

Migrating vCloud Automation Center 5.2.3 to vRealize Automation 6.2

vRealize Automation 6.2

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Migrating from vCloud Automation Center 5.2.3 to vRealize Automation 6.2

Migrating vCloud Automation Center 5.2.3 to vRealize Automation 6.2 provides an overview of the migration process and describes how to migrate a vCloud Automation Center 5.2.3 deployment to vRealize Automation 6.2 or a later 6.2.x release.

If you are using an earlier version of vCloud Automation Center 5.2, you must upgrade to vCloud Automation Center 5.2.3 before you can migrate to vRealize Automation 6.2 or a later 6.2.x release. If you are using vCloud Automation Center 5.2.1 or 5.2.2, you can migrate to 6.1 and then upgrade to vRealize Automation 6.2 or a later 6.2.x release. For information about migrating from 5.2.1 or 5.2.2, see *Migrating to vCloud Automation Center 6.1*.

For information about installing, configuring, and licensing the target vRealize Automation system in preparation for migration, see *Migrating vRealize Automation* in *Installation and Configuration* in the vRealize Automation documentation.

Intended Audience

This information is intended for administrators who are responsible for migrating their organization's vCloud Automation Center 5.2.3 deployment to vRealize Automation 6.2 or a later 6.2.x release. The information is intended for experienced system administrators who are familiar with all aspects of vRealize Automation (formerly vCloud Automation Center) installation and administration.

VMware Technical Publications Glossary

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

Updated Information

This *Migrating vCloud Automation Center 5.2.3 to vRealize Automation 6.2* is updated with each release of the product or when necessary.

This table provides the update history of the *Migrating vCloud Automation Center 5.2.3 to vRealize Automation 6.2*.

Revision	Description
001634-02	<ul style="list-style-type: none">■ Updated “Prerequisites for vRealize Automation Migration,” on page 21 to include information about specifying a different target system than the one originally specified and deleting stale migration table data.■ Updated “Migrating from vCloud Automation Center 5.2.3 to vRealize Automation 6.2,” on page 5 to state that migration is available to version 6.2 and later 6.2.x releases.
001634-01	Updated the following topics to state that migration is available to version 6.2 and 6.2.1: <ul style="list-style-type: none">■ “Migrating from vCloud Automation Center 5.2.3 to vRealize Automation 6.2,” on page 5■ “Migration Process Overview,” on page 9
001634-00	Initial 6.2 release.

Understanding vRealize Automation Migration

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The migration process gathers data from your supported source vRealize Automation system and migrates that data to the clean target system. Information about migration is captured in the pre-migration and migration reports and logs. You can use information in the reports to recreate data that was not migrated.

This chapter includes the following topics:

- [“Migration Process Overview,”](#) on page 9
- [“Migration Tool Overview,”](#) on page 11
- [“Understanding What Data is Migrated,”](#) on page 11
- [“Migrating to One Target System and Then to Another,”](#) on page 19

Migration Process Overview

The migration process gathers data from your source vCloud Automation Center system and migrates that data to the clean vRealize Automation target system. Information about migration is captured in the pre-migration and migration reports and logs. You can use information in the reports to recreate data that was not migrated.

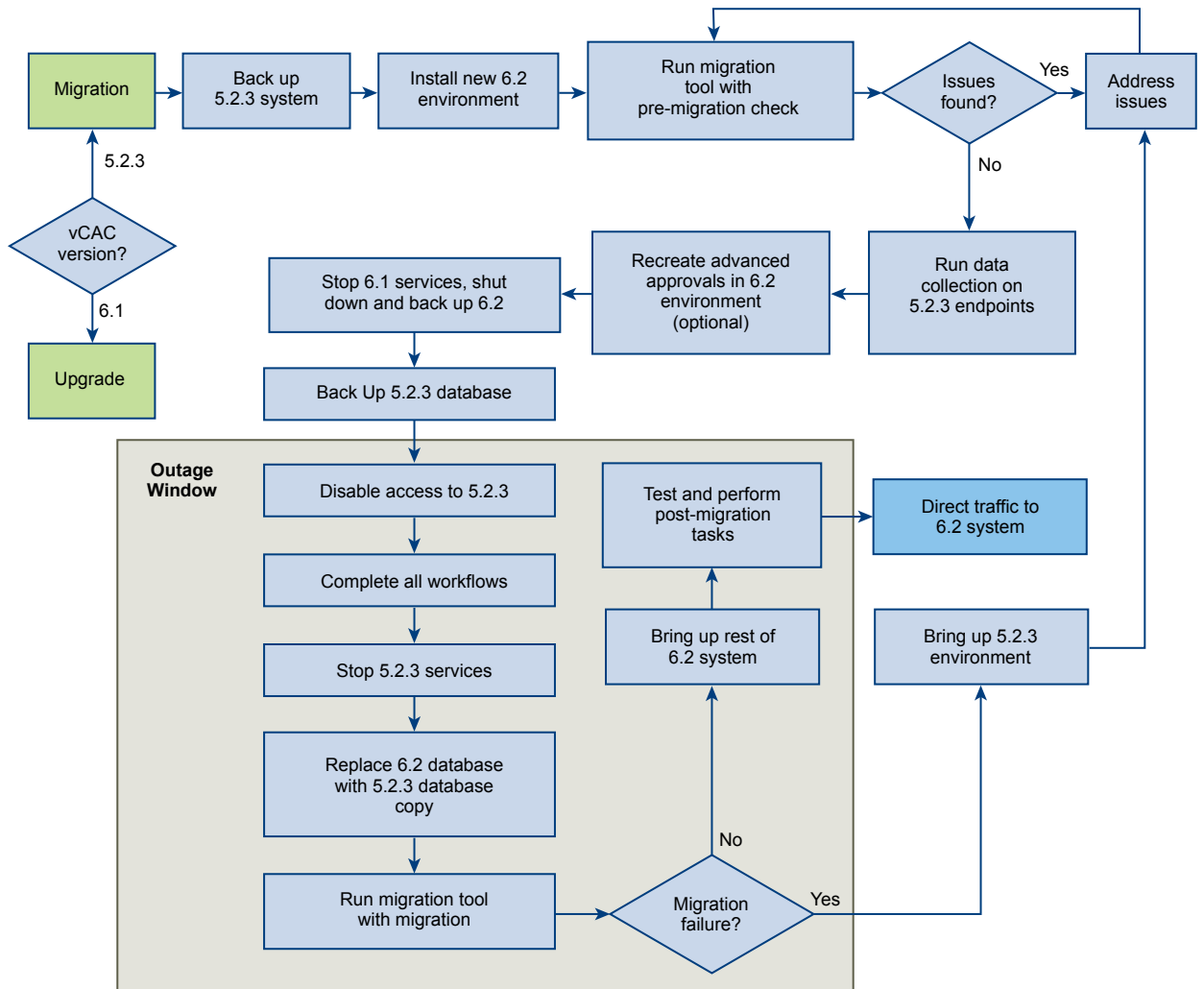
Migration to vRealize Automation 6.2 requires that the source system be at vCloud Automation Center 5.2.3 and the target system be at vRealize Automation 6.2 or a later 6.2.x version.

All instances of vCloud Automation Center 5.2, in reference to migration to vRealize Automation 6.2 represent vCloud Automation Center 5.2.3.

The migration process consists of the following main steps.

- 1 Install and configure the target vRealize Automation system.
- 2 Download the migration tool and run the pre-migration task.
- 3 Review the pre-migration report.
- 4 Take corrective action based on information in the report and rerun pre-migration.
- 5 (Optional) When you are satisfied with the content of the pre-migration report, take the source system offline and rerun pre-migration a final time.
- 6 Perform specified manual tasks after pre-migration is finished and before starting migration.
- 7 Run the migration task, including reviewing the migration prerequisite checker report before proceeding with the task.
- 8 Review the migration report.
- 9 Perform post-migration tasks.

The general migration process is captured in the following flow diagram.



You migrate data to a single tenant configuration in the target vRealize Automation, namely the default vsphere.local tenant. You cannot change the target tenant name or migrate to another tenant or to multiple tenants. You must configure the default tenant identity store for Native Active Directory and assign a tenant administrator before you start the migration tool.



CAUTION Migrate to a clean vRealize Automation target system. You can recreate branding graphics, approval policies, and some customization files in the target system before you migrate, but other work you do in the target system is overwritten during migration.

The sAMAccountName security format strings for user names and groups are converted to userPrincipalName format, for example from *mycompanydomain\joe.user* to *joe.user@mycompanydomain.com*.

The migration process creates a service named Infrastructure in the target system. Enabled blueprints are published to this service during migration. You can add services after migration is finished.

If you encounter problems after migration, or migration did not finish successfully, you can shut down the target vRealize Automation system and restart the source vCloud Automation Center 5.2 system.

Migration Tool Overview

The migration tool contains the pre-migration and the migration tasks. Options to run in silent mode or in the command line interface are not available. While you can run the pre-migration task multiple times, the migration task is designed to be run only once.

Run the migration tool from a target vRealize Automation system on which the Model Manager Web Service component is installed.

When you run the migration tool and specify the pre-migration task, you are prompted for information about the source and target systems. When pre-migration is finished, the tool provides a link to the pre-migration report. Review the report to determine if you are ready to proceed to the next stage in the migration process, or if you need to complete additional tasks and rerun pre-migration. The tool also informs you of external tasks that you must complete before you start migration and provides a link to the appropriate product documentation.

When you run the migration tool and specify the migration task, you are prompted to run a prerequisite check. The prerequisite check generates an initial report that contains information about your readiness to migrate. It also provides a link to the migration report. After you review the report and choose to proceed, the migration task migrates your data. When migration is finished, the tool again provides a link to the updated migration report.

Understanding What Data is Migrated

Most data is migrated from your source system to your target vRealize Automation system. Use the pre-migration and migration reports to help recreate data that is not migrated.

The pre-migration and migration reports are located in the reports subdirectory of the directory in which the downloaded migration tool is extracted.

Table 1-1. Understanding What Data is Migrated

vCloud Automation Center Item	Migrates Yes or No	Details and Related Information
Administrator and user roles	Yes	See “Migrating Administrator and User Roles,” on page 13.
User and group identities	Yes	See “Migrating Users and Groups,” on page 13.
User security settings	Yes	See “Migrating User Security Settings,” on page 14.
Endpoints	Yes	Endpoint information is migrated. Associated machine and compute resource information is also migrated. Endpoint information is captured in reports. You can update your endpoints before or after migration. See the support matrix invRealize Automation product documentation for a list of supported endpoints.
Blueprints	Yes	See “Migrating Blueprints,” on page 15 and “Migrating Entitlements,” on page 17.

Table 1-1. Understanding What Data is Migrated (Continued)

vCloud Automation Center Item	Migrates Yes or No	Details and Related Information
Reservations and reservation policies	Yes	Machine and compute resource information is also migrated. Reservations retain their settings, including capacity alerts, memory, priority, storage, and so on. Each reservation is configured for a named business group. Business group users can request machines on a specified compute resource.
Storage reservation policies and storage cost profiles	Yes	
Compute resources	Yes	Compute resource information is migrated, including cost profile, storage cost profile, storage reservation policy, custom properties, and so on. The associated machine and reservation information for each business group is also migrated.
Distributed Execution Managers, DEM skills, and agents	Yes	See “Migrating DEM and Agent Information,” on page 18.
Network profiles	Yes	
Cost profiles	Yes	
Supplied custom properties	Yes	See “Migrating Custom Properties,” on page 19.
Supplied workflows	Yes	Standard workflows are migrated. Custom workflows are not migrated.
Machines, including lease, linked clone, and machine limit settings	Yes	Machine and compute resource information is migrated. See “Migrating Machines,” on page 18.
Global properties	Yes	Global properties that are supported in the target system are migrated.
Snapshots	Yes	
Deployment customizations, including custom workflows, events, built-in stubs, plug-ins, email customizations, and so on	No	Record all customization information before migrating. Consider uninstalling customizations before starting the migration process. If you received customization packages from VMware or from a third party, and you still want to use the customizations after migration, check with the contact who authored the customizations to request updated versions.
Branding graphics	No	You can recreate branding graphics in the target system before or after you run the migration task.
Blueprint icons	No	See “Migrating Blueprints,” on page 15.
Licenses	No	
Local machine users and built-in users	No	

Table 1-1. Understanding What Data is Migrated (Continued)

vCloud Automation Center Item	Migrates Yes or No	Details and Related Information
Approval policies	No	Approval policies are not migrated but a generic approval policy is created in the target system. See “Migrating Approval Policies,” on page 16. You can recreate approval policies in the target system before or after you run the migration task. See “Recreating Approval Policies,” on page 51.
Guest agent ISO settings or Guest agent vRealize Automation management addresses	No	See “Migrating DEM and Agent Information,” on page 18 and “Recreating ISOs and Templates That Contain a Guest Agent,” on page 52.
Email settings, including email customizations	No	Email configuration settings do not migrate. Recreate email configuration and settings when migration finishes. For information, see “Recreating Email Notifications,” on page 52.
Notifications	No	Notification settings do not migrate. Recreate notification settings when migration finishes. For information, see “Recreating Email Notifications,” on page 52.
Active or pending requests and approvals including reconfiguration, leasing, and reclamation	No	Allow all workflows and pending actions to complete before you start the migration task.

