

Upgrading and Migrating VMware vRealize Orchestrator

vRealize Orchestrator 7.3



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VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

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Contents

- 1 Upgrading and Migrating VMware vRealize Orchestrator 4**
- 2 Upgrading Orchestrator 5**
 - Upgrade Orchestrator Appliance 6.0.x and Later to 7.3 5
 - Upgrade Orchestrator Appliance by Using the Default VMware Repository 5
 - Upgrade Orchestrator Appliance by Using an ISO Image 7
 - Upgrade Orchestrator Appliance by Using a Specified Repository 8
 - Upgrade an Orchestrator Cluster 6.0.x and Later to 7.3 10
- 3 Migrating the Orchestrator Configuration 12**
 - Migrate the Orchestrator Configuration from Windows to Virtual Appliance 12
 - Migrate vRealize Orchestrator 6.x Virtual Appliance to vRealize Orchestrator 7.3 14
 - Migrate vRealize Orchestrator 7.x to vRealize Orchestrator 7.3 17
 - Migrate a Cluster of vRealize Orchestrator 6.x Instances on Windows to a Cluster of vRealize Orchestrator 7.3 Virtual Appliances 19
 - Migrate a Cluster of vRealize Orchestrator 6.x Virtual Appliances to an Orchestrator Cluster 7.3 21
 - Migrate an Orchestrator Cluster of 7.x Instances to 7.3 25
- 4 Migrating an External Orchestrator Server to vRealize Automation 7.3 28**
 - Migration Scenarios 29
 - Migrate an External vRealize Orchestrator 6.x on Windows to vRealize Automation 7.3 30
 - Migrate an External vRealize Orchestrator 6.x Virtual Appliance to vRealize Automation 7.3 33
 - Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.3 37
 - Configure the Built-In vRealize Orchestrator Server 41
 - Update Embedded vRealize Orchestrator to Trust vRealize Automation Certificates 42
 - Control Center Differences Between External and Embedded Orchestrator 43

Upgrading and Migrating VMware vRealize Orchestrator

1

Upgrading and Migrating VMware vRealize Orchestrator provides information and instructions about upgrading VMware® vRealize Orchestrator as a standalone virtual appliance or in a cluster, and migrating external Orchestrator instances to vRealize Automation.

Intended Audience

This information is intended for advanced vSphere or vRealize Automation administrators.

Upgrading Orchestrator

vRealize Orchestrator 7.3 supports in-place upgrade from versions 6.0.x, 7.0, 7.1, and 7.2. For Orchestrator 5.5.x, you must upgrade to version 6.0.x first.

This chapter includes the following topics:

- [Upgrade Orchestrator Appliance 6.0.x and Later to 7.3](#)
- [Upgrade an Orchestrator Cluster 6.0.x and Later to 7.3](#)

Upgrade Orchestrator Appliance 6.0.x and Later to 7.3

You can upgrade your existing Orchestrator Appliance through the virtual appliance management interface (VAMI).

Upgrade Orchestrator Appliance by Using the Default VMware Repository

You can configure Orchestrator to download the upgrade package from the default VMware repository.

Prerequisites

- Unmount all network file systems. For more information, see the *vSphere Virtual Machine Administration* documentation.
- Increase the memory of the Orchestrator Appliance to at least 6 GB. For more information, see the *vSphere Virtual Machine Administration* documentation.
- Make sure that the root partition of the Orchestrator Appliance has at least 3 GB of available free space. For more information on increasing the size of a disk partition, see KB 1004071: <http://kb.vmware.com/kb/1004071>.
- Take a snapshot of the Orchestrator virtual machine. For more information, see the *vSphere Virtual Machine Administration* documentation.
- If you use an external database, back up the database.
- If you use the preconfigured in Orchestrator PostgreSQL database, back up the database by using the **Export Database** menu in Control Center.

- If you use vSphere as an authentication provider and the Platform Services Controller is external to the vCenter Server, you must configure Orchestrator to connect to the fully qualified domain name or IP address of the Platform Services Controller instance that contains the vCenter Single Sign-On.
- Import to Orchestrator manually the certificates of all Platform Services Controllers that share the same vCenter Single Sign-On domain. For more information, see *Import a Trusted Certificate Through Control Center* in *Installing and Configuring VMware vRealize Orchestrator*.

Procedure

- 1 Go to the Virtual Appliance Management Interface (VAMI) at https://orchestrator_server:5480 and log in as **root**.
- 2 On the **Update** tab, click **Settings**.
The radio button next to the **Use Default Repository** option is selected.
- 3 On the **Status** page, click **Check Updates**.
- 4 If any updates are available, click **Install Updates**.
- 5 Accept the VMware End-User License Agreement and confirm that you want to install the update.
- 6 To complete the update, restart the Orchestrator Appliance.
 - a Log in again to the to the Virtual Appliance Management Interface (VAMI) as **root**.
- 7 (Optional) On the **Update** tab, verify that the latest version of the Orchestrator Appliance is successfully installed.
- 8 Log in to Control Center as **root**.
- 9 If you plan to create a cluster of Orchestrator instances, reconfigure the hosts settings.
 - a On the **Host Settings** page in Control Center, click **CHANGE**.
 - b Enter the host name of the load balancer server instead of the vRealize Orchestrator appliance name.
- 10 Reconfigure the authentication.
 - a If before the upgrade, the Orchestrator server was configured to use **LDAP** or **SSO (legacy)** as an authentication method, configure **vSphere** or **vRealize Automation** as an authentication provider.
 - b If the authentication is already set to **vSphere** or **vRealize Automation**, unregister the settings and register them again.

You successfully upgraded the Orchestrator Appliance.

What to do next

Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

Upgrade Orchestrator Appliance by Using an ISO Image

You can configure Orchestrator to download the upgrade package from an ISO image file mounted to the CD-ROM drive of the appliance.

Prerequisites

- Unmount all network file systems. For more information, see the *vSphere Virtual Machine Administration* documentation.
- Increase the memory of the Orchestrator Appliance to at least 6 GB. For more information, see the *vSphere Virtual Machine Administration* documentation.
- Make sure that the root partition of the Orchestrator Appliance has at least 3 GB of available free space. For more information on increasing the size of a disk partition, see KB 1004071: <http://kb.vmware.com/kb/1004071>.
- Take a snapshot of the Orchestrator virtual machine. For more information, see the *vSphere Virtual Machine Administration* documentation.
- If you use an external database, back up the database.
- If you use the preconfigured in Orchestrator PostgreSQL database, back up the database by using the **Export Database** menu in Control Center.
- If you use vSphere as an authentication provider and the Platform Services Controller is external to the vCenter Server, you must configure Orchestrator to connect to the fully qualified domain name or IP address of the Platform Services Controller instance that contains the vCenter Single Sign-On.
- Import to Orchestrator manually the certificates of all Platform Services Controllers that share the same vCenter Single Sign-On domain. For more information, see *Import a Trusted Certificate Through Control Center* in *Installing and Configuring VMware vRealize Orchestrator*.

Procedure

- 1 Download the `VMware-vRO-Appliance-version-build_number-updaterepo.iso` archive from the official VMware download site.
- 2 Connect the CD-ROM drive of the Orchestrator Appliance virtual machine. For more information, see the *vSphere Virtual Machine Administration* documentation.
- 3 Mount the ISO image file to the CD-ROM drive of the appliance. For more information, see the *vSphere Virtual Machine Administration* documentation.
- 4 Go to the Virtual Appliance Management Interface (VAMI) at `https://orchestrator_server:5480` and log in as **root**.
- 5 On the **Update** tab, click **Settings**.
- 6 Select the radio button next to the **Use CD-ROM updates** option.
- 7 Return to the **Status** page.

The version of the available upgrade is displayed.

- 8 Click **Install Updates**.
- 9 Accept the VMware End-User License Agreement and confirm that you want to install the update.
- 10 To complete the update, restart the Orchestrator Appliance.
 - a Log in again to the to the Virtual Appliance Management Interface (VAMI) as **root**.
- 11 (Optional) On the **Update** tab, verify that the latest version of the Orchestrator Appliance is successfully installed.
- 12 Log in to Control Center as **root**.
- 13 If you plan to create a cluster of Orchestrator instances, reconfigure the hosts settings.
 - a On the **Host Settings** page in Control Center, click **CHANGE**.
 - b Enter the host name of the load balancer server instead of the vRealize Orchestrator appliance name.
- 14 Reconfigure the authentication.
 - a If before the upgrade, the Orchestrator server was configured to use **LDAP** or **SSO (legacy)** as an authentication method, configure **vSphere** or **vRealize Automation** as an authentication provider.
 - b If the authentication is already set to **vSphere** or **vRealize Automation**, unregister the settings and register them again.

