

# Upgrading from vRealize Automation 7.1 to 7.2

vRealize Automation 7.2

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EN-002388-02

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# Updated Information

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This *Upgrading from vRealize Automation 7.1 to 7.2* guide is updated with each release of the product or when necessary.

This table provides the update history of the *Upgrading from vRealize Automation 7.1 to 7.2* guide.

Revision	Description
EN-002388-02	<ul style="list-style-type: none"><li>■ Revised <a href="#">“Install the Update on the Primary vRealize Automation 7.1 Appliance,”</a> on page 15.</li><li>■ Revised <a href="#">Chapter 4, “Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2,”</a> on page 19.</li><li>■ Revised <a href="#">“Upgrade Fails for IaaS Website Component,”</a> on page 40.</li><li>■ Added <a href="#">Chapter 5, “Updating vRealize Orchestrator After Upgrading from vRealize Automation 7.1 to 7.2,”</a> on page 27.</li><li>■ Added <a href="#">“Migrating an External vRealize Orchestrator Server to vRealize Automation 7.2,”</a> on page 27.</li><li>■ Added <a href="#">“Upgrade External vRealize Orchestrator Appliance Cluster After Upgrading vRealize Automation 7.1 to 7.2,”</a> on page 28.</li></ul>
EN-002388-01	<ul style="list-style-type: none"><li>■ Revised <a href="#">“Upgrade IaaS Components Using the Upgrade Shell Script After Upgrading vRealize Automation 7.1 to 7.2,”</a> on page 19 to include information about installing Management Agent.</li><li>■ Revised <a href="#">“Upgrade Fails to Upgrade the Management Agent or Certificate Not Installed on a IaaS Node,”</a> on page 44 to include information about installing the Management Agent.</li></ul>
EN-002388-00	Initial release.



# vRealize Automation 7.1 Upgrade Prerequisites and Process

# 1

You can perform an in-place upgrade of your current VMware vRealize™ Automation 7.1 environment to the latest version. You use several upgrade procedures specific to this version to upgrade your environment.

An in-place upgrade is a multi-stage process in which you perform procedures in a particular order on the various components in your current environment. You must upgrade all product components to the same version.

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**NOTE** New vRealize Automation features introduce several enhancements along with the ability to upgrade or migrate to the new version. For recommendations and guidance before you begin the upgrade process, visit the vRealize Automation Upgrade Assistance Program web page at <http://www.vmware.com/products/vrealize-automation/upgrade-center> before you begin the upgrade process.

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Beginning with vRealize Automation 7.2, JFrog Artifactory Pro is no longer bundled with the vRealize Automation appliance. If you upgrade from an earlier version of vRealize Automation, the upgrade process removes JFrog Artifactory Pro. For more information, see [Knowledge Base 2147237](#).

Beginning in 6.2.0, vCloud Automation Center is rebranded to vRealize Automation. Only the user interface and service names are changed. Directory names and program names that contain vcac are not affected.

This chapter includes the following topics:

- [“Prerequisites for Upgrading vRealize Automation 7.1,”](#) on page 7
- [“Checklist for Upgrading vRealize Automation 7.1,”](#) on page 8

## Prerequisites for Upgrading vRealize Automation 7.1

Before you run the upgrade, review the following prerequisites.

### System Configuration Requirements

Verify that the following prerequisites are finished before you begin an upgrade.

- Verify that all appliances and servers that are part of your deployment meet the system requirements for the latest version. See the *vRealize Automation Support Matrix* at <https://www.vmware.com/support/pubs/vcac-pubs.html>.
- Consult the *VMware Product Interoperability Matrix* on the VMware Web site for information about compatibility with other VMware products.
- Verify that the vRealize Automation you are upgrading from is in stable working condition. Correct any problems before upgrading.

## Hardware Configuration Requirements

Verify that the following prerequisites are finished before you begin an upgrade.

- You must have at least 18 GB RAM, 4 CPUs, Disk1 = 50 GB, Disk3=25 GB, and Disk4=50 GB before you run the upgrade.

If the virtual machine is on vCloud Networking and Security, you might need to allocate more RAM space.

Although general support for VMware vCloud<sup>®</sup> Networking and Security<sup>™</sup> 5.5.x (vCNS) ended in September 2016, the VCNS custom properties continue to be valid for VMware NSX<sup>™</sup> purposes. See the VMware Knowledge Base article *End of Availability and End of General Support for VMware vCloud Networking and Security 5.5.x (2144733)* at <http://kb.vmware.com/kb/2144733> for more information.

- Your primary IaaS Web site, Microsoft SQL database, and Model Manager node must have the Microsoft .NET Framework 4.5.2 version and at least 5 GB of free disk space.
- Your primary IaaS Web site, Microsoft SQL database, and Model Manager node must have JAVA SE Runtime Environment 8, 64bits, update 91 or higher installed. After you install Java, you must set the environment variable, JAVA\_HOME, to the new version on each server node.
- You must have at least 5.3 GB of free disk space on the root partition of each vRealize Automation appliance to download and run the upgrade.
- Check the /storage/log subfolder and remove any older archived ZIP files to clean up space.

## General Prerequisites

Verify that the following prerequisites are finished before you begin an upgrade.

- You have access to all databases and all load balancers impacted by or participating in the vRealize Automation upgrade.
- You make the system unavailable to users while you perform the upgrade.
- You disable any applications that query vRealize Automation.
- Verify that Microsoft Distributed Transaction Coordinator (MSDTC) is enabled on all vRealize Automation and associated SQL servers. For instructions, see the VMware Knowledge Base article *Various tasks fail after upgrading or migrating to VMware vCloud Automation Center (vCAC) 6.1.x (2089503)* at <http://kb.vmware.com/kb/2089503>.
- If you are upgrading a distributed environment configured with an embedded PostgreSQL database, examine the files in the pgdata directory on the master host before you upgrade the replica hosts. Navigate to the PostgreSQL data folder on the master host at /var/vmware/vpostgres/current/pgdata/. Close any opened files in the pgdata directory and remove any files with a .swp suffix.
- If you installed a Common Components Catalog component, you must uninstall it before you upgrade. For information about how to uninstall, install, and upgrade Common Components Catalog components, see the *Common Components Catalog Installation Guide*.

## Checklist for Upgrading vRealize Automation 7.1

When you perform an upgrade, you update all vRealize Automation components in a specific order.

The order of upgrade varies depending on whether you are upgrading a minimal environment or a distributed environment with multiple vRealize Automation appliances.

Use the checklists to track your work as you complete the upgrade. Complete the tasks in the order they are given.

You must upgrade components in the prescribed order and upgrade all components. Using a different order can result in unexpected behavior after the upgrade or failure of the upgrade to complete.

**Table 1-1.** Checklist for Upgrade of a vRealize Automation Minimal Environment

Task	Instructions
<input type="checkbox"/> Backup your current installation. This is a critical step.	For more information on how to back up and restore your system, see <a href="#">“Back Up Your Existing vRealize Automation 7.1 Environment,”</a> on page 12. For general information, see <i>Configuring Backup and Restore by Using Symantec Netbackup</i> at <a href="http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf">http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf</a>
<input type="checkbox"/> If you installed a Common Components Catalog component, you must uninstall it before you upgrade.	For information about how to uninstall, install, and upgrade Common Components Catalog components, see the <i>Common Components Catalog Installation Guide</i> . If this guide is unavailable, complete these steps on each IaaS node. <ol style="list-style-type: none"> <li>1 Log in to the IaaS node.</li> <li>2 Click <b>Start</b>.</li> <li>3 Enter <b>services</b> in the <b>Search programs and files</b> text box.</li> <li>4 Click <b>Services</b>.</li> <li>5 In the right pane of the Services window, right-click each IaaS service and select <b>Stop</b> to stop each service.</li> <li>6 Click <b>Start &gt; Control Panel &gt; Programs and Features</b>.</li> <li>7 Right-click each installed Common Components Catalog component, and select <b>Uninstall</b>.</li> <li>8 Click <b>Start &gt; Command Prompt</b>.</li> <li>9 At the command prompt, run <b>iisreset</b>.</li> </ol>
<input type="checkbox"/> Download update to the vRealize Automation appliance.	See <a href="#">“Downloading vRealize Automation Appliance Updates,”</a> on page 13.
<input type="checkbox"/> Install the update on the vRealize Automation appliance.	<a href="#">“Install the Update on the Primary vRealize Automation 7.1 Appliance,”</a> on page 15
<input type="checkbox"/> Upgrade IaaS components.	See <a href="#">Chapter 4, “Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2,”</a> on page 19.

