

# Hitachi Ops Center Automator

11.0.4

---

## Non-disruptive Migration User Guide

© 2024, 2025 Hitachi Vantara, Ltd. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying and recording, or stored in a database or retrieval system for commercial purposes without the express written permission of Hitachi, Ltd., Hitachi Vantara, Ltd., or Hitachi Vantara Corporation (collectively "Hitachi"). Licensee may make copies of the Materials provided that any such copy is: (i) created as an essential step in utilization of the Software as licensed and is used in no other manner; or (ii) used for archival purposes. Licensee may not make any other copies of the Materials. "Materials" mean text, data, photographs, graphics, audio, video and documents.

Hitachi reserves the right to make changes to this Material at any time without notice and assumes no responsibility for its use. The Materials contain the most current information available at the time of publication.

Some of the features described in the Materials might not be currently available. Refer to the most recent product announcement for information about feature and product availability, or contact Hitachi Vantara LLC at [https://support.hitachivantara.com/en\\_us/contact-us.html](https://support.hitachivantara.com/en_us/contact-us.html).

**Notice:** Hitachi products and services can be ordered only under the terms and conditions of the applicable Hitachi agreements. The use of Hitachi products is governed by the terms of your agreements with Hitachi Vantara LLC.

By using this software, you agree that you are responsible for:

1. Acquiring the relevant consents as may be required under local privacy laws or otherwise from authorized employees and other individuals; and
2. Verifying that your data continues to be held, retrieved, deleted, or otherwise processed in accordance with relevant laws.

**Notice on Export Controls.** The technical data and technology inherent in this Document may be subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Reader agrees to comply strictly with all such regulations and acknowledges that Reader has the responsibility to obtain licenses to export, re-export, or import the Document and any Compliant Products.

Hitachi and Lumada are trademarks or registered trademarks of Hitachi, Ltd., in the United States and other countries.

AlX, DB2, DS6000, DS8000, Enterprise Storage Server, eServer, FICON, FlashCopy, GDPS, HyperSwap, IBM, OS/390, PowerHA, PowerPC, S/390, System z9, System z10, Tivoli, z/OS, z9, z10, z13, z14, z15, z16, z/VM, and z/VSE are registered trademarks or trademarks of International Business Machines Corporation.

Active Directory, ActiveX, Bing, Excel, Hyper-V, Internet Explorer, the Internet Explorer logo, Microsoft, Microsoft Edge, the Microsoft corporate logo, the Microsoft Edge logo, MS-DOS, Outlook, PowerPoint, SharePoint, Silverlight, SmartScreen, SQL Server, Visual Basic, Visual C++, Visual Studio, Windows, the Windows logo, Windows Azure, Windows PowerShell, Windows Server, the Windows start button, and Windows Vista are registered trademarks or trademarks of Microsoft Corporation. Microsoft product screen shots are reprinted with permission from Microsoft Corporation.

All other trademarks, service marks, and company names in this document or website are properties of their respective owners.

Copyright and license information for third-party and open source software used in Hitachi Vantara products can be found in the product documentation, at <https://www.hitachivantara.com/en-us/company/legal.html>.

---

# Contents

Preface.....	5
Product version.....	5
Release notes.....	5
Accessing product documentation.....	5
Getting help.....	5
Comments.....	5

## Online Migration with Ops Center Automator and Configuration Manager..... 6

Overview.....	6
Prerequisites.....	7
Installation and system requirements.....	7
Supported storage systems.....	7
Configuring Web Service Connections.....	10
Configuring a Web Service Connection for Ops Center Administrator ...	11
Configuring Configuration Manager REST API connections.....	13
Registering storage systems to an Ops Center API Configuration Manager REST API connection.....	14
Registering a local storage system to an Ops Center API Configuration Manager REST API connection.....	15
Registering a remote storage system to a Ops Center API Configuration Manager REST API connection.....	16
Deleting remote storage system information from an Ops Center API Configuration Manager connection.....	17
Deleting local storage system information from an Ops Center API Configuration Manager connection.....	17
Refreshing local storage system information in Configuration Manager.....	18
Updating local storage system status in Configuration Manager.....	18
Setting up secure communications between Automator and each product.....	19
setupcommonservice command.....	19
Registering agentless remote connections.....	21
Importing certificates for web service connections.....	22
Migrating data online.....	23
Setting up global-active device.....	23
Migrating online data with Configuration Manager.....	25

Service templates.....	28
Using Brocade Fabric OS.....	28
About the Global-Active Device Setup service template.....	30
Prerequisites for the Global-Active Device Setup service template.....	30
Global-Active Device Setup: Service details.....	32
About the Online Migration with Configuration Manager service templates.....	44
Online Migration with Configuration Manager service templates prerequisites.....	46
Additional prerequisites for multiple runs.....	50
Create Online Migration Pair: Service details.....	53
Create Online Migration Pairs for Multiple Hosts: Service details.....	68
Migrate Data for Online Migration Pair: Service details.....	82
Clean up Online Migration Pair: Service details.....	84

# Preface

This manual provides information about Hitachi Ops Center Automator.

## Product version

This document revision applies to Hitachi Ops Center Automator v11.0.4-00 or later.

## Release notes

Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document. Release notes are available on the Hitachi Vantara documentation website: <https://docs.hitachivantara.com>.

## Accessing product documentation

Product user documentation is available on: <https://docs.hitachivantara.com>. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

## Getting help

The [Hitachi Vantara Support Website](https://support.hitachivantara.com/en_us/contact-us.html) is the destination for technical support of products and solutions sold by Hitachi Vantara. To contact technical support, log on to the Hitachi Vantara Support Website for contact information: [https://support.hitachivantara.com/en\\_us/contact-us.html](https://support.hitachivantara.com/en_us/contact-us.html).

[Hitachi Vantara Community](https://community.hitachivantara.com) is a global online community for Hitachi Vantara customers, partners, independent software vendors, employees, and prospects. It is the destination to get answers, discover insights, and make connections. **Join the conversation today!** Go to [community.hitachivantara.com](https://community.hitachivantara.com), register, and complete your profile.

## Comments

Please send comments to [doc.feedback@hitachivantara.com](mailto:doc.feedback@hitachivantara.com). Include the document title and number, including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Vantara LLC.

**Thank you!**

# Online Migration with Ops Center Automator and Configuration Manager

Use the Ops Center Automator Online Migration with Configuration Manager service templates to migrate volumes or hosts from one Virtual Storage Platform (VSP) storage system to another.

Online Migration with Configuration Manager consists of the following service templates:

## Create Online Migration Pair

Enables you to run a service from the creation of zones to the creation of copy pairs for online host migration through Configuration Manager. After this service is complete, you must submit the Migrate Data for Online Migration Pair service to complete the migration.

## Create Online Migration Pairs for Multiple Hosts

Enables you to submit a Create Online Migration Pair service task for each specified host. After the auto-submitted tasks are complete, you must submit the Migrate Data for Online Migration Pair service for each task to complete the migration.

