Upgrading and Migrating VMware vRealize Orchestrator

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vRealize Orchestrator 8.5

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Upgrading and Migrating VMware vRealize Orchestrator

Upgrading and Migrating VMware vRealize Orchestrator provides information and instructions about upgrading VMware® vRealize Orchestrator standalone or clustered deployments, and migrating to the latest version of vRealize Orchestrator.

Intended Audience

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

Upgrading vRealize Orchestrator

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Upgrade vRealize Orchestrator 8.x to the latest product version.

This chapter includes the following topics:

- Pre-upgrade validation steps
- Upgrade a Standalone or Clustered vRealize Orchestrator 8.0 Deployment
- Upgrade a Standalone or Clustered vRealize Orchestrator 8.0.1 or Later Deployment
- Troubleshooting vRealize Orchestrator Upgrades

Pre-upgrade validation steps

You must validate your vRealize Orchestrator deployment before upgrading to a newer product version.

Procedure

1 Perform the following pre-upgrade validation steps when upgrading from vRealize Orchestrator 8.0-8.5 to vRealize Orchestrator 8.5.1 or later.

   a   Log in to the vRealize Orchestrator Appliance command line as **root**.

   b   Validate whether `VM Hard disk 4` has enough capacity by running the following script:

```
vracli cluster exec -- sh -lc "base64 -d <<<
'IyEvYmluL2Jhc2gKCnNldCAtZQp2ZXI9JCh2cmFjbGkgdmVyc2lvbiB8IGhlYWQgLW4gMSB8IGF3aydane3ByaW
50ICQzfScgfCBhd2sgLUYgLiAne3ByaW50ICQxJDIkM30nKQppZiBbICR2ZXIgLWdlIDg1MSBdOyB0aGVuCiAgZ
WNobyAiVGhpcyBLQiBpcyBhcHBsaWNhYmxlIGZvciB2UtCeIHZlcnNpb25zIGJlbG93IDguNS4xIgogIGV4aXQg
MApmaQptdHJGclNwY0tiPSQoZGYgLVAgL21ldHJpY3MgfCBhd2sgJ0VORHtwcmludCAkNH0nKQptdHJUb3RTcGN
LYj0kKGRmIC1QIC9tZXRyaWNzIHwgYXdrICdFTkR7cHJpbnQgJDJ9JykKcnRektiPSQoZHUgLWtzIC9yb290IH
wgYXdrICd7cHJpbnQgJDF9JykKbKbRyUmVtRnJTcGNLYj0kKCggbXRyRnJTcGNLYi1ydFN6S2IgKSkKbXRyRXhwT
WluRnJTcGNLYj0kKCggbXRyVG90U3BjS2IqMS8xMDAgKSkKaWYgWyAkbXRyUmVtRnJTcGNLYiAtbGUgUgJG10ckV4
cE1pbkZyU3BjS2IgXTsgdGhlbgogICAgZGlmZj0kKCggKG10ckV4cE1pbkZyU3BjS2ItbXRyUmVtRnJTcGNLYik
vMTAyNC8xMDI0KzEgKSkKICAgIGVjaG8gIlVwZ3JhZGUgcmVxdWlyZXMgYWRkaXRpb25hbCAkZGlmZiBHQiBvZi
BkaXNrIHNwYWNlIG9uIFZNIEhhcmQgZGlzayA0IG9mICQoIGN1cnJlbnRfbm9kZSApLiBSZXNpemUgdk0gSGFyZ
CBkaXNrIDQgYWNjb3JkaW5nbHkgb3IgcmVtb3ZlIG9ic29sZXRlIHVzZXIgZmlsZXMgZnJvbSAvcm9vdCBpbiBv
cmRlciB0byBwcm9jZWVkIHdpdGggdGhlIHVwZ3JhZGUuIgogICAgZXhpdCAxCmVsc2UKICAgIGVjaG8gIk5vIGF
kZGl0aW9uYWwgZGlzayBzcGFjZSBpcyByZXF1aXJlZCBvbiBub2RlOiAkKCBjdXJyZW50X25vZGUgKSIKZmkK'
| sh -"
```

If the preceding validation fails with the message `Upgrade requires additional X GB of disk space on VM Hard disk 4` for any of the nodes in the cluster, follow the instructions from the script output for each respective node.

