

Upgrading from vRealize Automation 6.2 to 7.0.1

vRealize Automation 7.0.1

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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VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

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Upgrading from vRealize Automation 6.2.x to 7.0.1

Upgrading from vRealize Automation 6.2.x to 7.0.1 tells you how to download and install updates to upgrade to the latest 7.0.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.

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-001900-05	Updated topics to address reported problems. <ul style="list-style-type: none">■ Updated “Reconfigure Disk 1 on All vRealize Automation Appliance Nodes,” on page 20 to provide warning about not restarting the system prematurely.■ Updated “Install the Update on Additional vRealize Automation Appliances,” on page 30 to add additional steps to the end of the procedure.■ Updated “Downloading vRealize Automation Appliance Updates,” on page 22 to remove the second method of downloading updates.■ Updated “Install the Update on the vRealize Automation Appliance,” on page 25 to add information about Knowledge Base 2144876.
EN-001900-04	Upgrading from 6.2.x to 7.0.1
EN-001900-03	Clarifications and additions to earlier changes.

Revision	Description
EN-001900-02	<ul style="list-style-type: none"> ■ Updated “Shut Down vCloud Automation Center Services on Your IaaS Windows Server,” on page 18 to change the order of shutting down the services and information about disconnecting secondary nodes from the VIP addresses. Added information on how to verify that the IaaS service is running. ■ Updated “Download vRealize Automation Appliance Updates from a VMware Repository,” on page 22. ■ Updated “Upgrade Stand-Alone External vRealize Orchestrator for Use With vRealize Automation,” on page 35 to add information on how to stop the vRealize Orchestrator server service. ■ Updated “Install the Update on the vRealize Automation Appliance,” on page 25 to add prerequisite to disable the Message Signature Check value and information about following the upgrade progress in a log file. ■ Updated “Install the Update on Additional vRealize Automation Appliances,” on page 30 to add information about following the upgrade progress in a log file. ■ Updated “Upgrade the IaaS Components,” on page 33 to add information to verify that snapshots should exist if multiple IaaS servers are present. Added a prerequisite to run the Prerequisite Checker and information about disabling SSL encryption. ■ Updated “Update Your Single Sign-On Password for VMware Identity Manager,” on page 26 to add information about verifying registered services with the exception of the iaas-service. ■ Created “Migrate Identity Stores to the VMware Identity Manager,” on page 27, “Create a Local User Account for Your Tenants,” on page 27, “Connect Your Active Directory to Synchronize Users and Groups,” on page 28, and “Migrate Multiple Tenant and IaaS Administrators,” on page 30 to add information about migrating users and groups from a Native Active Directory store to vRealize Automation.
EN-001900-01	<ul style="list-style-type: none"> ■ Updated “Upgrading vRealize Automation,” on page 6 to add a note about CCE support for upgrade considerations. ■ Updated “Checklist for Upgrading vRealize Automation Components,” on page 8 to change the order of the minimal and distributed upgrade. Changes were also made to the order of topics in the table of contents and reference links to the proceeding tasks were updated accordingly. ■ Updated “Backing up and Saving Your Existing Environment,” on page 16 to add the backup requirements for upgrade. ■ Updated “Back Up Your Environment,” on page 17 to add information about taking snapshots and taking in-memory snapshots of nodes. Moved the power on the system task into the procedure. ■ Updated “Increase vCenter Server Hardware Resources for Upgrade,” on page 19 to add information about configuring the resources if the user has only two disks. ■ Updated “Install the Update on the vRealize Automation Appliance,” on page 25 to add information about registered, embedded, and external vco services. ■ Added a new “Install the Update on Additional vRealize Automation Appliances,” on page 30 topic. ■ Updated “Upgrade External vRealize Orchestrator Appliance Clusters,” on page 36 to clarify that the vRealize Orchestrator cluster should be external.
EN-001900-00	Initial release.

