Command-Line Migration of vCenter Server 5.5 to vCenter Server Appliance 6.0 Update 2

vCenter Server 6.0 Update 2

You can migrate a VMware vCenter Server™ installation on Windows to a vCenter Server Appliance installation while upgrading to version 6.0 Update 2.

The command-line migration process includes downloading the vCenter Server installer, filling in the required data in the JSON templates, and using the samples in this technical note to run the installer and migrate vCenter Server according to your needs.

This technical note describes how to migrate vCenter Server by using the command-line interface. The technical note provides you with example templates that you can use to migrate vCenter Server.

IMPORTANT **VMware support cannot assist with troubleshooting command-line migration of vCenter Server. However, vCenter Server Appliance systems migrated by using the command-line interface are fully supported**.

Overview

By using the command-line interface, you can migrate vCenter Server with an embedded vCenter Single Sign-On, vCenter Server with an external vCenter Single Sign-On, or an external vCenter Single Sign-On. Before the migration, you must create a JSON file that contains the migration and configuration parameters. For more information about JSON formatting, see http://www.json.org.

When you create the JSON file, populate the necessary data, and start the command-line migration process, the parameters from the JSON file are passed to the vCenter Server Appliance installer. The installer uses the configuration parameters and migrates vCenter Server and configures a vCenter Server Appliance according to your specifications. The vCenter Server Appliance installer runs a validation of the configuration parameters and the source vCenter Server credentials before starting migration. Check the warnings and errors before proceeding with the migration. For more information, see *vSphere Migration* at http://pubs.vmware.com.

vCenter Server Deployment Models and Migration to vCenter Server Appliance

You can migrate the following vCenter Server deployment models:

- vCenter Server with an embedded vCenter Single Sign-On

  You migrate a Windows installation of vCenter Server 5.5 with an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2 with an embedded Platform Services Controller.

- vCenter Server with an external vCenter Single Sign-On

  You migrate a Windows installation of vCenter Server 5.5 with an external vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2. with an external Platform Service Controller.

- External vCenter Single Sign-On

  You migrate an externally deployed Windows installation of vCenter Single Sign-On 5.5 to a Platform Services Controller 6.0 Update 2.

For information about the supported architecture and deployment models in vSphere 6.0 Update 2, see *vSphere Installation and Setup* and *vSphere Upgrade* at http://pubs.vmware.com.

Requirements

Your source and target systems must meet specific software and hardware requirements before you can migrate a vCenter Server or vCenter Single Sign-On deployment to a vCenter Server Appliance or Platform Services Controller appliance.

For information about the vCenter Server migration requirements, prerequisites, and preparation tasks, see *vSphere Migration* at http://pubs.vmware.com.

General Migration Process

Migration of vCenter Server with an Embedded vCenter Single Sign-On

You can migrate a vCenter Server instance with an embedded vCenter Single Sign-On to a vCenter Server Appliance with an embedded Platform Services Controller appliance.

When you migrate from vCenter Server with an embedded vCenter Single Sign-On (version 5.5) on Windows to vCenter Server Appliance with an embedded Platform Services Controller appliance, the entire installation is migrated at the same time.

Migration of vCenter Server with an External vCenter Single Sign-On

When you migrate from vCenter Server with an external vCenter Single Sign-On (version 5.5) on Windows to vCenter Server Appliance with an external Platform Services Controller appliance, you migrate in two steps.

1 Migrate the vCenter Single Sign-On instance from Windows to a Platform Services Controller 6.0 Update 2 appliance.

2 Migrate the vCenter Server instance from Windows to an vCenter Server 6.0 Update 2 appliance.

You must always migrate the vCenter Single Sign-On first. Concurrent migrations of vCenter Single Sign-On and vCenter Server instances are not supported. You must migrate the instances in a sequence.

Copy and Run VMware Migration Assistant on the Source System

You can run the migration from an external machine that is in your vSphere network and that is running on Microsoft Windows or Linux OS.

1   Download the ISO installer file for vCenter Server Appliance from the VMware product page at http://www.vmware.com/products.

    The installer ISO filename is `VMware–VCSA–all–6.0.0–yyyyyy.iso`, where `yyyyyy` is the build number.

2   Navigate to the `migration–assistant` directory of the vCenter Server Appliance installer package and copy the `migration–assistant` folder to the source vCenter Server or vCenter Single Sign-On instance.

3   Start Migration Assistant

    a   Double-click `VMware–Migration–Assistant.exe`.

    b   (Optional) From the command line, run `VMware–Migration–Assistant.exe ––help` to invoke Migration Assistant and display the help options.

4   Enter the password for the `administrator@vsphere.local` user.

    The VMware Migration Assistant runs pre-migration checks and prompts you to resolve any errors it finds before proceeding with the migration.

5   Copy the SSL thumbprint from the Migration Assistant console and save it to use in the JSON configuration templates.

Automatic Invocation of Migration Assistant for vCenter Server and vCenter Single Sign-On Instances Running in Virtual Machines

If your source vCenter Server or vCenter Single Sign-On instances run as virtual machines, you can include the `run.migration.assistant` section in your JSON configuration templates. By default, the `run.migration.assistant` section is not in the JSON configuration templates. When used, this section copies and runs Migration Assistant on the source virtual machines on which vCenter Server and vCenter Single Sign-On instances run. This provides full automation of the migration process See Table 4 for more information about the `run.migration.assistant` parameters and Example 10.