**Table 1-2.** Checklist for Upgrade of a vRealize Automation Distributed Environment

Task	Instructions
<input type="checkbox"/> Backup your current installation. This is a critical step.	For more information on how to back up and restore your system, see <a href="#">“Back Up Your Existing vRealize Automation 7.1 Environment,”</a> on page 12. For detailed information, see <i>Configuring Backup and Restore by Using Symantec Netbackup</i> at <a href="http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf">http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf</a>
<input type="checkbox"/> Download updates to the vRealize Automation appliance.	See <a href="#">“Downloading vRealize Automation Appliance Updates,”</a> on page 13.

**Table 1-2.** Checklist for Upgrade of a vRealize Automation Distributed Environment (Continued)

Task	Instructions
<input type="checkbox"/> Install the update on the master vRealize Automation appliance in your environment. <b>NOTE</b> You must install the update on the master appliance in a distributed environment..	See <a href="#">“Install the Update on the Primary vRealize Automation 7.1 Appliance,”</a> on page 15.
<input type="checkbox"/> Upgrade IaaS components.	See <a href="#">Chapter 4, “Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2,”</a> on page 19 .
<input type="checkbox"/> Enable your load balancers.	<a href="#">Chapter 7, “Enable Your Load Balancers,”</a> on page 33

# Preparing to Upgrade vRealize Automation 7.1

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# 2

Perform the preparatory tasks before you upgrade vRealize Automation 7.1.

Perform the preparation tasks in the order they appear in the checklist. See [“Checklist for Upgrading vRealize Automation 7.1,”](#) on page 8.

This chapter includes the following topics:

- [“Backup Prerequisites for Upgrading vRealize Automation 7.1,”](#) on page 11
- [“Back Up Your Existing vRealize Automation 7.1 Environment,”](#) on page 12
- [“Downloading vRealize Automation Appliance Updates,”](#) on page 13

## Backup Prerequisites for Upgrading vRealize Automation 7.1

Complete the backup prerequisites before you begin your upgrade.

### Prerequisites

- Verify that your source environment is fully installed and configured.
- Log in to your vSphere Client and for each appliance in your source environment, backup all the vRealize Automation appliance configuration files in the following directories .
  - `/etc/vcac/`
  - `/etc/vco/`
  - `/etc/apache2/`
  - `/etc/rabbitmq/`
- Backup the IaaS Microsoft SQL Server database. For information, find articles on the [Microsoft Developer Network](#) about creating a full SQL Server database backup.
- Backup any files you have customized, such as `DataCenterLocations.xml`.
- Create a snapshot of each virtual appliance and IaaS server. Adhere to regular guidelines for backing up the entire system in case vRealize Automation upgrade is unsuccessful. See Backup and Recovery for vRealize Automation Installations in the *Managing vRealize Automation*.

## Back Up Your Existing vRealize Automation 7.1 Environment

Before you upgrade, shut down and take a snapshot of each vRealize Automation IaaS server on each Windows node and each vRealize Automation appliance on each Linux node. If the upgrade is unsuccessful, you can use the snapshot to return to the last known good configuration and attempt another upgrade.

### Prerequisites

- [“Backup Prerequisites for Upgrading vRealize Automation 7.1,”](#) on page 11
- Beginning with vRealize Automation 7.0, the PostgreSQL database is always configured in high-availability mode. Log in to the vRealize Automation appliance management console and select **vRA settings > Database** to locate the current Master node. If the database configuration is listed as an external database, create a manual backup of this external database.
- If the vRealize Automation Microsoft SQL database is not hosted on the IaaS server, create a database backup file.
- Verify that you have completed the backup prerequisites for upgrading.
- Verify that you have taken a snapshot of your system while it is shut down. This is the preferred method of taking a snapshot. See your *vSphere 6.0 Documentation*.

If you cannot shut down your system, take an in-memory snapshot of all the nodes. This is the non-preferred method and should only be used if you cannot take a snapshot while the system is shut down.

- If you modified the `app.config` file, make a backup of that file. See [“Restore Changes to Logging in the app.config File,”](#) on page 37.
- Make a backup of the external workflow configuration (xmldb) files. See [“Restore External Workflow Timeout Files,”](#) on page 36.
- Verify that you have a location outside your current folder where you can store your backup file. See [“Backup Copies of .xml Files Cause the System to Time Out,”](#) on page 46.

### Procedure

- 1 Log in to your VMware vSphere<sup>®</sup> client.
- 2 Locate each vRealize Automation IaaS Windows machine, and each vRealize Automation appliance node.
- 3 On each machine, click **Shutdown guest** in this order.
  - a IaaS Windows Server machines
  - b vRealize Automation appliance.
- 4 Take a snapshot of each vRealize Automation machine.
- 5 Use your preferred backup method to create a full backup of each appliance node.
- 6 Power on the system. See Start Up vRealize Automation in *Managing vRealize Automation*.

If you have a high availability environment, complete these steps to power on your virtual appliances.

- a Power on the virtual appliance that you powered off last.
- b Wait one minute.
- c Power on the remaining virtual appliances.

- 7 Log in to each vRealize Automation appliance management console and verify that the system is fully functional.
  - a Click **Services**.
  - b Verify that each service is REGISTERED.

#### What to do next

[“Downloading vRealize Automation Appliance Updates,”](#) on page 13

## Downloading vRealize Automation Appliance Updates

You can check for updates on the management console for your appliance, and download the updates using one of the following methods.

For best upgrade performance, use the ISO file method.

### Download vRealize Automation Appliance Updates from a VMware Repository

You can download the update for your vRealize Automation appliance from a public repository on the vmware.com Web site.

#### Prerequisites

Back up your existing vRealize Automation environment .

Ensure that your virtual appliance is powered on.

#### Procedure

- 1 Go to the management console for your virtual appliance by using its fully qualified domain name, `https://va-hostname.domain.name:5480`.
- 2 Log in with the user name **root** and the password you specified when the appliance was deployed.
- 3 Click the **Update** tab.
- 4 Click **Settings**.
- 5 (Optional) Set how often to check for updates in the Automatic Updates panel.
- 6 Select **Use Default Repository** in the Update Repository panel.  
The default repository is set to the correct VMware.com URL.
- 7 Click **Save Settings**.

### Download Virtual Appliance Updates for Use with a CD-ROM Drive

You can update your virtual appliance from an ISO file that the appliance reads from the virtual CD-ROM drive. This is the preferred method.

You download the ISO file and set up the primary appliance to use this file to upgrade your appliance.

#### Prerequisites

- Back up your existing vRealize Automation environment.
- All CD-ROM drives you use in your upgrade must be enabled before you update a vRealize Automation appliance. See the vSphere documentation center for information about adding a CD-ROM drive to a virtual machine in the vSphere client.

## Procedure

- 1 To download the update repository ISO file, go to the [vRealize Automation product page](#) at [www.vmware.com](http://www.vmware.com). Click **vRealize Automation Download Resources** to go to the VMware download page.
- 2 Locate the downloaded file on your system to verify that the file size is the same as the file on the VMware download page. Use the checksums provided on the download page to validate the integrity of your downloaded file. For more information, see the links at the bottom of the VMware download page.
- 3 Verify that your primary virtual appliance is powered on.
- 4 Connect the CD-ROM drive for the primary virtual appliance to the ISO file you downloaded.
- 5 Go to the management console for your virtual appliance by using its fully qualified domain name, `https://va-hostname.domain.name:5480`.
- 6 Log in with the user name **root** and the password you specified when the appliance was deployed.
- 7 Click the **Update** tab.
- 8 Click **Settings**.
- 9 Under Update Repository, select **Use CDRom Updates**.
- 10 Click **Save Settings**.

# Updating the vRealize Automation 7.1 Appliance

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# 3

After you complete the upgrade prerequisites and download the virtual appliance update, you install the updates and reconfigure settings for the primary or master vRealize Automation appliance node.

