

Upgrading vRealize Code Stream

vRealize Code Stream 2.1

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Upgrading vRealize Code Stream

Upgrading vRealize Code Stream tells you how to download and install updates to upgrade vCloud Automation Center 6.1.x to vRealize Automation appliance 7.1 and vRealize Automation appliance 7.0.1 to 7.1 so that you can upgrade your appliance to vRealize Code Stream 2.1.

Intended Audience

This information is intended for experienced Windows or Linux system administrators who are familiar with virtual machine technology and datacenter operations.

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>.

Considerations About Upgrading vRealize Code Stream

1

vRealize Code Stream 1.0 and 1.1 can be directly upgraded to vRealize Code Stream 1.2 or 2.x.

Following vRealize Automation appliance upgrade paths are supported for vRealize Code Stream:

vRealize Automation appliance	vRealize Code Stream
6.2.0	1.0
6.2.1	1.1
6.2.2	1.1
6.2.3	1.2
6.2.4	1.2
7.0.1	2.0
7.1	2.1

During the upgrade, your existing vCloud Suite 6.x licenses, and vRealize Code Stream 2.x licenses that you have, are removed. You must reenter your licenses in the vRealize Automation appliance. Upon upgrade, existing license keys are removed from the database.

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.

Prerequisites for Upgrading vRealize Automation Appliance

2

Before you run the upgrade, review the prerequisites.

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 make the system unavailable to users while you perform the upgrade.
- You disable any applications that query vRealize Automation.
- 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.

Downloading vRealize Automation Appliance Updates

3

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](#) on page 11
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 a Use with a CD-ROM Drive](#) on page 12
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

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

Prerequisites

- Back up and save your environment.
- Ensure that your virtual appliance is powered on.

Procedure

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

NOTE Select the **Use Specified Repository** option if you download the virtual appliance updates from an internal repository and enter the URL of the repository you created in the **Repository URL** text box.

For example, if the repository directory is `vcac_update_repo`, the URL should be similar to `http://web_server_name.your_company.com/vcac_update_repo`.

- 7 Click **Save Settings**.

Download Virtual Appliance Updates for a 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

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

Procedure

- 1 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 CDRROM Updates**.
- 10 Click **Save Settings**.

Upgrading vRealize Automation Appliance 7.0.1 to 7.1

4

You can upgrade to vRealize Automation appliance 7.1 from vRealize Automation appliance 7.0.1 release.

Install the Update on vRealize Automation appliance 7.0.1

You install the update on the vRealize Automation appliance after you download the updates .

Prerequisites

- Select a download method and download the update. See [Chapter 3, “Downloading vRealize Automation Appliance Updates,”](#) on page 11.
- Create a snapshot of your virtual machine.

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 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 listed as REGISTERED.

At least one vco service should be registered. If there are other vco services that are registered, leave them as is.
- 6 Click **Update > Install Updates**.
- 7 Click **Settings** and maintain the default settings.
- 8 Select **Status > Check Updates > Install Updates**.
- 9 Click **OK**.

An informational message stating that the update is in progress appears.
- 10 Reboot the system after the update successfully completes.

Upgrading vRealize Automation Appliance 6.2.x to 7.1

5

You can upgrade to vRealize Automation appliance 7.1 from any supported vRealize Automation appliance 6.2.x release.

This chapter includes the following topics:

- [“Checklist for Upgrading vRealize Automation Appliance Components,”](#) on page 15
- [“Preparing to Upgrade vRealize Automation Appliance,”](#) on page 16
- [“Updating the vRealize Automation Appliance,”](#) on page 19

Checklist for Upgrading vRealize Automation Appliance Components

When you perform an upgrade from vRealize Automation appliance 6.2.x to 7.1 release, you update all vRealize Automation appliance components in a specific order.

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 5-1. Checklist for Upgrade of a Minimal vRealize Automation appliance Deployment

Task	Instructions
<input type="checkbox"/> Back up your current installation. This is a critical step.	For more information on how to back up and restore your system, see “Backing up and Saving Your Existing 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"/> Configure your hardware resources.	See “Increase vRealize Automation appliance Hardware Resources for Upgrade,” on page 16.
<input type="checkbox"/> Download updates to the vRealize Automation appliance.	See Chapter 3, “Downloading vRealize Automation Appliance Updates,” on page 11.
<input type="checkbox"/> Install the update on the vRealize Automation appliance.	See “Install the Update on vRealize Automation Appliance 6.2.x,” on page 19.