Upgrading vRealize Automation

Upgrading is a multi-stage process in which procedures must be performed in a particular order. Follow the suggested processes to ensure a smooth upgrade with a minimum of system downtime. You must upgrade all product components to the same version.

NOTE vRealize Automation features and innovations introduced in 7.0 required several platform-level enhancements. As a result, certain upgrade scenarios will require additional assistance. To ensure the best possible upgrade experience, it is recommended that you visit the vRealize Automation Upgrade Assistance webpage 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 10.

Locate your currently installed version in the table and then follow the steps in the documents on the right to incrementally upgrade your vRealize Automation environment to the latest release. 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.

You can upgrade to vRealize Automation 7.0.1 from any supported vRealize Automation 6.2.x or vRealize Automation 7.0 release.

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 Upgrade Paths to 7.0.1

Your Currently Installed Version	Documentation for Incremental Upgrades
vRealize Automation 7.0	Upgrade to the 7.0.1 release as described in Upgrading from vRealize Automation 7.0 to 7.0.1 .
vRealize Automation 6.2.0, 6.2.1, 6.2.2, 6.2.3, and 6.2.4	Upgrade directly to the 7.0.1 release as described in Upgrade from vRealize Automation 6.2 to 7.0.1 .

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 7.0.1.

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 in which 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 17. 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 18.
<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 10.
<input type="checkbox"/> Prepare and update the embedded PostgreSQL database if your deployment includes one.	See “Prepare a Clustered PostgreSQL Environment for Upgrade,” on page 18.

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

Task	Instructions
<input type="checkbox"/> Configure your hardware resources.	See “Increase vCenter Server Hardware Resources for Upgrade,” on page 19.
<input type="checkbox"/> For sites with external Postgres databases, create a SaaS Schema and Citext. to use when you upgrade PostgreSQL.	See “Create a SaaS Schema and Citext Extension for External vRealize Automation Database,” on page 21
<input type="checkbox"/> Download updates to the vRealize Automation appliance.	See “Downloading vRealize Automation Appliance Updates,” on page 22.
<input type="checkbox"/> Upgrade the External PostgreSQL virtual appliance, if your deployment includes one.	See “Upgrade the External PostgreSQL Virtual Appliance,” on page 24
<input type="checkbox"/> Install the update on the vRealize Automation appliance.	See “Install the Update on the vRealize Automation Appliance,” on page 25.
<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 26.
<input type="checkbox"/> Update the license key.	See “Update the License Key,” on page 27.
<input type="checkbox"/> Migrate the Identity Store to the VMware Identity Manager	“Migrate Identity Stores to the VMware Identity Manager,” on page 27
<input type="checkbox"/> Download and install updates for IaaS.	See “Upgrading the IaaS Server Components,” on page 32.
<input type="checkbox"/> Upgrade the external vRealize Orchestrator.	See “Upgrade Stand-Alone External vRealize Orchestrator for Use With vRealize Automation,” on page 35.
<input type="checkbox"/> Add users or groups to an Active Directory connection	See “Add Users or Groups to an Active Directory Connection,” on page 38.

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 17. 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 18.
<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"/> Prepare and update the embedded PostgreSQL database if your deployment includes one.	See “Prepare a Clustered PostgreSQL Environment for Upgrade,” on page 18.
<input type="checkbox"/> Configure your hardware resources for the upgrade.	See “Increase vCenter Server Hardware Resources for Upgrade,” on page 19.
<input type="checkbox"/> Create a SaaS Schema and Citext. to use when you upgrade PostgreSQL.	See “Create a SaaS Schema and Citext Extension for External vRealize Automation Database,” on page 21

Table 4. Upgrade to vRealize Automation Distributed Installation Checklist (Continued)

