

Upgrading from vRealize Automation 6.2 to 7.1

vRealize Automation 7.1

This document supports the version of each product listed and supports all subsequent versions until the document is replaced by a new edition. To check for more recent editions of this document, see <http://www.vmware.com/support/pubs>.

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Upgrading from vRealize Automation 6.2.x to 7.1

Upgrading from vRealize Automation 6.2.x to 7.1 tells you how to upgrade your vRealize Automation environment to the latest 7.x release.

It also describes differences between this release and the previous vRealize Automation release and additional steps that you can perform to improve the upgrade.

NOTE Not all features and capabilities of vRealize Automation are available in all editions. For a comparison of feature sets in each edition, see <https://www.vmware.com/products/vrealize-automation/>.

This information is intended for experienced Windows or Linux system administrators who are familiar with virtual machine technology and datacenter operations. As used in this guide, vRealize Automation 7.0 includes vRealize Automation 7 point releases and subsequent hot fixes.

VMware Technical Publications Glossary

VMware Technical Publications provides a glossary of terms that might be unfamiliar to you. For definitions of terms as they are used in VMware technical documentation, go to <http://www.vmware.com/support/pubs>.

Updated Information

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

This table provides the update history of the *Upgrading vRealize Automation* guide.

Revision	Description
EN-002177-03	■ Revised “ Bad PostgreSQL Service State Stops Upgrade and Displays Error Message ,” on page 50 in “ Troubleshooting the Upgrade ,” on page 42 for additional Bug 1724596 revision.
EN-002177-02	■ Revised “ Bad PostgreSQL Service State Stops Upgrade and Displays Error Message ,” on page 50 in “ Troubleshooting the Upgrade ,” on page 42 for Bug 1724596 revision. ■ Added “ Backup Copies of .xml Files Cause the System to Time Out ,” on page 51 to “ Troubleshooting the Upgrade ,” on page 42 for Bug 1716108.

Revision	Description
EN-002177-01	<ul style="list-style-type: none"> ■ Revised “Upgrading vRealize Automation,” on page 6 to add updated vRealize Automation Upgrade Assistance Program information. ■ Restored “(Optional) Upgrade the SQL Database Manually,” on page 30 as a workaround if upgrade of Microsoft SQL database is unsuccessful. ■ Revised procedure “Upgrade External vRealize Orchestrator Appliance Clusters,” on page 37 to include changes to upgrade process for clustered environments. ■ Added “Upgrade Fails to Upgrade the Management Agent or Certificate Not Installed on a IaaS Node,” on page 50 to “Troubleshooting the Upgrade,” on page 42 to include troubleshooting tasks to resolve upgrade issues. ■ Added “Bad PostgreSQL Service State Stops Upgrade and Displays Error Message,” on page 50 to “Troubleshooting the Upgrade,” on page 42 for Bug 1724596.
EN-002177-00	Initial release.

Upgrading vRealize Automation

You can perform an in-place upgrade of your current vRealize Automation environment to 7.1 using upgrade.

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.

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.

To find out the considerations for the upgrade process, see “[Considerations About Upgrading to This vRealize Automation Version](#),” on page 9.

Locate your current vRealize Automation version in the table and use the documents on the right to perform an in-place upgrade of your vRealize Automation environment to the latest version. You can find links to the documentation for all versions of vCloud Automation Center and vRealize Automation at <https://www.vmware.com/support/pubs/vcac-pubs.html>.

NOTE If you have customized your vRealize Automation 6.2.x deployment, contact your CCE support staff for additional information about upgrade considerations.

NOTE To avoid a known issue when upgrading from vRealize Automation 6.2.0, perform the following step sequence on every IaaS Web site node, before you start the upgrade procedure. This issue affects 6.2.0 only. Other 6.2.x versions are not affected.

- 1 Open Notepad with Administrative rights.
- 2 Open the following file:

```
C:\Program Files (x86)\VMware\VCAC\Server\Model Manager Web\web.config
```
- 3 Locate the following statement in the file:

```
<!-- add key="DisableMessageSignatureCheck" value="false"-->
```
- 4 Uncomment the statement and change the value from false to true.

```
<add key="DisableMessageSignatureCheck" value="true" />
```

- 5 Save the file.
If Notepad prompts you to *Save As*, you did not open Notepad as Administrator and must go back to step 1.
- 6 Open a Command Prompt window with Administrative rights.
- 7 Run `reset`.
- 8 Repeat steps 1 - 7 for all Web site nodes.

Table 1. Supported In-Place Upgrade Paths to 7.1

Your Currently Installed Version	Documentation for Incremental Upgrades
vRealize Automation 7.0 or 7.0.1	See Upgrading from vRealize Automation 7.0 to 7.1 .
vRealize Automation 6.2.0, 6.2.1, 6.2.2, 6.2.3, or 6.2.4	See http://pubs.vmware.com/vrealize-automation-71/topic/com.vmware.ICbase/PDF/vrealize-automation-71-upgrading.pdf .

See the following table for information about upgrading from an earlier vCloud Automation Center 6.x release to vRealize Automation 6.2.x in preparation for upgrading to vRealize Automation 7.1

NOTE 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.

Table 2. Supported Upgrade Paths in 6.x

Your Currently Installed Version	Documentation for Incremental Upgrades
vCloud Automation Center 6.0	Perform upgrades in the following order: <ul style="list-style-type: none"> ■ <i>Upgrading vCloud Automation Center 6.0 to 6.0.1</i> ■ <i>Upgrading to vCloud Automation Center 6.1</i> ■ <i>Upgrading to vRealize Automation 6.2.x</i>
vCloud Automation Center 6.0.1	Perform upgrades in the following order: <ul style="list-style-type: none"> ■ <i>Upgrading to vCloud Automation Center 6.1</i> ■ <i>Upgrading to vRealize Automation 6.2.x</i>
vCloud Automation Center 6.1.x	<i>Upgrading to vRealize Automation 6.2.x</i>
vRealize Automation 6.2.x	Upgrade directly to the latest 6.2.x release as described in <i>Upgrading to vRealize Automation 6.2.x</i>

Checklist for Upgrading vRealize Automation Components

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 installation or a distributed installation 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.

For information about all supported upgrade paths, see the release notes for vRealize Automation, available on the [VMware vRealize Automation Documentation landing page](#).

Table 3. Checklist for Upgrade of a Minimal vRealize Automation Deployment

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 “Back Up Your Environment,” on page 16. For general information, see <i>Configuring Backup and Restore by Using Symantec Netbackup</i> at http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf
<input type="checkbox"/> Shut down vRealize Automation Windows services on your IaaS server.	See “Shut Down vCloud Automation Center Services on Your IaaS Windows Server,” on page 19.
<input type="checkbox"/> If the Common Components Catalog is installed, you must uninstall it before you upgrade.	For information about how to uninstall, install, and upgrade the Common Components Catalog, see the Common Components Catalog documentation.
<input type="checkbox"/> Review the considerations for upgrade so that you understand what can be upgraded, what cannot be upgraded, and how upgraded items might behave differently in the target deployment than in the source. Not all items, including blueprints, reservations, and endpoints can be upgraded. The presence of some unsupported configurations blocks upgrade.	See “Considerations About Upgrading to This vRealize Automation Version,” on page 9.
<input type="checkbox"/> Configure your hardware resources.	See “Increase vCenter Server Hardware Resources for Upgrade,” on page 17.
<input type="checkbox"/> Download updates to the vRealize Automation appliance.	See “Downloading vRealize Automation Appliance Updates,” on page 20.
<input type="checkbox"/> Install the update on the vRealize Automation appliance.	See “Install the Update on the vRealize Automation Appliance,” on page 21.
<input type="checkbox"/> Update the Single-Sign On utility to the VMware Identity Manager utility.	See “Update Your Single Sign-On Password for VMware Identity Manager,” on page 23.
<input type="checkbox"/> Update the license key.	See “Update the License Key,” on page 24.
<input type="checkbox"/> Migrate the Identity Store to the VMware Identity Manager	“Migrate Identity Stores to the VMware Identity Manager,” on page 24
<input type="checkbox"/> Download and install updates for IaaS.	See “Upgrading the IaaS Server Components,” on page 30.
<input type="checkbox"/> Upgrade the external vRealize Orchestrator.	See “Upgrade Stand-Alone External vRealize Orchestrator for Use With vRealize Automation,” on page 36.
<input type="checkbox"/> Add users or groups to an Active Directory connection	See “Add Users or Groups to an Active Directory Connection,” on page 39.