2 Perform the following pre-upgrade validation steps when upgrading from vRealize Orchestrator 8.0-8.5.1 to vRealize Orchestrator 8.6 or later.

   a   Take a virtual machine (VM) snapshot of your vRealize Orchestrator deployment. See Taking a Snapshot.

   b   Log in to the vRealize Orchestrator Appliance command line as **root**.

   c   Generate a log bundle of your vRealize Orchestrator deployment by running the `vracli log-bundle` command.

Note The log bundle is required and used by VMware support as a reference point in case of upgrade failure or any other post-upgrade issues.

d   Navigate to the `/var/log/` directory and check the size of the `cron` and `auth.log` files. If both files are too large, delete them.

e   Validate whether there is enough available space in the `/services-logs` directory by running the following script:

```
vracli cluster exec -- sh -lc "base64 -d <<<
'IyEvYmluL2Jhc2gKCnNldCAtZQoKdmVyPSQodnJhY2xpIHZlcnNpb24gfCBoZWFkIC1uIDEgfCBhd2sgJ3twcm
ludCAkM30nIHwgYXdrIC1GIC4gJ3twcmludCAkMSQyJDN9JykKaWYgWyAkdmVyIC1nZSA4NiBdIHx8IFsgJHZlc
iAtbHQgODYgXTsgdGhlbgogIGVjaG8gIlRoaXMgc0IgaXMgb25seSBhcHBsaWNhYmxlIGZvciB2Uk8gOC42IG1h
am9yIHZlcnNpb24uIgogIGV4aXQgMApmaQoKZWNobyAiQ2hlY2tpbmcgYXZhaWxhYmxlIHNwYWNlIGluIC9zZXJ
2aWNlcy1sb2dzLi4uIgpzdmNMb2dzRnJlZVNwYWNlS2I9JChkZiAtUCAvc2VydmljZXMtbG9ncyB8IGF3ayAnRU
5Ee3ByaW50ICQ0fScpCnN2Y0xvd33NUb3RhbFNwYWNlS2I9JChkZiAtUCAvc2VydmljZXMtbG9ncy8gfCBhd2sgJ
0VORHtwcmludCAkMn0nKQp2YXJMb2dTaXplS2I9JChkdSAta3MgL3Zhci9sb2cgfCBhd2sgJ3twcmludCAkMX0n
KQoKZWNobyAiL3Zhci9sb2cgdG90YWwgc2l6ZSAoa2J5dGVzKTogJHZhckxvZ0hZhckxvZ1NpemVLYiIKZWNobyAiQXZhaW
hYmxlIHNwYWNlIG9uIC9zZXJ2aWNlcy1sb2dzIChrYnl0ZXMpOiAkc3ZjTG9nc0ZyZWVTcGFjZUtiIgoKc3ZjTG
9nc1JlbWFpbmluZ0ZyZWVTcGFjZUtiPSQoKCBzdmNMb2dzRnJlZVNwYWNlS2ItdmFyTG9nU2l6ZUtiICkpCnN2Y
0xvZ3NFeHBlY3RlZE1pbkZyZWVTcGFjZUtiPSQoKCBzdmNMb2dzVG90YWxTcGFjZUtiKjEvMTAwICkpCgppZiBb
ICRzdmNMb2dzUmVtYWluaW5nRnJlZVNwYWNlS2IgLWxlICRzdmNMb2dzRXhwZWN0ZWRNaW5GcmVlU3BhY2VLYiB
dOyB0aGVuCiAgIGRpZmY9JCgoIHN2Y0xvZ3NFeHBlY3RlZE1pbkZyZWVTcGFjZUtiLXN2Y0xvZ3NSZW1haW5pbm
dGcmVlU3BhY2VLYiApKQogICBlY2hvICJDb250ZW50IGluc2lkZSAvdmFyL2xvZyBleGNlZWRzIHJlcXVpcmVkI
GF2YWlsYWJsZSBzcGFjZSBpbiAvc2VydmljZXMtbG9ncyBieSAkZGlmZiBLQi4gSW5jcmVhc2UgdGhlIHNpemUg
b2YgVk0gSGFyZCBkaXNrIDMgYWNjb3JkaW5nbHkuIgogICBleGl0IDEKZmkK' | sh -"
```