You successfully upgraded the Orchestrator Appliance.

What to do next

Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

Upgrade Orchestrator Appliance by Using a Specified Repository

You can configure Orchestrator to use a local repository, on which you uploaded the upgrade archive.

Prerequisites

- Unmount all network file systems. For more information, see the *vSphere Virtual Machine Administration* documentation.
- Increase the memory of the Orchestrator Appliance to at least 6 GB. For more information, see the *vSphere Virtual Machine Administration* documentation.
- Make sure that the root partition of the Orchestrator Appliance has at least 3 GB of available free space. For more information on increasing the size of a disk partition, see KB 1004071: <http://kb.vmware.com/kb/1004071>.
- Take a snapshot of the Orchestrator virtual machine. For more information, see the *vSphere Virtual Machine Administration* documentation.
- If you use an external database, back up the database.

- If you use the preconfigured in Orchestrator PostgreSQL database, back up the database by using the **Export Database** menu in Control Center.
- If you use vSphere as an authentication provider and the Platform Services Controller is external to the vCenter Server, you must configure Orchestrator to connect to the fully qualified domain name or IP address of the Platform Services Controller instance that contains the vCenter Single Sign-On.
- Import to Orchestrator manually the certificates of all Platform Services Controllers that share the same vCenter Single Sign-On domain. For more information, see *Import a Trusted Certificate Through Control Center* in *Installing and Configuring VMware vRealize Orchestrator*.

Procedure

- 1 Prepare the local repository for upgrades.
 - a Install and configure a local Web server.
 - b Download the `VMware-vRO-Appliance-version-build_number-updaterepo.zip` archive from the official VMware download site.
 - c Extract the .ZIP archive to the local repository.
- 2 Go to the Virtual Appliance Management Interface (VAMI) at `https://orchestrator_server:5480` and log in as **root**.
- 3 On the **Update** tab, click **Settings**.
- 4 Select the radio button next to the **Use Specified Repository** option.
- 5 Enter the URL address of the local repository by pointing to the `Update_Repo` directory.
`http://local_web_server:port/build/mts/release/bora-build_number/publish/exports/Update_Repo`
- 6 If the local repository requires authentication, enter user name and password.
- 7 Click **Save Settings**.
- 8 On the **Status** page, click **Check Updates**.
- 9 If any updates are available, click **Install Updates**.
- 10 Accept the VMware End-User License Agreement and confirm that you want to install the update.
- 11 To complete the update, restart the Orchestrator Appliance.
 - a Log in again to the to the Virtual Appliance Management Interface (VAMI) as **root**.
- 12 (Optional) On the **Update** tab, verify that the latest version of the Orchestrator Appliance is successfully installed.
- 13 Log in to Control Center as **root**.

- 14 If you plan to create a cluster of Orchestrator instances, reconfigure the hosts settings.
 - a On the **Host Settings** page in Control Center, click **CHANGE**.
 - b Enter the host name of the load balancer server instead of the vRealize Orchestrator appliance name.
- 15 Reconfigure the authentication.
 - a If before the upgrade, the Orchestrator server was configured to use **LDAP** or **SSO (legacy)** as an authentication method, configure **vSphere** or **vRealize Automation** as an authentication provider.
 - b If the authentication is already set to **vSphere** or **vRealize Automation**, unregister the settings and register them again.

You successfully upgraded the Orchestrator Appliance.

What to do next

Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

Upgrade an Orchestrator Cluster 6.0.x and Later to 7.3

You can upgrade an Orchestrator cluster to version 7.3 by upgrading a single instance and joining newly installed nodes on version 7.3.

Prerequisites

- Set up a load balancer to distribute traffic among multiple instances of vRealize Orchestrator. For more information, see [vRealize Orchestrator Load Balancing](#).
- Take a snapshot of all vRealize Orchestrator server nodes.
- Back up the Orchestrator shared database.

Procedure

- 1 Stop the `vco-server` and `vco-configurator` Orchestrator services on all cluster nodes.
- 2 Upgrade only one of the Orchestrator server instances in your cluster.
See [Upgrade Orchestrator Appliance 6.0.x and Later to 7.3](#).
- 3 Deploy a new Orchestrator appliance on version 7.3.
 - a Configure the new node with the network settings of an existing not upgraded instance that is part of the cluster.
- 4 Access Control Center of the second node to start the configuration wizard.
 - a Navigate to `https://your_orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter`.
 - b Log in as **root** with the password you entered during OVA deployment.

- 5 Select the **Clustered Orchestrator** deployment type.

By choosing this type, you select to join the node to an existing Orchestrator cluster.

- 6 In the **Hostname** text box, enter the host name or IP address of the first Orchestrator server instance.

Note This must be the local IP or host name of the Orchestrator instance, to which you are joining the second node. You must not use the load balancer address.

- 7 In the **User name** and **Password** text boxes, enter the root credentials of the first Orchestrator server instance.

- 8 Click **Join**. The Orchestrator instance clones the configuration of the node, to which it joins.

The Orchestrator server service of both nodes restart automatically.

- 9 Access Control Center of the upgraded Orchestrator cluster through the load balancer address and log in as an **administrator**.

- 10 On the **Orchestrator Cluster Management** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings on all nodes in the cluster match.

Note You might need to refresh the page several times until the two strings match.

- 11 Verify that the vRealize Orchestrator cluster is configured properly by opening the **Validate Configuration** page in Control Center.

- 12 (Optional) Repeat [Step 3](#) to [Step 8](#) for each additional node in the cluster.

You have successfully upgraded the Orchestrator cluster.

Migrating the Orchestrator Configuration

3

The Orchestrator migration tool bundles the configuration settings, plug-ins, plug-in configurations, certificates, and license information into an archive that can be imported into vRealize Orchestrator 7.x.

The following command-line options can be used with the `vro-migrate export` command:

Option	Description
<code>password</code>	Set a password to protect the exported archive. If no password is provided the archive is not protected.
<code>vroRootPath</code>	Specify the root path of the vRealize Orchestrator server.

This chapter includes the following topics:

- [Migrate the Orchestrator Configuration from Windows to Virtual Appliance](#)
- [Migrate vRealize Orchestrator 6.x Virtual Appliance to vRealize Orchestrator 7.3](#)
- [Migrate vRealize Orchestrator 7.x to vRealize Orchestrator 7.3](#)
- [Migrate a Cluster of vRealize Orchestrator 6.x Instances on Windows to a Cluster of vRealize Orchestrator 7.3 Virtual Appliances](#)
- [Migrate a Cluster of vRealize Orchestrator 6.x Virtual Appliances to an Orchestrator Cluster 7.3](#)
- [Migrate an Orchestrator Cluster of 7.x Instances to 7.3](#)

Migrate the Orchestrator Configuration from Windows to Virtual Appliance

Migrate your 5.5.x and 6.x Orchestrator Windows standalone configuration to the Orchestrator Appliance.

Prerequisites

- Deploy and configure an Orchestrator node on the target version. See *Configuring a Standalone Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.
- If the source Orchestrator uses a SHA1 package-signing certificate, make sure to regenerate the certificate using a stronger signing algorithm. The recommended signing algorithm is SHA2.
- Stop the source and target Orchestrator servers.

- Back up the database of the source Orchestrator server, including the database schema.

Note If you plan to use the source Orchestrator environment until the new one is fully configured, create a copy of the source database. Otherwise, you can configure the target Orchestrator to use the same database but in that case the source Orchestrator environment will no longer work because the database schema is upgraded to the version of the target Orchestrator.

Procedure

- 1 Download the migration tool from the target Orchestrator server.
 - a Log in to Control Center as an **administrator**.
 - b Open the **Export/Import Configuration** page and click the **Migrate Configuration** tab.
 - c Download the migration tool as specified in the description on the page, or download it directly from https://orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter/api/server/migration-tool.
- 2 Export the Orchestrator configuration from the source Orchestrator server.
 - a Extract the downloaded archive in the Orchestrator install folder.
The default path to the Orchestrator install folder in a Windows-based installation is C:\Program Files\VMware\Orchestrator.
 - b Set the PATH environment variable by pointing it to the bin folder of the Java JRE installed with Orchestrator.
 - c Use the Windows command prompt to navigate to the bin folder under the Orchestrator install folder.
By default, the path to the bin folder is C:\Program Files\VMware\Orchestrator\migration-cli\bin.
 - d Run the export command from the command line.

```
C:\Program Files\VMware\Orchestrator\migration-cli\bin\vro-migrate.bat export
```

This command combines the VMware vRealize Orchestrator configuration files and plug-ins into an export archive.

