

# Upgrading vRealize Code Stream

Update 2

11 APR 2019

vRealize Code Stream 2.4



vmware®

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

If you have comments about this documentation, submit your feedback to

[docfeedback@vmware.com](mailto:docfeedback@vmware.com)

**VMware, Inc.**  
3401 Hillview Ave.  
Palo Alto, CA 94304  
[www.vmware.com](http://www.vmware.com)

Copyright © 2019 VMware, Inc. All rights reserved. [Copyright and trademark information.](#)

# Contents

Upgrading vRealize Code Stream	4
Updated Information	5
<b>1</b> Considerations for Upgrading vRealize Code Stream	6
<b>2</b> Prerequisites for Upgrading the Appliance	8
<b>3</b> Migrate Artifacts and Configure Your External Artifactory Instance	9
<b>4</b> Downloading vRealize Automation Appliance Updates	11
Download vRealize Automation Appliance Updates	11
Download Virtual Appliance Updates for Use with a CD-ROM Drive	12
<b>5</b> Upgrading the vRealize Automation Appliance from 7.x to the Current Version	13
Install the Update on the 7.x vRealize Automation Appliance	13
<b>6</b> Upgrading the vRealize Automation Appliance from 6.2.5 to the Current Version	15
Preparing to Upgrade the vRealize Automation Appliance	15
Checklist to Upgrade the 6.2.5 vRealize Automation Appliance Components	15
Backing Up and Saving Your Existing Environment	16
Installing Updates on the 6.2.5 vRealize Automation Appliance	18
<b>7</b> Troubleshooting the Upgrade	26
Migration of Identity Store Fails Because the Active Directory Is Not Synchronized	26
Migration of Identity Store Fails Because of Incorrect Credentials	27
Log In Fails After Upgrade	28
Upgrade Is Unsuccessful if Root Partition Does Not Provide Sufficient Free Space	28

# Upgrading vRealize Code Stream

These instructions show you how to upgrade your instance of vRealize Automation so that you can upgrade vRealize Code Stream to the current version.

## Intended Audience

This information is intended for system administrators who are experienced and familiar with virtual machine technology and data center operations, and who install and upgrade instances of vRealize Code Stream.

# Updated Information

*Upgrading vRealize Code Stream* is updated with each release of the product or when necessary.

This table provides the update history of the *Upgrading vRealize Code Stream*.

Revision	Description
11 APR 2019	Updated settings tab name on: <ul style="list-style-type: none"><li>■ <a href="#">Update Your Single Sign-On Password for VMware Identity Manager</a></li><li>■ <a href="#">Update the License Key</a></li></ul>
20 SEP 2018	Updated licensing information on: <ul style="list-style-type: none"><li>■ <a href="#">Chapter 1 Considerations for Upgrading vRealize Code Stream</a></li><li>■ <a href="#">Update the License Key</a></li></ul>
12 APR 2018	Initial release.

# Considerations for Upgrading vRealize Code Stream

1

vRealize Code Stream and vRealize Automation are included in a single appliance. When you upgrade vRealize Automation to the current version, you also upgrade vRealize Code Stream.

To support an upgrade of your vRealize Code Stream instance, you must first upgrade your instance of vRealize Automation.

An in-place upgrade is a multi-step process. You perform procedures in a particular order to update the various components in your current environment. You must upgrade all product components to the same version. You can perform an in-place upgrade for the following upgrade paths.

- vRealize Automation 7.3.x–7.6
- vRealize Automation 7.2–7.6
- vRealize Automation 7.4–7.6
- vRealize Automation 6.2.5–7.6

Compatible supported upgrade paths for vRealize Automation and vRealize Code Stream include the following versions.

vRealize Automation	vRealize Code Stream
7.6	2.4.2
7.5	2.4.1
7.4	2.4
7.3.x	2.3.x
7.2	2.2
7.1	2.1
7.0.1	2.0
6.2.5	1.2
6.2.4	1.2
6.2.3	1.2
6.2.1	1.1
6.2.0	1.1

## Upgrading a 6.2.5 Environment

Upgrading a vRealize Automation 6.2.5 environment to the latest version of vRealize Automation introduces functional changes. When you upgrade your vRealize Automation 6.2.5 environment to the latest version, you use upgrade procedures specific to this environment.

See [Chapter 6 Upgrading the vRealize Automation Appliance from 6.2.5 to the Current Version](#).