If the preceding validation fails with the message `Content inside /var/log exceeds required available space in /services-logs by X KB`, increase the size of `VM Hard disk 3` by following the instructions from the script output for each respective node.

What to do next

Upgrade your vRealize Orchestrator deployment.

▪   For information on upgrading vRealize Orchestrator 8.0 deployments, see Upgrade a Standalone or Clustered vRealize Orchestrator 8.0 Deployment.

▪   For information on upgrading vRealize Orchestrator 8.0.1 or later deployments, see Upgrade a Standalone or Clustered vRealize Orchestrator 8.0.1 or Later Deployment.

Upgrade a Standalone or Clustered vRealize Orchestrator 8.0 Deployment

You can upgrade your vRealize Orchestrator 8.0 deployment to the latest product version by using a mounted ISO image. Upgrading vRealize Orchestrator 7.x or earlier to vRealize Orchestrator 8.x is not supported.

Prerequisites

▪   Perform the required pre-upgrade validation steps. See Pre-upgrade validation steps.

- Download and mount the ISO image:

  a   Download the ISO image from the official VMware download site.

  b   Connect the CD-ROM drive of the vRealize Orchestrator Appliance virtual machine in vSphere. See the *vSphere Virtual Machine Administration* documentation.

  > **Note**   After connecting the CD-ROM drive, navigate to your vRealize Orchestrator Appliance VM settings page and verify that **Connect At Power On** is enabled.

  c   Mount the ISO image to the CD-ROM drive of the vRealize Orchestrator Appliance virtual machine in vSphere. See the *vSphere Virtual Machine Administration* documentation.

- vRealize Orchestrator containers must be up and running.

Procedure

1   Log in to the vRealize Orchestrator Appliance command line as **root**.

2   Run the `blkid` command, and note the device name for the vRealize Orchestrator Appliance CD-ROM drive.

3   Mount the CD-ROM drive.

```
mount /dev/xxx /mnt/cdrom
```

> **Important**   For clustered vRealize Orchestrator deployments, you must perform steps 2 and 3 on all nodes in the cluster.

4   Run the `vracli upgrade exec -y --prepare --profile lcm --repo cdrom://` command.

> **Note**   For vRealize Orchestrator deployments authenticated with vSphere, enter the credentials of the user who registered your deployment with the vCenter Single Sign-On (SSO) service. Alternatively you can also, export the your password as a environmental variable. This can be useful for scenarios where you are using an automated script to upgrade multiple vRealize Orchestrator deployments. To export the SSO password, run the `export VRO_SSO_PASSWORD=`*your_sso_password* command.

5   Power off your vRealize Orchestrator nodes.

6   Back up your vRealize Orchestrator deployment by taking a virtual machine (VM) snapshot. See Taking a Snapshot.

> **Caution**   vRealize Orchestrator 8.x does not currently support memory snapshots. Before taking the snapshot of your vRealize Orchestrator deployment, verify that the **Snapshot the virtual machine's memory** option is deactivated.

7   Power on your vRealize Orchestrator deployment.

8 To finish the upgrade, run the `vracli upgrade exec` command on one of the nodes in your deployment.

Results

You have upgraded your vRealize Orchestrator deployment. To troubleshoot possible problems with the upgrade, see Troubleshooting vRealize Orchestrator Upgrades.