Prepare Migration Templates

You can migrate vCenter Server with minimum configurations by setting values to the configuration parameters in the templates that are available in the installer ISO file. The configuration parameters that are not included in the templates are set to their default values. You can add configuration parameters in the templates to set their values for your migration specification.

To prepare the migration templates:

1   Open the `vcsa–cli–installer/templates/migrate/5.5` directory.

2   Copy the template files to your workspace.

3   Open a template file in a text editor.

4   Fill in the required fields and add new parameters to the template, if needed.

5   Save in UTF-8 format and close the file.

You can create and save as many templates as are needed for your specific environment.

Start the Migration

1   Navigate to the installer execution directory for your operating system (OS).

- If you are migrating vCenter Server Appliance from a machine with Windows OS, at the command prompt, navigate to the `vcsa-cli-installer\win32` directory.

- If you are migrating vCenter Server Appliance from a machine with Linux OS, at the command prompt, navigate to the `vcsa-cli-installer/lin64` directory.

2   (Optional) Run a pre-migration check without migrating to appliance to verify that you prepared the migration template correctly.

    `vcsa-deploy migrate --verify-only <path_to_the_json_file>`

3   Run the migration command.

    `vcsa-deploy migrate --accept-eula optional_arguments <path_to_the_json_file>`

You can use a space-separated list of optional arguments to set more configurations. For example, you can set the location of the log and other output files that the installer generates.

    `vcsa-deploy migrate --accept-eula --log-dir=<path_to_the_location>`
                `<path_to_the_json_file>`

Optional Arguments of the Command-Line Installer

Table 1. Optional Arguments of the Command-Line Installer

Optional Argument	Description
-h, --help	Displays the help message.
--template-help	Displays the help message for the configuration parameters associated with the JSON file.
-v, --verbose	Adds debug information to the console output.
-t, --terse	Hides the console output. Displays only warning and error messages.
--log-dir, LOG_DIR	Sets the location of the log and other output files that the installer generates.
--verify-only	Performs basic verification of the configuration parameters in the JSON file and verification of the OVF Tool parameters. Does not perform the migration.
--skip-ovftool-verification	Performs basic verification of the configuration parameters in the JSON file and deploys the appliance. Does not perform verification of the OVF Tool parameters.
--no-esx-ssl-verify	Skips the SSL verification for the target ESXi or vCenter Server connections. Avoid using this option because it might cause problems during deployment or after deployment because of wrong values passed to the installer.
--deployment-target-ssl-thumbprint TARGET_THUMBPRINT	Thumbprint to pass to OVF Tool for verifying the ESXi or vCenter Server deployment target.
--accept-eula	Accepts the end-user license agreement

Using the Migration Templates

This section provides details about the migration templates and how to use the templates to prepare the JSON configuration files.

IMPORTANT   Do not copy the JSON templates from the PDF file to avoid JSON format loss. Use the files that are located in the vcsa-cli-installer/templates/migrate/5.5 directory.

Table 2. Templates of JSON Files for Migration of the vCenter Server and vCenter Single Sign-On

Template JSON File	Description
embedded_vCSA_on_ESXi.json	Contains the configuration parameters required to migrate a Windows installation of vCenter Server 5.5 with an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2 with an embedded Platform Services Controller on an ESXi host. See the template in Example 1.
embedded_vCSA_on_VC.json	Contains the configuration parameters required to migrate a Windows installation of vCenter Server 5.5 with an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2 with an embedded Platform Services Controller on a vCenter Server instance. See the template in Example 2.
PSC_on_ESXi.json	Contains the configuration parameters required to migrate an externally deployed Windows installation of vCenter Single Sign-On 5.5 to a Platform Services Controller 6.0 Update 2 appliance on an ESXi host. See the template in Example 3.
PSC_on_VC.json	Contains the configuration parameters required to migrate an externally deployed Windows installation of vCenter Single Sign-On 5.5 to a Platform Services Controller 6.0 Update 2 appliance on a vCenter Server instance. See the template in Example 4.
vCSA_on_ESXi.json	Contains the configuration parameters required to migrate a Windows installation of vCenter Server 5.5 with an external vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2 with an external Platform Services Controller on an ESXi host. See the template in Example 5.
vCSA_on_VC.json	Contains the configuration parameters required to migrate a Windows installation of vCenter Server 5.5 with an external vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2 with an external Platform Services Controller on a vCenter Server instance. See the template in Example 6.

