 4 Click the row with the EMC RecoverPoint account where you want to enable image access.

Step 5 Click **View Details**.

Step 6 Click **Consistency Groups Copies**.

Step 7 From the **More Actions** drop-down list, choose **Enable Image Access**.

Step 8 On the **Enable Image Access** screen, complete the following fields:

Name	Description

Select an Image to Access drop-down list	Choose an image to access:
	
	 • **The latest image**—The last snapshot that was created at the production copy and transferred to the copy journal. This image is at the top of the image list and is the most current snapshot sent from production.
	
	 • **An image from the image list**—Choose one of the images from the list of images in the copy journal.
	
	 • **A specific point in time or bookmark**—This option displays advanced search criteria and lets you specify the image based on one of the following:
	
	    • **Point in Time**, including date, time, and seconds.
	
	    • **Bookmark** with the option of **Exact** text, **Image Type**, **Max Range**, and **Max Range Units**.

Select Image Access Mode drop-down list	Choose the image access mode by selecting one of the following options: • **Logged Access**—After disabling image access, any writes made to the copy while image access is enabled are undone. The distribution of images from the copy journal to the copy storage continues from the accessed image forward. The state of the copy storage is restored to **No access**. • **Virtual Access**—After disabling image access, the virtual volume and any writes made to it are undone faster than in logged access mode. The distribution of images from the copy journal to the copy storage continues from the last image that was distributed before image access was enabled. The state of the copy storage is restored to **No access**. • **Virtual Access With Roll**—After disabling image access, the virtual volume, any changes to it, and any writes made directly to the copy are discarded. The distribution of images from the copy journal to the copy storage continues from the image which the system has rolled to. The state of the copy storage is restored to **No access**.

Step 9   Click **Submit**.

    Note   Choose **Disable Image Access** to disable image access on the selected consistency group copy.

Editing a Consistency Group Copy Policy

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account where you want to update a consistency group copy.

Step 5   Click **View Details**.

Step 6   Click **Consistency Groups Copies**.

Step 7   Click the row with the consistency group copy that you want to update and click **View Details**.

Step 8   Click **Copy Policy**.

Step 9   From the **More Actions** drop-down list, choose **Edit Copy Policy**.

Step 10   On the **Edit Consistency Group Copy Policy** dialog box, update the **Copy Policy** and **Journal Policy** fields as needed.

For information about the fields, see .

Step 11   Click **Submit**.

Replication Sets

Consistency groups include one or more replication sets. Each replication set contains a production volume and the local or remote copy volumes (LUNs) where the production volume is replicated.

The number of replication sets in your system must be equal to the number of production volumes being replicated.

Creating a Replication Set

The number of replication sets in your system must be equal to the number of production volumes being replicated.

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account where you want to create the replication set.

Step 5   Click **Replication Sets**.

Step 6   Click **Create**.

Step 7   In the **Create Replication Set** dialog box, complete the following fields:

Name	Description
Consistency Group Name field	Expand the field, check the box for the consistency group where you want to create the replication set, and click **Validate**.
Replication Set Name field	A unique name for the replication set.

Step 8   Click **Submit**.

Renaming a Replication Set

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account where you want to rename the replication set.

Step 5   Click **Replication Sets**.

Step 6   Click the row with the replication set that you want to rename.

Step 7   Click **Edit**.

Step 8   On the **Edit Replication Set** screen, enter the new name for the replication set.

Step 9   Click **Submit**.

User Volumes and Journal Volumes

The consistency group copy in a replication set contains at least one user volume and one journal volume. These volumes hold the data for replication.

User Volumes

The user volume is the primary volume in a replication set. This volume contains the data you want to protect.

Journal Volumes

Each consistency group copy must include one or more journal volumes that are dedicated to holding system information or point in time history. The type of information contained in a journal volume depends upon the journal type.

You can add one of the following types of journals:

- Copy journal—Copy journals are dedicated to holding point-in-time information for each image on the production storage. They also hold bookmarks for significant points in time. The copy journals hold all changes to data, so that the copy storage can be rolled back to a previous point in time (PIT).