What to do next

Validate that the vRealize Orchestrator Appliance upgrade was successful by navigating to https://*your_vro_FQDN*/vco/api/about. The page should display information about the current vRealize Orchestrator Appliance build, product version, and API version, such as the following:

```
<ns2:build-number>15962410</ns2:build-number>
<ns2:build-date>2020-04-02T23:00:11Z</ns2:build-date>
<ns2:version>8.1.0.15962410</ns2:version>
<ns2:api-version>5.5.2</ns2:api-version>
```

Upgrade a Standalone or Clustered vRealize Orchestrator 8.0.1 or Later Deployment

You can upgrade your vRealize Orchestrator 8.0.1 or later deployment to the latest product version by using a mounted ISO image. Upgrading vRealize Orchestrator 7.x or earlier to vRealize Orchestrator 8.x is not supported.

Prerequisites

■ Perform the required pre-upgrade validation steps. See Pre-upgrade validation steps.

■ Download and mount the ISO image:

   a Download the ISO image from the official VMware download site.

   b Connect the CD-ROM drive of the vRealize Orchestrator Appliance virtual machine in vSphere. See the *vSphere Virtual Machine Administration* documentation.

   > **Note** After connecting the CD-ROM drive, navigate to your vRealize Orchestrator Appliance VM settings page and verify that **Connect At Power On** is enabled.

   c Mount the ISO image to the CD-ROM drive of the vRealize Orchestrator Appliance virtual machine in vSphere. See the *vSphere Virtual Machine Administration* documentation.

■ Before upgrading vRealize Orchestrator deployments authenticated with vRealize Automation, verify that the vRealize Automation product version matches the version of vRealize Orchestrator you are upgrading to. For example, if you are upgrading to vRealize Orchestrator 8.5, you must verify you are using vRealize Automation 8.5 as a authentication provider.

Procedure

1 Log in to the vRealize Orchestrator Appliance command line as **root**.

2 Run the `blkid` command, and note the device name for the vRealize Orchestrator Appliance CD-ROM drive.

3 Mount the CD-ROM drive.

```
mount /dev/xxx /mnt/cdrom
```

Important For clustered vRealize Orchestrator deployments, you must perform steps 2 and 3 on all nodes in the cluster.

4 Back up your vRealize Orchestrator deployment by taking a virtual machine (VM) snapshot. See Take a Snapshot of a Virtual Machine.

Caution vRealize Orchestrator 8.x does not currently support memory snapshots. Before taking the snapshot of your vRealize Orchestrator deployment, verify that the **Snapshot the virtual machine's memory** option is deactivated.

5 To finish the upgrade, run the `vracli upgrade exec -y --profile lcm --repo cdrom://` command on one of the nodes in your deployment.

Note For vRealize Orchestrator deployments authenticated with vSphere, enter the credentials of the user who registered your deployment with the vCenter Single Sign-On (SSO) service. Alternatively you can also, export the your password as a environmental variable. This can be useful for scenarios where you are using an automated script to upgrade multiple vRealize Orchestrator deployments. To export the SSO password, run the `export VRO_SSO_PASSWORD=`*your_sso_password* command.

Results

You have upgraded your vRealize Orchestrator deployment. To troubleshoot possible problems with the upgrade, see Troubleshooting vRealize Orchestrator Upgrades.

What to do next

Validate that the vRealize Orchestrator Appliance upgrade was successful by navigating to https://*your_vro_FQDN*/vco/api/about. The page should display information about the current vRealize Orchestrator Appliance build, product version, and API version, such as the following:

```
<ns2:build-number>15962410</ns2:build-number>
<ns2:build-date>2020-04-02T23:00:11Z</ns2:build-date>
<ns2:version>8.1.0.15962410</ns2:version>
<ns2:api-version>5.5.2</ns2:api-version>
```

Troubleshooting vRealize Orchestrator Upgrades

Your vRealize Orchestrator deployment can encounter issues during and after attempting to upgrade the deployment to the latest product version.

False Upgrade Failure Notification

The upgrade log indicates that the upgrade process has failed, but the individual nodes of the deployment are upgraded.