After you update the primary vRealize Automation appliance node, you update the other nodes in your environment in the following order:

- 1 Any replica vRealize Automation appliance that failed to automatically upgrade as part of the primary vRealize Automation appliance update process.
- 2 The IaaS Website.
- 3 IaaS Manager Service.
- 4 IaaS DEM.
- 5 IaaS agent.
- 6 Upgrade or migrate each external vRealize Orchestrator instance.

## Install the Update on the Primary vRealize Automation 7.1 Appliance

You install the VMware vRealize™ Automation 7.2 update on the vRealize Automation 7.1 appliance and configure appliance settings.

Details regarding the data collected through CEIP and the purposes for which it is used by VMware are set forth at the Trust & Assurance Center at <http://www.vmware.com/trustvmware/ceip.html>.

Do not close the management console while you install the update.

If you encounter any problems during the upgrade process, see [Chapter 9, “Troubleshooting the vRealize Automation 7.1 Upgrade,”](#) on page 39.

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**NOTE** While upgrading the Management Agent on the IaaS virtual machines, a VMware public certificate is temporarily installed in your Trusted Publishers certificate store. The Management Agent upgrade process uses a PowerShell script that is signed with this certificate. When the upgrade is finished, this certificate is removed from your certificate store.

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### Prerequisites

- Verify that you selected a download method and downloaded the update. See [“Downloading vRealize Automation Appliance Updates,”](#) on page 13.
- For all high-availability environments, see [“Back Up Your Existing vRealize Automation 7.1 Environment,”](#) on page 12.

- For high-availability environments with load balancers, verify that you disabled all of the redundant nodes and removed the health monitors for these items according to your load balancer documentation.
  - vRealize Automation appliance
  - IaaS Website
  - IaaS Manager Service
- For high-availability environments with load balancers, verify that the traffic is directed only to the primary node.
- Verify that the IaaS service hosted in Microsoft Internet Information Services (IIS) is running by performing the following steps:
  - a Enter the URL **https://webhostname/Repository/Data/MetaModel.svc** to verify that the Web Repository is running. If successful, no errors are returned and you see a list of models in XML format.
  - b Log in to the IaaS Website and check that the status recorded in the `Repository.log` file reports OK. The file is located in the VCAC home folder at `/Server/Model Manager Web/Logs/Repository.log`.

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**NOTE** For a distributed IaaS Website, log in to the secondary website, without MMD, and stop Microsoft IIS temporarily. Check the `MetaModel.svc` connectivity to ensure that the load balancer traffic is only going through the primary Web node, and restart the Microsoft IIS.

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- If you have a Common Components Catalog component installed in your environment, uninstall the component before you upgrade. For information, see the *Common Components Catalog Installation Guide* or follow the steps provided in the “[Checklist for Upgrading vRealize Automation 7.1](#),” on page 8.
- Verify that all IaaS nodes are in a healthy state by performing the following steps:
  - a Go to the management console for your primary virtual appliance by using its fully qualified domain name, `https://va-hostname.domain.name:5480`.
  - b Log in with the user name **root** and the password you specified when the appliance was deployed.
  - c Select **vRA settings > Cluster**.
  - d Under **Last Connected** in the table, verify that the IaaS nodes have a last connected time of less than 3 minutes and that the virtual appliance nodes have last connected time of less than 10 minutes. If all the IaaS nodes are not in communication with the vRealize Automation appliance, the upgrade fails.
 

To diagnose connectivity issues between the Management Agent and virtual appliance, log in to the IaaS node that is not listed and check the Management Agent logs. Restart the Management Agent if it is not running in the Services console.
  - e Note any orphaned nodes listed in the table. An orphaned node is a duplicate node that is reported on the host but does not exist on the host. You must delete all orphaned nodes. For more information, see “[Delete Orphaned Nodes on vRealize Automation](#),” on page 42 .
- If you have a replica virtual appliance that is no longer part of the cluster, you must delete it from the cluster table. If you do not delete this appliance from the table, the upgrade process attempts to update the appliance and displays a warning message that the replica update is unsuccessful.
- Verify that all saved and in-progress requests have finished successfully before you upgrade.
- If you plan to use the IaaS shell upgrade script to upgrade the IaaS components after you update the vRealize Automation 7.1 appliance, see “[Exclude Management Agents from Upgrade](#),” on page 46.

## Procedure

- 1 Open the vRealize Automation appliance management console.
  - a Go to the management console for your virtual appliance by using its fully qualified domain name, `https://va-hostname.domain.name:5480`.
  - b Log in with the user name **root** and the password you specified when the appliance was deployed.
- 2 Click **Services** and verify that all services are registered.
- 3 Select **vRA Settings > Database** and verify that this is the master vRealize Automation appliance.  
You install the update only on the master vRealize Automation appliance. Each replica vRealize Automation appliance is automatically updated with the master appliance.
- 4 Select **Update > Status**.
- 5 Click **Check Updates** to verify that an update is accessible.
- 6 (Optional) For instances of vRealize Automation appliance, click **Details** in the Appliance Version area to see information about the location of release notes.
- 7 Click **Install Updates**.
- 8 Click **OK**.

A message stating that the update is in progress appears.

- 9 To monitor the upgrade progress, use a terminal emulator to log in to the primary appliance and view the `updatecli.log` file at `/opt/vmware/var/log/vami/updatecli.log`.

Additional upgrade progress information can also be seen in these files.

- `/opt/vmware/var/log/vami/vami.log`
- `/var/log/vmware/horizon/horizon.log`
- `/var/log/bootstrap/*.log`

If you log out during the upgrade process and log in again before the upgrade is finished, you can continue to follow the progress of the update in the log file. The `updatecli.log` file might display information about the version of vRealize Automation that you are upgrading from. This displayed version changes to the proper version later in the upgrade process.

The time required for the update to finish varies according to your environment and network.

- 10 After the update finishes, reboot the primary appliance.  
All successfully upgraded replica appliance nodes are automatically rebooted as part of the primary appliance reboot.
- 11 Read the note about participation in the Customer Experience Improvement Program and select to join or not join the program.

For information about the program, click the **Telemetry** tab in the appliance management console.

For more information about setting parameters for data collection and joining or leaving the Customer Experience Improvement Program, see *Join or Leave the Customer Experience Improvement Program for vRealize Automation* in *Managing vRealize Automation*.

## What to do next

[Chapter 4, “Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 19



# Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2

# 4

After you upgrade VMware vRealize™ Automation, a system administrator upgrades the IaaS server components, including the Microsoft SQL Server database.

You have two options for upgrading the IaaS server components.

- Use the automated IaaS upgrade shell script.
- Use the vRealize Automation 7.2 IaaS installer MSI package.

If you have a Common Components Catalog component installed, you must uninstall the component before you upgrade. After you finish the upgrade, you can reinstall the component with the appropriate version. For more information, see the *Common Components Catalog Installation Guide*.

This chapter includes the following topics:

- [“Upgrade IaaS Components Using the Upgrade Shell Script After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 19
- [“Upgrading IaaS Components Using the IaaS MSI Package After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 21

## Upgrade IaaS Components Using the Upgrade Shell Script After Upgrading vRealize Automation 7.1 to 7.2

Use the upgrade shell script to upgrade the IaaS Components after you update each VMware vRealize™ Automation appliance.

The updated primary or master vRealize Automation appliance contains a shell script that you use to upgrade each IaaS node and component.

You can run the upgrade script by using the vSphere console for the virtual machine or by using an SSH console session. If you use the vSphere console, you avoid intermittent network connectivity issues that can break the execution of the script.

If you stop the script while it is upgrading a component, the script stops when it completes upgrading the component. If other components on the node still need to be upgraded, you must run the script again.

When the upgrade finishes, you can review the upgrade result by opening the upgrade log file at `/usr/lib/vcac/tools/upgrade/upgrade.log`.

### Prerequisites

- Verify the successful update of all vRealize Automation appliances.
- If you reboot an IaaS server after you update all the vRealize Automation appliances but before you upgrade the IaaS components, stop all of the IaaS Windows services, except for the Management Agent service, on the server.

- Before you run the upgrade shell script on the primary or master vRealize Automation appliance node, verify that the status of each service, except for `iaas-service`, on the **Services** tab in the vRealize Automation appliance management console is listed as REGISTERED.