Example 1. Content of the `embedded_vCSA_on_ESXi.json` Migration Template

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
              an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0
              Update 2 with an embedded Platform Services Controller on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "<FQDN or IP address of the source vCenter Server instance>",
            "username": "administrator@vsphere.local",
            "password": "<vCenter Single Sign-On administrator password>",
            "active.directory.domain": "<Optional. The name of the Active Directory domain to
                which the source Windows installation is joined. Remove this if your Windows is
                not in a domain.>",
            "active.directory.username": "<Optional. Administrator user name of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "active.directory.password": "<Optional. Administrator password of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "migration.ssl.thumbprint": "<Migration assistant SSL thumbprint>"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "small",
            "name": "Embedded-vCenter-Server-Appliance",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "<FQDN or IP address of the ESXi host on which to deploy the new
                appliance>",
            "username": "root",
            "password": "<Password of the ESXi host root user>",
            "datastore": "<ESXi host datastore>"
        },
        "os": {
            "password": "<Appliance root password; refer to --template-help for password
                policy>",
            "ssh.enable": true
        },
        "temporary.network": {
            "hostname": "<Optional. Temporary FQDN or IP address for the appliance. Remove this
                if using dhcp.>",
            "ip.family": "ipv4",
            "mode": "static",
            "ip": "<Optional. Static IP address. Remove this if using dhcp.>",
            "dns.servers": [
                 "<Optional. DNS Server IP Address. Remove this if using dhcp.>"
            ],
            "prefix": "<Optional. The value must be from 0 to 32 for an IPv4 address. Remove this
                if using dhcp.>",
            "gateway": "<Optional. Gateway IP address. Remove this if using dhcp.>"
        },
        "user-options": {
            "vcdb.migrateSet": "<Set data migration option. Available options are 'yes' and
                'no'.>"
        }
    }
}
```

Example 2. Content of the `embedded_vCSA_on_VC.json` Migration Template

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
            an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0
            Update 2 with an embedded Platform Services Controller on a vCenter Server
            instance.",
    "source.vc": {
        "vc.win": {
            "hostname": "<FQDN or IP address of the source vCenter Server instance>",
            "username": "administrator@vsphere.local",
            "password": "<vCenter Single Sign-On administrator password>",
            "active.directory.domain": "<Optional. The name of the Active Directory domain to
                which the source Windows installation is joined. Remove this if your Windows is
                not in a domain.>",
            "active.directory.username": "<Optional. Administrator user name of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "active.directory.password": "<Optional. Administrator password of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "migration.ssl.thumbprint": "<Migration assistant SSL thumbprint>"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "small",
            "name": "Embedded-vCenter-Server-Appliance",
            "thin.disk.mode": true
        },
        "vc": {
            "hostname": "<FQDN or IP address of the vCenter Server instance>",
            "username": "<vCenter Server username>",
            "password": "<vCenter Server password>",
            "datacenter": [
                "parent_folder",
                "child_folder",
                "Datacenter"
            ],
            "datastore": "<ESXi host or DRS cluster datastore>",
            "target": [
                "parent_folder",
                "child_folder",
                "<ESXi host or DRS cluster>"
            ]
        },
        "os": {
            "password": "<Appliance root password; refer to --template-help for password
                policy>",
            "ssh.enable": true
        },
        "temporary.network": {
            "hostname": "<Optional. Temporary FQDN or IP address for the appliance. Remove this
                if using dhcp.>",
            "ip.family": "ipv4",
            "mode": "static",
            "ip": "<Optional. Static IP address. Remove this if using dhcp.>",
            "dns.servers": [
                "<Optional. DNS Server IP Address. Remove this if using dhcp.>"
            ],
            "prefix": "<Optional. The value must be from 0 to 32 for an IPv4 address. Remove this
                if using dhcp.>",
            "gateway": "<Optional. Gateway IP address. Remove this if using dhcp.>"
        },
        "user-options": {
```

```
            "vcdb.migrateSet": "<Set data migration option. Available options are 'yes' and
                'no'.>"
        }
    }
}
```

Example 3. Content of the PSC_on_ESXi.json Migration Template

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate an externally deployed Windows installation of
                vCenter Single Sign-On 5.5 to a Platform Services Controller 6.0 Update 2
                appliance on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "<FQDN or IP address of the source Platform Services Controller>",
            "username": "administrator@vsphere.local",
            "password": "<vCenter Single Sign-On administrator password>",
            "active.directory.domain": "<Optional. The name of the Active Directory domain to
                which the source Windows installation is joined. Remove this if your Windows is
                not in a domain.>",
            "active.directory.username": "<Optional. Administrator user name of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "active.directory.password": "<Optional. Administrator password of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "migration.ssl.thumbprint": "<Migration assistant SSL thumbprint>"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "infrastructure",
            "name": "Platform-Services-Controller",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "<FQDN or IP address of the ESXi host on which to deploy the new
                appliance>",
            "username": "root",
            "password": "<Password of the ESXi host root user>",
            "datastore": "<ESXi host datastore>"
        },
        "os": {
            "password": "<Appliance root password; refer to --template-help for password
                policy>",
            "ssh.enable": true
        },
        "temporary.network": {
            "hostname": "<Optional. Temporary FQDN or IP address for the appliance. Remove this
                if using dhcp.>",
            "ip.family": "ipv4",
            "mode": "static",
            "ip": "<Optional. Static IP address. Remove this if using dhcp.>",
            "dns.servers": [
                "<Optional. DNS Server IP Address. Remove this if using dhcp.>"
            ],
            "prefix": "<Optional. The value must be from 0 to 32 for an IPv4 address. Remove this
                if using dhcp.>",
            "gateway": "<Optional. Gateway IP address. Remove this if using dhcp.>"
        }
    }
}
```

Example 4. Content of the PSC_on_VC.json Migration Template

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate an externally deployed Windows installation of
            vCenter Single Sign-On 5.5 to a Platform Services Controller 6.0 Update 2
            appliance on a vCenter Server instance.",
    "source.vc": {
        "vc.win": {
            "hostname": "<FQDN or IP address of the source Platform Services Controller>",
            "username": "administrator@vsphere.local",
            "password": "<vCenter Single Sign-On administrator password>",
            "active.directory.domain": "<Optional. The name of the Active Directory domain to
                which the source Windows installation is joined. Remove this if your Windows is
                not in a domain.>",
            "active.directory.username": "<Optional. Administrator user name of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "active.directory.password": "<Optional. Administrator password of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "migration.ssl.thumbprint": "<Migration assistant SSL thumbprint>"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "infrastructure",
            "name": "Platform-Services-Controller",
            "thin.disk.mode": true
        },
        "vc": {
            "hostname": "<FQDN or IP address of the vCenter Server instance>",
            "username": "<vCenter Server username>",
            "password": "<vCenter Server password>",
            "datacenter": [
                "parent_folder",
                "child_folder",
                "Datacenter"
            ],
            "datastore": "<ESXi host or DRS cluster datastore>",
            "target": [
                "parent_folder",
                "child_folder",
                "<ESXi host or DRS cluster>"
            ]
        },
        "os": {
            "password": "<Appliance root password; refer to --template-help for password
                policy>",
            "ssh.enable": true
        },
        "temporary.network": {
            "hostname": "<Optional. Temporary FQDN or IP address for the appliance. Remove this
                if using dhcp.>",
            "ip.family": "ipv4",
            "mode": "static",
            "ip": "<Optional. Static IP address. Remove this if using dhcp.>",
            "dns.servers": [
                "<Optional. DNS Server IP Address. Remove this if using dhcp.>"
            ],
            "prefix": "<Optional. The value must be from 0 to 32 for an IPv4 address. Remove this
                if using dhcp.>",
            "gateway": "<Optional. Gateway IP address. Remove this if using dhcp.>"
        }
    }
}
```