Table 5-1. Checklist for Upgrade of a Minimal vRealize Automation appliance Deployment (Continued)

Task	Instructions
<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 20.
<input type="checkbox"/> Update the license key.	See “Update the License Key,” on page 21.
<input type="checkbox"/> Migrate the Identity Store to the VMware Identity Manager	See “Migrate Identity Stores to the VMware Identity Manager,” on page 21

Preparing to Upgrade vRealize Automation Appliance

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 Appliance Components,”](#) on page 15.

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. 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.

Increase vRealize Automation appliance Hardware Resources for Upgrade

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

These steps are based on the Windows client.

Prerequisites

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. After you clone your appliances, power off the original appliances before you perform this procedure.

Procedure

- 1 Log in to vCenter Server.

- 2 Select the vRealize Automation appliance and click **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 If there is an existing virtual Disk 4 from a previous vRealize Automation 6.2.x release, delete it and add a new virtual disk.
 - a Delete Disk 4 on the cloned virtual machine and create Disk 4 with a disk size of 50 GB.
 - b 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.
- 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.

Power On the Entire System

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

Procedure

- 1 Power on the entire system.

For instructions, see the vRealize Automation 6.2 version of the Start Up vRealize Automation topic at <http://pubs.vmware.com/vra-62/topic/com.vmware.vra.system.administration.doc/GUID-4A4BD979-61EF-4590-AEDF-6A9BA42426B6.html>.

- 2 Verify that the system is fully functional.

Reconfigure Disk 1 on All vRealize Automation Appliance Nodes

The upgrade process requires 5.3 GB of free space for the upgrade files. Only perform this procedure if you have less than 5.3 GB of free space on the Disk 1 root partition.

Perform this procedure on each replica appliance node sequentially, and then on the master node.

Procedure

- 1 Power on the host machine and use SSH to log in to the vRealize Automation appliance.
- 2 Stop each of the following services.
 - a `service vcac-server stop`
 - b `service vco-server stop`
 - c `service vpostgres stop`
- 3 Unmount the swap partition:


```
swapoff -a
```
- 4 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 Change the swap partition type.


```
(echo t; echo 2; echo 82; echo w; echo p; echo q) | fdisk /dev/sda
```
- 6 Set the Disk 1 bootable flag:


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


```
partprobe
```

If you see a message telling you to reboot before you make further changes, ignore the message. Rebooting the system before step 10 corrupts the upgrade process.
- 8 Format the new swap partition.


```
mkswap /dev/sda2
```
- 9 Mount the swap partition.


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


```
resize2fs /dev/sda1
```
- 12 Verify that the disk expansion is successful by running `df -h` and checking that the available disk space on `/dev/sda1` is greater than 3 GB.
- 13 Repeat steps 1–11 on all other vRealize Automation appliances.
- 14 Shut down all replica vRealize Automation appliance nodes.

Updating the vRealize Automation Appliance

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

After you upgrade the first vRealize Automation appliance node, upgrade vRealize Orchestrator, and the secondary vRealize Automation appliance nodes.

Install the Update on vRealize Automation Appliance 6.2.x

You install the update on the vRealize Automation appliance after you upgrade.

Prerequisites

- Select a download method and download the update. See [Chapter 3, “Downloading vRealize Automation Appliance Updates,”](#) on page 11.
- If you have a Common Components Catalog component installed, the component must be uninstalled before you upgrade and then reinstalled with the appropriate version after the upgrade is complete. This work must be done by the VMware Professional Services Organization (PSO). Contact your PSO representative for assistance.
- Verify that all saved and in-progress requests have completed successfully before you upgrade.
- Verify that the Message Signature Check value is disabled.

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 the **Services** tab and verify that all services except `iaas-service` listed as REGISTERED.

At least one `vco` service should be registered. If there are other `vco` services that are registered, leave them as is.
- 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**.

An informational 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.

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.

- 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`.
- 7 Reboot the virtual appliance.
 - a Click the **System** tab.
 - b Click **Reboot** and confirm your selection.

What to do next

[“Update the License Key,”](#) on page 21.

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).
- 4 Select the **Services** tab and ensure the artifact-management and release-management services are registered.

What to do next

[“Migrate Identity Stores to the VMware Identity Manager,”](#) on page 21

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 22
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 22
Connect to your Active Directory link to import your users and groups into vRealize Automation using the Directories Management functionality.
- 3 [Migrate Multiple Tenant Administrators](#) on page 24
If you have multiple vRealize Automation 6.2.x tenant 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 20.