Task	Instructions
<input type="checkbox"/> Download updates to the vRealize Automation appliance.	See “ Downloading vRealize Automation Appliance Updates ,” on page 22.
<input type="checkbox"/> Upgrade the External PostgreSQL virtual appliance, if your deployment includes one.	See “ Upgrade the External PostgreSQL Virtual Appliance ,” on page 24
<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 25.
<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 26.
<input type="checkbox"/> Update the license key.	See “ Update the License Key ,” on page 27.
<input type="checkbox"/> Migrate the Identity Store to the VMware Identity Manager utility	“ Migrate Identity Stores to the VMware Identity Manager ,” on page 27
<input type="checkbox"/> Install the update on the rest of your vRealize Automation appliances.	“ Install the Update on Additional vRealize Automation Appliances ,” on page 30
<input type="checkbox"/> Download and install updates for IaaS.	See “ Upgrading the IaaS Server Components ,” on page 32.
<input type="checkbox"/> Upgrade the external vRealize Orchestrator	See “ Upgrade Stand-Alone External vRealize Orchestrator for Use With vRealize Automation ,” on page 35 .
<input type="checkbox"/> Enable your load balancers.	“ Enable Your Load Balancers ,” on page 39

Considerations About Upgrading to This vRealize Automation Version

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

NOTE vRealize Automation features and innovations introduced in 7.0 required several platform-level enhancements. As a result, certain upgrade scenarios will require additional assistance. To ensure the best possible upgrade experience, it is recommended that you visit the vRealize Automation Upgrade Assistance webpage 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 27 .

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 12 and [“Understanding How Multi-Machine Blueprints Are Upgraded,”](#) on page 12.

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 7.0.1, 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 currently supported in the target vRealize Automation deployment.

You can obtain and use the generic endpoint framework to create physical endpoints and physical reservations. You can also use the generic endpoint framework to create physical machine components for use in the blueprint design canvas.

For information about obtaining and using the generic endpoint framework, contact your vRealize Automation support professional.

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 12.

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.

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*.

For more information about naming properties, see *Custom Properties Reference*.

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 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 the vRealize Automation release notes 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* on the VMware Web site 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 issues before upgrading.
- Record your vCloud Suite license key if you used it for your the vRealize Automation installation you are upgrading from. Upon upgrade, existing license keys are removed from the database.

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 19.
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.
- To avoid upgrade failures due to insufficient free space in future vRealize Automation upgrades, Disk 1 must be re-sized to 50 GB on all vRealize Automation appliances. See [“Re-size Disk 1 for Upgrade”](#) on page 19.
- Your CPU must have four virtual sockets and one core. See [“Increase vCenter Server Hardware Resources for Upgrade,”](#) on page 19.
- Your IaaS Server nodes must have the Microsoft .NET Framework 4.5.2 version and at least 5 GB of free disk space.
- You must have at least 7 GB of free disk space on each vRealize Automation appliance of the root partition to download and run the upgrade.
- Check the `/storage/log` subfolder and remove any older archived zip files to cleanup space.

General Prerequisites

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

- You have access to an Active Directory account that has a username@domain format with 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 that has a SAMaccountName format with 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 have disabled any applications that query vRealize Automation.
- You have followed the instructions in “[Shut Down vCloud Automation Center Services on Your IaaS Windows Server](#),” on page 18.
- 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 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.

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 8.

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.

Back Up Your Environment

Before you begin to upgrade, shut down the vRealize Automation IaaS Windows Server and all Manager machines and identity virtual appliance machines and take a snapshot. 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 server 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 MSSQL 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 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. See *Configuring vRealize Suite 6.0 for Backup and Restore by Using Symantec NetBackup 7.6* at <http://www.vmware.com/pdf/vrealize-suite-60-backup-and-restore-netbackup.pdf>.

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 Windows Server machine
 - b Manager machines (if any)
 - c Identity virtual appliance
- 4 Take a snapshot of all vRealize Automation 6.2.x machines.
- 5 Clone the vRealize Automation appliance nodes that contain Disk 4 and use the new clones during the upgrade process.
- 6 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>.

NOTE The topic should have vra-62 in the URL.

- 7 Verify that the system is fully functional.

