

Using the vRealize Orchestrator Plug-In for vSphere Replication 8.4

vSphere Replication 8.4

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Using the vSphere Replication Plug-In

1

Using vSphere Replication Plug-In provides information and instructions about configuring and using the VMware[®] VMware vRealize Orchestrator plug-in for VMware vSphere Replication.

Intended Audience

The information in *Using vSphere Replication Plug-In* is intended for experienced administrators who want to automate replication and configuration tasks on a vSphere environment using the vSphere Replication plug-in. The information is written for experienced users who are familiar with virtual machine technology, with VMware vRealize Orchestrator workflow development, and with VMware vSphere Replication.

For more information about VMware vRealize Orchestrator, see the *vRealize Orchestrator Documentation*.

For more information about vSphere Replication, see the *VMware vSphere Replication Documentation*.

Automated Operations That VMware vRealize Orchestrator Plug-In for vSphere Replication Provides

2

The VMware vRealize Orchestrator plug-in for vSphere Replication extends automation capabilities for certain vSphere Replication operations.

The vSphere Replication plug-in includes VMware vRealize Orchestrator actions, workflows, and scripting objects to expose selected elements of the vSphere Replication API to workflows. With the plug-in you can automate the configuration of replication for virtual machines, manage local and remote site, and synchronize virtual machine data.

The plug-in provides actions and workflows to configure and manage replications:

- Configure a forward replication for virtual machines from a source to a target vCenter Server site.
- Configure a forward replication for virtual machines from a target to a source vCenter Server site.
- Pause, resume, or stop a forward replication for virtual machines from a source to a target vCenter Server site.
- Pause, resume, or stop a reverse replication for virtual machines from a target to a source vCenter Server site.

The plug-in provides actions and workflows to manage remote sites:

- Pair the local site with a target vCenter Server site.
- Register a vCenter Server site.
- Unregister a vCenter Server site.

The plug-in provides actions and workflows to synchronize virtual machine data:

- Full synchronization to a target vCenter Server site.
- Offline synchronization to a target vCenter Server site.
- Synchronize a replication to a target vCenter Server site.

The plug-in provides actions and workflows to retrieve information about the status or configuration details of replications. You can use the results of the workflows as parameters in other workflows:

- Retrieve the status of a replication.
- Retrieves the configuration details of a replication.
- Retrieves a list of all the incoming or outgoing replications from a vCenter Server.
- Get replication IDs and issues.

Installing the vSphere Replication Plug-In

3

To create and run workflows on the local vSphere Replication site, you must install and configure the vSphere Replication plug-in in VMware vRealize Orchestrator.

This chapter includes the following topics:

- [Functional Prerequisites](#)
- [Installing, Upgrading, and Uninstalling the vSphere Replication Plug-In](#)

Functional Prerequisites

To install and use the vSphere Replication plug-in, your system must meet certain functional prerequisites.

vSphere Replication

Your vSphere Replication plug-in version works only with the corresponding vSphere Replication version.

For information about setting up vSphere Replication, see the *vSphere Replication Installation and Configuration* documentation.

VMware vRealize Orchestrator

Verify that you have a running instance of VMware vRealize Orchestrator and its version is compatible with the versions of your vSphere Replication and vSphere Replication plug-in.

For information about the compatibility between vSphere Replication and vRealize Orchestrator, see the *vSphere Replication 8.4 Release Notes* and the *Compatibility matrices for vSphere Replication* documentation.

For information about setting up VMware vRealize Orchestrator, logging in the vRealize Orchestrator client, and available authentication methods, see the *Installing and Configuring VMware vRealize Orchestrator* documentation.

Other Prerequisites

- Verify the compatibility between the vCenter Server plug-in for VMware vRealize Orchestrator and the vCenter Server. See the *VMware vRealize Orchestrator 8.4 Release Notes*.
- Verify that you have added all vCenter Server instances that you want to use for replications, and all peer sites, by using the Add vCenter Server workflow. For more information, see the *Configure the Connection to a vCenter Server Instance* topic in the VMware vRealize Orchestrator documentation.