If you still need more information, see Upgrading vRealize Automation in the vRealize Automation Information Center.

## Reapply Licenses After Upgrade

After the upgrade, you must reenter your licenses in the vRealize Appliance. The upgrade removes existing licenses for vCloud Suite and vRealize Code Stream.

## Licensing vRealize Code Stream

When you upgrade vRealize Code Stream, you can license vRealize Code Stream.

---

**Caution** Before you license only vRealize Code Stream, verify that High Availability (HA) is not running on the vRealize Automation appliance.

---

For more information, see the *vRealize Code Stream Installation and Configuration Guide*.

## Upgrading Previous Versions

To upgrade an installed version of vRealize Automation 6.2.4 and vRealize Code Stream 1.2, contact VMware support.

To upgrade vRealize Code Stream 1.0 or 1.1, upgrade those instances to vRealize Code Stream 1.2 or 2.x. Then, upgrade to the current version.

If you customized a vRealize Automation 6.2.x deployment, contact VMware support for additional information about upgrade considerations.

# Prerequisites for Upgrading the Appliance

## 2

Before you upgrade the appliance that includes vRealize Code Stream and vRealize Automation, review the prerequisites.

### General Prerequisites

Before you begin the upgrade, verify that the following prerequisites are met.

- Before you upgrade, plan for downtime where no pipelines or workflows are running. If they are running when you upgrade, the upgrade might fail and pipelines will terminate abnormally.
- Before you upgrade, back up your artifacts. Then, you can migrate your artifacts. See [Chapter 3 Migrate Artifacts and Configure Your External Artifactory Instance](#).
- Verify that you have access to an Active Directory account with a username@domain format, and permissions to bind to the directory.
- Verify that you have access to an account in SAMaccountName format, and sufficient privileges to join the appliance to the domain by creating a new computer object dynamically. Or, verify that you have permissions to join this appliance to a pre-created computer object.
- Ensure that users cannot access the appliance while you perform the upgrade.
- Verify that you disabled any applications that query vRealize Automation.



# Migrate Artifacts and Configure Your External Artifactory Instance

## 3

Before you upgrade the vRealize Code Stream appliance, you must migrate your artifacts from the embedded Artifactory repository to an external Artifactory instance. To migrate your artifacts, you must understand the services used to migrate them, and perform several steps. You can then migrate your Artifactory endpoint, and upgrade the appliance.

jFrog Artifactory provides import and export services to migrate metadata and artifacts in two ways.

- System level migration. Export and import the entire Artifactory server, including configuration, security information, stored data, and metadata. The format used is identical to the system backup format.
- Repository level migration. Export and import data and metadata that is stored in a repository.

### Prerequisites

- To import and export Artifactory data and settings to an external Artifactory server, review the instructions. See information about importing and exporting with Artifactory at <http://www.jfrog.com/confluence/display/RTF/Importing+and+Exporting>.
- To export your artifacts and metadata, familiarize yourself with the folder structures used in the system level migration and the repository level migration.

---

**Caution** Before you migrate your artifacts, back them up. The upgrade, which you perform after you migrate your artifacts, removes all artifacts that existed in the embedded Artifactory before the upgrade.

---

### Procedure

- 1 Log in to your virtual appliance as a normal user.
- 2 Delete the files named `/etc/opt/jfrog/artifactory/plugins/vcac-plugin.groovy`, `remote-list-browsing.groovy`, and `vcac-plugin.xml` from your embedded instance of Artifactory.

- 3 In the embedded Artifactory instance, select the approach to migrate your embedded Artifactory data to an external Artifactory instance, and review the folder structure.

Option	Description
Repository-level migration	Folders include builds, etc, licenses, and repositories. Files include the XML file named <code>artifactory.config</code> , a properties file named <code>artifactory.properties</code> , and the XML file named <code>security</code> .
System-level migration	Folders include <code>username</code> and <code>username.artifactory-metadata</code> .

- 4 If vRealize Code Stream cannot export the data because the target destination does not have the correct permissions, run the following steps.

- a Establish an SSH connection to the virtual appliance as a root user.

For example: `ssh root@VRCS_APPLIANCE`

- b Create a folder on the vRealize Code Stream appliance.

For example: `mkdir /var/temp/artifactory`

- c Assign ownership to the user named `artifactory` on the target folder.

For example: `chown -r artifactory:artifactory /var/temp/artifactory`

- d In the Artifactory Import & Export tool, click **Export**, and enter the name of the folder that you created.

