

# HP Storage Operations Manager

Software Version: 10.10

Windows® and Linux® operating systems

## HP Storage Essentials Configuration Migration Guide

Document Release Date: January 2016  
Software Release Date: January 2016



## Legal Notices

### Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

### Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

### Copyright Notice

© Copyright 2015-2016 Hewlett-Packard Development Company, L.P.

### Trademark Notices

Adobe® is a trademark of Adobe Systems Incorporated.

AMD is a trademark of Advanced Micro Devices, Inc.

© 2012 Google Inc. All rights reserved. Google™ is a trademark of Google Inc.

Intel®, Intel® Itanium®, and Intel® Xeon® are trademarks of Intel Corporation in the U.S. and other countries.

Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Microsoft®, Windows®, and Windows Server® are U.S. registered trademarks of Microsoft Corporation.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

Red Hat® is a registered trademark of Red Hat, Inc. in the United States and other countries.

SAP®, SAP® BusinessObjects™, and SAP® BusinessObjects™ Web Intelligence® are the trademarks or registered trademarks of SAP SE in Germany and in several other countries.

UNIX® is a registered trademark of The Open Group.

### Oracle Technology — Notice of Restricted Rights

Programs delivered subject to the DOD FAR Supplement are 'commercial computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement. Otherwise, programs delivered subject to the Federal Acquisition Regulations are 'restricted computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the restrictions in FAR 52.227-19, Commercial Computer Software-Restricted Rights (June 1987). Oracle America, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

For the full Oracle license text, see the `open_source_third_party_license_agreements.pdf` file in the `license-agreements` directory in the SOM product download file.

## Acknowledgements

This product includes software developed by the Apache Software Foundation.  
(<http://www.apache.org>)

This product includes software developed by the Indiana University Extreme! Lab.  
(<http://www.extreme.indiana.edu>)

This product uses the j-Interop library to interoperate with COM servers.  
(<http://www.j-interop.org>)

## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

<https://softwaresupport.hp.com>

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

<https://hpp12.passport.hp.com/hppcf/createuser.do>

Or click the **the Register** link at the top of the HP Software Support page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

## Support

Visit the HP Software Support Online web site at: <https://softwaresupport.hp.com>

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

<https://hpp12.passport.hp.com/hppcf/createuser.do>

To find more information about access levels, go to:

<https://softwaresupport.hp.com/web/softwaresupport/access-levels>

**HP Software Solutions Now** accesses the HPSW Solution and Integration Portal Web site. This site enables you to explore HP Product Solutions to meet your business needs, includes a full list of Integrations between HP Products, as well as a listing of ITIL Processes. The URL for this Web site is <http://h20230.www2.hp.com/sc/solutions/index.jsp>

# Contents

Contents .....	4
Chapter 1: Introduction .....	5
Migration Tools .....	5
Migrated Configuration .....	6
Chapter 2: Migrating the Storage Essentials Configuration Data .....	11
Task 1: Export the Storage Essentials Configuration Data .....	12
Task 2: Copy the Exported Files to the SOM Management Server .....	14
Task 3: Import Storage Essentials Configuration Data into the SOM Database .....	15
Appendix A: Configuration Export and Import Commands .....	20
We appreciate your feedback! .....	21

# Chapter 1: Introduction

HP Storage Operations Manager (SOM) is HP's next generation storage resource management product. SOM is intended to replace HP Storage Essentials.

This guide describes the procedure for migrating the Storage Essentials configuration to SOM. It applies to the following versions of Storage Essentials:

- Storage Essentials 9.6.1
- Storage Essentials 9.70 with patch installed (version 9.70.2060)

## Migration Tools

SOM provides a set of command line utilities for exporting the Storage Essentials configuration data and importing this data into the SOM database.

For export, the commands are included in SOM 10.10. These commands must be run on the Storage Essentials management server. They are available in the `Utilities\scripts` directory in the extracted zip folder of SOM 10.10 install bits.

For import, the commands are installed on the SOM management server as part of SOM 10.10. These commands must be run on the SOM management server. They are available in the following location:

- *Windows:* %OvInstallDir%\bin
- *Linux:* /opt/OV/bin

For a list of the migration tools, see "[Configuration Export and Import Commands](#)" on page 20.

**Note:** All export and import commands run during the migration process must be from the same version of SOM.

# Migrated Configuration

This section describes the configuration data that can be migrated from Storage Essentials to SOM. Note the special considerations described here.