What to do next

[“Shut Down vCloud Automation Center Services on Your IaaS Windows Server,”](#) on page 18

Shut Down vCloud Automation Center 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 should 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 deployments that use load balancers, disable all of the secondary nodes from the load balancer for the distributed installation.
- 5 For deployments that use load balancers, disable all vRealize Automation health monitors, and ensure traffic is directed to the primary node.
- 6 Verify that the IaaS service hosted in Microsoft Internet Information Services 7.5 is running.
 - Enter the URL <https://webhostname/Repository/Data/MetaModel.svc> to verify that the Web Repository is running. If successful, no errors are returned and you see a list of models in XML format.
 - Check the status recorded in the Repository.log file on the Web node of the IaaS machine. The file is located in the VCAC home folder at `/Server/Model Manager Web/Logs/Repository.log` to see that status reports OK.

What to do next

[“Prepare a Clustered PostgreSQL Environment for Upgrade,”](#) on page 18 .

Prepare a Clustered PostgreSQL Environment for Upgrade

If your high-availability deployment relies on a clustered PostgreSQL server, either embedded or external, you must configure each vRealize Automation appliance node for upgrade.

NOTE You must configure each vRealize Automation appliance node in your environment first and then configure the master virtual appliance Postgres node.

If you're unsure which node is the master node, see the following KB article for more information:
<http://kb.vmware.com/kb/2108923>.

Procedure

- 1 Locate the secondary vRealize Automation appliance node in your 6.2.x environment.
- 2 Open a shell console and stop the vPostgres service.

execute: service vpostgres stop

- 3 Navigate to `/storage/db/pgdata/postgresql.conf` and backup the file.
- 4 Verify that the archive settings are accurate.

NOTE There may be multiple entries.

```
archive_mode = off and #archive_command = ''.
```

- 5 Navigate to the `/etc/fstab` file and remove lines starting with `/dev/sdd`, which contain the `Wal_Archive` write ahead logs.
- 6 Navigate to `/etc/vcac/server.xml` and back up the file.
- 7 Verify that the `jdbc:postgresql` database connection points to the external IP address of the master Postgres node.
- 8 If the connection is not set, 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 Postgres node for external Postgres or master virtual appliance for embedded Postgres.
For example, `jdbc:postgresql://198.15.100.60:5432/vcac`
- 9 Shut down the vRealize Automation appliance.
- 10 Repeat steps 1-9 on each vRealize Automation appliance node in your 6.2.x environment.
- 11 Locate the master vRealize Automation appliance node and repeat steps 1-9.
- 12 If you are upgrading a 6.2.x high-availability setup with an embedded PostgreSQL database and there is an external Load Balancer pool configured especially for PostgreSQL database, remove the external LB pool for PostgreSQL.

What to do next

[“Increase vCenter Server Hardware Resources for Upgrade,”](#) on page 19

Increase vCenter Server Hardware Resources for Upgrade

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

If you have taken snapshots of your vRealize Automation appliances, you must clone your appliances and increase the hardware resources on the clones. Ensure that you have at least 60 GB of free space for each appliance in your vCenter. After you clone your appliances, power down the original appliances before you perform this procedure.

These steps are based on the Windows client.

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 Extend the size of Disk 1 to 50 GB.
 - a Select Disk 1.
 - b Change the size to 50 GB.
 - c Click **OK**.
- 6 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 machine and create Disk 4 with 50 GB disk size.
 - b If you have two disks, add Disk 3 with 25 GB disk size first and then Disk 4 with 50 GB disk size.
- 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 unchecked for Virtual Disk Mode choose SCSI (0:3).
- 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

[“Reconfigure Disk 1 on All vRealize Automation Appliance Nodes,”](#) on page 20.

Reconfigure Disk 1 on All vRealize Automation Appliance Nodes

You must reconfigure Disk 1 on the vRealize Automation version you are upgrading from before beginning the upgrade.