An archive with file name `orchestrator-config-export-orchestrator_ip_address-date_hour.zip` is created in the same folder as the `migration-cli` folder.

- 3 Import the configuration to the target Orchestrator server.
 - a Open **Export/Import Configuration** in Control Center and click the **Migrate Configuration** tab.
 - b Click **Import**.

- c Select the type of files that you want to import.

Note If the source and target Orchestrator servers are not configured to use the same external database, leave the **Migrate database settings** check box unselected to avoid upgrading the database schema to the newer version. Otherwise the source Orchestrator environment stops working.

You must configure the database that the target Orchestrator will use before the migration.

- d Click **Finish Migration**.
- 4 If the target vRealize Orchestrator uses an authentication provider server that is different from the one used by the source Orchestrator, import to the trust store of the target Orchestrator the SSL certificate of the authentication provider it is configured to use.
- a On the **Certificates** page in Control Center, click **Import from URL**.
 - b Provide the URL of the vRealize Automation or vSphere instance.

A message indicates that the migration finished successfully. The Orchestrator server service restarts automatically.

What to do next

- On the **Startup Options** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings match.

Note You might need to refresh the page several times until the two strings match.

- Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

Migrate vRealize Orchestrator 6.x Virtual Appliance to vRealize Orchestrator 7.3

You can migrate your existing vRealize Orchestrator 6.x Virtual Appliance to Orchestrator 7.3 by exporting the configuration from the source Orchestrator instance and importing it to a new Orchestrator Appliance that is already installed on version 7.3.

Prerequisites

- Deploy and configure an Orchestrator node on the target version. See *Configuring a Standalone Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.
- If the source Orchestrator uses a SHA1 package-signing certificate, make sure to regenerate the certificate using a stronger signing algorithm. The recommended signing algorithm is SHA2.
- Stop the source and target Orchestrator servers.

- Back up the database of the source Orchestrator server, including the database schema.

Note If you plan to use the source Orchestrator environment until the new one is fully configured, create a copy of the source database. Otherwise, you can configure the target Orchestrator to use the same database but in that case the source Orchestrator environment will no longer work because the database schema is upgraded to the version of the target Orchestrator.

Procedure

- 1 Download the migration tool from the target Orchestrator server to the source Orchestrator.
 - a Log in to the vRealize Orchestrator 6.x Virtual Appliance over SSH as **root**.
 - b Under the `/var/lib/vco` directory, run the `scp` command to download the `migration-tool.zip` archive.

```
scp root@vro-va-hostname.domain.name:/var/lib/vco/downloads/migration-tool.zip ./
```

- c Run the `unzip` command to extract the migration tool archive.

```
unzip migration-tool.zip
```

- 2 Export the Orchestrator configuration from the source Orchestrator server.

- a In the `/var/lib/vco/migration-cli/bin` directory, run the `export` command.

```
./vro-migrate.sh export
```

This command combines the VMware vRealize Orchestrator configuration files and plug-ins into an export archive.

An archive with file name `orchestrator-config-export-orchestrator_ip_address-date_hour.zip` is created in the `/var/lib/vco` folder.

- 3 On the target VMware vRealize Orchestrator, back up the `catalina.properties`, `server.xml`, and `web.xml` files in the `/etc/vco/app-server` and `/etc/vco/configuration` directories.

For example:

```
cp catalina.properties catalina.properties-$(date +%Y-%m-%d_%H-%M-%S)
```

- 4 On the target VMware vRealize Orchestrator, back up the `setenv.sh` file in the `/usr/lib/vco/app-server/bin` and `/usr/lib/vco/configuration/bin` directories.

For example:

```
cp setenv.sh setenv.sh-$(date +%Y-%m-%d_%H-%M-%S)
```

- 5 Import the configuration to the target Orchestrator server.
 - a Log in to Control Center as an **administrator**.
 - b Open **Export/Import Configuration** in Control Center and click the **Migrate Configuration** tab.
 - c Browse to the exported configuration file and click **Import**.
 - d Select the type of files that you want to import.

Option	Description
Migrate database settings	<p>Uses the database of the vRealize Orchestrator 6.x cluster.</p> <p>Note If the source and target Orchestrator servers are not configured to use the same external database, leave the Migrate database settings check box unselected to avoid upgrading the database schema to the newer version. Otherwise the source Orchestrator environment stops working.</p> <p>You must configure the database that the target Orchestrator will use before the migration.</p>
Migrate plug-ins	Migrates all plug-ins that are not included in the Orchestrator platform.
Migrate legacy plug-in configurations	Migrates the configuration of plug-ins that is stored in the <code>/var/lib/vco/app-server/conf/plugins</code> folder.
Migrate trusted certificates	Migrates all certificates from the trust store of the vRealize Orchestrator 6.x cluster.

- e Click **Finish Migration**.

A message indicates that the migration completed successfully.

The Orchestrator server service restarts automatically.

- 6 Stop the Orchestrator server service and the Control Center service of the target Orchestrator.

```
service vco-configurator stop && service vco-server stop
```

- 7 Replace the `catalina.properties`, `server.xml`, and `web.xml` files from the imported configuration with the backup copies you created in [Step 3](#).

For example:

```
mv catalina.properties-date_hour catalina.properties
```

- a Change the ownership of the files to the **vco** user.

For example:

```
chown vco:vco catalina.properties
```

- 8 Replace the `setenv.sh` file from the imported configuration with the backup copies you created in [Step 4](#).

For example:

```
mv setenv.sh-date_hour setenv.sh
```

- a Change the ownership of the files to the `vco` user.

For example:

```
chown vco:vco setenv.sh
```

- 9 Start the Orchestrator server service and the Control Center service of the target Orchestrator.

```
service vco-configurator start && service vco-server start
```

- 10 On the **Startup Options** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings match.

Note You might need to refresh the page several times until the two strings match.

- 11 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

You successfully migrated a vRealize Orchestrator 6.x Virtual Appliance to VMware vRealize Orchestrator 7.3.

Migrate vRealize Orchestrator 7.x to vRealize Orchestrator 7.3

Instead of upgrading your existing vRealize Orchestrator 7.0.x, 7.1 or 7.2 instances to 7.3, you can migrate its configuration to a different Orchestrator Appliance that is already installed on version 7.3.

Prerequisites

- Deploy and configure an Orchestrator node on the target version. See *Configuring a Standalone Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.
- Stop the source and target Orchestrator servers.
- Back up the database of the source Orchestrator server, including the database schema.

Note If you plan to use the source Orchestrator environment until the new one is fully configured, create a copy of the source database. Otherwise, you can configure the target Orchestrator to use the same database but in that case the source Orchestrator environment will no longer work because the database schema is upgraded to the version of the target Orchestrator.

Procedure

- 1 Export the configuration from the source Orchestrator instance.
 - a Log in to Control Center as an **root** or as an **administrator**, depending on the source version.
 - b On the **Export/Import Configuration** page, select the type of files you want to export.

Note If you select **Export plug-in configurations** and the plug-in configurations contain encrypted properties, you must also select **Export server configuration** to successfully decrypt the data when importing.

- c (Optional) Enter a password to protect the configuration file.
Use the same password when you import the configuration later.
 - d Click **Export**.

Orchestrator creates an `orchestrator-config-export-hostname-dateReference.zip` file that is downloaded on your local machine. You can use this file to clone or to restore the system.

- 2 Import the configuration to the target Orchestrator instance.
 - a Log in to Control Center as an **administrator**.
 - b Click **Export/Import Configuration** and navigate to the **Migrate Configuration** tab.
 - c Browse to and select the .ZIP file that you exported from your previous installation.
 - d Enter the password that you used when exporting the configuration.
Leave blank if you did not export the configuration with a password.
 - e Click **Import**.
 - f Select the type of files you want to import.

Note If the source and target Orchestrator servers are not configured to use the same external database, leave the **Migrate database settings** check box unselected to avoid upgrading the database schema to the newer version. Otherwise the source Orchestrator environment stops working.

You must configure the database that the target Orchestrator will use before the migration.

- g Click **Finish Migration**.
A message states that the configuration is successfully imported. The Orchestrator server service of the target Orchestrator instance restarts automatically.

- 3 On the **Startup Options** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings match.

Note You might need to refresh the page several times until the two strings match.

- 4 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

You successfully migrated an Orchestrator Appliance 7.x to vRealize Orchestrator 7.3.

Migrate a Cluster of vRealize Orchestrator 6.x Instances on Windows to a Cluster of vRealize Orchestrator 7.3 Virtual Appliances

You can migrate your cluster of vRealize Orchestrator 6.x instances installed on Windows to a cluster of vRealize Orchestrator 7.3 Virtual Appliances.