Table 4. Upgrade to vRealize Automation Distributed Installation Checklist

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 “Back Up Your Environment,” on page 16. For detailed information, see <i>Configuring Backup and Restore by Using Symantec Netbackup</i> at http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf
<input type="checkbox"/> Shut down vRealize Automation services on your IaaS Windows server.	See “Shut Down vCloud Automation Center Services on Your IaaS Windows Server,” on page 19.
<input type="checkbox"/> If the Common Components Catalog is installed, you must uninstall it before you upgrade.	For information about how to uninstall, install, and upgrade the Common Components Catalog, see the Common Components Catalog documentation.
<input type="checkbox"/> Configure your hardware resources for the upgrade.	See “Increase vCenter Server Hardware Resources for Upgrade,” on page 17.
<input type="checkbox"/> Download updates to the vRealize Automation appliance.	See “Downloading vRealize Automation Appliance Updates,” on page 20.
<input type="checkbox"/> Install the update on the first vRealize Automation appliance in your installation. If you have designated an appliance as a master, upgrade this appliance first.	See “Install the Update on the vRealize Automation Appliance,” on page 21.
<input type="checkbox"/> Update the Single-Sign On utility to the VMware Identity Manager utility.	See “Update Your Single Sign-On Password for VMware Identity Manager,” on page 23.
<input type="checkbox"/> Update the license key.	See “Update the License Key,” on page 24.
<input type="checkbox"/> Migrate the Identity Store to the VMware Identity Manager utility	“Migrate Identity Stores to the VMware Identity Manager,” on page 24
<input type="checkbox"/> Install the update on the rest of your vRealize Automation appliances.	“Install the Update on Additional vRealize Automation Appliances,” on page 28
<input type="checkbox"/> Download and install updates for IaaS.	See “Upgrading the IaaS Server Components,” on page 30.
<input type="checkbox"/> Upgrade the external vRealize Orchestrator	See “Upgrade Stand-Alone External vRealize Orchestrator for Use With vRealize Automation,” on page 36 .
<input type="checkbox"/> Enable your load balancers.	“Enable Your Load Balancers,” on page 40

Considerations About Upgrading to This vRealize Automation Version

vRealize Automation 7 introduced various functional changes during and after the upgrade process that you must consider before you upgrade your vRealize Automation deployment to the new version.

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.

Review the considerations in the subtopics before you upgrade.

Upgrade and Identity Appliance Specifications

You configure identity appliance upgrade information in response to prompts that are generated by the vRealize Automation upgrade executable.

The target deployment uses the VMware Identity Manager.

Upgrade and Licensing

During the upgrade, your existing vRealize Automation 6.x licenses, and any vCloud Suite 6.x licenses that you have, are removed. You must reenter your licenses in the vRealize Automation 7 vRealize Automation appliance.

You now use vRealize Automation licensing for virtual appliances and IaaS by entering license key information in the vRealize Automation appliance. Licensing information is no longer available in the IaaS user interface and IaaS no longer performs licensing checks. Endpoints and quotas are enforced through the end-user license agreements (EULAs).

NOTE Write down your vCloud Suite 6.x license key if you used it for vRealize Automation 6.2.x before the upgrade. Upon upgrade, existing license keys are removed from the database.

For more information about re-entering your license information during or after upgrade, see [“Update the License Key,”](#) on page 24 .

Understanding How Roles Are Upgraded

When you upgrade vRealize Automation, your organization's existing role assignments are maintained. The upgrade also creates some role assignments to support additional blueprint architect roles.

The following architect roles are used to support the blueprint definition in the design canvas:

- Application architect. Assembles existing components and blueprints to create composite blueprints.
- Infrastructure architect. Creates and manages machine blueprints.
- XaaS architect. Creates and manages XaaS blueprints.
- Software architect. Creates and manages Software components.

In vRealize Automation 7, tenant administrators and business group managers cannot design blueprints by default. Upgraded tenant administrators and business group managers are given the infrastructure architect role.

All users with the ability to reconfigure a machine in the vRealize Automation 6.2 source version are authorized to change machine ownership after upgrading to this vRealize Automation version.

The following role assignments are made during the upgrade. Roles that are not listed in the table are upgraded to the same role name in the target deployment.

Table 5. Roles Assigned During Upgrade

Role in Source Deployment	Role in Target Deployment
Tenant administrator	Tenant administrator and Infrastructure architect
Business group manager	Business group manager and Infrastructure architect
Service architect	XaaS architect
Application architect	Software architect

For more information about tenant roles, see *Foundations and Concepts*.

Understanding How Blueprints Are Upgraded

As a rule, published blueprints are upgraded as published blueprints.

However, there are exceptions to that rule. Multi-machine blueprints are upgraded as composite blueprints that contain blueprint components. Multi-machine blueprints that contain unsupported settings are upgraded as unpublished.

For related information see [“Upgrade and vApp Blueprints, vCloud Endpoints, and vCloud Reservations,”](#) on page 11 and [“Understanding How Multi-Machine Blueprints Are Upgraded,”](#) on page 11.

Upgrade and vApp Blueprints, vCloud Endpoints, and vCloud Reservations

You cannot upgrade a deployment that contains vApp (vCloud) endpoints. The presence of endpoints of type vApp (vCloud) prevent upgrade to vRealize Automation 7.0.1.

When upgrade encounters a vApp (vCloud) endpoint in the source deployment, upgrade fails on the master virtual appliance and reports a message in the user interface and log. You can determine if your source deployment contains vApp (vCloud) endpoint by logging in to vRealize Automation with Iaas Administrator privileges, selecting **Infrastructure > Endpoints** and noting the platform type value in the Endpoints list. If the list contains endpoints of platform type vApp (vCloud), upgrade to 7.0.1 is not supported.

Managed vApps for vCloud Air or vCloud Director resources are not supported in the target vRealize Automation deployment.

NOTE A known issue exists where the following deprecated approval policy types appear in the list of available approval policy types after upgrade is finished. These policy types are unusable.

- Service Catalog - Catalog Item Request - vApp
 - Service Catalog - Catalog Item Request - vApp Component
-

You can create vCloud Air and vCloud Director endpoints and reservations in the target deployment. You can also create blueprints that contain vCloud Air or vCloud Director machine components.

Understanding How Multi-Machine Blueprints Are Upgraded

You can upgrade managed service, multi-machine blueprints from a supported vRealize Automation 6.2.x version deployment.

When you upgrade a multi-machine blueprint, component blueprints are upgraded as separate single-machine blueprints. The multi-machine blueprint is upgraded as a composite blueprint in which its previous children blueprints are nested as separate blueprint components.

The upgrade creates a single composite blueprint in the target deployment that contains one machine component for each component blueprint in the source multi-machine blueprint. If the multi-machine blueprint contains a setting that is not supported in the target vRealize Automation deployment, the blueprint is upgraded but its status is changed to draft in the target deployment. For example, if the multi-machine blueprint contains a private network profile, the private network profile setting is ignored during upgrade and the blueprint is upgraded in a draft state. You can edit the draft blueprint to specify different network profile information and publish it.

NOTE If a published blueprint in the source deployment is upgraded to a draft status blueprint, the blueprint is no longer part of a service or entitlement. After you update and publish the blueprint in vRealize Automation 7.1, you must recreate its needed approval policies and entitlements.

Some multi-machine blueprint settings are not supported in the target vRealize Automation deployment, including private network profiles and routed network profiles with associated PLR edge settings. Note that if you have used a custom property to specify PLR edge settings (VCNS.LoadBalancerEdgePool.Names), the custom property is upgraded.

If the multi-machine blueprint uses vSphere endpoints and NSX network and security settings, the upgraded composite blueprint also contains NSX network and security components in the design canvas.

NOTE Routed gateway specifications for multi-machine blueprints, as defined in reservations, are upgraded. However, the target vRealize Automation deployment does not support reservations for routed profiles that contain associated PLR edge settings. If the source reservation contains a routed gateway value for a PLR edge, the reservation is upgraded but the routed gateway setting is ignored. As a result, the upgrade generates an error message in the log file and the reservation is disabled.

During upgrade, spaces and special characters are removed from referenced network and security component names.

Depending on the setting type, the network and security information is captured as several settings in the new blueprint.

- Settings for the overall blueprint on its properties page. This information includes app isolation, transport zone, and routed gateway or NSX edge reservation policy information.
- Available settings for vSphere machine components in NSX network and security components in the design canvas.
- Settings in the network and security tabs of individual vSphere machine components in the design canvas.

Upgrade and Physical Endpoints, Reservations, and Blueprints

You cannot upgrade a deployment that contains physical endpoints. The presence of endpoints of type physical prevents the vRealize Automation upgrade process from completing.

When upgrade encounters a physical endpoint in the source deployment, upgrade fails on the master virtual appliance and reports a message in the user interface and log. You can determine if your source deployment contains physical endpoints by logging in to vRealize Automation with Iaas Administrator privileges, selecting **Infrastructure > Endpoints** and noting the platform type value in the endpoints list. If the list contains endpoints of Platform Type Physical, upgrade is not supported.

Physical endpoints, reservations, and machine components in blueprints are not supported in the target vRealize Automation deployment.

Upgrade and Network Profile Settings

Private network profiles are not supported in the target deployment and are ignored during the upgrade. Routed network profiles with associated PLR edge settings are also not supported in the target deployment and are also ignored during the upgrade.

The private network profile type is not supported in the target vRealize Automation deployment. When the vRealize Automation upgrade executable encounters a private network profile in the source deployment, it ignores the network profile. Load balancers that reference those private networks are also ignored during upgrade. The same upgrade conditions are true for a routed network profile with associated PLR edge settings. Neither network profile configuration is upgraded.

If a reservation contains a private network profile, the private network profile setting is ignored during upgrade and the reservation is upgraded as disabled in the target deployment.

If a reservation contains a routed network profile with associated PLR edge settings, the routed network profile specification is ignored during upgrade and the reservation is upgraded as disabled in the target deployment.

For information about upgrading a multi-machine blueprint that contains network settings, see [“Understanding How Multi-Machine Blueprints Are Upgraded,”](#) on page 11.

Upgrade and Entitled Actions

You cannot upgrade machine actions.

The actions that you are entitled to perform on provisioned machines, based on blueprint specifications, are not upgraded. To recreate allowed machine actions, customize the entitlements for blueprints to enable only certain actions.

For related information, see *Configuring vRealize Automation*.

Upgrade and Custom Properties

All the custom properties that vRealize Automation supplies are available in the upgraded deployment. Custom properties and property groups are upgraded.

Terminology and Related Changes

All the build profiles that you created in the source deployment are upgraded as property groups. The term *build profile* has been retired.