## Migrate Data for Online Migration Pair

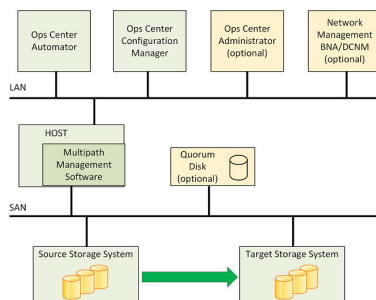
Enables you to run a service from the swap of copy pairs to the deletion of source volumes for online host migration through Configuration Manager. Before submitting this service, the Create Online Migration Pair service must be completed.

## Clean up Online Migration Pair

Enables you to clean up the resources created by the Create Online Migration Pair task.

## Overview

The Ops Center Automator Create Online Migration Pair and Migrate Date for Online Migration Pair service templates enable you to migrate data online through Ops Center API Configuration Manager between storage systems using global-active device.



See the [Video](#) here.

## Prerequisites

Before using the Online Migration with Configuration Manager service templates, you must do the following:

### **Register web service connections in Ops Center Automator for each product**

An HTTP(S) connection is required from Ops Center Automator to each prerequisite product (Ops Center API Configuration Manager, Ops Center Administrator, and BNA/DCNM). See [Configuring Web Service Connections \(on page 10\)](#).

### **Register storage systems to API Configuration Manager**

Allocation of target volumes and unallocation of source volumes is performed through API Configuration Manager. See [Registering storage systems to an Ops Center API Configuration Manager REST API connection \(on page 14\)](#).

### **Set up secure communications between Automator and each product**

Secure communication is required for Administrator and optional for API Configuration Manager and BNA or DCNM. See [Setting up secure communications between Automator and each product \(on page 19\)](#).

### **Register storage systems and hosts in Administrator**

When selecting hosts for migration, host and attached volumes information is collected from Administrator. See [Adding a storage system](#).

### **Register an agentless remote connection in Automator**

When using the Quorum-less option, an agentless remote connection to the API Configuration Manager server is required if it is installed on a different server from Automator. See [Registering agentless remote connections \(on page 21\)](#).

## Installation and system requirements

Before you install Ops Center Automator, see the [System requirements](#) for installation prerequisites.

Install Ops Center Automator using the OVA file. See [A Quick Start Roadmap for Hitachi Ops Center \(OVA\)](#) for more information.

## Supported storage systems



**Note:** You must use a Configuration Manager version that supports the storage systems and the target features you are using.

The Ops Center Automator online migration service templates support the following Virtual Storage Platform (VSP) storage systems:

This group of service templates include the following:

- Create Online Migration Pair service template
- Create Online Migration Pairs for Multiple Hosts service template
- Clean up Online Migration Pair service template
- Migrate Data for Online Migration Pair service template
- VSP G1000, VSP G1500, and VSP F1500 version 80-06-80-00/02 or later
- VSP G200, G400, G600, G800, VSP F400, F600, F800 version 83-05-37-X0/00 or later, or 83-06-09-X0/00 or later
- Virtual Storage Platform G/F350, G/F370, G/F700, G/F900, version 88-06-02-X0/00 or later
- Virtual Storage Platform E990, version 93-02-03-X0/00 or later
- Virtual Storage Platform E590, E790, E590H, E790H, version 93-03-01-X0/00 or later
- Virtual Storage Platform E1090, E1090H version 93-06-01-01/00 or later
- Virtual Storage Platform N400, N600, N800 version 83-06-09-X0/00 or later
- Virtual Storage Platform 5100, 5500, 5100H, 5500H version 90-04-04-00/01 or later
- Virtual Storage Platform 5200, 5600, 5200H, 5600H version 90-08-01-00/00 or later
- Virtual Storage Platform One Block 24, 26, 28



**Note:** When you enable the Use Diskless Quorum option on the Create Online Migration Pair service or the Create Online Migration Pairs for Multiple Hosts service, the following platforms are required:

- VSP G1000, VSP G1500, and VSP F1500 version 80-06-86-00/00 or later
- VSP G200, G400, G600, G800, VSP F400, F600, F800 version 83-05-41-X0/00 or later
- Virtual Storage Platform G/F350, G/F370, G/F700, G/F900 version 88-08-02-X0/00 or later
- Virtual Storage Platform E990 version 93-04-02-X0/00 or later
- Virtual Storage Platform E590, E790, E590H, E790H, version 93-04-02-X0/00 or later
- Virtual Storage Platform E1090, E1090H version 93-06-01-01/00 or later
- Virtual Storage Platform N400, N600, N800 version 83-06-13-X0/00 or later
- Virtual Storage Platform 5100, 5500, 5100H, 5500H version 90-06-21-00/00 or later
- Virtual Storage Platform 5200, 5600, 5200H, 5600H version 90-08-01-00/00 or later
- Virtual Storage Platform One Block 24, 26, 28

To see which storage systems can be migrated to which, see the following table.



Target Source	VSP 5200, 5600, 5200H, 5600H	VSP 5100, 5500, 5100H, 5500H	VSP G1000, G1500, F1500	VSP One B26, B28	VSP One B24	VSP E1090, E1090H	VSP E990	VSP E790, E590, E790H, E590H	VSP F350, F370, F700, F900, G350, G370, G700, G900	VSP G200, G400, G600, G800, F400, F600, F800, N400, N600, N800
VSP 5200, 5600, 5200H, 5600H	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported
VSP 5100, 5500, 5100H, 5500H	Supported	Supported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported
VSP G1000, G1500, F1500	Supported	Supported	Supported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported
VSP One B26, B28	Unsupported	Unsupported	Unsupported	Supported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported
VSP One B24	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported
VSP E1090, E1090H	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Supported	Unsupported	Unsupported	Unsupported	Unsupported
VSP E990	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Supported	Unsupported	Supported	Unsupported	Unsupported
VSP E790, E590, E790H, E590H	Unsupported	Unsupported	Unsupported	Supported(*2)	Unsupported	Supported	Unsupported	Supported	Unsupported	Unsupported
VSP F350, F370, F700, F900, G350, G370, G700, G900	Unsupported	Unsupported	Unsupported	Supported(*2)	Supported(*3)	Supported (*1)	Supported	Supported	Supported	Unsupported
VSP G200, G400, G600, G800, F400, F600, F800, N400, N600, N800	Unsupported	Supported	Unsupported	Supported(*4)	Supported(*4)	Supported (*1)	Unsupported	Supported	Supported	Supported

**Note:**

\*1: The following versions are required when used in combination with VSP E1090 and E1090H:

- For VSP G350, G370, G700, G900, VSP F350, F370, F700, F900: Version 88-08-04-X0/00 or later
- For VSP G200, G400, G600, G800, VSP F400, F600, F800, VSP N400, N600, N800: Version 83-05-43-X0/00 or later, or 83-06-15-X0/00 or later

\*2: The following versions are required when used in combination with VSP One B26, VSP One B28:

- For VSP F350, F370, F700, F900, VSP G350, G370, G700, G900: Version 88-08-15-X0/80 or later
- For VSP E590, E790, E590H, E790H: Version 93-07-24-X0/00 or later

\*3: The following versions are required when used in combination with VSP One B24

- For VSP F350, F370, F700, F900, VSP G350, G370, G700, G900: Version 88-08-15-xx/00 or later

\*4: The following versions are required when used in combination with VSP One B24, VSP One B26, VSP One B28:

- For VSP G200, G400, G600, G800, VSP F400, F600, F800, and VSP N400, N600, N800: Version 83-06-25-x0/00 or later

## Configuring Web Service Connections

You can add or edit a web service connection.