Migrating Users and Groups

You can migrate users, roles, groups, and other user-related data.

If you make changes to users, groups, or permissions while pre-migration is running, those changes might not be processed. Rerun pre-migration to include those changes.

Any users and groups that you create in the target vRealize Automation system before you start migration are removed during migration.

NOTE Users that you create after pre-migration are not migrated and user changes that you make after starting pre-migration might not be captured. Resources associated to those users might not work as expected. If you created or modified users after pre-migration, rerun the pre-migration task to capture that user data. Resources that are associated with users who could not be migrated are assigned to the default tenant administrator that you specify during pre-migration.

Local machine users are not migrated. Built-in user accounts, such as *BUILTIN\Administrator* or *BUILTIN\Everyone*, are also not migrated. However, for resources that belong to a built-in administrator account and for which a machine has been provisioned, that machine is migrated and assigned to the tenant administrator.

Migrating Administrator and User Roles

User roles that were supplied with the source vCloud Automation Center 5.2 system are migrated to the equivalent role in the target system.

Custom roles are not migrated. You can recreate custom roles in the target system after migration is finished.

Consider removing unnecessary users and customized roles before migration to simplify reports and decrease migration time.

Table 1-2. Source and target Role Mapping

Source vCloud Automation Center 5.2 Role	Target vRealize Automation Role
vRealize Automation administrator	IaaS administrator
Enterprise administrator	Tenant administrator and Fabric administrator (dual role)
N/A	System administrator (administrator@vsphere.local)
Provisioning group manager	Business group manager
Provisioning group support user	Business group support user
Provisioning group user	Business group user
Fabric administrator	Tenant administrator

Based on user changes that are made in the source system, if you rerun the pre-migration task, user role data is added, updated, deleted, or unchanged in preparation for migration.

NOTE The pre-migration task prepares to migrate each fabric administrator in the source system to a tenant administrator role in the target system. If you remove a fabric administrator user from the source system and then rerun the pre-migration task, that user is not removed from the target data. Unlike other role types, when you rerun the pre-migration tasks, tenant administrator users can only be added or updated in preparation for migration.

Migrating User and Group Identities

Standard users and groups are migrated, provided that the target system exists in the same domain as the source system or the target domain has identical trusts as the source system.

Other users and roles are captured in the reports and are not migrated.

Local machine users are not migrated. Built-in user accounts, such as *BUILTIN\Administrator* or *BUILTIN\Everyone*, are also not migrated. However, for resources that belong to a built-in administrator account and for which a machine has been provisioned, that machine is migrated and assigned to the tenant administrator.

For user names that the migration process cannot translate, the migration process performs the following actions:

- Replaces the user name with the UPN of the default tenant
- Reports the occurrence in the pre-migration and migration reports

Although the group names are not changed during migration, some classification terms have changed.

Table 1-3. Group Name Terms Before and After Migration

vCloud Automation Center 5.2 Group Name	vRealize Automation Group Name
Enterprise group	Fabric group
Provisioning group	Business group

Migrating User Security Settings

Windows Security Identifier data in the User Authorization Manager data store is extracted from the source system and converted to User Principal Name format. This data is migrated to the target vRealize Automation system.

Role membership identifies users and groups who are using Windows Security Identifier (SID) format. In vRealize Automation, this information is stored in a Single Sign-on (SSO) authorization store. The SSO store identifies each user and group by using a UPN format. All security identifiers are migrated to the SSO store in the target system.

The following table contains an example of the two formats.

Table 1-4. Example of User Name Equivalent in SID and UPN format

Source SID Domain Format Sample User	Target UPN Format Sample User
mycompany.local\joe.user	joe.user@mycompany.local

vRealize Automation only accepts security identifiers in UPN format.

During the process of migrating user information, vCloud Automation Center 5.2 security data in Windows Security Identifier format is extracted and converted to UPN format by connecting and querying the Active Directory domain for UPN identifiers. The converted fully qualified UPN identifiers are cached in temporary tables to be committed to the vRealize Automation authorization store.

The migration process creates one principal extension for each UPN and adds the extensions to the target default tenant.

For related information, see [“Prerequisites for vRealize Automation Migration,”](#) on page 21. For details about establishing domain trust during vRealize Automation installation and configuration, and about configuring the Identity Appliance see *Installation and Configuration* in the vRealize Automation documentation.

Migrating Blueprints

Blueprints are migrated to the target system and published to the vRealize Automation catalog as catalog items, with some exceptions.

The migration process creates a service named Infrastructure in the target system. Enabled blueprints are published to this service during migration. You can add services after migration is finished.

Blueprint management, including approval and entitlement management, has changed. For more information, see *Changes from vCloud Automation Center 5.2* and *Foundations and Concepts* in vRealize Automation documentation. The *Changes from vCloud Automation Center 5.2* PDF is available online with the 6.0 documentation.

NOTE Consider reducing the number of provisioning groups and special case blueprints before migration to keep the number of migrated entitlements to a minimum. In addition to the two standard entitlements, an entitlement is also created for each blueprint for which restricted access is configured.

The following considerations are helpful in understanding how blueprints are migrated.

- Migration creates a single, default policy that is configured to require only the approval of the business group manager. The migration process adds the approval policy to each catalog item entitlement for each blueprint that had an approval configured in the source system.
- Blueprint approval settings such as machine resource settings for CPU, memory, and storage are not migrated. However, approval information is captured in the pre-migration report. Reference the pre-migration report when you recreate approvals in the target vRealize Automation system.
- ISO location information in the build profiles and blueprints and template information in the blueprints is migrated. However, you must reconfigure the ISOs and templates after migration to point to the system on which the manager service is running, for example a virtual machine or a load balancer. After migration is finished, recreate ISOs and templates that contain a guest agent.
- Blueprints that are disabled are migrated but are not published to the catalog or listed as an entitled catalog item on the Entitlements page.
- vCloud Networking and Security configurations are not migrated for multi-machine blueprints.
- vCloud Director vApps and vApp components are migrated but only the vCloud Director vApp components are published.

- The migration process creates a service named Infrastructure in the target system. Enabled blueprints are published to this service during migration. You can add services after migration is finished.
- Global blueprints are published as shared blueprints.
- Machine limits, lease information, and linked clone settings that are defined on blueprints and reservations are migrated.
- If an approval setting or policy does not have an associated blueprint, it is not captured in the pre-migration report.
- If a business group has no blueprints, the migration process does not create entitlements for that business group.
- Blueprint icons are not migrated. Migrated blueprints use the default target system icons.

The resolution at which source and target system blueprint icons are displayed differs. For better visual representation, recreate blueprint icons in the target vRealize Automation system at the recommended resolution of 100 x 100.

Migrating Approval Policies

Migration creates a single, default policy in the target vRealize Automation system that is configured to require only the approval of the business group manager. The migration process adds the approval policy to each catalog item entitlement for each blueprint that had an approval configured in the source system.

Blueprint approval settings such as machine resource settings for CPU, memory, and storage are not migrated. However, approval information is captured in the pre-migration report. Reference the pre-migration report when you recreate approvals in the target vRealize Automation system.

You can recreate approval policies after pre-migration and before migration by using information in the pre-migration report. Otherwise, you can recreate approval policies after migration. For more information, see [“Recreating Approval Policies,”](#) on page 51.

The following approval policy considerations apply to migration:

- The pre-migration tasks creates the default approval policy.
- The default approval policy name is Default Approval Policy for Migration.
- The default approval policy is entitled.
- Policy is defined separately from blueprints in the target system.
- Approval policies are linked to entitlements.
- The default policy that is created during migration is linked to each blueprint for which a policy was defined in the source vCloud Automation Center 5.2 system.
- You cannot edit activated approval policies.
- You can deactivate approval policies, but you cannot delete them.

The default approval policy that is created during migration contains the following field entries:

- Name: Default Approval Policy for Migration
- Description: Default Policy one level of business group manager
- Status: Active
- Levels: 1 approval level

For information about how to create and use approvals and approval policies in the target system, see *Tenant Administration* in the vRealize Automation documentation.

Migrating Entitlements

Migration creates entitlements based on vCloud Automation Center 5.2 blueprint settings.

Blueprint management, including approval and entitlement management, has changed. For more information, see *Changes from vCloud Automation Center 5.2* and *Foundations and Concepts* in vRealize Automation documentation. The *Changes from vCloud Automation Center 5.2* PDF is available online with the 6.0 documentation.

The migration process creates a service named Infrastructure in the target system. Enabled blueprints are published to this service during migration. You can add services after migration is finished.

An entitlement is created for each business group, in which all possible actions are listed and available.

Entitlements are also created for business groups based on access settings specified in blueprints that belong to, or are associated with, that business group. If a blueprint's access is set to everyone, the blueprint is added to the catalog and it is entitled for everyone in the associated business group. If a blueprint's access is not set to everyone, the blueprint is added to the catalog and only entitled for the designated members of the associated business group.

The following entitlements are created for each business group when an associated blueprint has no restrictions on its security tab.

- *BusinessGroupName* Group
- *BusinessGroupName* Actions

An additional entitlement is created for each restricted blueprint, for example *BusinessGroupName BlueprintName* Blueprint.

In addition to these basic entitlements that are created for every business group, an entitlement is created for each restricted blueprint. For example, if *Blueprint A* is unrestricted and available to everyone in the group and *Blueprint B* is restricted to a subset group of users in the Accounting department, an entitlement is created that is available to everyone in the business group. Another entitlement is created for, and only available to, the Accounting department subset of the group. If no unrestricted blueprints exist, only the Group and Actions entitlements are created for the business group.

After migration, the tenant administrator can display entitlements by selecting **Administration > Catalog Management > Entitlements**. Information about the entitlements is available on the **Details** and **Items and Approvals** tabs.

Resource actions are added to the entitlements. Only the resource actions that are available for a user in the business group are available for that user's resources, such as machines that the user has provisioned or has the authority to provision. All resource actions are entitled.

Consider reducing the number of provisioning groups and special case blueprints before migration to keep the number of migrated entitlements to a minimum. In addition to the two standard entitlements, an entitlement is also created for each blueprint for which restricted access is configured.

The following considerations are helpful to further understand how entitlements are migrated:

- Approval policies are linked to entitlements.
- Blueprints that are entitled or assigned to more than one group are published with a shared scope.
- Entitlements are created with an active status.
- Entitlements cannot be deleted, although they can be deactivated.
- Blueprints that are disabled are migrated but are not published to the catalog or listed as an entitled catalog item on the Entitlements page.
- If a business group has no blueprints, the migration process does not create entitlements for that business group.

For more information about entitlements, see [“Migrating Blueprints,”](#) on page 15 and [“Migrating Approval Policies,”](#) on page 16.

For information about how to create and use entitlements in the target vRealize Automation system, see *Tenant Administration* in the vRealize Automation documentation.

Migrating Machines

Machine information is migrated. Associated reservation, compute resource, and endpoint information is also migrated.

Migrated machines are published to the target vRealize Automation system catalog as resources. Published resources are displayed on the **Items** tab. Although these published resources are not associated with a service, they are connected by catalog items that are associated with the Infrastructure service. Actions to which the business group members are entitled are maintained as available catalog item actions.

Catalog resources are also created for each multi-machine service and its component machines and each vApp machine and its vApp component machines.

Multi-machine blueprint vCloud Networking and Security configurations are not migrated.

The following machine characteristics are migrated for each resource.

- Owner
- Cost
- Machine type
- Lease
- Description notes

After migration is finished, the vRealize Automation catalog displays the following published resource types in the default Infrastructure catalog service.

- InfrastructureVirtual
- InfrastructurePhysical
- InfrastructureCloud
- InfrastructureMultiMachine
- InfrastructurevApp

Migrating DEM and Agent Information

Distributed Execution Manager and agent information, including DEM skills, migrates from vCloud Automation Center 5.2 to the target system and is captured in reports.

Distributed Execution Manager Worker and Distributed Execution Manager Orchestrator information is migrated.

For successful migration, DEM and agent names that you specify during vRealize Automation installation must match the names used in the source system.

Name matches retain DEM skill settings and associations. Name matches are not always required for agents, but an agent is required for each endpoint. The pre-migration task generates warnings in the pre-migration report when it finds DEM and agent names in the source that do not have a match in the target, but these warnings do not prevent the task from finishing successfully.