- Production journal—Production journals are dedicated to storing information about the replication process. This marking information makes synchronization between the production and copy volumes more efficient. A production journal does not contain snapshots. Since this volume is used for failover, we recommend that you configure journal protection policies for the production journal.

Adding a User Volume to a Consistency Group Copy

The user volume is the primary volume in a replication set. This volume contains the data you want to protect.

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account that contains the consistency group copy and replication set.

Step 5   Click **Replication Sets**.

Step 6   Click the row with the replication set where you want to add the user volume.

Step 7   From the **More Actions** drop-down list, choose **Add User Volume**.

Step 8   On the **Add User Volume to Group Copy** screen, complete the following fields:

Name	Description
Consistency Group Copy field	Expand the field, check the box for the consistency group copy that includes the replication set where you want to add the user volume, and click **Validate**.
User Volume field	Expand the field, check the box for the user volume that you want to add to the replication set, and click **Validate**.

Step 9   Click **Submit.**

Adding a Journal Volume to a Consistency Group Copy

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account that contains the consistency group copy where you want to add the volume.

Step 5   Click **Consistency Groups Copies**.

Step 6   Click the row with the consistency group copy where you want to add the volume.

Step 7   From the **More Actions** drop-down list, choose **Add Journal Volume**.

Step 8   On the **Add Journal Volume to Group Copy** screen, do the following:

a)   Expand the **Journal Volume** field and choose the journal volume that you want to add to the group copy.

b)   Click **Submit**.

Data Transfers

EMC RecoverPoint transfers data across a communication connection between the production copy and the replication copies in the replication set of a consistency group. When the link is open, data can be transferred between consistency group copies.

You can start the transfer of data from a production copy to all other replication copies in a consistency group within a RecoverPoint appliance (RPA) cluster.

When you configure the link for the data transfer, you choose the replication mode that you want to use for the transfer. This mode can be one of the following:

- Asynchronous—Replication in asynchronous mode creates a data copy that is synchronized automatically at specified intervals. The Recoverry Point Objective (RPO) that you configure for the link determines the length of these intervals. The default RPO is 25 seconds. In this mode, the host application initiates the data transfer, but does not wait for an acknowledgment from the remote vRPA before it initiates the next write. This is the default replication mode.

- Synchronous—Replication in synchronous mode creates a data copy that is always in sync with the production source. In this mode, the host application initiates the data transfer, then it waits for acknowledgment from the remote vRPA before starting the next transfer.

Adding a Link Between Consistency Group Copies

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account with the consistency group copy where you want to add the link.

Step 5   Click **Consistency Groups Copies**.

Step 6   Click **Add Link**.

Step 7   On the **Add Link Between Consistency Group Copies** screen, complete the following fields:

Name	Description
First Copy field	Expand the field, check the box for the first consistency group copy to be linked.
Second Copy field	Expand the field, check the box for the second consistency group copy to be linked, and click **Validate**.
Replication Mode drop-down list	Choose the replication mode by selecting one of the following options: • **Asynchronous**—Use this mode when you want the data between the production volume and the copy to be synchronized automatically at specified intervals, based on the recovery point objective (RPO). This is the default mode. • **Synchronous**—Use this mode when you want the data between the production volume and the copy to always be in sync.
Protection Settings for Synchronous Mode	
Dynamic by Latency check box	If you check this box, RecoverPoint alternates between synchronous and asynchronous replication modes, as necessary. The latency conditions determine when this occurs. If you enable this option, you must configure the RPO values for asynchronous mode.
Start Async Replication Above in Milliseconds field	When the specified latency limit is reached, RecoverPoint starts replicating asynchronously. The default is 5 milliseconds. This field is only displayed if you enable dynamic replication by latency.
Resume Sync Replication Below in Milliseconds field	When the specified latency limit is reached, RecoverPoint resumes synchronous replication. The default is 3 milliseconds. This field is only displayed if you enable dynamic replication by latency.
Dynamic by Throughput check box	If you check this box, RecoverPoint alternates between synchronous and asynchronous replication modes, as necessary. The throughput conditions determine when this occurs. If you enable this option, you must configure the RPO values for asynchronous mode.