- On each IaaS node, manually install the IaaS Management Agent shipped as separate package on the vRealize Automation 7.2 download page. For information, see Knowledge Base Article [2147926](#).

Do not attempt to use the Management Agent installer that is included in the vRealize Automation virtual appliance.

Log in to each vRealize Automation IaaS machine and upgrade the Management Agent with the downloaded package. Then restart the Management Agent Windows service.

- Verify that your primary IaaS Website and Model Manager node has JAVA SE Runtime Environment 8, 64bits, update 91 or later installed. After you install Java, you must set the environment variable, `JAVA_HOME`, to the new version on each server node.
- Log in to each IaaS Website node and verify that the creation date is earlier than the modified date in the `web.config` file. If the creation date for the `web.config` file is the same as or later than the modified date, perform the procedure in [“Upgrade Fails for IaaS Website Component,”](#) on page 40.
- Perform these steps on each IaaS node to verify that each IaaS node has an upgraded IaaS Management Agent:
  - a Log in to the vRealize Automation appliance management console.
  - b Select **vRA Settings > Cluster**.
  - c Expand the list of all installed components on each IaaS node, and locate the IaaS Management Agent.
  - d Verify that the Management Agent version is current.
- Verify that the IaaS Microsoft SQL Server database backup is accessible in case you need to roll back.
- Verify that snapshots of the IaaS servers in your deployment are available.

If the upgrade is unsuccessful, return to the snapshot and database backup and attempt another upgrade.

**Procedure**

- 1 Open a new console session on the primary or master vRealize Automation appliance node and log in with the root account.

If you plan to run the upgrade script by means of SSH, open an SSH console session.

- 2 Change directories to `/usr/lib/vcac/tools/upgrade/`.
- 3 Run this command at the command prompt to create the `upgrade.properties` file.

```
./generate_properties
```

- 4 Open the `upgrade.properties` file and enter all the required values.

This table shows the required values, which vary depending on the environment. For example, on a node that contains a DEM worker or orchestrator, DEM credentials are required.

Required Value	Description	Credential Format
<code>web_username</code>	User name for the primary Web node. Required only once.	Domain\User
<code>web_password</code>	Password for the primary Web node. Required only once.	Password

Required Value	Description	Credential Format
dem_username	User name for the DEM worker or DEM orchestrator. Required for each node where a DEM component is installed.	Domain\User
dem_password	Password for the DEM worker or DEM orchestrator. Required for each node where a DEM component is installed.	Password
agent_username	User name for an agent such as a vSphere agent. Required for each node where an agent component is installed.	Domain\User
agent_password	Password for an agent such as a vSphere agent. Required for each node where an agent component is installed.	Password
vidm_admin_password	The VIDM administrator password. Required only when you upgrade from vRealize Automation 6.2.4 or 6.2.5.	VIDM_password

For security reasons, the `upgrade.properties` file is removed when you run the upgrade shell script. The properties in the file are defined using the information for each IaaS component that comes through the IaaS Management Agents. It is important that all IaaS Management Agents are upgraded and healthy prior to running the `./generate_properties` or `./upgrade` shell scripts. If any IaaS Management Agent has a problem when you run the upgrade shell script, see [“Upgrade Fails to Upgrade the Management Agent or Certificate Not Installed on a IaaS Node,”](#) on page 44. To recreate the `upgrade.properties` file, repeat steps 2 and 3.

- 5 Run the upgrade script.
  - a At the command prompt, enter `./upgrade`.
  - b Press Enter.

The script displays each IaaS node and all the components installed on it. The script validates each component before installing the upgrade. If there are incorrect values in the `upgrade.properties` file, the script fails.

If the Upgrade Shell Script is unsuccessful, review the `upgrade.log` file.

You can run the upgrade script again after you fix a problem. Before you run the upgrade script again, recreate the `upgrade.properties` file, open it, and enter all the required values.

### What to do next

[Chapter 6, “Add Users or Groups to an Active Directory Connection,”](#) on page 31

## Upgrading IaaS Components Using the IaaS MSI Package After Upgrading vRealize Automation 7.1 to 7.2

You can use this alternative method to upgrade IaaS components.

## Download the IaaS Installer to Upgrade IaaS Components After Upgrading vRealize Automation 7.1 to 7.2

Download the IaaS installer to the machine where the IaaS components to be upgraded are installed.

If you see certificate warnings during this procedure, you can ignore them.

---

**NOTE** Except for a passive backup instance of the Manager Service, the startup type for all services must be set to Automatic during the upgrade process. The upgrade process fails if you set services to Manual.

---

### Prerequisites

- Verify that Microsoft .NET Framework 4.5.2 or later is installed on the IaaS installation machine. You can download the .NET installer from the vRealize Automation installer Web page. If you update .NET to 4.5.2 after you shut down the services and the machine restarted as part of the installation, you must manually stop all IaaS services except the Management agent.
- If you are using Internet Explorer for the download, verify that Enhanced Security Configuration is not enabled. Enter `res://iesetup.dll/SoftAdmin.htm` in the search bar and press Enter.
- Log in as a local administrator to the Windows server where one or more of the IaaS components you want to upgrade are installed.

### Procedure

- 1 Open a Web browser.
- 2 Enter the URL for the Windows installer download page.  
  
For example, `https://vcac-va-hostname.domain.name:5480/installer`, where `vcac-va-hostname.domain.name` is the name of the primary (master) vRealize Automation appliance node.
- 3 Click the **IaaS installer** link.
- 4 When prompted, save the installer file, `setup__vcac-va-hostname.domain.name@5480.exe`, to the desktop.  
  
Do not change the file name. It is used to connect the installation to the vRealize Automation appliance.

### What to do next

[“Upgrade the IaaS Components After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 22

## Upgrade the IaaS Components After Upgrading vRealize Automation 7.1 to 7.2

You must upgrade the SQL database and configure all systems that have IaaS components installed. You can use these steps for minimal and distributed installations.

---

**NOTE** The IaaS installer must be on the machine that contains the IaaS components you want to upgrade. You cannot run the installer from an external location, except for the Microsoft SQL database which also can be upgraded remotely from the Web node.

---

Verify that snapshots of the IaaS servers in your deployment are available. If the upgrade fails, you can return to the snapshot and attempt another upgrade.

Perform the upgrade so that services are upgraded in the following order:

- 1 IaaS Web sites

If you are using a load balancer, disable traffic to all non-primary nodes.

Finish the upgrade on one server before upgrading the next server that is running a Website service. Start with the one that has the Model Manager Data component installed.

If you are performing a manual external Microsoft SQL database upgrade, you must upgrade the external SQL before you upgrade the Web node. You can upgrade the external SQL remotely from the Web node.

## 2 Manager Services

Upgrade the active Manager Service before you upgrade the passive Manager Service.

If you do not have SSL encryption enabled in your SQL instance, uncheck the SSL encryption checkbox in the IaaS Upgrade configuration dialog box next to the SQL definition.

## 3 DEM orchestrator and workers

Upgrade all DEM orchestrators and workers. Finish the upgrade on one server before you upgrade the next server.

## 4 Agents

Finish the upgrade on one server before you upgrade the next server that is running an agent.

## 5 Management Agent

Is updated automatically as part of the upgrade process.

If you are using different services on one server, the upgrade updates the services in the proper order. For example, if your site has Web site and manager services on the same server, select both for update. The upgrade installer applies the updates in the proper order. You must complete the upgrade on one server before you begin an upgrade on another.

---

**NOTE** If your deployment uses a load balancer, the primary appliance must be connected to the load balancer. All other instances of vRealize Automation appliance appliances must be disabled for load balancer traffic before you apply the upgrade to avoid caching errors.

---

### Prerequisites

- Back up your existing vRealize Automation environment.
- If you reboot an IaaS server after you update all the vRealize Automation appliances but before you upgrade the IaaS components, stop all of the IaaS windows services, except for the Management Agent service, on the server.
- [“Download the IaaS Installer to Upgrade IaaS Components After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 22.
- Verify that your primary IaaS Website, Microsoft SQL database, and Model Manager node has JAVA SE Runtime Environment 8, 64bits, update 91 or later installed. After you install Java, you must set the environment variable, JAVA\_HOME, to the new version on each server node.
- Verify that the creation date is earlier than the modified date in the web.config file. If the creation date for the web.config file is the same as or later than the modified date, perform the procedure in [“Upgrade Fails for IaaS Website Component,”](#) on page 40.
- If you have a Common Components Catalog component installed, you must uninstall the component before you upgrade. For more information, see the *Common Components Catalog Installation Guide* or follow the steps provided in Checklist for Upgrading from vRealize Automation.