Installing, Upgrading, and Uninstalling the vSphere Replication Plug-In

You can use the vSphere Replication plug-in after you install it in an vRealize Orchestrator instance. The version of vSphere Replication plug-in must be compatible with your vSphere Replication and vRealize Orchestrator.

Installing the vSphere Replication Plug-In

You can install the vSphere Replication plug-in if your vRealize Orchestrator instance is configured to work with your vSphere environment.

You must configure vRealize Orchestrator to use the vSphere environment. For information about how to configure your vRealize Orchestrator to work with a vSphere environment, see the *Configuring vRealize Orchestrator* section in the *Installing and Configuring VMware Realize Orchestrator* documentation.

You can download the vSphere Replication plug-in installation .vmoapp file from the download page of vSphere Replication.

You can install the vSphere Replication 8.4 plug-in in VMware vRealize Orchestrator 8.x by using the https://your_orchestrator_host/vco-controlcenter/config/#/ configuration interface, click **Manage Plug-Ins** and upload the file. For more information about how to manage the vRealize Orchestrator plug-ins, see the *Manage the Orchestrator Plug-Ins* topic in the *Installing and Configuring VMware Realize Orchestrator* documentation.

Upgrading the vSphere Replication Plug-In

You can upgrade your vSphere Replication plug-in by uninstalling the previous version and installing the new version.

Note After you upgrade the vSphere Replication plug-in, you cannot revert to a previous version without doing a reinstallation.

Uninstalling the vSphere Replication Plug-In

You can uninstall your vSphere Replication plug-in by using the `http://your_orchestrator_host/vco-controlcenter/config/#/` configuration interface. For more information about uninstalling the vSphere Replication plug-in, see the *Uninstall a Plug-in* topic in the *Installing and Configuring VMware vRealize Orchestrator* documentation.

Using the vSphere Replication Plug-In Workflows

4

The vSphere Replication plug-in workflow library contains workflows that you can use to automate vSphere Replication tasks. With the predefined workflows you configure and control replications for virtual machines, add, pair, or remove remote sites. You can use the predefined workflows and the scripting API of the plug-in to create custom workflows.

This chapter includes the following topics:

- [Available Workflows in vSphere Replication Plug-In](#)
- [Prerequisites for Using the vSphere Replication Plug-In](#)
- [Finding Common Objects in the vSphere Replication Plug-In](#)
- [Remote Site Management Workflows](#)
- [Sync Workflows](#)
- [Configure Replication Workflows](#)
- [Pause Workflows](#)
- [Resume Workflows](#)
- [Stop Replication Workflows](#)
- [Replication Details Workflows](#)

Available Workflows in vSphere Replication Plug-In

vSphere Replication plug-in provides Remote Site Management and Synchronization workflows, Configure, Reconfigure, Pause, Resume and Stop Replication workflows, and Replication Details workflows.

Table 4-1. Configure Replication Workflows

Workflow	Description of operation
Configure Replication	Configure a replication for a virtual machine from a local site to a target vCenter Server site.
Protect Multiple VMs	Configure a replication for multiple virtual machines to a vCenter Server site.
Reconfigure Replication	Change the settings of a replication, including reconfiguring a replication on new virtual hard disks and enabling the default seed to use a replica disk in the VM folder.

Table 4-2. Remote Site Management Workflows

Workflow	Description of operation
Pair with a VC Site	Connect and pair a local site to a remote vCenter Server site.
Reconnect a VC to VC pair	Reconfigures the pairing between two vCenter Server sites.
Login to VC Site	Login to a selected vCenter Server site.
Login to VC Site with credentials	Login with credentials to a selected vCenter Server site paired with a local vCenter Server site.
Register VC site	Register login credentials for a paired vCenter Server site.
Unregister VC Site	Delete stored login credentials for a paired vCenter Server site.