Example 5. Content of the `vCSA_on_ESXi.json` Migration Template

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
            an external vCenter Single Sign-On instance to a vCenter Server Appliance 6.0
            Update 2 with an external Platform Services Controller on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "<FQDN or IP address of the source vCenter Server instance>",
            "username": "administrator@vsphere.local",
            "password": "<vCenter Single Sign-On administrator password>",
            "active.directory.domain": "<Optional. The name of the Active Directory domain to
                which the source Windows installation is joined. Remove this if your Windows is
                not in a domain.>",
            "active.directory.username": "<Optional. Administrator user name of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "active.directory.password": "<Optional. Administrator password of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "migration.ssl.thumbprint": "<Migration assistant SSL thumbprint>"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "management-small",
            "name": "vCenter-Server-Appliance",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "<FQDN or IP address of the ESXi host on which to deploy the new
                appliance>",
            "username": "root",
            "password": "<Password of the ESXi host root user>",
            "datastore": "<ESXi host datastore>"
        },
        "os": {
            "password": "<Appliance root password; refer to --template-help for password
                policy>",
            "ssh.enable": true
        },
        "temporary.network": {
            "hostname": "<Optional. Temporary FQDN or IP address for the appliance. Remove this
                if using dhcp.>",
            "ip.family": "ipv4",
            "mode": "static",
            "ip": "<Optional. Static IP address. Remove this if using dhcp.>",
            "dns.servers": [
                "<Optional. DNS Server IP Address. Remove this if using dhcp.>"
            ],
            "prefix": "<Optional. The value must be from 0 to 32 for an IPv4 address. Remove this
                if using dhcp.>",
            "gateway": "<Optional. Gateway IP address. Remove this if using dhcp.>"
        },
        "user-options": {
            "vcdb.migrateSet": "<Set data migration option. Available options are 'yes' and
                'no'.>"
        }
    }
}
```

Example 6. Content of the `vCSA_on_VC.json` Migration Template

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
            an external vCenter Single Sign-On instance to a vCenter Server Appliance 6.0
            Update 2 with an external Platform Services Controller on a vCenter Server
            instance.",
    "source.vc": {
        "vc.win": {
            "hostname": "<FQDN or IP address of the source vCenter Server instance>",
            "username": "administrator@vsphere.local",
            "password": "<vCenter Single Sign-On administrator password>",
            "active.directory.domain": "<Optional. The name of the Active Directory domain to
                which the source Windows installation is joined. Remove this if your Windows is
                not in a domain.>",
            "active.directory.username": "<Optional. Administrator user name of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "active.directory.password": "<Optional. Administrator password of the Active
                Directory domain to which the source Windows installation is joined. Remove this
                if your Windows is not in a domain.>",
            "migration.ssl.thumbprint": "<Migration assistant SSL thumbprint>"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "management-small",
            "name": "vCenter-Server-Appliance",
            "thin.disk.mode": true
        },
        "vc": {
            "hostname": "<FQDN or IP address of the vCenter Server instance>",
            "username": "<vCenter Server username>",
            "password": "<vCenter Server password>",
            "datacenter": [
                "parent_folder",
                "child_folder",
                "Datacenter"
            ],
            "datastore": "<ESXi host or DRS cluster datastore>",
            "target": [
                "parent_folder",
                "child_folder",
                "<ESXi host or DRS cluster>"
            ]
        },
        "os": {
            "password": "<Appliance root password; refer to --template-help for password
                policy>",
            "ssh.enable": true
        },
        "temporary.network": {
            "hostname": "<Optional. Temporary FQDN or IP address for the appliance. Remove this
                if using dhcp.>",
            "ip.family": "ipv4",
            "mode": "static",
            "ip": "<Optional. Static IP address. Remove this if using dhcp.>",
            "dns.servers": [
                "<Optional. DNS Server IP Address. Remove this if using dhcp.>"
            ],
            "prefix": "<Optional. The value must be from 0 to 32 for an IPv4 address. Remove this
                if using dhcp.>",
            "gateway": "<Optional. Gateway IP address. Remove this if using dhcp.>"
        },
        "user-options": {
```

```
            "vcdb.migrateSet": "<Set data migration option. Available options are 'yes' and
                'no'.>"
        }
    }
```