### Procedure

1. From the **Administration** tab, click **Connection Settings > Web Service Connections**.
2. Click **Add** or **Edit** and enter the following:
  - **Category**



**Note:** When using a service that links with the FC switch management service, select **BNA**, **DCNM**, or **FOS\_PrimarySwitch** as the category.

- **Name**



**Note:** When using a service that links with the FC switch management service, enter the same name as the input value of "Connection Names" or "Connections" for the service.

- **IP Address/Host Name**

- **Protocol**



**Note:** When you use https with Web Service connections, you must first import certificates for the Web Service Connection and import certificates into the Java truststore. For detailed information, see the *Hitachi Ops Center Automator Installation and Configuration Guide*.

- **Port**

- **User ID**

- **Password**

3. To use a proxy server, select the **Use Proxy Server** check box and enter the following information:

- IP Address/Host Name
- Port
- Authentication
- Authentication Type
- User ID
- Password



**Note:** You can change the password in the **Edit** window once the web service connection is added.

4. Enter assigned infrastructure groups.

5. (Optional) You can test the connection with the values you specified by clicking **Test**. After starting the test, a notification balloon appears above the **Test** button indicating whether the connections completed successfully. To stop the testing process, click **Stop Test**.

6. Click **OK**.



**Note:** You can verify the status of the current connections from the **Web Service Connections** window, which shows the status (Successful, Error, and Unknown) and the time when the connection was last established. To update the display of current connection, click **Refresh**.

## Configuring a Web Service Connection for Ops Center Administrator

When using Ops Center Administrator services, you must register a Web Service Connection for Ops Center Administrator.

You can add or edit a Web Service Connection for Ops Center Administrator by using the following procedure:

### Procedure

1. From the **Administration** tab, click **Connection Settings > Web Service Connections**.

2. Click **Add** or **Edit** and enter the following information:

- **Category:** OpsCenterAdministrator
- **Name:** Enter a name for the Ops Center Administrator connection.
- **IP Address/Host Name:** The Ops Center Administrator server name
- **Protocol:** https (Cannot be changed)



**Note:** When you use https with Web Service connections, you must first import certificates for the Web Service Connection and import certificates into the Java truststore.

- **Port:** 443 (default)



**Note:** If you installed Ops Center Administrator by using the Ops Center OVA or the Express installer, you must edit this value even if you use the default port number (20961).

- **User ID:** An account with operation privileges on Ops Center Administrator



**Note:** You can only specify an Ops Center Administrator local user. You cannot specify a Common Services user even if you have integrated users with Ops Center Common Services.

- **Password:** The password of the account on Ops Center Administrator

3. Clear the **Use Proxy Server** check box. You cannot use a proxy server with Ops Center Administrator.
4. Enter assigned infrastructure groups.
5. (Optional) You can test the connection with the values you specified by clicking **Test**. After starting the test, a notification balloon appears above the **Test** button indicating whether the connections completed successfully. To stop the testing process, click **Stop Test**.
6. Click **OK**.

### Example

For example, adding a Web Service Connection for Administrator might look like this:

**Add Web Service Connection**

Category: \* OpsCenterAdministrator

Name: \* Administrator

IP Address/Host Name: \* 172.17.91.151

Protocol: https

Port: \* 443

User ID: \* system

Password: \* .....

☐ Use Proxy Server

IP Address/Host Name: \* Enter IP address or host name

Port: \* 8080

Authentication: Disable

Assigned Infrastructure: IG\_Default Service Group

\* Required

Test OK Cancel ?

## Configuring Configuration Manager REST API connections

You must create a connection setting for the server running the Ops Center API Configuration Manager.

This connection enables Ops Center Automator to run services on storage systems registered with the Ops Center API Configuration Manager. Setting up connections requires the Admin role.

### Before you begin

Before you can use services that use Configuration Manager, you must set up your environment so that the Ops Center API Configuration Manager manages all of your storage systems. For detailed information on setting up this environment and registering your storage systems with a Ops Center API Configuration Manager, see [Registering storage systems to an Ops Center API Configuration Manager REST API connection \(on page 14\)](#).

When creating Ops Center API Configuration Manager server connections, you must set up credentials as follows:

- For services that use Configuration Manager, create one connection that uses the same credentials for each storage system managed by Configuration Manager. For example, for the Create Online Migration Pair service, the credentials must be assigned the following roles:
  - Security Administrator (View & Modify)
  - Storage Administrator (Provisioning)
  - Storage Administrator (Remote Copy)
  - Storage Administrator (Initial Configuration)

### Procedure

1. On the **Administration** tab, click **Connection Settings > Web Service Connections**.
2. Click **Add** or **Edit** and enter the following information:
  - **Category:** Select **ConfigurationManager**.
  - **Name:** Enter a name for the Ops Center API Configuration Manager instance.
  - **IP Address/Host Name:** Enter the host name or IP Address of the Ops Center API Configuration Manager server.
  - **Protocol:** Select **http** (default) or **https**
  - **Port**
  - **User ID**
  - **Password**
3. To use a proxy server, select the check box and enter the following information:
  - IP Address/Host Name
  - Port
  - Authentication
  - Authentication Type
  - User ID
  - Password
4. Enter assigned infrastructure groups.
5. Click **OK**.

## Registering storage systems to an Ops Center API Configuration Manager REST API connection

You must register storage systems in advance before you can use them with the Ops Center API Configuration Manager REST API and the Ops Center Automator storage automation services.

From the Ops Center API Configuration Manager Settings window on the Administration tab, you can:

- Register and delete local storage systems.
- Refresh and update local storage system status and information.
- Register and delete remote storage system information.

## Registering a local storage system to an Ops Center API Configuration Manager REST API connection

### Before you begin

Verify the following:

- A Web Service connection exists for the Ops Center API Configuration Manager REST API server on which you plan to register the storage system in Connection Settings > Web Service Connections on the Administration tab.

See [Configuring Configuration Manager REST API connections \(on page 13\)](#) for more information.

- You have an account with the Administrator user group (built-in group) permissions on the storage system.

### Procedure

1. On the **Administration** tab, select **Storage Service Settings > Configuration Manager Settings**.
2. From the Configuration Manager Connection section at the top of the window, select the Ops Center API Configuration Manager connection to which you want to add a storage system.
3. At the top of the Local Storage System section, click **Register**.
4. In the **Register Local Storage System** dialog box, enter the following information for the storage system:

The dialog content changes depending on the storage system model you select.