Prerequisites

- Set up a load balancer to distribute traffic among multiple instances of vRealize Orchestrator. For more information, see [vRealize Orchestrator Load Balancing](#).
- Deploy and configure an Orchestrator node on the target version. See *Configuring a Standalone Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.
- If the source Orchestrator uses a SHA1 package-signing certificate, make sure to regenerate the certificate using a stronger signing algorithm. The recommended signing algorithm is SHA2.
- Stop the Orchestrator server service of the source Orchestrator instances.
- Back up the database, including the database schema, of the external Orchestrator.

Note If you plan to use the source Orchestrator environment until the new one is fully configured, create a copy of the source database. Otherwise, you can configure the target Orchestrator to use the same database but in that case the source Orchestrator environment will no longer work because the database schema is upgraded to the version of the target Orchestrator.

Procedure

- 1 Download the migration tool from the target Orchestrator server.
 - a Log in to Control Center as an **administrator**.
 - b Open the **Export/Import Configuration** page and click the **Migrate Configuration** tab.
 - c Download the migration tool as specified in the description, or download it directly from https://orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter/api/server/migration-tool.
- 2 Export the Orchestrator configuration from one of the source Orchestrator server nodes.
 - a Set the PATH environment variable by pointing it to the `bin` folder of the Java JRE installed with Orchestrator.
 - b Upload the migration tool to the Windows server, on which the source Orchestrator is installed.
 - c Extract the downloaded archive in the Orchestrator install folder.

The default path to the Orchestrator install folder in a Windows-based installation is `C:\Program Files\VMware\Orchestrator`.

- d Run the Windows command prompt as administrator and navigate to the bin folder under the Orchestrator install folder.

By default, the path to the bin folder is C:\Program Files\VMware\Orchestrator\migration-cli\bin.

- e Run the export command from the command line.

```
C:\Program Files\VMware\Orchestrator\migration-cli\bin\vro-migrate.bat export
```

This command combines the VMware vRealize Orchestrator configuration files and plug-ins into an export archive.

An archive with file name orchestrator-config-export-orchestrator_ip_address-date_hour.zip is created in the same folder as the migration-cli folder.

3 Import the configuration to the target Orchestrator server.

- a Open **Export/Import Configuration** in Control Center and click the **Migrate Configuration** tab.
- b Browse to the exported configuration file and click **Import**.
- c Select the type of files that you want to import.

Option	Description
Migrate database settings	<p>Uses the database of the vRealize Orchestrator 6.x cluster.</p> <p>Note If the source and target Orchestrator servers are not configured to use the same external database, leave the Migrate database settings check box unselected to avoid upgrading the database schema to the newer version. Otherwise the source Orchestrator environment stops working. You must configure the database that the target Orchestrator will use before the migration.</p>
Migrate plug-ins	Migrates all plug-ins that are not included in the Orchestrator platform.
Migrate legacy plug-in configurations	Migrates the configuration of plug-ins that is stored in the <i>Orchestrator_install_folder\app-server\conf\plugins</i> folder.
Migrate trusted certificates	Migrates all certificates from the trust store of the vRealize Orchestrator 6.x cluster.

- d Click **Finish Migration**.

A message indicates that the migration completed successfully.

The Orchestrator server service restarts automatically.

4 Reconfigure the Orchestrator cluster.

- a Open the advanced **Orchestrator Cluster Management** page, at https://your_orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter/#/control-app/ha?remove-nodes.

- b Select the check boxes next to the Orchestrator 6.x nodes and click **Remove**.

Refresh the browser page by clicking the F5 button on the keyboard.

- 5 On the **Startup Options** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings match.

Note You might need to refresh the page several times until the two strings match.

- 6 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.
- 7 Deploy a new Orchestrator instance on the target version.
- 8 Join the instance to the vRealize Orchestrator 7.3 node.

For more information, see *Configuring an Orchestrator Cluster* in *Installing and Configuring VMware vRealize Orchestrator*.

- 9 (Optional) Repeat [Step 7](#) and [Step 8](#) for each additional node you are adding to the cluster.

You successfully migrated a vRealize Orchestrator 6.x cluster to a cluster of Orchestrator Virtual Appliances on version 7.3.

What to do next

- On the **Orchestrator Cluster Management** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings on all nodes in the cluster match.

Note You might need to refresh the page several times until the two strings match.

- Verify that the vRealize Orchestrator cluster is configured properly by opening the **Validate Configuration** page in Control Center.
- Log in to the Orchestrator client and verify whether the configurations of all installed plug-ins are correct.

Migrate a Cluster of vRealize Orchestrator 6.x Virtual Appliances to an Orchestrator Cluster 7.3

You can migrate your cluster of vRealize Orchestrator 6.x Virtual Appliances to a cluster of vRealize Orchestrator 7.3 instances.

Prerequisites

- Set up a load balancer to distribute traffic among multiple instances of vRealize Orchestrator. For more information, see [vRealize Orchestrator Load Balancing](#).
- Deploy and configure an Orchestrator node on the target version. See *Configuring a Standalone Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.
- If the source Orchestrator uses a SHA1 package-signing certificate, make sure to regenerate the certificate using a stronger signing algorithm. The recommended signing algorithm is SHA2.
- Stop the Orchestrator server service of the source Orchestrator instances.

- Back up the database, including the database schema, of the external Orchestrator.

Note If you plan to use the source Orchestrator environment until the new one is fully configured, create a copy of the source database. Otherwise, you can configure the target Orchestrator to use the same database but in that case the source Orchestrator environment will no longer work because the database schema is upgraded to the version of the target Orchestrator.

Procedure

- 1 Download the migration tool from the target Orchestrator server to the source Orchestrator.
 - a Log in to the vRealize Orchestrator 6.x Virtual Appliance over SSH as **root**.
 - b Under the `/var/lib/vco` directory, run the `scp` command to download the `migration-tool.zip` archive.

```
scp root@vro-va-hostname.domain.name:/var/lib/vco/downloads/migration-tool.zip ./
```

- c Run the `unzip` command to extract the migration tool archive.

```
unzip migration-tool.zip
```

- 2 Export the Orchestrator configuration from the source Orchestrator server.
 - a In the `/var/lib/vco/migration-cli/bin` directory, run the `export` command.

```
./vro-migrate.sh export
```

This command combines the VMware vRealize Orchestrator configuration files and plug-ins into an export archive.

An archive with file name `orchestrator-config-export-orchestrator_ip_address-date_hour.zip` is created in the `/var/lib/vco` folder.

- 3 On the target VMware vRealize Orchestrator, back up the `catalina.properties`, `server.xml`, and `web.xml` files in the `/etc/vco/app-server` and `/etc/vco/configuration` directories.

For example:

```
cp catalina.properties catalina.properties-$(date +%Y-%m-%d_%H-%M-%S)
```

- 4 On the target VMware vRealize Orchestrator, back up the `setenv.sh` file in the `/usr/lib/vco/app-server/bin` and `/usr/lib/vco/configuration/bin` directories.

For example:

```
cp setenv.sh setenv.sh-$(date +%Y-%m-%d_%H-%M-%S)
```

- 5 Import the configuration to the target Orchestrator server.
 - a Log in to Control Center as an **administrator**.
 - b Open **Export/Import Configuration** in Control Center and click the **Migrate Configuration** tab.
 - c Browse to the exported configuration file and click **Import**.
 - d Select the type of files that you want to import.

Option	Description
Migrate database settings	<p>Uses the database of the vRealize Orchestrator 6.x cluster.</p> <p>Note If the source and target Orchestrator servers are not configured to use the same external database, leave the Migrate database settings check box unselected to avoid upgrading the database schema to the newer version. Otherwise the source Orchestrator environment stops working.</p> <p>You must configure the database that the target Orchestrator will use before the migration.</p>
Migrate plug-ins	Migrates all plug-ins that are not included in the Orchestrator platform.
Migrate legacy plug-in configurations	Migrates the configuration of plug-ins that is stored in the <i>Orchestrator_install_folder\app-server\conf\plugins</i> folder.
Migrate trusted certificates	Migrates all certificates from the trust store of the vRealize Orchestrator 6.x cluster.

- e Click **Finish Migration**.

A message indicates that the migration completed successfully.

The Orchestrator server service restarts automatically.

- 6 Stop the Orchestrator server service and the Control Center service of the target Orchestrator.

```
service vco-configurator stop && service vco-server stop
```

- 7 Replace the *catalina.properties*, *server.xml*, and *web.xml* files from the imported configuration with the backup copy you created in [Step 3](#).