After the upgrade script finishes running, you receive the following message in your vRealize Orchestrator Appliance indicating that the upgrade has failed:

```
Upgrade failed and left the system in non-working state. Check the error report below to
correct the problem. Once addressed, you can continue the upgrade by running 'vracli upgrade
exec --resume'
```

However, the upgrade log lists that the nodes of your vRealize Orchestrator deployment are upgraded.

```
Hostname:               <your_vRO_node_FQDN>
Status:                 Upgraded
Cluster Member:         Yes
Version Before:         <build_before_upgrade>
Version After:          <build_after_upgrade>
Description:            The node is upgraded successfully.
```

To resolve this problem, verify that the vRealize Orchestrator nodes are running, and resume the upgrade.

Procedure

1   Verify that your vRealize Orchestrator nodes are running.

```
kubectl get all pods
```

2   If your vRealize Orchestrator nodes are running, resume the upgrade process.

```
vracli upgrade exec --resume
```

Migrating vRealize Orchestrator

3

You can migrate your existing vRealize Orchestrator 7.x deployment to a vRealize Orchestrator 8.x environment. Migration is supported for vRealize Orchestrator 7.3 or later authenticated with vSphere or with vRealize Automation 7.x.

What does the migration include?

The vRealize Orchestrator migration transfers an external source vRealize Orchestrator configuration to your current vRealize Orchestrator environment, overwriting all existing elements such as workflows, actions, configuration and resource elements, including secure strings in workflows and configuration elements, packages, tasks, policies, certificates and trusted certificates, plug-ins and plug-in configurations, custom records in the `the js-io-rights.conf` file, Control Center system properties. The migration includes both built-in and custom vRealize Orchestrator content.

- The migration of vRealize Orchestrator instances authenticated with vSphere also includes the state of currently running entities, such as workflow execution tokens, scheduled tasks, policy runs.

- For vRealize Orchestrator instances authenticated with vRealize Automation, the currently running entities appear in a failed state in the target vRealize Orchestrator environment.

What is not migrated?

The migrated vRealize Orchestrator configuration does not include the following data that might affect the target vRealize Orchestrator performance and use.

- The VCAC, VCACCAFE, GEF, Data Management, and Workflow Documentation plug-ins of the source vRealize Orchestrator. Aside from workflow runs, all vRealize Orchestrator content associated with these plug-ins is not migrated to the vRealize Orchestrator target environment.

- Syslog server configuration in the **Logging Integration** page in Control Center.

- Workflow execution logs.

- Dynamic Types plug-in configurations.

Migrating embedded vRealize Orchestrator environments

You can migrate your external vRealize Orchestrator 7.x environment to both external and embedded vRealize Orchestrator environments. However, migration of embedded vRealize Orchestrator environments to external environments is not supported.

For information about migrating embedded vRealize Orchestrator environments, see the vRealize Automation 8 Transition Guide.

FIPS compliance considerations

Migrating or upgrading existing non-FIPS deployments to FIPS-compliant vRealize Orchestrator 8.5 environments is not supported.

By default, FIPS mode can be enabled only during installation. For more information, see Download and Deploy the vRealize Orchestrator Appliance.

To learn more about support for FIPS 140-2 in VMware products, see this page.

This chapter includes the following topics:

- Migrate a Standalone vRealize Orchestrator 7.x to vRealize Orchestrator 8.x
- Additional Migration Requirements for Content Accessing the File System

Migrate a Standalone vRealize Orchestrator 7.x to vRealize Orchestrator 8.x

You can migrate an external standalone vRealize Orchestrator 7.x instance to a vRealize Orchestrator 8.x environment. Migration is supported for vRealize Orchestrator 7.x instances authenticated with vSphere or with vRealize Automation 7.x.

Important   Upgrading vRealize Orchestrator 7.x or earlier to vRealize Orchestrator 8.x is not supported.

