

# Migrating vRealize Automation to 7.5

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vRealize Automation 7.5



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# Contents

<b>1</b>	<b>Migrating vRealize Automation</b>	<b>5</b>
	Migration Checklist	5
<b>2</b>	<b>Run a Test Migration</b>	<b>7</b>
<b>3</b>	<b>vRealize Automation Environment User Interfaces</b>	<b>8</b>
<b>4</b>	<b>Migration Prerequisites</b>	<b>11</b>
	Prerequisites for Migration to a Minimal Environment	11
	Prerequisites for Migration to a High-Availability Environment	13
<b>5</b>	<b>Pre-Migration Tasks</b>	<b>17</b>
	Review Changes Introduced by vRealize Automation Migration	17
	Apply Software Agent Patch	17
	Change DoDeletes Setting on the vSphere Agent to False	18
	Check Templates in Your vRealize Automation Source Environment	18
	Prepare vRealize Automation Virtual Machines for Migration	19
	Gather Information Required for Migration	19
	Obtain the Encryption Key	21
	List Tenant and IaaS Administrators	22
	Add Each Tenant from the Source Environment	22
	Create an Administrator for Each Added Tenant	24
	Synchronize Users and Groups Before Migration to a Minimal Environment	25
	Synchronize Users and Groups Before Migration to a High-Availability Environment	26
	Run Data Collection in Source	28
	Manually Clone the Source Microsoft SQL Database	29
	Snapshot the Target Environment	29
	Postgres Database Cleanup	30
<b>6</b>	<b>Migration Procedures</b>	<b>31</b>
	Migrate Source Data to a Minimal Target Environment	31
	Migrate vRealize Automation Source Data to a vRealize Automation High-Availability Environment	33
<b>7</b>	<b>Post-Migration Tasks</b>	<b>37</b>
	Do Not Change the Time Zone	38
	Add Tenant and IaaS Administrators	38
	Run Test Connection and Verify Migrated Endpoints	39
	Run Data Collection on Target	40

Reconfigure Load Balancers After Migration	40
Migrate an External Orchestrator Server	41
Reconfigure the vRealize Automation Endpoint	41
Reconfigure the vRealize Automation Infrastructure Endpoint	42
Install vRealize Orchestrator Customization	43
Reconfigure Embedded vRealize OrchestratorEndpoint	43
Reconfigure the Microsoft Azure Endpoint	44
Migrate Automation Application Services	45
Delete Original Target vRealize Automation IaaS Microsoft SQL Database	45
Update Data Center Location Menu Contents After Migration	46
Upgrading Software Agents to TLS 1.2	46
Update Source Environment Virtual Machine Templates	46
Identify Virtual Machines that Need Software Agent Upgrade	47
Upgrade Software Agents on vSphere	49
Upgrade Software Agents on Amazon Web Service or Microsoft Azure	51
Change Property Dictionary Setting After Migration from 6.2.5	53
Validate the Target vRealize Automation Environment	55
<b>8 Troubleshooting Migration</b>	<b>57</b>
PostgreSQL Version Causes Error	57
Some Virtual Machines Do Not Have a Deployment Created during Migration	57
Load Balancer Configuration Causes Timeout for Long-Running Operations	58
Migration Log Locations	58
Catalog Items Appear in the Service Catalog After Migration But Are Not Available to Request	59
Data Collection Radio buttons Disabled in vRealize Automation	60
Troubleshooting the Software Agent Upgrade	60
<b>9 Scenarios for Migration</b>	<b>62</b>

# Migrating vRealize Automation

You can perform a side-by-side upgrade of your current vRealize Automation environment using migration.

Migration moves all data, except for tenants and identity stores, from your current vRealize Automation source environment to a target deployment of the latest version of vRealize Automation. In addition, migration moves all data from the embedded vRealize Orchestrator 7.x to the target deployment.

Migration does not change your source environment except to stop vRealize Automation services for the time required to collect and copy the data safely to your target environment. Depending on the size of the source vRealize Automation database, migration can take from a few minutes to hours.

You can migrate your source environment to a minimal deployment or a high-availability deployment.

If you plan to put your target environment into production after migration, do not put your source environment back into service. Changes to your source environment after migration are not synchronized with your target environment.

If your source environment is integrated with vCloud Air or vCloud Director or has physical endpoints, you must use migration to perform an upgrade. Migration removes these endpoints and everything associated with them from the target environment. Migration also removes the VMware vRealize Application Services integration that was supported in vRealize Automation 6.2.5.

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**Note** You must complete additional tasks to prepare your vRealize Automation virtual machines before you migrate. Before you migrate, review Knowledge Base article [51531](#).

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If you migrate from vRealize Automation 6.2.5, you might experience issues. For more information, see [Chapter 9 Scenarios for Migration](#).

This chapter includes the following topics:

- [Migration Checklist](#)

## Migration Checklist

Use this checklist to track your work before, during, and after your vRealize Automation migration.

Run a test migration before a production migration to test provisioning use cases and flag any problems that might occur during migration.

**Table 1-1. Pre-Migration**

Step	Reference
Deploy a vRealize Automation installation	See the <a href="#">vRealize Automation Installation Guide</a> .
Backup current installation	For information on backing up and restoring your system, see <a href="#">vRealize Automation Preparations for Backing Up</a> . For general information, see <a href="#">Configuring Backup and Restore by Using Symantec Netbackup</a>
Validate all prerequisites	See <a href="#">Chapter 4 Migration Prerequisites</a> .
Prepare the target with pre-migration tasks	See <a href="#">Chapter 5 Pre-Migration Tasks</a> .
Run a test migration	See <a href="#">Chapter 2 Run a Test Migration</a> .

**Table 1-2. Migration**

Step	Reference
Run Migration	After the test migration is verified and successful, run your production migration according to these <a href="#">Chapter 6 Migration Procedures</a> .

**Table 1-3. Post-Migration**

Step	Reference
Post migration tasks	Perform post-migration tasks when your migration is complete.
Validate migrated environment	See <a href="#">Validate the Target vRealize Automation Environment</a> .
Migration for 6.2.x scenario check	If migrating from 6.2 to 7.x, review <a href="#">Chapter 9 Scenarios for Migration</a> to identify differences.

## Run a Test Migration

It is essential to run a test migration to validate provisioning use cases before migrating your production environment. Testing a migration is required to rework any blueprints, workflows, or scripts that might have changed due to design improvements in later versions. To avoid unwanted changes to managed workloads, vRealize Automation administrators must use caution when testing.

### Procedure

- 1 Deploy a minimal installation of vRealize Automation.
- 2 Set the following items on the target when the migration finishes:
  - a Stop proxy agents and suspend email notifications after migration.
  - b Unregister workloads due to expire or extend the lease.
  - c Set proxy agents `DoDeletes` to `false` on the target. If your event expires, the target does not destroy your workload.
  - d Match the source system by monitoring the leases in the target system. Prevent system expirations by keeping the leases synced.
  - e Remove network profiles from the reservation if you plan to test provisioning and use network files. Removing the files prevents IP address duplication on the source and target.
- 3 Run test migration for vRealize Orchestrator and vRealize Automation.
- 4 Validate and compare the source environment to the target. Identify areas where changes are needed.
- 5 Refer to outputs of the vRealize Production Test upgrade assist tool when migrating from 6.2.x to the latest version. The tool identifies where improvements in your workflows are needed.

For more information about the tool, see *vRealize Automation Production Test* in [vRealize Automation product documentation](#).
- 6 Save and log any modified information and workflows so you can import and transfer to the production migration with ease.
- 7 Power off the test migration environment once the production migration is finished. Long term running of two vRealize Automation systems is not a supported configuration.

# vRealize Automation Environment User Interfaces

# 3

You use and manage your vRealize Automation environment with several interfaces.

## User Interfaces

These tables describe the interfaces that you use to manage your vRealize Automation environment.

**Table 3-1. vRealize Automation Administration Console**

Purpose	Access	Required Credentials
You use the vRealize Automation console for these system administrator tasks. <ul style="list-style-type: none"><li>■ Add tenants.</li><li>■ Customize the vRealize Automation user interface.</li><li>■ Configure email servers.</li><li>■ View event logs.</li><li>■ Configure vRealize Orchestrator.</li></ul>	<ol style="list-style-type: none"><li>1 Start a browser and open the vRealize Automation appliance splash page using the fully qualified domain name of the virtual appliance:  <code>https://vrealize-automation-appliance-FQDN.</code></li><li>2 Click <b>vRealize Automation console</b>.  You can also use this URL to open the vRealize Automation console: <code>https://vrealize-automation-appliance-FQDN/vcac</code></li><li>3 Log in.</li></ol>	You must be a user with the system administrator role.

**Table 3-2. vRealize Automation Tenant Console. This interface is the primary user interface that you use to create and manage your services and resources.**

Purpose	Access	Required Credentials
You use vRealize Automation for these tasks. <ul style="list-style-type: none"><li>■ Request new IT service blueprints.</li><li>■ Create and manage cloud and IT resources.</li><li>■ Create and manage custom groups.</li><li>■ Create and manage business groups.</li><li>■ Assign roles to users.</li></ul>	<ol style="list-style-type: none"><li>1 Start a browser and enter the URL of your tenancy using the fully qualified domain name of the virtual appliance and the tenant URL name:  <code>https://vrealize-automation-appliance-FQDN/vcac/org/tenant_URL_name .</code></li><li>2 Log in.</li></ol>	You must be a user with one or more of these roles: <ul style="list-style-type: none"><li>■ Application Architect</li><li>■ Approval Administrator</li><li>■ Catalog Administrator</li><li>■ Container Administrator</li><li>■ Container Architect</li><li>■ Health Consumer</li><li>■ Infrastructure Architect</li><li>■ Secure Export Consumer</li><li>■ Software Architect</li><li>■ Tenant Administrator</li><li>■ XaaS Architect</li></ul>



**Table 3-3. vRealize Automation Appliance Management Interface.**

Purpose	Access	Required Credentials
<p>You use vRealize Automation Appliance Management for these tasks.</p> <ul style="list-style-type: none"> <li>■ View the status of registered services.</li> <li>■ View system information and reboot or shutdown the appliance.</li> <li>■ Manage participation in the Customer Experience Improvement Program.</li> <li>■ View network status.</li> <li>■ View update status and install updates.</li> <li>■ Manage administration settings.</li> <li>■ Manage vRealize Automation host settings.</li> <li>■ Manage SSO settings.</li> <li>■ Manage product licenses.</li> <li>■ Configure the vRealize Automation Postgres database.</li> <li>■ Configure vRealize Automation messaging.</li> <li>■ Configure vRealize Automation logging.</li> <li>■ Install IaaS components.</li> <li>■ Migrate from an existing vRealize Automation installation.</li> <li>■ Manage IaaS component certificates.</li> <li>■ Configure Xenon service.</li> </ul>	<ol style="list-style-type: none"> <li>1 Start a browser and open the vRealize Automation appliance splash page using the fully qualified domain name of the virtual appliance:  <code>https://vrealize-automation-appliance-FQDN</code></li> <li>2 Click <b>vRealize Automation Appliance Management</b>.  You can also use this URL to open the vRealize Automation appliance management interface: <code>https://vrealize-automation-appliance-FQDN:5480</code></li> <li>3 Log in.</li> </ol>	<ul style="list-style-type: none"> <li>■ User name: root</li> <li>■ Password: Password you entered when you deployed the vRealize Automation appliance.</li> </ul>

**Table 3-4. vRealize Orchestrator Client**

Purpose	Access	Required Credentials
<p>You use the vRealize Orchestrator Client for these tasks.</p> <ul style="list-style-type: none"> <li>■ Develop actions.</li> <li>■ Develop workflows.</li> <li>■ Manage policies.</li> <li>■ Install packages.</li> <li>■ Manage user and user group permissions.</li> <li>■ Attach tags to URI objects.</li> <li>■ View inventory.</li> </ul>	<ol style="list-style-type: none"> <li>1 Start a browser and open the vRealize Automation splash page using the fully qualified domain name of the virtual appliance:  <code>https://vrealize-automation-appliance-FQDN</code></li> <li>2 To download the client.jnlp file to your local computer, click <b>vRealize Orchestrator Client</b>.</li> <li>3 Right-click the client.jnlp file and select <b>Launch</b>.</li> <li>4 On the Do you want to Continue? dialog box, click <b>Continue</b>.</li> <li>5 Log in.</li> </ol>	<p>You must be a user with the system administrator role or part of the vcoadmins group configured in the vRealize Orchestrator Control Center Authentication Provider settings.</p>