Table 4-3. Replication Actions Workflows

Workflow	Description of operation
Full Sync Replication to VC	Run an initial full synchronization for a replicated virtual machine to a remote vCenter Server site.
Offline Sync Replication to VC	Run an offline synchronization for a replicated virtual machine to a remote vCenter Server site.
Pause Replication to VC	Pause a replication for a virtual machine from a local site to a remote vCenter Server site.
Resume Replication to VC	Resume a replication for a virtual machine from a local site to a remote vCenter Server site.
Stop Replication	Stop a replication for a virtual machine from a local site to a remote vCenter Server site.
Sync Replication to VC	Run a delta synchronization for a replicated virtual machine to a remote vCenter Server site.

Table 4-4. Replication Details Workflows

Workflow	Description of operation
Check Replication Status	Retrieves the status of a replication. You can use the returned value as a parameter in another workflow.
Get Replication Configuration	Retrieves the configuration details of a replication. You can use the returned value as a parameter in another workflow.
Get Replication IDs	Retrieves a list of the internal values (IDs) of all outgoing replications, or for the replications which match the provided full or partial replication name.
Get Replication Issues	Retrieves a list of all the current issues for all incoming or outgoing replications.
Get Replication List	Retrieves a list of all the incoming or outgoing replications from a vCenter Server. You can use the returned value as a parameter in another workflow.

Prerequisites for Using the vSphere Replication Plug-In

To use vSphere Replication plug-in, your environment must meet certain requirements.

- Before managing the objects in your vSphere inventory by using vRealize Orchestrator and running workflows on the objects, you must configure the vCenter Server plug-in and define the connection parameters between vRealize Orchestrator and the vCenter Server you want to orchestrate. For information about how to configure your vRealize Orchestrator to work with a vSphere environment, see the *Configuring vRealize Orchestrator* section in the *Installing and Configuring VMware Realize Orchestrator* documentation.
- Before running workflows to or from a target site, verify that you have created a session to the desired vCenter Server site, by using the Login to vCenter Server Site with Credentials workflow.
- Before running workflows to or from a target site, verify that you have added the vCenter Server by running the **Add a vCenter Server Instance** workflow. For more information, see the *vRealize Orchestrator Product Documentation*.

Finding Common Objects in the vSphere Replication Plug-In

You can expand the basic workflows and actions in the vRealize Orchestrator client, by combining them with other workflows.

You do this by populating the input fields in the basic workflows with the correct objects. You can find some of the most common objects by running the following scripts.

See *Developing Workflows with VMware vRealize Orchestrator* in the vRealize Orchestrator Documentation.

Table 4-5. All Primary Sites in the Inventory

Description	Script
The second parameter in the script is optional and it can be a partial name of the site. The script returns an array of site objects (<code>com.vmware.hms.o11n.model.Site</code>).	<code>Server.findAllForType('VR:Site','')</code>

Table 4-6. A Specific Primary Site

Description	Script
The second parameter in the script is required and it must be the FQDN of the site. The script returns a site object (<code>com.vmware.hms.o11n.model.Site</code>).	<code>Server.findForType('VR:Site', 'PRIMARY_SITE_FQDN');</code>

Table 4-7. All Remote Sites

Description	Script
The second parameter in the script is optional and it can be a partial name of the site. The script returns an array of <code>VcRemoteSite</code> objects (<code>com.vmware.hms.o11n.model.VcRemoteSite</code>). For ROBO replications, each local site has a remote object for itself and if you run <code>'Server.findAllForType('VR:VcRemoteSite','REMOTE_SITE_NAME')</code> , the script returns two objects, if the primary site is paired only with the remote site.	<code>Server.findAllForType('VR:VcRemoteSite','')</code>

Table 4-8. A Specific Remote Site

Description	Script
To get the correct remote site object, first you must get the primary site, and then get its remote sites.	<pre> var localSite = Server.findForType('VR:Site', 'REMOTE_SITE_NAME'); var remoteSites = localSite.getVcRemoteSites() for each(var rsite in remoteSites){ if (rsite.name == 'PRIMARY_SITE_NAME'){ selectedRemoteSite = rsite; } } </pre>

Table 4-9. Log in to Remote Site

Description	Script
Log in to the remote site after you get the correct object and if the remote site is already registered in the vSphere Replication plug-in.	<code>selectedRemoteSite.loginRemoteSite();</code>