**Procedure**

- 1 If you are using a load balancer, prepare your environment.
  - a Verify the IaaS Website node that contains the Model Manager data is enabled for load balancer traffic.  
 You can identify this node by the presence of the `vCAC Folder\Server\ConfigTool` folder.
  - b Disable all other IaaS Websites and non-primary Manager Services for load balancer traffic.
- 2 Right-click the `setup__vrealize-automation-appliance-FQDN@5480.exe` setup file and select **Run as administrator**.
- 3 Click **Next**.
- 4 Accept the license agreement and click **Next**.
- 5 Type the administrator credentials for your current deployment on the Log In page.  
 The user name is **root** and the password is the password that you specified when you deployed the appliance.
- 6 Select **Accept Certificate**.
- 7 On the Installation Type page, verify that **Upgrade** is selected.  
 If **Upgrade** is not selected, the components on this system are already upgraded to this version.
- 8 Click **Next**.
- 9 Configure the upgrade settings.

Option	Action
<b>If you are upgrading the Model Manager Data</b>	Select the <b>Model Manager Data</b> check box in the vCAC Server section. The check box is selected by default. Upgrade the Model Manager data only once. If you are running the setup file on multiple machines to upgrade a distributed installation, the Web servers stop functioning while there is a version mismatch between the Web servers and the Model Manager data. When you have upgraded the Model Manager data and all of the Web servers, all of the Web servers should function.
<b>If you are not upgrading the Model Manager Data</b>	Unselect the <b>Model Manager Data</b> check box in the vCAC Server section.
<b>To preserve customized workflows as the latest version in your Model Manager Data</b>	If you are upgrading the Model Manager Data, select the <b>Preserve my latest workflow versions</b> check box in the Extensibility Workflows section. The check box is selected by default. Customized workflows are always preserved. The checkbox determines version order only. If you used vRealize Automation Designer to customize workflows in the Model Manager, select this option to maintain the most recent version of each customized workflow before upgrade as the most recent version after upgrade.  If you do not select this option, the version of each workflow provided with vRealize Automation Designer becomes the most recent after upgrade, and the most recent version before upgrade becomes the second most recent.  For information about vRealize Automation Designer, see <i>Life Cycle Extensibility</i> .
<b>If you are upgrading a Distributed Execution Manager or a proxy agent</b>	Enter the credentials for the administrator account in the Service Account section.  All of the services that you upgrade run under this account.

Option	Action
<b>To specify your Microsoft SQL Server database</b>	<p>If you are upgrading the Model Manager Data, enter the names of the database server and database instance in the <b>Server</b> text box in the Microsoft SQL Server Database Installation Information section. Enter a fully qualified domain name (FQDN) for the database server name in the <b>Database name</b> text box.</p> <p>If the database instance is on a non-default SQL port, include the port number in the server instance specification. The Microsoft SQL default port number is 1433.</p> <p>When upgrading the manager nodes, the MSSQL SSL option is selected by default. If your database does not use SSL, uncheck <b>Use SSL for database connection</b>.</p>

- 10 Click **Next**.
- 11 Confirm that all services to upgrade appear on the Ready to Upgrade page, and click **Upgrade**.  
The Upgrading page and a progress indicator appear. When the upgrade process finishes, the **Next** button is enabled.
- 12 Click **Next**.
- 13 Click **Finish**.
- 14 Verify that all services restarted.
- 15 Repeat these steps for each IaaS server in your deployment in the recommended order.
- 16 After all components are upgraded, log in to the management console for the appliance and verify that all services, including IaaS, are now registered.

All of the selected components are upgraded to the new release.

#### What to do next

If your deployment uses a load balancer, upgrade each load balancer node to use vRealize Automation health checks, and re-enable load balancer traffic for any unconnected nodes. If your previous deployment used a load balanced embedded PostgreSQL database, disable all nodes in the PostgreSQL pool because they are not needed. Delete the pool at a convenient time.



# Updating vRealize Orchestrator After Upgrading from vRealize Automation 7.1 to 7.2

# 5

You must update your VMware vRealize™ Orchestrator™ instance when you upgrade from VMware vRealize™ Automation 7.1 to vRealize Automation 7.2.

With the release of vRealize Orchestrator 7.2, you have two options for updating vRealize Orchestrator when you upgrade to vRealize Automation 7.2.

- You can migrate your existing external vRealize Orchestrator server to the embedded vRealize Orchestrator included in vRealize Automation 7.2.
- You can upgrade your existing standalone or clustered vRealize Orchestrator server to work with vRealize Automation 7.2.

This chapter includes the following topics:

- [“Migrating an External vRealize Orchestrator Server to vRealize Automation 7.2,”](#) on page 27
- [“Upgrade Stand-Alone vRealize Orchestrator After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 27
- [“Upgrade External vRealize Orchestrator Appliance Cluster After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 28

## Migrating an External vRealize Orchestrator Server to vRealize Automation 7.2

You can migrate your existing external VMware vRealize™ Orchestrator™ server to a instance embedded in VMware vRealize™ Automation 7.2.

For information about migrating your existing external vRealize Orchestrator server, see the vRealize Orchestrator documentation topic [Migrating an External Orchestrator Server to vRealize Automation 7.2](#).

## Upgrade Stand-Alone vRealize Orchestrator After Upgrading vRealize Automation 7.1 to 7.2

If you maintain a stand-alone, external instance of vRealize Orchestrator for use with vRealize Automation, you must upgrade vRealize Orchestrator when you upgrade vRealize Automation.

Embedded instances of vRealize Orchestrator are upgraded as part of the vRealize Automation appliance upgrade. No additional action is required.

### Prerequisites

- Install the update on the primary vRealize Automation appliance.

- Upgrade IaaS components. See [Chapter 4, “Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 19.
- Choose your vRealize Orchestrator upgrade method. See [Upgrade Orchestrator Appliance 5.5.x and Later to 7.x.](#)

#### Procedure

- 1 Shut down the vRealize Orchestrator node.
- 2 Take a snapshot.
- 3 Increase the RAM to 6 GB.
- 4 Power on the vRealize Orchestrator node.
- 5 Log in to the vRealize Orchestrator appliance configuration portal at [https://orchestrator\\_server:5480](https://orchestrator_server:5480).
- 6 Select the Update tab in your configuration portal and click **Settings**.
- 7 Select your update method and click **Save Settings**.
- 8 Click **Status**.
- 9 Click **Check Updates**.
- 10 Click **Install Updates**.
- 11 Accept the VMware End User License Agreement.
- 12 When the update completes, restart the vRealize Orchestrator appliance.
- 13 From the Control Center, upgrade the vRealize Automation default plugins, which include vCAC Cafe, vCAC IaaS, and NSX.
- 14 Restart the vRealize Orchestrator service.

## Upgrade External vRealize Orchestrator Appliance Cluster After Upgrading vRealize Automation 7.1 to 7.2

If you use a clustered external instance of vRealize Orchestrator with vRealize Automation, you must upgrade each vRealize Orchestrator node in the cluster individually when you upgrade vRealize Automation.

#### Prerequisites

- [“Install the Update on the Primary vRealize Automation 7.1 Appliance,”](#) on page 15
- Upgrade IaaS components. See [Chapter 4, “Upgrading the IaaS Server Components After Upgrading vRealize Automation 7.1 to 7.2,”](#) on page 19.
- Choose your vRealize Orchestrator upgrade method. See [Upgrade Orchestrator Appliance 5.5.x and Later to 7.x.](#)

#### Procedure

- 1 Shut down each vRealize Orchestrator node.
- 2 Select one of the vRealize Orchestrator nodes in the cluster to be the primary vRealize Orchestrator node.  
  
Record the identifying information for this node to use later.
- 3 Take a snapshot of each vRealize Orchestrator node and the vRealize Orchestrator database.
- 4 On each vRealize Orchestrator node, increase the RAM to 6 GB.

