



# **Collecting and assessing the inventory information**

## **ONTAP 7-Mode Transition**

NetApp  
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# Collecting and assessing the inventory information

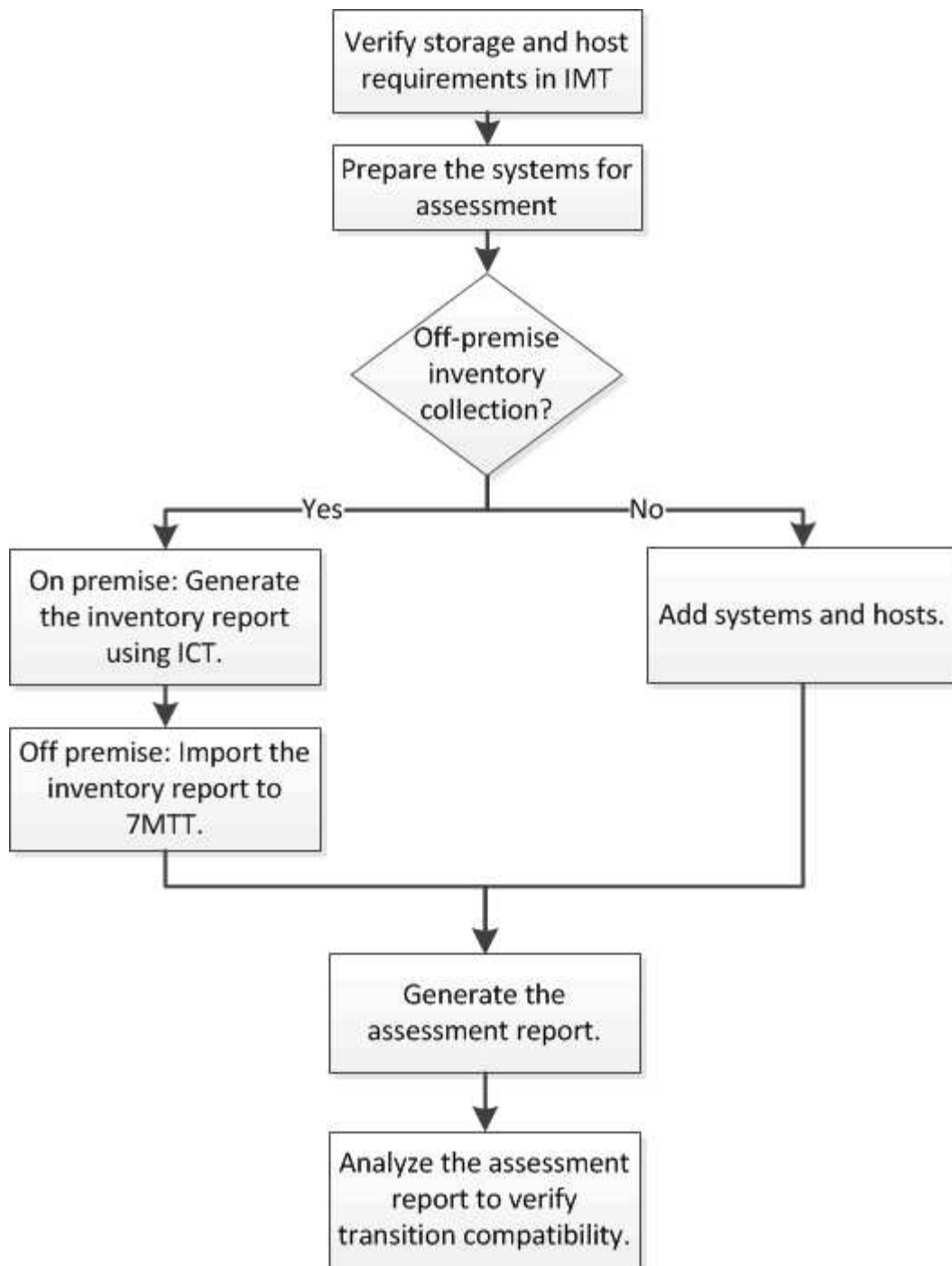
You can collect inventory information from controllers, hosts, and FC switches. You can then assess features and functionalities of these systems, and identify how these features and functionalities work in the ONTAP version that is selected for transition.