Table 4-10. Log in to Remote Site with User Name and Password

Description	Script
You can log in to the remote site with user name and password regardless if the remote site is registered in the vSphere Replication plug-in.	<code>selectedRemoteSite.loginRemoteSiteWithCredentials(YOUR_USERNAME, YOUR_PASSWORD);</code>

Table 4-11. All Datastores for the Remote Site

Description	Script
Find all datastores for the remote site as an array of <code>VRRemoteDatastore</code> objects. You must be logged into the remote site.	<code>selectedRemoteSite.getDatastores();</code>

Table 4-12. All Storage Profiles for the Remote Site

Description	Script
Find all storage profiles for the remote site as an array of <code>VRStorageProfile</code> objects. You must be logged in the remote site.	<code>selectedRemoteSite.getStorageProfiles();</code>

Table 4-13. VMs That Match a Criteria

Description	Script
Find VMs that match a particular condition, for example all VMs, which contain the string <code>accounting</code> .	<code>Server.findAllForType('VC:VirtualMachine', 'SEARCH_CRITERIA');</code>

Table 4-14. All Supported Disk Formats as an Array

Description	Script
Find all supported disk formats as an array of <code>VRDisktype</code> objects. The relevant fields are Name and ID.	<code>VRPluginConfig.getSupportedDiskFormats()</code>

Remote Site Management Workflows

With **Remote Site Management** workflows, you can configure the connection between the local site and the remote site managed by a different vCenter Server. Before you configure replication tasks to the remote sites, you must pair the local and the remote sites.

Pair with a vCenter Server Site Workflow

The workflow configures the connection between the local site and a remote vCenter Server site.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Pair with a VC Site** and press **Enter**.

- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-15. Pair with a vCenter Server Site Workflow Inputs

Input		Description
Local site	Local site	Local vCenter Server site.
	Local site Lookup Service address	IP address or domain name of the server where the Lookup Service runs.
Remote site	Remote site Lookup Service address	IP address or domain name of the server where the Platform Services Controller of the remote vCenter Single Sign-On domain runs.
	Remote username	Remote vCenter Single Sign-On user.
	Password	Password for the remote vCenter Single Sign-On user.
	Ignore certificate warnings	When you select it, the certificate is accepted silently and added to the trusted store.

Reconnect a vCenter Server Site to a vCenter Server Site Pair Workflow

This workflow reconfigures the pairing between two vCenter Server sites.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Reconnect a VC to VC pair** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-16. Reconnect a vCenter Server Site to a vCenter Server Site Pair Workflow Inputs

Input		Description
Local site	Local site	Local vCenter Server site.
	Local site Lookup Service address	IP address or domain name of the server where the Lookup Service runs.

Table 4-16. Reconnect a vCenter Server Site to a vCenter Server Site Pair Workflow Inputs (continued)

Input		Description
Remote site	Remote site Lookup Service address	IP address or domain name of the server where the Platform Services Controller of the remote vCenter Single Sign-On domain runs.
	Remote username	Remote vCenter Single Sign-On user.
	Password	Password for the remote vCenter Single Sign-On user.
	Ignore certificate warnings	When you select it, the certificate is accepted silently and added to the trusted store.

Log In to a vCenter Server Site Workflow

The workflow performs a login to a selected vCenter Server site for replications within a single vCenter Server instance.

Prerequisites

- 1 Configure the connection to a vCenter Server instance, by running the **Add a vCenter Server Instance** workflow. For more information, see the *vRealize Orchestrator Product Documentation*.
- 2 Register the target site by running the **Register VC Site** workflow.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Login to VC Site** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select a vCenter Server site and click **Run**.

Log in to a vCenter Server Site with Credentials Workflow

The workflow performs a login with credentials to a selected vCenter Server site that is paired with a local vCenter Server site.