- **Model:** Select the storage system model from the Model list.
- **Serial Number:** Enter the storage system serial number.
- **Target Controller:** Select the controller operated by Configuration Manager from the Controller list.
- **Controller1 IP Address:** Specify the IPv4 or IPv6 IP address of storage system controller 1.
- **Controller2 IP Address:** Specify the IPv4 or IPv6 IP address of storage system controller 2.
- **Link with SVP:** Select this check box to enable SVP integration.
- **SVP IP Address:** Enter the storage system SVP IP Address.
- **RMI Port:** Specify the storage system RMI port number. The default port number is 1099.

- **Enable SSL communication with SVP:** Optionally, select the check box to enable SSL.

If this option is selected, the following item is shown:

- **SVP HTTPS Port:** Specify the port number that SVP uses for HTTPS communication. The default port number is 443.
- **Receive configuration-change notifications from the storage system:** Select the check box to receive configuration change notifications from the storage system.



**Note:** If the database of the Ops Center API Configuration Manager used for the search function does not match the resource information of the storage system, service templates might not work properly.

Therefore, it is recommended that you enable **Receive configuration-change notifications from the storage system**.

5. Click **OK**.



**Note:** If storage system information such as the IP address or port number changes, you must delete the storage system and register it again.

## Registering a remote storage system to a Ops Center API Configuration Manager REST API connection

### Before you begin

Verify the following:

- A Web service connection exists for both the Ops Center API Configuration Manager REST API server managing the local storage systems and for the Ops Center API Configuration Manager REST API server managing the remote storage systems.  
See [Configuring Configuration Manager REST API connections \(on page 13\)](#) for more information.
- You have an account with Administrator user group (built-in group) permissions on the storage system.
- The local storage system is registered to the Ops Center API Configuration Manager REST API Server at the local site.
- The remote storage system is registered to the Ops Center API Configuration Manager REST API Server at the remote site.

### Procedure

1. On the **Administration** tab, select **Storage Service Settings > Configuration Manager Settings**.
2. From the Configuration Manager Connection section at the top of the window, select the Ops Center API Configuration Manager connection to which the local storage system is registered.
3. In the Local Storage System section, select the local storage system for which you want to add a remote storage system.
4. At the top of the Remote Storage System section, click **Register**.



5. In the **Register Remote Storage System** dialog, select the remote site Ops Center API Configuration Manager server to which the remote storage system is registered.
6. Select the remote storage system to register in the Ops Center API Configuration Manager REST API Server that manages the local storage system.
7. If you did not enter an IP Address when creating the Ops Center API Configuration Manager REST API connection, you must enter it now.
8. If you did not enter an HTTPS port number when creating the Ops Center API Configuration Manager REST API connection, enter it now.
9. Select the **Enable Configuration Manager Mutual Registration** check box to automatically register the local storage system information to the Ops Center API Configuration Manager REST API server managing the remote storage systems.
10. Click **OK**.



**Note:** If you want to change the remote storage system information registered in the Ops Center API Configuration Manager REST API server, delete the remote storage system information and register again.

## Deleting remote storage system information from an Ops Center API Configuration Manager connection

### Procedure

1. On the **Administration** tab, select **Storage Service Settings > Configuration Manager Settings**.
2. From the Ops Center API Configuration Manager Connection section at the top, select the Ops Center API Configuration Manager connection to which the local storage system is registered.
3. From the **Local Storage System** list, select the local storage system.
4. In the **Remote Storage** section, click **Delete**.
5. From the **Delete Remote Storage System** dialog box, select the Ops Center API Configuration Manager connection to which the remote storage system you want to delete is registered.
6. In the **Remote Storage System** section, select the remote storage system you want to delete.
7. Select the **Enable Configuration Manager Mutual Deletion** check box to automatically delete the local storage system information registered in the Ops Center API Configuration Manager server on the remote storage system side.
8. Confirm that you want to delete the storage system, then click **OK**.

## Deleting local storage system information from an Ops Center API Configuration Manager connection

### Procedure

1. On the **Administration** tab, select **Storage Service Settings > Configuration Manager Settings**.

2. From the Ops Center API Configuration Manager Connection section at the top, select the Ops Center API Configuration Manager connection to which the local storage system is registered.
3. From the **Local Storage System** list, select the local storage system to delete.
4. Click **Delete**.
5. From the **Delete Local Storage System** dialog box, confirm that you want to delete the storage system, then click **OK**.

## Refreshing local storage system information in Configuration Manager

You can refresh local storage system information for storage systems registered in Configuration Manager.

### Procedure

1. In the **Configuration Manager Connections** list, select the Configuration Manager in which the storage systems to be refreshed are registered.
2. Select the storage systems to be refreshed in the **Local Storage Systems** list. Multiple selections are allowed.
3. Click **Refresh Storage System**.
4. Confirm the storage systems to be refreshed and click **OK**.

## Updating local storage system status in Configuration Manager




You can update the status of local storage systems registered in Configuration Manager.



### Procedure

1. In the **Configuration Manager Connections** list, select the Configuration Manager in which the storage systems to be updated are registered.
2. Select the storage systems to be refreshed in the **Local Storage Systems** list. Multiple selections are allowed.
3. Click **Update Refresh Status**.

### Result

Ops Center Automator reloads the Local Storage System list and displays one of the following icons for each selected storage system:

Icon	Status	Description
	Queued	The configuration information refresh task has been queued.
	Started	The configuration information refresh has started.
	Succeeded	The configuration information refreshed successfully.

Icon	Status	Description
	Failed	The configuration information refresh failed.
	PartiallyNotUpdated	Part of the task to refresh the configuration information failed.

## Setting up secure communications between Automator and each product

Secure communication is required between Automator and Administrator and optional for API Configuration Manager, BNA, and DCNM.

To set up secure communication, you must do the following:

- Create a private key and Certificate Signing Request for each product
- Get a certificate from CA (or create a self-signed certificate)
- Set a private key and certificate

To complete these tasks, refer to:

- For Administrator, see [Configuring SSL communication](#).
- For API Configuration Manager, see [Setting up SSL communication](#).
- For BNA or DCNM, see the associated product documentation.

After these tasks are completed, you can import the certificate of each product into the Automator Common Component truststore.

### setupcommonservice command

The **setupcommonservice** command is a setting command for linking with Common Services. The **setupcommonservice** command registers Ops Center Automator as an application in Common Services and sets Ops Center Automator as an authentication server that uses Common Services.



**Note:** You cannot unregister Ops Center Automator using the **setupcommonservice**. To delete the product, use the Ops Center portal.

### Functions

The **setupcommonservice** command registers the Ops Center Automator URL in Common Services. The URL to be registered uses the URL registered in the **hcnds64chgurl** command. Confirm in advance that the URL registered in **hcnds64chgurl** can be resolved by the browser, then run the **setupcommonservice** command.

This command needs a secure connection between Ops Center Common Services and Ops Center Automator.