**Table 3-5. vRealize Orchestrator Control Center**

Purpose	Access	Required Credentials
You use the vRealize Orchestrator Control Center to edit the configuration of the default vRealize Orchestrator instance that is embedded in vRealize Automation.	<ol style="list-style-type: none"> <li>1 Start a browser and open the vRealize Automation appliance splash page using the fully qualified domain name of the virtual appliance: <code>https://vrealize-automation-appliance-FQDN</code></li> <li>2 Click <b>vRealize Automation Appliance Management</b>.  You can also use this URL to open the vRealize Automation appliance management interface: <code>https://vrealize-automation-appliance-FQDN:5480</code></li> <li>3 Log in.</li> <li>4 Click <b>vRA &gt; Orchestrator</b>.</li> <li>5 Select <b>Orchestrator user interface</b>.</li> <li>6 Click <b>Start</b>.</li> <li>7 Click the Orchestrator user interface URL.</li> <li>8 Log in.</li> </ol>	<p>User Name</p> <ul style="list-style-type: none"> <li>■ Enter <b>root</b> if role-based authentication is not configured.</li> <li>■ Enter your vRealize Automation user name if it is configured for role-based authentication.</li> </ul> <p>Password</p> <ul style="list-style-type: none"> <li>■ Enter the password you entered when you deployed the vRealize Automation appliance if role-based authentication is not configured.</li> <li>■ Enter the password for your user name if your user name is configured for role-based authentication.</li> </ul>

**Table 3-6. Linux Command Prompt**

Purpose	Access	Required Credentials
<p>You use the Linux command prompt on a host, such as the vRealize Automation appliance host, for these tasks.</p> <ul style="list-style-type: none"> <li>■ Stop or start services</li> <li>■ Edit configuration files</li> <li>■ Run commands</li> <li>■ Retrieve data</li> </ul>	<ol style="list-style-type: none"> <li>1 On the vRealize Automation appliance host, open a command prompt.  One way to open the command prompt on your local computer is to start a session on the host using an application such as PuTTY.</li> <li>2 Log in.</li> </ol>	<ul style="list-style-type: none"> <li>■ User name: root</li> <li>■ Password: Password you created when you deployed the vRealize Automation appliance.</li> </ul>

**Table 3-7. Windows Command Prompt**

Purpose	Access	Required Credentials
You can use a Windows command prompt on a host, such as the IaaS host, to run scripts.	<ol style="list-style-type: none"> <li>1 On the IaaS host, log in to Windows.  One way to log in from your local computer is to start a remote desktop session.</li> <li>2 Open the Windows command prompt.  One way to open the command prompt is to right-click the Start icon on the host and select <b>Command Prompt</b> or <b>Command Prompt (Admin)</b>.</li> </ol>	<ul style="list-style-type: none"> <li>■ User name: User with administrative privileges.</li> <li>■ Password: User's password.</li> </ul>

# Migration Prerequisites

The migration prerequisites differ depending on your target environment.

You can migrate to a minimal environment or to a high-availability environment.

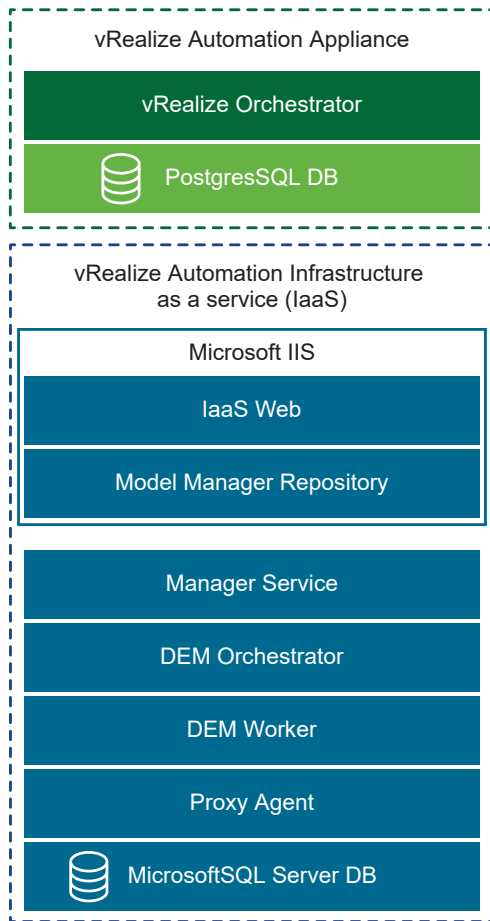
This chapter includes the following topics:

- [Prerequisites for Migration to a Minimal Environment](#)
- [Prerequisites for Migration to a High-Availability Environment](#)

## Prerequisites for Migration to a Minimal Environment

Ensure a successful migration to a minimal environment by reviewing these prerequisites.

Minimal deployments include one vRealize Automation appliance and one Windows server that hosts the IaaS components. In a minimal deployment, the vRealize Automation SQL Server database can be on the same IaaS Windows server with the IaaS components, or on a separate Windows server.

**Figure 4-1. vRealize Automation Minimal Deployment****Prerequisites**

- Verify that you have a new target environment of vRealize Automation.
- Install relevant proxy agents on the target environment according to these requirements.
  - Target proxy agent name must match the source proxy agent name for vSphere, Hyper-V, Citrix XenServer, and Test proxy agents.

---

**Note** Finish these steps to obtain an agent name.

- 1 On the IaaS host, log in to Windows as a local user with **administrator** privileges.
  - 2 Use Windows Explorer to go to the agent installation directory.
  - 3 Open the `VRMAgent.exe.config` file.
  - 4 Under the `serviceConfiguration` tag, look for the value of the `agentName` attribute.
- 

- Review Knowledge Base article [51531](#).
- Target proxy agent endpoint name must match the source proxy agent endpoint name for vSphere, Hyper-V, Citrix XenServer, and Test proxy agents.

- Do not create an endpoint for vSphere, Hyper-V, Citrix XenServer, or Test proxy agents on the target environment.
- Review the version numbers of vRealize Automation components on the target vRealize Automation appliance.
  - a Log in to the target vRealize Automation Appliance Management as **root** using the password you entered when you deployed the target vRealize Automation appliance.
  - b Select **Cluster**.
  - c Expand the Host / Node Name records by clicking the triangle.

Verify that the version numbers of the vRealize Automation IaaS components match.

- Verify that the target Microsoft SQL Server version for the vRealize Automation target IaaS database is 2012, 2014, or 2016.
- Verify that port 22 is open between the source and target vRealize Automation environments. Port 22 is required to establish Secure Shell (SSH) connections between source and target virtual appliances.
- Verify that the endpoint vCenter has sufficient resources to finish the migration.
- Verify that the target vRealize Automation environment system time is synchronized between Cafe and the IaaS components.
- Verify that the IaaS server node in the target environment has at least Java SE Runtime Environment (JRE) 8, 64 bit, update 181 or later installed. After you install the JRE, make sure the JAVA\_HOME environment variable points to the Java version you installed on each IaaS node. Revise the path if necessary.
- Verify that each IaaS node has PowerShell 3.0 or later installed.
- Verify that the source and target vRealize Automation environments are running.
- Verify that no user and provisioning activities are happening on the source vRealize Automation environment.
- Verify that any antivirus or security software running on IaaS nodes in the target vRealize Automation environment that might interact with the operating system and its components is correctly configured or disabled.
- Verify that the IaaS Web Service and Model Manager do not need to be restarted because of pending Windows installation updates. Pending updates might prevent the migration to begin or end the World Wide Web Publishing Service.

**What to do next**

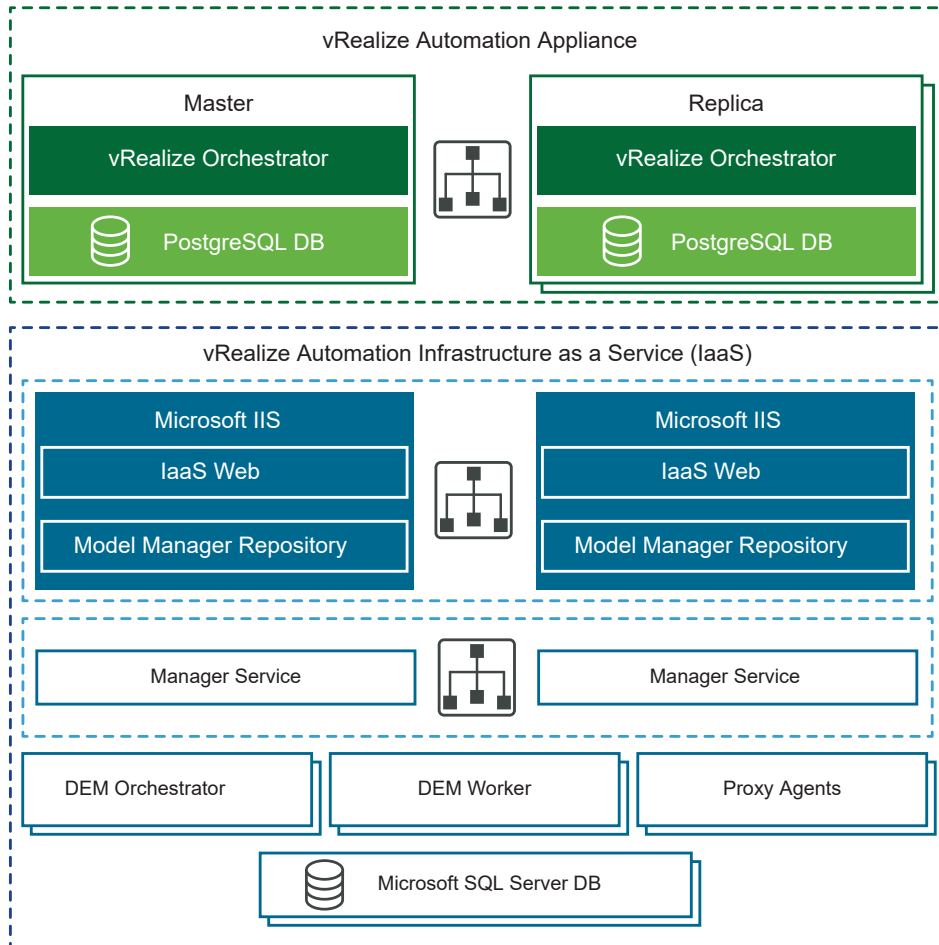
[Chapter 5 Pre-Migration Tasks.](#)

## Prerequisites for Migration to a High-Availability Environment

Ensure a successful migration to a high-availability environment by reviewing these prerequisites.

High-availability environments can be of varying size. A basic distributed deployment might improve vRealize Automation simply by hosting IaaS components on separate Windows servers. Many high-availability environments go even further, with redundant appliances, redundant servers, and load balancing for even more capacity. Large, distributed deployments provide for better scale, high availability, and disaster recovery.

**Figure 4-2. vRealize Automation High-Availability Environment**



### Prerequisites

- Verify that you have a new target installation of vRealize Automation with a master and replica virtual appliances configured for high availability. See *vRealize Automation High Availability Configuration Considerations* in *Reference Architecture*.
- Verify that all vRealize Automation virtual appliances use the same password for root user.

- Install relevant proxy agents on the target environment according to these requirements.
  - Target proxy agent name must match the source proxy agent name for vSphere, Hyper-V, Citrix XenServer, and Test proxy agents.

---

**Note** Finish these steps to obtain an agent name.

- 1 On the IaaS host, log in to Windows as a local user with **administrator** privileges.
  - 2 Use Windows Explorer to go to the agent installation directory.
  - 3 Open the VRMAgent.exe.config file.
  - 4 Under the serviceConfiguration tag, look for the value of the agentName attribute.
- 

- Target proxy agent endpoint name must match the source proxy agent endpoint name for vSphere, Hyper-V, Citrix XenServer, and Test proxy agents.
- Do not create an endpoint for vSphere, Hyper-V, Citrix XenServer, or Test proxy agents on the target environment.
- Check the version numbers of vRealize Automation components on the target vRealize Automation appliance.
  - a In your target vRealize Automation environment, log in to the vRealize Automation appliance management interface as root.  
  
`https://vrealize-automation-appliance-FQDN:5480`
  - b Select **Cluster**.
  - c To expand the Host / Node Name records so you can see the components, click the expand button.  
  
 Verify that the version numbers of vRealize Automation components match across all virtual appliance nodes.  
  