Prerequisites

Configure the connection to a vCenter Server instance, by running the **Add a vCenter Server Instance** workflow. For more information, see the *vRealize Orchestrator Product Documentation*.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Workflows > Library**.
- 3 In the **Filter** box, enter **Login to VC Site with credentials** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-17. Log in to a vCenter Server Site with Credentials Workflow Inputs

Input	Description
Remote vSphere Site	Remote vCenter Server site.
User name	User name for the remote vCenter Server site.
Password	Password for the remote vCenter Server.

Register vCenter Server Site Workflow

The workflow registers the login credentials for a remote vCenter Server site.

Prerequisites

Verify that the local site is paired with a vCenter Server site. See [Pair with a vCenter Server Site Workflow](#).

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Register VC Site** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the paired remote vCenter Server site address.
- 6 Select whether to ignore the certificates warnings and click **Run**.

If you select it, the certificate is accepted silently and added to the trusted store.

Unregister vCenter Server Site Workflow

The workflow removes the stored credentials for a vCenter Server site paired with the local site. The workflow does not break the pairing.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.

- 3 In the **Filter** box, enter **Unregister VC Site** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the vCenter Server site that you want to unregister and click **Run**.

Sync Workflows

With synchronization workflows you can replicate data for virtual machines with configured replication between the local site and a remote vCenter Server site.

Full Sync Replication to vCenter Server Workflow

The workflow runs a full synchronization for a virtual machine with a configured outgoing replication from the local site to the target vCenter Server site.

Prerequisites

Verify that the virtual machine for which you want to run a full synchronization is powered on.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Full Sync Replication to VC** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the replication that you want to sync and click **Run**.

Offline Sync Replication to vCenter Server Workflow

The workflow runs an offline synchronization for a virtual machine with a configured outgoing replication to the target vCenter Server site.

Prerequisites

Verify that the source virtual machine is powered off.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Offline Sync Replication to VC** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the replication that you want to sync and click **Run**.

Sync Replication to vCenter Server Workflow

The workflow runs a delta synchronization for a virtual machine with a configured outgoing replication to the target vCenter Server site.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Sync Replication to VC** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the replication that you want to sync and click **Run**.

Configure Replication Workflows

With **Configure Replication** workflows in vSphere Replication plug-in, you can configure replication for virtual machines between the local site and remote vCenter Server sites.

When you configure a virtual machine for replication, vSphere Replication starts an initial configuration task during which the data of the virtual machine is sent to the target site. When you recover the replication, this creates the replica of the virtual machine and data synchronization occurs between the source and the target site. You can set multiple point in time (MPIT) instances in the recovery settings of the selected workflow. vSphere Replication retains a maximum of 24 of snapshot instances of the virtual machine on the target site.

You can configure replications for powered-off virtual machines, but the data synchronization begins when the virtual machine is powered on. When the source virtual machine is powered off, the replication appears in `Not active` status.

Note Each vSphere Replication local and remote site pair (A -> B) has four different possible relations. The regular site relations are A -> B and B -> A and the relations within the same vCenter Server are A -> A and B -> B. When you select a remote site in a workflow, it has the same name regardless if it is A -> B (regular local site - remote site pair) or B -> B (pair within the same vCenter Server). Make sure you select the correct site by checking `vcRemoteSite.uri` to get the source site address and `vcRemoteSite.localSiteUri` to get the target site address.

Configure Replication Workflow

The workflow configures replication for a virtual machine from the local site to another vCenter Server site.

Prerequisites

- Verify that the vSphere Replication appliance is deployed at the source and the target sites.
- To enable the quiescing of virtual machines that run Linux guest OS, install the latest version of VMware Tools on each Linux machine that you plan to replicate.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Configure Replication** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-18. Configure Replication Workflow Inputs