The migration transfers an external standalone vRealize Orchestrator 7.x configuration to your vRealize Orchestrator 8.x environment. The migration involves overwriting all existing elements in your vRealize Orchestrator 8.x environment, such as workflows, actions, configuration and resource elements, including secure strings in workflows and configuration elements, packages, tasks, policies, certificates and trusted certificates, plug-ins and plug-in configurations, custom records in the the `js-io-rights.conf` file, Control Center system properties. The migration of vRealize Orchestrator instances authenticated with vSphere also includes the state of currently

running entities, such as workflow execution tokens, scheduled tasks, policy runs. For vRealize Orchestrator instances authenticated with vRealize Automation, the currently running entities appear in a failed state in the target vRealize Orchestrator environment. The migration includes both built-in and custom vRealize Orchestrator content.

Note Migration of clustered vRealize Orchestrator 7.x deployments to vRealize Orchestrator 8.x is not supported. You can migrate the primary node of your clustered deployment by stopping the services of the replica nodes before you run the migration script.

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

You perform the migration by using the `vro-migrate` command on the vRealize Orchestrator appliance.

Note The migration script stops the vRealize Orchestrator services automatically.

Prerequisites

- Migration is supported for vRealize Orchestrator 7.3 or later.

- Download and deploy a vRealize Orchestrator 8.x environment. See *Download and Deploy the vRealize Orchestrator Appliance* in *Installing and Configuring VMware vRealize Orchestrator*.

- Configure the authentication provider of your target vRealize Orchestrator environment. The authentication provider of the source vRealize Orchestrator instance is not migrated. See *Configuring a Standalone vRealize Orchestrator Server* in *Installing and Configuring VMware vRealize Orchestrator*.

- Back up the target vRealize Orchestrator environment.

- Verify that SSH access is enabled on the source vRealize Orchestrator instance and target vRealize Orchestrator environment. See *Enable or Disable SSH Access to the vRealize Orchestrator Appliance* in *Installing and Configuring VMware vRealize Orchestrator*.

- Verify that the source vRealize Orchestrator database is accessible from the target vRealize Orchestrator environment.

Procedure

1 Log in to the vRealize Orchestrator appliance command line of your target environment over SSH as **root**.

2 To start the migration, run the `vro-migrate` command.

3 Follow the command prompts to provide the fully qualified domain name (FQDN) and credentials of the source vRealize Orchestrator instance.

4 (Optional) To follow the migration progress, access the migration log:

    a   Log in to your target vRealize Orchestrator appliance command line over a separate SSH session as **root**.

    b   Run the `tail -f /var/log/vro-migration.log` command.

5 (Optional) If you want to access your source vRealize Orchestrator 7.x environment after migration, restart the `vco-server` and `vco-configurator` services on the source system.

Results

The migration process begins. You receive a notification on the target vRealize Orchestrator appliance when the migration finishes.

Additional Migration Requirements for Content Accessing the File System

Content migrated to the vRealize Orchestrator file system must follow the requirements of the new container-based appliance.

Because the vRealize Orchestrator appliance is running in a container, it has limitations regarding access to the file system. The `js-io-rights.conf` file still determines if a file is accessible from the vRealize Orchestrator scripting API, but you cannot use arbitrary folders in the file system. The main folder accessible to the vRealize Orchestrator service is `/var/run/vco`. Under the vRealize Orchestrator appliance file system, this folder is mapped under `/data/vco/var/run/vco`. All local files that access the vRealize Orchestrator scripting API must be moved to the specified main directory. Under the main directory, you can create subdirectories for your content.

For example, if you want to mount an external NFS volume to your vRealize Orchestrator appliance, you must mount it in `/data/vco/var/run/vco`*mount_directory_path*. Afterwards, the vRealize Orchestrator scripting API can access the mounted NFS volume at `/var/run/vco/`*mount_directory_path*.

Kerberos Configuration

To use a Kerberos configuration, you can only use the `/data/vco/usr/lib/vco/app-server/conf/krb5.conf` file. For information on Kerberos debug logging, see *Enable Kerberos Debug Logging* in *Installing and Configuring VMware vRealize Orchestrator*.