For example:

```
mv catalina.properties-date_hour catalina.properties
```

- a Change the ownership of the files to the **vco** user.

For example:

```
chown vco:vco catalina.properties
```

- 8 Replace the `setenv.sh` file from the imported configuration with the backup copy you created in [Step 4](#).

For example:

```
mv setenv.sh-date_hour setenv.sh
```

- a Change the ownership of the files to the `vco` user.

For example:

```
chown vco:vco setenv.sh
```

- 9 Start the Orchestrator server service and the Control Center service of the target Orchestrator.

```
service vco-configurator start && service vco-server start
```

- 10 Reconfigure the Orchestrator cluster.

- a Open the advanced **Orchestrator Cluster Management** page, at `https://your_orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter/#!/control-app/ha?remove-nodes`.
- b Select the check boxes next to the Orchestrator 6.x nodes and click **Remove**.
Refresh the browser page by clicking the F5 button on the keyboard.

- 11 On the **Startup Options** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings match.

Note You might need to refresh the page several times until the two strings match.

- 12 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

- 13 Deploy a new Orchestrator instance on the target version.

- 14 Join the instance to the vRealize Orchestrator 7.3 node.

For more information, see *Configuring an Orchestrator Cluster* in *Installing and Configuring VMware vRealize Orchestrator*.

- 15 (Optional) Repeat [Step 13](#) and [Step 14](#) for each additional node you are adding to the cluster.

You successfully migrated a cluster of vRealize Orchestrator 6.x Virtual Appliances to an Orchestrator cluster 7.3.

What to do next

- On the **Orchestrator Cluster Management** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings on all nodes in the cluster match.

Note You might need to refresh the page several times until the two strings match.

- Verify that the vRealize Orchestrator cluster is configured properly by opening the **Validate Configuration** page in Control Center.
- Log in to the Orchestrator client and verify whether the configurations of all installed plug-ins are correct.

Migrate an Orchestrator Cluster of 7.x Instances to 7.3

Instead of upgrading your cluster of vRealize Orchestrator 7.0.x, 7.1 or 7.2 instances to 7.3, you can migrate the configuration to an Orchestrator node that is already installed on version 7.3 and join other newly installed Orchestrator 7.3 nodes to the new cluster.

Prerequisites

- Set up a load balancer to distribute traffic among multiple instances of vRealize Orchestrator. For more information, see [vRealize Orchestrator Load Balancing](#).
- Deploy and configure an Orchestrator node on the target version. See *Configuring a Standalone Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.
- Stop the Orchestrator server service of the source Orchestrator instances.
- Back up the database, including the database schema, of the external Orchestrator.

Note If you plan to use the source Orchestrator environment until the new one is fully configured, create a copy of the source database. Otherwise, you can configure the target Orchestrator to use the same database but in that case the source Orchestrator environment will no longer work because the database schema is upgraded to the version of the target Orchestrator.

Procedure

- 1 Export the configuration from one of the nodes in the source Orchestrator cluster.
 - a Log in to Control Center as **root** or as an **administrator**, depending on the source version.
 - b On the **Export/Import Configuration** page, select the type of files you want to export.

Note If you select **Export plug-in configurations** and the plug-in configurations contain encrypted properties, you must also select **Export server configuration** to successfully decrypt the data when importing.

- c (Optional) Enter a password to protect the configuration file.
Use the same password when you import the configuration later.
- d Click **Export**.

Orchestrator creates an `orchestrator-config-export-hostname-dateReference.zip` file that is downloaded on your local machine. You can use this file to clone or to restore the system.

2 Import the configuration to the target Orchestrator instance.

- a Log in to Control Center as an **administrator**.
- b Click **Export/Import Configuration** and navigate to the **Migrate Configuration** tab.
- c Browse to and select the .ZIP file that you exported from your previous installation.
- d Enter the password that you used when exporting the configuration.
Leave blank if you did not export the configuration with a password.
- e Click **Import**.
- f Select the type of files you want to import.

Note If the source and target Orchestrator servers are not configured to use the same external database, leave the **Migrate database settings** check box unselected to avoid upgrading the database schema to the newer version. Otherwise the source Orchestrator environment stops working.

You must configure the database that the target Orchestrator will use before the migration.

g Click **Finish Migration**.

A message states that the configuration is successfully imported. The Orchestrator server service of the target Orchestrator instance restarts automatically.

3 Reconfigure the Orchestrator cluster.

- a Open the advanced **Orchestrator Cluster Management** page, at https://your_orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter/#!/control-app/ha?remove-nodes.
- b Select the check boxes next to the source Orchestrator nodes and click **Remove**.
Refresh the browser page by clicking the F5 button on the keyboard.

4 On the **Startup Options** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings match.

Note You might need to refresh the page several times until the two strings match.

5 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

6 Deploy a new Orchestrator instance on the upgraded version.

7 Join the instance to the vRealize Orchestrator 7.3 node.

For more information, see *Configuring an Orchestrator Cluster* in *Installing and Configuring VMware vRealize Orchestrator*.

8 (Optional) Repeat [Step 6](#) and [Step 7](#) for each node you are adding to the cluster.

You successfully migrated a cluster of vRealize Orchestrator 7.0.x, 7.1 or 7.2 instances to vRealize Orchestrator 7.3.

What to do next

- On the **Orchestrator Cluster Management** page, make sure that the **Active Configuration Fingerprint** and the **Pending Configuration Fingerprint** strings on all nodes in the cluster match.

Note You might need to refresh the page several times until the two strings match.

- Verify that the vRealize Orchestrator cluster is configured properly by opening the **Validate Configuration** page in Control Center.
- Log in to the Orchestrator client and verify whether the configurations of all installed plug-ins are correct.

Migrating an External Orchestrator Server to vRealize Automation 7.3

4

You can migrate your existing external Orchestrator server to a vRealize Orchestrator instance embedded in vRealize Automation.

You can deploy vRealize Orchestrator as an external server instance and configure vRealize Automation to work with that external instance, or you can configure and use the vRealize Orchestrator server that is included in the vRealize Automation Appliance.

VMware recommends that you migrate your external vRealize Orchestrator to the Orchestrator server that is built into vRealize Automation. The migration from an external to embedded Orchestrator provides the following benefits:

- Reduces the total cost of ownership.
- Simplifies the deployment model.
- Improves the operational efficiency.

Note Consider using the external vRealize Orchestrator in the following cases:

- Multiple tenants in the vRealize Automation environment.
- Geographically dispersed environment.
- Workload handling.
- Use of specific plug-ins, such as the Site Recovery Manager plug-in.

This chapter includes the following topics:

- [Migration Scenarios](#)
- [Migrate an External vRealize Orchestrator 6.x on Windows to vRealize Automation 7.3](#)
- [Migrate an External vRealize Orchestrator 6.x Virtual Appliance to vRealize Automation 7.3](#)
- [Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.3](#)
- [Configure the Built-In vRealize Orchestrator Server](#)
- [Update Embedded vRealize Orchestrator to Trust vRealize Automation Certificates](#)
- [Control Center Differences Between External and Embedded Orchestrator](#)

Migration Scenarios

The procedure of migrating an external vRealize Orchestrator instance to a vRealize Orchestrator instance embedded in vRealize Automation varies depending on the setup that you have. Several migration scenarios exist based on whether the external Orchestrator server is Windows-based or a virtual appliance, using the embedded database or an external one, and other conditions. You can combine the migration process with an upgrade of vRealize Orchestrator, vRealize Automation, or both. In this case, the migration procedure depends on the source versions of the products.

Migration Scenario Matrix

You can choose a migration scenario based on the source deployment.

vRealize Orchestrator Deployment	vRealize Automation Deployment	Migration Scenario
vRealize Orchestrator 6.0.3 Virtual Appliance	vRealize Automation 6.2.3	Migrate an External vRealize Orchestrator 6.x Virtual Appliance to vRealize Automation 7.3
vRealize Orchestrator 6.0.4 on Windows	vRealize Automation 6.2.4	Migrate an External vRealize Orchestrator 6.x on Windows to vRealize Automation 7.3
vRealize Orchestrator 6.0.4 Virtual Appliance	vRealize Automation 6.2.4	Migrate an External vRealize Orchestrator 6.x Virtual Appliance to vRealize Automation 7.3
vRealize Orchestrator 6.0.5 Virtual Appliance	vRealize Automation 6.2.5	Migrate an External vRealize Orchestrator 6.x Virtual Appliance to vRealize Automation 7.3
vRealize Orchestrator 7.0 Virtual Appliance with an external Oracle Database 12 c	vRealize Automation 7.0 or IaaS	Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.2
vRealize Orchestrator 7.0.1 Virtual Appliance with an external PostgreSQL 9.3.9 database	vRealize Automation 7.0.1 or IaaS	Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.2
vRealize Orchestrator 7.1 Virtual Appliance	vRealize Automation 7.1	Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.2
vRealize Orchestrator 7.2 Virtual Appliance	vRealize Automation 7.2	Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.2
vRealize Orchestrator 7.3 Virtual Appliance	vRealize Automation 7.3	Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.3
vRealize Orchestrator 6.0.3 on Windows	vRealize Automation 6.2.3	Migrate the Orchestrator Configuration from Windows to Virtual Appliance

Migrate an External vRealize Orchestrator 6.x on Windows to vRealize Automation 7.3

After you upgrade your vRealize Automation from version 6.x to version 7.3, you can migrate your existing external Orchestrator 6.x installed on Windows to the Orchestrator server that is built into vRealize Automation 7.3.