Input		Description
Source Site	Site	Local vCenter Server site.
Source VM	Source VM	Virtual machine to be replicated.
Target Site	Site	Remote vCenter Server site.
Target Datastore	Per disk configuration	Configure the storage policy and datastore per virtual disk. The elements in the array must correspond to each other in order. For example, the first element from Disk format per disk must correspond to the first element in VM disks for replication and so on.
	Per disk configuration enabled	VM disks for replication
		Array of disks to be replicated to the remote site.
		VM disks excluded from replication
		Array of disks to be excluded from the replication to the remote site.
		Disk format per disk
		Virtual disk format and provisioning type per virtual disk. The array size must be the same as the array size in VM disks for replication .
		Storage profile per disk
		Virtual machine storage policy profile per virtual disk. The array size must be the same as the array size in VM disks for replication .
		Target datastore per disk
		Remote datastore to replicate to, per virtual disk. The array size must be the same as the array size in VM disks for replication .
	Per disk configuration disabled	Disk format
		Virtual disk format and provisioning type.
		Storage profile
		Virtual machine storage policy profile.
		Target Datastore
		Remote datastore to replicate to.
	Use Default Replication Seed	Use the default virtual machine disk files for an initial synchronization.
	Auto replicate new disks	Automatically include new disks in the replication.
Details	RPO in minutes	Recovery point objective in minutes (default value is 240).

Table 4-18. Configure Replication Workflow Inputs (continued)

Input	Description	
	Guest OS quiescing	Enabling OS quiescing improves data consistency, but limits RPO time.
	Network compression	Enabling replication data compression reduces the network bandwidth, but increases the CPU use.
	Point in time instances	Maximum supported number of snapshots per virtual machine is 24.
	Enable encryption for VR data	Enabling vSphere Replication data encryption.
MPIT (If Points in time instances is enabled)	Instances per day (multiplied by number of days should not exceed 24)	Number of snapshots taken per day.
	Number of days	Number of days for which snapshots are kept.

Protect Multiple Virtual Machines Workflow

The workflow configures replication for multiple virtual machines from the local site to the remote vSphere site.

If one or all the selected virtual machines are not powered on, replication is configured but full initial synchronization is completed upon powering on the virtual machines. You can run the workflow with a replicated virtual machine included in the VM array, however the workflow does not reconfigure the replication for that virtual machine. The rest of the virtual machines included in the VM array which are not already replicated are configured for replication.

Prerequisites

- Verify that you have configured the connection between your local site and the remote vCenter Server site. For more information, see [Pair with a vCenter Server Site Workflow](#).
- Verify that you have registered the login credentials for the remote vCenter Server site, that you want to use. See [Register vCenter Server Site Workflow](#).

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Protect multiple VMs** and press **Enter**.
- 4 Click the workflow and click **Run**.

- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-19. Protect Multiple Virtual Machines Workflow Inputs

Input		Description
Source Site	Site	Local vCenter Server site.
Source VM	Source VMs	Array of virtual machines to be replicated to the remote site.
Target Site	VC site to be used as replication target	Select an available vCenter Server site to be used as a replication target.
Target Datastore	Disk type	Virtual disk format and provisioning type.
	Storage profile	Virtual machine storage policy profile.
	Target datastore	Datastore to replicate to, if the target is vCenter Server site.
	Use replication seeds	Use the default virtual machine disk files for an initial synchronization.
	Auto replicate new disks	Automatically include new disks in the replication.
Details	RPO in minutes	Recovery point objective in minutes (default value is 240).
	Guest OS quiescing	Enabling OS quiescing improves data consistency but limits RPO time.
	Network compression	Enabling replication data compression reduces the network bandwidth, but increases the CPU use.
	Point in time instances	Maximum supported number of snapshots per virtual machine is 24.
	Enable encryption for VR data	Enabling vSphere Replication data encryption.
Replication Settings (Points in time instances enabled)	Instances per day (multiplied by number of days should not exceed 24).	Number of snapshots taken per day.
	Number of days	Number of days for which snapshots are kept.

Reconfigure Replication Workflow

With this workflow, you can change the settings of a replication, including reconfiguring a replication on new virtual hard disks and enabling the default seed to use a replica disk in the VM folder.