## Custom properties

The custom property export command collects the following Storage Essentials custom properties files:

- `customProperties.properties`
- `customProperties.sample`
- `mergedProperties.properties`
- `securityProperties.properties_sample`
- `customJBossVMSettings.properties`

The custom property import command adds the exported custom properties to the `custom.properties` file in SOM. If the same property exists in both Storage Essentials and SOM, the Storage Essentials value takes precedence and is retained.

View the SOM custom properties in the following file:

- *Windows:* `%OvDataDir%\conf\som\custom.properties`
- *Linux:* `/var/opt/OV/conf/som/custom.properties`

## Discovery configuration

The discovery configuration export process collects the following Storage Essentials discovery configuration data:

- Discovery addresses
- Discovery credentials
- Discovery address ranges
- Host inference rules

The discovery configuration import command merges the Storage Essentials discovery configuration data with the existing SOM discovery configuration.

View the SOM discovery configuration and discovery status in the views available from the Discovery area of the Configuration workspace in the SOM console.

To run a discovery rule, right-click that rule, and then click **Start Discovery**.

### **Host containers (named generic hosts)**

In Storage Essentials, host containers, also called named generic hosts are created by grouping generic hosts.

The host container configuration export command exports the host container definitions from Storage Essentials.

The host container configuration import command merges the Storage Essentials host container configuration with the existing SOM host container configuration. The host container import command groups the world wide names (WWNs) into hosts. If a WWN is not discovered, the host container import command creates a new port object for that WWN.

View the SOM host container configuration in the Created Host view in the SOM console (**Inventory > Hosts > Created Hosts**).

### **Hierarchical groups**

Hierarchical groups are a mechanism to group related elements. A hierarchical group can include discovered elements, inferred hosts, and named generic hosts. The hierarchical groups in Storage Essentials map to node groups in SOM. After a successful migration of the Storage Essentials hierarchical group configuration, the same hierarchy is available in the SOM node group configuration.

In SOM, only top-level elements (hosts, virtual machines, inferred hosts, created hosts, switches, storage systems, and fabrics) can be included in a node group. Storage Essentials supports the use of groups for a larger data set. The migration process imports the node groups for the top-level elements only.

In Storage Essentials, group names can be re-used at different levels of the hierarchy. In SOM, all node group names must be unique across the entire group structure. The hierarchical group migration process uses the full path of the Storage Essentials group name (for example, `Group 1->Group 1`) as the SOM node group name.

The hierarchical group export process collects the Storage Essentials hierarchical group configuration and maps elements to the exported groups for storage systems, hosts, and switches.

The node group import command merges the Storage Essentials hierarchical group configuration data with the existing SOM node group configuration. The node group import creates a new node group in SOM for each group in the supplied data file. Note the following:

- The imported node groups are not rule-based. The node group import process adds each element in a Storage Essentials hierarchical group to the equivalent SOM node group as an additional node. Storage elements discovered after node group import are not automatically added to any of the imported node groups.
- SOM does not create nodes for storage pools, storage volumes, NAS volumes, and NetApp Vfilers contained within a hierarchical group. Therefore, these elements are not imported during the group import process.
- If a custom property value exceeds 255 characters, the hierarchical groups import process trims the value to 255 characters.
- If any of the groups being imported already exists in SOM, the entire group import fails. In this case, delete or change the name of the existing SOM node group, and re-run the import command.
- If the group name, including all levels in the hierarchy, exceeds 255 characters, the entire group import fails. In this case, manually edit the individual hierarchical group names in Storage Essentials so that the total group path length does not exceed 255 characters, and then re-export the hierarchical group configuration from Storage Essentials.
- If some of the elements associated with a node group are not discovered on the SOM management server, the import command displays a warning message similar to the following:

```
Not able to find element :{element_name} by unique key : {unique_key} and element type: {element_type}. Skipping the element and continuing with finding the next element
```

The import process imports the node group into the SOM database without creating the association to the named element.

View the SOM host container configuration in the Node Groups view in the SOM console (**Configuration > Object Groups > Node Groups**).

### **Asset records**

In SOM, asset records are visible only for the following top-level elements:

- Discovered hosts
- Virtual servers
- Storage systems
- Physical switches

Storage Essentials supports the use of asset records for a larger data set.

The asset record export command collects data for the top-level **Asset Record** page under **Asset Management** in Storage Essentials. The command ignores any other child asset pages (for example, Staff or Custom).