The term *property set* has been retired and CSV property set files are no longer available.

Case-sensitivity in Custom Property Names

Prior to vRealize Automation 7.0, custom property names were case-insensitive. In vRealize Automation 7.0 and later, custom property names are case-sensitive. During upgrade, custom property names must be an exact match, including their case, to ensure that property values do not override one another and that they correctly match property dictionary definitions. For example, a custom property expressed as `hostname` and another custom property expressed as `HOSTNAME` are considered different custom properties by vRealize Automation 7.0 and later and do not override one another during upgrade.

Reserved Property Names

Several keywords are now reserved and some upgraded properties might be impacted. Some keywords are used by the blueprint code that can be imported, for example by using vRealize CloudClient blueprint import functions. These keywords are considered reserved and are not available for properties that are being upgraded. The keywords include but are not limited to `cpu`, `storage`, and `memory`.

Upgrade and Application Services

Application Services upgrade is not currently supported in the target vRealize Automation deployment.

Upgrade and Advanced Service Design

When you upgrade to the target vRealize Automation deployment, your Advanced Service Design items are upgraded to XaaS elements.

XaaS components are available for use in the blueprint design canvas.

Upgrade and Blueprint Cost Information

As of 7.0, vRealize Automation cost profiles are no longer supported and are not migrated into the target deployment during upgrade. However, you can leverage the enhanced integration with vRealize Business to manage your vRealize Automation resource costs.

vRealize Business is now tightly integrated with vRealize Automation and supports the following enhanced costing features.

- Unified location in vRealize Business to define flexible pricing policies for:
 - Infrastructure resource, machine, and application blueprints
 - All types of endpoints in vRealize Automation
 - Any operational cost, one time cost, and cost on custom properties
- Role-based showback reports in vRealize Business
- Fully leverage new features in vRealize Business

Before you upgrade, you can export your existing cost reports from your source vRealize Automation instance for reference. After you complete your upgrade, you can install and configure vRealize Business to handle costing.

Prerequisites for Upgrading vRealize Automation

Before you run the upgrade, review the following prerequisites.

System Configuration Requirements

Make sure the following system requirements are met before you begin an upgrade.

- Verify that you are following a supported upgrade path. See [“Upgrading vRealize Automation,”](#) on page 6 for a list of supported upgrade paths.
- Verify that all appliances and servers that are part of your deployment meet the system requirements for the version you are upgrading to. 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.
- If you are upgrading from vRealize Automation 6.2.x, record your vCloud Suite license key if you used it for the vRealize Automation installation you are upgrading from. Upon upgrade, existing license keys are removed from the database. You do not need to do this task if you are upgrading from vRealize Automation 7.x.

Hardware Configuration Requirements

Make sure the following hardware requirements are met before you begin an upgrade.

- You must create a disk with at least 50 GB of space and 18 GB of RAM space before you download the upgrade. See [“Increase vCenter Server Hardware Resources for Upgrade,”](#) on page 17.

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

If you have two disks in your vRealize Automation appliance, you must add a Disk 3 with 25 GB and a Disk 4 with 50 GB of space. The virtual appliance must have Disk 3 and Disk 4 for the upgrade process to succeed.

- Your CPU must have four virtual sockets and one core. See “[Increase vCenter Server Hardware Resources for Upgrade](#),” on page 17.
- 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 8, update 91, 64 bit, `jdk-8u91-windows-x64.exe`, 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 an Active Directory account with a `username@domain` format and permissions to bind to the directory.

NOTE Identity Provider from OpenLDAP is not migrated when you upgrade from vRealize Automation 6.2.x versions.

- You have access to an account with a `SAMaccountName` format and sufficient privileges to join the system to the domain by creating a computer object dynamically or to merge into a pre-created object.
- 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 your site uses an external vRealize Orchestrator appliance, and your deployment uses an external vRealize Orchestrator appliance that is connected to the Identity Appliance, upgrade vRealize Orchestrator before you upgrade vRealize Automation.
- 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*.

Preparing to Upgrade vRealize Automation

You must perform various listed tasks and procedures in preparation for upgrading vRealize Automation.

Perform the tasks required for upgrade in the order in which they appear in the checklist. See “[Checklist for Upgrading vRealize Automation Components](#),” on page 7.

Backing up and Saving Your Existing Environment

Before you begin an upgrade process, you complete the backup prerequisites.

Prerequisites

- Verify that your source installation is fully installed and configured.
- Backup vRealize Automation appliance configuration files in the following directories for each appliance.
 - `/etc/vcac/`
 - `/etc/vco/`
 - `/etc/apache2/`
 - `/etc/rabbitmq/`
- Backup all databases.
- Create a snapshot of your tenant configuration and the users assigned.
- Backup any files you have customized, such as `DataCenterLocations.xml`.
- Create a snapshot of your virtual appliances and IaaS servers. Adhere to regular guidelines for backing up the entire system in case vRealize Automation upgrade fails for whatever reason. See *Configuring vRealize Suite 6.0 for Backup and Restore* topics in vRealize Suite documentation.

Procedure

- 1 [Back Up Your Environment](#) on page 16
Before you begin to upgrade, shut down and take a snapshot of the vRealize Automation IaaS Windows Server, all Model Manager machines, and the identity virtual appliance machines. If the upgrade fails, you can use the snapshot to return to the last known good configuration and attempt another upgrade.
- 2 [Increase vCenter Server Hardware Resources for Upgrade](#) on page 17
Before you upgrade, you must increase hardware resources for each VMware vRealize™ Automation appliance.
- 3 [Power On the Entire System](#) on page 18
After you increase the vCenter hardware resources for upgrade, you power on the system before you perform the upgrade.

Back Up Your Environment

Before you begin to upgrade, shut down and take a snapshot of the vRealize Automation IaaS Windows Server, all Model Manager machines, and the identity virtual appliance machines. If the upgrade fails, you can use the snapshot to return to the last known good configuration and attempt another upgrade.

Prerequisites

- Verify that the embedded PostgreSQL database is in high-availability mode. If it is, locate the current Master node. See the knowledge base article <http://kb.vmware.com/kb/2105809>.
- 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. See [“Backing up and Saving Your Existing Environment,”](#) on page 16 .

- Verify that you have taken a snapshot of your system while it is shut down. See the *vSphere 6.0 Documentation*.

If you cannot shut down your system, take an in-memory snapshot of all the nodes.

- Verify that you have a backup of your entire system.

Procedure

- 1 Log in to vCenter Server.
- 2 Locate the vRealize Automation 6.2.x IaaS Windows Server, all Manager machines, and Identity virtual appliance machines.
- 3 Select a machine and click **Shutdown guest** in the following order.
 - a IaaS proxy agent virtual machines
 - b DEM Worker virtual machines
 - c DEM Orchestrator virtual machine
 - d Manager Service virtual machine
 - e WEB Service virtual machines
 - f Secondary vRealize Automation virtual appliances
 - g Primary vRealize Automation virtual appliance
 - h Manager machines (if any)
 - i Identity Appliance
- 4 Take a snapshot of all vRealize Automation 6.2.x machines.
- 5 Clone the vRealize Automation appliance nodes and perform the upgrade on the cloned machines. Keep the original, in case system restore is required later on.

What to do next

[“Increase vCenter Server Hardware Resources for Upgrade,”](#) on page 17

Increase vCenter Server Hardware Resources for Upgrade

Before you upgrade, you must increase hardware resources for each VMware vRealize™ Automation appliance.

If you have taken a snapshot of each vRealize Automation appliance, you must clone each appliance and increase the hardware resources on each clone. Ensure that you have at least 60 GB of free space on each appliance in your VMware vCenter Server™. After you clone your appliances, power off the original appliances before you perform this procedure on each appliance clone.

These steps are based on the Windows client.

Procedure

- 1 Log in to vCenter Server.
- 2 Right-click the cloned vRealize Automation appliance icon and select **Edit Settings**.
- 3 If there is an existing virtual Disk 4 from a previous vRealize Automation 6.2.x release, perform the following steps. If you do not have an existing virtual Disk 4, go to step 4.
 - a Power on the virtual machine.
 - b Open a new command prompt and navigate to the `/etc/fstab`.

- c Open the `fstab` file, and remove lines starting with `/dev/sdd` that contain the `Wal_Archive` write ahead logs.
 - d Save the file.
 - e Power off the virtual machine.
 - f Right-click the cloned vRealize Automation appliance icon and select **Edit Settings**.
 - g Delete Disk 4 on the cloned virtual machine and create Disk 4 with a disk size of 50 GB.
If you have two disks, add Disk 3 with a disk size of 25 GB first and then Disk 4 with a disk size of 50 GB.
- 4 Select **Memory** and set the value to **18 GB**.
 - 5 Select **CPU** and set the Number of virtual sockets value to **4**.
 - 6 Extend the size of Disk 1 to 50 GB.
 - a Select Disk 1.
 - b Change the size to 50 GB.
 - c Click **OK**.
 - 7 Click **Add** above the Resources table to add a virtual disk.
 - 8 Select **Hard Disk** for the Device Type.
 - 9 Click **Next**.
 - 10 Select **Create a new virtual disk**.
 - 11 Select **Thin Provision**.
 - 12 Click **Next**.
 - 13 Set disk size value to **50 GB**.
 - 14 Select **Store with the virtual machine**.
 - 15 Click **Next**.
 - 16 Verify that the **Independent** option is deselected for **Mode** and **SCSI (0:3)** is selected for **Virtual Device Mode**.
 - 17 Click **Next**.
If prompted to accept recommended settings, accept the recommended settings.
 - 18 Click **Finish**.
 - 19 Click **OK**.
 - 20 Create a snapshot of the virtual machine.