 Verify that the version numbers of vRealize Automation IaaS components match across all IaaS nodes.
- Review Knowledge Base article [51531](#).
- Perform these steps to direct traffic to only the master node.
  - a Disable all the redundant nodes.
  - b Remove the health monitors for these items according to your load balancer documentation:
    - vRealize Automation virtual appliance
    - IaaS Website
    - IaaS Manager Service
- Verify that the target Microsoft SQL Server version for the vRealize Automation target IaaS database is 2012, 2014, or 2016.

- Verify that port 22 is open between the source and target vRealize Automation environments. Port 22 is required to establish Secure Shell (SSH) connections between source and target virtual appliances.
- Verify that the endpoint vCenter has sufficient resources to finish migration.
- Verify that you have changed the load balancer timeout settings from default to at least 10 minutes.
- Verify that the target vRealize Automation environment system time is synchronized between Cafe and the IaaS components.
- Verify that the IaaS Web Service and Model Manager nodes in the target environment have the right Java Runtime Environment. You must have Java SE Runtime Environment (JRE) 8, 64 bit, update 181 or later installed. Make sure the JAVA\_HOME system variable points to the Java version you installed on each IaaS node. Revise the path if necessary.
- Verify that each IaaS node has at least PowerShell 3.0 or later installed.
- Verify that the source and target vRealize Automation environments are running.
- Verify that no user and provisioning activities are happening on the source vRealize Automation environment.
- Verify that any antivirus or security software running on IaaS nodes in the target vRealize Automation environment that might interact with the operating system and its components is correctly configured or disabled.
- Verify that the IaaS Web Service and Model Manager do not need to be restarted because of pending Windows installation updates. Pending updates might prevent the migration to begin or end the World Wide Web Publishing Service.

#### **What to do next**

[Chapter 5 Pre-Migration Tasks.](#)



## Pre-Migration Tasks

Before you migrate, you must perform several pre-migration tasks.

The pre-migration tasks you perform before you migrate your source vRealize Automation environment data to the target vRealize Automation environment vary depending on your source environment.

### Review Changes Introduced by vRealize Automation Migration

vRealize Automation 7.1 and later introduces various functional changes during and after the upgrade process. If you are upgrading from a vRealize Automation 6.2.5 environment, review these changes before you begin your upgrade process.

For information about the differences between vRealize Automation 6.2.5 and 7.1 and greater, see *Review Changes Introduced by Migration from vRealize Automation 6.2.x* in *Migrating vRealize Automation*.

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**Note** The vRealize Production Test Upgrade Assist Tool analyzes your vRealize Automation 6.2.5 environment for any feature configuration that can cause upgrade issues and checks that your environment is ready for upgrade. To download this tool and related documentation, go to the [VMware vRealize Production Test Tool](#) download product page.

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After you migrate from vRealize Automation 6.2.5 to the latest version, catalog items that use these property definitions appear in the service catalog but are not available to request.

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

In vRealize Automation 7.1 and later, the property definitions no longer use these elements. 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. For more information, see [Catalog Items Appear in the Service Catalog After Migration But Are Not Available to Request](#).

### Apply Software Agent Patch

Before you migrate from vRealize Automation 7.1.x or 7.3.x, you must apply a hot fix to the source appliance so that you can upgrade Software Agents to TLS 1.2.

The Transport Layer Security (TLS) protocol provides data integrity between your browser and vRealize Automation. This hot fix makes it possible for the Software Agents in your source environment to upgrade to TLS 1.2. This upgrade ensures the highest level of security and is required for vRealize Automation 7.1.x or 7.3.x. Each version has its own hot fix.

#### Prerequisites

A running vRealize Automation 7.1.x or 7.3.x source vRealize Automation environment.

#### Procedure

- ◆ Apply this hot fix to your source vRealize Automation 7.1.x or 7.3.x appliance before you start migration. See [Knowledge Base article 52897](#).

#### What to do next

[Change DoDeletes Setting on the vSphere Agent to False](#).

## Change DoDeletes Setting on the vSphere Agent to False

If you migrate from a vRealize Automation 6.2.x environment, you must change the DoDeletes value from **true** to **false** on your target vSphere agent before migration.

#### Prerequisites

Finish the prerequisites for migration.

#### Procedure

- 1 Change the DoDeletes value to **false**.

This prevents deletion of your virtual machines from the source environment. The source and target environments run in parallel. Lease discrepancies might arise after the production migration is validated.

- 2 Set the DoDeletes value to **true** after your production migration is validated and your source environment shuts down.

#### What to do next

[Prepare vRealize Automation Virtual Machines for Migration](#).

## Check Templates in Your vRealize Automation Source Environment

Before you migrate vRealize Automation, you must check your virtual machine templates to make sure that every template has a minimum memory setting of at least 4 MB.

If you have a virtual machine template in your vRealize Automation source environment with less than 4 MB of memory, migration fails. Complete this procedure to determine if any blueprints in the source environment have less than 4 MB of memory.

## Prerequisites

### Procedure

- 1 Log in to the windows server hosting your SQL server database.
- 2 Open the SQL Server Management Studio and connect to your vRA database.
- 3 Run this script to check if there are any blueprints with memory specified at less than 4 MB.  

```
select VirtualMachineTemplate set MemoryMB = 4 where IsHidden = 0 and MemoryMB < 4;
```

where vCAC is the database name.
- 4 If the script finds any blueprints with memory specified at less than 4 MB, then run this script to update the memory to at least 4 MB.  

```
update [vCAC].[dbo].[VirtualMachineTemplate] set MemoryMB = 4 where IsHidden = 0 and MemoryMB < 4;
```

where vCAC is the database name.

### What to do next

[Prepare vRealize Automation Virtual Machines for Migration.](#)

## Prepare vRealize Automation Virtual Machines for Migration

Known issues with migrating vRealize Automation 6.2.x virtual machines can cause problems after migration.

You must review [Knowledge Base article 000051531](#) and perform any relevant fixes to your environments prior to migration.

### What to do next

[Gather Information Required for Migration.](#)

## Gather Information Required for Migration

Use these tables to record the information that you need for migration from your source and target environments.

### Prerequisites

Finish verifying the prerequisites for your situation.

- [Prerequisites for Migration to a Minimal Environment.](#)
- [Prerequisites for Migration to a High-Availability Environment.](#)

## Example

**Table 5-1. Source vRealize Automation Appliance**

Option	Description	Value
Host name	Log in to your source vRealize Automation Appliance Management. Find the host name on the <b>System</b> tab. The host name must be a fully qualified domain name (FQDN).	
Root username	root	
Root password	The root password that you entered when you deployed your source vRealize Automation appliance.	
Migration package location	Path to an existing directory on the source vRealize Automation 6.2.x or 7.x appliance where the migration package is created. The directory must have available space that is twice as big as the size of the vRealize Automation database. The default location is /storage.	

**Table 5-2. Target vRealize Automation Appliance**

Option	Description	Value
Root username	root	
Root password	The root password that you entered when you deployed your target vRealize Automation appliance.	
Default tenant	vsphere.local	
Administrator username	administrator	
Administrator password	Password for the administrator@vsphere.local user that you entered when you deployed the target vRealize Automation environment.	

**Table 5-3. Target IaaS Database**

Option	Description	Value
Database server	Location of Microsoft SQL Server instance where the cloned database resides. If named instance and a non-default port is used, specify in SERVER,PORT \INSTANCE-NAME format.	
Cloned database name	Name of the source vRealize Automation 6.2.x/7.x IaaS Microsoft SQL database cloned for migration.	
Authentication mode	Select either Windows or SQL Server. If you select SQL Server, you must enter a login name and password.	
Login name	Login name for the SQL Server user who has the db_owner role for the cloned IaaS Microsoft SQL database.	
Password	Password for the SQL Server user.	

**Table 5-3. Target IaaS Database (continued)**

Option	Description	Value
Original encryption key	Original encryption key that you retrieve from the source environment. See <a href="#">Obtain the Encryption Key from the Source vRealize Automation Environment</a> .	
New passphrase	A series of words used to generate a new encryption key. You use this passphrase each time you install a new IaaS component in the target vRealize Automation environment.	

**What to do next**

[Obtain the Encryption Key from the Source vRealize Automation Environment.](#)

## Obtain the Encryption Key from the Source vRealize Automation Environment

You must enter the encryption key from the source vRealize Automation environment as part of the migration procedure.

**Prerequisites**

Verify that you have administrator privileges on the active Manager Service host virtual machine in your source environment.

**Procedure**

- 1 Open a command prompt as an administrator on the virtual machine that hosts the active Manager Service in your source environment and run this command.

```
"C:\Program Files (x86)\VMware\VCAC\Server\ConfigTool\EncryptionKeyTool\DynamicOps.Tools.EncryptionKeyTool.exe" key-read -c "C:\Program Files (x86)\VMware\VCAC\Server\ManagerService.exe.config" -v
```

If your installation directory is not in the default location, C:\Program Files (x86)\VMware\VCAC, edit the path to show your actual installation directory.

- 2 Save the key that appears after you run the command.

The key is a long string of characters that looks similar to this example:

```
NRH+f/B1nCB6yvasLS3sxespgdkcFWAEuyV0g4lfryg=.
```

**What to do next**

- If you are migrating from a vRealize Automation 6.2.x environment: [Add Each Tenant from the Source vRealize Automation Environment to the Target Environment](#).
- If you are migrating from a vRealize Automation 7.x environment: [List Tenant and IaaS Administrators from the Source vRealize Automation 6.2.x Environment](#).

## List Tenant and IaaS Administrators from the Source vRealize Automation 6.2.x Environment

Before you migrate a vRealize Automation 6.2.x environment, you must make a list of the tenant and IaaS administrators for each tenant.

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

---

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

---

### Prerequisites

Log in to the source vRealize Automation console as **Administrator** with the password you entered when you deployed the source vRealize Automation appliance.

---

**Note** For a high-availability environment, open the console using the fully qualified domain name of the source virtual appliance load balancer: `https://vra-va-lb-hostname.domain.name/vcac`.

---

### Procedure

- 1 Select **Administration > Tenants**.
- 2 Click a tenant name.
- 3 Click **Administrators**.
- 4 Make a list of each tenant and IaaS administrator user name.
- 5 Click **Cancel**.

### What to do next

[Add Each Tenant from the Source vRealize Automation Environment to the Target Environment.](#)

## Add Each Tenant from the Source vRealize Automation Environment to the Target Environment

You must add tenants in the target environment using the name of each tenant in the source environment.

For successful migration, it is mandatory that each tenant in the source environment is created in the target environment. You must also use a tenant-specific access URL for each tenant that you add using the tenant URL name from the source environment. If there are unused tenants in the source environment that you do not want to migrate, delete them from the source environment before migration.

---

**Note** Migration validation ensures that the target system has at least the same tenants configured in the source as required by the prerequisites. It performs tenant comparison based on case-sensitive tenant URL names, not the tenant names.

---

Perform this procedure for each tenant in your source environment.

- When you migrate from a vRealize Automation 6.2.x environment, you migrate your existing SSO2 tenants and identity stores on the source environment to the VMware Identity Manager on the target environment.
- When you migrate from a vRealize Automation 7.x environment, you migrate your existing VMware Identity Manager tenants and identity stores on the source environment to the VMware Identity Manager on the target environment.

#### Prerequisites

- [Gather Information Required for Migration.](#)
- Log in to the target vRealize Automation console as **Administrator** with the password you entered when you deployed the target vRealize Automation appliance.

---

**Note** For a high-availability environment, open the console using the fully qualified domain name of the target virtual appliance load balancer: `https://vra-va-lb-hostname.domain.name/vcac`.

---

#### Procedure

- 1 Select **Administration > Tenants**.
- 2 Click the **New** icon (+).
- 3 In the **Name** text box, enter a tenant name that matches a tenant name in the source environment.  
For example, if the tenant name in the source environment is DEVTenant, enter **DEVTenant**.
- 4 (Optional) Enter a description in the **Description** text box.
- 5 In the **URL Name** text box, enter a tenant URL name that matches the tenant URL name in the source environment.  
  
The URL name is used to append a tenant-specific identifier to the vRealize Automation console URL.  
For example, if the URL name for DEVTenant in the source environment is dev, enter **dev** to create the URL `https://vra-va-hostname.domain.name/vcac/org/dev`.
- 6 (Optional) Enter an email address in the **Contact Email** text box.
- 7 Click **Submit and Next**.