- 5 Upgrade the primary vRealize Orchestrator node.
  - a Power on the vRealize Orchestrator node.
  - b Log in as **root** to the vRealize Orchestrator Appliance management console at [https://orchestrator\\_server:5480](https://orchestrator_server:5480).
  - c Select **Update > Settings**.
  - d Choose your upgrade method and click **Save Settings**.
  - e Click **Status**.
  - f Click **Check Updates**.
  - g Click **Install Updates**.
  - h Accept the VMware End User License Agreement.
  - i When the update finishes, click **System** and **Reboot** to restart the vRealize Orchestrator appliance.
- 6 Click **Services** in the vRealize Orchestrator Appliance management console, and verify that the vco service status appears as REGISTERED .
- 7 Log in as **root** to the vRealize Orchestrator Control Center on the primary vRealize Orchestrator node at [https://your\\_orchestrator\\_server\\_IP\\_or\\_DNS\\_name:8283/vcocontrolcenter](https://your_orchestrator_server_IP_or_DNS_name:8283/vcocontrolcenter).
- 8 On the vRealize Orchestrator Control Center, click the Validate Configuration icon and verify that the configuration is valid.
- 9 On the vRealize Orchestrator Control Center, upgrade the vRealize Automation default plug-ins, which include the NSX plug-in.
  - a Click the Manage Plug-ins icon.
  - b Select **Browse > plug-in name > Install**.
- 10 Complete the following steps on each node in the cluster until you have upgraded all the vRealize Orchestrator nodes in the cluster.
  - a Repeat step 5 on the vRealize Orchestrator node.
  - b Log in as **root** to the vRealize Orchestrator Control Center on the vRealize Orchestrator node at [https://your\\_orchestrator\\_server\\_IP\\_or\\_DNS\\_name:8283/vcocontrolcenter](https://your_orchestrator_server_IP_or_DNS_name:8283/vcocontrolcenter).
  - c Go to Startup Options and verify that the vRealize Orchestrator server service is running.
  - d Click the Orchestrator Cluster Management icon.
  - e Click **Join Node To Cluster** and enter the primary vRealize Orchestrator node details.
  - f Click **Join** and wait for the vRealize Orchestrator node to complete the join cluster operation.
  - g Verify that the vRealize Orchestrator pending configuration fingerprint is the same as the primary vRealize Orchestrator node.
  - h Restart the vRealize Orchestrator server service from Startup Options in the Control Center.
  - i Verify that the vRealize Orchestrator node Applied Configuration Fingerprint is the same as the primary vRealize Orchestrator node.
  - j Open the Validate Configuration page in the Control Center to verify that the vRealize Orchestrator cluster is configured properly.



# Add Users or Groups to an Active Directory Connection

# 6

You can add users or groups to an existing Active Directory connection.

The Directories Management user authentication system imports data from Active Directory when adding groups and users, and the speed of the system is limited by Active Directory capabilities. As a result, import operations may require a significant amount of time depending on the number of groups and users being added. To minimize the potential for delays or problems, limit the number of groups and users to only those required for vRealize Automation operation. If performance degrades or if errors occur, close any unneeded applications and ensure that your deployment has appropriate memory allocated to Active Directory. If problems persist, increase the Active Directory memory allocation as needed. For deployments with large numbers of users and groups, you may need to increase the Active Directory memory allocation to as much as 24 GB.

When running a synchronize operation for a vRealize Automation deployment with a many users and groups, there may be a delay after the Sync is in progress message disappears before the Sync Log details are displayed. Also, the time stamp on the log file may differ from the time that the user interface indicates that the synchronize operation completed.

---

**NOTE** You cannot cancel a synchronize operation after it has been initiated.

---

## Prerequisites

- Connector installed and the activation code activated. Select the required default attributes and add additional attributes on the User Attributes page.
- List of the Active Directory groups and users to sync from Active Directory.
- For Active Directory over LDAP, information required includes the Base DN, Bind DN, and Bind DN password.
- For Active Directory Integrated Windows Authentication, the information required includes the domain's Bind user UPN address and password.
- If Active Directory is accessed over SSL, a copy of the SSL certificate is required.
- For Active Directory Integrated Windows Authentication, when you have multi-forest Active Directory configured and the Domain Local group contains members from domains in different forests, make sure that the Bind user is added to the Administrators group of the domain in which the Domain Local group resides. If this is not done, these members are missing from the Domain Local group.
- Log in to the vRealize Automation console as a **tenant administrator**.

## Procedure

- 1 Select **Administration > Directories Management > Directories**.
- 2 Click the desired directory name.

- 3 Click **Sync Settings** to open a dialog with synchronization options.
- 4 Click the appropriate icon depending on whether you want to change the user or group configuration.  
To edit the group configuration:
  - To add groups, click the + icon to add a new line for group DN definitions and enter the appropriate group DN.
  - If you want to delete a group DN definition, click the x icon for the desired group DN.To edit the user configuration:
  - ◆ To add users, click the + icon to add a new line for user DN definition and enter the appropriate user DN.If you want to delete a user DN definition, click the x icon for the desired user DN.
- 5 Click **Save** to save your changes without synchronizing to make your updates immediately, or click **Save & Sync** to save your changes and synchronize to implement your updates immediately.

## Enable Your Load Balancers

---

If your deployment uses load balancers, re-enable secondary nodes and health checks.

The health checks for vRealize Automation vary according to version. For information, see [vRealize Automation Load Balancing Configuration Guide](#) in the VMware vRealize™ Automation Information Center .



# Post-Upgrade Tasks for Upgrading vRealize Automation 7.1

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# 8

After you upgrade vRealize Automation 7.1, perform any required post-upgrade tasks.

This chapter includes the following topics:

- [“Join Replica Appliance to Cluster,”](#) on page 35
- [“Port Configuration for High-Availability Deployments,”](#) on page 35
- [“Restore External Workflow Timeout Files,”](#) on page 36
- [“Enabling the Connect to Remote Console Action for Consumers,”](#) on page 36
- [“Verify That vRealize Orchestrator Service Is Available,”](#) on page 36
- [“Restore Changes to Logging in the app.config File,”](#) on page 37

## Join Replica Appliance to Cluster

After you complete the master vRealize Automation appliance update, each updated replica node is automatically joined to the master node. In case a replica node has to be separately updated, use these steps to manually join the replica node to the cluster.

Access the appliance management console of the replica node that is not joined to the cluster and perform the following steps.

### Procedure

- 1 Select **vRA Settings > Cluster**.
- 2 Click **Join Cluster**.

## Port Configuration for High-Availability Deployments

After finishing an upgrade in a high-availability deployment, you must configure the load balancer to pass traffic on port 8444 to the vRealize Automation appliance to support remote console features.

For more information, see the *vRealize Automation Load Balancing Configuration Guide* in the vRealize Automation information center.

## Restore External Workflow Timeout Files

You must reconfigure the vRealize Automation external workflow timeout files because the upgrade process overwrites xmlldb files.

### Procedure

- 1 Open the external workflow configuration (xmlldb) files on your system from the following directory.  
\\VMware\VCAC\Server\ExternalWorkflows\xmlldb\.
- 2 Replace the xmlldb files with the files that you backed up before migration. If you do not have backup files, reconfigure the external workflow timeout settings.
- 3 Save your settings.

## Enabling the Connect to Remote Console Action for Consumers

The remote console action for consumers is supported for appliances provisioned by vSphere in vRealize Automation.

Edit the blueprint after you have upgraded the release and select the **Connect to Remote Console** action on the **Action** tab.

For more information, see [Knowledge Base article 2109706](#).

## Verify That vRealize Orchestrator Service Is Available

After you upgrade to the latest version of VMware vRealize™ Automation, you must verify the connection between vRealize Automation and VMware vRealize™ Orchestrator™. Sometimes after upgrade you must restore the connection.

### Prerequisites

Log in to the vRealize Orchestrator configuration interface.

### Procedure

- 1 Click **Validate Configuration**.
- 2 If the Authentication section has a green check, go to step 5.
- 3 If the Authentication section does not have a green check, perform the following steps to restore the connection to vRealize Orchestrator .
  - a Click **Home**.
  - b Click **Configure Authentication Provider**.
  - c In the **Admin group** text box, select **Change**, and choose a new Admin group that can be properly resolved.  
  