Perform this procedure for each replica appliance node sequentially, and then for 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 this message: You should reboot now before making further changes. If you reboot your system before step 10, you will corrupt the upgrade process.

Procedure

- 1 Power on and SSH login to the vRealize Automation appliance.
- 2 Stop all vRealize Automation 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
```

NOTE 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.

What to do next

[“Install the Update on the vRealize Automation Appliance,”](#) on page 25

Create a SaaS Schema and Citext Extension for External vRealize Automation Database

For an external PostgreSQL server, you need to manually create a schema called `saas` and a `citext` extension for your vRealize Automation database.

Do not perform these steps if you are using an embedded PostgreSQL database on your vRealize Automation appliances.

Prerequisites

Verify that you have recorded the vRealize Automation database name and database user. You need that information to perform this task.

Procedure

- 1 If you are using an external clustered PostgreSQL database, log in to the master PostgreSQL node. Otherwise, log in to your standalone external PostgreSQL node.

- 2 Run the following command to manually create the required `saas` schema and `citext` extension.

The following example uses a `psql` binary path for vPostgres. Your path might be different based on your operating system and the implementation of PostgreSQL that you use.

```
# command to create "saas" schema and citext extension:
su - postgres -c "/opt/vmware/vpostgres/current/bin/psql -Atw --set ON_ERROR_STOP=on
VCAC_DATABASE" <<
EOF
CREATE SCHEMA saas AUTHORIZATION VCAC_USER;
CREATE EXTENSION IF NOT EXISTS "citext" SCHEMA saas;
EOF
```

Replace `VCAC_DATABASE` and `VCAC_USER` with your vRealize Automation database name and database user. The default database name and default user name are `vcac`.

What to do next

Download the virtual appliance upgrade. See [“Downloading vRealize Automation Appliance Updates,”](#) on page 22.

Downloading vRealize Automation Appliance Updates

You can check for updates from the client management page for your appliance and download the updates by using one of the following methods.

- [Download vRealize Automation Appliance Updates from a VMware Repository](#) on page 22
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 23
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 17

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 17.
- 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 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 the primary IaaS Windows server, vRealize Orchestrator, the secondary vRealize Automation appliance nodes, and the secondary IaaS Windows servers.

Upgrade the External PostgreSQL Virtual Appliance

You must upgrade any external PostgreSQL virtual appliances. If your deployment uses a load balancer, you must apply the upgrade to each PostgreSQL appliance individually. The upgrade works on the vRealize Automation appliance with the vPostgreSQL server only.

If you are using another type of PostgreSQL server, such as a community edition or shared PostgreSQL server, do not use this procedure.

Prerequisites

- Verify that you downloaded the virtual appliance updates. See [“Downloading vRealize Automation Appliance Updates,”](#) on page 22.
- Verify that the external PostgreSQL appliance meets the same hardware requirements as those for a vRealize Automation appliance. See [“Hardware Configuration Requirements,”](#) on page 15.
- Verify that the second and subsequent PostgreSQL appliances are disabled for load balancer traffic. This is required before you apply the upgrade.

Procedure

- 1 Locate the vRealize Automation appliance and power it on.
- 2 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.
- 3 Click **Settings** and select a download option for the updates.
- 4 Click **Status**.
- 5 Click **Check Updates** to verify that an update is accessible.
- 6 Click **Install Updates**.
- 7 Click **OK**.
- 8 Open the log files to verify that the upgrade is progressing successfully.


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

The time it takes for the update to finish depends on your site environment.
- 9 Clear the cache of your Web browser to access the management console.
- 10 Reboot the virtual appliance.
 - a Click the **System** tab.
 - b Click **Reboot** and confirm your selection.
- 11 Reconnect all PostgreSQL virtual appliances to the load balancer.

What to do next

[“Reconfigure Disk 1 on All vRealize Automation Appliance Nodes,”](#) on page 20

Install the Update on the vRealize Automation Appliance

You install the update on the 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 the update is being installed.

Prerequisites

- Select a download method and download the update. See “[Downloading vRealize Automation Appliance Updates](#),” on page 22.
- For all high-availability deployments, see “[Back Up Your Environment](#),” on page 17.
- For high-availability deployments with load balancers, verify that the health check is disabled on all load balancers.
- If you have a Common Components Catalog component installed, uninstall the component before you upgrade. For information about how to uninstall, install, and upgrade the Common Components Catalog, see the Common Components Catalog documentation.
- For high-availability deployments with external PostgreSQL environments, verify that the external PostgreSQL environment is set up. See “[Prepare a Clustered PostgreSQL Environment for Upgrade](#),” on page 18.
- Verify that all saved and in-progress requests have completed successfully before you upgrade.
- (Upgrading from vRealize Automation 7.0 to 7.0.1 only) Verify that you have run the required script described in Knowledge Base 2144876.
- Verify that the Message Signature Check value is disabled. See “[Upgrading vRealize Automation](#),” on page 6.

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

At least one `vco` service should be registered. If other `vco` services are not registered, leave them as is.
 - d Click the **Update** tab.
- 2 Click **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 **Install Updates**.
- 6 Click **OK**.
- 7 Open the log files to verify that the upgrade is progressing successfully.

`/opt/vmware/var/log/vami/updatecli.log`, `/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. The `update.cli.log` file might display information about the version of vRealize Automation that you are upgrading from. Ignore this file. It is changed later in the upgrade process.

The time it takes for the update to finish depends on your site environment.

- 8 If you have an external vRealize Orchestrator server or servers that use vRealize Automation authentication type, run the `vcac-config` command to clean up outdated vco services from component registry:

```
vcac-config service-delete --service-name vco
```

- 9 Read the note about participation in the Customer Experience Improvement Program and choose 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 26

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`.

What to do next

[“Update the License Key,”](#) on page 27.

Update the License Key

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

Procedure

- 1 Log in to the management console by using its fully qualified domain name `https://va-hostname.domain.name:5480/`.
- 2 Select **vRA Setting > Licensing** tab.
- 3 Enter the license key information in the vRealize Automation appliance.
Endpoints and quotas are flagged through the end-user license agreements (EULAs).

What to do next

[“Migrate Identity Stores to the VMware Identity Manager,”](#) on page 27

Migrate Identity Stores to the VMware Identity Manager

As part of upgrading to 7.0.1 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 27
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 [Connect Your Active Directory to Synchronize Users and Groups](#) on page 28
Connect to your Active Directory to import your users and groups into vRealize Automation using the Directories Management functionality.
- 3 [Migrate Multiple Tenant and IaaS Administrators](#) on page 30
If you have multiple vRealize Automation 6.2.x tenants and IaaS administrators, use the tenant migration tool to migrate your tenant administrators into your newly synchronized vsphere.local tenant. Otherwise, you can manually add them 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 26.

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

[“Connect Your Active Directory to Synchronize Users and Groups,”](#) on page 28

Connect Your Active Directory to Synchronize Users and Groups

Connect to your Active Directory 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 Navigate to **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 .

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, 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 Navigate to **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.

After upgrading all vRealize Automation nodes, login to each tenant and navigate again to **Administration > Directories Management > Identity Providers** . 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 connectors added to it.

Migrate Multiple Tenant and IaaS Administrators

If you have multiple vRealize Automation 6.2.x tenants and IaaS administrators, use the tenant migration tool to migrate your tenant administrators into your newly synchronized vsphere.local tenant. Otherwise, you can manually add them to the vsphere.local tenants.

Procedure

- 1 Login to the management console of the master vRealize Automation appliance you just upgraded.
- 2 Select the **vRA Settings > SSO** tab.
- 3 Right-click **Identity Stores Migration Tool** and select **Copy Link Address**.
- 4 Login to your 6.2.x SSO virtual appliance with SSH .
- 5 Enter a command of the form `wget --no-check-certificate <URL_address>` to download the migration zip file.
For example,
`wget --no-check-certificate https://vahostname.vcac.local:5480/service/cafe/download/vra-ssm-migration.zip`
- 6 Unzip the migration file into a folder.
`unzip vra-ssm-migration.zip`
- 7 Change directory to bin.
`cd bin`
- 8 Edit the `migration.properties` file in the bin folder to change the value of property `vra.system.admin.username` from `administrator` to `administrator@vsphere.local` with the full address including tenant extension.
- 9 Enter the command `./reassign-tenant-administrators` to migrate your tenants and IaaS administrators to your newly synchronized vsphere.local tenant.
Even if you see your tenant users assigned in your tenant prior to running this command, you need to run this command to register your users in Horizon to obtain full tenant administrator privileges.
- 10 Log in to the vRealize Automation appliance default tenant as tenant administrator and 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 30.

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 the update is being installed.

Prerequisites

- Verify that you have downloaded the virtual appliance updates. See [“Downloading vRealize Automation Appliance Updates,”](#) on page 22.

Procedure

- 1 Locate the secondary vRealize Automation appliance node and power it on.
- 2 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.
- 3 Click **Settings**.