NOTE To ensure that the pre-migration report does not erroneously report that agents are missing in the target system, configure an endpoint for each agent in the target system before you start the migration tool. If the message appears in the pre-migration report and a matching agent does exist in the target system, configure an endpoint for the agent in the target system and then rerun pre-migration. Otherwise, ignore the message and configure an endpoint when migration is finished.

Guest agent information is migrated but some post-migration work might be required. See [“Recreating ISOs and Templates That Contain a Guest Agent,”](#) on page 52.

Migrating Custom Properties

Custom properties migrate from the vCloud Automation Center 5.2 system.

Most custom properties convert to UPN format during migration. However, the following custom properties do not convert to UPN format because doing so would potentially break the blueprints in which they are used.

- Image.ISO.UserName
- Image.Network.User
- Opsware.Server.Username
- Pugin.AdMachineCleanup.UserName
- SCCM.Server.UserName
- Sysprep.Identification.DomainAdmin
- Users.%.AddUser

After migration is finished, update custom properties that include WinPE or Linux ISOs to include any new ISO information, such as location or name. See [“Recreating ISOs and Templates That Contain a Guest Agent,”](#) on page 52.

For information about these and other custom properties, see *Custom Properties Reference* in the vRealize Automation documentation.

Migrating to One Target System and Then to Another

You can initially migrate your supported vRealize Automation source data to a supported target system, and later migrate that same source data to another target system, but you must use a specific procedure to do so successfully. For example you might want to migrate to a test system and then migrate to a production system. or you might also want to migrate in a Beta environment and then migrate in a released environment.

When you migrate, the migration tool creates several table entries in the source database. These tables remain after the migration process is finished. If you choose to later migrate to a different target system than the system that you originally specified, for example first to a test system and later to a production system, you must first delete these stale migration tables from the source database. If you created a backup of the source database before you started the migration process, you can alternatively restore that database.

To migrate to a different target system, you must first delete the migration tables from the source database and then start the pre-migration and migration process from the beginning. For information about deleting the stale migration tables from the source database, see [“Cleaning Up Migration Tables in Source 5.2 Database,”](#) on page 55.

Problems with migration tables in the source database occur most commonly for the following reasons:

- You specify one target system when you run pre-migration and a different one when you rerun pre-migration.
- You specify one target system when you run pre-migration and a different one when you run migration.
- You specify a test target system when you initially run pre-migration and migration and a production target system when you rerun pre-migration and migration.
- You specify a beta target system when initially run pre-migration and migration and a production target system when you rerun pre-migration and migration.

If you migrate to one target system and later migrate to a different target system, managed machines may not be visible in the catalog items page when migration is finished. This occurs if stale migration tables are present in the source database when you migrate to a different target system. For details, see [“Machines Not Visible on Items Page After Migration,”](#) on page 63.

Preparing for Migration

Before the migration process begins, you must prepare the migration environment.

Understanding and meeting the migration process prerequisites is critical to success. Use the migration worksheets to collect information that you need to supply during pre-migration and migration.

This chapter includes the following topics:

- [“Prerequisites for vRealize Automation Migration,”](#) on page 21
- [“Administrator Migration Worksheets,”](#) on page 23
- [“Backing Up and Preparing Files Before You Start the Migration Tool,”](#) on page 25
- [“Retrieve the Database Encryption Key,”](#) on page 27

Prerequisites for vRealize Automation Migration

Review the migration overview and prerequisites before you start the migration process.

The *Changes from vCloud Automation Center 5.2* and *Foundations and Concepts* documentation helps administrators better understand the new vRealize Automation functions and behaviors. The *Changes from vCloud Automation Center 5.2* PDF is available online in the 6.0 documentation.

Migration to vRealize Automation 6.2 requires that the source system be at vCloud Automation Center 5.2.3 and the target system be at vRealize Automation 6.2 or a later 6.2.x version.

All instances of vCloud Automation Center 5.2, in reference to migration to vRealize Automation 6.2 represent vCloud Automation Center 5.2.3.

The following prerequisites are required for migration.

- Install, configure, and license the target vRealize Automation system.
You must have a clean vRealize Automation target system installed and configured in support of migration.
 - Establish domain trust between the source and target systems.
 - Configure the target identity store and default vsphere.local tenant for Native Active Directory.
 - Assign one or more identity store users to be default tenant administrators.
 - Ensure that the DEM and agent names that you provide during installation match the DEM and agent names used in the source system.

For information about installing, configuring, and licensing the target vRealize Automation system in preparation for migration, see *Migrating vRealize Automation* in *Installation and Configuration* in the vRealize Automation documentation.

- If you are using an earlier version of vCloud Automation Center 5.2, you must upgrade to vCloud Automation Center 5.2.3 before you can migrate to vRealize Automation 6.2. If you are using vCloud Automation Center 5.2.1 or 5.2.2, you can migrate to 6.1 and then upgrade to vRealize Automation 6.2 or a later 6.2.x version.
- Verify that the target vRealize Automation system Model Manager Web Service component is installed and meets the Java requirements listed in *IaaS (Windows Server) Requirements in Installation and Configuration*.
- The Model Manager Web Service administrator requires either the same credentials as the source vRealize Automation system service accounts or else identical privileges to the domains as the source system service accounts.
- As documented in the *Installation and Configuration* section that describes how to configure for migrating vRealize Automation, the Identity Appliance and Windows IaaS servers must be joined to the same domain as the source vRealize Automation system servers or to a domain with identical domain trusts to the source system servers.

See *Configure the Identity Appliance in Installation and Configuration*.

- Verify that the target identity store is configured for Native Active Directory in the target vRealize Automation default tenant, vsphere.local.

See *Configure a Native Active Directory Identity Store in Installation and Configuration*.

- Verify that the HTTPS protocol is configured for the source and target Model Manager Web Services. Migration requires HTTPS protocol access to the Model Manager Web Service. HTTP is not supported.
- Verify that the Model Manager Web Service in the source and target systems remains online during pre-migration and migration.

The Model Manager Web Service runs as part of an Internet Information Server application thread. Once installed, this Web service and the IIS application pool are started by default.

The migration tool checks that these services are online and outputs an error if they are not.

- As stated in the migration preparation section of the *Installation and Configuration*, agent and proxy agent names for the target system must exactly match the names you used in your source system. See [“Migrating DEM and Agent Information,”](#) on page 18.
- If you specify one target system when you initially run pre-migration but subsequently specify a different target system when you rerun pre-migration or when you run migration, migrations fails. The cause of failure is stale migration tables in the source database. If you must specify a different target system than the one you initially specified, delete the stale migration tables before proceeding. See [“Cleaning Up Migration Tables in Source 5.2 Database,”](#) on page 55.
- Verify that Microsoft Distributed Transaction Coordinator (MSDTC) is enabled on all vRealize Automation and associated SQL servers by complying with instructions in VMware Knowledge Base article *Various tasks fail after upgrading or migrating to VMware vCloud Automation Center (vCAC) 6.1.x (2089503)* *Various tasks fail after upgrading or migrating to VMware vCloud Automation Center (vCAC) 6.1.x* at http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2089503.
- Turn off Storage DRS in all datastore clusters that use Storage DRS.

Switching SDRS Automation to manual mode is not sufficient. Turn Storage DRS on when migration is finished. See [Chapter 6, “Performing Post-Migration Tasks Checklist,”](#) on page 49.

Additional Migration Considerations and Best Practices

Consider the following tips and suggestions.

- Consider reducing the number of provisioning groups and special case blueprints before migration to keep the number of migrated entitlements to a minimum. In addition to the two standard entitlements, an entitlement is also created for each blueprint for which restricted access is configured.

See [“Migrating Entitlements,”](#) on page 17.

- Consider removing unnecessary users and customized roles before migration to simplify reports and decrease migration time.

See [“Migrating Administrator and User Roles,”](#) on page 13.

- The migration tool requires a secure connection to the source system's Model Manager Web Service server. If you did not install the server with a trusted certificate, such as a domain certificate, a trust error appears during pre-migration when the migration tool attempts to validate the connection. To avoid the error, install the certificate from the source vRealize Automation server in the local trusted certificate store. See *Replace a Certificate in the vCloud Automation Center Appliance in Installation and Configuration*.

Administrator Migration Worksheets

Use these worksheets to record important information as you prepare to migrate your source system data to vRealize Automation. You can reference the information in the worksheets during the migration process.

Source System Data Worksheet for Migration

Record information about the source vCloud Automation Center 5.2 system.

Migration to vRealize Automation 6.2 requires that the source system be at vCloud Automation Center 5.2.3 and the target system be at vRealize Automation 6.2 or a later 6.2.x version.

Use only ASCII characters in the migration tool text boxes. The only non-ASCII character that the migration tool recognizes is the period.

Table 2-1. Source System Data Worksheet for Migration

Entity Type or Description	Your Deployment Name/Location/Value	Additional Information
Model Manager Web Service FQDN and Port		The default port is 443. If you use a port number other than 443, you must manually update a required database table after you have finished running the pre-migration task and before you start running the migration task. For details, see “Update Migration Table to Parse Port Value Data,” on page 44.
Model Manager Web Service administrator user name and password credentials		Record the Windows service account credentials that IIS requires to run the application pool.
SQL server name		
SQL database name		You replace the target database with the source database prior to running migration. Record the source database name.

Table 2-1. Source System Data Worksheet for Migration (Continued)

Entity Type or Description	Your Deployment Name/Location/Value	Additional Information
Credentials for Domain or SQL authentication to SQL database		You must restore the source system database over the target system database as part of the migration process. Verify that you have access rights to perform this operation.
Encryption key or passphrase for SQL database		The migration tool prompts you for this information and provides a link to the “Retrieve the Database Encryption Key,” on page 27 topic.
Distributed Execution Manager Workers Distributed Execution Manager Orchestrators The Distributed Execution Managers (DEMs) and Distributed Execution Workers names that you specify when installing vRealize Automation must exactly match the names you used in the source system.		To find these names, select vCAC Admin > Distributed Execution Status . See “Migrating DEM and Agent Information,” on page 18.
Agents The Agent and Proxy Agent names that you specify when installing vRealize Automation must exactly match the names you used in the source system.		To find these names, select Enterprise Admin > Compute Resources . If necessary, right-click a compute resource host name and select View Proxy Agent . See “Migrating DEM and Agent Information,” on page 18.
Endpoints		To find these names, select vCAC Admin > Endpoints .
Customizations		The migration process deletes customizations. Record all of the customization work that you did in the source system. Recreate customizations after migration.
Snapshots and backups		Record the name and description of each snapshot and backup you create so that you can restore your environment to that configuration if necessary.

Target System Data Worksheet for Migration

Record information about the target vRealize Automation system.

Use only ASCII characters in the migration tool text boxes. The only non-ASCII character that the migration tool recognizes is the period.

Table 2-2. Target System Data Worksheet for Migration

Entity Type or Description	Your Deployment Name/Location/Value	Additional Information
Model Manager Web Service FQDN and Port		The default port is 443. If you use a port number other than 443, you must manually update a required database table after you have finished running the pre-migration task and before you start running the migration task. For details, see “Update Migration Table to Parse Port Value Data,” on page 44.
Model Manager Web Service administrator user name and password credentials		Record the Windows service account credentials that IIS requires to run the application pool.
SQL server name		
SQL database name		You replace the target database with the source database prior to running migration. Record the target database name.
Credentials for Domain or SQL authentication to SQL database		
Default tenant name	vsphere.local (default)	Data is migrated to the vsphere.local tenant, which is created by default when you install vRealize Automation.
Default tenant administrator user name and password		Provide the credentials for a Native Directory identity store user who has administrator access to the default vsphere.local tenant. The administrator name is not administrator@vsphere.local.
Snapshots and backups		Record the name and description of each snapshot and backup you create so that you can restore your environment to that configuration if necessary.

Backing Up and Preparing Files Before You Start the Migration Tool

You can perform some tasks before you start the migration tool to minimize the system downtime required for migration.

After you install and configure the target vRealize Automation system, you can optionally perform the following tasks before you run the migration tool:

- [“Backing Up the vCloud Automation Center 5.2 Database,”](#) on page 26
- [“Updating Customized Configuration Files,”](#) on page 26

You can also recreate branding graphics in the target system before or after you run migration. See [Chapter 6, “Performing Post-Migration Tasks Checklist,”](#) on page 49.

Backing Up the vCloud Automation Center 5.2 Database

It is a best practice to create a backup of the source SQL database before you start the migration process. Back up the vCloud Automation Center 5.2 SQL database using your preferred method of database backup. When you back up the source database before you start the migration process, you allow more time for the migration tool and post-migration tasks in your migration downtime window.

This task assumes that you are using the step sequence published by Microsoft to back up and restore a SQL database by using Microsoft SQL Server Management Studio.

NOTE You can also create a backup and snapshot of your source system before you start migration, however the migration process does not make any changes to the source system.