You can collect inventory information in two ways:

- If your environment security allows it, you can install the 7-Mode Transition Tool, and then use it to collect the inventory information.
- You can import the inventory XML report generated by the Inventory Collect Tool, and then perform the assessment.

In both cases, you must use the latest version of the Inventory Collect Tool to collect the inventory.

To assess the inventory information for a copy-free transition, you must select both of the nodes of the source 7-Mode HA pair. Although the assessment is done on a per-node basis, if a single node is not qualified for transition, the entire HA pair cannot be transitioned.



## Storage, host, and FC switches version requirements for transition assessment

You must be aware of the versions of Data ONTAP operating in 7-Mode, hosts, and FC switches that are supported for transition assessment.

For the list of 7-Mode versions, hosts, and FC switches that are supported for assessment by the 7-Mode Transition Tool, see the NetApp Interoperability Matrix Tool.

[NetApp Interoperability Matrix Tool](#)

# Preparing the 7-Mode systems and hosts for transition assessment

You must ensure that the 7-Mode systems and hosts meet certain network and protocol requirements for successfully generating an assessment report.

## Steps

1. Enable HTTPS on the 7-Mode system:

```
options httpd.admin.ssl.enable on
```

2. Enable TLS on the 7-Mode system:

```
options tls.enable on
```



The best practice is to enable TLS because of the security vulnerabilities in SSLv3.

3. Enable SSL and disable SSLv2 and SSLv3 on the 7-Mode system:

- a. Set up and start SSL:

```
secureadmin setup ssl
```

- b. Enable SSL:

```
options ssl.enable on
```

- c. Disable SSLv2 and SSLv3:

```
options ssl.v2.enable off
```

```
options ssl.v3.enable off
```



The best practice is to disable SSLv2 and SSLv3 to avoid security vulnerabilities.

4. Enable SSH on the 7-Mode system:

- a. Set up SSH on the 7-Mode system:

```
secureadmin setup -f ssh
```

The -f option forces the setup to run even if the SSH server is already configured.

- b. Enable SSH:

```
secureadmin enable ssh2
```

- c. Enable password authentication on the SSH server:

```
options ssh.passwd_auth.enable
```

- d. Enable SSH access to the host:

```
options ssh.access
```

5. Prepare your Windows host systems:

- Enable WMI access.

For more information about enabling WMI access, see the host documentation.

- If you have Windows Server 2003, verify that you have installed the Microsoft Fibre Channel Information Tool (fcinfo) package and run the tool once on your Windows host system.

This tool enables you to collect the HBA configuration information of the host.

- If the system on which the 7-Mode Transition Tool is run does not belong to a domain, verify the following:
  - The host system belongs to a domain.
  - If the host has a local user, and the user name for that user is in the following format:

```
SystemName\Username
```

## 6. Enable SSH on the Linux or ESXi host.

For more information about enabling SSH, see the host documentation.

## 7. Verify that you have installed the latest NetApp Host Utilities software for each host.

For information about downloading and installing the NetApp Host Utilities software, see the NetApp Support Site.

## 8. Verify that all the hosts and storage systems can be reached by the Windows system from which the 7-Mode Transition Tool is run.

### Related information

Documentation on the NetApp Support Site: [mysupport.netapp.com](https://mysupport.netapp.com)

## Assessing controllers and hosts

You can collect and assess information about the controllers and hosts by using either the 7-Mode Transition Tool or the Inventory Collect Tool, depending on the security regulations in your environment.

- The 7-Mode Transition Tool collects inventory information about controller and hosts by adding the systems or by using the inventory report generated by the Inventory Collect Tool.