#### What to do next

[Create an Administrator for Each Added Tenant.](#)

## Create an Administrator for Each Added Tenant

You must create an administrator for each tenant that you added to the target environment. You create an administrator by creating a local user account and assigning tenant administrator privileges to the local user account.

Perform this procedure for each tenant in your target environment.

### Prerequisites

- [Add Each Tenant from the Source vRealize Automation Environment to the Target Environment.](#)
- Log in to the target vRealize Automation console as **Administrator** with the password you entered when you deployed the target vRealize Automation appliance.

---

**Note** For a high-availability environment, open the console using the fully qualified domain name of the target virtual appliance load balancer: `https://vra-va-lb-hostname.domain.name/vcac`.

---

### Procedure

- 1 Select **Administration > Tenants**.
- 2 Click a tenant that you added.  
For example, for DEVTenant, click **DEVTenant**.
- 3 Click **Local users**.
- 4 Click the **New** icon (+).
- 5 In **User Details**, enter the requested information to create a local user account to assign the tenant administrator role.  
The local user name must be unique to the default local directory, vsphere.local.
- 6 Click **OK**.
- 7 Click **Administrators**.
- 8 Enter the local user name in the **Tenant administrators** search box and press Enter.
- 9 Click the appropriate name in the search returns to add the user to the list of tenant administrators.
- 10 Click **Finish**.
- 11 Log out of the console.

### What to do next

- For a minimal deployment: [Synchronize Users and Groups for an Active Directory Link Before Migration to a Minimal Environment.](#)
- For a high-availability deployment: [Synchronize Users and Groups for an Active Directory Link Before Migration to a High-Availability Environment.](#)



# Synchronize Users and Groups for an Active Directory Link Before Migration to a Minimal Environment


Before you import your users and groups to a minimal deployment of vRealize Automation, you must connect the target vRealize Automation to your Active Directory link.

Perform this procedure for each tenant. If a tenant has more than one Active Directory, perform this procedure for each Active Directory that the tenant uses.

## Prerequisites

- [Create an Administrator for Each Added Tenant.](#)
- Verify that you have access privileges to the Active Directory.
- Log in to vRealize Automation as a **tenant administrator**.

## Procedure

- 1 Select **Administration > Directories Management > Directories**.
- 2 Click **Add Directory** icon (  ) and select **Add Active Directory over LDAP/IWA**.
- 3 Enter your Active Directory account settings.
  - ◆ For Non-Native Active Directories

Option	Sample Input
Directory Name	Enter a unique directory name. Select <b>Active Directory over LDAP</b> when using Non-Native Active Directory.
This Directory Supports DNS Service Location	Deselect this option.
Base DN	Enter the distinguished name (DN) of the starting point for directory server searches. For example, <b>cn=users,dc=rainpole,dc=local</b> .
Bind DN	Enter the full distinguished name (DN), including common name (CN), of an Active Directory user account that has privileges to search for users. For example, <b>cn=config_admin infra,cn=users,dc=rainpole,dc=local</b> .
Bind DN Password	Enter the Active Directory password for the account that can search for users and click <b>Test Connection</b> to test the connection to the configured directory.

- ◆ For Native Active Directories

Option	Sample Input
Directory Name	Enter a unique directory name. Select <b>Active Directory (Integrated Windows Authentication)</b> when using Native Active Directory.
Domain Name	Enter the name of the domain to join.
Domain Admin Username	Enter the user name for the domain admin.

Option	Sample Input
<b>Domain Admin Password</b>	Enter the password for the domain admin.
<b>Bind User UPN</b>	Use the email address format to enter the name of the user who can authenticate with the domain.
<b>Bind DN Password</b>	Enter the Active Directory bind account password for the account that can search for users.

4 Click **Save & Next**.

**Select the Domains** displays a list of domains.

5 Accept the default domain setting and click **Next**.

6 Verify that the attribute names are mapped to the correct Active Directory attributes, and click **Next**.

7 Select the groups and users to synchronize.

a Click the **New** icon (+).

b Enter the user domain and click **Find Groups**.

For example, enter **dc=vcac,dc=local**.

c To select the groups to synchronize, click **Select** and click **Next**.

d On **Select Users**, select the users to synchronize and click **Next**.

Only add users and groups that are required to use vRealize Automation. Do not select **Sync nested groups** unless all of the groups in the nest are required to use vRealize Automation.

8 Review the users and groups you are syncing to the directory, and click **Sync Directory**.

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

### What to do next

[Run NSX Network and Security Inventory Data Collection in the Source vRealize Automation Environment](#)

## Synchronize Users and Groups for an Active Directory Link Before Migration to a High-Availability Environment

Before you import your users and groups to a high-availability vRealize Automation environment, you must connect to your Active Directory link.


- Perform steps 1- 8 for each tenant. If a tenant has more than one Active Directory, perform this procedure for each Active Directory that the tenant uses.
- Repeat steps 9–10 for each identity provider associated with a tenant.

### Prerequisites

- [Create an Administrator for Each Added Tenant](#).

- Verify that you have access privileges to the Active Directory.
- Log in to vRealize Automation as a **tenant administrator**.

### Procedure


- 1 Select **Administration > Directories Management > Directories**.
- 2 Click **Add Directory** icon (  ) and select **Add Active Directory over LDAP/IWA**.
- 3 Enter your Active Directory account settings.
  - ◆ For Non-Native Active Directories

Option	Sample Input
<b>Directory Name</b>	Enter a unique directory name. Select <b>Active Directory over LDAP</b> when using Non-Native Active Directory.
<b>This Directory Supports DNS Service Location</b>	Deselect this option.
<b>Base DN</b>	Enter the distinguished name (DN) of the starting point for directory server searches. For example, <b>cn=users,dc=rainpole,dc=local</b> .
<b>Bind DN</b>	Enter the full distinguished name (DN), including common name (CN), of an Active Directory user account that has privileges to search for users. For example, <b>cn=config_admin infra,cn=users,dc=rainpole,dc=local</b> .
<b>Bind DN Password</b>	Enter the Active Directory password for the account that can search for users and click <b>Test Connection</b> to test the connection to the configured directory.

- ◆ For Native Active Directories

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

- 4 Click **Save & Next**.  
The **Select the Domains** page displays the list of domains.
- 5 Accept the default domain setting and click **Next**.
- 6 Verify that the attribute names are mapped to the correct Active Directory attributes, and click **Next**.

- 7 Select the groups and users to synchronize.
  - a Click the **New** icon .
  - b Enter the user domain and click **Find Groups**.  
For example, enter **dc=vcac,dc=local**.
  - c To select the groups to synchronize, click **Select** and click **Next**.
  - d On the **Select Users** page, select the users to synchronize and click **Next**.  
Only add users and groups that are required to use vRealize Automation. Do not select **Sync nested groups** unless all of the groups in the nest are required to use vRealize Automation.
- 8 Review the users and groups you are syncing to the directory, and click **Sync Directory**.  
The directory synchronization takes some time and runs in the background.
- 9 Select **Administration > Directories Management > Identity Providers**, and click your new identity provider.  
For example, **WorkspaceIDP\_\_1**.
- 10 On the page for the identity provider that you selected, add a connector for each node.
  - a Follow the instructions for **Add a Connector**.
  - b Update the value for the **IdP Hostname** property to point to the fully qualified domain name (FQDN) for the vRealize Automation load balancer.
  - c Click **Save**.

#### What to do next

[Run NSX Network and Security Inventory Data Collection in the Source vRealize Automation Environment.](#)

## Run NSX Network and Security Inventory Data Collection in the Source vRealize Automation Environment

Before you migrate, you must run NSX Network and Security Inventory data collection in the source vRealize Automation environment.

This data collection is necessary for the Load Balancer Reconfigure action to work in vRealize Automation after you migrate from 7.1.x or later.

---

**Note** You do not need to run this data collection in your source environment when you migrate from vRealize Automation 6.2.x. vRealize Automation 6.2.x does not support the Load Balancer Reconfigure action.

---

## Procedure

- ◆ Run NSX Network and Security Inventory data collection in your source vRealize Automation environment before you migrate vRealize Automation. See *Start Endpoint Data Collection Manually* in *Managing vRealize Automation* in the PDFs section of [vRealize Automation product documentation](#).

## What to do next

[Manually Clone the Source vRealize Automation IaaS Microsoft SQL Database.](#)

# Manually Clone the Source vRealize Automation IaaS Microsoft SQL Database

Before migration, you must back up your IaaS Microsoft SQL database in the vRealize Automation source environment and restore it to a new blank database created in the vRealize Automation target environment.

## Prerequisites

- [Run NSX Network and Security Inventory Data Collection in the Source vRealize Automation Environment.](#)
- Obtain information about backing up and restoring an SQL Server database. Find articles on the [Microsoft Developer Network](#) about creating a full SQL Server database backup and restoring an SQL Server database to a new location.

## Procedure

- ◆ Create a full backup of your source vRealize Automation IaaS Microsoft SQL database. You use the backup to restore the SQL database to a new blank database created in the target environment.

## What to do next

[Snapshot the Target vRealize Automation Environment.](#)

# Snapshot the Target vRealize Automation Environment

Take a snapshot of each target vRealize Automation virtual machine. If migration is unsuccessful, you can try again using the virtual machine snapshots.

For information, see your vSphere documentation.

## Prerequisites

[Manually Clone the Source vRealize Automation IaaS Microsoft SQL Database.](#)

## What to do next

Perform one of the following procedures:

- [Migrate vRealize Automation Source Data to a vRealize Automation Minimal Environment.](#)

- [Migrate vRealize Automation Source Data to a vRealize Automation High-Availability Environment.](#)

## Postgres Database Cleanup

To prepare your postgres database for upgrade or migration, perform a database cleanup.

Large objects in the `pg_largeobject` table, which stores log and telemetry bundles, and application objects, might slow down or halt your upgrade or migration. Before attempting to upgrade or migrate, you can prepare your postgres database by performing a vacuum database cleanup.

---

**Note** The database cleanup cannot be performed when services are running.

---

### Procedure

- 1 Begin by backing up your appliance by createing a postgres database dump from the Cluster page in VAMI or backing up/taking a snapshot of the master virtual appliance.

- 2 From the vRA VAMI, switch replication from sync to async.

- 3 As a postgres user on the master vRA (`su - postgres`), vacuum the database to remove lob entries.

```
su - postgres -c "/opt/vmware/vpostgres/current/bin/vacuumlo -v -p 5432 vcac"
```

```
su - postgres -c "/opt/vmware/vpostgres/current/bin/vacuumdb -f -p 5432 -t pg_largeobject  
-t pg_largeobject_metadata vcac"
```

- 4 To reclaim database space, use the vacuum full commands.

```
psql -d vcac
```

```
vacuum full
```

```
vacuum analyze
```

# Migration Procedures

The procedure you perform to migrate your source vRealize Automation environment data depends on whether you migrate to a minimal environment or to a high-availability environment.

This chapter includes the following topics:

- [Migrate vRealize Automation Source Data to a vRealize Automation Minimal Environment](#)
- [Migrate vRealize Automation Source Data to a vRealize Automation High-Availability Environment](#)

## Migrate vRealize Automation Source Data to a vRealize Automation Minimal Environment

You can migrate your current vRealize Automation environment data to a new release of vRealize Automation.

All tenants in the source system must be recreated in the target and go through the Migrate Identity Stores procedure.

### Prerequisites

- [Gather Information Required for Migration.](#)
- [Obtain the Encryption Key from the Source vRealize Automation Environment.](#)
- [Add Each Tenant from the Source vRealize Automation Environment to the Target Environment.](#)
- [Create an Administrator for Each Added Tenant.](#)
- [Synchronize Users and Groups for an Active Directory Link Before Migration to a Minimal Environment.](#)
- [Manually Clone the Source vRealize Automation IaaS Microsoft SQL Database.](#)
- [Snapshot the Target vRealize Automation Environment.](#)
- Log in to the target vRealize Automation Appliance Management as **root** using the password you entered when you deployed the target vRealize Automation appliance.

### Procedure

- 1 Select **Migrate**.

## 2 Enter the information for the source vRealize Automation appliance.

Option	Description
Host name	The host name for the source vRealize Automation appliance.
Root username	<b>root</b>
Root password	The root password that you entered when you deployed the vRealize Automation appliance.
Migration package location	Path to an existing directory on the source vRealize Automation appliance where the migration package is created.