The backed up database extension should be .bak.

The procedure to back up and restore a SQL database is described in the following Microsoft Developer Network documentation topics.

- *Back Up and Restore of SQL Server Databases*
- *Create a Full Database Backup (SQL Server)*
- *Restore a Database Backup (SQL Server Management Studio)*

For more information about backing up databases, see *System Administration*.

Updating Customized Configuration Files

Custom settings in configuration files are not migrated. You can merge your source configuration files with their equivalent configuration files in the target system to recreate many of the settings.

When you update customized configuration files before starting the migration process and taking the source system offline, you allow more time for the migration tool and post-migration tasks in your migration downtime window.

Commonly customized settings include machine provisioning limits, timeout intervals, and reclamation request intervals.

Because the user name format was changed between vCloud Automation Center 5.2 and the current vRealize Automation version, you must change the user name formats in associated customization scripts. The user name format in the source vCloud Automation Center 5.2 environment was domain structure, for example, **test\username**. The user name format in the target vRealize Automation environment is UPN structure, for example **username@test.local**.

If you made configuration setting changes in the following source configuration files, consider merging your changes with the files in your target vRealize Automation system.

- **ManagerService.exe.config**
- **DynamicOps.DEM.exe.config**

This file exists for each DEM service in each DEM folder.

- **VRMAgent.exe.config**

This file exists in each folder.

For more information about settings that you can customize in vRealize Automation configuration files, see *Installation and Configuration* and *Machine Extensibility* in vRealize Automation documentation. Some configuration file settings that were available in vCloud Automation Center 5.2 might not be available in the target vRealize Automation system.

Retrieve the Database Encryption Key

You need your source database encryption passphrase or encryption key when you perform the pre-migration task. If you do not know your passphrase or key, you can retrieve the encryption key before you start the task.

Procedure

- 1 Log in to a vCloud Automation Center 5.2 Manager Service Data node as the system administrator.
- 2 Open a command-prompt window.
- 3 Navigate to and run the following EncryptionKeyTool command using a single command line.

```
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
```

The retrieved encryption key appears, for example: Xj11Tjk3WB0F6YaZoxWxaBmRUGhmwLZ50jJgynBSHU0=.

- 4 If you are running the pre-migration task now, return to the pre-migration Database Security screen and enter the retrieved encryption key in the **Encryption key** text box to continue with pre-migration. Otherwise, record the key value for later use.

Running the Pre-Migration Task

The pre-migration task collects, records, and stores vCloud Automation Center 5.2 data in preparation for migration.

Pre-migration performs the following tasks.

- Collects and prepares data from the source system
- Stores collected and prepared data
- Generates the pre-migration report and logs
- Specifies additional manual tasks that must be completed after pre-migration and before migration

The pre-migration task stores data in the source database and creates objects in the target system. The objects are not functional until migration is finished. Do not use the target system until migration is finished.

You must perform additional manual tasks after pre-migration is finished and before you start migration. See [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

Use only ASCII characters in the migration tool text boxes. The only non-ASCII character that the migration tool recognizes is the period.

This chapter includes the following topics:

- [“Download the Migration Tool,”](#) on page 29
- [“Run the Pre-Migration Task,”](#) on page 30
- [“Using the Pre-Migration Report and Logs,”](#) on page 32
- [“Rerun the Pre-Migration Task,”](#) on page 33

Download the Migration Tool

The migration tool is available for download from the vRealize Appliance and consists of the pre-migration and migration task options.

The migration tool version number in the Details section of the vCACMigrationTool.exe self-extracting executable file is the self-extractor version number. The migration tool version number is in the Details section of vCACMigration.exe file, which is bundled in the vCACMigrationTool.exe file.

Procedure

- 1 Log in as a domain administrator on an IaaS system on which the target vRealize Automation system's Model Manager Web Service is installed.
- 2 Click the **IaaS Install** tab in the vRealize Appliance.

- 3 Click the **Migration Tool** link in the IaaS Installation section of the IaaS Components Installation download page.
- 4 At the prompt, specify the location at which to download the vCACMigrationTool.exe self-extracting executable file.

The default download location is the Downloads folder.

What to do next

Extract and run the migration tool executable file to start the pre-migration task. See [“Run the Pre-Migration Task,”](#) on page 30.

Run the Pre-Migration Task

The pre-migration task stores data in the source database and creates objects in the target system. Run the pre-migration task one or more times to prepare data for migration.

If you make changes to users, groups, or permissions while pre-migration is running, those changes are not collected by the pre-migration process. You can rerun pre-migration to collect and include those changes or you can manually recreate them after migration is finished.

IMPORTANT The objects that the pre-migration task creates in the target system are not functional until migration is finished. Refrain from using the target system until migration is finished.

You can recreate approval policies after pre-migration and before migration by using information in the pre-migration report. Otherwise, you can recreate approval policies after migration. For more information, see [“Recreating Approval Policies,”](#) on page 51.

For information about configuring administrator access to the vsphere.local tenant, see *Migrating vCloud Automation Center in Installation and Configuration* for vRealize Automation.

NOTE The suggested practice is to run the pre-migration task once, review the report, make any necessary corrections, and rerun pre-migration. When you are satisfied with the pre-migration report results, perform the specified manual tasks to quiet the system and run pre-migration a final time. After you run the final pre-migration, replace the target database with the source 5.2 database and run migration. While this practice is more time consuming, it provides a higher confidence level in the migration readiness of the source system.

The target default tenant name, vsphere.local, cannot be changed and migration to a different tenant or to multiple tenants is not supported.

Prerequisites

- Verify that you meet all prerequisites. See [“Prerequisites for vRealize Automation Migration,”](#) on page 21.
- Obtain the migration tool. See [“Download the Migration Tool,”](#) on page 29.
- Verify that the Model Manager Web Service in the source and target systems remains online during pre-migration and migration.

Run the migration tool from a target vRealize Automation system on which the Model Manager Web Service component is installed.

Procedure

- 1 Log in as a domain administrator on an IaaS system on which the target vRealize Automation system's Model Manager Web Service is installed.

- 2 Run the `vCACMigrationTool.exe` self-extracting executable file to extract and run the `vCACMigration.exe` migration tool.

The default location from which to extract the `vCACMigration.exe` migration tool is `C:\Program Files (x86)\VMware\vCACMigration` on the Model Manager Web Service component node.

- 3 Follow the prompts to the Migration Tasks page.
- 4 Click **Pre-migration** on the Migration Tasks page and click **Next**.
- 5 Enter information for the source vCloud Automation Center 5.2 Model Manager Web Service.
If you specify a port value other than the default, you may need to manually update a migration table value after the pre-migration task is finished.

- 6 Accept information for the source vCloud Automation Center 5.2 database and click **Next**.

The source database text box is pre-populated with content from the source page.

- 7 Enter information for the target vRealize Automation Model Manager Web Service.
If you specify a port value other than the default, you may need to manually update a migration table value after the pre-migration task is finished.
- 8 Enter information for the target vRealize Automation database.
 - a Enter the target SQL database server name in the **Database server** field.
 - b Enter the target SQL database name in the **Database name** field.
 - c Select Windows or SQL authentication.

If you selected SQL authentication, enter the SQL database administrator credentials.

- 9 Click **Next**.

- 10 Enter the security passphrase or encryption key for the source database.

This is the security passphrase or encryption key that was used when vCloud Automation Center 5.2 was installed. If you do not know the passphrase or encryption key, you can click the **Retrieve the Encryption Key** link to open the supplied instructions.

- Click **Enter passphrase**, enter the passphrase, and click **Test**.
 - If the passphrase is valid, click **Next**.
 - If the passphrase is invalid, click **Enter encryption key**.
- Click **Enter encryption key**, enter the encryption key, and click **Test**.
 - If the encryption key is valid, click **Next**.
 - If the encryption key is invalid, retrieve and enter a valid key.

- 11 Click **Load** to display a list of users who have been given administrator access to the default `vsphere.local` tenant.

- 12 Select an administrator name from the list of names.

If you manually enter a user name, specify an individual administrator name such as `jsmith@mycompany.com`, rather than an administrator group name. The administrator name `administrator@vsphere.local` is not a valid entry.

- 13 Click **Next**.

- 14 Review the Ready to Run Pre-Migration screen and click **Start**.

- 15 When pre-migration is finished, click **View detailed report** to open and review the pre-migration report.

- 16 Review the list of tasks that must be performed after pre-migration is complete.
- 17 Click the linked documentation topic to display information about how to perform the required manual tasks.
- 18 Click **Finish**.

What to do next

- 1 Review the pre-migration report. See [“Using the Pre-Migration Report and Logs,”](#) on page 32.
- 2 If necessary, resolve any outstanding issues and rerun pre-migration. See [“Rerun the Pre-Migration Task,”](#) on page 33.
- 3 Review the list of tasks that must be performed after pre-migration is finished.
- 4 When you are satisfied with the content of the pre-migration report, perform the listed manual tasks. See [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

Using the Pre-Migration Report and Logs

The pre-migration report lists the source information collected and processed during pre-migration. Information categories include errors, warnings, and successes.

The pre-migration task generates and populates the pre-migration report. The migration tool provides a link to the report when pre-migration is finished. View the report to determine your readiness to migrate.

The pre-migration report, `PreMigration.html`, is generated in the `reports` subdirectory of the directory in which you downloaded and extracted the migration tool.

Each time you run pre-migration, the migration tool renames the `PreMigration.html` report by appending the date and time at which the report was generated, for example as `PreMigration2014_August_20-17_53_47.html`. It then generates a new report named `PreMigration.html`.

The pre-migration report includes the following information.

- Fabric and business group names
 - Blueprint names
 - Entitlements
 - Agents, DEMs, and endpoints associated with agents
 - Deployment customizations such as custom operations, workflows, and events
 - Pending approval requests, reclamation requests, and workflows
 - Approvals that you can manually recreate in the target system
- You can use information in the pre-migration report to recreate approval policies in the target system before or after migration.
- User principal names that can migrate successfully
 - Warnings indicating user principal names that cannot be migrated
 - Warnings indicating that the fully qualified domain name for the server is different between the source and target systems

Pre-Migration Log Files

The migration tool generates the following log files in the Program Files (x86)\VMware\vCACMigration\Logs folder.

- Migration.log
The Migration.log file contains information gathered during pre-migration and migration, including generated warnings and errors.
- Migration-Error.log
The Migration-Error.log file contains error messages that are generated during pre-migration and migration.
- vCACMigration.log
The vCACMigration.log file contains information about the migration tool itself.
- vCACMigration-Error.log
The vCACMigration-Error.log file contains errors that are related to the migration tool itself.

Rerun the Pre-Migration Task

You can run the pre-migration task as many times as necessary.

IMPORTANT The objects that the pre-migration task creates in the target system are not functional until migration is finished. Refrain from using the target system until migration is finished.

You can recreate approval policies after pre-migration and before migration by using information in the pre-migration report. Otherwise, you can recreate approval policies after migration. For more information, see [“Recreating Approval Policies,”](#) on page 51.

Rerun pre-migration in the following situations:

- The pre-migration task did not finish successfully.
You can restart the migration tool and rerun the pre-migration task.
- The pre-migration task finished successfully.
Open the pre-migration report and decide if you should rerun pre-migration. For example, if you added users after you started pre-migration, rerun pre-migration to capture those new users. When you are satisfied with the pre-migration report, perform the manual tasks that are required after pre-migration is finished and start the migration task.
- Time elapsed between when you last ran pre-migration and when you are ready to run migration.
As a general rule and to be sure that the latest data was collected by the pre-migration task, rerun pre-migration if more than one day elapsed since you last ran pre-migration.
- You are satisfied with the pre-migration report but want to quiet the system before running a final pre-migration.
The suggested practice is to run the pre-migration task once, review the report, make any necessary corrections, and rerun pre-migration. When you are satisfied with the pre-migration report results, perform the specified manual tasks to quiet the system and run pre-migration a final time. After you run the final pre-migration, replace the target database with the source 5.2 database and run migration. While this practice is more time consuming, it provides a higher confidence level in the migration readiness of the source system.

You might also need to remove database tables that the pre-migration task added to the source 5.2 database before you can successfully rerun pre-migration. For information about removing tables from the source database that were added by the pre-migration task, see [“Cleaning Up Migration Tables in Source 5.2 Database,”](#) on page 55.

For related information, see [“Run the Pre-Migration Task,”](#) on page 30.

Prerequisites

- Run the pre-migration task. See [“Run the Pre-Migration Task,”](#) on page 30.
- Review and act on the information in the pre-migration report. See [“Using the Pre-Migration Report and Logs,”](#) on page 32.

Run the migration tool from a target vRealize Automation system on which the Model Manager Web Service component is installed.

Procedure

- 1 Log in as a domain administrator on an IaaS system on which the target vRealize Automation system's Model Manager Web Service is installed.