Configuration Parameters for the Target vCenter Server Appliance or Platform Services Controller Appliance

Table 3 lists the configuration parameters in the `target.vcsa` section that you use to provide input data for the target vCenter Server Appliance or Platform Services Controller Appliance in the migration templates.

Table 3. List of the Configuration Parameters in the `target.vcsa` Section

Parameter	Default	Description
		`appliance` **subsection**
deployment.network	-	The network of the ESXi host on which you want to deploy the vCenter Server Appliance.
		Required only if the ESXi host, on which you want to deploy the vCenter Server Appliance, has more than one network.
deployment.option	small – for embedded_vCSA_on_ESXi.json and embedded_vCSA_on_VC.json templates infrastructure - for PSC_on_ESXi.json and PSC_vCSA_on_VC.json templates management-small - for vCSA_on_ESXi.json and vCSA_on_VC.json templates	The size of the vCenter Server Appliance depending on the size of your vSphere environment. The value can be: ■ `tiny` vCenter Server Appliance with an embedded Platform Services Controller for up to 10 hosts and 100 virtual machines and 120 GB of disc space. ■ `tiny–lstorage` vCenter Server Appliance with an embedded Platform Services Controller for up to 100 hosts and 1,000 virtual machines and 700 GB of disc space ■ `small` vCenter Server Appliance with an embedded Platform Services Controller for up to 100 hosts and 1,000 virtual machines and 150 GB of disc space ■ `small–lstorage` vCenter Server Appliance with an embedded Platform Services Controller for up to 100 hosts and 1,000 virtual machines and 700 GB of disc space ■ `medium` vCenter Server Appliance with an embedded Platform Services Controller for up to 400 hosts and 4,000 virtual machines and 300 GB of disc space ■ `medium–lstorage` vCenter Server Appliance with an embedded Platform Services Controller for up to 400 hosts and 4,000 virtual machines and 800 GB of disc space

Table 3. List of the Configuration Parameters in the `target.vcsa` Section

Parameter	Default	Description
deployment.option	small – for embedded_vCSA_on_ESXi.json and embedded_vCSA_on_VC.json templates infrastructure - for PSC_on_ESXi.json and PSC_vCSA_on_VC.json templates management-small - for vCSA_on_ESXi.json and vCSA_on_VC.json templates	■ `large` vCenter Server Appliance with an embedded Platform Services Controller for up to 1,000 hosts and 10,000 virtual machines and 450 GB of disc space ■ `large-lstorage` vCenter Server Appliance with an embedded Platform Services Controller for up to 1,000 hosts and 10,000 virtual machines and 900 GB of disc space ■ `management-tiny` vCenter Server Appliance for up to 10 hosts and 100 virtual machines and 120 GB of disc space. ■ `management-tiny-lstorage` vCenter Server Appliance for up to 10 hosts and 100 virtual machines and 700 GB of disc space. ■ `management-small` vCenter Server Appliance for up to 100 hosts and 1,000 virtual machines and 150 GB of disc space ■ `management-small-lstorage` vCenter Server Appliance for up to 100 hosts and 1,000 virtual machines and 700 GB of disc space ■ `management-medium` vCenter Server Appliance for up to 400 hosts and 4,000 virtual machines and 300 GB of disc space ■ `management-medium-lstorage` vCenter Server Appliance for up to 100 hosts and 1,000 virtual machines and 800 GB of disc space ■ `management-large` vCenter Server Appliance for up to 1,000 hosts and 10,000 virtual machines and 450 GB of disc space ■ `management-medium-lstorage` vCenter Server Appliance for up to 1,000 hosts and 10,000 virtual machines and 900 GB of disc space ■ `infrastructure` External Platform Services Controller Appliance with 30 GB of disc space
name	-	The name of the new target appliance.
thin.disk.mode	true	If `true`, the appliance is deployed with a thin mode virtual disk.
		esxi subsection

NOTE Required only if you are migrating to an ESXi host.

Parameter	Default	Description
hostname	-	The IP address or FQDN of the ESXi host on which you want to deploy the new target appliance.
username	-	A user name with administrative privileges for the ESXi host on which you want to deploy the appliance.
password	-	The password of the ESXi host user with administrative privileges. If left blank, or omitted, you are prompted to enter the password at the command prompt during template verification.
datastore	-	The name of the datastore on which you want to deploy the appliance. This value has to be either a specific datastore name, or a specific datastore in a datastore cluster. The datastore must have enough free space and must be accessible from the ESXi host on which you are deploying the appliance.

vc subsection

NOTE Required only if you are migrating to a vCenter Server instance.