## 3 Enter the information for the target vRealize Automation appliance.

Option	Description
Root username	<b>root</b>
Root password	The root password that you entered when you deployed the target vRealize Automation appliance.
Default tenant	vsphere.local You cannot modify this field.
Administrator username	administrator You cannot modify this field.
Administrator password	Password for the administrator@vsphere.local user that you entered when you deployed the target vRealize Automation environment.

## 4 Enter the information for the target IaaS database server.

Option	Description
Database server	The location of the Microsoft SQL Server where the restored vRealize Automation IaaS Microsoft SQL database resides. If a named instance and a non-default port are used, enter in <i>SERVER,PORT\INSTANCE-NAME</i> format. If you configure the target Microsoft SQL Server to use the AlwaysOn Availability Group (AAG) feature, the target SQL Server should be entered as the AAG listener name, without a port or instance name.
Cloned database name	Name of the source vRealize Automation IaaS Microsoft SQL database that you backed up on the source and restored on the target environment.
Authentication mode	<ul style="list-style-type: none"> <li>■ <b>Windows</b> If you use the Windows authentication mode, the IaaS service user must have the SQL Server db_owner role. The same permissions apply when using SQL Server authentication mode.</li> <li>■ <b>SQL Server</b> <b>SQL Server</b> opens the <b>Login name</b> and <b>Password</b> text boxes.</li> </ul>
Login name	Login name of the SQL Server user with the db_owner role for the cloned IaaS Microsoft SQL database.
Password	Password for the SQL Server user with the db_owner role for the cloned IaaS Microsoft SQL database.



Option	Description
Original encryption key	Original encryption key that you retrieve from the source environment. See <a href="#">Obtain the Encryption Key from the Source vRealize Automation Environment</a> .
New passphrase	A series of words used to generate a new encryption key. You use this passphrase each time you install a new IaaS component in the target vRealize Automation environment.

##### 5 Click **Validate**.

The page displays the validation progress.

- If an item fails to validate, inspect the error message and the validation log file on the IaaS nodes. For log file locations, see [Migration Log Locations](#). Click **Edit Settings** and edit the problem item.

##### 6 Click **Migrate**.

The page displays the migration progress.

- If migration is successful, the page displays all migration tasks as completed.
- If migration is unsuccessful, inspect the migration log files on the virtual appliance and the IaaS nodes. For log file locations, see [Migration Log Locations](#).

Finish these steps before you restart migration.

- Revert your target vRealize Automation environment to the state you captured when you took a snapshot before migration.
- Restore your target IaaS Microsoft SQL database using the backup of the source IaaS database.

#### What to do next

[Chapter 7 Post-Migration Tasks](#).

## Migrate vRealize Automation Source Data to a vRealize Automation High-Availability Environment

You can migrate your current vRealize Automation environment data to a new release of vRealize Automation configured as a high-availability environment.

All tenants in the source system must be recreated in the target and go through the Migrate Identity Stores procedure.

#### Prerequisites

- [Gather Information Required for Migration](#).
- [Obtain the Encryption Key from the Source vRealize Automation Environment](#).
- [Add Each Tenant from the Source vRealize Automation Environment to the Target Environment](#).
- [Create an Administrator for Each Added Tenant](#).

- [Synchronize Users and Groups for an Active Directory Link Before Migration to a High-Availability Environment.](#)
- [Manually Clone the Source vRealize Automation IaaS Microsoft SQL Database.](#)
- [Snapshot the Target vRealize Automation Environment.](#)
- Log in to the target vRealize Automation Appliance Management as **root** using the password you entered when you deployed the target vRealize Automation appliance.

## Procedure

- 1 Select **Migrate**.
- 2 Enter the information for the source vRealize Automation appliance.

Option	Description
Host name	The host name for the source vRealize Automation appliance.
Root username	<b>root</b>
Root password	The root password that you entered when you deployed the source vRealize Automation appliance.

- 3 Enter the information for the migration package location on the source vRealize Automation appliance.

Option	Description
Migration package location	Path to an existing directory on the source vRealize Automation appliance where the migration package is created.

- 4 Enter the information for the target vRealize Automation appliance.

Option	Description
Root username	<b>root</b>
Root password	The root password that you entered when you deployed the target vRealize Automation appliance.
Default tenant	vsphere.local
Administrator username	administrator
Administrator password	Password for the administrator@vsphere.local user that you entered when you deployed the target vRealize Automation environment.

## 5 Enter the information for the target IaaS database server.

Option	Description
<b>Database server</b>	The location of the Microsoft SQL Server instance where the restored vRealize Automation IaaS Microsoft SQL database resides. If a named instance and a non-default port are used, enter in <i>SERVER,PORT/INSTANCE-NAME</i> format. If you configure the target Microsoft SQL Server to use the AlwaysOn Availability Group (AAG) feature, the target SQL Server should be entered as the AAG listener name, without a port or instance name.
<b>Cloned database name</b>	Name of the source vRealize Automation IaaS Microsoft SQL database that you backed up on the source and restored on the target environment.
<b>Authentication mode</b>	<ul style="list-style-type: none"> <li>■ <b>Windows</b> If you use the Windows authentication mode, the IaaS service user must have the SQL Server db_owner role. The same permissions apply when using SQL Server authentication mode.</li> <li>■ <b>SQL Server</b> <b>SQL Server</b> opens the <b>Login name</b> and <b>Password</b> text boxes.</li> </ul>
<b>Login name</b>	Login name of the SQL Server user with the db_owner role for the cloned IaaS Microsoft SQL database.
<b>Password</b>	Password for the SQL Server user with the db_owner role for the cloned IaaS Microsoft SQL database.
<b>Original encryption key</b>	Original encryption key that you retrieve from the source environment. See <a href="#">Obtain the Encryption Key from the Source vRealize Automation Environment</a> .
<b>New passphrase</b>	A series of words used to generate a new encryption key. You use this passphrase each time you install a new IaaS component in the target vRealize Automation environment.

## 6 Click **Validate**.

The page displays the validation progress.

- If an item fails to validate, inspect the error message and the validation log file on the IaaS nodes. For log file locations, see [Migration Log Locations](#). Click **Edit Settings** and edit the problem item.

## 7 Click **Migrate**.

The page displays the migration progress.

- If migration is successful, the page displays all migration tasks as completed.
- If migration is unsuccessful, inspect the migration log files on the virtual appliance and the IaaS nodes. For log file locations, see [Migration Log Locations](#).

Finish these steps before you restart migration.

- a Revert your target vRealize Automation environment to the state you captured when you took a snapshot before migration.
- b Restore your target IaaS Microsoft SQL database using the backup of the source IaaS database.

## What to do next

[Chapter 7 Post-Migration Tasks.](#)

# Post-Migration Tasks

After you migrate vRealize Automation, perform the post-migration tasks that pertain to your situation.

---

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

---

This chapter includes the following topics:

- [Do Not Change the vRealize Automation Time Zone](#)
- [Add Tenant and IaaS Administrators from the Source vRealize Automation 6.2.x Environment](#)
- [Run Test Connection and Verify Migrated Endpoints](#)
- [Run NSX Network and Security Inventory Data Collection in Your Target vRealize Automation Environment](#)
- [Reconfigure Load Balancers After Migration to a High-Availability Environment](#)
- [Migrating an External vRealize Orchestrator Server to Target vRealize Automation](#)
- [Reconfigure the vRealize Automation Endpoint in the Target vRealize Orchestrator](#)
- [Reconfigure the vRealize Automation Infrastructure Endpoint in the Target vRealize Orchestrator](#)
- [Install vRealize Orchestrator Customization](#)
- [Reconfigure Embedded vRealize Orchestrator Infrastructure Endpoint in the Target vRealize Automation](#)
- [Reconfigure the Microsoft Azure Endpoint in the Target vRealize Automation Environment](#)
- [Migrate vRealize Automation 6.2.x Automation Application Services](#)
- [Delete Original Target vRealize Automation IaaS Microsoft SQL Database](#)
- [Update Data Center Location Menu Contents After Migration](#)
- [Upgrading Software Agents to TLS 1.2](#)
- [Change Property Dictionary Setting After Migration from 6.2.5](#)
- [Validate the Target vRealize Automation Environment](#)

## Do Not Change the vRealize Automation Time Zone

Even though the vRealize Automation appliance management interface provides an option to change it, always leave the vRealize Automation time zone set to Etc/UTC.

The vRealize Automation appliance management interface option that you must avoid is under **System > Time Zone**.

## Add Tenant and IaaS Administrators from the Source vRealize Automation 6.2.x Environment

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

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

---

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

---

### Prerequisites

- Successful migration to the latest version of vRealize Automation.
- Log in to the target vRealize Automation console as **Administrator** with the password you entered when you deployed the target vRealize Automation appliance.

### Procedure

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

When you finish, the list of tenant administrators looks the same as the list of administrators you deleted.

- 11 Click **Finish**.

## Run Test Connection and Verify Migrated Endpoints

Migrating vRealize Automation makes changes to endpoints in the target vRealize Automation environment.

After you migrate vRealize Automation, you must use the **Test Connection** action for all applicable endpoints. You might also need to make adjustments to some migrated endpoints. For more information, see *Considerations When Working With Upgraded or Migrated Endpoints* in *Configuring vRealize Automation*.

The default security setting for upgraded or migrated endpoints is not to accept untrusted certificates.

After upgrading or migrating from an earlier vRealize Automation installation, if you were using untrusted certificates you must perform the following steps for all vSphere and NSX endpoints to enable certificate validation. Otherwise, the endpoint operations fail with certificate errors. For more information, see VMware Knowledge Base articles *Endpoint communication is broken after upgrade to vRA 7.3 (2150230)* at <http://kb.vmware.com/kb/2150230> and *How to download and install vCenter Server root certificates to avoid Web Browser certificate warnings (2108294)* at <http://kb.vmware.com/kb/2108294>.

- 1 After upgrade or migration, log in to the vRealize Automation vSphere agent machine and restart your vSphere agents by using the **Services** tab.

Migration might not restart all agents, so manually restart them if needed.

- 2 Wait for at least one ping report to finish. It takes a minute or two for a ping report to finish.
- 3 When the vSphere agents have started data collection, log in to vRealize Automation as an IaaS administrator.
- 4 Click **Infrastructure > Endpoints > Endpoints**.
- 5 Edit a vSphere endpoint and click **Test Connection**.
- 6 If a certificate prompt appears, click **OK** to accept the certificate.

If a certificate prompt does not appear, the certificate might currently be correctly stored in a trusted root authority of the Windows machine hosting service for the endpoint, for example as a proxy agent machine or DEM machine.

- 7 Click **OK** to apply the certificate acceptance and save the endpoint.
- 8 Repeat this procedure for each vSphere endpoint.
- 9 Repeat this procedure for each NSX endpoint.
- 10 Navigate to **Infrastructure > Compute Resources** and right click on your **vCenter Compute** resource and run **Data Collection**.

If the **Test Connection** action is successful but some data collection or provisioning operations fail, you can install the same certificate on all the agent machines that serve the endpoint and on all DEM machines. Alternatively, you can uninstall the certificate from existing machines and repeat the preceding procedure for the failing endpoint.

## Run NSX Network and Security Inventory Data Collection in Your Target vRealize Automation Environment

After you migrate, you must run NSX Network and Security Inventory data collection in the target vRealize Automation environment.

This data collection is necessary for the Load Balancer Reconfigure action to work in the target vRealize Automation environment after migration.

---

**Note** You do not need to perform this data collection if you migrated from vRealize Automation 6.2.x.

---

### Prerequisites

- [Run NSX Network and Security Inventory Data Collection in the Source vRealize Automation Environment.](#)
- Successfully migrate to target vRealize Automation environment

### Procedure

- ◆ Run NSX Network and Security Inventory data collection in your target vRealize Automation environment before you migrate to vRealize Automation. See *Start Endpoint Data Collection Manually* in *Managing vRealize Automation*.

## Reconfigure Load Balancers After Migration to a High-Availability Environment

When you migrate to a high-availability environment, you must perform these tasks for each load balancer after you finish migration.

### Prerequisites

[Migrate vRealize Automation Source Data to a vRealize Automation High-Availability Environment.](#)

### Procedure

- 1 Restore the original health check settings so replica nodes can accept incoming traffic by configuring the load balancers for these items.
  - vRealize Automation appliance.
  - IaaS Web Server that hosts the Model Manager.
  - Manager Service.
- 2 Change the load balancer timeout settings back to the default.