After the export, you can use `ftp`, `winscp`, or another tool to move the exported files to another instance or to an external Artifactory server.

You have migrated your artifacts from the embedded Artifactory repository to an external Artifactory instance. For more information about the procedure to migrate your Artifactory data, see the documentation at <http://www.jfrog.com>.

#### What to do next

Prepare to upgrade your instance of vRealize Automation. See [Chapter 4 Downloading vRealize Automation Appliance Updates](#).

# Downloading vRealize Automation Appliance Updates

# 4

Check for updates in the vRealize Automation appliance management interface, and download the updates using one of the following methods.

For best upgrade performance, use the ISO file method.

To avoid potential problems when upgrading your appliance, or if issues arise during appliance upgrade, see [VMware Knowledge Base article vRealize Automation upgrade fails due to duplicates in the vRealize Orchestrator database \(54987\)](#).

- [Download vRealize Automation Appliance Updates](#)

You can download the update for your vRealize Appliance from a VMware public repository.

- [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 a virtual CD-ROM drive.

## Download vRealize Automation Appliance Updates

You can download the update for your vRealize Appliance from a VMware public repository.

### Prerequisites

- Back up and save your environment.
- Ensure that your virtual appliance is powered on.
- Log in to MyVMware, locate the vRealize Automation product download, and download the ISO file.

### Procedure

- 1 On your primary vRealize Automation appliance, log in to vRealize Automation Appliance Management as **root** using the password you entered when you deployed the vRealize Automation appliance.
- 2 Log in with the user name **root** and the password you entered when you deployed the appliance.
- 3 Click the **Update** tab.
- 4 Click **Settings**.
- 5 (Optional) In the Automatic Updates panel, set the frequency to check for updates.

- 6 In the Update Repository panel, select **Use Default Repository**.
- 7 Click **Save Settings**.

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

You can update your virtual appliance from an ISO file that the appliance reads from a virtual CD-ROM drive.

### Prerequisites

- Shut down the machines in the existing environment.
- Ensure that all CD-ROM drives used for the upgrade are enabled before you update the vRealize Appliance. See the VMware vSphere documentation for information about adding a CD-ROM drive to a virtual machine in the vSphere Client.

### Procedure

- 1 Log in to MyVMware, locate the vRealize Automation product download, and download the ISO file.
- 2 Locate the downloaded file on your machine, and verify that the file size is the same as the ISO file.
- 3 Power on your virtual appliance.
- 4 Connect the CD-ROM drive for the virtual appliance you are updating to the ISO file you downloaded.
- 5 On your primary vRealize Automation appliance, log in to vRealize Automation Appliance Management as **root** using the password you entered when you deployed the vRealize Automation appliance.
- 6 Log in with the user name **root** and the password you entered when you deployed the appliance.
- 7 Click the **Update** tab.
- 8 Click **Settings**.
- 9 Under Update Repository, select **Use CDROM Updates**.
- 10 Click **Save Settings**.

# Upgrading the vRealize Automation Appliance from 7.x to the Current Version

## 5

If you are using an earlier 7.x version of vRealize Automation, you must migrate your artifacts, then upgrade your vRealize Automation appliance to the currently supported version. Then, you can use the current version of vRealize Code Stream.

To upgrade your vRealize Automation appliance from an earlier 7.x version to the current version, see the supported and compatible versions of vRealize Automation and vRealize Code Stream at [Chapter 1 Considerations for Upgrading vRealize Code Stream](#).

## Install the Update on the 7.x vRealize Automation Appliance

You must download and install updates for your vRealize Automation appliance.

### Prerequisites

- Before you upgrade, perform the prerequisites and migrate your artifacts. See [Chapter 2 Prerequisites for Upgrading the Appliance](#).
- Select a download method, and download the update. See [Chapter 4 Downloading vRealize Automation Appliance Updates](#).
- Create a snapshot of your virtual machine.

### Procedure

- 1 Open the vRealize Appliance management console for the upgrade.
  - a On your vRealize Automation appliance, log in to vRealize Automation Appliance Management as **root** using the password you entered when you deployed the vRealize Automation appliance.
  - b Click the **Update** tab.
- 2 Select **Update > Status**.
- 3 Click **Check Updates** to verify that an update is accessible.
- 4 (Optional) For instances of vRealize Automation appliance, click **Details** in the Appliance Version area to see information about the location of release notes.
- 5 Click the **Services** tab and verify that all services are listed as REGISTERED.