Prerequisites

- Verify that the vSphere Replication appliance is deployed at the source and the target sites.
- To enable the quiescing of virtual machines that run Linux guest OS, install the latest version of VMware Tools on each Linux machine that you plan to replicate.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Reconfigure Replication** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-20. Reconfigure Replication Workflow Inputs

Input		Description
Source	Replication	The replication you want to reconfigure.
Disks	Per disk configuration	Configure the storage policy and datastore per virtual disk. The elements in the array must correspond to each other in order. For example, the first element from Disk format per disk must correspond to the first element in VM disks for replication and so on.
	Enabled Disks for Replication	Array of disks to be replicated to the remote site.
	Excluded Disks From Replication	Array of disks to be excluded from the replication to the remote site.
	Disk format per disk	Virtual disk format and provisioning type per virtual disk. The array size must be the same as the array size in VM disks for replication .
	Storage profile per disk	Virtual machine storage policy profile per virtual disk. The array size must be the same as the array size in VM disks for replication .
	Target datastore per disk	Remote datastore to replicate to, per virtual disk. The array size must be the same as the array size in VM disks for replication .
	Disk format	Virtual disk format and provisioning type.
	Storage profile	Virtual machine storage policy profile.
	Target Datastore For All Enabled Disks	Remote datastore to replicate to. When you change this datastore, all disks move to the new target datastore.
	Use default replication seeds	Use the default virtual machine disk files for an initial synchronization.
	Auto replicate new disks	Automatically include new disks in the replication.
Details	RPO in minutes	RPO in minutes
	Guest OS quiescing	Enabling OS quiescing improves data consistency, but limits RPO time.

Table 4-20. Reconfigure Replication Workflow Inputs (continued)

Input	Description	
	Network compression	Enabling replication data compression reduces the network bandwidth, but increases the CPU use.
	Enable encryption for VR data	Enabling vSphere Replication data encryption.
	Point in time instances	Maximum supported number of snapshots per virtual machine is 24.
MPIT (If Points in time instances is enabled)	Instances per day (multiplied by number of days should not exceed 24)	Number of snapshots taken per day.
	Number of days	Number of days for which snapshots are kept.

Pause Workflows

With **Pause** workflows, you can pause replications for virtual machines between the source and the target sites. When a replication is paused, all synchronization calls are blocked and no data is synchronized between the source and the target sites. The replication is not unconfigured and can be resumed.

Pause Replication to vCenter Server

The workflow pauses the replication for a virtual machine from the local site to a remote vCenter Server site.

Prerequisites

Verify that you have a configured replication from the local site to a remote vCenter Server site. See [Configure Replication Workflow](#) or [Protect Multiple Virtual Machines Workflow](#).

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the search box, enter **Pause Replication to VC** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the replication that you want to pause and click **Run**.

Resume Workflows

With **Resume** workflows, you can resume paused replications configured between the local site and remote vCenter Server sites.

Resume Replication to vCenter Server Workflow

The workflow resumes a paused forward replication to the target vCenter Server site.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Resume Replication to VC** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the replication that you want to resume and click **Run**.

Stop Replication Workflows

With **Stop Replication** workflows, you can stop replications for virtual machines configured between the local and remote vCenter Server sites. When you stop a replication, the replication is unconfigured. If you did not select the **Leave replica disks** option, the replicated data at the target location is removed.

Stop Replication Workflow

The workflow stops a forward replication for a virtual machine to a target vCenter Server site.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Stop Replication** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-21. Stop Replication Workflow Inputs

Input	Description
Site	Remote vCenter Server site.
Replication	Virtual machine for which replication is stopped.
Leave replica disks	Leave the replicated disks intact when you stop a replication.

Replication Details Workflows

With the **Replication Details** workflows, you can retrieve information about the status or configuration details of replications. You can retrieve a list of all incoming or outgoing replications

from a source vCenter Server. You can use the results of the workflows as parameters in other workflows.

Check Replication Status Workflow

The workflow retrieves the status of a replication.

Prerequisites

Verify that you have a configured replication.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Check Replication Status** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select a replication for which you want to run a verification of the status and click **Run**.

You can view the replication status in the **Value** column of the **Variables** tab of the workflow.

You can use the value as a parameter in another workflow.

Get Replication Configuration Workflow

The workflow retrieves the configuration details of a replication.

Prerequisites

Verify that you have a configured a replication.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter **Get Replication Configuration** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Select the replication for which you want to retrieve the configuration information and click **Run**.