Name	Description
Start async replication above Throughput	When the specified throughput limit is reached, RecoverPoint starts replicating asynchronously. The throughput limit is a combination of this value and the throughput unit.
	This field is only displayed if you enable dynamic replication by throughput.
Throughput Unit	The unit of measure for the throughput limit.
	This field is only displayed if you enable dynamic replication by throughput.
Resume sync replication below	When the specified throughput limit is reached, RecoverPoint resumes synchronous replication. The throughput limit is a combination of this value and the throughput unit in the field below.
	This field is only displayed if you enable dynamic replication by throughput.
Throughput Unit	The unit of measure for the throughput limit.
	This field is only displayed if you enable dynamic replication by throughput.
Protection Settings for Asynchronous Mode—These fields are also displayed if you choose to enable dynamic replication by latency or throughput in synchronous mode.	
RPO	The recovery point objective defines the maximum time period over which you can tolerate data loss or corruption. The RPO determines the interval between data transfers across the link
	The default value is 25, which combined with the default value for the RPO Unit of seconds, configures an interval of 25 seconds.
RPO Unit drop-down list	The RPO unit can be one of the following: • **Bytes** • **KB** • **MB** • **GB** • **TB** • **Writes** • **Seconds** • **Minutes** • **Hours**
Protection Settings for Both Modes	

Name	Description
Snapshot Granularity drop-down list	Choose the following snapshot granularity for the link: • **Dynamic** - The system determines the snapshot granularity of a specific (local or remote) link, according to the available resources. • **Fixed (per second)** - Creates one snapshot per second, over a specific (local or remote) link. • **Fixed (per write)** - Creates a snapshot for every write operation, over a specific (local or remote) link.

Step 8   Click **Submit.**

Starting Data Transfer for a Consistency Group

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account with the consistency group where you want to start a data transfer.

Step 5   Click **Consistency Groups**.

Step 6   Click the row with the consistency group for which you want to transfer data.

Step 7   From the **More Actions** drop-down list, choose **Start Transfer** and then click **Submit**.

The message on the **Submit Result** screen tells you whether the data transfer was successful.

Note   Click **Pause Transfer** to temporarily pause the transfer of data from the production host. If you pause transfers to copies of a lower-priority consistency group when WAN bandwidth is limited, you can make more bandwidth available for a higher-priority transfer.

Starting a Transfer for a Consistency Group Copy

You can transfer data in a consistency group copy only if it is a replication copy and not a production copy. The production copy consists of a single consistency group.

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account with the consistency group copy where you want to start a data transfer.

Step 5   Click **Consistency Groups Copies**.

Step 6   Click the row with the consistency group copy for which you want to transfer data.

Step 7   From the **More Actions** drop-down list, choose **Start Transfer** and then click **Submit**.

The message on the **Submit Result** screen tells you whether the data transfer was successful.

Note   Click **Pause Transfer** to temporarily pause the transfer of data from the production host. If you pause transfers to copies of a lower-priority consistency group when WAN bandwidth is limited, you can make more bandwidth available for a higher-priority transfer.

Getting the Transfer Status for a Consistency Group

Step 1   Choose **Physical** > **Storage**.

Step 2   On the **Physical Accounts** page, click **Multi-Domain Managers**.

Step 3   Choose **EMC RecoverPoint**.

Step 4   Click the row with the EMC RecoverPoint account with the consistency group where you want to get the transfer status.

Step 5   Click **Consistency Groups**.

Step 6   Click the row with the consistency group for which you need the transfer status.

Step 7   From the **More Actions** drop-down list, choose **Get Transfer Status**.

Step 8   On the **Get Transfer Status** screen, click **Submit**.

The message on the **Submit Result** screen tells you whether or not the data transfer was successful.

Group Sets

In RecoverPoint, group sets let you automatically bookmark a set of consistency groups at pre-defined intervals to manage consistency. The bookmark represents the same recovery point in each consistency group in the group set. It allows you to define consistent recovery points for consistency groups that are distributed across different RecoverPoint appliances. Group sets provide automatic management of consistent points in time across consistency groups that are dependent on each other, or that must work together.