- 4 Select to download the updates from a default repository, specified repository, or CDROM in the Update Repository section.
- 5 Click **Status**.
- 6 Click **Check Updates** to verify that an update is accessible.
- 7 Click **Install Updates**.
- 8 Click **OK**.

An informational message stating that the update is in progress appears.

- 9 Open the log files to verify that upgrade is progressing successfully.

`/opt/vmware/var/log/vami/vami.log` 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 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 the **System** tab.
 - b Click **Reboot** and confirm your selection.
- 12 Log in to the vRealize Automation appliance.
- 13 Select **vRA Settings > Cluster**.
- 14 Specify the master virtual appliance and click **Join Cluster**.
- 15 Verify that all of the services appear under the **Service** tab.
- 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 appliance management console as **tenant administrator**.
 - b Select **Administration > Directories**.
 - c Select your directory name and select **Identity Provider**.
 - d Click the name of your identity provider from the available choices, for example `WorkspaceIPD_1`.

- e In the **Connector** 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 `vcacva701.sqa.local`.
- 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 SQL database.

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. For information about how to uninstall, install, and upgrade the Common Components Catalog, see the Common Components Catalog documentation.

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.

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 again stop the services. For more information, see [“Shut Down vCloud Automation Center Services on Your IaaS Windows Server,”](#) on page 18.
- If you are using Internet Explorer for the download, verify that Enhanced Security Configuration is not enabled. See `res://iesetup.dll/SoftAdmin.htm`.
- Log in as a local administrator to the Windows server where one or more of the IaaS components to be upgraded 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 database and configure all systems that have IaaS components installed. You can use these steps for minimal and distributed installations.

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.

If you do not have permissions to update the SQL database, contact your database administrator to upgrade the SQL database first using the database upgrade scripts provided on the Web console installer download page. For more information, see Upgrade the Database in *Upgrading to vRealize Automation 6.2.x*.

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.

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 17.
- [“Shut Down vCloud Automation Center Services on Your IaaS Windows Server,”](#) on page 18.
- [“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 18.

- 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.

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.

Option	Action
To specify your Microsoft SQL Server database	<p>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.</p> <p>If the database instance is on a non-default SQL port, include the port number in the server instance specification. The Microsoft SQL default port number is 1433.</p> <p>When upgrading the manager nodes, the MSSQL SSL option is selected by default. If your database does not use SSL, uncheck Use SSL for database connection.</p>

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

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

What to do next

If your deployment uses a load balancer, upgrade each load balancer node to use vRealize Automation 7.0.1 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 7.0.1. Delete the pool at a convenient time. For more information, see .

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 36,

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

Prerequisites

- [“Install the Update on the vRealize Automation Appliance,”](#) on page 25
- Upgrade IaaS components as described in [“Upgrading the IaaS Server Components,”](#) on page 32

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 cluster. vRealize Orchestrator nodes remain part of the cluster after the upgrade.

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

Prerequisites

- [“Install the Update on the vRealize Automation Appliance,”](#) on page 25.
- Upgrade IaaS components as described in [“Upgrading the IaaS Server Components,”](#) on page 32

Procedure

- 1 Shut down all vRealize Orchestrator instance nodes.