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 22

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.
- Click the **New** icon.
 - Enter the user domain and click **Find Groups**.
For example, **dc=vcac,dc=local**.
 - Click **Select** to select the groups you want to synchronize.
 - Click **Next**.
 - 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 Administrators

If you have multiple vRealize Automation 6.2.x tenant 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 Log in with secure shell connection to your vRealize Automation 6.2.x SSO virtual appliance.
- c At the command prompt, run the following command to download the `vra-ssm-migration.zip` file using the link you copied in step 4.

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

For example,

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

- d Run the following command to unzip the migration file.
- ```
unzip vra-ssm-migration.zip
```
- e In the directory where you extracted `vra-ssm-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.

```
sudo ./reassign-tenant-administrators
```

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-ssm-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-ssm-migration.zip` and select **Extract all**.
 - e Open the extracted `vra-ssm-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.

Post vRealize Code Stream Upgrade

During an upgrade from vRealize Code Stream 1.0 to vRealize Code Stream 1.2 or 2.x, existing endpoints are added to the appliance and the format of release pipeline variables is updated.

Jenkins Server and vRealize Automation Server Endpoints

vRealize Code Stream retrieves all of the existing Jenkins Server, vRealize Automation Server, and Team Foundation Server (TFS) endpoints from vRealize Orchestrator and adds them as new entries to the page at **Administration > Orchestration Configuration > Endpoints**.

The updated Jenkins server endpoint name is prefixed with `Jenkins_EndpointName` and the updated vRealize Automation server endpoint name is prefixed with `Vra_EndpointName`.

Release Pipeline Variables

The format of existing release pipeline variable values such as `$RP1` and `$RP2` are updated to `${pipeline.RP1}` and `${pipeline.RP2}` during the upgrade.

Task Output Variables

The format of existing task output variable values such as `$CustomScriptName_OUTPUT` are updated to `${StageName.TaskName.outputConfig}` in the release pipeline during the upgrade.

Variable Names

The format of variable names for manual approval in custom tasks are updated during the upgrade.

Table 6-1. Variable Name Values

Pre-upgrade Format	Post-upgrade Format
<code>\$ReleasePipelineName</code>	<code>\${releasePipelineName}</code>
<code>\$StageName</code>	<code>\${stageName }</code>
<code>\$NextStageName</code>	<code>\${nextStageName}</code>
<code>\$TaskName</code>	<code>\${taskName}</code>
<code>\$NextTaskName</code>	<code>\${nextTaskName}</code>

Variable Concatenation

The format of variable values that are concatenated such as `$RP1` with output `$CustomScriptName_OUTPUT` are updated to `${pipeline.RP1}` with output `${StageName.TaskName.outputConfig}` during the upgrade.

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:

- [“Retrieve Logs to Troubleshoot the vRealize Code Stream Upgrade,”](#) on page 29
- [“Migration of Identity Store Fails Because the Active Directory is not Synchronized,”](#) on page 30
- [“Migration of Identity Store Fails Because of Incorrect Credentials,”](#) on page 30
- [“Migration of Identity Store Fails With a Timeout Error Message,”](#) on page 31
- [“Manager Service Fails to Run Due to SSL Validation Errors During Runtime,”](#) on page 32
- [“Log In Fails After Upgrade,”](#) on page 32
- [“User Migration Batch Files Are Ineffective,”](#) on page 32
- [“Upgrade Is Unsuccessful if Root Partition Does Not Provide Sufficient Free Space,”](#) on page 33

Retrieve Logs to Troubleshoot the vRealize Code Stream Upgrade

You can retrieve the logs from the `catalina.out` log file in the vRealize Automation appliance to troubleshoot the vRealize Code Stream upgrade.

Prerequisites

Verify that you have credentials for logging in to the Linux-based virtual machine with root privileges.

Procedure

- 1 Log in to the virtual machine.
- 2 Navigate to the `/var/lib/vcac/server/logs` directory.
- 3 Retrieve upgrade logs from the `catalina.out` log file.

```
grep -3n "vRCS Upgrade" catalina.out
```
- 4 Identify upgrade logs that have a `vRCS Upgrade ->` prefix.

The release pipelines that failed to migrate have an error description next to the pipeline name.

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.

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.

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.

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.

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