- 2 Run the `vCACMigration.exe` migration tool.

The `vCACMigration.exe` file is located in the subfolder that was created when you ran the `vCACMigrationTool.exe` self-extracting executable file. The default location is `C:\Program Files (x86)\VMware\vCACMigration`.

- 3 Follow the prompts to the Migration Tasks page.

- 4 Click **Pre-migration** on the Migration Tasks page and click **Next**.

- 5 Enter information for the source vCloud Automation Center 5.2 Model Manager Web Service.

If you specify a port value other than the default, you may need to manually update a migration table value after the pre-migration task is finished.

- 6 Accept information for the source vCloud Automation Center 5.2 database and click **Next**.

The source database text box is pre-populated with content from the source page.

- 7 Enter information for the target vRealize Automation Model Manager Web Service.

If you specify a port value other than the default, you may need to manually update a migration table value after the pre-migration task is finished.

- 8 Enter information for the target vRealize Automation database.

- a Enter the target SQL database server name in the **Database server** field.
- b Enter the target SQL database name in the **Database name** field.
- c Select Windows or SQL authentication.

If you selected SQL authentication, enter the SQL database administrator credentials.

- 9 Click **Next**.

- 10 Enter the security passphrase or encryption key for the source database.

This is the security passphrase or encryption key that was used when vCloud Automation Center 5.2 was installed. If you do not know the passphrase or encryption key, you can click the **Retrieve the Encryption Key** link to open the supplied instructions.

- Click **Enter passphrase**, enter the passphrase, and click **Test**.
 - If the passphrase is valid, click **Next**.

- If the passphrase is invalid, click **Enter encryption key**.
 - Click **Enter encryption key**, enter the encryption key, and click **Test**.
 - If the encryption key is valid, click **Next**.
 - If the encryption key is invalid, retrieve and enter a valid key.
- 11 Click **Load** to display a list of users who have been given administrator access to the default vsphere.local tenant.
 - 12 Select an administrator name from the list of names.
 If you manually enter a user name, specify an individual administrator name such as *jsmith@mycompany.com*, rather than an administrator group name. The administrator name administrator@vsphere.local is not a valid entry.
 - 13 Click **Next**.
 - 14 Review the Ready to Run Pre-Migration screen and click **Start**.
 - 15 When the pre-migration task is finished, click **View detailed report** to open and review the pre-migration report.
 - 16 Review the list of tasks that must be performed after pre-migration is complete.
 - 17 Click the linked documentation topic to display information about how to perform the required manual tasks.
 - 18 Click **Finish**.

What to do next

- 1 Review the pre-migration report. See [“Using the Pre-Migration Report and Logs,”](#) on page 32.
- 2 If necessary, resolve any outstanding issues and rerun pre-migration. See [“Rerun the Pre-Migration Task,”](#) on page 33.
- 3 Review the list of tasks that must be performed after pre-migration is finished.
- 4 When you are satisfied with the content of the pre-migration report, perform the listed manual tasks. See [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

Performing Manual Operations After Pre-Migration

4

After you finish running pre-migration, you must perform certain manual operations before you start the migration.

After you finish the pre-migration task and are satisfied with the results in the pre-migration report, use this checklist to perform the required manual operations before you run the migration task.

For information about the pre-migration task, see [“Run the Pre-Migration Task,”](#) on page 30.

For information about the migration task, see [“Run the Migration Task,”](#) on page 45.

IMPORTANT You can also perform these operations before you rerun the pre-migration task, with the exception of the final task in which you replace the target system database with the source system database. After you replace the target vRealize Automation database with the source vCloud Automation Center 5.2 database you cannot rerun pre-migration.

The suggested practice is to run the pre-migration task once, review the report, make any necessary corrections, and rerun pre-migration. When you are satisfied with the pre-migration report results, perform the specified manual tasks to quiet the system and run pre-migration a final time. After you run the final pre-migration, replace the target database with the source 5.2 database and run migration. While this practice is more time consuming, it provides a higher confidence level in the migration readiness of the source system.

Table 4-1. Manual Operations To Perform Before Starting the Migration Task

Step sequence	Operation to Perform	Description of Operation
1	Run data collection on each endpoint and compute resource.	Allow data collection to run to completion to ensure that all your data is collected for migration. Running data collection on large endpoints can be time consuming. Consider running data collection on large endpoints only if you have not run data collection in the last 24 hours.
2	Complete approval requests.	Allow all approval requests to finish.
3	Stop services on the target system.	See “Stop IaaS Services in Target vRealize Automation System,” on page 38.
4	Shut down and back up the target system.	See “Back Up the Target vRealize Automation System,” on page 39.
5	Create a backup of the source SQL database if you have not already done so.	See “Backing Up the vCloud Automation Center 5.2 Database,” on page 26.
6	Disable access to the source system.	See “Disabling Access to the Source System,” on page 40.

Table 4-1. Manual Operations To Perform Before Starting the Migration Task (Continued)

Step sequence	Operation to Perform	Description of Operation
7	Complete all workflows.	Allow all workflows to finish. The pre-migration report displays a warning for each workflow that finished more than 24 hours ago. Before you run the migration task, be sure that your completed workflows are current. If they are not, finish any open workflows and rerun pre-migration. For information about viewing distributed execution status and workflow history, see <i>Viewing Distributed Execution Status and Workflow History</i> in the <i>vCloud Automation Center Operating Guide</i> for 5.2.
8	Stop services on the source system.	See “Stop IaaS Services in Source vCloud Automation Center 5.2 System,” on page 41.
9	Replace the target system database with the source database.	See “Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database,” on page 41.
10	If you specified a non-standard port value during pre-migration, you must manually update the migration table to include that port value before you start the migration task. If you specified port number 443 during pre-migration, you do not need to perform this manual step.	See “Update Migration Table to Parse Port Value Data,” on page 44.

This chapter includes the following topics:

- [“Stop IaaS Services in Target vRealize Automation System,”](#) on page 38
- [“Back Up the Target vRealize Automation System,”](#) on page 39
- [“Backing Up the Target vRealize Automation SQL Database,”](#) on page 39
- [“Disabling Access to the Source System,”](#) on page 40
- [“Stop IaaS Services in Source vCloud Automation Center 5.2 System,”](#) on page 41
- [“Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database,”](#) on page 41
- [“Update Migration Table to Parse Port Value Data,”](#) on page 44

Stop IaaS Services in Target vRealize Automation System

You must stop the target vRealize Automation IaaS services, except the Model Manager Web Service, before you perform the migration. This includes stopping IaaS DEMs and agents.

The Model Manager Web Service must remain online during pre-migration and migration. For information about the required order of operations to be performed before you start migration, see [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

Procedure

- 1 Log in to the host IaaS Windows machine for the vRealize Automation server as a user with full administrative access.
- 2 Select **Stop > Administrative Tools > Services**.

- 3 Stop the following VMware services in this order.

In a distributed environment, stop manager services, DEMs, and agents on all of the running vRealize Automation servers.

- a VMware vRealize Automation Agents
- b VMware DEM-Worker
- c VMware DEM-Orchestrator
- d VMware vRealize Automation Service (manager service)

Services are stopped on the target vRealize Automation system, except for the Model Manager Web Service, in preparation for migration.

Back Up the Target vRealize Automation System

Back up and snapshot the target vRealize Automation IaaS server, vRealize Appliance, and Identity Appliance before you start the migration task.

Perform this task before migrating. For information about the required order of operations to be performed before you start migration, see [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

You should back up your target vRealize Automation IaaS system, vRealize Appliance, and Identity Appliance before you start migration.

If the IaaS system is on one or more virtual machines, create a snapshot for each virtual machine. If the system is on a physical machine, create a backup. For details, see *Tenant Administration* in vRealize Automation documentation.

For details about backing up vRealize Automation, see *System Administration* in vRealize Automation product documentation.

For details about creating a snapshot of your machine, see *Tenant Administration* in vRealize Automation product documentation.

Procedure

- 1 Log in to the host IaaS Windows machine for the vRealize Automation server as a user with full administrative access.
- 2 Use a remote desktop connection to log in to the target vRealize Automation IaaS systems and shut them down.
- 3 Log in to the vCloud Automation Center Appliance and shut it down.
- 4 Log in to the Identity Appliance and shut it down.
- 5 Locate the machine to back up or snapshot.
- 6 Create the machine backup or machine snapshot.

Backing Up the Target vRealize Automation SQL Database

Before you start the migration process, create a backup of the target vRealize Automation SQL database using your preferred method of database backup.

For information about the required order of operations to be performed before you start migration, see [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

This task assumes that you are using the step sequence published by Microsoft to back up and restore a SQL database by using Microsoft SQL Server Management Studio.

The procedure to back up and restore a SQL database is described in the following Microsoft Developer Network documentation topics.

- *Back Up and Restore of SQL Server Databases*
- *Create a Full Database Backup (SQL Server)*
- *Restore a Database Backup (SQL Server Management Studio)*

For more information about backing up the vRealize Automation SQL database, see *System Administration*.

Disabling Access to the Source System

To prepare the source environment for maintenance mode, you can disable access to the administrative and self-service portals by using an `app_offline.htm` file. This file prevents users from working in the source vRealize Automation system during migration. It also informs users that the system is not available.

Perform this task before migrating. For information about the required order of operations to perform before you start migration, see [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

For more information about creating and using an application offline file, see the *To take a Web application offline before deployment* section of the *How to: Prepare to Deploy a Web Project* topic in Microsoft Developer Network documentation. Also see the *Easiest way to take your web site offline (IIS 6.0 or IIS 7.5 with .NET 4.0)* blog post at the MSDN Blogs site.

The following example procedure is provided for reference only. Your `app_offline.htm` file content may vary.

- 1 Log in to each machine on which you installed any of the source vCloud Automation Center 5.2 components with full Windows administrative access.
- 2 Use or modify the following example HTML content to create an `app_offline.htm` maintenance page.

```
<!doctype html>
<title>vCAC Maintenance</title>
<style>
  body { text-align: center; padding: 150px; }
  h1 { font-size: 50px; }
  body { font: 20px Helvetica, sans-serif; color: #333; }
  article { display: block; text-align: left; width: 650px; margin: 0 auto; }
  a { color: #dc8100; text-decoration: none; }
  a:hover { color: #333; text-decoration: none; }
</style>

<article>
  <h1>We will be back soon!</h1>
  <div>
    <p>The vCAC team is performing system maintenance.</p>
    <p>vCAC will be back online shortly.</p>
  </div>
</article>
```

- 3 Add the `app_offline.htm` file to the root directories of the vRealize Automation and vCACSelfService applications to inform users that these services are offline. The `app_offline.htm` file exists in the root of your Web site. A request to the Web site redirects to that file.

The following vRealize Automation portal root directories are defaults.

- `%ProgramFiles(x86)%\VMware\vCAC\Server\Website`
- `%ProgramFiles(x86)%\VMware\vCAC\Self-Service Portal`

Stop IaaS Services in Source vCloud Automation Center 5.2 System

You must stop the source IaaS services, except the Model Manager Web Service, before you perform the migration. This includes stopping IaaS DEMs and agents.

Stop the applicable vCloud Automation Center 5.2 IaaS services before you start the migration task. For information about the required order of operations to be performed before you start migration, see [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

The Model Manager Web Service must remain online during pre-migration and migration.

Consider using an `app_offline.html` file to disable access to the source system. See [“Disabling Access to the Source System,”](#) on page 40.

Procedure

- 1 Log in to the host IaaS Windows machine for the vRealize Automation server as a user with full administrative access.
- 2 Select **Stop > Administrative Tools > Services**.
- 3 Stop the following VMware services in this order.

In a distributed environment, stop manager services, DEMs, and agents on all of the running vRealize Automation servers.

- a VMware vRealize Automation Agents
- b VMware DEM-Worker
- c VMware DEM-Orchestrator
- d VMware vRealize Automation Service (manager service)

Services are stopped on the source vCloud Automation Center 5.2 system, except for the Model Manager Web Service, in preparation for migration.

Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database

Replacing the target SQL database with the source SQL database is the last manual task you need to perform before you start the vRealize Automation migration task. The migration task upgrades the replaced database.

Replace the database before migration. For information about the required order of operations to be performed before you start migration, see [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.

The database name must remain constant. For example, if the target database name is `database_name_abx`, the source database must also be named `database_name_abx`.

This task assumes that you are using the step sequence published by Microsoft to back up and restore a SQL database by using Microsoft SQL Server Management Studio.

The procedure to back up and restore a SQL database is described in the following Microsoft Developer Network documentation topics.

- [Back Up and Restore of SQL Server Databases](#)
- [Create a Full Database Backup \(SQL Server\)](#)

- *Restore a Database Backup (SQL Server Management Studio)*

IMPORTANT After you replace the database, do not rerun pre-migration.