Table 3. List of the Configuration Parameters in the `target.vcsa` Section

Parameter	Default	Description
`hostname`	-	The IP address or FQDN of the vCenter Server instance on which you want to deploy the appliance.
`username`	-	A vCenter Single Sign-On user name with administrative privileges for the vCenter Server instance on which you want to deploy the appliance.
`password`	-	The password of the vCenter user with administrative privileges for the vCenter Server instance. If left blank, or omitted, you will be prompted to enter it at the command console during template verification
`datacenter`	-	The name of the vCenter Server data center that contains the ESXi host or DRS cluster on which you want to deploy the appliance. The path to the data center that contains the ESXi host or DRS cluster on which you want to deploy the appliance. If the path includes folders, the value must be a comma-separated list. If the path does not include folders, the value must be a string or a single-element list. For example, if the target data center `'datacenter'` is located in the folder `'parent_folder'`, the value must be `["parent_folder", "datacenter"]`. Alternatively, if the target data center `'datacenter'` is located in the folder `'child_folder'`, and `'child_folder'` is located under `'parent_folder'`, the value must be `["parent_folder", "child_folder", "datacenter"]` Both folder and data center names are case sensitive.
`datastore`	-	The name of the datastore on which to store the files of the appliance. This value has to be either a specific datastore name, or a specific datastore in a datastore cluster. The datastore must be accessible from the vCenter Server data center and must have at least 15 GB of free space. Otherwise, the new appliance might not power on.
`target`	-	The path to the ESXi host or DRS cluster in the data center of the vCenter Server instance on which to deploy the appliance. This name is case-sensitive. If the target path includes folders, the value must be a comma-separated list. If the path does not include folders, the value must be a string or single-element list. For example, if the target ESXi host `'esxi-host.vmware.com'` is located in the folder `'parent_folder'` of the data center, the value must be `["parent_folder", "esxi-host.vmware.com"]`. Alternatively, if the target ESXi host is located in the folder `'child_folder'`, and 'child_folder' is located under `'parent_folder'`, the value must be `["parent_folder", "child_folder", "esxi-host.vmware.com"]` The ESXi name must be the same as the name displayed under the vCenter inventory. If the name in the vCenter inventory is an IP address, FQDN cannot be provided here, and the opposite way.

`temporary.network` subsections

NOTE Use the `temporary.network` subsection in the migration templates to configure a temporary network for migrating the data from the source vCenter Server to the new target vCenter Server Appliance or Platform Services Controller appliance.

`hostname`	-	Primary network identity. The value can be an FQDN or IP address, preferably an FQDN. You cannot change the value of this parameter after the deployment. The FQDN and dotted-decimal numbers must comply with the RFC 1123 guidelines.

Table 3. List of the Configuration Parameters in the `target.vcsa` Section

Parameter	Default	Description
`ip.family`	-	Network IP address family. The value must be: ■ `ipv4`
`mode`	-	Network mode. Use this parameter to choose how to allocate the temporary IP address of the new appliance. The value can be: ■ `static` You must set the static IP address and network settings. ■ `dhcp` A DHCP server is used to allocate the IP address. Use this option only if the DHCP server is available in your environment.
`ip`	-	Network IP address. Required only if the value of the `mode` parameter is `static`. Depending on the value of the `ip.family` parameter, you must set an IPv4. An IPv4 address must comply with the RFC 790 guidelines.
`dns.servers`	-	A comma-separated list of IP addresses of network DNS servers. Can be a JSON array, for example, `["1.2.3.4", "127.0.0.1"]`, or a serialized string, for example, `"1.2.3.4,127.0.0.1"`.
`prefix`	-	Network prefix length. Required only if the value of the `mode` parameter is `static`. For IPv4, the value can be between `0` and `32`.
`gateway`	-	IP address of the default gateway.
`user-options` subsection		
This subsection is applicable only when the source is a vCenter Server instance and lets you control aspects of the migration process for particular components.		
vcdb.migrateSet	no	Set the data migration option. If `yes`, historical data is migrated to the new appliance.
`os` subsection		
`password`	-	Password for the root user of the Linux OS of the target vCenter Server Appliance. The password must be between 8 characters and 20 characters long. It must also contain at least one uppercase and lowercase letter, one number, and one character from '!"#$%&'()*+,-./:;<=>?@[\]^_`{|}~' and all characters must be ASCII. Space is not allowed in `password`. If left blank, or omitted, you will be prompted to enter it at the command console during template verification.
`ssh.enable`	`false`	A Boolean value. If `true`, the vCenter Server Appliance is deployed with the SSH login option enabled. If `false`, you can change this setting after the deployment.

Configuration Parameters for the Source vCenter Server or vCenter Single Sign-On Instances

Table 4 lists the configuration parameters that you use to provide input data for the source vCenter Server or vCenter Single Sign-On instances in the migration templates.