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

You can migrate your existing external vRealize Orchestrator server to an instance of vRealize Orchestrator embedded in vRealize Automation.

### Prerequisites

Successful migration to target version of vRealize Automation.

For related information, see *Migrating an External Orchestrator Server to vRealize Automation* in [vRealize Orchestrator product documentation](#).

## Reconfigure the vRealize Automation Endpoint in the Target vRealize Orchestrator

Use the following procedure to reconfigure the vRealize Automation endpoint in the embedded target vRealize Orchestrator.

### Prerequisites

- Successful migration to the latest version of vRealize Automation.
- Connect to the target vRealize Orchestrator using the vRealize Orchestrator client. For information, see *Using the VMware vRealize Orchestrator Client* in the vRealize Orchestrator documentation.

### Procedure

- 1 Select **Design** from the top drop-down menu.
- 2 Click **Inventory**.
- 3 Expand **vRealize Automation**.

- 4 If you migrated from a minimal environment, identify endpoints containing the fully qualified domain name (FQDN) of the source vRealize Automation appliance host. If you migrated from a high-availability environment, identify endpoints containing the FQDN of the source appliance load balancer.

If you find endpoints containing the FQDN, complete these steps.	If you do not find endpoints containing the FQDN, complete these steps.
<ol style="list-style-type: none"> <li>1 Click <b>Workflows</b>.</li> <li>2 Click the expand button to select <b>Library &gt; vRealize Automation &gt; Configuration</b>.</li> <li>3 Do one of these steps. <ul style="list-style-type: none"> <li>■ If you migrated from a minimal environment, run the <b>Remove a vRA host</b> workflow for every endpoint containing the FQDN of the source vRealize Automation appliance host.</li> <li>■ If you migrated from a high-availability environment, run the <b>Remove a vRA host</b> workflow for every endpoint containing the FQDN of the source appliance load balancer.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1 Click <b>Resources</b>.</li> <li>2 Click the update icon on the top toolbar.</li> <li>3 Click the expand button to select <b>Library &gt; vCACCAFE &gt; Configuration</b>.</li> <li>4 Do one of these steps. <ul style="list-style-type: none"> <li>■ If you migrated from a minimal environment, delete each resource that has a URL property containing the FQDN of the source vRealize Automation appliance host</li> <li>■ If you migrated from a high-availability environment, delete each resource that has a URL property containing the FQDN of the source vRealize Automation appliance load balancer.</li> </ul> </li> </ol>

- 5 Click **Workflows**.
- 6 Click the expand button to select **Library > vRealize Automation > Configuration**.
- 7 To add the target vRealize Automation appliance host or if you migrated to a high-availability deployment, the load-balanced host, run the **Add a vRA host using component registry** workflow.

## Reconfigure the vRealize Automation Infrastructure Endpoint in the Target vRealize Orchestrator

Use the following procedure to reconfigure the vRealize Automation infrastructure endpoint in the embedded target vRealize Orchestrator.

### Prerequisites

- Successful migration to the latest version of vRealize Automation.
- Connect to the target vRealize Orchestrator using the vRealize Orchestrator client. For information, see *Using the VMware vRealize Orchestrator Client* in the vRealize Orchestrator documentation.

### Procedure

- 1 Select **Design** from the top drop-down menu.
- 2 Click **Inventory**.
- 3 Expand **vRealize Automation Infrastructure**.

- 4 If you migrated from a minimal environment, identify endpoints containing the fully qualified domain name (FQDN) of the source vRealize Automation infrastructure host. If you migrated from a high-availability environment, identify endpoints containing the FQDN of the source appliance load balancer.

If you find endpoints containing the FQDN, complete these steps.	If you do not find endpoints containing the FQDN, complete these steps.
<ol style="list-style-type: none"> <li>1 Click <b>Workflows</b>.</li> <li>2 Click the expand button to select <b>Library &gt; vRealize Automation &gt; Infrastructure Administration &gt; Configuration</b>.</li> <li>3 Do one of these steps. <ul style="list-style-type: none"> <li>■ If you migrated from a minimal environment, run the <b>Remove an IaaS host</b> workflow for every endpoint containing the FQDN of the source vRealize Automation infrastructure host.</li> <li>■ If you migrated from a high-availability environment, run the <b>Remove an IaaS host</b> workflow for every endpoint containing the FQDN of the source vRealize Automation infrastructure host load balancer.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1 Click <b>Resources</b>.</li> <li>2 Click the update icon on the top toolbar.</li> <li>3 Click the expand button to select <b>Library &gt; vCAC &gt; Configuration</b>.</li> <li>4 Do one of these steps. <ul style="list-style-type: none"> <li>■ If you migrated from a minimal environment, delete each resource that has a host property containing the FQDN of the source vRealize Automation infrastructure host</li> <li>■ If you migrated from a high-availability environment, delete each resource that has a host property containing the FQDN of the source vRealize Automation infrastructure host load balancer.</li> </ul> </li> </ol>

- 5 Click **Workflows**.
- 6 Click the expand button to select **Library > vRealize Automation > Configuration**.
- 7 To add the target vRealize Automation infrastructure host, or if you migrated to a high-availability deployment load-balanced host, run the **Add the IaaS host of a vRA host** workflow.

## Install vRealize Orchestrator Customization

You can run a workflow to install the customized state change workflow stubs and vRealize Orchestrator menu operation workflows.

For information, see *Install vRealize Orchestrator Customization* in *Life Cycle Extensibility*.

### Prerequisites

Successful migration to the latest version of vRealize Automation.

## Reconfigure Embedded vRealize Orchestrator Infrastructure Endpoint in the Target vRealize Automation

When you migrate from a vRealize Automation 6.2.5 environment, you must update the URL of the infrastructure endpoint that points to the target embedded vRealize Orchestrator server.

### Prerequisites

- Successfully migrate to vRealize Automation to the target vRealize Automation release.

- Log in to the target vRealize Automation console.
  - a Open the vRealize Automation console using the fully qualified domain name of the target virtual appliance: `https://vra-va-hostname.domain.name/vcac`.
  - For a high-availability environment, open the console using the fully qualified domain name of the target virtual appliance load balancer: `https://vra-va-lb-hostname.domain.name/vcac`.
  - b Log in as a laaS administrator user.

#### Procedure

- 1 Select **Infrastructure > Endpoints > Endpoints**.
- 2 On the Endpoints page, select the vRealize Orchestrator endpoint, and click **Edit**.
- 3 In the Address text box, edit the vRealize Orchestrator endpoint URL.
  - If you migrated to a minimal environment, replace the vRealize Orchestrator endpoint URL with `https://vra-va-hostname.domain.name:443/vco`.
  - If you migrated to a high-availability environment, replace the vRealize Orchestrator endpoint URL with `https://vra-va-lb-hostname.domain.name:443/vco`.
- 4 Click **OK**.
- 5 Manually run a data collection on the vRealize Orchestrator endpoint.
  - a On the Endpoints page, select the vRealize Orchestrator endpoint.
  - b Select **Actions > Data Collection**.

Verify that the data collection is successful.

## Reconfigure the Microsoft Azure Endpoint in the Target vRealize Automation Environment

After migration, you must reconfigure your Microsoft Azure endpoint.

Perform this procedure for each Microsoft Azure endpoint.

#### Prerequisites

- Successfully migrate to the target version of vRealize Automation.
- Log in to the target vRealize Automation console.
  - a Open the vRealize Automation console using the fully qualified domain name of the target virtual appliance: `https://vra-va-hostname.domain.name/vcac`.
  - For a high-availability environment, open the console using the fully qualified domain name of the target virtual appliance load balancer: `https://vra-va-lb-hostname.domain.name/vcac`.
  - b Log in as a laaS administrator user.

### Procedure

- 1 Select **Administration > vRO Configuration > Endpoints**.
- 2 Select a Microsoft Azure endpoint.
- 3 Click **Edit**.
- 4 Click **Details**.
- 5 Select the region in the Azure environment drop-down menu.
- 6 Enter the original client secret in the client secret text box.
- 7 Enter the storage URL in the Azure storage URI text box.  
Example: `https://mystorageaccount.blob.core.windows.net`
- 8 Click **Finish**.
- 9 Repeat for each Azure endpoint.

## Migrate vRealize Automation 6.2.x Automation Application Services

You can use the VMware vRealize Application Services Migration Tool to migrate your existing application services blueprints and deployment profiles from VMware vRealize Application Services 6.2.x to the target vRealize Automation version.

### Prerequisites

Successful migration to the latest version of vRealize Automation.

### Procedure

- ◆ To download the VMware vRealize Application Services Migration Tool, complete these steps.
  - a Click [Download VMware vRealize Automation](#).
  - b Select **Drivers & Tools > VMware vRealize Application Services Migration Tool**.

## Delete Original Target vRealize Automation IaaS Microsoft SQL Database

You can delete the original IaaS database after migration is complete.

### Prerequisites

Successful migration to the latest version of vRealize Automation.

Your migrated environment does not use the original vRealize Automation IaaS Microsoft SQL database that you created when you installed the target vRealize Automation environment. You can safely delete this original IaaS database from the Microsoft SQL Server after you complete migration.

## Update Data Center Location Menu Contents After Migration

After migration, you must add any missing custom data center locations to the **Location** drop-down menu.

After migration to the latest version of vRealize Automation, the data center locations in the **Location** drop-down menu on the Compute Resources page revert to the default list. Although custom data center locations are missing, all compute resource configurations migrate successfully and the `Vrm.DataCenter.Location` property is not affected. You can still add custom data center locations to the **Location** menu.

### Prerequisites

Migrate to the latest version of vRealize Automation.

### Procedure

- ◆ Add missing data center locations to the **Location** drop-down menu. See *Scenario: Add Datacenter Locations for Cross Region Deployments* in *Configuring vRealize Automation*.

## Upgrading Software Agents to TLS 1.2

After you migrate vRealize Automation, you must perform several tasks to upgrade the Software Agents from your source environment to Transport Layer Security (TLS) 1.2

Beginning with vRealize Automation 7.4, TLS 1.2 is the only supported TLS protocol for data communication between vRealize Automation and your browser. After migration, you must upgrade existing virtual machine templates from your vRealize Automation source environment as well as any existing virtual machines.

## Update Source Environment Virtual Machine Templates

You must update existing, migrated vRealize Automation templates after you complete migration so that the Software Agents use the TLS 1.2 protocol.

Guest agent and agent bootstrap code must be updated in the source environment templates. If you are using a linked clone option, you might need to remap the templates with the newly created virtual machines and their snapshots.

To upgrade your templates, you complete these tasks.

- 1 Log in to vSphere.
- 2 Convert each migrated vRealize Automation template to a virtual machine and power on the machine.
- 3 Import the appropriate software installer and run the software installer on each virtual machine.
- 4 Convert each virtual machine back to a template.

Use this procedure to locate the software installers for Linux or Windows.

**Prerequisites**

- Successful migration from vRealize Automation 7.1x or later.
- [Apply Software Agent Patch](#) if you migrated from vRealize Automation 7.1.x or 7.3.x.

**Procedure**

- 1 Start a browser and open the vRealize Automation appliance splash page using the fully qualified domain name of the virtual appliance: `https://vra-va-hostname.domain.name`.
- 2 Click **Guest and software agents page**.
- 3 Follow the instructions for the Linux or Windows software installers.

**What to do next**

[Identify Virtual Machines that Need Software Agent Upgrade](#).

## Identify Virtual Machines that Need Software Agent Upgrade

You can use the Health Service in the vRealize Automation Console to identify virtual machines that need software agent update to TLS 1.2.

Sometimes the patch applied to your vRealize Automation source environment does not upgrade all of the virtual machines. You can use the Health Service to identify the virtual machines that still need a software agent update to TLS 1.2. All software agents in the target environment need to be updated for post-provisioning procedures.

**Prerequisites**

- Migrate vRealize Automation 7.1.x or later.
- [Apply Software Agent Patch](#) if you migrated from vRealize Automation 7.1.x or 7.3.x.
- Log in to the target vRealize Automation environment on the primary virtual appliance.

**Procedure**

- 1 Click **Administration > Health**.
- 2 Click **New Configuration**.
- 3 On the Configuration Details page, provide the requested information.

Option	Comment
Name	Enter <b>SW Agent verification</b>
Description	Add optional description, for example, <b>Locate software agents for upgrade to TLS 1.2</b>
Product	Select the target product and version, for example vRealize Automation 7.4.0.
Schedule	Select None.

- 4 Click **Next**.