- 2 Take a snapshot of each node.
- 3 Upgrade the first node.
 - a Power on the vRealize Orchestrator node.

NOTE Record identifying information for the first node. You use this information later in the procedure.

 - b Log in to the vRealize Orchestrator appliance configuration portal at https://orchestrator_server:5480.
 - c Select your upgrade method based on the instructions in the vRealize Orchestrator documentation.
 - d Select the Update tab in your configuration portal and click **Settings**.
 - e Choose your download method and click **Save Settings**.
 - f Click **Status**.
 - g Click **Check Updates**.
 - h Click **Install Updates**.
 - i Accept the VMware End User License Agreement.
 - j To complete the update, restart the vRealize Orchestrator appliance.
- 4 If your clustered vRealize Orchestrator was previously configured with vRealize Automation authentication type, 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 Re-register the instance by selecting Connect and entering your credentials. Enable the Configure License checkbox and select the vco administrators group
 - e Restart the vco service.
 - f Verify that the vco service appears as REGISTERED in the vRealize Automation appliance.
- 5 Power on the next vRealize Orchestrator node.
- 6 Repeat steps 5 and 6 for each vRealize Orchestrator node.
- 7 From the Control Center, upgrade the vRealize Automation default plugins, which include vCAC Cafe and vCAC IaaS and NSX.
- 8 Log in to the Control Center of the first vRealize Orchestrator node at <https://vrohost1:8283/vco-controlcenter>.
- 9 Navigate to **Manage Plugins**.
- 10 Select **Browse > *plugin-name* > Install**.
- 11 Restart vco-server in your control center
- 12 Wait for services to start on the first node, and then repeat steps 6-12 for each vRealize Orchestrator node.

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 vRealize Automation 7.0, you must verify that the connection between vRealize Automation and vRealize Orchestrator is working. Sometimes the upgrade process makes it necessary to restore the connection.

Prerequisites

Log in to the vCenter Orchestrator configuration interface.

Procedure

- 1 Click **Validate Configuration**.
- 2 If the Authentication section has a green check, go to step 5.
- 3 If the Authentication section does not have a green check, perform the following steps to restore the connection to vRealize Orchestrator .
 - a Click **Home**.
 - b Click **Configure Authentication Provider**.
 - c In the **Admin group** text box, select **Change**, and specify a new Admin group that can be properly resolved.

NOTE 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 choose another group.

 - d Click **Save Changes**, and if prompted, restart the Orchestrator server.
 - e Click **Home**.
- 4
- 5 Repeat step 1 to validate that the Authentication section has a green check.
- 6 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 7.0, 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.

Reconfigure Disk 1 on All vRealize Automation Appliance Nodes

You must reconfigure Disk 1 on the vRealize Automation version you are upgrading from before beginning the upgrade.

Perform this procedure for each replica appliance node sequentially, and then for 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 this message: You should reboot now before making further changes. If you reboot your system before step 10, you will corrupt the upgrade process.

Procedure

- 1 Power on and SSH login to the vRealize Automation appliance.
- 2 Stop all vRealize Automation 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
```

NOTE 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.

What to do next

[“Install the Update on the vRealize Automation Appliance,”](#) on page 25

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.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 an upgrade to vRealize Automation 7.0.1, unsynchronized user accounts are denied access 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 7.0.1.

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 upgrading .

- ■ 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. For information about creating script actions, see the [vRealize Orchestrator documentation](#).
- 2 In vRealize Automation, configure the product definition.
 - a. b. Select the property definition and click **Edit**.
 - c. From the 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**.

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