What to do next

[“Power On the Entire System,”](#) on page 18.

Power On the Entire System

After you increase the vCenter hardware resources for upgrade, you power on the system before you perform the upgrade.

Prerequisites

- [“Back Up Your Environment,”](#) on page 16

- [“Increase vCenter Server Hardware Resources for Upgrade,”](#) on page 17

Procedure

- 1 Power on the entire system.

For instructions, see the vRealize Automation 6.2 version of the [Start Up vRealize Automation](#) topic.

NOTE If you have a high availability environment, use this procedure 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.
-

- 2 Verify that the system is fully functional.

What to do next

[“Shut Down vCloud Automation Center Services on Your IaaS Windows Server,”](#) on page 19

Shut Down vCloud Automation Center Services on Your IaaS Windows Server

When necessary, you can use the following procedure to shut down services on your IaaS Windows server.

Before you begin the upgrade, shut down vCloud Automation Center services on your IaaS Windows servers. Shut down vCloud Automation Center services in the recommended order for all servers that are running IaaS services.

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.

Procedure

- 1 Log in to your IaaS Windows server.
- 2 Select **Start > Administrative Tools > Services**.
- 3 Shut down services in the following order. Be sure not to shut down the actual machine.

Each virtual machine has a Management agent, which must be stopped with each set of services.

 - a All VMware vCloud Automation Center agents
 - b All VMware DEM workers
 - c VMware DEM orchestrator
 - d VMware vCloud Automation Center Service
- 4 For distributed installation deployments with load balancers, disable all of the secondary nodes and remove the vRealize Automation health monitors for the following items.
 - a vRealize Automation appliance
 - b IaaS Website
 - c IaaS Manager Service
- 5 For deployments that use load balancers, ensure traffic is directed to the primary node.

- 6 Verify that the IaaS service hosted in Microsoft Internet Information Services (IIS) is running by performing the following steps.
 - a In your browser, go to 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 Check the status recorded in the `Repository.log` file on the Web node of the IaaS virtual machine to see that status reports OK. The file is located in the VCAC home folder at `/Server/Model Manager Web/Logs/Repository.log`.

For a distributed IaaS Website, log in to the secondary website, without MMD, and stop Microsoft IIS temporarily. Check the `MetaModel.svc` connectivity, and start the Microsoft IIS.

What to do next

[“Downloading vRealize Automation Appliance Updates,”](#) on page 20 .

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](#) on page 20
You can download the update for your vRealize Automation appliance from a public repository on the vmware.com Web site.
- [Download Virtual Appliance Updates for Use with a CD-ROM Drive](#) on page 21
You can update your virtual appliance from an ISO file that the appliance reads from the virtual CD-ROM drive.

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 Environment,”](#) on page 16

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**.

What to do next**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.

Prerequisites

- [“Back Up Your Environment,”](#) on page 16.
- 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 Download the update ISO file from the vmware.com Web site.
- 2 Locate the downloaded file on your system to verify that the file size is the same as the file on vmware.com Web site.
- 3 Ensure that your virtual appliance is powered on.
- 4 Connect the CD-ROM drive for the virtual appliance you are updating 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 Appliance

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

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

- 1 Each secondary vRealize Automation appliance
- 2 The IaaS Website with the Microsoft SQL Server
- 3 IaaS Manager Service
- 4 IaaS DEM
- 5 IaaS agent
- 6 vRealize Orchestrator node

Install the Update on the vRealize Automation Appliance

You install the update on the VMware vRealize™ Automation 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 [“Troubleshooting the Upgrade,”](#) on page 42.

Prerequisites

- Select a download method and download the update. See [“Downloading vRealize Automation Appliance Updates,”](#) on page 20.
- For all high-availability deployments, see [“Back Up Your Environment,”](#) on page 16.
- For deployments with load balancers, verify that the traffic is directed to the primary node.
- 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*.
- Verify that the jdbc:postgresql database connection points to the external IP address of the master PostgreSQL node.
 - a On the vRealize Automation appliance, open a new command prompt.
 - b Navigate to `/etc/vcac/server.xml`, and back up `server.xml`.
 - c Open `server.xml`.
 - d If necessary, edit the `server.xml` file entry `jdbc:posgresql` that points to the Postgres database and point it to the external IP address of the master PostgreSQL node for external PostgreSQL or master virtual appliance for embedded PostgreSQL.

For example, `jdbc:postgresql://198.15.100.60:5432/vcac`
- Verify that all saved and in-progress requests have finished successfully before you upgrade.

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 the **Services** tab and verify that all services are listed as REGISTERED.
- 3 Select **Update > Status**.
- 4 Click **Check Updates** to verify that an update is accessible.
- 5 (Optional) For instances of vRealize Automation appliance, click **Details** in the Appliance Version area to see information about the location of release notes.
- 6 Click **Install Updates**.
- 7 Click **OK**.
A message stating that the update is in progress appears.
- 8 (Optional) If you have not resized Disk 1 to 50 GB manually, perform the following steps.
 - a When the system prompts you to reboot the virtual appliance, click the **System** tab and click **Reboot**.

During the reboot, the system adjusts the space required for the update.
 - b After the system reboots, log in again to the vRealize Automation appliance management console and select **Update > Status**.
 - c Click **Check Updates** and **Install Updates**.

- 9 To view the upgrade progress, open the following log files.

- /opt/vmware/var/log/vami/updatecli.log
- /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.

- 10 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 product management console.

For more information about setting parameters for data collection and joining or leaving the Customer Experience Improvement Program, see *System Administration*.

What to do next

[“Update Your Single Sign-On Password for VMware Identity Manager,”](#) on page 23

Update Your Single Sign-On Password for VMware Identity Manager

After you install the updates, you must update the Single Sign-On password for VMware Identity Manager.

VMware Identity Manager replaces the Identity Appliance and vSphere SSO components.

Procedure

- 1 Log out of the vRealize Automation appliance management console, close the browser, open the browser again, and log back in.
- 2 Select **vRA Settings > SSO**.
- 3 Enter a new VMware Identity Manager password and click **Save Settings**.

Do not use simple passwords. You can safely ignore the error message `SSO server is not connected`. It can require several minutes to restart the services.

The password is accepted.

For a high-availability deployment, the password is applied to the first vRealize Automation appliance node and propagated to all secondary vRealize Automation appliance nodes.

- 4 Reboot the virtual appliance.
 - a Click the **System** tab.
 - b Click **Reboot** and confirm your selection.
- 5 Verify that all services are running.
 - a Log in to the vRealize Automation appliance management console.
 - b Click the **Services** tab on the console.
 - c Click the **Refresh** tab to monitor the progress of service startup.

You should see a minimum of 30 services.

- 6 Verify that all services are registered except iaas-service.

The artifact-management-service and release-management service do not start without a vRealize Code Stream license key.

What to do next

[“Update the License Key,”](#) on page 24.

Update the License Key

You must upgrade your license key to use the latest version of the vRealize Automation appliance.

Procedure

- 1 Navigate to the vRealize Automation appliance management console by using its fully qualified domain name, `https://vra-va-hostname.domain.name:5480/`.
- 2 Select **vRA Settings > Licensing**.

If the **New License Key** text box is not available, perform the following steps.

- a Log out of the management console.
 - b Clear your browser cache.
 - c Log in again to the management console.
 - d Repeat step 2.
- 3 Enter your new license key in the **New License Key** text box.

Endpoints and quotas are flagged according to your end-user license agreement (EULA).

What to do next

[“Migrate Identity Stores to the VMware Identity Manager,”](#) on page 24

Migrate Identity Stores to the VMware Identity Manager

As part of upgrading to 7.1 from 6.2.x, you migrate identity stores.

Refer to the snapshot of your 6.2.x tenant configuration information as required in the following procedures.

NOTE vRealize Code Stream users must manually reassign vRealize Code Stream roles after identity store migration.

Procedure

- 1 [Create a Local User Account for Your Tenants](#) on page 25
As part of upgrading identity stores, you must set up a tenant with a local user account and assign tenant administrator privileges to the local user account.
- 2 [Synchronize Users and Groups for an Active Directory Link](#) on page 25
Connect to your Active Directory link to import your users and groups into vRealize Automation using the Directories Management functionality.
- 3 [Migrate Multiple Tenant and IaaS Administrators](#) on page 27
If you have multiple vRealize Automation 6.2.x tenants and IaaS administrators, use the Identity Stores Migration Tool to migrate your tenant administrators to your newly synchronized vsphere.local tenant. Alternatively, you can add them manually to the vsphere.local tenants.

Create a Local User Account for Your Tenants

As part of upgrading identity stores, you must set up a tenant with a local user account and assign tenant administrator privileges to the local user account.

Prerequisites

Verify that you have set a new VMware Identity Manager password. See [“Update Your Single Sign-On Password for VMware Identity Manager,”](#) on page 23.

Procedure

- 1 Log in to the vRealize Automation console with the default system administrator username **administrator** and password.
The console location is `https://vra-appliance/vcac/`.
- 2 Click your tenant.
For example, for the default tenant, click **vsphere.local**
- 3 Select the **Local Users** tab.
- 4 Click **New**.
- 5 Create a local user account to assign to the tenant administrator role.
The local user name should be unique to the vsphere.local active directory.
- 6 Click **OK**.
- 7 Click the **Administrators** tab.
- 8 Enter the local user name in the **Tenant administrators** search box and press Enter.
- 9 Click **Finish**.
- 10 Repeat these steps for each of your tenants.
- 11 Log out of the console.