The vcoadmins group is available only at the default vsphere.local tenant. If you are using another tenant for the vRealize Orchestrator, then you must select another group.
  - d Click **Save Changes**, and if prompted, restart the vRealize Orchestrator server.
  - e Click **Home**.
- 4 Repeat step 1 to confirm that the Authentication section still has a green check.
- 5 Click **Home**, and close the vRealize Orchestrator Control Center.

## Restore Changes to Logging in the app.config File

The upgrade process overwrites changes you make to logging in the configuration files. After you finish an upgrade, you must restore any changes you made before the upgrade to the `app.config` file .



# Troubleshooting the vRealize Automation 7.1 Upgrade

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# 9

The upgrade troubleshooting topics provide solutions to problems that you might encounter when upgrading vRealize Automation 7.1.

This chapter includes the following topics:

- [“Installation or Upgrade Fails with a Load Balancer Timeout Error,”](#) on page 39
- [“Upgrade Fails for IaaS Website Component,”](#) on page 40
- [“Manager Service Fails to Run Due to SSL Validation Errors During Runtime,”](#) on page 41
- [“Log In Fails After Upgrade,”](#) on page 42
- [“Unable to Upgrade Management Agent,”](#) on page 42
- [“Delete Orphaned Nodes on vRealize Automation,”](#) on page 42
- [“Join Cluster Command Appears to Fail After Upgrading a High-Availability Environment,”](#) on page 43
- [“PostgreSQL Database Upgrade Merge Does Not Succeed,”](#) on page 43
- [“Management Agent Upgrade is Unsuccessful,”](#) on page 44
- [“Upgrade Fails to Upgrade the Management Agent or Certificate Not Installed on a IaaS Node,”](#) on page 44
- [“Replica vRealize Automation Appliance Fails to Update,”](#) on page 45
- [“Backup Copies of .xml Files Cause the System to Time Out,”](#) on page 46
- [“Exclude Management Agents from Upgrade,”](#) on page 46
- [“Unable to Create New Directory in vRealize Automation,”](#) on page 46

## Installation or Upgrade Fails with a Load Balancer Timeout Error

A vRealize Automation installation or upgrade for a distributed deployment with a load balancer fails with a 503 service unavailable error.

### Problem

The installation or upgrade fails because the load balancer timeout setting does not allow enough time for the task to complete.

### Cause

An insufficient load balancer timeout setting might cause failure. You can correct the problem by increasing the load balancer timeout setting to 100 seconds or greater and rerunning the task.

### Solution

- 1 Increase your load balancer timeout value to at least 100 seconds. For example, and depending on the load balancer you are using, edit the load balancer timeout setting in your `ssl.conf`, `httpd.conf` or other Web configuration file.
- 2 Rerun the installation or upgrade.

## Upgrade Fails for IaaS Website Component

The IaaS upgrade fails and you cannot continue the upgrade.

### Problem

The IaaS upgrade fails for the website component. The following error messages appear in the installer log file.

- `System.Data.Services.Client.DataServiceQueryException:`  
An error occurred while processing this request. --->  
`System.Data.Services.Client.DataServiceClientException: <!DOCTYPE html>`
- `<b> Description: </b>An application error`  
occurred on the server. The current custom error settings for this application prevent the details of the application error from being viewed remotely (for security reasons). It could, however, be viewed by browsers running on the local server machine.
- `Warning: Non-zero return code. Command failed.`
- `Done Building Project "C:\Program Files`  
`(x86)\VMware\VCAC\Server\Model Manager Data\DeployRepository.xml"`  
`(InstallRepoModel target(s)) -- FAILED.`

The following error messages appear in the repository log file.

- `[Error]: [sub-thread-Id="20"`  
`context="" token=""] Failed to start repository service. Reason:`  
`System.InvalidOperationException: Configuration section encryptionKey is not`  
`protected`  
`at`  
`DynamicOps.Common.Utils.EncryptionHelpers.ReadKeyFromConfiguration(Configuration`  
`config)`  
`at DynamicOps.Common.Utils.EncryptionHelpers.Decrypt(String value)`  
`at DynamicOps.Repository.Runtime.CoreModel.GlobalPropertyItem.Decrypt(Func`2`  
`decryptFunc)`  
`at`  
`DynamicOps.Common.Entity.ContextHelpers.OnObjectMaterializedCallbackEncryptable(Object`  
`sender, ObjectMaterializedEventArgs e)`  
`at`

```

System.Data.Common.Internal.Materialization.Shaper.RaiseMaterializedEvents()
at
System.Data.Common.Internal.Materialization.Shaper`1.SimpleEnumerator.MoveNext()
at System.Linq.Enumerable.FirstOrDefault[TSource](IEnumerable`1 source)
at System.Linq.Queryable.FirstOrDefault[TSource](IQueryable`1 source)
at
DynamicOps.Repository.Runtime.Common.GlobalPropertyHelper.GetGlobalPropertyItemValue(Core
ModelEntities
coreModelContext, String propertyName, Boolean throwIfPropertyNotFound)
at
DynamicOps.Repository.Runtime.CafeClientAbstractFactory.LoadSolutionUserCertificate()
at
DynamicOps.Repository.Runtime.CafeClientAbstractFactory.InitializeFromDb(String
coreModelConnectionString)
at DynamicOps.Repository.Runtime.Common.RepositoryRuntime.Initialize().

```

**Cause**

IaaS upgrade fails when the creation date for the `web.config` file is the same as or later than the modified date.

**Solution**

- 1 Log in to the IaaS website component server as administrator.
- 2 Change directories to the vRealize Automation installation folder `... \VMware\VCAC\.`
- 3 Start your preferred text editor with the **Run as Administrator** option.
- 4 Locate and select the `web.config` file and save the file to change its file modification date.
- 5 Examine the `web.config` file properties to confirm that the file modification date is later than the creation date.
- 6 Upgrade IaaS.

## Manager Service Fails to Run Due to SSL Validation Errors During Runtime

The manager service fails to run due to SSL validation errors.

**Problem**

The manager service fails with the following error message in the log:

```
[Info]: Thread-Id="6" - context="" token="" Failed to connect to the core database, will retry in
00:00:05, error details: A connection was successfully established with the server, but then an
error occurred during the login process. (provider: SSL Provider, error: 0 - The certificate
chain was issued by an authority that is not trusted.)
```

**Cause**

During runtime, the manager service fails to run due to SSL validation errors.

### Solution

- 1 Open the `ManagerService.config` configuration file.
- 2 Update **Encrypt=False** on the following line: `<add name="vcac-repository" providerName="System.Data.SqlClient" connectionString="Data Source=iaas-db.sqa.local;Initial Catalog=vcac;Integrated Security=True;Pooling=True;Max Pool Size=200;MultipleActiveResultSets=True;Connect Timeout=200, Encrypt=True" />`.

## Log In Fails After Upgrade

You must exit the browser and log in again after an upgrade for sessions that use unsynchronized user accounts.

### Problem

After you upgrade vRealize Automation, the system denies access to unsynchronized user accounts at login.

### Solution

Exit the browser and relaunch vRealize Automation.

## Unable to Upgrade Management Agent

An error message about the Management Agent appears when you click **Install Updates** on the VMware vRealize™ Automation management console Update Status page.

### Problem

Upgrade process is unsuccessful. Message appears: `Unable to upgrade management agent on node x`. Sometimes the message lists more than one node.

### Cause

Many conditions can cause this problem. The error message identifies only the node ID of the affected machine. More information is found in the `All.log` file for the Management Agent on the machine where the command fails.

### Solution

- 1 Download the latest version of the Management Agent from `https://va-hostname.domain.name:5480/install`.
- 2 Upgrade the Management Agent manually on the affected machine.
- 3 Restart the Management Agent service.

## Delete Orphaned Nodes on vRealize Automation

An orphaned node is a duplicate node that is reported on the host but does not exist on the host.

### Problem

When you verify that each IaaS and virtual appliance node is in a healthy state, you might discover that a host has one or more orphaned nodes. You must delete all orphaned nodes.

### Solution

- 1 Go to the management console for your virtual appliance by using its fully qualified domain name, `https://va-hostname.domain.name:5480`.
- 2 Log in with the user name **root** and the password you entered when the appliance was deployed.
- 3 Select **vRA settings > Cluster**.