At least one vco service must be registered. If other vco services are registered, leave them as is.

- 6 Click **Update > Install Updates**.
- 7 Click **Settings**, and retain the default settings.
- 8 Select **Status > Check Updates > Install Updates**.
- 9 Click **OK**.

An informational message appears to indicate that the update is in progress.

- 10 After the update completes, reboot the machine.

# Upgrading the vRealize Automation Appliance from 6.2.5 to the Current Version

## 6

You can upgrade your vRealize Automation appliance from 6.2.5 to the current version.

To prepare and upgrade your 6.2.5 instance of the vRealize Automation Appliance, you must perform the prerequisites and migrate your artifacts. See [Chapter 2 Prerequisites for Upgrading the Appliance](#).

Then, you must perform the steps in [Checklist to Upgrade the 6.2.5 vRealize Automation Appliance Components](#). Then, you can update your vRealize Automation appliance to the current version.

This chapter includes the following topics:

- [Preparing to Upgrade the vRealize Automation Appliance](#)
- [Checklist to Upgrade the 6.2.5 vRealize Automation Appliance Components](#)
- [Backing Up and Saving Your Existing Environment](#)
- [Installing Updates on the 6.2.5 vRealize Automation Appliance](#)

## Preparing to Upgrade the vRealize Automation Appliance

You must perform several tasks to prepare to upgrade your vRealize Automation appliance.

Perform the required tasks in the order given in the checklist. See [Checklist to Upgrade the 6.2.5 vRealize Automation Appliance Components](#).

## Checklist to Upgrade the 6.2.5 vRealize Automation Appliance Components

When you upgrade a 6.2.5 vRealize Automation appliance to the current release, you must update the vRealize Automation appliance components in a specific order. Use the tasks in the checklist to track your work.

Before you upgrade, you must perform the prerequisites and migrate your artifacts. See [Chapter 2 Prerequisites for Upgrading the Appliance](#).








---

**Caution** You must follow the prescribed order when you upgrade the components, and you must upgrade all components. If you use a different order, the upgrade fails or behaves unexpectedly.

---

For information about supported upgrade paths, see [Chapter 1 Considerations for Upgrading vRealize Code Stream](#).

**Table 6-1. Checklist to Upgrade a Minimal vRealize Automation Appliance Deployment**

Task	Instructions
 <b>IMPORTANT:</b> Back up your current installation. This step is critical to ensure that no loss of data occurs.	To back up and restore your system, see <a href="#">Backing Up and Saving Your Existing Environment</a> . For general information, see <i>Configuring Backup and Restore by Using Symantec Netbackup</i> at <a href="http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf">http://www.vmware.com/pdf/vrealize-backup-and-restore-netbackup.pdf</a>
 Configure your hardware resources.	<a href="#">Increase vRealize Automation Appliance Hardware Resources for Upgrade</a> .
 Download updates to the vRealize Automation appliance.	<a href="#">Chapter 4 Downloading vRealize Automation Appliance Updates</a> .
 Install the update on the vRealize Automation appliance.	<a href="#">Install the Update on the 6.2.5 vRealize Automation Appliance</a> .
 Update the Single-Sign On utility to the VMware Identity Manager utility.	<a href="#">Update Your Single Sign-On Password for VMware Identity Manager</a> .
 Update the license key.	<a href="#">Update the License Key</a> .
 Migrate the Identity Store to the VMware Identity Manager	<a href="#">Migrate Identity Stores to VMware Identity Manager</a> .

## Backing Up and Saving Your Existing Environment

Before you begin the upgrade, complete the prerequisites to back up and save your existing environment.

### Prerequisites

- Verify that your source installation is fully installed and configured.
- Back up the vRealize Appliance configuration files in the following directories.
  - `/etc/vcac/`
  - `/etc/vco/`
  - `/etc/apache2/`
  - `/etc/rabbitmq/`
- Back up all databases.
- Create a snapshot of your tenant configuration and the users assigned.
- Create a snapshot of your virtual appliance.
- Adhere to regular guidelines to back up your entire system in case the vRealize Automation upgrade fails. For more information, see *Configuring vRealize Suite for Backup and Restore* in the vRealize Suite documentation.



## Increase vRealize Automation Appliance Hardware Resources for Upgrade

Before you upgrade from vRealize Automation 6.2.5, you must increase the appliance hardware resources.