Note If you have a distributed vRealize Automation environment with multiple vRealize Automation Appliance nodes, perform the migration procedure only on the primary vRealize Automation node.

Prerequisites

- Upgrade or migrate your vRealize Automation to version 7.3. For more information, see *Upgrading vRealize Automation* in *Installing or Upgrading vRealize Automation*.
- If the source Orchestrator uses a SHA1 package-signing certificate, make sure to regenerate the certificate using a stronger signing algorithm. The recommended signing algorithm is SHA2.
- Stop the Orchestrator server service of the external Orchestrator.
- Back up the database, including the database schema, of the external Orchestrator server.

Procedure

- 1 Download the migration tool from the target Orchestrator server.
 - a Log in to the vRealize Automation Appliance over SSH as **root**.
 - b Download the `migration-tool.zip` archive that is located in the `/var/lib/vco/downloads` directory.
- 2 Export the Orchestrator configuration from the source Orchestrator server.
 - a Set the `PATH` environment variable by pointing it to the `bin` folder of the Java JRE installed with Orchestrator.
 - b Upload the migration tool to the Windows server, on which the external Orchestrator is installed.
 - c Extract the downloaded archive in the Orchestrator install folder.

The default path to the Orchestrator install folder in a Windows-based installation is `C:\Program Files\VMware\Orchestrator`.

- d Run the Windows command prompt as administrator and navigate to the `bin` folder in the Orchestrator install folder.

By default, the path to the `bin` folder is `C:\Program Files\VMware\Orchestrator\migration-cli\bin`.

- e Run the `export` command from the command line.

```
C:\Program Files\VMware\Orchestrator\migration-cli\bin\vro-migrate.bat export
```

This command combines the VMware vRealize Orchestrator configuration files and plug-ins into an export archive.

The archive is created in the same folder as the `migration-cli` folder.

- 3 Migrate the exported configuration to the Orchestrator server that is built into vRealize Automation 7.3.

- a On the vRealize Automation Appliance, stop the Orchestrator server service and the Control Center service of the built-in vRealize Orchestrator server.

```
service vco-server stop && service vco-configurator stop
```

- b Back up the `catalina.properties`, `server.xml`, and `web.xml` files in the `/etc/vco/app-server` and `/etc/vco/configuration` directories.

For example:

```
cp catalina.properties catalina.properties-$(date +%Y-%m-%d_%H-%M-%S)
```

- c Back up the `setenv.sh` file in the `/usr/lib/vco/app-server/bin` and `/usr/lib/vco/configuration/bin` directories.

```
cp setenv.sh setenv.sh-$(date +%Y-%m-%d_%H-%M-%S)
```

- d Upload the exported configuration file to the `/usr/lib/vco/tools/configuration-cli/bin` directory on the vRealize Automation Appliance.

- e Change the ownership of the exported Orchestrator configuration file.

```
chown vco:vco orchestrator-config-export-orchestrator_ip_address-date_hour.zip
```

- f Import the Orchestrator configuration file to the built-in vRealize Orchestrator server, by running the `vro-configure` script with the `import` command.

```
./vro-configure.sh import --skipDatabaseSettings --skipLicense --skipSettings --skipSslCertificate --notForceImportPlugins --notRemoveMissingPlugins --skipTrustStore --path orchestrator-config-export-orchestrator_appliance_ip-date_hour.zip
```

- 4 Migrate the external Orchestrator database to the embedded one in vRealize Automation.
 - a Log in to the vRealize Automation Appliance over SSH as **root**.
 - b Navigate to the `/usr/lib/vco/tools/configuration-cli/bin` directory.
 - c Run the following command to migrate the database:

```
./vro-configure.sh db-migrate --sourceJdbcUrl JDBC_connection_URL --sourceDbUsername database_user --sourceDbPassword database_user_password
```

Note Enclose passwords that contain special characters in single quotation marks.

The `JDBC_connection_URL` depends on the type of database that you use.

```
PostgreSQL: jdbc:postgresql://host:port/database_name
```

```
MSSQL: jdbc:jtds:sqlserver://host:port/database_name\; if using SQL authentication and MSSQL:
jdbc:jtds:sqlserver://host:port/database_name\;domain=domain\;useNTLMv2=TRUE if using Windows
authentication.
```

```
Oracle: jdbc:oracle:thin:@host:port:database_name
```

The default database login information is:

<code>database_name</code>	vmware
<code>database_user</code>	vmware
<code>database_user_password</code>	vmware

- 5 If you migrated vRealize Automation instead of upgrading it, delete the trusted Single Sign-On certificates from the database of the embedded Orchestrator instance.

```
sudo -u postgres -i -- /opt/vmware/vpostgres/current/bin/psql vcac -c "DELETE FROM vmo_keystore
WHERE id='cakeystore-id';"
```

- 6 If the external Orchestrator was configured to work in cluster mode, delete the existing cluster nodes from the imported Orchestrator database.

```
sudo -u postgres -i -- /opt/vmware/vpostgres/current/bin/psql vcac -c "DELETE FROM
vmo_clustermember;"
```

- 7 Replace the `catalina.properties`, `server.xml`, and `web.xml` files from the imported configuration with the backup copy you created in [Step 3b](#).

For example:

```
mv catalina.properties-date_hour catalina.properties
```

- a Change the ownership of the files to the `vco` user.

For example:

```
chown vco:vco catalina.properties
```

- 8 Replace the `setenv.sh` file from the imported configuration with the backup copy you created in [Step 3c](#).

For example:

```
mv setenv.sh-date_hour setenv.sh
```

- a Change the ownership of the files to the `vco` user.

For example:

```
chown vco:vco setenv.sh
```

You successfully migrated an external vRealize Orchestrator 6.x installed on Windows to a vRealize Orchestrator instance embedded in vRealize Automation 7.3.

What to do next

Set up the built-in vRealize Orchestrator server. See [Configure the Built-In vRealize Orchestrator Server](#).

Migrate an External vRealize Orchestrator 6.x Virtual Appliance to vRealize Automation 7.3

After you upgrade your vRealize Automation from version 6.x to version 7.3, you can migrate your existing external Orchestrator 6.x Virtual Appliance to the Orchestrator server that is built into vRealize Automation 7.3.

Note If you have a distributed vRealize Automation environment with multiple vRealize Automation Appliance nodes, perform the migration procedure only on the primary vRealize Automation node.

Prerequisites

- Upgrade or migrate your vRealize Automation to version 7.3. For more information, see *Upgrading vRealize Automation* in *Installing or Upgrading vRealize Automation*.

- If the source Orchestrator uses a SHA1 package-signing certificate, make sure to regenerate the certificate using a stronger signing algorithm. The recommended signing algorithm is SHA2.
- Stop the Orchestrator server service of the external Orchestrator.
- Back up the database, including the database schema, of the external Orchestrator server.

Procedure

1 Download the migration tool from the target Orchestrator server to the source Orchestrator.

- a Log in to the vRealize Orchestrator 6.x Virtual Appliance over SSH as **root**.
- b Under the `/var/lib/vco` directory, run the `scp` command to download the `migration-tool.zip` archive.

```
scp root@vra-va-hostname.domain.name:/var/lib/vco/downloads/migration-tool.zip ./
```

- c Run the `unzip` command to extract the migration tool archive.

```
unzip migration-tool.zip
```

2 Export the Orchestrator configuration from the source Orchestrator server.

- a In the `/var/lib/vco/migration-cli/bin` directory, run the `export` command.

```
./vro-migrate.sh export
```

This command combines the VMware vRealize Orchestrator configuration files and plug-ins into an export archive.

An archive with file name `orchestrator-config-export-orchestrator_ip_address-date_hour.zip` is created in the `/var/lib/vco` folder.