- 1 Verify that the source and target Model Manager Web Service are online.
- 2 Log in to Windows by using your Domain or SQL administrator credentials.
- 3 Verify that IIS service is not running on the target Web site Host machine.
Communication between the target database and its components must be stopped during this procedure.
- 4 Replace the target vRealize Automation SQL database with the source vCloud Automation Center 5.2 SQL database using your preferred method.
The following example procedures are provided for reference purposes. Your procedure might vary.
 - [“Example - Replace SQL Database by Using Win2008 R2 SP1,”](#) on page 42
 - [“Example - Replace SQL Database by Using Win2012,”](#) on page 43
- 5 After you have replaced the database, restart the IIS service on the target Web site Host machine before you start the migration task.
- 6 Verify that the Iaas Component services remain stopped while you run the migration task.

Example - Replace SQL Database by Using Win2008 R2 SP1

This sample procedure illustrates how to use Microsoft SQL Server Management Studio to restore a database using Win2008 R2 SP1.

This example procedure is provided for reference purposes only. Your restore procedure may vary. For information about when to use this sample procedure, see [“Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database,”](#) on page 41.

Prerequisites

- 1 Shut down the source vCloud Automation Center 5.2 services. Do not shut down the Model Manager Web Service.
- 2 Back up the vCloud Automation Center 5.2 database, for example DB52.
- 3 Shut down the target vRealize Automation services. Do not shut down the Model Manager Web Service.
- 4 Back up the target vRealize Automation database, for example DB62.
- 5 Log in to Windows using your Domain or SQL administrator credentials.

Procedure

- 1 In Microsoft SQL Server Management Studio, right-click the DB62 database.
- 2 Select **Tasks > Detach**.
- 3 Check the **Drop Connections** check box and click **OK**.
- 4 In Microsoft SQL Server Management Studio, right-click the DB52 database folder name.
- 5 Select **Tasks > Restore Database**.
- 6 In Microsoft SQL Server Management Studio, display the General page.
- 7 Change the **Destination** database name to DB62 and keep the source database name as DB52.
- 8 In Microsoft SQL Server Management Studio, display the Options page.

- 9 Check the **Overwrite the existing database (WITH REPLACE)** check box and click **OK**.

Example - Replace SQL Database by Using Win2012

This sample procedure illustrates how to use Microsoft SQL Server Management Studio to restore a database using Win2012.

This example procedure is provided for reference purposes only. Your restore procedure might vary. For information about when to use this sample procedure, see [“Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database,”](#) on page 41.

Prerequisites

- 1 Shut down the source vCloud Automation Center 5.2 services. Do not shut down the Model Manager Web Service.
- 2 Back up the source vCloud Automation Center 5.2 database, for example DB52.
- 3 Shut down the target vRealize Automation services. Do not shut down the Model Manager Web Service.
- 4 Back up the target vRealize Automation database, for example DB62.
- 5 Log in to Windows using your Domain or SQL administrator credentials.

Procedure

- 1 In Microsoft SQL Server Management Studio, right-click the DB62 database.
- 2 Select **Tasks > Detach**.
- 3 Check the **Drop Connections** check box and click **OK**.
- 4 In Microsoft SQL Server Management Studio, right-click the DB52 database folder name and select **Tasks > Restore Database**.
- 5 In Microsoft SQL Server Management Studio, display the General page.
- 6 Change the Destination database name to DB62 and keep the source database name as DB52.
- 7 Check the **Overwrite the existing database (WITH REPLACE)** check box.
- 8 Uncheck the default check box in the Tail-Log backup section.
- 9 Display the Files page.
- 10 Redirect the data in the MDF and LDF files in the Logical File Name section, to stop writing to the DB52 database.
 - a Click **Restore As Icon** in the row labeled **DB52**.
 - b In the **Logical File Name** row, click **DB62.mdf**.
 - c Click **Restore As Icon** in the row labeled **DB52_log**.
 - d In the **Logical File Name** row, click **DB62_log.ldf**.
- 11 Click **OK**.

Update Migration Table to Parse Port Value Data

If you specify a port value as part of the database server address during pre-migration, you must update the database before you can successfully run the migration task.

If you specified a port value as part of the database server address during pre-migration, the migration task fails with an MSBUILD : error MSB1006: Property is not valid error. A parsing problem occurs during migration with the comma-separated FQDN and port number. Avoid, or later correct, the problem by running a specially formatted query in SQL Management Studio before you run the migration task.

Prerequisites

- Specify a port value as part of the database server address when you run the pre-migration task, for example if you used the following or similar syntax to enter the SQL instance:

```
SQLHostname,SQLPort\SQLInstance
```

For related information, see [“Run the Pre-Migration Task,”](#) on page 30.

- Finish running the pre-migration task. See [“Run the Pre-Migration Task,”](#) on page 30.
- Finish restoring the source database over the target system database. See [“Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database,”](#) on page 41.

Procedure

- 1 Open SQL Management Studio.
- 2 Locate and open the restored SQL database in the target vRealize Automation.
- 3 Create a new query and cut and paste the following line into the query.


```
UPDATE [DynamicOps.Migration].[Properties] SET [Value] = ''' + [Value] + ''' WHERE [Key] = 'SourceDatabaseAddress'
```
- 4 (Optional) Save the query.
- 5 In SQL Management Studio, select your database from the drop-down menu and click **Execute** to run the query against the database.

The query wraps the *FQDN, port_number* value in quotation mark characters so that the *,port_number* string to the right of the *FQDN* value is correctly parsed along with the *FQDN* value.

- 6 Verify that the value of the *SourceDatabaseAddress* property in the *DynamicOps.Migration.Properties* table contains the quotation mark characters.

When you run the migration task, the correct port value is processed.

Running the Migration Task

After you are satisfied with the results of the pre-migration report and have performed the necessary manual tasks after pre-migration, you can restart the migration tool and run migration.

The migration task performs the following operations.

- Migrates source vCloud Automation Center 5.2 data to the clean target vRealize Automation system
- Upgrades the contents of the target vRealize Automation SQL database, which you had previously overwritten with the source vCloud Automation Center 5.2 database just before running the migration task
- Generates the migration report and logs

This chapter includes the following topics:

- [“Run the Migration Task,”](#) on page 45
- [“Using the Migration Report and Logs,”](#) on page 46
- [“Rerunning Migration If Migration Did Not Finish,”](#) on page 47

Run the Migration Task

You run the migration task to finish the process of migrating to the target vRealize Automation system.

Run the migration tool from a target vRealize Automation system on which the Model Manager Web Service component is installed.

Prerequisites

- Complete pre-migration. See [Chapter 3, “Running the Pre-Migration Task,”](#) on page 29.
- Review the pre-migration report. See [“Using the Pre-Migration Report and Logs,”](#) on page 32.
- If needed, rerun pre-migration. See [“Rerun the Pre-Migration Task,”](#) on page 33.
- Perform all manual tasks that are required to be performed before starting migration. See [Chapter 4, “Performing Manual Operations After Pre-Migration,”](#) on page 37.
- Verify that the Model Manager Web Service in the source and target systems remains online during pre-migration and migration.

Procedure

- 1 Log in as a domain administrator on an IaaS system on which the target vRealize Automation system's Model Manager Web Service is installed.

- 2 Run the `vCACMigration.exe` migration tool.

The `vCACMigration.exe` file is located in the subfolder that was created when you ran the `vCACMigrationTool.exe` self-extracting executable file. The default location is `C:\Program Files (x86)\VMware\vCACMigration`.

- 3 Follow the prompts to the Migration Tasks page.
- 4 Click **Migration** on the Migration Tasks page.
- 5 Click **Next**.
- 6 Click **Next** to confirm that you completed the listed manual tasks.

If you did not complete these tasks, click **Cancel**, complete the manual tasks, and then restart migration.

- 7 Accept or reenter information for the target database, including SQL server name, target database name, and SQL or Windows authentication credentials.

Values are pre-populated with the target database values that you entered during pre-migration.

- 8 Click **Next**.
- 9 Click **Check** to perform the prerequisite check.
- 10 Click **View Reports** to view the migration prerequisite check report.
- 11 Address any errors or warnings you see in the prerequisite check report.
- 12 Review the information on the Ready to Run Migration page and click **Start**.

Allow the migration task to complete. Migration can take up to 2 hours to complete. Do not use the source or target systems until the migration task is finished.

- 13 When the migration task is finished, click the **View Report** link and review the migration report.

If the migration task finished successfully, migration is complete. Your source vCloud Automation Center 5.2 data is migrated to the target vRealize Automation system and you are ready to review the reports and perform post-migration tasks.

- 14 Click **Finish**.

Migration is finished.

If the migration task did not finish successfully, see [“Rerunning Migration If Migration Did Not Finish,”](#) on page 47.

What to do next

- 1 Review the migration report. See [“Using the Migration Report and Logs,”](#) on page 46.
- 2 Review the post migration tasks checklist and perform the needed tasks. See [Chapter 6, “Performing Post-Migration Tasks Checklist,”](#) on page 49.

Using the Migration Report and Logs

The migration report contains information about the source and target systems. Information categories include errors, warnings, and successes.

When you start the migration task you are prompted to run the prerequisites checker. The prerequisites checker generates and populates the migration report. The migration tool provides a link to the report. To determine your readiness to migrate, view the report before continuing with the migration.

The `Migration.html` migration report is generated in the `reports` subdirectory of the directory to which you extracted the migration tool.

To support data collection, the prerequisite checker checks if the Microsoft Distributed Transaction Coordinator (MSDTC) service is running and configured for local and remote SQL database instances that use local or clustered MSDTC configurations.

The prerequisite checker outputs the following information in the migration report:

- System information indicating whether the source and target Model Manager Web Services are online, as is required
- System information indicating whether the other source and target services are offline, as is required
- Endpoints for which data was not collected in the last 24 hours
- DEMs that are still running on the source system
- Agents that might still be running on the source system
- Pending source system requests, such as reclamation, approval, and machine requests that aren't yet approved or denied

When the migration task is finished, click the migration report link to reopen the report and examine its contents.

Migration Log Files

The migration tool generates the following log files in the Program Files (x86)\VMware\vCACMigration\Logs folder.

- Migration.log
The Migration.log file contains information gathered during pre-migration and migration, including generated warnings and errors.
- Migration-Error.log
The Migration-Error.log file contains error messages that are generated during pre-migration and migration.
- vCACMigration.log
The vCACMigration.log file contains information about the migration tool itself.
- vCACMigration-Error.log
The vCACMigration-Error.log file contains errors that are related to the migration tool itself.

Rerunning Migration If Migration Did Not Finish

The migration task is designed to be run only once. If migration fails, you can troubleshoot using the logs and reports and rerun the migration task.

You can rerun migration only if the task did not finish, for example if the migration task was interrupted, stopped, or otherwise failed to finish successfully.

If you ran the migration task and it did not finish successfully, perform the following steps.

- 1 Review the migration report and logs to help you determine the problem. See [“Using the Migration Report and Logs,”](#) on page 46.
- 2 Overwrite the target database again with the source database. See [“Replacing the Target vRealize Automation Database with the Source vCloud Automation Center 5.2 Database,”](#) on page 41.
- 3 Rerun the migration task. See [“Run the Migration Task,”](#) on page 45.

Starting the migration task again overwrites any data that the previous migration task started to migrate. Restarting the migration task does not resume where the task was interrupted or stopped.

If migration fails again, review the new migration report and logs and take corrective action. Corrective action might require that you restart the overall migration process with a clean source database, which involves removing tables that were added by the pre-migration task. For information about removing tables from the source database that were added by the pre-migration task, see [“Cleaning Up Migration Tables in Source 5.2 Database,”](#) on page 55.

If you encounter problems after migration, or migration did not finish successfully, you can shut down the target vRealize Automation system and restart the source vCloud Automation Center 5.2 system.

Performing Post-Migration Tasks Checklist

6

After migration is finished, you can check reports, perform various post-migration tasks, and consider recreating data that was not migrated.

Some data is not migrated. You can recreate data in the target vRealize Automation system after migration is finished. See [“Understanding What Data is Migrated,”](#) on page 11.

NOTE If you encounter problems after migration, or migration did not finish successfully, you can shut down the target vRealize Automation system and restart the source vCloud Automation Center 5.2 system.

Consider redirecting users to the target vRealize Automation when they attempt to access the source system. For information about creating a redirect, see *Configure the Web Server to Redirect Requests to an Exact Destination* in the Microsoft Windows Server product documentation.

Perform these tasks after migration is finished to complete the migration process.