You can view the replication configuration information in the **Value** column of the **Variables** tab of the finished workflow. You can use the value as a parameter in another workflow.

Get Replication List Workflow

The workflow retrieves a list of all the incoming or outgoing replications from a vCenter Server.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter the **Get Replication List** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-22. Get Replication List Workflow Inputs

Input	Description
Source VC	Source vCenter Server Site.
Replication direction	Direction of the replication that you want to retrieve.

You can view the list of replications in the **Value** column of the **Variables** tab of the finished workflow. You can use the value as a parameter in another workflow.

Get Replication Issues Workflow

This workflow retrieves a list of all the current issues for all incoming or outgoing replications.

Procedure

- 1 Log in to vRealize Orchestrator client as an administrator.
- 2 Navigate to **Library > Workflows**.
- 3 In the **Filter** box, enter the **Get Replication Issues** and press **Enter**.
- 4 Click the workflow and click **Run**.
- 5 Enter the input parameters that the workflow requires, and click **Run**.

Table 4-23. Get Replication Issues Workflow Inputs

Input	Description
Local Site	Local vCenter Server site.
Outgoing	Select to display issues for outgoing replications. Deselect to display issues for incoming replications.
Remote Site (optional)	Add a particular remote vCenter Server site if more than a single pair of sites is connected.

Get Replication IDs Workflow

This workflow retrieves a list of the internal values (IDs) of all outgoing replications, or for the replications which match the provided full or partial replication name.

Procedure

- 1** Log in to vRealize Orchestrator client as an administrator.
- 2** Navigate to **Library > Workflows**.
- 3** In the **Filter** box, enter the **Get Replication Ids** and press **Enter**.
- 4** Click the workflow and click **Run**.
- 5** Enter the input parameters that the workflow requires, and click **Run**.

Table 4-24. Get Replication IDs Workflow Inputs

Input	Description
Source Site	Local vCenter Server site.
Replication name (Optional)	Full or partial name of the replications whose IDs you want to retrieve. The workflow displays the IDs of the first 100 replications, which contain the Replication name value in their name.

Troubleshooting the vRealize Orchestrator Plug-In for vSphere Replication

5

Known troubleshooting information can help you diagnose and correct problems that occur while using the vRealize Orchestrator Plug-In for vSphere Replication.

This chapter includes the following topics:

- [Incorrect remote site object is retrieved when using the vSphere Replication Plug-in through vRealize Automation](#)

Incorrect remote site object is retrieved when using the vSphere Replication Plug-in through vRealize Automation

When using the vSphere Replication Plug-in through vRealize Automation with a combination of configuration elements, you cannot retrieve the correct remote site object.

Problem

You cannot retrieve the virtual machine, because the incorrect remote site object (VR:VcRemoteSite) was selected, after being stored in a configuration element. The process fails with the following error:

```
The object '<VM_ID>' has already been deleted or has not been completely created
```

Cause

This problem can occur, because the source and remote sites are internally presented as a map within a map. For each pair of source and remote site, there are four relations, which represent each possible direction of a replication:

- Source site – Source site (a relation within the respective site)
- Source site – Remote site (direction of the replication between sites)
- Remote site – Remote site (a relation within the respective site)
- Remote site – Source site (direction of the replication between sites)

There is one map containing the Source and Remote objects for the local sites. Each of these elements contains another map of the Source and Remote objects for the remote sites. There is a total of four elements for remote sites, but only two of them have unique IDs. The vRealize Automation configuration element keeps information only for the ID of the stored object and not the ID of its parent, which can lead to retrieving the incorrect remote site object.

Solution

Select the parent of the remote site and select the correct remote site by using the following script:

```
for each(var el in localSites) {  
    if (el.name == 'SOURCE_SITE_NAME') {  
        var remotesites = el.getVcRemoteSites()  
        for each( var rsite in remotesites){  
            if (rsite.name == 'REMOTE_SITE_NAME') {  
                remoteSiteSelected = rsite;  
            }  
        }  
    }  
}
```