- 4 For each orphaned node in the table, click **Delete**.

## Join Cluster Command Appears to Fail After Upgrading a High-Availability Environment

After you click **Join Cluster** in the management console on a secondary cluster node, the progress indicator disappears.

### Problem

When you use the vRealize Automation appliance management console after upgrade to join a secondary cluster node to the primary node, the progress indicator disappears and no error or success message appears. This behavior is an intermittent problem.

### Cause

The progress indicator disappears because some browsers stop waiting for a response from the server. This behavior does not stop the join cluster process. You can confirm that the join cluster process is successful by viewing the log file at `/var/log/vmware/vcac/vcac-config.log`.

## PostgreSQL Database Upgrade Merge Does Not Succeed

The external PostgreSQL database merge with the embedded PostgreSQL database does not succeed.

### Problem

If the PostgreSQL database upgrade merge does not succeed, you can perform a manual merge.

### Solution

- 1 Revert the vRealize Automation virtual appliance to the snapshot you made before upgrade.
- 2 Log in to the vRealize Automation virtual appliance and run this command to allow upgrade to complete if the database merge does not succeed.

```
touch /tmp/allow-external-db
```

The command does not disable auto merge.

- 3 On the remote PostgreSQL database host, connect to the PostgreSQL database using the `psql` tool and run these commands.

```
CREATE EXTENSION IF NOT EXISTS "hstore";
CREATE EXTENSION IF NOT EXISTS "uuid-osspl";
CREATE SCHEMA saas AUTHORIZATION vcac;
```

The user in this command is `vcac`. If vRealize Automation connects to the external database with a different user, replace `vcac` in this command with the name of that user.

```
CREATE EXTENSION IF NOT EXISTS "citext" SCHEMA saas;
```

- 4 Run upgrade.

If upgrade is successful, the system works as expected with the external PostgreSQL database. Ensure that the external PostgreSQL database is running properly.

- 5 Log in to the vRealize Automation virtual appliance and run these commands

```
/etc/bootstrap/postupdate.d/00-20-db-merge-external
/etc/bootstrap/postupdate.d/11-db-merge-external
```

## Management Agent Upgrade is Unsuccessful

The Management Agent upgrade is unsuccessful while upgrading from vRealize Automation to the latest version.

### Problem

If a failover incident has switched the primary and secondary Management Agent host, the upgrade is unsuccessful because the automated upgrade process cannot find the expected host. Perform this procedure on each IaaS node where the Management Agent is not upgraded.

### Solution

- 1 Open the All.log in the Management Agent logs folder, which is located at C:\Program Files (x86)\VMware\VCAC\Management Agent\Logs\.

The location of the installation folder might be different from the default location.

- 2 Search the log file for a message about an outdated or powered off virtual appliance.

For example, INNER EXCEPTION: System.Net.WebException: Unable to connect to the remote server ---> System.Net.Sockets.SocketException: A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond IP\_Address:5480

- 3 Edit the Management Agent configuration file at C:\Program Files (x86)\VMware\VCAC\Management Agent\VMware.IaaS.Management.Agent.exe.config to replace the existing alternativeEndpointaddress value with the URL of the primary virtual appliance endpoint.

The location of the installation folder might be different from the default location.

Example of alternativeEndpointaddress in VMware.IaaS.Management.Agent.exe.config.

```
<alternativeEndpoint address="https://FQDN:5480/" thumbprint="thumbprint number" />
```

- 4 Restart the Management Agent Windows service and check the All.log file to verify that is working.
- 5 Run the upgrade procedure on the primary vRealize Automation appliance.

## Upgrade Fails to Upgrade the Management Agent or Certificate Not Installed on a IaaS Node

Management Agent or Certificate is not upgraded on a IaaS node and error message appears in the management console.

### Problem

If the upgrade fails to upgrade on a IaaS node and error messages about the Management Agent or Certificate appear in the management console, use these suggestions to troubleshoot the problem.

- Check the Management Agent log on the affected node for errors.
- Check if the Management Agent was auto-upgraded by examining the version number in Programs and Features.
- If the Management Agent is upgraded, ensure that its service is running.
- If the Management Agent is upgraded and running, restart upgrade on the virtual appliance.
- If the Management Agent is not upgraded, perform a manual upgrade of the Management Agent. Open a browser and navigate to the VMware vRealize Automation IaaS Installation page on the vRealize Automation appliance at [https://virtual\\_appliance\\_host:5480/installer](https://virtual_appliance_host:5480/installer). Download and run the Management Agent Installer. Restart upgrade on the virtual appliance.

- If you plan to upgrade the IaaS components with the automatic upgrade shell script, make sure to download the Management Agent installer shipped as a separate package on the vRealize Automation 7.2 download page. For information, see Knowledge Base Article [2147926](#).

Do not attempt to use Management Agent installer that is included in the vRealize Automation virtual appliance.

## Replica vRealize Automation Appliance Fails to Update

Replica vRealize Automation appliance fails to update during master appliance update.

### Cause

A replica appliance can fail to update due to connectivity issues or other failures. When this happens, you see a warning message on the master vRealize Automation appliance **Update** tab, highlighting the replica that failed to update.

### Solution

- 1 Revert the replica virtual appliance snapshot or backup to the pre-update state and power it on.
- 2 Open the vRealize Automation appliance management console on the replica appliance.
  - a Go to the management console for your virtual appliance by using its fully qualified domain name, `https://va-hostname.domain.name:5480`.
  - b Log in with the user name **root** and the password you specified when the appliance was deployed.
- 3 Click **Update > Settings**.
- 4 Select to download the updates from a VMware repository or CDRom in the Update Repository section.
- 5 Click **Status**.
- 6 Click **Check Updates** to verify that an update is accessible.
- 7 Click **Install Updates**.
- 8 Click **OK**.

A message stating that the update is in progress appears.

- 9 Open the log files to verify that upgrade is progressing successfully.
  - `/opt/vmware/var/log/vami/vami.log`
  - `/var/log/vmware/horizon/horizon.log`

If you log out during the upgrade process and log in again before the upgrade is finished, you can continue to follow the progress of the update in the log file. The `updatecli.log` file might display information about the version of vRealize Automation that you are upgrading from. This displayed version changes to the proper version later in the upgrade process.

The time required for the update to finish varies according to your environment.

- 10 When the update is finished reboot the virtual appliance.
  - a Click **System**.
  - b Click **Reboot** and confirm your selection.
- 11 Select **vRA Settings > Cluster**.
- 12 Enter the master vRealize Automation appliance FQDN and click **Join Cluster**.

## Backup Copies of .xml Files Cause the System to Time Out

vRealize Automation registers any file with an .xml extension in the `\VMware\vCAC\Server\ExternalWorkflows\xml\` directory. If this directory contains backup files with an .xml extension, the system runs duplicate workflows that cause the system to time out.

### Solution

Workaround: When you back up files in this directory, move the backups to another directory, or change the extension of the backup file name to something other than .xml.

## Exclude Management Agents from Upgrade

You can update the vRealize Automation appliance without upgrading the IaaS components.

Use the procedure when you want to update the vRealize Automation appliance without upgrading the IaaS components. This makes it possible to quickly test the upgrade procedure.

### Procedure

- 1 Open a secure shell connection to the primary vRealize Automation appliance node.
- 2 At the command prompt, run this command to create the toggle file:  

```
touch /tmp/disable-iaas-upgrade
```
- 3 Access the primary vRealize Automation appliance management console and update the primary vRealize Automation appliance.
- 4 Manually stop the IaaS services.
  - a Log in to your IaaS Windows server.
  - b Select **Start > Administrative Tools > Services**.
  - c Stop these services in the following order.

Do not shut down the IaaS Windows server.

    - 1 Each VMware vCloud Automation Center agent.
    - 2 Each VMware DEM worker.
    - 3 The VMware DEM orchestrator.
    - 4 The VMware vCloud Automation Center service.

## Unable to Create New Directory in vRealize Automation

Trying to add new directory with the first sync connector fails.

### Problem

This issue occurs due to a bad `config-state.json` file located in `usr/local/horizon/conf/states/VSPHERE.LOCAL/3001/`.

For information about fixing this issue, see [Knowledge Base Article 2145438](#).

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