The asset record import command overwrites the existing SOM asset record configuration. The asset record import command imports asset records into the SOM database and attaches each imported asset record to the applicable storage element. Note the following:

- If the storage element has not been discovered in SOM, the import command reports a missing element error and ignores the associated asset record. View the error in the command window and the `som.log` file.
- If the storage element type does not support asset records in SOM, the asset record exists in the SOM database but is not visible in the SOM console.

View asset records for the supported storage elements in the SOM console as follows:

1. In the Inventory workspace, open any of the following views:
  - Discovered Hosts
  - Virtual Servers
  - Physical Switches
  - Top Level Storage Systems
  - All Storage Systems
2. Double-click a row to open that storage element.
3. In the right-hand tab group, click the Asset Record tab.

### **Storage tier definitions**

The storage tier definition export command collects all Storage Essentials tier rules and manual tier dynamic rules and manually added elements.

**Note:** The storage tier migration process does not migrate NAS volumes that were manually added to a storage tier in Storage Essentials.

The storage tier definition import command overwrites the existing SOM storage tier definitions. The import command creates the storage tier definitions in the SOM database. During import, SOM matches discovered storage elements to the storage tier definitions.

The storage tier definition import command identifies the elements that are included in the import set but are not currently in the SOM database. After import completes, manually add these storage elements to the applicable storage tier.

View the SOM storage tier configuration in the Storage Tiers view in the SOM console (**Configuration > Storage Tiers > Storage Tiers**).

**Tip:** By default storage tiers are not visible in the SOM console. For more information, see "Enable Storage Tier Configuration" in the *SOM Deployment Guide*.

To run a storage tier rule, right-click that rule, and then click **Run Rule**.

**Tip:** SOM runs the storage tier rules that apply to a storage device at the end of each data collection for that device.

## Chapter 2: Migrating the Storage Essentials Configuration Data

The process of migrating the Storage Essentials configuration to the SOM database consists of the following tasks:

- ["Task 1: Export the Storage Essentials Configuration Data "](#) on the next page  
Perform this task on the Storage Essentials management server.
- ["Task 2: Copy the Exported Files to the SOM Management Server"](#) on page 14
- ["Task 3: Import Storage Essentials Configuration Data into the SOM Database"](#) on page 15  
Perform this task on the SOM management server.

For information about the data that can be migrated from Storage Essentials and where that content appears in SOM, see ["Migrated Configuration"](#) on page 6.

The migration process overwrites some of the configurations in the SOM database. For this reason, it is not recommended to migrate the configuration from more than one Storage Essentials server into a single SOM database.

# Task 1: Export the Storage Essentials Configuration Data

To export the Storage Essentials configuration data, follow these steps:

1. Access the export scripts.
  - a. Obtain SOM 10.10 from the HP Support web site ([softwaresupport.hp.com](http://softwaresupport.hp.com)).

**Note:** All export and import commands run during the migration process must be from the same version of SOM.

- b. Extract the SOM 10.10 install bits to a known location.
2. Prepare the Storage Essentials system.
  - a. Log on to the Storage Essentials management server as an operating system user with administrative privileges.
  - b. Add `%JBOSS_DIST%\server\appiq\remoteScripts\perl\bin` to the `%PATH%` environment variable for the current user.
  - c. Copy the `Utilities` directory from the extracted SOM 10.10 install bits to any known location on the Storage Essentials management server. For example, `C:\SE_export`.
  - d. Change to the directory containing the export scripts. For example, `C:\SE_export\Utilities\scripts`.  
  
During the export process, run all commands from this location.
  - e. Create a directory to hold the exported data. For example, `C:\SE_data`.
  - f. Log on to the Storage Essentials console as a Storage Essentials administrator.

3. Export the Storage Essentials custom properties.

At a command prompt, run the following command:

```
perl exportcustomprops.pl <file_path>
```

Replace *<file\_path>* with the absolute path of the output file. For example, C:\SE\_data\CustomProperties.zip.

4. Export the Storage Essentials discovery configuration.

a. In the Storage Essentials console, on the Discovery Setup page (**Discovery > Setup**), click **Save Settings to File**.

b. *Optional.* In the **Save Settings to File** dialog box, specify a password for the export file.

To save the export file with no password, close the **Save Settings to File** dialog box.

c. Use the web browser functionality to save the export file to the data directory. For example, C:\SE\_data\DiscoverySettings.xml.