5 On the Select Test Suites page, select **System Tests for vRealize Automation** and **Tenant Tests for vRealize Automation**.

6 Click **Next**.

7 On the Configure Parameters page, provide the requested information.

**Table 7-1. vRealize Automation Virtual Appliance**

Option	Description
Public Web Server Address	<ul style="list-style-type: none"> <li>■ For a minimal deployment, the base URL for the vRealize Automation appliance host. For example, <code>https://va-host.domain/</code>.</li> <li>■ For a high-availability deployment, the base URL for the vRealize Automation load balancer. For example, <code>https://load-balancer-host.domain/</code>.</li> </ul>
SSH Console Address	Fully qualified domain name of the vRealize Automation appliance. For example, <code>va-host.domain</code> .
SSH Console User	<b>root</b>
SSH Console Password	Password for root.
Max Service Response Time (ms)	Accept default: 2000

**Table 7-2. vRealize Automation System Tenant**

Option	Description
System Tenant Administrator	administrator
System Tenant Password	Password for administrator.

**Table 7-3. vRealize Automation Disk Space Monitoring**

Option	Description
Warning Threshold Percent	Accept default: 75
Critical Threshold Percent	Accept default: 90

**Table 7-4. vRealize Automation Tenant**

Option	Description
Tenant Under Test	Tenant selected for testing.
Fabric Administrator User Name	<p>Fabric administrator user name. For example, <code>admin@va-host.local</code>.</p> <p><b>Note</b> This fabric administrator must also have a tenant administrator and an IaaS administrator role in order for all of the tests to run.</p>
Fabric Administrator Password	Password for fabric administrator.

8 Click **Next**.



- 9 On the Summary page, review the information and click **Finish**.  
The software agent verification configuration is finished.
- 10 On the SW Agent verification card, click **Run**.
- 11 When the test is complete, click the center of the SW Agent verification card.
- 12 On the SW Agent verification results page, page through the test results and find the Check Software Agent Version test in the Name column. If the test result is Failed, click the **Cause** link in the Cause column to see the virtual machines with an outdated software agent.

#### What to do next

If you have virtual machines with an outdated software agent, see [Upgrade Software Agents on vSphere](#).

## Upgrade Software Agents on vSphere

You can upgrade any outdated Software Agents on vSphere to TLS 1.2 after migration using vRealize Automation Appliance Management.

This procedure updates the outdated Software Agents on the virtual machines from your source environment to TLS 1.2 and is required for migration to the target vRealize Automation release.

#### Prerequisites

- [Apply Software Agent Patch](#) if you migrated from vRealize Automation 7.1.x or 7.3.x.
- Successful migration from vRealize Automation 7.1.x or later.
- You have used Health Service to identify virtual appliances with outdated Software Agents.

#### Procedure

- 1 On your primary vRealize Automation appliance, log in to vRealize Automation Appliance Management as **root** using the password you entered when you deployed the vRealize Automation appliance.

For a high-availability environment, open Appliance Management on the master appliance.

- 2 Click **vRA > SW Agents**.
- 3 Click **Toggle TLS 1.0, 1.1**.

TLS v1.0, v1.1 Status is ENABLED.

- 4 For Tenant credentials, enter the requested information for the source vRealize Automation appliance.

Option	Description
Tenant name	Name of tenant on the source vRealize Automation appliance.  <b>Note</b> The tenant user must have the Software Architect role assigned.
Username	Tenant administrator user name on the source vRealize Automation appliance.
Password	Tenant administrator password.

- 5 Click **Test connection**.

If a connection is established, a success message appears.

- 6 For Source appliance, enter the IP address or fully qualified domain name of the source vRealize Automation appliance.

The source and the target appliance must both use the same tenant credentials.

- 7 Click **List batches**.

The Batch Choice List table appears.

- 8 Click **Show**.

A table appears with a list of virtual machines with outdated Software Agents.

- 9 Upgrade the Software Agent for the virtual machines that are in the UPGRADABLE state.

- To upgrade the Software Agent in an individual virtual machine, click **Show** for a group of virtual machines, identify the virtual machine you want to upgrade and click **Run** to start the upgrade process.
- To upgrade the Software Agent for a batch of virtual machines, identify the group that you want to upgrade and click **Run** to start the upgrade process.

If you have more than 200 virtual machines to upgrade, you can control the batch upgrade process speed by entering values for these parameters.

Option	Description
Batch Size	The number of virtual machines selected for batch upgrade. You can vary this number to adjust the upgrade speed.
Queue Depth	The number of parallel upgrade executions that take place at one time. For example, 20. You can vary this number to adjust the upgrade speed.
Batch Errors	The REST error count causing batch upgrade to slow down. For example, if you want to stop the current batch upgrade after 5 failures to improve the stability of the upgrade, enter 5 in the text field.

Option	Description
Batch Failures	The number of failed Software Agent upgrades causing batch processing to slow down. For example, if you want to stop the current batch upgrade after 5 failures to improve the stability of the upgrade, enter 5 in the text field.
Batch Polling	How often the upgrade process is polled to check the upgrade process. You can vary this number to adjust the upgrade speed.

If the upgrade process is too slow or produces too many unsuccessful upgrades, you can adjust these parameters to improve upgrade performance.

**Note** Clicking **Refresh** clears the list of batches. It does not affect the upgrade process. It also refreshes information about whether TLS 1.2 is set or not. In addition, clicking **Refresh** also performs a health check of vRealize Automation services. If services are not running, the system displays an error message and inactivates all other action buttons.

#### 10 Click **Toggle TLS 1.0, 1.1**.

TLS v1.0, v1.1 Status is DISABLED.

## Upgrade Software Agents on Amazon Web Service or Microsoft Azure

You can upgrade outdated software agents on Amazon Web Service (AWS) or Microsoft Azure manually.

- You must update the tunnel properties specified in the reservation of the migrated vRealize Automation server.

**Note** Replace any version instances in these examples with the vRealize Automation version value of your target release.

### Prerequisites

- [Apply Software Agent Patch](#) if you migrated from vRealize Automation 7.1.x or 7.3.x.
- Successful migration from vRealize Automation 7.1.x or later.
- A software tunnel is present and the tunnel virtual machine IP address is known.

### Procedure

- 1 Create a node file for each node that you need to upgrade.

```
/usr/lib/vcac/server/webapps/ROOT/software/initializeUpdateSoftwareAgents.py -a <
$DestinationVRAServer> -t <$Tenant> -tu <$TenantUser> -S <$SourceVRAServer>
```

## 2 Create a plan file to upgrade the software agent on a Linux or a Windows virtual machine.

- Modify the migrate params file under `/var/log/vcac/agentupdate/{tenant}/{subtenant-UUID}` to contain the value of the private IP address corresponding to the Amazon AWS or Microsoft Azure endpoint.

```
"key": "ipAddress",

    "value": {

        "type": "string",

        "value": "<$PrivateIp:$PrivatePort>"

    }
}
```

- Use this command for updating a Linux machine.

```
/usr/lib/vcac/server/webapps/ROOT/software/updateSoftwareAgents.py -a <
$DestinationVRAServer> -t <$Tenant> -S <$SourceVRAServer> -tu <$TenantUser> -CL
Software.LinuxAgentUpdate74 --source_cloud_provider azure
```

- Use this command for updating a Windows machine.

```
/usr/lib/vcac/server/webapps/ROOT/software/updateSoftwareAgents.py -a <
$DestinationVRAServer> -t <$Tenant> -S <$SourceVRAServer> -tu <$TenantUser> -CW
Software.WindowsAgentUpdate74 --source_cloud_provider azure
```

- This command runs the plan file.

```
/usr/lib/vcac/server/webapps/ROOT/software/updateSoftwareAgents.py -a <
$DestinationVRAServer> -t <$Tenant> -tu <$TenantUser> --plan_file /usr/lib/vcac/server/
webapps/ROOT/software/plan
```

## 3 Use this command to update the software agent using the node file from step 1 and the plan file from step 2.

```
/usr/lib/vcac/server/webapps/ROOT/software/updateSoftwareAgents.py -a <$DestinationVRAServer> -t <
$tenant> -tu <$TenantUser> --component_windows Software.WindowsAgentUpdate74 --component_linux
Software.LinuxAgentUpdate74 --plan_file /usr/lib/vcac/server/webapps/ROOT/software/plan --
plan_index 0 --node_file /usr/lib/vcac/server/webapps/ROOT/software/node --source_cloud_provider
azure --action plan_batch -S <$SourceVRAServer>
```

As an alternative, you can use this command to run one node at a time from the node file by providing a node index.

```
/usr/lib/vcac/server/webapps/ROOT/software/updateSoftwareAgents.py -a <$DestinationVRAServer> -t <
$tenant> -tu <$TenantUser> --component_windows Software.WindowsAgentUpdate74 --component_linux
Software.LinuxAgentUpdate74 --plan_file /usr/lib/vcac/server/webapps/ROOT/software/plan --
plan_index 0 --node_file /usr/lib/vcac/server/webapps/ROOT/software/node --source_cloud_provider
azure --action execute_node -S <$SourceVRAServer> --node_index <0 through n-1>
```

As you perform this procedure, you can tail logs from the vRealize Automation virtual appliance and host machine to see the server agent upgrade process.

After upgrade, the upgrade process imports a software update script for Windows or Linux to the vRealize Automation virtual appliance. You can log into the vRealize Automation virtual appliance host to ensure that the software component is imported successfully. After the component is imported, a software update is sent to the old event broker service (EBS) to relay software update scripts to the identified virtual machines. When the upgrade completes and the new software agents become operative, they bind to the new vRealize Automation virtual appliance by sending a ping request.

---

**Note** Useful Log Files

---

- Catalina output for source vRealize Automation: `/var/log/vcac/catalina.out`. In this file, you see the upgrade requests being made as the agent migrations are made. This activity is the same as running a software provisioning request.
- Catalina output for destination vRealize Automation: `/var/log/vcac/catalina.out`. In this file, you see the migrated virtual machines reporting their ping requests here to include version numbers 7.4.0-SNAPSHOT. You can tally these together by comparing the EBS topic names, for example, `sw-agent-UUID`.
- Agent update folder on destination vRealize Automation machine master upgrade log file: `/var/log/vmware/vcac/agentupdate/updateSoftwareAgents.log`. You can tail this file to see which upgrade operation is in progress.
- Individual logs available under tenant folders: `/var/log/vcac/agentupdate/{tenant}/{subtenant-UUID}`. Individual nodes are listed here as log files with failures and in-progress extensions.
- Migrated VMs: `/opt/vmware-appdirector/agent/logs/darwin*.log`. You can spot check this location which should list the software update requests being received as well as the eventual restart of the `agent_bootstrap` + software agent.

## Change Property Dictionary Setting After Migration from 6.2.5

The `Label` control in the vRealize Automation 6.2.x property dictionary does not exist in the vRealize Automation 7.x property dictionary.

During migration to vRealize Automation 7.4 or earlier, the `Label` control is converted to a `TextBox` control type in the migrated property dictionary.

During migration to vRealize Automation 7.5 or later, the `Label` control is converted to a `TextArea` control type in the migrated property dictionary. The `TextArea` control type supports long label names better than the `TextBox` control type used when migrating to earlier versions of vRealize Automation 7.x.

After migration, you can set property definitions that contain an impacted TextBox or TextArea control type as not overridable, either manually in each blueprint's vRealize Automation properties settings, manually in each blueprint component, reservation, endpoint and so on in which an impacted custom property definition is used, or programmatically by using export and import capabilities in vRealize CloudClient.

## Procedure

- 1 After migration and to determine which property definitions use a Text Box (7.4 and earlier) or TextArea (7.5 or later) type control, click **Administration > Property Definitions** and view the **Display Area** setting for each property definition of the **String** data type.

These are the property definitions to set as not overrideable in your migrated vRealize Automation instance.

- 2 Set impacted custom properties as not overrideable.

- Manually for the overall blueprint

- 1 Click the **Design** tab and open a blueprint.
- 2 Click the gear icon to open the **Blueprint Properties** page.



- 3 Click the **Properties** tab on the **Blueprint Properties** page and click **Custom Properties**.
- 4 Toggle **Overrideable** off for all property definitions that contain a TextBox or TextArea control type.

- Manually for each blueprint component, reservation, endpoint and so on in which an impacted custom property is used

- 1 For endpoints and reservation, click **Infrastructure** and select either **Endpoints** or **Reservations**.
- 2 Open each target element and use its Properties tab to set the impacted Text Box (7.4 and earlier) or TextArea (7.5 or later) type control as not overrideable.
- 3 Open each blueprint and use the **Properties** tab in each machine, network, and other component in the blueprint canvas to update any impacted property definitions.