Table 6-1. Post-migration Tasks

Task	Related Information
Review the pre-migration and migration report and logs.	See “Using the Pre-Migration Report and Logs,” on page 32 and “Using the Migration Report and Logs,” on page 46.
Restart vRealize Automation services.	See “Restart vRealize Automation IaaS Services,” on page 51.
If necessary, license the vRealize Automation database.	If you did not add a license in the IaaS Administration licensing user interface when you installed vRealize Automation, you must add the license now. For information about licensing, click Product Licensing on the vRealize Automation product documentation page and search on vCloud Suite licensing. Some licensing requirements have changed.
Verify that tenant and IaaS administrator accounts were correctly migrated.	After starting IaaS services, log in as administrator@vsphere.local and verify that the tenant administrators and IaaS administrators were migrated.
Recreate needed guest agent and ISO data.	See “Recreating ISOs and Templates That Contain a Guest Agent,” on page 52.
Run data collection before you use vRealize Automation.	
Recreate approval policies if you have not already done so.	See “Recreating Approval Policies,” on page 51.
Open the migrated entitlements forms and apply any recreated approval policies.	See information about entitling users to services in <i>Tenant Administration</i> .

Table 6-1. Post-migration Tasks (Continued)

Task	Related Information
Verify the Clone From field on each clone blueprint.	Open each migrated clone blueprint and verify that the Clone From field is populated. If the Clone From field is not populated, add the correct clone template name to the blueprint.
Recreate email notification capabilities.	See “Recreating Email Notifications,” on page 52.
Upgrade endpoints as required.	For a list of supported endpoints, see the <i>vRealize Automation Support Matrix</i> in vRealize Automation documentation. NOTE If you upgrade endpoints after migration is finished, you may need to adjust endpoint settings. For example, if you upgrade vRealize Orchestrator after migration, you may need to change the vCloud Automation Center 5.2-based vRealize Orchestrator endpoint priority, for example to 2, and configure the new version of vRealize Orchestrator with the new user names.
Update necessary customized configuration files if you have not already done so.	See “Updating Customized Configuration Files,” on page 26.
Recreate or reapply deployment customizations.	If you received customization packages from VMware or from a third party, and you still want to use the customizations after migration, check with the contact who authored the customizations and request updated vRealize Automation customizations.
Recreate necessary branding graphic files and catalog icons, such as blueprint icons.	The screen resolution differs between the source and target versions. The 5.2 images are pixelated in the target system. The recommended image resolution is 100 x 100. The file type should be PNG. See information about configuring branding for the vRealize Automation console in <i>System Administration</i> .
Add a transport zone value to the migrated vCloud Networking and Security reservations that are associated to multi-machine blueprints.	See information about specifying network information for a multi-machine blueprint in <i>IaaS Integration for Multi-Machine Services</i> .
If you used an <code>app_offline.html</code> file before migration, keep the <code>app_offline.html</code> file and update its display content.	See “Disabling Access to the Source System,” on page 40.
Turn on Storage DRS in all datastore clusters that use Storage DRS.	See information about enabling and disabling Storage DRS in the vSphere Client in <i>ESXi and vCenter Server 5.5</i> or later documentation.
Perform sample tests to confirm business groups memberships.	
Perform sample tests to provision blueprints in a sample of groups and reservations.	
Perform sample tests to run endpoint and compute resource data collection.	
Delete snapshots when you no longer need them.	See information about deleting snapshots in <i>ESXi and vCenter Server 5.5</i> or later documentation.

This chapter includes the following topics:

- [“Restart vRealize Automation IaaS Services,”](#) on page 51
- [“Recreating Approval Policies,”](#) on page 51
- [“Recreating ISOs and Templates That Contain a Guest Agent,”](#) on page 52

- [“Recreating Email Notifications,”](#) on page 52

Restart vRealize Automation IaaS Services

After migration is finished, restart the target vRealize Automation system, including the IaaS services, on your IaaS Windows Server to prepare for post-migration tasks.

Procedure

- 1 Power on the Identity Appliance and wait until it is running and its services start.
You can monitor the status of the Identity Appliance services by checking the `/storage/log/vmware/sso/catalina.out` file.
- 2 Power on the vRealize Appliance and wait until all the services except the IaaS service are started and registered.
- 3 Log in to the host IaaS Windows machine for the vRealize Automation server as a user with full administrative access.
- 4 Select **Start > Administrative Tools > Services**.
- 5 Start the services in the recommended order.

In a distributed environment, start manager services, DEMs, and agents on all of the running vRealize Automation servers.

- a VMware vCloud Automation Center Service (manager service)
- b VMware DEM-Orchestrator
- c VMware DEM-Worker
- d VMware vRealize Automation Agents

Recreating Approval Policies

Approval policies are not migrated. You can recreate approval policies in vRealize Automation after you finish the pre-migration task or the migration task. Recreating approval policies in the target system before you start the migration task saves time that you would otherwise spend in recreating the approval policies during post-migration.

Migration creates a single, default policy that is configured to require only the approval of the business group manager. The migration process adds the approval policy to each catalog item entitlement for each blueprint that had an approval configured in the source system.

For related information, see [“Migrating Approval Policies,”](#) on page 16.

As a tenant administrator, you can log in to the target vRealize Automation system and set up advanced approval policies after pre-migration is finished and before you start migration. However, any configuration work that you perform in the Infrastructure tab is overwritten during migration. You can also recreate approval policies after migration is finished. Assign approval policies in entitlements after migration is finished.

You perform the following procedure to recreate approval policies.

- 1 Open the pre-migration report.
The pre-migration and migration reports are located in the `reports` subdirectory of the directory in which the downloaded migration tool is extracted.
- 2 Determine which approval policies to recreate in vRealize Automation.
- 3 Recreate the approval policies in the target system.

For detailed information about how to create approval policies, see *Tenant Administration* in the vRealize Automation documentation.

Do not edit or create entitlements in the target system until the migration task is finished. After the migration task is finished, open the entitlements for the business group and select **Administration > Catalog Management > Entitlements** to assign the policy to the entitlements. For information about entitling users to services, see *Tenant Administration*.

Recreating ISOs and Templates That Contain a Guest Agent

ISO image information and guest agent ISO settings are migrated but you must recreate ISOs and templates that contain a guest agent. Update migrated blueprints, custom properties, and build profiles to reflect the name of the new ISO or template.

ISO location information in the build profiles and blueprints and template information in the blueprints is migrated. However, you must reconfigure the ISOs and templates after migration to point to the system on which the manager service is running, for example a virtual machine or a load balancer. After migration is finished, recreate ISOs and templates that contain a guest agent.

For example, if you used vRealize Automation for WIM-based provisioning, you must regenerate your WinPE images after migration.

For templates that have the guest agent running on them as a service, uninstall and reinstall the guest agent and point to the guest agent at the new manager service host name.

You perform the following general procedure to update migrated blueprints, build profiles, and custom properties:

- 1 Review the pre-migration and migration reports for migrated build profile, blueprint, and custom property information.
- 2 Open a migrated build profile, blueprint or custom property that contains guest agent ISOs or templates.
- 3 Change the name of the old ISOs and templates to that of the new ISOs and templates.
The new ISOs and templates point to the host name of the vRealize Automation manager service.
- 4 Repeat for each migrated build profile, blueprint or custom property that contains guest agent ISOs or templates.

For details about creating ISO images and working with guest agents, see the following *IaaS Configuration* topics in the vRealize Automation documentation.

- *Preparing for WIM Provisioning*
- *Preparing for Linux Kickstart Provisioning*
- *Create a WinPE Image by Using PEBuilder*

Recreating Email Notifications

Email configuration and notification settings do not migrate. You can configure vRealize Automation email and notification settings when migration is finished.

You use the following procedure to configure email and notification settings.

- 1 Configure the SMTP mail server information.
- 2 Configure the default tenant, vsphere.local, to send mail.
- 3 Enable each email notification setting to make it available to users.

- 4 Instruct each user to log in and select **Administration > Notifications > Scenarios** to select the email notification types to use.

For details about configuring notifications, see *Tenant Administration* in the vRealize Automation documentation.

In addition to reviewing the pre-migration and migration report and log files, use these troubleshooting tips to help diagnose problems that you might encounter during or after the vRealize Automation migration process.

This chapter includes the following topics:

- [“Cleaning Up Migration Tables in Source 5.2 Database,”](#) on page 55
- [“Database Name Mismatch During Pre-Migration,”](#) on page 56
- [“User Principals Cannot be Migrated,”](#) on page 57
- [“Cannot Connect to Model Manager Web Service,”](#) on page 58
- [“Cannot Connect to Remote Server,”](#) on page 59
- [“Cannot Create Application Services Reservation,”](#) on page 59
- [“Model Manager Web Service is Offline,”](#) on page 60
- [“Pre-Migration Fails with a Load Balancer Timeout Error,”](#) on page 60
- [“Migration Fails when Port Number is Part of Database Server Address,”](#) on page 61
- [“Migration Fails with a Wait Operation Timeout Error,”](#) on page 61
- [“Migration Fails with a RepoUtil Assembly Timeout Error,”](#) on page 62
- [“Machines Not Visible on Items Page After Migration,”](#) on page 63
- [“Reservation Not Available After Migration,”](#) on page 63

Cleaning Up Migration Tables in Source 5.2 Database

The source supported vCloud Automation Center 5.2 version database contains stale migration table data that is blocking the administrator from successfully rerunning the vRealize Automation pre-migration or migration task.

Problem

Stale migration tables in the source database can cause several problems. In some cases, pre-migration or migration fails. In other cases, pre-migration and migration appear to be successful, but managed machines are not visible in the catalog after migration is finished.

Cause

Problems with migration tables in the source database occur most commonly for the following reasons:

- You specify one target system when you run pre-migration and a different one when you rerun pre-migration.
- You specify one target system when you run pre-migration and a different one when you run migration.
- You specify a test target system when you initially run pre-migration and migration and a production target system when you rerun pre-migration and migration.
- You specify a beta target system when initially run pre-migration and migration and a production target system when you rerun pre-migration and migration.

The error message that you receive for each situation may differ, and in some cases you may not receive an error, but the cause is typically the same. You must delete the stale migration tables in the source database and then restart the pre-migration and migration process. Alternatively, if you created a backup of your source database or a snapshot of your source system before you started the pre-migration and migration process, you can revert to that clean backup database and restart the process.

If you specify a different target system when you rerun pre-migration or migration, the source database is left with stale migration tables which block the task from finishing successfully. In most cases, the pre-migration or migration report and logs generate an error, informing you of the database table problem.

If you migrate to one target system and then migrate to another without clearing the stale database tables first, machines may be visible from the Infrastructure tab in the target system but not visible from the Items tab. For details, see [“Machines Not Visible on Items Page After Migration,”](#) on page 63.

Solution

- 1 Open the source 5.2 database using a method of your choice.
- 2 Delete the following tables:
 - DynamicOps.Migration.EntitlementMapping
 - DynamicOps.Migration.Properties
 - DynamicOps.Migration.Users
 - DynamicOps.Migration.UserTables
 - DynamicOps.Migration.VmUsers
 - DynamicOps.Migration.ImportedVirtualMachines
- 3 Save the updated database.
- 4 Restart the vRealize Automation migration tool .

The pre-migration task and migration successfully run to completion.

Database Name Mismatch During Pre-Migration

A warning appears if the vRealize Automation database name you specify does not match the name in the Model Manager Web Service configuration file.

Problem

A database mismatch error appears during vRealize Automation pre-migration.

Warning: There is a mismatch between the database name entered: “*database_name_entered*” and the database name in the Model Manager Web Service configuration file: “*database_name*”. Enter the database name that is specified in the configuration file.

Cause

The target vRealize Automation SQL database name that you specified does not match the SQL database name in the Model Manager Web Service configuration file.

The target vRealize Automation SQL database name that you specify during pre-migration must match the database name that appears in the target Model Manager Web Service configuration file.

Solution

Enter the database name that is specified in the configuration file. See [“Run the Pre-Migration Task,”](#) on page 30.

User Principals Cannot be Migrated

The pre-migration report indicates that user principal names cannot be migrated or that domain trust issues exist between the source and target systems.

Problem

One or more domain users fails to resolve from their source account identifier to a target user principal name. The pre-migration report displays the following messages to describe the problem and offer problem resolutions.

- Fatal Error – No users are migrated and pre-migration suspended.

Command ExtractUPN failed. Error: 'Users cannot be uploaded to the repository. Verify that the administrator who is running pre-migration has domain access to the source and target systems.'

- Warning – A single instance of a user failed to migrate.

Failed to resolve user principal with Sid S-1-5-21-0000000000-0000000000-0000000000-0000 and account name DOMAIN\Username. This user principal will not be migrated. If you see multiple instances of this error, verify that you are running the migration tool from a machine that is joined to the same domain as the machine on which the source 5.2 server is installed.

- Warning – By design, non-domain local accounts that are no longer supported are not migrated.