What to do next

[“Synchronize Users and Groups for an Active Directory Link,”](#) on page 25

Synchronize Users and Groups for an Active Directory Link

Connect to your Active Directory link to import your users and groups into vRealize Automation using the Directories Management functionality.

Perform these steps for each of your tenants.

Prerequisites

Verify that you have access privileges to the Active Directory.

Procedure

- 1 Log in to the vRealize Automation console, `https://vra-appliance/vcac/org/tenant_name`.
- 2 Select **Administration > Directories Management > Directories**.
- 3 Click **Add Directory**.

- 4 Enter your specific Active Directory account settings.

◆ Non-Native Active Directories

Option	Sample Input
Directory Name	Enter a unique directory name. Select Active Directory over LDAP when using non-Native Active Directory.
This Directory Supports DNS Services	Uncheck this option.
Base DN	Enter the Distinguished Name (DN) of the starting point for directory server searches. For example, cn=users,dc=rainpole,dc=local .
Bind DN	Enter the full distinguished name (DN), including common name (CN), of an Active Directory user account that has privileges to search for users. For example, cn=config_admin infra,cn=users,dc=rainpole,dc=local .
Bind DN Password	Enter the Active Directory password for the account that can search for users.

◆ Native Active Directories

Option	Sample Input
Directory Name	Enter a unique directory name. Select Active Directory (Integrated Windows Authentication) when using Native Active Directory.
Domain Name	Enter the name of the domain to join.
Domain Admin Username	Enter the username for the domain admin
Domain Admin Password	Enter the password for the domain admin account.
Bind User UPN	Enter the name of the user who can authenticate the domain. Use the email address format.
Bind DN Password	Enter the Active Directory bind account password for the account that can search for users.

- 5 Click **Test Connection** to test the connection to the configured directory.
- 6 Click **Save & Next**.
The Select the Domains page with the list of domains appears.
- 7 Accept the default domain setting and click **Next**.
- 8 Verify that the attribute names are mapped to the correct Active Directory attributes and click **Next**.
- 9 Select the groups and users you want to synchronize.
 - a Click the **New** icon.
 - b Enter the user domain and click **Find Groups**.
For example, **dc=vcac,dc=local**.
 - c Click **Select** to select the groups you want to synchronize.
 - d Click **Next**.
 - e On the Select Users page, select the users you want to synchronize and click **Next**.
- 10 Review the users and groups are syncing to the directory and click **Sync Directory**.
The directory synchronization process takes some time and it happens in the background.

- 11 Select **Administration > Directories Management > Identity Providers** and click on your new identity provider.

For example, **WorspaceIDP__1**.

- 12 Scroll to the bottom of the page and update the value for the IdP Hostname property to point to the FQDN for the vRealize Automation load balancer.

- 13 Click **Save**.

- 14 Repeat steps 11-13 for each tenant and identity provider.

- 15 After upgrading all vRealize Automation nodes, login to each tenant and select **Administration > Directories Management > Identity Providers** again.

Each identity provider should have all vRealize Automation connectors added to it.

For example, if your deployment has two vRealize Automation appliances, the identity provider should have two associated connectors.

Migrate Multiple Tenant and IaaS Administrators

If you have multiple vRealize Automation 6.2.x tenants and IaaS administrators, use the Identity Stores Migration Tool to migrate your tenant administrators to your newly synchronized vsphere.local tenant. Alternatively, you can add them manually to the vsphere.local tenants.

In a Linux environment, run the Identity Stores Migration Tool as administrator.

In a Windows environment, you must have administrative rights on the machine where you run the Identity Stores Migration Tool.

Prerequisites

Log in to the management console of the master vRealize Automation appliance that you upgraded.

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 Select **vRA Settings > SSO**.
- 4 Perform the following steps according to your operating system.

Linux

- a Right-click **Identity Stores Migration Tool** and select **Copy Link Address**.
- b Open a secure shell connection as root user to your vRealize Automation 6.2.x SSO virtual appliance.
- c At the command prompt, run the following command to download the `vra-sso-migration.zip` file using the link you copied in step 4a.

```
wget --no-check-certificate URL_link_address
```

For example,

```
wget --no-check-certificate https://va_hostname.vcac.local:5480/service/cafe/download/vra-sso-migration.zip
```

- d Run the following command to unzip the migration file.

```
unzip vra-sso-migration.zip
```

- e In the directory where you extracted `vra-ss0-migration.zip`, change directories to `bin`.

cd bin

- f Edit the `migration.properties` file in the `bin` directory to change the value of property `vra.system.admin.username` from `administrator` to `administrator@vsphere.local` with the full address including the tenant extension.
- g Run the following command to migrate your tenants and IaaS administrators to your newly synchronized `vsphere.local` tenant.

./reassign-tenant-administrators

Because you are logged in as root user, do not use `sudo` to run this script.

Even if you see your tenant users assigned in your tenant before running this command, you must run this command to register your users in Horizon to obtain full tenant administrator privileges.

Windows

- a Double-click **Identity Stores Migration Tool** to download the tool to your Downloads directory.
 - b Log in to your vRealize Automation 6.2.x SSO virtual appliance.
 - c Copy the `vra-ss0-migration.zip` file from your Downloads directory to a directory of your choice on your 6.2.x SSO virtual appliance.
 - d Right-click `vra-ss0-migration.zip` and select **Extract all**.
 - e Open the extracted `vra-ss0-migration` folder and open the `bin` folder.
 - f Edit the `migration.properties` file in the `bin` directory to change the value of property `vra.system.admin.username` from `administrator` to `administrator@vsphere.local` with the full address including the tenant extension.
 - g Right-click `reassign-tenant-administrators.bat` and select **Run as administrator**.
- Even if you see your tenant users assigned in your tenant before running this command, you must run this command to register your users in Horizon to obtain full tenant administrator privileges.
- 5 Log in to the vRealize Automation appliance default tenant as tenant administrator. For each tenant, verify that under the **Administrators** tab you can see the list of migrated tenant administrators.

What to do next

Upgrade the secondary appliances. See [“Install the Update on Additional vRealize Automation Appliances,”](#) on page 28.

Install the Update on Additional vRealize Automation Appliances

For a high availability environment, the master virtual appliance is the node that runs embedded PostgreSQL in the Master mode. The other nodes in the environment run the embedded PostgreSQL database in Replica mode. During upgrade, the replica virtual appliance does not require database changes.

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

Prerequisites

- Verify that you have downloaded the virtual appliance updates. See [“Downloading vRealize Automation Appliance Updates,”](#) on page 20.
- Verify that the `jdbc:postgresql` database connection points to the external IP address of the master PostgreSQL node.
 - a On the vRealize Automation appliance, open a new command prompt.
 - b Navigate to `/etc/vcac/server.xml`, and back up `server.xml`.

- c Open `server.xml`.
- d If necessary, edit the `server.xml` file entry `jdbc:postgres` that points to the Postgres database and point it to the external IP address of the master PostgreSQL node for external PostgreSQL or master virtual appliance for embedded PostgreSQL.

For example, `jdbc:postgresql://198.15.100.60:5432/vcac`

- 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.

Procedure

- 1 Open the vRealize Automation appliance management console for the upgrade.
 - 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.
 - c Click the **Update** tab.
- 2 Click **Settings**.
- 3 Select to download the updates from a VMware repository or CDROM in the Update Repository section.
- 4 Click **Status**.
- 5 Click **Check Updates** to verify that an update is accessible.
- 6 Click **Install Updates**.
- 7 Click **OK**.

A message stating that the update is in progress appears.
- 8 (Optional) If you have not resized Disk 1 to 50 GB manually, perform the following steps.
 - a When the system prompts you to reboot the virtual appliance, click the **System** tab and click **Reboot**.

During the reboot, the system adjusts the space required for the update.
 - b After the system reboots, log in again to the vRealize Automation appliance management console and select **Update > Status**.
 - c Click **Check Updates** and **Install Updates**.
- 9 Open the log files to verify that upgrade is progressing successfully.

`/opt/vmware/var/log/vami/vami.log` and `/var/log/vmware/horizon/horizon.log`

If you log out during the upgrade process and log in, you can continue to follow the progress of the update in the log file `/opt/vmware/var/log/vami/updatecli.log`.

The time it takes for the update to finish depends on your site environment.
- 10 When the update is finished, log out of the vRealize Automation appliance, clear the cache of your Web browser, and log in to the vRealize Automation appliance management console.
- 11 Reboot the virtual appliance.
 - a Click **System**.
 - b Click **Reboot** and confirm your selection.

- 12 Log in to the vRealize Automation appliance management console.
- 13 Select **vRA Settings > Cluster**.
- 14 Specify the master virtual appliance and click **Join Cluster**.
- 15 Click **Services** and verify that all of the services are present.
- 16 Perform the following steps for each tenant directory you create during migration.
You must complete these steps prior to enabling your virtual appliances in your load balancer.
 - a Log in to the vRealize Automation console as **tenant administrator**.
 - b Select **Administration > Directories Management > Directories**.
 - c Select your directory name and select **Settings**.
 - d For **Identity Providers**, click the name of your identity provider from the available choices, for example `WorkspaceIPD_1`.
 - e In the **Connector(s)** drop-down menu, add your additional appliance and enter your BIND DN password.
 - f In the **IdP Hostname** text box, change the existing value to your virtual appliance load balancer host name, for example `vra-lb-fqdn.vmware.com`.
 - g Click **Save**.

What to do next

[“Download the IaaS Installer,”](#) on page 32

Upgrading the IaaS Server Components

A system administrator upgrades the IaaS server components, including the Microsoft SQL Server database.