- Programmatically for the overall blueprint

- 1 Export the blueprint by using a vRealize CloudClient export command sequence.

- 2 Mark the impacted property definitions as not overrideable. In this example, `TestLabel` is set to not overrideable and `TestOverrideLabel` is set in a way that it can be edited on a request form.

```
TestLabel:
  fixed: default test label description at BP
  required: true
  secured: false
  visible: true
TestOverrideLabel:
  default: override this value
  required: true
  secured: false
  visible: true
```

- 3 Import the blueprint by using a vRealize CloudClient import command sequence.

## Validate the Target vRealize Automation Environment

You can verify that all data is migrated successfully to the target vRealize Automation environment.

### Prerequisites

- Migrate to the latest version of vRealize Automation.
- Log in to the target vRealize Automation console.
  - a Open the vRealize Automation console using the fully qualified domain name of the target virtual appliance: `https://vra-va-hostname.domain.name/vcac`.  
  
For a high-availability environment, open the console using the fully qualified domain name of the target virtual appliance load balancer: `https://vra-va-lb-hostname.domain.name/vcac`.
  - b Log in with the tenant administrator user name and password.

### Procedure

- 1 Select **Infrastructure > Managed Machines** and verify that all the managed virtual machines are present.
- 2 Click **Compute Resources**, select each endpoint, and click **Data Collection**, **Request now**, and **Refresh** to verify that the endpoints are working.
- 3 Click **Design**, and on the **Blueprints** page, verify the elements of each blueprint.
- 4 Click **XaaS** and verify the contents of **Custom Resources**, **Resource Mappings**, **XaaS Blueprints**, and **Resource Actions**.
- 5 Select **Administration > Catalog Management** and verify the contents of **Services**, **Catalog Items**, **Actions**, and **Entitlements**.
- 6 Select **Items > Deployments** and verify the details for the provisioned virtual machines.

- 7 On the Deployments page, select a provisioned, powered off, virtual machine and select **Actions > Power On**, click **Submit**, and click **OK**. Verify that the virtual machine powers on correctly.
- 8 Click **Catalog** and request a new catalog item.
- 9 On the **General** tab, enter the request information.
- 10 Click the Machine icon, accept all the default settings, click **Submit**, and click **OK**.
- 11 Verify that the request finishes successfully.



# Troubleshooting Migration

Migration troubleshooting topics provide solutions to problems you might experience when you migrate vRealize Automation.

This chapter includes the following topics:

- [PostgreSQL Version Causes Error](#)
- [Some Virtual Machines Do Not Have a Deployment Created during Migration](#)
- [Load Balancer Configuration Causes Timeout for Long-Running Operations](#)
- [Migration Log Locations](#)
- [Catalog Items Appear in the Service Catalog After Migration But Are Not Available to Request](#)
- [Data Collection Radio buttons Disabled in vRealize Automation](#)
- [Troubleshooting the Software Agent Upgrade](#)

## PostgreSQL Version Causes Error

A source vRealize Automation 6.2.x environment containing an updated PostgreSQL database blocks administrator access.

### Problem

If an upgraded PostgreSQL database is used by vRealize Automation 6.2.x, an administrator must add an entry to the `pg_hba.conf` file that provides access to this database from vRealize Automation.

### Solution

- 1 Open the `pg_hba.conf` file.
- 2 To grant access to this database, add the following entry.

```
host all vcac-database-user vra-va-ip trust-method
```

## Some Virtual Machines Do Not Have a Deployment Created during Migration

Virtual machines in the missing state at the time of migration do not have a corresponding deployment created in the target environment.

**Problem**

If a virtual machine is in the missing state in the source environment during migration, a corresponding deployment is not created in the target environment.

**Solution**

- ◆ If a virtual machine goes out of the missing state after migration, you can import the virtual machine to the target deployment using bulk import.

## Load Balancer Configuration Causes Timeout for Long-Running Operations

Changing the load balancer timeout settings to 10 minutes might not prevent an unexpected connection termination.

**Problem**

Setting the timeout to 10 minutes to keep a connection alive during execution of an HTTP/HTTPS request may not prevent an unexpected connection termination when migration performs long-running operations.

**Solution**

- ◆ If you have an unexpected connection termination during migration, increase the timeout on the load balancer to greater than 10 minutes or update the load balancer DNS record to point to the appropriate active node for the duration of the migration. Once migration is complete, revert the load balancer DNS record.

## Migration Log Locations

You can troubleshoot validation or migration problems by viewing the logs that record the migration process.

**Table 8-1. Source vRealize Automation Appliance**

Log	Location
Package creation log	/var/log/vmware/vcac/migration-package.log

**Table 8-2. Target vRealize Automation Appliance**

Log	Location
Migration log	/var/log/vmware/vcac/migrate.log
Migration execution log	/var/log/vmware/vcac/mseq.migration.log
Migration execution output log	/var/log/vmware/vcac/mseq.migration.out.log
Validation execution log	/var/log/vmware/vcac/mseq.validation.log
Validation execution output log	/var/log/vmware/vcac/mseq.validation.out.log

**Table 8-3. Target vRealize Automation Infrastructure Nodes**

Log	Location
Migration log	C:\Program Files (x86)\VMware\VCAC\InstallLogs-YYYYMMDDHHMMXX\Migrate.log
Validation log	C:\Program Files (x86)\VMware\VCAC\InstallLogs-YYYYMMDDHHMMXX\Validate.log

## Catalog Items Appear in the Service Catalog After Migration 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 migrating to the latest version of vRealize Automation.

### Problem

If you migrated from a 6.2.x or earlier version and you had property definitions with these control types or attributes, these elements are missing from the property definitions and any catalog items that use the definitions do not function as they did before you performed the migration.

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

### Cause

In vRealize Automation 7.0 and later, the property definitions no longer use these elements. 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.x using a script action.

### Solution

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

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

## Data Collection Radio buttons Disabled in vRealize Automation

After migration from vRealize Automation 6.2.x to 7.x, the Compute Resources page on the target vRealize Automation contains disabled radio buttons under Data Collection.

### Cause

If you install an agent on the source environment that points to an endpoint and install an agent on the target environment that points to the same endpoint but the agent has a different name, you can run a test connection to the endpoint as administrator in the target environment. However, if you log in to vRealize Automation on the target environment as a fabric administrator, the radio buttons on the Compute Resources page under Data Collection are disabled.

### Solution

Avoid this situation by giving the name of the agent installed on the target environment the same name as the agent installed on the source environment.

## Troubleshooting the Software Agent Upgrade

When you use vRealize Automation Appliance Management to upgrade software agents, you can review log files to identify the cause of any problems you experience.

### Problem

You might experience problems when you upgrade the software agents. By observing the log files during the software agent upgrade process, you can identify where there is a problem.

### Server Logs

- Tail the updateSoftwareAgents.log file on the server to observe the process: `/storage/log/vmware/vcac/agentupdate/updateSoftwareAgents.log`.
- Tail the catalina.out file on target appliance to see which software agents are succeeding: `/var/log/vcac/catalina.out`.

Look for a string such as "ping" reported back for *version.0-SNAPSHOT*.

You can find additional information at these locations.

- `/var/cache/vcac/agentupdate/{Tenant}/{UUID}/UUID.plan`
- `/var/cache/vcac/agentupdate/{Tenant}/{UUID}/UUID.log`
- `/var/cache/vcac/agentupdate/sqa/UUID/UUID.log` (per OS)

Before you start a major batch upgrade, you should always perform a test virtual appliance software agent upgrade. For an overview of the process:

- Observe the first request made to the target virtual appliance to identify the agent versions.
- Observe the request made to the source virtual appliance for upgrade.
- Observe the agents reporting their new version value in the target virtual appliance.
- Between these events, observe the `updateSoftwareAgents.log` file at `/storage/log/vmware/vcac/agentupdate/updateSoftwareAgents.log`

## Client Logs

Linux agent logs are in appdirector agent logs folder: `/opt/vmware-appdirector/agent/logs/*.log`.

You might see log errors like these, which are temporary because the EBS queues fluctuate during the upgrade process:

```
Feb 15 2018 16:54:10.105 ERROR [EventPoller-sw-agent-0ad2418d-5b42-4231-a839-a05dd618e43e] []
com.vmware.vcac.platform.event.broker.client.rest.RestEventSubscribeHandler - Error while
polling events for subscription '{}'
```

```
org.springframework.web.client.HttpClientErrorException: 404 Not Found
```

```
org.springframework.web.client.DefaultResponseErrorHandler.handleError(DefaultResponseErrorHa
ndler.java:91) ~[nobel-agent.jar:na]
```

```
org.springframework.web.client.RestTemplate.handleResponse(RestTemplate.java:641) ~[nobel-
agent.jar:na]
```

```
org.springframework.web.client.RestTemplate.doExecute(RestTemplate.java:597) ~[nobel-
agent.jar:na]
```

```
org.springframework.web.client.RestTemplate.execute(RestTemplate.java:557) ~[nobel-
agent.jar:na]
```

```
org.springframework.web.client.RestTemplate.exchange(RestTemplate.java:503) ~[nobel-
agent.jar:na]
```

```
com.vmware.vcac.platform.event.broker.client.rest.RestEventSubscribeHandler.pollEvents(RestEv
entSubscribeHandler.java:297) ~[nobel-agent.jar:na]
```

```
com.vmware.vcac.platform.event.broker.client.rest.RestEventSubscribeHandler
$EventPoller.run(RestEventSubscribeHandler.java:329) ~[nobel-agent.jar:na]
```

# Scenarios for Migration

If you migrate from vRealize Automation 6.2.5, you might experience these issues.

Issue in 6.2.5	Resolution for the Latest Version
<p>After you migrate from vRealize Automation 6.2.5 to the latest version, catalog items that use these property definitions appear in the service catalog but are not available to request.</p> <ul style="list-style-type: none"> <li>■ Control types: Check box or link.</li> <li>■ Attributes: Relationship, regular expressions, or property layouts.</li> </ul> <p>In the vRealize Automation release, the property definitions no longer use these elements.</p>	<p>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. For more information, see <a href="#">Catalog Items Appear in the Service Catalog After Migration But Are Not Available to Request</a>.</p>
<p>Regular expressions used to define the parent-child relationships in a vRealize Automation 6.2.5 drop-down menu are not supported in the target vRealize Automation release. In 6.2.5, you can use regular expressions to define one or more child menu items that are only available for a certain parent menu item. Only those child menu items appear when you select the parent menu item.</p>	<p>After migration, you must recreate the property definition to restore the previous dynamic values. For information about creating a parent-child relationship between the parent drop-down menu and the child drop-down menu, see <a href="#">How to use dynamic property definitions in vRA 7.2</a>.</p>
<p>vRealize Orchestrator Workflows using Workflow Stubs</p>	<p>Workflow stubs can be converted to event broker subscriptions post migration.</p> <p>For more information about the steps for conversion and changes, see <i>vRealize Automation Extensibility Migration Guide</i>.</p>
<p>Customization for Active Directory integrations</p>	<p>Active Directory configuration and policies are built into the product.</p> <p>For more information about the Active Directory configuration, see <a href="#">Working With Active Directory Policies</a> in the <i>Preparing and Using Service Blueprints in vRealize Automation</i> guide.</p>
<p>Custom IPAM configuration for provisioned workloads</p>	<p>IPAM configuration is now built into the product.</p> <p>For more information about the steps to IPAM configuration, see <a href="#">Checklist For Providing Third-Party IPAM Provider Support</a> in the <i>Preparing and Using Service Blueprints in vRealize Automation</i> guide.</p>
<p>Property Dictionary use of relational expressions</p>	<p>Relational Expressions is no longer a choice in Property Dictionary. The following is an example of how to develop a Property Dictionary relationship in 7.x:</p> <p><a href="#">Property Relationships in vRA 7</a></p>

Issue in 6.2.5	Resolution for the Latest Version
Custom host naming	There are various options for custom host naming post-migration. For an overview of these options see, <a href="#">Manage Hostnames with vRealize Automation - Part 1: Understand Your Options!</a> .
Use of application services based blueprints	Migrating Application Services Based Blueprints requires separate migration steps. For more information about the migrations steps, see the <i>VMware vRealize Application Services Migration Tool 1.1 User Guide</i> .