## Syntax

Windows syntax:

```
setupcommonservice {[/csUri CommonServiceUri | /csUri CommonServiceUri /csUsername  
CommonServiceUsername] [/appName ApplicationName]  
[/appDescription ApplicationDescription] [ /auto ] | /help }
```

Linux syntax:

```
setupcommonservice {[-csUri CommonServiceUri | -csUri CommonServiceUri -csUsername  
CommonServiceUsername] [-appName ApplicationName]  
[-appDescription ApplicationDescription] [ -auto ] | -help }
```



**Note:** You are prompted to enter the password in interactive mode.

## Options

Option	Description
csUri	Specify the URL of Common Services. (For example: https://common.service/portal)
csUsername	Specify a user with opscenter-security-administrator privileges to be managed by Common Services. The username can be 1-byte alphanumeric characters. This includes (! # \$ % & ' ( ) * + , - . = @ ^ _   ). The length is from 1 to 255 characters. Usernames are case-sensitive.  You are prompted to enter the password when you run the command with this option.
appName	Specify the name of the Ops Center Automator to be displayed by Common Services. The name is specified with 1 to 128 characters.  If appName is omitted at the time of new registration, the host name or IP address of Ops Center Automator is set as the name. If appName is omitted when updating, the name is not changed.
appDescription	Specify a description of the Ops Center Automator displayed by Common Services. The description can be from 0 to 512 characters.
auto	Automatically start and stop the services and databases of Ops Center Automator.

## Remarks

Before running the **setupcommonservice** command in a cluster environment, you must run the following two commands in sequence to take the group where the Ops Center Automator service is registered offline, disable failover, and start the databases.

- `Common-component-Installation-folder\ClusterSetup  
 \hcnds64clustersrvstate /soff /r group-name`
- `Common-component-Installation-folder\bin\hcnds64dbsrv /start`

## Registering agentless remote connections

To register an agentless remote connection in Automator:

### Procedure

1. From the **Administration** tab, click **Connection Settings > Agentless Remote Connections**.
2. Click **Add** or **Edit** and enter the following information:
  - **Method**  
Choose **Host Name**, **IPv4**, or **IPv6**.
  - **IP Address/Host Name**  
Enter the IP address or host name of the resource for which you are adding an Agentless Remote Connection.
  - **Authentication**  
Choose **Enable** or **Disable**. Authentication is enabled by default.
  - **Protocol**  
Select **Windows**, **SSH**, or **Telnet**.
  - **User ID**  
Enter a user ID with Administrator permissions for the resource for which you are adding an Agentless Remote Connection.
  - **Password**  
Enter the password for the user.
  - **Assigned Infrastructure Groups**  
Select an infrastructure group for the resource for which you are adding an Agentless Remote Connection.
3. Click **OK**.

### Example

For example, to add an Agentless Remote Connection for a API Configuration Manager, you would fill out the **Add Agentless Remote Connection** dialog something like this:

## Importing certificates for web service connections

You must import Web Service Connection certificates to the truststore of the Common Component.

When using server certificates for Web Service Connections such as the following, you must import the certificates to the truststore of the Common Component:

- Ops Center
- Ops Center Administrator
- Ops Center Analyzer
- Device Manager

When using Device Manager, import the certificates for port 22016 that are used by the Common Component.

- Configuration Manager
- VMware vCenter
- BNA
- DCNM
- Other web service connections

You must also import the following certificates:

- certificate authority
- intermediate certificate authority
- route certificate authority

In some cases, well-known certificate authority certificates may already be imported. In this case, this procedure is unnecessary.

In Windows OS, use the **hcnds64keytool** command. For UNIX OS, use standard **keytool**. To import the certificate in Java, ensure that the truststore password includes six or more characters. In addition, ensure that the new alias name does not conflict with an existing alias name.

For Windows OS:

```
Common-Component-installation-folder\bin\hcnds64keytool -import -alias alias-name -
keystore Common-Component-installation-folder\uCPSEB
\jdk\jre\lib\security\jssecacerts -storepass truststore-password -file certificate-
file
```

Restart the services by running the **hcnds64srv** command.

For UNIX OS:

```
Common-Component-installation-directory/uCPSB/jre/jdk/bin/keytool -import -alias
alias-name -keystore Common-Component-installation-directory/uCPSB/jdk/jre/lib/
security/jssecacerts -storepass truststore-password -file certificate-file
```

Restart the services by running the **hcnds64srv** command.

### Additional guidelines

- For additional information on the security settings for another product, see the associated documentation. For example, for VMware vCenter, see the VMware documentation.
- To obtain server certificates, see the associated product documentation for information on accessing server certificates.

## Migrating data online

The following shows you how to perform online migration using the Online Migration with API Configuration Manager service template. Before you can migrate data, you need to set up global-active device. For more information, see [Setting up global-active device \(on page 23\)](#).

### Setting up global-active device

Setting up global-active device (GAD) consists of several steps. However, many of the steps are now automated when you use the Ops Center Automator Global-Active Device Setup service.

For online migration, you need GAD to:

- Create a virtual storage machine (VSM)  
Create a VSM on the secondary storage system.
- Create remote paths  
Create a remote path group between the primary and secondary storage systems.
- Allocate command devices (optional)  
Allocate command devices from the primary and secondary storage systems to user-specified pair management servers.

The following procedure provides the steps required to set up GAD when using the service.

#### Procedure

1. Review the required software and setup prerequisites listed in [Global-Active Device Setup: Service details \(on page 32\)](#).



**Note:** All setup prerequisites are included in this procedure, but you can find specifics based on storage system model in the service details topic.

2. Connect the storage system ports.

- a. Physically connect the ports between the primary (source) storage system and the secondary (target) storage system.
  - b. If you are using Fibre Channel (FC) for the remote connection between the source and target storage systems, set the zone information.
    - If you are using a Brocade FC switch, see the Brocade Network Advisor (BNA) documentation for more information.
    - If you are using a Cisco FC switch, see the Data Center Network Manager (DCNM) documentation for more information.
  - c. Physically connect the ports between the source and target storage system and the storage system on which you plan to create the Quorum disk.
  - d. If you are using Fibre Channel (FC) for the remote connection between the source and target storage systems, and the storage system with the Quorum disk, set the zone information using BNA or DCNM.
3. Complete the following Quorum Disk setup steps using either Command Control Interface (CCI) or Storage Navigator. (Not required if using diskless Quorum)
- For more information, see the *Command Control Interface Command Reference*.
- a. Set the attributes of the remote connection port and the port connected to the Quorum Disk.
  - b. Create the volume for the Quorum disk.
  - c. Register the Quorum disk as an external volume on both the source and target storage systems.
4. Complete the following Ops Center API Configuration Manager setup steps. You complete these steps one time and do not need to repeat them.
- a. In Ops Center Automator, set up a web service connection to both Ops Center API Configuration Manager servers managing the storage systems.  
  
See [Configuring Configuration Manager REST API connections \(on page 13\)](#) for more information.
  - b. Register the source storage system and the target storage system into Ops Center API Configuration Manager.  
  