You use the IaaS installer to upgrade the Microsoft SQL Server database and configure all systems with installed IaaS components.

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*.

(Optional) Upgrade the SQL Database Manually

The SQL database is upgraded automatically from the machine where you run the IaaS installer as a necessary part of the upgrade process. If you do not have permissions to update the SQL database using the IaaS installer, contact your database administrator to upgrade the SQL database first using the following procedure.

An administrator can control some aspects of upgrade by using `DBUpgrade.exe` command line options.

The `DBUpgrade` command requires the names of the SQL Server database instance and the vRealize Automation database and the port number if you are using a port other than the default SQL port. It can use Windows authentication or SQL authentication to access the database. `DBUpgrade.exe` creates a log file named `dbupgrade.log` in the current directory if you do not provide a path name for another directory.

IMPORTANT The `DBUpgrade.exe` command is case-sensitive. Enter the command line options using the case shown in the command options table.

Run this command only once during an upgrade.

If Java 8, update 91, 64 bit is not installed, or if the JAVA_HOME environment is set incorrectly, you see a message similar to the following one:

```
Upgrading VMware vCAC or vCloud Automation Center IaaS SQL database
fails with the error: Java version 1.7(64-bit) must be installed,
the environment variable JAVA_HOME must be set to the Java install folder, and
%JAVA_HOME%\bin\java.exe (2089329)
```

For information about resolving the error, see the VMware Knowledge Base article at <http://kb.vmware.com/kb/2089329>.

Prerequisites

- Verify that the machine on which you run the DBUpgrade command meets the following Java-related requirements.
 - Java 8, update 91, 64 bit, `jdk-8u91-windows-x64.exe`, is installed. 32-bit versions are not supported.

For the latest version information, see the *vRealize Automation Support Matrix* at <https://www.vmware.com/support/pubs/vcac-pubs.html>.
 - The environment variable `JAVA_HOME` is set to the Java install folder.
 - The `%JAVA_HOME%\bin\java.exe` file is available.

Procedure

- 1 Navigate to the Windows installer download page by using `https://vcac-va-hostname.domain.name:5480/installer/`, the host name of the vRealize Automation appliance.
- 2 Click **database upgrade scripts** from the list of options under IaaS Installation.
- 3 Extract the contents of the `DBUpgrade.zip` archive file to a local folder on the vRealize Automation database host, or to another location with network access to the database host.
- 4 In an elevated Windows command prompt window, set your current directory to the folder where you extracted the contents of the `DBUpgrade.zip` archive file.
- 5 Enter a `DBUpgrade` command string in the following format, recognizing that the command options are case-sensitive.

```
DBUpgrade [-S dbserver[,port number][\SQLinstance]] [-d dbname] [-N] [{-E | -U username}] [-l logfilepath]
```

Option	Description
-S dbserver [,portnumber] [\SQLinstance]	Identifies the database server instance by server name, port number and SQL instance name. Allowable values for <i>dbserver</i> are localhost or a fully qualified domain name for the database server. If you are using an SQL port number other than the default, 1433, you must specify the port number as part of the FQDN. If no port number is specified, the 1433 port is used. If you are using a named SQL instance, specify the instance name. If no name is specified, the default, unnamed SQL instance is used.
-d dbname	Identifies the vRealize Automation database <i>dbname</i> .
-N	Specifies that a secure database connection be used. If your SQL server is configured to accept a secure connection, you can use this option to upgrade the database.
-E	Requires a Windows Authentication trusted connection to access the database and connects using the Windows credentials of the user who is running the command.

Option	Description
-U <i>username</i>	Specifies the user name for the database owner account.
-l <i>logfilepath</i>	Specifies the full pathname of the upgrade log file. By default, the command creates the <code>dbupgrade.log</code> log file in the current directory.

6 (Optional) At the prompt, enter the password for the database owner account.

You are prompted for this information only when you specify a username with the `-U username` argument to the `DBUpgrade` command.

The command upgrades the database to the latest release.

Example: DBUpgrade.exe

The following examples illustrate uses of command syntax.

- `DBUpgrade`

With no options, displays usage information.

- `DBUpgrade -S localhost -d VCAC -E`

Upgrades the VCAC database in the default, unnamed SQL instance running on the local host on the default port 1433 and connects using your Windows credentials over a Windows Authentication trusted connection.

- `DBUpgrade -S dbhost.mydomain.local,5555 -d VCAC -E`

Upgrades the VCAC database in the default, unnamed SQL instance running on `dbhost` on the non-default port 5555 and connects using your Windows credentials over a Windows Authentication trusted connection.

- `DBUpgrade -S dbhost.mydomain.local\MySQLInstance -d VCAC -U SqlUser -l %SystemDrive %\VCACDBUpgrade\Log_30Apr.log`

Logs in as the user named `SqlUser` and prompts you for the password for the `SqlUser` account. Then, upgrades the VCAC database in the named instance `MySQLInstance` running on `dbhost` on the default port, and creates the `Log_30Apr.log` upgrade log file in the `VCACDBUpgrade` folder on the system drive.

- `DBUpgrade -S dbhost.mydomain.local,5555\MySQLInstance -d VCAC -E -l %SystemDrive %\VCACDBUpgrade\Log_30Apr.log`

Upgrades the database VCAC in the named instance `MySQLInstance` running on `dbhost` and the non-default port 5555, logs in using your Windows credentials over a Windows Authentication trusted connection, and creates the `Log_30Apr.log` upgrade log file in the `VCACDBUpgrade` folder on the system drive.

Download the IaaS Installer

You 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,”](#) on page 33

Upgrade the IaaS Components

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 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.

2 Manager services

Upgrade the active manager service before you upgrade the passive manager service.

If you do not have SSL encryption enabled, 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 first appliance you plan to upgrade 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 Environment,”](#) on page 16.
- [“Download the IaaS Installer,”](#) on page 32.
- Check whether you have run the Prerequisite Checker to verify that the Windows servers for IaaS components are correctly configured.

If you run the Prerequisite Checker and you need to reboot your system, you must shut down the vRealize Automation services on your IaaS Windows server. See [“Shut Down vCloud Automation Center Services on Your IaaS Windows Server,”](#) on page 19.

- Your primary IaaS Website, Microsoft SQL database, and Model Manager node must have Java 8, update 91, 64 bit, `jdk-8u91-windows-x64.exe`, installed. After you install Java, you must set the environment variable, `JAVA_HOME`, to the new version on each server node.
- If you are upgrading from vRealize Automation 6.2.x and have an external Microsoft SQL database, ensure that the Management Agent on the external database is version 7.0 or later before you run the IaaS Web 7.1 upgrade. You can check the Management Agent version in the Control Panel of your external SQL machine. If the Management Agent is not version 7.0 or later, perform a manual upgrade of the Management Agent.
 - a 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.
 - b Download and run the Management Agent Installer.
- 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*.

Procedure

- 1 If you are using a load balancer, prepare your environment.
 - a Verify that the Website on which Model Manager data is installed 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 Web sites and non-primary Manager Services for load balancer traffic.

- 2 Right-click the `setup__vra-va-hostname.domain.name@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
If you are upgrading the Model Manager Data	Select the Model Manager Data 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.
If you are not upgrading the Model Manager Data	Unselect the Model Manager Data check box in the vCAC Server section.
To preserve customized workflows as the latest version in your Model Manager Data	If you are upgrading the Model Manager Data, select the Preserve my latest workflow versions 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> .
If you are upgrading a Distributed Execution Manager or a proxy agent	Enter the credentials for the administrator account in the Service Account section. All of the services that you upgrade run under this account.
To specify your Microsoft SQL Server database	If you are upgrading the Model Manager Data, enter the names of the database server and database instance in the Server 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 Database name text box. 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. When upgrading the manager nodes, the MSSQL SSL option is selected by default. If your database does not use SSL, uncheck Use SSL for database connection .

- 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 The Complete page appears with this message: vRealize Automation is upgraded on this machine. Click **Finish**. On an upgraded IaaS Web node that hosts Model Manager, reset IIS. Open a command prompt using Run As Administrator, and enter `iisreset`. If your machine hosts Model Manager, restart Microsoft IIS as directed before you continue.
- 14 Click **Finish**.
- 15 Verify that all services restarted.
- 16 Repeat these steps for each IaaS server in your deployment in the recommended order.
- 17 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 7.1 health checks, and re-enable load balancer traffic for any unconnected nodes. If your previous deployment used a load balanced embedded Postgres, disable all nodes in the Postgres pool because they are not needed for 7.1. Delete the pool at a convenient time.

Upgrade Stand-Alone External vRealize Orchestrator for Use With vRealize Automation

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

If you are upgrading a vRealize Orchestrator appliance cluster, see [“Upgrade External vRealize Orchestrator Appliance Clusters,”](#) on page 37,

For more information about upgrading external vRealize Orchestrator, see [vRealize Orchestrator upgrade documentation](#).

Prerequisites

- [“Install the Update on the vRealize Automation Appliance,”](#) on page 21
- Upgrade IaaS components as described in [“Upgrading the IaaS Server Components,”](#) on page 30

Procedure

- 1 Shut down the vRealize Orchestrator node.
- 2 Take a snapshot.
- 3 Power on the vRealize Orchestrator node.
- 4 Log in to the vRealize Orchestrator appliance configuration portal at `https://orchestrator_server:5480`.
- 5 Select your upgrade method based on the instructions in the vRealize Orchestrator documentation.
- 6 Select the Update tab in your configuration portal and click **Settings**.
- 7 Choose your download method and click **Save Settings**.