Table 4. List of the Configuration Parameters in the `source.vc` Section

Parameter	Default	Description
`vc.win` subsection		
`hostname`	-	The host name or IP address of the source vCenter Server or vCenter Single Sign-On instance that you want to migrate.
`username`	`administrator@vsphere.local`	A vCenter Single Sign-On user name with administrative privileges for the vCenter Server or vCenter Single Sign-On instance that you want to migrate.
`password`	-	The password of the vCenter Single Sign-On user with administrative privileges for the vCenter Server or vCenter Single Sign-On instance that you want to migrate.
`active.directory.domain`		(Optional) The name of the Active Directory domain to which the source vCenter Server instance is joined.
`active.directory.username`	-	(Optional) Administrator user name of the Active Directory domain to which the source vCenter Server instance is joined.
`active.directory.password`	-	(Optional) Administrator password of the Active Directory domain to which the source vCenter Server instance is joined.
migration.ssl.thumbprint		The SSL thumbprint of Migration Assistant.
`run.migration.assistant` **subsection**		(Optional) Use this subsection when you want to automate the invocation of Migration Assistant. This section can be used when the source machine is not a physical machine. For vCenter Server running on a physical machine, or if you are running Migration Assistant manually on the Windows vCenter Server machine, copy and paste the thumbprint value from the Migration Assistant console output on the source vCenter Server machine to the `'migration.ssl.thumbprint'` key in the `vc.win` subsection, and remove the `'run.migration.assistant'` section.
esxi.hostname		FQDN or IP address of ESXi on which the source vCenter Server or vCenter Single Sign-On instance resides.
esxi.username		User name of a user with administrative privileges on the ESXi host.
esxi.password		The password of the ESXi host user. If left blank, or omitted, you will be prompted to enter the password at the command console during template verification.
esxi.port	443	The port number of the ESXi host.
os.username		Administrator user name for the source Windows machine.
os.password		Administrator user password for the source Windows machine. If left blank, or omitted, you will be prompted to enter it at the command console during template verification.

Table 4. List of the Configuration Parameters in the source.vc Section

Parameter	Default	Description
migration.ip		The IP address of the network adapter that will be migrated.
migration.port	9123	Migration Assistant port number.
export.dir		Directory to export source configuration and data.
sa.password		vCenter Server service account user password. This option is only required if the vCenter Server service is running under a non LocalSystem account. If left blank, or omitted, you will be prompted to enter it at the command console during template verification.

Migration of vCenter Server with an Embedded vCenter vCenter Single Sign-On to an Appliance Example

Use the templates in the following example to migrate a vCenter Server instance with an embedded vCenter vCenter Single Sign-On to a vCenter Server Appliance with an embedded Platform Services Controller appliance.

IMPORTANT   Do not copy the JSON templates from the PDF file to avoid JSON format loss. Use the files that are located in the vcsa-cli-installer/templates/migrate/5.5 directory.

Table 5. Values of the Parameters Used in the Example for Migrating vCenter Server with an Embedded vCenter Single Sign-On to an Appliance

IP address of the source vCenter Server	10.160.70.52
Source vCenter Server administrator password	Admin!12
IP address of the ESXi host where the target vCenter Server appliance is deployed	10.160.69.156
Root password for the ESXi host	P@ass!w0rd
Root password of the Linux OS of the vCenter Server Appliance	Admin!23
IP address of the local DNS servers for the temporary network	10.136.224.66

Example 7. Example Template for Migrating vCenter Server with an Embedded vCenter Single Sign-On to an Appliance

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
                an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0
                Update 2 with an embedded Platform Services Controller on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "10.160.70.52",
            "username": "administrator@vsphere.local",
            "password": "Admin!12",
            "active.directory.domain": "pdpvc2k12.test",
            "active.directory.username": "sunrisetest@pdpvc2k12.test",
            "active.directory.password": "xxxxxxx",
            "migration.ssl.thumbprint":
                "C8:C6:92:53:54:81:B2:C7:3F:4C:94:49:A3:52:82:12:65:C3:67:D8"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "small",
            "name": "Embedded-vCenter-Server-Appliance",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "10.160.69.156",
            "username": "root",
            "password": "P@ass!w0rd",
            "datastore": "local-0"
        },
        "os": {
            "password": "Admin!23",
            "ssh.enable": true
        },
        "temporary.network": {
            "ip.family": "ipv4",
            "mode": "dhcp",
            "dns.servers": [
                "10.136.224.66"
            ]
        },
        "user-options": {
            "vcdb.migrateSet": "yes"
        }
    }
}
```

Migration of vCenter Server with an External vCenter Single Sign-On to an Appliance Example

Use the templates in the following example to migrate a vCenter Server instance with an external vCenter Single Sign-On to a vCenter Server Appliance with an external Platform Services Controller appliance.

When you migrate from vCenter Server with an external vCenter Single Sign-On (version 5.5) on Windows to vCenter Server Appliance with an external Platform Services Controller appliance, you migrate in two steps.

1   First you migrate the vCenter Single Sign-On instance from Windows to an Platform Services Controller appliance.

2   Next you migrate the vCenter Server instance from Windows to an vCenter Server Appliance with an external Platform Services Controller.

IMPORTANT   Do not copy the JSON templates from the PDF file to avoid JSON format loss. Use the files that are located in the `vcsa-cli-installer/templates/migrate/5.5` directory

Table 6. Values of the Parameters Used in the Example for Migration of vCenter Server with an External vCenter Single Sign-On to an Appliance

IP address of the external vCenter Single Sign-On	10.160.70.52
IP address of the source vCenter Server	10.160.70.53
Source vCenter Server administrator password	Admin!12
IP address of the ESXi host where the target appliances are deployed	10.160.69.156
Root password for the ESXi host	P@ass!w0rd
Root password of the Linux OS of the vCenter Server Appliance	Admin!23
Root password of the Linux OS of the Platform Services Controller Appliance	Admin!23
IP address of the local DNS servers for the temporary network	10.136.224.66

Example 8. Example Template for Migrating a vCenter Single Sign-On to a Platform Services Controller Appliance

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate an externally deployed Windows installation of
            vCenter Single Sign-On 5.5 to a Platform Services Controller 6.0 Update 2
            appliance on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "10.160.70.52",
            "username": "administrator@vsphere.local",
            "password": "Admin!12",
            "active.directory.domain": "pdpvc2k12.test",
            "active.directory.username": "sunrisetest@pdpvc2k12.test",
            "active.directory.password": "xxxxxxx",
            "migration.ssl.thumbprint":
                "C8:C6:92:53:54:81:B2:C7:3F:4C:94:49:A3:52:82:12:65:C3:67:D8"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "infrastructure",
            "name": "Platform-Services-Controller",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "10.160.69.156",
            "username": "root",
            "password": "P@ass!w0rd",
            "datastore": "local-0"
        },
        "os": {
            "password": "Admin!23",
            "ssh.enable": true
        },
        "temporary.network": {
            "ip.family": "ipv4",
            "mode": "dhcp",
            "dns.servers": [
                "10.136.224.66"
            ]

        }
    }
}
```