The following user principals are well known accounts and thus will not be migrated: ["Sid: S-1-1-0, Account name: Everyone, UPN: ", "Sid: S-1-5-32-544, Account name: BUILTIN\Administrators, UPN: "]

The migration tool is unable to resolve the user information by account name to find the user principal name. Users that remained as 5.2 users but have since been removed from the active directory may fall under this category. If all users failed or all users from a particular domain failed to migrate, the migration tool failed to contact active directory domain services using the credentials supplied to retrieve the user information. The migration tool is only capable of reporting users it was unable to resolve and cannot verify the prerequisite domain membership trusts or user account privileges.

Cause

The user running the migration tool is not a member of the shared domain or a domain trust issue exists for the named user between the source and target system identity stores.

The account from which you run the migration tool must have a trust relationship with the domain to which the source vRealize Automation servers are joined. Equally important, the Identity Appliance and IaaS servers must be joined to the same domain as the source vRealize Automation system servers.

For related information, see [“Prerequisites for vRealize Automation Migration,”](#) on page 21 and [Chapter 3, “Running the Pre-Migration Task,”](#) on page 29.

Solution

- 1 If a specific user is no longer valid, you can ignore, update, or remove the user from the source.
- 2 Verify the domain membership of the Windows IaaS administrator relative to the source server domain or the domain of equivalent trusts.
- 3 Verify that the credentials used by the Model Manager Web Service administrator are identical to the service account or that the administrator has equivalent privileges to the domains.
- 4 Restart the migration tool and rerun the pre-migration task.
- 5 When the pre-migration task is finished, verify that the pre-migration report does not contain warnings about valid domain users who cannot be translated.

The pre-migration report does not contain warnings about valid users that cannot be migrated.

Cannot Connect to Model Manager Web Service

An error occurs during pre-migration or migration if the source or target Model Manager Web Service is not available.

Problem

The following error message appears during vRealize Automation migration.

The operation has timed out. A problem occurred while trying to access the URL `https://domain_name:port_number/repository/Data/MetaModel.svc`. Model Manager Web Service is installed on host `https://domain_name:port_number` but it is not up and running. HTTP Web Response status code: `InternalServerError`.

Cause

The source or target Model Manager Web Service is not available during the migration process.

The source and target Model Manager Web Service must remain online during the pre-migration and migration tasks. See [“Prerequisites for vRealize Automation Migration,”](#) on page 21.

Solution

- 1 Log in to Windows by using your Domain or SQL administrator credentials.
- 2 Open a URL in a Web browser to determine if the source Model Manager Web Service is running:

Use one of the following URLs.

- `https://vCAC52xhostname/repository/Data/SecurityModel.svc`
- `https://vCAC52xhostname/repository/Data/MetaModel.svc`

The Model Manager Web Service is running If the authentication prompt appears when you enter valid credentials. The prompt is followed by a page that contains a small XML file and which does not display any errors.

- 3 Open either a URL in a Web browser of your choice to determine if the target Model Manager Web Service is running:

Use one of the following URLs.

- `https://vCAC61hostname/repository/Data/SecurityModel.svc`
- `https://vCAC61hostname/repository/Data/MetaModel.svc`

The Model Manager Web Service is running If the authentication prompt appears when you enter valid credentials. The prompt is followed by a page that contains a small XML file and which does not display any errors.

- 4 If the service is not running, start the service by using the IIS Manager or by running the `net start w3svc` command.

For details, see *Start or Stop an Application Pool* in Microsoft SQL Server product documentation.

Cannot Connect to Remote Server

An error message appears during migration if the network is not available.

Problem

The following error message appears during vRealize Automation pre-migration or migration.

```
Unable to connect to the remote server.
```

Cause

The network is disabled.

Solution

Restart the network.

Cannot Create Application Services Reservation

An error occurs during the vRealize Automation pre-migration task while creating an Application Services reservation for a business group.

Problem

The pre-migration task reports a problem while preparing to create an Application Services reservation for a business group.

A sample pre-migration report entry is as follows.

```
Failed to create AppService reservation for provisioning group MyGroupName.
Provisioning multi-machine blueprints might fail for this provisioning group after migration.
```

Cause

The `dbo.Host` table in the source database is missing a required value for the AppService Host record. It is not clear what causes this occasional problem.

A sample of a complete AppService Host record is as follows.

- HostID - FBE1198E-2B65-42FB-8437-4942DAD514A2
- HostName - AppService Host
- IsVRMMManaged - 1
- MachineType - 3

Solution

- 1 Open the source database.
- 2 Navigate to the `dbo.Host` table.
- 3 Enter the AppService Host name in the `dbo.Host` table.
- 4 Enter the HostID name if it is not already specified in the table.
- 5 Enter the IsVRMMManaged value if it is not already specified in the table.
- 6 Enter the MachineType value if it is not already specified in the table.

- 7 Close the source database.
- 8 Rerun the pre-migration task.

The pre-migration task is successful.

Model Manager Web Service is Offline

During the vRealize Automation pre-migration and migration tasks, the Model Manager Web Service must remain online in the source and target systems.

Problem

The source or target Model Manager Web Service is offline during pre-migration or migration. The source and target Model Manager Web Services must remain online while the migration tool is running.

Cause

If the Model Manager Web Service is not running, start the service by using the IIS Manager or by running the `net start w3svc` command.

Solution

- 1 Open a console window and enter the `net start w3svc` command.
- 2 Enter the fully qualified domain name in the **Host name** text box, for example `myhost62.mydomain.com`.
- 3 Enter the port number for the target vRealize Automation host in the **Port** text box. The default value is 443.
- 4 Enter the Model Manager Web Service administrator user name and password.
- 5 Click **Next**.

When the source and target Model Manager Web Services are running, you can start the migration tool and run the pre-migration or migration task, as necessary.

Pre-Migration Fails with a Load Balancer Timeout Error

The vRealize Automation pre-migration task does not finish and the pre-migration log states that an aggregate exception error has occurred. This message may indicate that a load balancer processing operation has timed out.

Problem

The pre-migration task fails because the load balancer timeout setting does not allow enough time for the task to complete. The log file contains an error similar to the following sample.

```
System.AggregateException: One or more errors occurred.  
--> Companyname.Cafe.HtmlResponseException: Bad Request (400)
```

Cause

An insufficient load balancer timeout setting may cause the pre-migration task to fail. You can correct the problem by increasing the load balancer timeout setting, for example from 20 seconds to 100 seconds or greater, and rerunning the pre-migration task. After you finish the entire migration process, you can restore your load balancer timeout setting to its previous setting.

Solution

- 1 Increase your load balancer timeout value to at least 100 seconds. For example and depending on the load balancer you are using, edit the load balancer timeout setting in your `ssl.conf`, `httpd.conf` or other Web configuration file.

- 2 Rerun the pre-migration task.
- 3 When pre-migration is finished, open the log file and verify that the the `System.AggregateException` error is no longer present.

The pre-migration task completes successfully and the `System.AggregateException` error is no longer present in the log file.

Migration Fails when Port Number is Part of Database Server Address

Migration fails with an MSBUILD error because the migration task does not recognize the port value that was specified during pre-migration.

Problem

If you specify a port value as part of the database server address during pre-migration, the migration task fails with the following, or similar, error when it attempts to validate the database connection.

NOTE In this example, the default 1433 port number was used.

```
2014-11-12 22:05:46.757Z [2596] Information Info MSBUILD : error MSB1006: Property is not valid.
```

```
2014-11-12 22:05:46.772Z [2596] Information Info Switch: 1433
```

```
2014-11-12 22:05:46.772Z [2596] Information Info
```

```
2014-11-12 22:05:46.772Z [2596] Information Info For switch syntax, type "MSBuild /help"
```

```
2014-11-12 22:05:46.788Z [2596] Information Info
```

```
2014-11-12 22:05:46.788Z [1832] Information Info Migration has failed. See the log files for
detailed information.
```

Cause

The migration table `DynamicOps.Migration.Properties`, key `SourceDatabaseAddress` value `FQDN,port` cannot properly parse the specified port number.

Solution

To use a script to update the database by correctly parsing the table entry, and allow the migration task to correctly access the source database, see [“Update Migration Table to Parse Port Value Data,”](#) on page 44.

After making the database update, you can re-run the migration task and proceed with migration.

Migration Fails with a Wait Operation Timeout Error

The vRealize Automation migration task does not finish and the migration log indicates that a wait operation has timed out.

Problem

The migration task must finish in a specified amount of time or it fails with a timeout error. A sample timeout error message is as follows.

```
Command Update-VmUsers failed. Error: 'System.Data.EntityCommandExecutionException: An error
occurred while executing the command definition. See the inner exception for details. --->
System.Data.SqlClient.SqlException: Timeout expired. The timeout period elapsed prior to
completion of the operation or the server is not responding. --->
System.ComponentModel.Win32Exception: The wait operation timed out.
```

Cause

The migration task did not finish in the allocated amount of time. This might occur in an environment where there are a large number of users to be migrated.

Solution

As a first course of corrective action, verify that your target SQL server is properly resourced according to the reference architecture.

You can increase the timeout value to address the problem. The default timeout value is 10 minutes, specified as 600 seconds in the `migration.exe.config` file. Use the following procedure to set a different timeout value. After you have specified the value, restart the migration tool and rerun the migration task.

- 1 Locate and open the `migration.exe.config` file.
- 2 Find the `<add key="userMigrationCommandTimeout" value="600" />` line in the `<appSettings>` section of the file.
- 3 Set a new timeout value, for example 30 minutes specified as `<add key="userMigrationCommandTimeout" value="1800" />`.
- 4 Save and close the `Migration.exe.config` file.
- 5 Start the `vCACMigration.exe` migration tool.
- 6 Follow the prompts and click **Migration** on the Migration Tasks page to rerun the migration task.

Migration Fails with a RepoUtil Assembly Timeout Error

vRealize Automation migration fails if the RepoUtil utility phase of IaaS assembly upgrade does not complete within the specified timeout period.

Problem

The upgrade phase of migration fails because the IaaS assembly upgrade utility did not finish in the specified timeout period. To correct the situation, increase the timeout period.

A sample timeout error message is as follows.

```
2014-09-18 10 43 07 843 :Started running command %AppData%\..\Local\Temp\vCAC-
IaaS\version\RepoUtil.exe Assembly-Install -f %AppData%\..\Local\Temp\vCAC-
IaaS\version\DynamicOps.UcsModel.Interface.dll" -v 2014-09-18 10 46 32
104 :System.Net.WebException: The operation has timed out 2014-09-18 10 46 32 104 : at
System.Net.HttpWebRequest.GetResponse() . . . 2014-09-18 10 46 32 104 :Warning: Non-zero return
code. Command failed. 2014-09-18 10 46 32 120 :Failed to deploy file
DynamicOps.UcsModel.Interface.dll 2014-09-18 10 46 32 120 :Failed to deploy repository.
```

Cause

The timeout setting for the RepoUtil utility is not long enough to allow all IaaS assemblies to be upgraded. To correct the problem, increase the timeout setting value (in seconds) in the configuration file and rerun migration.

Solution

You can increase the timeout value to address the problem. Use the following procedure to set a different timeout value. After you have specified the value, restart the migration tool and rerun the migration task.

- 1 Locate and open the `RepoUtil.exe.config` file for editing.
- 2 Find the `repositoryTimeout` line.
- 3 Set a new timeout value, for example 10 minutes specified as `<add key="repositoryTimeout" value="600" />` or 30 minutes, specified as `<add key="repositoryTimeout" value="1800" />`.

- 4 Save and close the `RepoUtil.exe.config` file.
- 5 Start the `vCACMigration.exe` migration tool.
- 6 Follow the prompts and click **Migration** on the Migration Tasks page to rerun the migration task.

Machines Not Visible on Items Page After Migration

After migration, migrated machines are visible using the Infrastructure tab but are not visible using the Items tab.

Problem

Migrated machines are not provisioned or available for management in the migrated target system, as evidenced by their lack of display on the Machines page on the Items tab.

Cause

This problem most commonly occurs if you migrate to one system and then migrate to another without first deleting the stale migration tables that were created by the initial migration. For related information, see [“Migrating to One Target System and Then to Another,”](#) on page 19.

To delete the stale migration tables, see [“Cleaning Up Migration Tables in Source 5.2 Database,”](#) on page 55.

Solution

- 1 Delete the stale migration tables from the source database.
- 2 Perform the pre-migration and migration procedure from the beginning.

Reservation Not Available After Migration

After migration, an error occurs during machine provisioning if the multi-machine blueprint does not have a transport zone value specified on the associated reservation.

Problem

The following error message appears after vRealize Automation migration is finished and during machine provisioning from the migrated system.

```
No reservation available for network scope with name.
```

Cause

The reservation associated to a multi-machine blueprint does not contain a transport zone value.

For information about specifying a transport zone value and network information for a multi-machine blueprint, see *IaaS Integration for Multi-Machine Services* in vRealize Automation documentation.

Solution

Add a transport zone value to the migrated vCloud Networking and Security reservations that are associated to multi-machine blueprints. The transport zone setting was not available in vCloud Automation Center 5.2.

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