See [Registering storage systems to an Ops Center API Configuration Manager REST API connection \(on page 14\)](#) for more information.
5. In Ops Center Automator, complete the following steps:
- a. On the **Services** tab, select the GAD Setup service, and in the service preview pane, click **Create Request**.
  - b. Configure the GAD Setup service by entering the required information. For more information on the required parameter settings, see [Global-Active Device Setup: Service details \(on page 32\)](#).  
  
The configuration information you enter enables the service to complete the following actions when you run the GAD Setup service:
    - Register the specified volume as a Quorum Disk.
    - Create a remote path group using the combination of the selected ports.



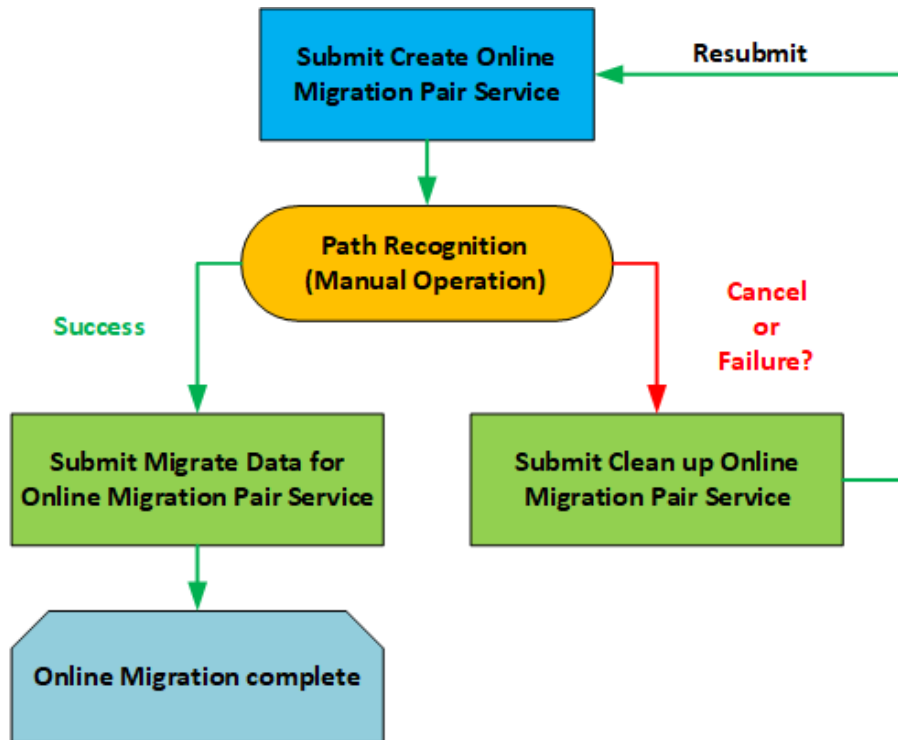
- (Optionally) Allocate the command device for the source and target storage system to the pair management server. You can select whether to create the command device when you submit the service.
  - Create a Virtual Storage Machine (VSM) with the serial number of the source storage system on the target storage system.
- c. Submit the service and verify that the task completed successfully.
6. Install CCI on the pair management server.  
See the Global-Active Device User Guide for more information.

### Next steps

If you set up GAD for use with the Ops Center Automator Online Migration service templates, continue with [Migrating online data with Configuration Manager \(on page 25\)](#).

## Migrating online data with Configuration Manager

Setting up online migration consists of several steps. However, many of the steps are now automated when you use the Ops Center Automator Create Online Migration Pair, Migrate Data for Online Migration Pair, and Clean up Online Migration Pair services.



The following procedure provides the steps required to set up and migrate online data when using the service.

### Procedure

1. If GAD is not set up, complete the steps in [Setting up global-active device \(on page 23\)](#).

2. Verify the setup prerequisites and required software listed in [Online Migration with Configuration Manager service templates prerequisites \(on page 46\)](#) and if you are planning on migrating to multiple hosts, [Additional prerequisites for multiple runs \(on page 50\)](#). The setup prerequisites consist of creating various Ops Center Automator resources as well as setting secure communications between the Ops Center Administrator server and the Ops Center Automator server.
3. Complete the following resource setup steps using either Command Control Interface (CCI) or Storage Navigator.

For more information, see the *Command Control Interface Command Reference*.

- a. Register resources to the VSM.
- b. If you want to specify the source resource as Volumes, identify the volume to migrate.
- c. Delete any replication pairs in the source migration source volume.  
If a local/remote pair is set in the migration source volume, the GAD pair is not created.

4. In Ops Center Automator, verify that the following web service connections exist. If not, create them as needed.



**Note:** If you plan to set up secure communication between Ops Center Automator and any of the following servers, you must do so before you create the web service connection. For additional information, see "Importing certificates for web service connections" in the *Hitachi Ops Center Automator Installation and Configuration Guide*.

- Web service connection to the Ops Center Administrator server where the migration source host is registered.
- (Optionally) Web service connection to the Brocade Network Advisor (BNA) or Data Center Network Manager (DCNM) server.

You complete this step one time and do not need to repeat it in the future.

For more information, see [Configuring Web Service Connections \(on page 10\)](#).

5. In Ops Center Automator, complete the following steps:
  - a. On the **Services** tab, select the Create Online Migration Pair service, and in the service preview pane, click **Create Request**.
  - b. Configure the Create Online Migration Pair service by entering the required information. For more information on the required parameter settings, see [Create Online Migration Pair: Service details \(on page 53\)](#).  
The configuration information you enter enables the service to complete the required tasks when you submit the Create Online Migration Pair service.
  - c. Submit the service.

The service completes the following actions:

- Creates the zone information between the target storage and the host.
- Allocates a path on the target volume that matches the path on the source volume.

- Creates a diskless Quorum for use with Global-Active Device. Acquire and creates a free Quorum ID common to the source storage system and target storage system. If you want to enable the Use Diskless Quorum option, see [Create Online Migration Pair: Service details \(on page 53\)](#).
- Creates a Global-Active Device pair with Ops Center API Configuration Manager.
- Reclaims zero pages of Global-Active Device S-Vol if the Run Zero Page Reclaim property is selected.

After finishing the previous actions, the service pauses and waits for you to manually verify that you have completed the above tasks.



**Note:** If you specify the same Source Storage and Target Storage in the Create Online Migration Pair service and submit multiple tasks at the same time, the tasks might fail. In this case, check the pair status of the specified Source Volume. If the Global-Active Device pair was created, run Clean up Online Migration Pair, and then resubmit the task.

6. Switch the path from the source volume to the target volume so that the host recognizes the target volume path using one of the following methods.
  - Log in to the host and use the multipath management software to switch the path.
  - If the host is in a cluster configuration, use the cluster management software to change the settings.
7. Return to the Ops Center Automator UI and do one of the following:
  - To resubmit the Create Online Migration Pair task if it failed or to cancel the migration, you must submit the Clean up Online Migration Pair service to delete the resources created in the target storage system. See [Clean up Online Migration Pair: Service details \(on page 84\)](#) for more information.
  - If the Create Online Migration Pair task completes successfully, you can submit the Migrate Data for Online Migration Pair service.
8. In Ops Center Automator, complete the following steps:
  - a. On the **Services** tab, select the Migrate Data for Online Migration Pair service, and in the service preview pane, click **Create Request**.
  - b. Configure the Migrate Data for Online Migration Pair service by entering the required information. For more information on the required parameter settings, see [Migrate Data for Online Migration Pair: Service details \(on page 82\)](#).  
The configuration information you enter enables the service to complete the required tasks when you submit the Migrate Data for Online Migration Pair service.
  - c. Submit the service.