Example 9. Example Template for Migrating a vCenter Server Instance to a vCenter Server Appliance

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
            an external vCenter Single Sign-On instance to a vCenter Server Appliance 6.0
            Update 2 with an external Platform Services Controller on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "10.160.70.53",
            "username": "administrator@vsphere.local",
            "password": "Admin!12",
            "active.directory.domain": "pdpvc2k12.test",
            "active.directory.username": "sunrisetest@pdpvc2k12.test",
            "active.directory.password": "xxxxxxx",
            "migration.ssl.thumbprint":
                "C8:C6:92:53:54:81:B2:C7:3F:4C:94:49:A3:52:82:12:65:C3:67:D8"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "tiny",
            "name": "NEW_VC_60_4134996",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "10.160.69.156",
            "username": "root",
            "password": "P@ass!w0rd",
            "datastore": "local-0"
        },
        "os": {
            "password": "Admin!23",
            "ssh.enable": true
        },
        "temporary.network": {
            "ip.family": "ipv4",
            "mode": "dhcp",
            "dns.servers": [
                "10.136.224.66"
            ]
        },
        "user-options": {
            "vcdb.migrateSet": "yes"
        }
    }
}
```

Migration of vCenter Server with an Embedded vCenter Single Sign-On to an Appliance with Automatic Invocation of Migration Assistant

Use the template in the following example to perform an automatic migration of a Windows installation of vCenter Server 5.5 with an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0 Update 2 with an embedded Platform Services Controller appliance on an ESXi host.

IMPORTANT   Do not copy the JSON templates from the PDF file to avoid JSON format loss. Use the files that are located in `the vcsa-cli-installer/templates/migrate/5.5` directory

Table 7. Values of the Parameters Used in the Example for Migrating vCenter Server with an Embedded vCenter Single Sign-On to an Appliance

IP address of the source vCenter Server	10.112.235.87
Source vCenter Server administrator password	Admin!12
Source vCenter Server Windows OS credentials	administrator@pdplabs/Admin!34
IP address of the ESXi host where the source vCenter Server Windows virtual machine is running	10.112.235.114
IP address of the ESXi host where the target vCenter Server appliance is deployed	10.112.235.114
Root password for the ESXi hosts	P@ass!w0rd
Root password of the Linux OS of the vCenter Server Appliance	Admin!23
IP address of the local DNS servers for the temporary network	10.136.224.66

Example 10. Example Template for Migration of vCenter Server with an Embedded vCenter Single Sign-On to an Appliance with Automatic Invocation of Migration Assistant

```
{
    "__version": "1.2.0",
    "__comments": "Sample template to migrate a Windows installation of vCenter Server 5.5 with
            an embedded vCenter Single Sign-On instance to a vCenter Server Appliance 6.0.2
            with an embedded Platform Services Controller on an ESXi host.",
    "source.vc": {
        "vc.win": {
            "hostname": "10.112.235.87",
            "username": "administrator@vsphere.local",
            "password": "Admin!12",
            "active.directory.domain": "pdplabs.com",
            "active.directory.username": "administrator",
            "active.directory.password": "xxxxxxx"
        },
        "run.migration.assistant": {
            "esxi.hostname": "10.112.235.114",
            "esxi.username": "root",
            "esxi.password": "P@ass!w0rd",
            "os.username": "administrator@pdplabs.com",
            "os.password": "Admin!34"
        }
    },
    "target.vcsa": {
        "appliance": {
            "deployment.network": "VM Network",
            "deployment.option": "small",
            "name": "Embedded-vCenter-Server-Appliance",
            "thin.disk.mode": true
        },
        "esxi": {
            "hostname": "10.112.235.114",
            "username": "root",
            "password": "P@ass!w0rd",
            "datastore": "LUN-1 (1)"
        },
        "os": {
            "password": "Admin!23",
            "ssh.enable": true
        },
        "temporary.network": {
            "ip.family": "ipv4",
            "mode": "dhcp"
        },
        "user-options": {
            "vcdb.migrateSet": "yes"
        }
    }
}
```