The 7-Mode Transition Tool then assesses inventory information and creates the transition assessment report.

- You must be aware of the following considerations when performing transition assessment:
  - You should not perform both assessment and migration operations simultaneously on a controller.
  - You should avoid performing assessment operations on active storage controllers during peak hours.

## Generating an assessment report by adding systems to the 7-Mode Transition Tool

You can collect inventory information for controllers, hosts, and FC switches by adding the systems to the 7-Mode Transition Tool. You can then create an assessment report to assess the features and functionalities of those systems, and to identify how they work in the ONTAP version selected for transition.

- The user name for the storage system and hosts must have sufficient privileges to execute the commands listed in the readme file.

The readme file is located at `_7-Mode_Transition_Tool_installed_location\bin\ict`.

- You must have prepared the 7-Mode systems, hosts, and FC switches for transition assessment.
- For assessing Windows systems, you must have a domain user account.
- If you are adding multiple systems for assessment, you must create a text file that is encoded in the ASCII or UTF-8 format and must contain the system details in the form of one system per line.

Each system details must be in the following format:

```
(ontap|windows|vmware|linux|cisco|brocade)://[ (user|domain_user) [:password]@] (host_name|ip)
```

- The controller or host must be accessible by the system on which the 7-Mode Transition Tool is installed and run.
- All features must be configured or their license enabled so that the workbook can contain inventory information about these features.
- The user name for the storage system must have sufficient administrative privileges to collect inventory information.
- All host names and storage system configurations, such as CIFS share names, user names, and group names, must be in the UTF-8 format.

If the 7-Mode Transition Tool service or the system on which this tool is installed is restarted, then the system details added to the tool are lost and the system must be added to the tool again.

### Steps

1. If you want to use the latest Interoperability Matrix (IMT) data for transition assessment:
  - a. Download the IMT data from the Interoperability Matrix, and then save it:
    - i. From the Reports menu, click **Complete Daily Exports**.
    - ii. In the Complete Daily Exports dialog box, enter FAS in the search field.
    - iii. Download the ONTAP SAN Host excel file, and then save it. [NetApp Interoperability Matrix Tool](#)
  - b. From the CLI, import the IMT data by using the `transition imt import` command.
  - c. Verify that the import is successful by using the `transition imt show` command.

**Troubleshooting:** If the IMT data import operation fails, you can revert to the previous data by using the `transition imt restore` command.

2. Log in to the 7-Mode Transition Tool, and then click **Collect & Assess** in the home page.

3. Click **Add Systems**.

4. In the Add System window, perform one of the following actions:

- Add a single system:
  - i. Enter the fully qualified domain name (FQDN) or IP address of the system.
  - ii. Enter the user name and password for the specified system.
  - iii. Select the system type:
    - Data ONTAP storage systems
    - Hosts: Microsoft Windows, Red Hat Linux Enterprise, and VMware ESXi
    - FC switches: Cisco and Brocade
- Add multiple systems by clicking **Browse**, and then selecting the text file that contains the credentials for multiple systems.

5. Click **Add**.

If the assessment status of a system is Ready, then you can perform transition assessment for that system.

6. Generate the transition assessment report:

- a. Select the systems for transition assessment.
- b. Click **Create Transition Assessment Report**.
- c. In the Create Transition Assessment Report dialog box, select the Data ONTAP version of the target cluster.
- d. Specify a prefix for the file name of the reports.
- e. Click **Generate Report**.

The assessment workbook (report name appended with "AssessmentWorkbook") and assessment executive summary (report name appended with "AssessmentExecutiveSummary") reports are generated in XML format.

+ You can access the assessment workbook, assessment summary, and inventory XML files that are used to generate the assessment report from the ...etc/webapp/transition-gui/tmc folder.

7. View the assessment workbook in Microsoft Excel and assessment executive summary in Microsoft Word by using Microsoft Office 2007 or later versions.