For more detailed guidelines about group sets, see the *EMC RecoverPoint Administrator's Guide*, which can be obtained from EMC.

Creating a Group Set

Before you begin

Before you create a group set, note the following:

• All consistency groups in the group set must be replicating in the same direction, from the same source.

• All consistency groups in the group set must be enabled.

• The interval between automatic bookmarks should not be less than 30 seconds.

Step 1   Choose **Physical** > **Storage**.

Step 2	On the **Physical Accounts** page, click **Multi-Domain Managers**.
Step 3	Choose **EMC RecoverPoint**.
Step 4	Click the row with the EMC RecoverPoint account where you want to create the group set.
Step 5	Click **View Details**.
Step 6	Click **Group Sets**.
Step 7	Click **Create**.
Step 8	On the **Create RecoverPoint Group Set** screen, complete the following fields:

Name	Description
Group Set Name field	A unique name for the group set.
Consistency Group Name	Expand the field, choose one or more consistency groups to add to the group set, and then click **Validate**.
Frequency field	The frequency that the bookmark is added to the consistency groups in the group set.
Unit drop-down list	The unit of time for the bookmark frequency. This unit can be minutes or seconds.

| Step 9 | Click **Submit**. |

Deleting a Group Set

Step 1	Choose **Physical** > **Storage**.
Step 2	On the **Physical Accounts** page, click **Multi-Domain Managers**.
Step 3	Choose **EMC RecoverPoint**.
Step 4	Click the row with the EMC RecoverPoint account where you want to create the group set.
Step 5	Click **View Details**.
Step 6	Click **Group Sets**.
Step 7	Click the row with the group set that you want to delete.
Step 8	Click **Delete**.
Step 9	On the **Delete RecoverPoint Group Set** screen, click **Submit**.

System Tasks

Assigning a Policy to a RecoverPoint System Task

For more information about system tasks, see the Cisco UCS Director Administration Guide.

Step 1	Choose **Physical** > **Storage**.
Step 2	On the **Physical Accounts** page, click **Multi-Domain Managers**.
Step 3	Choose **EMC RecoverPoint**.
Step 4	Click the row with the EMC RecoverPoint account where you want to update the system task.
Step 5	Click **View Details**.
Step 6	Click **System Tasks**.
Step 7	Expand the **EMC RecoverPoint Tasks** folder.
Step 8	Click the EMC RecoverPoint system task (EMCRecoverPointCollector).
Step 9	From the **More Actions** drop-down list, choose **Manage Task**.
Step 10	On the **Manage Task** screen, complete the following fields:

Name	Description
Task Execution drop-down list	Choose **Enable** or **Disable** to enable or disable this RecoverPoint system task.
System Task Policy drop-down list	Choose either the **default-system-task-policy** or the **local-run-policy** to assign to this RecoverPoint system task.
Minutes drop-down list	Choose the frequency in minutes to determine how often this RecoverPoint system task is executed.

Step 11	Click **Submit**.
Step 12	If you want to run this RecoverPoint task, click **Run Now**.
Step 13	If you want to view this RecoverPoint task, click **View Details**.

Viewing RecoverPoint Task History and Reports

Step 1	Choose **Physical** > **Storage**.
Step 2	On the **Physical Accounts** page, click **Multi-Domain Managers**.
Step 3	Choose **EMC RecoverPoint**.
Step 4	Click the row with the EMC RecoverPoint account where you want to view the system task information.
Step 5	Click **View Details**.
Step 6	Click **System Tasks**.
Step 7	In the System Tasks panel, click the **EMC RecoverPoint Tasks** folder icon to expand the folder.
Step 8	Expand the **EMC RecoverPoint Tasks** folder.
Step 9	Double-click the EMC RecoverPoint system task (EMCRecoverPointCollector).
Step 10	Click one of the following to view reporting information for this system task:

- **System Task History**
- **More Reports**