The task starts running and with the following automated actions:

- Deletes the Global-Active Device pair with Ops Center API Configuration Manager.
- Unallocates the source volume and path with Ops Center API Configuration Manager.

- Deletes the diskless Quorum if you are using diskless Quorum.
- (Optionally) Deletes the source volume and the unnecessary Host Group using Ops Center API Configuration Manager.



**Note:** Do not select this option during template configuration if you want to return to the original status if the migration fails.

## Service templates

### Using Brocade Fabric OS

The following are the operational requirements for using Brocade Fabric OS (FOS) with Ops Center Automator.

#### Changing Ops Center Automator server settings

You must change the following values in the `config_user.properties` file:

```
logger.TA.MaxFileSize: 100240
```

See "Changing the system configuration" in the *Hitachi Ops Center Automator Installation and Configuration Guide*.

#### Using in a mixed environment of Peer Zoning and Target Driven Zoning

##### How to avoid Peer Zoning

To ensure that the zone to be modified by Ops Center Automator does not become a Peer Zone, check the Zone name used in the existing Peer Zone and make sure it is different from the Zone name modified by Ops Center Automator.

Check the Script for Zone Naming setting in "Zone Settings" of the service.

If the existing Peer Zone might match the Zone name modified by Ops Center Automator, set the "Script for Zone Naming" in "Zone Settings" to a different name.

##### How to avoid Target Driven Zoning

Storage ports connected to Target Driven enabled switch ports must be excluded due to conflicting Zone creation feature.

Specify the storage ports connected to the switch port with Target Driven enabled to be excluded at "Storage Port" in "Resource Criteria" so that they are not used.

#### Service settings and upper limit in large-scale configurations

In large-scale configurations, the task might take a long time to run.

The following table shows the guideline for which the settings in this section are recommended and the upper limit for each item.

Item	Guideline	Upper limit
Number of Fabrics	-	48
Number of Member switches	100	200
Number of host and storage ports connected to Brocade FC switches	15,000	40,000

For a large-scale configuration that exceed the above guideline or if you feel the task takes a long time to run, setting the service in the following table narrows the search range to only the switches to be used, which can reduce the run time.

Navigation pane	Settings pane	To set
Volume Settings	Storage System Selection <sup>1</sup>	Manual
Volume Settings	Storage System <sup>2</sup>	Storage system to be operated
Source Settings	Source Storage System <sup>2</sup>	Storage system to be operated
Target Settings	Target Storage System <sup>2</sup>	Storage system to be operated
Fabric Settings	Connections	Port search range Web Service Connection name of FOS_PrimarySwitch <sup>3</sup>
Fabric Settings	Target Fabrics	Fabric names configured for the switch in the port search range <sup>3</sup>  It is not required to be set in the environment that does not use Virtual Fabric.
<ol style="list-style-type: none"> <li>1. Specify only for the Allocate Volumes with Smart Provisioning and Allocate Volumes, Fabric, and Datastore for ESXi Host service templates.</li> <li>2. Specify "Storage System" or "Source Storage System" and "Target Storage System" depending on the settings of the target service template.</li> <li>3. If there is more than one fabric name, specify them separated by commas.</li> </ol>		

### Upgrading existing service templates

If you used to use BNA for zoning configurations, you must configure Web Service Connections and edit the service after upgrading the service template to change the fabric management from BNA to FOS.

1. Configure a web service connection.

For more information, see [Configuring Web Service Connections \(on page 10\)](#).

2. Edit the service if the “Use Fabric Settings” option on “Fabric Settings” is enabled:
  - If “Target Fabrics” is specified, specify the fabric name set for the FC switch. If “Target Fabrics” is not specified, no editing is required.
  - Specify "FOS\_PrimarySwitch" for Fabric Connection Type.
  - In Connections, specify the same name as the web service connection registered by selecting “FOS\_PrimarySwitch” as the category. If Connections is not specified, no editing is required.

## About the Global-Active Device Setup service template

The Global-Active Device Setup service template enables you to automate portions of the GAD setup process. Using this template, you can set up some of the basic requirements the first time you use the template and then skip those steps whenever you use template again. You can then use the GAD configuration for any purpose as well as a prerequisite for using the online migration service templates.

Setting up GAD consists of several steps. However, many of the steps are now automated when you use the Ops Center Automator Global-Active Device Setup service template.

## Prerequisites for the Global-Active Device Setup service template

### Setup prerequisites

- Create an external volume to use as a Quorum Disk, and register it in Primary and Secondary Storage.
- Prepare ports for the remote path.

Prepare a minimum of two ports for the remote path for Primary Storage and Secondary Storage.

- For VSP G1000, VSP G1500, and VSP F1500, prepare one MCU port and one RCU port.
- For VSP 5000 series models, VSP Gx00 models, VSP Fx00 models, VSP N series models, and VSP E series models, you can share an MCU/RCU/Target/Initiator port by setting the port attribute to bidirectional mode, but you should prepare a dedicated port to avoid migration performance degradation.
- Set the zone between the ports.



**Note:** You cannot create remote paths using the iSCSI port.

- Host Group (optional)

Create a Host Group to use for Command Device allocation and register the pair management server WWN.

When creating a path with this service, the host and storage port are created individually, but to control how to create a path (for example, to create it with Full Mesh), create a Host Group beforehand and when you are in the Existing Host Group/iSCSI Target in the Edit/Config window, select the Host Group you created.

- Create a web service connection for the Ops Center API Configuration Manager that uses the same credentials for each storage system managed by Ops Center API Configuration Manager.
- Verify that the common credentials used to access all storage systems are assigned the following roles:
  - Security Administrator (View & Modify)
  - Storage Administrator (Provisioning)

### **Setup prerequisites**

The Global-Active Device setup service template has the following setup prerequisites.

- Create an external volume to use as a Quorum Disk, and register it in Primary and Secondary Storage.
- Prepare ports for the remote path.

Prepare a minimum of two ports for the remote path for Primary Storage and Secondary Storage.

- For VSP G1000, VSP G1500, and VSP F1500, prepare one MCU port and one RCU port.
- For VSP 5000 series models, VSP Gx00 models, VSP Fx00 models, VSP N series models, and VSP E series models, you can share an MCU/RCU/Target/Initiator port by setting the port attribute to bidirectional mode, but you should prepare a dedicated port to avoid migration performance degradation.
- Set the zone between the ports.



**Note:** You cannot create remote paths using the iSCSI port.

- Host Group (optional)

Create a Host Group to use for Command Device allocation, and register the pair management server WWN.