In the assessment workbook, see the Transition Feasibility (CFT), Config Precheck Summary, Config Precheck Details, and CFT Precheck Summary tabs for copy-free transition assessment details.

In the assessment executive summary, see the Copy-Free Transition Feasibility section for controller-level assessment details.

You might have to enable macros in Excel to view the assessment workbook.

In the data collection summary of the assessment workbook, if the access status of a system is **FAILED**, then the inventory information for that system is invalid. In the assessment executive summary, the value of some of the fields of this system is displayed as **Not Assessed**.



## Generating an assessment report by importing the inventory report XML

You can import the inventory XML report generated by the Inventory Collect Tool to assess the features and functionalities of hosts and controllers. You can then identify how these host and controllers work in the ONTAP version selected for transition by creating an assessment report.

- You must have run the Inventory Collect Tool and generated the inventory report XML file.



To assess hosts and controllers for copy-free transition, you must use the latest version of the Inventory Collect Tool to collect inventory.

- You must have prepared the 7-Mode systems and hosts for transition assessment.

The systems that you want to assess need not be reachable while importing the inventory report and performing transition assessment.

### Steps

1. Log in to the 7-Mode Transition Tool, and then click **Collect and Assess** in the home page.
2. Click **Import Inventory Report XML**.
3. Click **Browse**, and then select the XML report generated by the Inventory Collect Tool.
4. Click **Import**.

The assessment status of the system shows `Imported;Ready`.

5. Select the system for which you want to perform transition assessment.
6. Click **Create Transition Assessment Report**.
7. In the Create Transition Assessment Report dialog box, select the Data ONTAP version of the target cluster.
8. Specify a prefix for the file name of the reports.
9. Click **Generate Report**.

The `AssessmentWorkbook` and `AssessmentExecutiveSummary` reports are generated in XML format.

10. View the `AssessmentWorkbook` report in Microsoft Excel and the `AssessmentExecutiveSummary` report in Microsoft Word by using Microsoft Office 2007 or later versions.

To view the `AssessmentWorkbook` report in Microsoft Excel, you might have to enable macros in Excel.

## Generating an FC zone plan

For FC switches, you must generate an FC zone plan as part of the transition assessment report to configure the zones for grouping the initiator hosts and targets after the migration.

- The 7-Mode system, hosts, and the cluster must be connected to the same switch.

[Supported configurations for generating an FC zone plan](#)

- You must have created the required target SVMs and FC LIFs on the cluster.
- The FC LIFs that are created on the target SVMs will have WWPN, which are different from 7-Mode WWPNs. Therefore, perform FC zoning while you transition SAN for FCP.

## Steps

1. In the Collect and Assess section, click **Add Systems**.
2. In the Add System window, perform one of the following actions:
  - Add a single system:
    - i. Enter the FQDN or IP address of the system.
    - ii. Enter the user name and password for the specified system.
    - iii. Select the system type:
      - Data ONTAP storage systems
      - Hosts: Microsoft Windows, Red Hat Linux Enterprise, and VMware ESXi
      - FC switches: Cisco and Brocade
  - Add multiple systems by clicking **Browse**, and then selecting the text file that contains the credentials for multiple systems.
3. Click **Add**.

If the assessment status of a system is Ready, then you can perform transition assessment for that system.

4. Generate the transition assessment report with the FC zone plan:
  - a. Select the systems, including the required FC switches, for transition assessment.
  - b. Click **Create Transition Assessment Report**.
  - c. In the pair systems and start FC zone planner dialog box, select the 7-Mode systems (single controller or HA pair), the switch connected to the cluster, and an SVM in the cluster.

If you plan to consolidate the FC LUNs to a single SVM by rehosting transitioned volumes, select the 7-Mode HA pair and the target SVM.



It is a best practice to consolidate the FC LUNs to a single SVM for preserving the 7-Mode single-system image (SSI) configuration.