3 Migrate the exported configuration to the Orchestrator server that is built into vRealize Automation 7.3.

- a Log in to the vRealize Automation Appliance over SSH as **root**.
- b Stop the Orchestrator server service and the Control Center service of the built-in vRealize Orchestrator server.

```
service vco-server stop && service vco-configurator stop
```

- c Back up the `catalina.properties`, `server.xml`, and `web.xml` files in the `/etc/vco/app-server` and `/etc/vco/configuration` directories.

For example:

```
cp catalina.properties catalina.properties-$(date +%Y-%m-%d_%H-%M-%S)
```

- d Back up the `setenv.sh` file in the `/usr/lib/vco/app-server/bin` and `/usr/lib/vco/configuration/bin` directories.

```
cp setenv.sh setenv.sh-$(date +%Y-%m-%d_%H-%M-%S)
```

- e Under the `/usr/lib/vco/tools/configuration-cli/bin` directory, run the `scp` command to download the exported configuration archive.

```
scp root@orchestrator_ip_or_DNS_name:/var/lib/vco/orchestrator-config-export-orchestrator_ip_address-date_hour.zip ./
```

- f Change the ownership of the exported Orchestrator configuration file.

```
chown vco:vco orchestrator-config-export-orchestrator_ip_address-date_hour.zip
```

- g Import the Orchestrator configuration file to the built-in vRealize Orchestrator server, by running the `vro-configure` script with the `import` command.

```
./vro-configure.sh import --skipDatabaseSettings --skipLicense --skipSettings --skipSslCertificate --notForceImportPlugins --notRemoveMissingPlugins --skipTrustStore --path orchestrator-config-export-orchestrator_appliance_ip-date_hour.zip
```

- 4 If the external Orchestrator server from which you want to migrate uses the built-in PostgreSQL database, edit its database configuration files.

- a In the `/var/vmware/vpostgres/current/pgdata/postgresql.conf` file, uncomment the `listen_addresses` line.
- b Set the values of `listen_addresses` to a wildcard (*).

```
listen_addresses = '*'
```

- c Append a line to the `/var/vmware/vpostgres/current/pgdata/pg_hba.conf` file.

```
host all all vra-va-ip-address/32 md5
```

Note The `pg_hba.conf` file requires using a CIDR prefix format instead on an IP address and a subnet mask.

- d Restart the PostgreSQL server service.

```
service vpostgres restart
```

- 5 Migrate the external Orchestrator database to the embedded one in vRealize Automation.
 - a Log in to the vRealize Automation Appliance over SSH as **root**.
 - b Navigate to the `/usr/lib/vco/tools/configuration-cli/bin` directory.
 - c Run the following command to migrate the database:

```
./vro-configure.sh db-migrate --sourceJdbcUrl JDBC_connection_URL --sourceDbUsername database_user --sourceDbPassword database_user_password
```

Note Enclose passwords that contain special characters in single quotation marks.

The `JDBC_connection_URL` depends on the type of database that you use.

PostgreSQL: `jdbc:postgresql://host:port/database_name`

MSSQL: `jdbc:jtds:sqlserver://host:port/database_name\;` if using SQL authentication and MSSQL: `jdbc:jtds:sqlserver://host:port/database_name\;domain=domain\;useNTLMv2=TRUE` if using Windows authentication.

Oracle: `jdbc:oracle:thin:@host:port:database_name`

The default database login information is:

<code>database_name</code>	vmware
<code>database_user</code>	vmware
<code>database_user_password</code>	vmware

- 6 If you migrated vRealize Automation instead of upgrading it, delete the trusted Single Sign-On certificates from the database of the embedded Orchestrator instance.

```
sudo -u postgres -i -- /opt/vmware/vpostgres/current/bin/psql vcac -c "DELETE FROM vmo_keystore WHERE id='cakeystore-id';"
```

- 7 If the external Orchestrator was configured to work in cluster mode, delete the existing cluster nodes from the imported Orchestrator database.

```
sudo -u postgres -i -- /opt/vmware/vpostgres/current/bin/psql vcac -c "DELETE FROM vmo_clustermember;"
```

- 8 Revert to the default configuration of the `postgresql.conf` and the `pg_hba.conf` file.
 - a Restart the PostgreSQL server service.

- 9 Replace the `catalina.properties`, `server.xml`, and `web.xml` files from the imported configuration with the backup copy you created in [Step 3c](#).

For example:

```
mv catalina.properties-date_hour catalina.properties
```

- a Change the ownership of the files to the `vco` user.

For example:

```
chown vco:vco catalina.properties
```

- 10 Replace the `setenv.sh` file from the imported configuration with the backup copy you created in [Step 3d](#).

For example:

```
mv setenv.sh-date_hour setenv.sh
```

- a Change the ownership of the files to the `vco` user.

For example:

```
chown vco:vco setenv.sh
```

You successfully migrated an external vRealize Orchestrator 6.x Virtual Appliance to a vRealize Orchestrator instance embedded in vRealize Automation 7.3.

What to do next

Set up the built-in vRealize Orchestrator server. See [Configure the Built-In vRealize Orchestrator Server](#).

Migrate an External vRealize Orchestrator 7.x to vRealize Automation 7.3

You can export the configuration from your existing external Orchestrator instance and import it to the Orchestrator server that is embedded into vRealize Automation.

Note If you have multiple vRealize Automation Appliance nodes, perform the migration procedure only on the primary vRealize Automation node.

Prerequisites

- Upgrade or migrate your vRealize Automation to version 7.3. For more information, see *Upgrading vRealize Automation in Installing or Upgrading vRealize Automation*.
- If you have a cluster of external Orchestrator server nodes, select one of them to be used during migration.

- Stop all Orchestrator server nodes, except the primary one and keep them stopped until the migration is completed.
- Back up the database, including the database schema, of the external Orchestrator server.

Procedure

- 1 Export the configuration from the external Orchestrator server.
 - a Log in to Control Center as **root** or as an **administrator**, depending on the source version.
 - b Stop the Orchestrator server service from the **Startup Options** page to prevent unwanted changes to the database.
 - c Go to the **Export/Import Configuration** page.
 - d On the **Export Configuration** page, select **Export server configuration, Bundle plug-ins and Export plug-in configurations**.
 - e (Optional) Enter a password to protect the configuration file.
Use the same password when you import the configuration later.
 - f Click **Export**.
- 2 Migrate the exported configuration into the embedded Orchestrator instance.
 - a Log in to each vRealize Automation Appliance over SSH as **root**.
 - b Stop the Orchestrator server service and the Control Center service of the embedded vRealize Orchestrator server.

```
service vco-server stop && service vco-configurator stop
```

- c On your primary vRealize Automation node, run the following commands to back up important configuration files, which need to be restored later.

```
cp -p /etc/vco/app-server/catalina.properties /etc/vco/app-server/catalina.properties-backup
cp -p /etc/vco/app-server/web.xml /etc/vco/app-server/web.xml-backup
cp -p /etc/vco/app-server/server.xml /etc/vco/app-server/server.xml-backup
cp -p /etc/vco/configuration/catalina.properties /etc/vco/configuration/catalina.properties-backup
cp -p /etc/vco/configuration/web.xml /etc/vco/configuration/web.xml-backup
cp -p /etc/vco/configuration/server.xml /etc/vco/configuration/server.xml-backup
cp -p /usr/lib/vco/app-server/bin/setenv.sh /usr/lib/vco/app-server/bin/setenv.sh-backup
cp -p /usr/lib/vco/configuration/bin/setenv.sh /usr/lib/vco/configuration/bin/setenv.sh-backup
```

- 3 Import the configuration to the embedded Orchestrator instance of your primary vRealize Automation node.
 - a Log in to the vRealize Automation Appliance over SSH as **root**.
 - b Upload the exported Orchestrator configuration file to the `/usr/lib/vco/tools/configuration-cli/bin` directory of the vRealize Automation Appliance.

- c Navigate to the `/usr/lib/vco/tools/configuration-cli/bin` directory.
- d Change the ownership of the exported Orchestrator configuration file.

```
chown vco:vco orchestrator-config-export-orchestrator_appliance_ip-date_hour.zip
```

- e Import the Orchestrator configuration file to the built-in vRealize Orchestrator server, by running the `vro-configure` script with the `import` command.

```
./vro-configure.sh import --skipDatabaseSettings --skipLicense --skipSettings --skipSslCertificate --notForceImportPlugins --notRemoveMissingPlugins --skipTrustStore --path orchestrator-config-export-orchestrator_hostname-date_hour.zip --password
```

Note Press Enter if the Orchestrator configuration export file is not password protected.