5. Export the Storage Essentials host containers (named generic hosts).

At a command prompt, run the following command:

```
perl exporthostcontainers.pl <file_path>
```

Replace *<file\_path>* with the absolute path of the output file. For example, C:\SE\_data\Containers.xml.

6. Export the Storage Essentials hierarchical groups.

a. In the Storage Essentials console, on the Groups tab of the Element Manager right-click the **All Groups** node, and then click **Export Groups**.

b. Use the web browser functionality to save the groups file to the data directory. For example, C:\SE\_data\Elementgroups\_Hierarchy\_12345.xml.

c. At a command prompt, run the following command:

```
perl exporthierarchicalgroup.pl <groups_file_path> <file_path>
```

Replace `<groups_file_path>` with the absolute path of the file saved from the Storage Essentials console. For example, `C:\SE_data\Elementgroups_Hierarchy_12345.xml`.

Replace `<file_path>` with the absolute path of the output file. For example, `C:\SE_data\Groups.xml`.

#### 7. Export the Storage Essentials asset records.

At a command prompt, run the following command:

```
perl exportassetrecords.pl <file_path>
```

Replace `<file_path>` with the absolute path of the output file. For example, `C:\SE_data\AssetRecords.xml`.

#### 8. Export the Storage Essentials storage tier definitions.

At a command prompt, run the following command:

```
perl exportstoragetier.pl <file_path>
```

Replace `<file_path>` with the absolute path of the output file. For example, `C:\SE_data\StorageTiers.xml`.

## Task 2: Copy the Exported Files to the SOM Management Server

The steps in Task 1 created several data files in a directory on the Storage Essentials management server, for example `C:\SE_data`. Some files are of type XML (.xml). Others are compressed (.zip) files. Copy these data files to a directory on the SOM management server, for example `C:\SE_data` or `/tmp/SE_data`.

## Task 3: Import Storage Essentials Configuration Data into the SOM Database

For information about how to view the imported data in SOM, see ["Migrated Configuration" on page 6](#).

To import the Storage Essentials configuration data into the SOM database, follow these steps:

**Note:** All export and import commands run during the migration process must be from the same version of SOM.

1. Prepare the SOM system.
  - a. Log on to the SOM management server as an operating system user with administrative privileges.
  - b. Log on to the SOM console as an SOM administrator.
2. Import the Storage Essentials custom properties.

At a command prompt, run the following command:

```
somcustomproperties.ovpl -import <file_path>
```

Replace *<file\_path>* with the absolute path of the file containing the data to import. For example, `C:\SE_data\CustomProperties.zip` or `/tmp/SE_data/CustomProperties.zip`.

**Note:** Ensure all the import data files are located in a local directory on the SOM management server.

When prompted, restart the SOM services so that the new custom property configuration takes effect.

### 3. Import the Storage Essentials discovery configuration.

At a command prompt, run one of the following commands:

- If you specified a password for the discovery configuration file during export, use the following command:

```
somdiscoveryconfigexportimport.ovpl -import <file_path>  
-filepassword <file_password>
```

- If you did not specify a password for the discovery configuration file during export, use the following command:

```
somdiscoveryconfigexportimport.ovpl -import <file_path>
```

Replace *<file\_path>* with the absolute path of the file containing the data to import. For example, `C:\SE_data\DiscoverySettings.xml` or `/tmp/SE_data/DiscoverySettings.xml`.

**Note:** Ensure all the import data files are located in a local directory on the SOM management server.

Replace *file\_password* with the password specified while exporting the data from Storage Essentials.

### 4. Discover and collect data for the configured devices.

- a. Discover devices and perform the first round of data collection for each device.
  - If automatic discovery is enabled, wait for discovery and data collection to complete.

**Note:** If you used the `-i` option to the `somdiscoveryconfigexportimport.ovpl` command, start discovery for the imported devices manually as though automatic discovery were disabled.

- If automatic discovery is disabled, start discovery manually. In the SOM console, in the Discovery Addresses view (**Configuration > Discovery > Discovery Addresses**), select all rows, right-click, and then click **Start Discovery**.

**Note:** Ensure that one iteration of data collection completes for all defined storage elements before importing further configuration data. The discovered data in SOM must match that in Storage Essentials.

- View discovery progress in the Discovery Addresses view (**Configuration > Discovery > Discovery Addresses**).
- View data collection progress on the Collection Status Dashboard (**Analytics and Dashboards > Collection Status Dashboard**).