This procedure assumes that you use the Windows vCenter Server client.

### Prerequisites

- Verify that you have a clone of your vRealize Automation appliance.
- Verify that the original appliance is powered off.

### Procedure

- 1 Log in to your vCenter Server instance.
- 2 Right-click the cloned vRealize Automation appliance icon and select **Edit Settings**.
- 3 Select **Memory**, and set the value to 18 GB.
- 4 Select **CPU**, and set the **Number of virtual sockets** value to 4.
- 5 Extend the size of virtual Disk 1.
  - a Select Disk 1.
  - b Change the size to 50 GB, and click **OK**.
- 6 If you do not have Disk 3, complete these steps to add a Disk 3 with a disk size of 25 GB.
  - a To add a virtual disk, click **Add** above the Resources table.
  - b For the **Device Type**, select **Hard Disk**, and click **Next**.
  - c Select **Create a new virtual disk**, and click **Next**.
  - d Set **disk size** to 25 GB.
  - e Select **Store with the virtual machine**, and click **Next**.
  - f Verify that the **Independent** option is deselected for **Mode**, and that **SCSI (0:2)** is selected for **Virtual Device Mode**. Then, click **Next**.  
If you are prompted to accept the settings, do so.
  - g Click **Finish**, and click **OK**.
- 7 If an existing virtual Disk 4 is present from a previous vRealize Automation release, complete these steps.
  - a Power on the virtual appliance clone, and wait 1 minute.
  - b On the virtual appliance clone, open a new command prompt and navigate to `/etc` directory.
  - c On the virtual appliance clone, open the `fstab` file, and remove lines that both start with `/dev/sdd` and contain the `Wal_Archive` write ahead logs.

- d On the virtual appliance clone, save the file.
  - e Power off the virtual appliance clone.
  - f Right-click the cloned vRealize Automation appliance icon and select **Edit Settings**.
  - g On the cloned virtual appliance machine, delete Disk 4.
- 8 Add Disk 4 to the cloned virtual appliance machine, and set the size to 50 GB.
- a To add a virtual disk, click **Add** above the Resources table.
  - b For the **Device Type**, select **Hard Disk**, and click **Next**.
  - c Select **Create a new virtual disk**, and click **Next**.
  - d Set **disk size** to 50 GB.
  - e Select **Store with the virtual machine**, and click **Next**.
  - f Verify that the **Independent** option is deselected for **Mode**, and that **SCSI (0:3)** is selected for **Virtual Device Mode**. Then, click **Next**.
- If you are prompted to accept the settings, do so.
- g Click **Finish**, and click **OK**.
- 9 Create a snapshot of the cloned virtual appliance machine.

## Power On the System Components

After you increase the hardware resources, you must power on the system before you upgrade the vRealize Appliance.

### Procedure

- 1 Power on the vRealize Automation virtual appliance node.
- 2 Verify that the system is functional.

## Installing Updates on the 6.2.5 vRealize Automation Appliance

To update the vRealize Appliance after upgrade, you install the updates on the appliance, update your single sign-on password, update the license key, and migrate identity stores.

After you install the updates, you perform the following actions in order:

- Reconfigure settings for the first vRealize Appliance node.
- Upgrade vRealize Orchestrator.

## Install the Update on the 6.2.5 vRealize Automation Appliance

You must install the vRealize Automation update on the vRealize Automation 6.2.5 appliance and configure appliance settings.

Support for an external PostgreSQL database is discontinued beginning with vRealize Automation 7.1. The upgrade process merges the data from an existing PostgreSQL external database with the PostgreSQL internal database that is part of the vRealize Appliance.

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

Do not close the management console during the update.

If you encounter any problems during the upgrade process, see [Chapter 7 Troubleshooting the Upgrade](#).

### Prerequisites

- Verify that you selected a download method and downloaded the update. See [Chapter 4 Downloading vRealize Automation Appliance Updates](#).
- 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*. If this guide is unavailable, use the alternative procedure in [Checklist to Upgrade the 6.2.5 vRealize Automation Appliance Components](#).
- 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. Point it to the external IP address of the master PostgreSQL node for external PostgreSQL.  
For example: `jdbc:postgresql://198.15.100.60:5432/vcac`
- Verify that all saved and in-progress requests finish successfully before you upgrade.