- 4 Restore the original Orchestrator configuration files.
 - a Log in to your primary vRealize Automation Appliance node over SSH as **root**.
 - b Run the following commands to restore the Orchestrator configuration files.

```
mv /etc/vco/app-server/catalina.properties-backup /etc/vco/app-server/catalina.properties
mv /etc/vco/app-server/web.xml-backup /etc/vco/app-server/web.xml
mv /etc/vco/app-server/server.xml-backup /etc/vco/app-server/server.xml
mv /etc/vco/configuration/catalina.properties-backup /etc/vco/configuration/catalina.properties
mv /etc/vco/configuration/web.xml-backup /etc/vco/configuration/web.xml
mv /etc/vco/configuration/server.xml-backup /etc/vco/configuration/server.xml
mv /usr/lib/vco/app-server/bin/setenv.sh-backup /usr/lib/vco/app-server/bin/setenv.sh
mv /usr/lib/vco/configuration/bin/setenv.sh-backup /usr/lib/vco/configuration/bin/setenv.sh
```

- 5 If the external Orchestrator server from which you want to migrate uses the built-in PostgreSQL database, edit its database configuration files.
 - a In the `/var/vmware/vpostgres/current/pgdata/postgresql.conf` file, uncomment the `listen_addresses` line.
 - b Set the values of `listen_addresses` to a wildcard (*).

```
listen_addresses = '*'
```

- c Append a line to the `/var/vmware/vpostgres/current/pgdata/pg_hba.conf` file.

```
host all all vra-va-ip-address/32 md5
```

Note The `pg_hba.conf` file requires using a CIDR prefix format instead on an IP address and a subnet mask.

- d Restart the PostgreSQL server service.

```
service vpostgres restart
```

- 6 Migrate the external Orchestrator database to the embedded one in vRealize Automation.
 - a Log in to the vRealize Automation Appliance over SSH as **root**.
 - b Navigate to the `/usr/lib/vco/tools/configuration-cli/bin` directory.
 - c Run the following command to migrate the database:

```
./vro-configure.sh db-migrate --sourceJdbcUrl JDBC_connection_URL --sourceDbUsername database_user --sourceDbPassword database_user_password
```

Note Enclose passwords that contain special characters in single quotation marks.

The `JDBC_connection_URL` depends on the type of database that you use.

```
PostgreSQL: jdbc:postgresql://host:port/database_name
```

```
MSSQL: jdbc:jtds:sqlserver://host:port/database_name\; if using SQL authentication and MSSQL:
jdbc:jtds:sqlserver://host:port/database_name\;domain=domain\;useNTLMv2=TRUE if using Windows
authentication.
```

```
Oracle: jdbc:oracle:thin:@host:port:database_name
```

The default database login information is:

<code>database_name</code>	vmware
<code>database_user</code>	vmware
<code>database_user_password</code>	vmware

- 7 If you migrated vRealize Automation instead of upgrading it, delete the trusted Single Sign-On certificates from the database of the embedded Orchestrator instance.

```
sudo -u postgres -i -- /opt/vmware/vpostgres/current/bin/psql vcac -c "DELETE FROM vmo_keystore
WHERE id='cakeystore-id';"
```

- 8 Delete the external Orchestrator cluster nodes from the imported Orchestrator database.

```
sudo -u postgres -i -- /opt/vmware/vpostgres/current/bin/psql vcac -c "DELETE FROM
vmo_clustermember;"
```

- 9 Start the embedded Orchestrator server services.
 - a Log in to each vRealize Automation Appliance over SSH as **root**.
 - b Start the Orchestrator server service.

```
service vco-server start
```

- 10 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.

You successfully migrated an external Orchestrator server instance to a vRealize Orchestrator instance embedded in vRealize Automation.

What to do next

Set up the built-in vRealize Orchestrator server. See [Configure the Built-In vRealize Orchestrator Server](#).

Configure the Built-In vRealize Orchestrator Server

After you export the configuration of an external Orchestrator server and import it to vRealize Automation 7.3, you must configure the Orchestrator server that is built into vRealize Automation.

Prerequisites

Migrate the configuration from the external to the internal vRealize Orchestrator.

Procedure

- 1 Log in to the vRealize Automation Appliance over SSH as **root**.
- 2 Start the Control Center service and the Orchestrator server service of the built-in vRealize Orchestrator server.

```
service vco-configurator start && service vco-server start
```

- 3 Log in to Control Center of the built-in Orchestrator server as an **administrator**.
- 4 Verify that Orchestrator is configured properly at the **Validate Configuration** page in Control Center.
- 5 Under the **Package Signing Certificate** tab on the **Certificates** page, generate a new package signing certificate.
- 6 Change the values for **Default tenant** and **Admin group** on the **Configure Authentication Provider** page.
- 7 Verify that the `vco-server` service appears as REGISTERED under the **Services** tab in the vRealize Automation Appliance management console.
- 8 Select the `vco` services of the external Orchestrator server and click **Unregister**.

What to do next

- Import any certificates that were trusted in the external Orchestrator server to the trust store of the built-in Orchestrator. For more information, see *Manage Orchestrator Certificates* in *Installing and Configuring VMware vRealize Orchestrator*.
- Join the vRealize Automation replica nodes to the vRealize Automation cluster to synchronize the Orchestrator configuration.

For more information, see *Reconfigure the Target Embedded vRealize Orchestrator to Support High Availability* in *Installing or Upgrading vRealize Automation*.

Note The vRealize Orchestrator instances are automatically clustered and available for use.

- Restart the `vco-configurator` service on all nodes in the cluster.
- Update the vRealize Orchestrator endpoint to point to the migrated built-in Orchestrator server.
- Add the vRealize Automation host and the IaaS host to the inventory of the vRealize Automation plug-in, by running the `Add a vRA host` and `Add the IaaS host of a vRA host` workflows.

Update Embedded vRealize Orchestrator to Trust vRealize Automation Certificates

If you update or change vRealize Automation Appliance or IaaS certificates, you must update vRealize Orchestrator to trust the new or updated certificates.

This procedure applies to all vRealize Automation deployments that use an embedded vRealize Orchestrator instance. If you use an external vRealize Orchestrator instance, see [Update External vRealize Orchestrator to Trust vRealize Automation Certificates](#).

Note This procedure resets tenant and group authentication back to the default settings. If you have customized your authentication configuration, note your changes so that you can re-configure authentication after completing the procedure.

See the vRealize Orchestrator documentation for information about updating and replacing vRealize Orchestrator certificates.

If you replace or update vRealize Automation certificates without completing this procedure, the vRealize Orchestrator Control Center may be inaccessible, and errors may appear in the `vco-server` and `vco-configurator` log files.

Problems with updating certificates can also occur if vRealize Orchestrator is configured to authenticate against a different tenant and group than vRealize Automation. See <https://kb.vmware.com/kb/2147612>.

Procedure

- 1 Stop the vRealize Orchestrator server and Control Center services.

```
service vco-server stop
service vco-configurator stop
```

- 2 Reset the vRealize Orchestrator authentication provider.
 - a Run the `/var/lib/vco/tools/configuration-cli/bin/vro-configure.sh reset-authentication` command.
 - b Delete `/etc/vco/app-server/vco-registration-id`.
 - c Run `vcac-vami vco-service-reconfigure`
- 3 Start the vRealize Orchestrator server and control center services.

```
service vco-server start
service vco-configurator start
```

Control Center Differences Between External and Embedded Orchestrator

Some of the menu items that are available in Control Center of an external vRealize Orchestrator are not included in the default Control Center view of an embedded Orchestrator instance.

In Control Center of the embedded Orchestrator server, a few options are hidden by default.

Menu Item	Details
Licensing	The embedded Orchestrator is preconfigured to use vRealize Automation as a license provider.
Export/Import Configuration	The embedded Orchestrator configuration is included in the exported vRealize Automation components.
Configure Database	The embedded Orchestrator uses the database that is used by vRealize Automation.
Customer Experience Improvement Program	You can join the Customer Experience Improvement Program (CEIP) from the vRealize Automation appliance management interface. See <i>The Customer Experience Improvement Program</i> in <i>Managing vRealize Automation</i> .

Another options that are hidden from the default Control Center view are the **Host address** text box and the **UNREGISTER** button on the **Configure Authentication Provider** page.

Note To see the full set of Control Center options in vRealize Orchestrator that is built into vRealize Automation, you must access the advanced Orchestrator Management page at https://vra-va-hostname.domain.name_or_load_balancer_address:8283/vco-controlcenter/#!/?advanced and click the F5 button on the keyboard to refresh the page.