5. Run host inference rules.

In the SOM console, in the Host Inference Rules view (**Configuration > Rule Based Host Inference > Host Inference Rules**), select all rows, right-click, and then click **Run Rule**.

**Tip:** Each host inference rule includes a **Run After Data Collection** check box. The migration process maintains the value of this check box from Storage Essentials. If the check box is selected, you do not need to run the host inference rules manually.

View the results of the host inference rules in the Inferred Hosts view (**Inventory > Hosts > Inferred Hosts**).

6. Import the Storage Essentials host containers (named generic hosts).

At a command prompt, run the following command:

```
somhostcontainerconfigexportimport.ovpl -import <file_path>
```

Replace *<file\_path>* with the absolute path of the file containing the data to import. For example, `C:\SE_data\Containers.xml` or `/tmp/SE_data/Containers.xml`.

**Note:** Ensure all the import data files are located in a local directory on the SOM management server.

## 7. Import the Storage Essentials hierarchical groups.

**Note:** SOM does not create nodes for storage pools, storage volumes, NAS volumes, and NetApp Vfilers contained within a hierarchical group. Therefore, these elements are not imported during the group import process.

### a. Ensure that all of the following import steps have been completed:

- All storage elements have been discovered and all data has been collected for all storage elements. See [step 4 of this procedure](#).
- All host inference rules have been run, and storage hosts have been successfully inferred. See [step 5 of this procedure](#).
- All host containers defined in Storage Essentials have been imported into SOM. See [step 6 of this procedure](#).

### b. At a command prompt, run the following command:

```
somnodegroupsconfigexportimport.ovpl -import <file_path>
```

Replace *<file\_path>* with the absolute path of the file containing the data to import. For example, `C:\SE_data\Groups.xml` or `/tmp/SE_data/Groups.xml`.

**Note:** Ensure all the import data files are located in a local directory on the SOM management server.

## 8. Import the Storage Essentials asset records.

At a command prompt, run the following command:

```
somassetrecordsconfigexportimport.ovpl -import <file_path>
```

Replace *<file\_path>* with the absolute path of the file containing the data to import. For example, `C:\SE_data\AssetRecords.xml` or `/tmp/SE_data/AssetRecords.xml`.

**Note:** Ensure all the import data files are located in a local directory on the SOM

management server.

9. Import the Storage Essentials storage tier definitions.

a. Ensure the following:

- The storage elements that have been manually assigned to storage tiers in Storage Essentials have been discovered in SOM. See [step 4 of this procedure](#).
- The asset records in Storage Essentials have been imported into SOM. See [step 8 of this procedure](#).
- All XP arrays whose discovery configuration was imported from Storage Essentials have been discovered in SOM using the same provider as that used in Storage Essentials.

b. At a command prompt, run the following command:

```
somstoragetiersconfigexportimport.ovpl-import <file_path>
```

Replace *<file\_path>* with the absolute path of the file containing the data to import. For example, `C:\SE_data\StorageTiers.xml` or `/tmp/SE_data/StorageTiers.xml`.

**Note:** Ensure all the import data files are located in a local directory on the SOM management server.

c. Run the storage tier rules to compute storage tier membership.

In the SOM console, in the Storage Tiers view (**Configuration > Storage Tiers > Storage Tiers**), select all rows, right-click, and then click **Run Rule**.

# Appendix A: Configuration Export and Import Commands

The following table lists the command names for exporting data from Storage Essentials and importing data to SOM. For command usage, see the relevant content in this manual.

Configuration Area	Export Command Name (Run on the Storage Essentials management server)	Import Command Name (Run on the SOM management server)
Custom properties	exportcustomprops.pl	somcustomproperties.ovpl
Discovery configuration	Run from the Discovery Setup page	somdiscoveryconfigexportimport.ovpl
Host containers and generic hosts	exporthostcontainers.pl	somhostcontainerconfigexportimport.ovpl
Hierarchical groups	exporthierarchicalgroup.pl (run against the groups saved in the Element Manager)	somnodegroupsconfigexportimport.ovpl
Asset records	exportassetrecords.pl	somassetrecordsconfigexportimport.ovpl
Storage tier definitions	exportstoragetier.pl	somstoragetiersconfigexportimport.ovpl

# We appreciate your feedback!

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on HP Storage Essentials Configuration Migration Guide, January 2016 (Storage Operations Manager 10.10)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to [storage-management-doc-feedback@hpe.com](mailto:storage-management-doc-feedback@hpe.com).