- 8 Click **Status**.
- 9 Click **Check Updates**.
- 10 Click **Install Updates**.
To proceed with the upgrade, you must accept the VMware End User License Agreement.
- 11 To complete the update, restart the vRealize Orchestrator appliance.
- 12 If your standalone vRealize Orchestrator was previously configured with vRealize Automation authentication type, then re-register the node.
 - a Login with root credentials to ControlCenter by going to `https://your_orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter` in a Web browser.
 - b Navigate to Configuration Authentication Provider.
 - c Click **Unregister**.
 - d Reregister the instance by selecting **Connect** and entering your credentials.
 - e Select the **Configure License** checkbox and select the vco administrators group.
 - f Restart the vco server.
 - g Verify that the vco service appears as REGISTERED in the vRealize Automation appliance management console.
- 13 From the Control Center, upgrade the vRealize Automation default plugins, which include vCAC Cafe and vCAC IaaS and NSX.

Upgrade External vRealize Orchestrator Appliance Clusters

If you use clustered external instances of vRealize Orchestrator with vRealize Automation, you must upgrade each vRealize Orchestrator node individually when you upgrade vRealize Automation.

You do not need to recreate the existing cluster. vRealize Orchestrator nodes remain part of the cluster after the upgrade.

Prerequisites

- [“Install the Update on the vRealize Automation Appliance,”](#) on page 21.
- Upgrade IaaS components as described in [“Upgrading the IaaS Server Components,”](#) on page 30.
- Select the vRealize Orchestrator update method to use. For information, see [vRealize Orchestrator installation documentation](#).

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 the vRealize Orchestrator node you selected for the primary node, increase the RAM to 6 GB.
- 5 Upgrade the primary vRealize Orchestrator node.
 - a Power on the node you selected to be the vRealize Orchestrator primary node.
 - b Log in as **root** to the vRealize Orchestrator Appliance management console at `https://orchestrator_server:5480`.

- c Select **Update > Settings**.
 - d Choose your download 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, restart the vRealize Orchestrator appliance.
- 6 If your clustered vRealize Orchestrator was previously configured with vRealize Automation authentication type, unregister and re-register the node.
- a On the primary node, log in as **root** to the vRealize Orchestrator Control Center at https://your_orchestrator_server_IP_or_DNS_name:8283/vco-controlcenter/.
 - b Click the Configure Authentication Provider icon.
 - c Click **Unregister**.
 - d Click **Connect**.
 - e Enter your user name and password credentials.
 - f Select the **Configure licenses** checkbox and select the vco administrators group.
 - g Click **Save Changes**.
 - h Navigate to Orchestrator Cluster Management at <https://vco-controlcenter:8283/vcocontrolcenter/#/control-app/ha> and append **?remove-nodes** to the URL, for example, <https://vco-controlcenter:8283/vcocontrolcenter/#/control-app/ha?remove-nodes>.
 - i For each vRealize Orchestrator node in the old cluster, select the **Remove** checkbox in the table and click **Remove** and **Refresh**.
 - j Restart the main vRealize Orchestrator server service and wait for the service to fully initialize.
- 7 Verify that the vco service appears as registered in the vRealize Orchestrator Appliance management console.
- 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 plugins, which include the NSX plugin.
- 10 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.
- 11 Click the Manage Plugins icon.
- 12 Select **Browse > plug-in name > Install**.
- 13 Deploy a new vRealize Orchestrator appliance for a new secondary vRealize Orchestrator node in this cluster.
- 14 Set up the network configuration of the new secondary vRealize Orchestrator node to match the secondary vRealize Orchestrator node in the old cluster.

- 15 Join the new secondary vRealize Orchestrator node to the primary vRealize Orchestrator node.
 - a Open a secure shell connection and log in to the primary vRealize Orchestrator node and change directories to `/etc/vco/app-server/plugins`.
 - b Copy all the `.xml` files that are not prepended with an underscore (`_`) to the same location on the new secondary vRealize Orchestrator node.
Make sure that all copied files have the same ownership, `vco`, and permissions.
 - c Log in as **root** to the vRealize Orchestrator Control Center on the secondary vRealize Orchestrator node at `https://your_orchestrator_server_IP_or_DNS_name:8283/vcocontrolcenter`.
 - 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 new secondary vRealize Orchestrator node to complete the join cluster operation.
 - g Verify that the new secondary vRealize Orchestrator node pending configuration fingerprint is the same as the primary vRealize Orchestrator node.
 - h Restart the new secondary vRealize Orchestrator server service from Startup Options in the Control Center.
 - i Verify that the new secondary vRealize Orchestrator node Applied Configuration Fingerprint is the same as the primary vRealize Orchestrator node.
- 16 Repeat steps 13-15 for each secondary vRealize Orchestrator node in the old cluster.

Add Users or Groups to an Active Directory Connection

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, enable them for the installation according to documentation from your load balancer vendor.

Post-Upgrade Tasks for vRealize Automation

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

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.

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](#).

Reconfigure External Workflow Timeouts

You must reconfigure the vRealize Automation external workflow timeouts because the upgrade process overwrites xmldb files.

Procedure

- 1 Open the external workflow configuration (xmldb) files on your system from the following directory.
 \VMware\VCAC\Server\ExternalWorkflows\xmldb\.
- 2 Reconfigure the external workflow timeout settings.
- 3 Save your settings.

Verify That vRealize Orchestrator Service Is Available

After you upgrade to VMware vRealize™ Automation 7.1, 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 4.
- 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 Embedded vRealize Orchestrator Endpoint

If you add an embedded vRealize Orchestrator endpoint to a vRealize Automation 6.x deployment and upgrade to vRealize Automation 7.1, you must make changes to the vRealize Orchestrator endpoint URL to restore the connection.

In vRealize Automation 6.x, the URL for the embedded vRealize Orchestrator is `https://hostname:8281/vco`. In vRealize Automation 7.0, the URL for an embedded vRealize Orchestrator changes to `https://hostname/vco`. Because the 6.x URL does not change when you upgrade to 7.0, the system cannot find vRealize Orchestrator. Perform the following steps to fix this problem.

Prerequisites

- Log in to the vRealize Automation console as an **IaaS administrator**.

Procedure

- 1 Select **Infrastructure > Endpoints > Endpoints**.
- 2 On the Endpoints page, point to the vRealize Orchestrator endpoint, and select **Edit** from the context menu.
- 3 In the Address text box, edit the vRealize Orchestrator endpoint URL to remove :8281.
- 4 Click **OK**.
- 5 Manually start data collection on the vRealize Orchestrator, and verify that the collection is successful.

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 .

Update Access Policy

You must configure the upgrade to make sure that user sessions are limited to 30 minutes.

Perform this procedure on each vRealize Automation appliance.

Prerequisites

You have completed all of the previous upgrade tasks.

Procedure

- 1 Open a new command prompt as root user on the vRealize Automation appliance.
- 2 At the command prompt, enter `/usr/lib/vcac/tools/vami/commands/horizon-update-access-policy`.
- 3 Press Enter.

Troubleshooting the Upgrade

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

Migration of Identity Store Fails Because the Active Directory is not Synchronized

The migration of identity store fails because a thousand plus groups in the Active Directory have not been synchronized to the VMware Identity Manager utility directory.

Problem

The migration of identity store to the VMware Identity Manager utility fails.

Cause

The problem occurs because more than thousand groups in the group base search domain name that have not been synchronized to the VMware Identity Manager utility directory.

Solution

- 1 Log in the vRealize Automation appliance as a system administrator.

- 2 Create a local user for the default tenant.
- 3 Assign the local user the Tenant Administrator privileges.
- 4 Log out of the vRealize Automation appliance.
- 5 Log in the tenant with the local user credentials.
- 6 Select **Administration > Directories Management > Directories**.
- 7 Open the failed Active Directory domain.
- 8 Click **Sync Settings** to open a dialog with synchronization options.
- 9 Click the + icon to add a new line for group DN definitions and enter the appropriate group DN that need to be synchronized.
- 10 Click **Save & Sync** to save your changes and synchronize to implement your updates immediately.

The VMware Identity Manager utility directory is synchronized to the thousand plus groups in the Active Directory.

What to do next

Start the migration process.

Migration of Identity Store Fails Because of Incorrect Credentials

The migration of identity store fails because of incorrect Active Directory domain credentials or lack of user permission.

Problem

The migration of identity store to the VMware Identity Manager utility fails.

Cause

The credentials of the Active Directory domain are incorrect. The problem also occurs when the user does not have the permission to join the VMware Identity Manager utility to the Active Directory Domain.

Solution

- 1 Log in the vRealize Automation appliance as a system administrator.
- 2 Create a local user for the vsphere.local tenant.
- 3 Assign the local user the Tenant Administrator privileges.
- 4 Log out of the vRealize Automation appliance.
- 5 Log in the tenant with the local user credentials.
- 6 Select **Administration > Directories Management > Connectors**.
- 7 Click **Join Domain** to join the connector to a specific Active Directory domain.

The connector syncs user and group data between Active Directory and the Directories Management service

- 8 Enter the domain, domain username, and password for the active directory domain.
- 9 Click **Save**.

The Join Domain page is refreshed and displays a message that you are currently joined to the domain.

What to do next

Start the migration process.

Migration of Identity Store Fails With a Timeout Error Message

The timeout configuration does not adequately accommodate the migration process.