### Procedure

- 1 Open the vRealize Appliance management console.
- 2 On your vRealize Automation appliance, log in to vRealize Automation Appliance Management as **root** using the password you entered when you deployed the vRealize Automation appliance.
- 3 Click **Services**, and verify that each service, except for `iaas-service`, is listed as REGISTERED.
- 4 Select **Update > Settings**.
- 5 Select one of the following:
  - **Use Default Repository**.
  - **Use CDROM Updates**.
- 6 Click **Save Settings**.
- 7 Select **Status**.

- 8 Click **Check Updates** to verify that an update is accessible.
- 9 (Optional) For instances of vRealize Automation appliance, click **Details** in the Appliance Version area to see information about the location of release notes.
- 10 Click **Install Updates**.
- 11 Click **OK**.

A message stating that the update is in progress appears.

- 12 (Optional) If you did not resize Disk 1 manually to 50 GB, perform the following steps.
  - a When the system prompts you to reboot the virtual appliance, click **System** and click **Reboot**.  
During the reboot, the system adjusts the space required for the update.
  - b After the system restarts, log in to the vRealize Appliance management console again, verify that each service, except iaas-service, is listed as REGISTERED, and select **Update > Status**.
  - c Click **Check Updates** and click **Install Updates**.

- 13 To view the progress of the update, 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

During the upgrade, if you log out and log back in, you can continue to follow its progress in the log file. The file named `updatecli.log` might display information about the vRealize Automation version that you are upgrading. This displayed version changes to the proper version later during the upgrade.

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

- 14 Read the note about participating in the Customer Experience Improvement Program and select to join or not join the application.

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

## Update Your Single Sign-On Password for VMware Identity Manager

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

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

### Procedure

- 1 Log out of the vRealize Appliance management console, and close your browser.
- 2 Open the browser again, and log back in.

**3** Select **vRA > SSO**.**4** Using a complex password, enter a new VMware Identity Manager password and click **Save Settings**.

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

The vRealize Appliance management console accepts the password.

**5** Reboot the virtual appliance.

- a Click the **System** tab.
- b Click **Reboot** and confirm your selection.

**6** Verify that all services are running.

- a Log in to the vRealize Automation appliance management interface.
- 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 35 services.

**7** Verify that all services are registered except iaas-service.

The release-management service does not start without a vRealize Code Stream license key.

**What to do next**

[Update the License Key.](#)

## Update the License Key

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

**Procedure****1** Open a Web browser to the vRealize Automation appliance management interface URL.**2** Select **vRA > Licensing**.

If the text box named **New License Key** is not available, perform the following steps, then select **vRA > Licensing** again.

- a Log out of the management console.
- b Clear your browser cache.
- c Log in to the management console again.

**3** Enter your new license key in the **New License Key** text box.

To enable vRealize Code Stream, see the *vRealize Code Stream Installation Guide*. Follow the steps to apply a vRealize Code Stream license to an appliance.

- 4 Select the **Services** tab, and verify that the services named `artifact-management` and `release-management` are registered.

#### What to do next

[Migrate Identity Stores to VMware Identity Manager](#)

## Migrate Identity Stores to VMware Identity Manager

When you upgrade from vRealize Automation 6.2.5 to the current version, you must migrate the identity stores.

As required in the following procedures, refer to the snapshot of your 6.2.5 tenant configuration information.

---

**Note** After you migrate the identity stores, users of vRealize Code Stream must manually reassign vRealize Code Stream roles.

---

#### Procedure

- 1 [Create a Local User Account for Your Tenants](#)

When you migrate 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](#)

To import your users and groups into vRealize Automation using the Directories Management capability, you must connect to your Active Directory link.

- 3 [Delete and Restore Tenant Administrators from the vRealize Automation Source 6.2.x Environment](#)

You must delete and restore the vRealize Automation 6.2.x tenant administrators in each tenant after migration.

### Create a Local User Account for Your Tenants

When you migrate 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 set a new VMware Identity Manager password. See [Update Your Single Sign-On Password for VMware Identity Manager](#).

#### Procedure

- 1 Log in to the vRealize Automation console as the default system administrator user name **administrator**, and enter the 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, and click **New**.
- 4 Create a local user account to assign to the tenant administrator role, and click **OK**.  
The local user name must be unique to the vsphere.local active directory.
- 5 Click the **Administrators** tab.
- 6 In the **Tenant administrators** search box, enter the local user name and click **Enter**.
- 7 Click **Finish**.
- 8 Repeat these steps for each of your tenants.
- 9 Log out of the console.