If you do not plan to consolidate the FC LUNs, you must generate the FC zone plan for each 7-Mode controller and the corresponding target SVM.

- d. Click **FC Zoning for paired systems**.
- e. In the Create Transition Assessment Report dialog box, select the Data ONTAP version of the target cluster.
- f. Specify a prefix for the file name of the reports.
- g. Click **Generate Report**.

The FC zone plan is generated as a .zip file. The plan contains zones created per the igroup configurations on the 7-Mode systems. Each zone contains a single initiator WWPN and multiple SVM target WWPNs.

You must use the FC zone plan for configuring the zones to group the initiator hosts and targets for providing data access from the cluster.

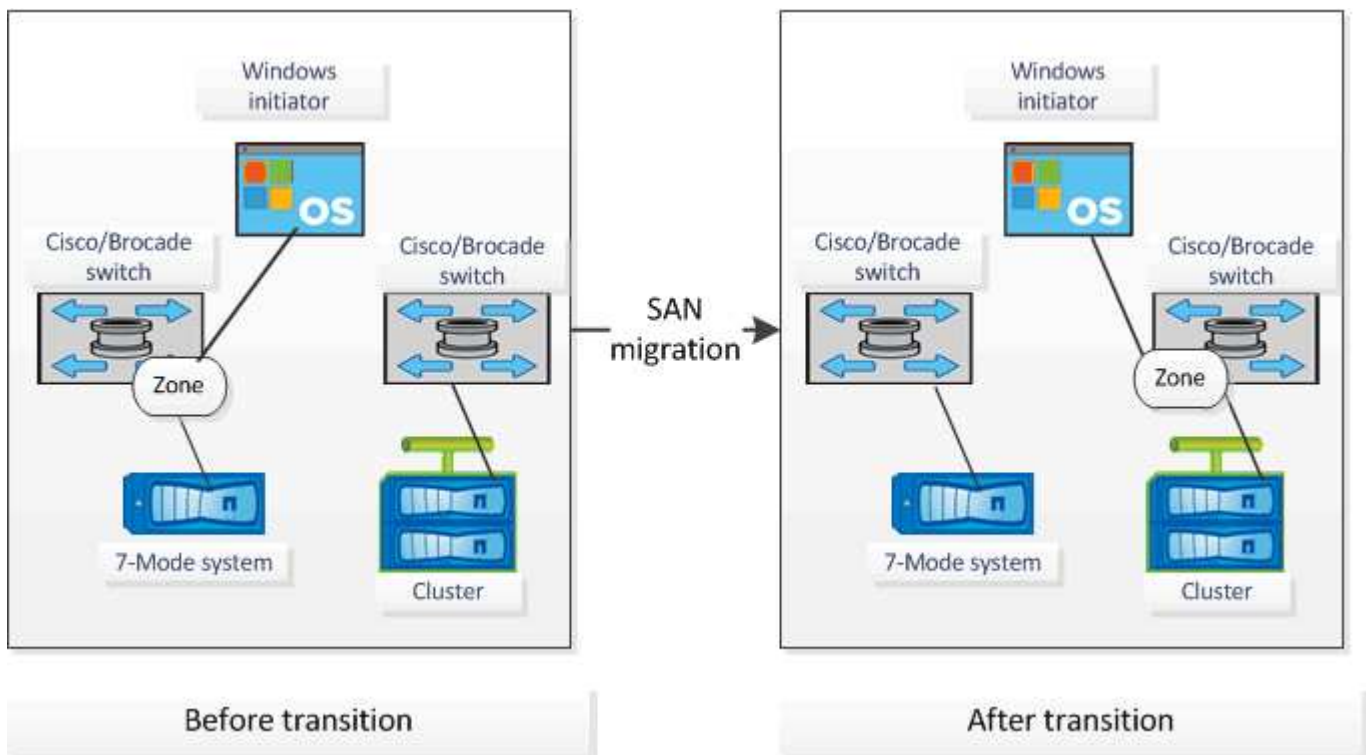
## Supported configurations for generating an FC zone plan

You must be aware of the supported configurations of 7-Mode systems, hosts, FC switches, and the cluster to generate the FC zone plan. You should use the plan to configure zones for the cluster after migration.