Problem

The migration of identity store fails with the following timeout error message.

```
vra-cafe:~/bin # ./migrate-identity-stores
Error: A JNI error has occurred, please check your installation and try again
Exception in thread "main" java.lang.NoClassDefFoundError:
com/vmware/identity/idm/InvalidArgumentException
at java.lang.Class.getDeclaredMethods0(Native Method)
at java.lang.Class.privateGetDeclaredMethods(Class.java:2701)
at java.lang.Class.privateGetMethodRecursive(Class.java:3048)
at java.lang.Class.getMethod0(Class.java:3018)
at java.lang.Class.getMethod(Class.java:1784)
at sun.launcher.LauncherHelper.validateMainClass(LauncherHelper.java:544)
at sun.launcher.LauncherHelper.checkAndLoadMain(LauncherHelper.java:526)
Caused by: java.lang.ClassNotFoundException: com.vmware.identity.idm.InvalidArgumentException
at java.net.URLClassLoader.findClass(URLClassLoader.java:381)
at java.lang.ClassLoader.loadClass(ClassLoader.java:424)
at sun.misc.Launcher$AppClassLoader.loadClass(Launcher.java:331)
at java.lang.ClassLoader.loadClass(ClassLoader.java:357)
... 7 more
```

Cause

The configuration timed out before the migration process could successfully complete.

Solution

- 1 Open a command-line prompt.
- 2 Open the executable migrate-identity-stores script.
- 3 Scroll to the bottom of the script and locate the execution of a java command.
For example, exec "\$JAVACMD" \$JAVA_OPTS -Xms256m -Xmx512m -Dverbose=false -Dlog4j.configurationFile=log4j2.xml
- 4 Increase the system property value for the client socket timeout to one hour.
-Dclient.system.socket.timeout=3600000.
- 5 Run the migrate-identity-stores script on the Single-sign on 2.0 server.

What to do next

Start the migration process.

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 Website Component During IaaS Upgrade

The IaaS upgrade fails and you cannot continue the upgrade.

Problem

The installer cannot update the `web.config` file.

Cause

This occurs when the creation date for the `web.config` file is the same as or later than the modified date.

Solution

- 1 Before you begin the upgrade, open the `web.config` file in an editor from an account with elevated privileges.
- 2 Save the file to change the date stamp for modification.
- 3 Verify that the file modification date for the `web.config` file is later than the creation date.
- 4 Run the IaaS upgrade.

Incorrect Tab Names Appear Intermittently

IaaS tabs and other tabs might be labeled incorrectly.

Problem

After upgrading a high availability environment from vCloud Automation Center 6.0.x or 6.1 to vRealize Automation 6.2, tabs might intermittently appear with incorrect names.

Solution

Restart all the vRealize Automation virtual appliances to restore the correct tab names.

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.

Catalog Items Appear in the Service Catalog But Are Not Available to Request

Catalog items that use certain property definitions from prior versions appear in the service catalog but are not available to request after upgrading to vRealize Automation 7.1.

Problem

If you upgraded from a 6.2.x or earlier version and you had property definitions with the following control types or attributes, the attributes are missing from the property definitions and any catalog items that use the definitions do not function the way that they did before you performed the upgrade.

- Control types. Check box or link.
- Attributes. Relationship, regular expressions, or property layouts.

Cause

Beginning in vRealize Automation 7.0, the property definitions no longer use the attributes. You must recreate the property definition or configure the property definition to use a vRealize Orchestrator script action rather than the embedded control types or attributes.

In vRealize Automation 7.0 and later, the property definitions no longer use the attributes. You must recreate the property definition or configure the property definition to use a vRealize Orchestrator script action rather than the embedded control types or attributes.

Migrate the control type or attributes to vRealize Automation 7.0 using a script action.

Solution

- 1 In vRealize Orchestrator, create a script action that returns the property values. The action must return a simple type. For example, return strings, integers, or other supported types. The action can take the other properties on which it depends as an input parameter.
- 2 In vRealize Automation console, configure the product definition.
 - a Select **Administration > Property Dictionary > Property Definitions**.
 - b Select the property definition and click **Edit**.
 - c From the Display advice drop-down menu, select **Dropdown**.
 - d From the Values drop-down menu, select **External Values**.

- e Select the script action.
- f Click **OK**.
- g Configure the Input Parameters that are included in the script action. To preserve the existing relationship, bind the parameter to the other property.
- h Click **OK**.

User Migration Batch Files Are Ineffective

After upgrading VMware vRealize™ Automation from 6.2.x to 7.x, the administrator is unable to migrate users with the provided utilities.

Problem

The `migrate-identity-stores.bat` or `reassign-tenant-administrators.bat` files do not migrate users after upgrade.

Cause

This can happen when you install vRealize Automation in a non-default location.

Solution

- 1 Open a command prompt on the machine where you installed VMware vCenter Single Sign-On.
- 2 Change directories to the `migration tool root\bin` subfolder that is created when you open `vra_sso_migration.zip`.
- 3 Open `setenv.bat` and change the drive letter in the `VC_INSTALL_HOME` variable to the drive letter where you installed vRealize Automation: `SET VC_INSTALL_HOME=Non-Default Drive Letter:\Program Files\VMware`.
- 4 Save your changes and close `setenv.bat`.

The batch files work as expected.

PostgreSQL External Database Merge Is Unsuccessful

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

Problem

If the external PostgreSQL database version is later than the embedded PostgreSQL database version, the merge does not succeed.

Solution

- 1 Log in to the host for the PostgreSQL external database.
- 2 Run the `psql --version` command.
Note the PostgreSQL version for the external database.
- 3 Log in to the host for the PostgreSQL embedded database.
- 4 Run the `psql --version` command.
Note the PostgreSQL version for the embedded database.

If the external PostgreSQL version is later than the embedded PostgreSQL version, contact support for assistance to merge your external PostgreSQL database.

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`.

Upgrade Is Unsuccessful if Root Partition Does Not Provide Sufficient Free Space

If sufficient free space is unavailable on the root partition of the vRealize Automation appliance host, upgrade cannot proceed.

Solution

This procedure increases the free space on the Disk 1 root partition of the vRealize Automation appliance host. In a distributed deployment, perform this procedure to increase the free space on each replica node sequentially, and then increase the free space on the master node.

NOTE When you perform this procedure, you might see these warning messages:

- **WARNING:** Re-reading the partition table failed with error 16: Device or resource busy. The kernel still uses the old table. The new table will be used at the next reboot or after you run `partprobe(8)` or `kpartx(8)` Syncing disks.
- **Error:** Partition(s) 1 on `/dev/sda` have been written, but we have been unable to inform the kernel of the change, probably because it/they are in use. As a result, the old partition(s) will remain in use. You should reboot now before making further changes.

Ignore the message `You should reboot now before making further changes`. If you reboot your system before step 10, you corrupt the upgrade process.

Procedure

- 1 Power on the VMware vRealize™ Automation appliance host virtual machine and log in as with a secure shell connection as the root user.
- 2 Run the following commands to stop services.
 - a `service vcac-server stop`
 - b `service vco-server stop`
 - c `service vpostgres stop`
- 3 Run the following command to unmount the swap partition.
`swapoff -a`

- 4 Run the following command to delete the existing Disk 1 partitions and create a 44-GB root partition and a 6-GB swap partition.


```
(echo d; echo 2; echo d; echo 1; echo n; echo p; echo ; echo ; echo '+44G'; echo n; echo p; echo ; echo ; echo ; echo w; echo p; echo q) | fdisk /dev/sda
```
- 5 Run the following command to change the swap partition type.


```
(echo t; echo 2; echo 82; echo w; echo p; echo q) | fdisk /dev/sda
```
- 6 Run the following command to set the Disk 1 bootable flag.


```
(echo a; echo 1; echo w; echo p; echo q) | fdisk /dev/sda
```
- 7 Run the following command to register the partition changes with the Linux kernel.


```
partprobe
```

If you see a message prompting you to reboot before you make further changes, ignore the message. Rebooting the system before step 10 corrupts the upgrade process.
- 8 Run the following command to format the new swap partition.


```
mkswap /dev/sda2
```
- 9 Run the following command to mount the swap partition.


```
swapon -a
```
- 10 Reboot the vRealize Automation appliance.
- 11 After the appliance reboots, run the following command to resize the Disk 1 partition table.


```
resize2fs /dev/sda1
```
- 12 To verify that the disk expansion is successful, run `df -h` and check that the available disk space on `/dev/sda1` is greater than 3 GB.

Manual PostgreSQL Database Merge

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 vccac;
```

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
```

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. Download and run the Management Agent Installer. Restart upgrade on the virtual appliance.

Bad PostgreSQL Service State Stops Upgrade and Displays Error Message

The postupgrade scripts cause an intermittent problem when `vpostgres` service returns incorrect status.

Problem

When the `vpostgres` service reports being in a bad state, upgrade fails at the `/etc/bootstrap/postupdate.d/10-postgres` postupgrade script. When your upgrade fails on `/etc/bootstrap/preupdate.d/10-postgres` script execution, run these three scripts, one at a time, in the following order, and restart upgrade.

(1)

```
rm -rf /storage/db/psql-upgrade
```

(2)

```
cat > /etc/bootstrap/preupdate.d/00-00-00-fix-psql-restart << "EOF"
#!/bin/sh
```

```
cat >> /usr/lib/vmware-bootstrap-vrva-base/psql.inc << "EOF"
```

```
function psql_restart () {
    echo 'Restarting PostgreSQL server..'
```

```
service ${psql_service} stop > /dev/null
service ${psql_service} start
echo 'restart_psql finished'
}
EOF
(3)
chmod 700 /etc/bootstrap/preupdate.d/00-00-00-fix-psql-restart
```

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.

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