#### What to do next

[Synchronize Users and Groups for an Active Directory Link](#)

## Synchronize Users and Groups for an Active Directory Link

To import your users and groups into vRealize Automation using the Directories Management capability, you must connect to your Active Directory link.

Perform this procedure 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 at: **`https://vra-appliance/vcac/org/tenant_name`**.
- 2 Select **Administration > Directories Management > Directories**.
- 3 Click **Add Directory** and select **Add Active Directory over LDAP/IWA**.
- 4 Enter your Active Directory account settings.
  - ◆ Non-Native Active Directories

Option	Sample Input
<b>Directory Name</b>	Enter a unique directory name. Select Active Directory over LDAP when using non-Native Active Directory.
<b>This Directory Supports DNS Services</b>	Deselect this option.
<b>Base DN</b>	Enter the Distinguished Name (DN) of the starting point for directory server searches. For example, <b>cn=users,dc=rainpole,dc=local</b> .

Option	Sample Input
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, <b>cn=config_admin infra,cn=users,dc=rainpole,dc=local</b> .
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 user name for the domain admin.
Domain Admin Password	Enter the password for the domain admin account.
Bind User UPN	Use the email address format to enter the name of the user who can authenticate the domain.
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 appears, and displays the list of domains.
- 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 to synchronize.
  - a Click the **New** icon.
  - b Enter the user domain and click **Find Groups**.  
For example, enter **dc=vcac,dc=local**.
  - c To select the groups to synchronize, click **Select** and click **Next**.
  - d On the **Select Users** page, select the users to synchronize and click **Next**.
- 10 Review the users and groups are syncing to the directory, and click **Sync Directory**.

The directory synchronization takes some time and runs in the background.

## Delete and Restore Tenant Administrators from the vRealize Automation Source 6.2.x Environment

You must delete and restore the vRealize Automation 6.2.x tenant administrators in each tenant after migration.



Perform the following procedure for each tenant in the target vRealize Automation console.

---

**Note** If you migrate from a vRealize Automation 7.x environment, you do not need to perform this procedure.

---

### Prerequisites

- Successful migration to the current version of vRealize Automation.
- Log in to the target vRealize Automation console.
  - a Open the vRealize Automation console on the upgraded virtual appliance using its fully qualified domain name, `https://va-hostname.domain.name/vcac`.
  - b Select the **vsphere.local** domain.
  - c Log in with the user name **administrator** and the password that you entered when you deployed the virtual appliance.

### Procedure

- 1 Select **Administration > Tenants**.
- 2 Click a tenant name.
- 3 Click **Administrators**.
- 4 Make a list of each tenant administrator name and user name.
- 5 Point to each administrator and click the Delete icon until you delete all administrators.
- 6 Click **Finish**.
- 7 On the Tenants page, click the tenant name again.
- 8 Click **Administrators**.
- 9 In the appropriate search box, enter the name of each user that you deleted, and click **Enter**.
- 10 To add the user back as an administrator, when the search returns the list of users, click the name of the appropriate user.
 

When you finish, the list of tenant administrators must resemble the same as the list of administrators you deleted.
- 11 Click **Finish**.

# Troubleshooting the Upgrade

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

This chapter includes the following topics:

- [Migration of Identity Store Fails Because the Active Directory Is Not Synchronized](#)
- [Migration of Identity Store Fails Because of Incorrect Credentials](#)
- [Log In Fails After Upgrade](#)
- [Upgrade Is Unsuccessful if Root Partition Does Not Provide Sufficient Free Space](#)

## Migration of Identity Store Fails Because the Active Directory Is Not Synchronized

The migration of identity store fails because more than a 1000 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 1000 groups in the group base search domain name 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 To open a dialog box that has synchronization options, click **Sync Settings**.
- 9 To add a line for group DN definitions and enter the appropriate group DN that must be synchronized, click the **+** icon.
- 10 To save your changes and synchronize to implement your updates immediately, click **Save & Sync**.

The VMware Identity Manager utility directory is synchronized to more than 1000 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 the identity store fails because of incorrect Active Directory domain credentials or the 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 VMware Identity Manager to the Active Directory Domain.

#### Solution

- 1 Log in the vRealize 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 Appliance.
- 5 Log in the tenant with the local user credentials.
- 6 Select **Administration > Directories Management > Connectors**.
- 7 To join the connector to a specific Active Directory domain, click **Join 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.

# 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.

# 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 the following 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 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 30 GB.