The 7-Mode systems (single controller or an HA pair), hosts, and cluster can be connected either to the switches in the same fabric or different fabrics, depending on the data center requirements.

The following figure illustrates a configuration in which the 7-Mode systems, hosts, and cluster are connected to the switches in the same fabric:

The following figure illustrates a configuration in which the 7-Mode systems and cluster are connected to switches in different fabrics:



## How you can use the assessment executive summary for transition assessment

The transition executive summary provides a summary of the 7-Mode controllers, hosts, and FC switches in your environment. It provides an assessment report of the current features and functionality that are used and recommends the transition methodology for each volume within your storage environment. You can use the summary to plan your transition.

The executive summary has the following main sections:

## Target cluster

This section lists the ONTAP version of the target cluster that you selected during assessment.

## Data collection summary

You can view the list of 7-Mode controllers, hosts, and switches for which you have collected information. You can view the ONTAP version and model details of the 7-Mode controller. You can also view the OS type, version, and model of the hosts.

## Transition feasibility and recommended transition methodology

This section provides a summary of the prechecks that are run on each controller and the feasibility of transition at the controller and volume level. The volumes that belong to vFiler units that are in the `stopped` or `inconsistent` state or the volumes that are offline or restricted are not included for assessment. The report displays the count of errors and warnings reported in the precheck against each controller. You should review these errors and warnings and resolve any issues before transitioning. Details of these prechecks are available in the Config Precheck Summary tab of the assessment workbook.

**Copy-free transition feasibility:** This section lists the number of controller-level prechecks that resulted in errors and warnings for copy-free transition. If a precheck fails for any one controller in the HA pair, you cannot transition the HA pair by using copy-free transition. You must resolve all errors and warnings before transitioning the HA pair. Details of these prechecks are available in the CFT Precheck Summary tab of the assessment workbook.

Based on the volume and controller configurations and the precheck summary, the executive summary provides a recommendation about the best transition methodology for each assessed volume. For example, you cannot transition 7-Mode traditional volumes or FlexCache volumes because these features are not supported in ONTAP.

For most of the configurations, the 7-Mode Transition Tool is the recommended tool for transition. However, there are some workloads that cannot be transitioned by using the 7-Mode Transition Tool, and for those you should use an application-based or host-based migration method.

[NetApp Technical Report 4052: Successfully Transitioning to Clustered Data ONTAP \(Data ONTAP 8.2.x and 8.3\)](#)

## Storage inventory

This section provides the following information:

- **Storage objects:** Provides information about the number of storage objects, such as volumes, qtrees, LUNs, vFiler units, SnapMirror relationships, shares, and exports, in each controller.
- **Storage utilization:** Provides information about the used space, available space, and space utilized by the 7-Mode controllers.
- **Licenses:** Provides the list of feature licenses enabled on each controller.
- **Protocol configuration:** Provides details about the protocols configured on the controllers, such as CIFS, NFS, and SAN protocols, and the versions.
- **SnapMirror interconnectivity:** Provides information about the controllers or volumes that are either the source or destination of a SnapMirror relationship.

You can use this information to identify controllers that are in SnapMirror relationships with the controllers

listed in the report, but are not included for assessment.

- SnapVault interconnectivity: Provides information about the controllers, volumes, or qtrees that are either the source or destination of a SnapVault relationship with the specified controller, volumes, or qtrees in the controller.

## **Data collection errors**

This section provides details about controller and host information that could not be collected by the 7-Mode Transition Tool and the reason for the failure. Details of the data collection errors are available in the Data Collection Errors tab of the assessment workbook. You can resolve these errors and assess the systems again.

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