When creating a path with this service, the host and storage port are created individually, but to control how to create a path (for example, to create it with Full Mesh), create a Host Group beforehand and when you are in the Existing Host Group/iSCSI Target in the Edit/Config window, select the Host Group you created.

- Create a web service connection for the Ops Center API Configuration Manager that uses the same credentials for each storage system managed by Ops Center API Configuration Manager.
- Verify that the common credentials used to access all storage systems are assigned the following roles:
  - Security Administrator (View and Modify)
  - Storage Administrator (Provisioning)

## Global-Active Device Setup: Service details

This service creates virtual storage machines, assigns Quorum disk IDs, creates remote paths, and allocates command devices to create global-active devices.

### Prerequisites

For software and setup prerequisites, see [Prerequisites for the Global-Active Device Setup service template \(on page 30\)](#).

### Edit Service settings

The following service template details apply to the Global-Active Device Setup service template.

Navigation pane	Settings pane	Description
Select Storage System	Primary Configuration Manager Connection	Specify the Configuration Manager connection of the primary (source) storage system for migration.
	Primary Storage System	Specify the primary (source) storage system for migration.
	Secondary Configuration Manager Connection	Specify the Configuration Manager connection of the secondary (target) storage system for migration.
	Secondary Storage System	Specify the secondary (target) storage system for migration.
Virtual Storage Machine Settings	VSM Configuration	Select whether to create a Virtual Storage Machine (VSM).
	VSM Creation Type	Select a VSM creation type. The options are: <ul style="list-style-type: none"> <li>▪ Duplicate the primary storage system VSM on the secondary storage system.</li> <li>▪ Create new VSMs on both the primary and secondary storage systems.</li> </ul>



Navigation pane	Settings pane	Description
	Virtual Storage Machine	Specify the VSM on the primary storage as the migration source.
	Virtual Model	Specify the virtual model to create a new user-defined virtual storage machine.
	Virtual Serial Number	Specify the virtual serial number to create a new user-defined virtual storage machine.
	Resource Group Name	Specify the name of the resource group on the primary and secondary storage for the virtual storage machines.
Quorum Settings	Quorum Configuration	Select whether to configure a Quorum disk.
	Quorum Disk ID	Specify the Quorum disk ID.
	Add Quorum Disk without Volume	Check this when defining a Quorum disk which does not need external volumes.
	Volume Filter (Primary)	Use the filters to display only the primary volumes that match the specified criteria.
	Volume (Primary)	Select the volume to use as the Quorum disk on the primary storage.
	Volume Filter (Secondary)	Use the filters to display only the secondary volumes that match the specified criteria.
	Volume (Secondary)	Select the volume to use as the Quorum disk on the secondary storage.
	Primary CCI Instance Min	Specify the minimum value for the range of CCI instances to run on the primary storage.

Navigation pane	Settings pane	Description
	Primary CCI Instance Max	Specify the maximum value for the range of CCI instances to run on the primary storage.
	Secondary CCI Instance Min	Specify the minimum value for the range of CCI instances to run on the secondary storage.
	Secondary CCI Instance Max	Specify the maximum value for the range of CCI instances to run on the secondary storage.
Remote Path Setting	Configure Remote Paths	Select whether to set remote path groups.
	Remote Path Setting	Specify the remote path.
	Primary Storage MCU Initiator Port	Select the primary storage system MCU initiator port from the list.
	Primary Storage RCU Target Port	Select the primary storage system RCU target port from the list.
	Secondary Storage MCU Initiator Port	Select the secondary storage system MCU initiator port from the list.
	Secondary Storage RCU Target Port	Select the secondary storage system RCU target port from the list.
	Path Group ID	Specify the path group ID.
Select Pair Management Servers	Skip Pair Management Server Configurations (Primary)	Skip configuring a pair management server for the primary storage system if the configuration already exists.
	Use Existing or Create New (Primary)	Select whether to use an existing host group or SCSI target or create a new host group or iSCSI target.
	Existing Host Groups or iSCSI Targets (Primary)	Select an existing host group or iSCSI Target.

Navigation pane	Settings pane	Description
	Port Type (Primary)	Select the Port type.
	Host Group Settings (Primary)	Specifies the parameters needed to create a new host group/iSCSI target.  Port: Specifies the port of the host group target.  WWN Settings: Specifies the WWN settings when using the fibre port setting.  Host Group Name: Specifies the host group name when using the fibre port type.  iSCSI Settings: Specifies the iSCSI settings when using the iSCSI port type.  iSCSI Target Name: Specifies the iSCSI target name when using the iSCSI port type.  Host Mode: Specifies the host mode.  Host Mode Options: Specifies the host mode options.
	Skip Pair Management Server Configurations (Secondary)	Skip configuring a Pair Management Server for the Secondary Storage if the configuration already exists.
	Use Existing or Create New (Secondary)	Select whether to use an existing host group or iSCSI target or create a new host group or iSCSI target.
	Existing Host Groups or iSCSI Targets (Secondary)	Select an existing host group or iSCSI target
	Port Type (Secondary)	Select the Port Type.
	Host Group Settings (Secondary)	Specifies the parameters needed to create a new Host Group/iSCSI target.

Navigation pane	Settings pane	Description
		<p>Port: Specifies the port of the host group target.</p> <p>WWN Settings: Specifies the WWN settings when using the fibre port setting.</p> <p>Host Group Name: Specifies the host group name when using the fibre port type.</p> <p>iSCSI Settings: Specifies the iSCSI settings when using the iSCSI port type.</p> <p>iSCSI Target Name: Specifies the iSCSI target name when using the iSCSI port type.</p> <p>Host Mode: Specifies the host mode.</p> <p>Host Mode Options: Specifies the host mode options.</p>
Pair Management Server Settings	Security Enabled	Select this option to enable command device security.
	User Authentication Enabled	Select this option to enable user authentication.
	Device Group Definition Enabled	Select this option to enable device group definition.
	Volume Capacity	Specify the volume capacity.
	Volume Label	Specify the volume label.
	Volume Type (Primary)	Select the primary command device volume type.
	Pool (Primary)	Select the pool in which to create the primary command device.
	Parity Group (Primary)	Select the parity group.

Navigation pane	Settings pane	Description
	LDEV ID Starts from (Primary)	Specify the startup LDEV ID as a hexadecimal number for the volume to allocate. If this field is listed as "allocated" in another template, you must change it.
	LUN Starts From (Primary)	Specify the starting logical unit number assigned to the volume for a host.
	Select Capacity Saving Function (Primary)	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode (Primary)	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Volume Type (Secondary)	Select the secondary command device volume type.
	Pool (Secondary)	Select the pool in which to create the secondary command device.
	Parity Group (Secondary)	Select the parity group.
	LDEV ID Starts From (Secondary)	Specify the startup LDEV ID as a hexadecimal number for the volume to allocate. If this field is listed as "allocated" in another template, you must change it.
	LUN Starts From (Secondary)	Specify the starting logical unit number assigned to the volume for a host.

Navigation pane	Settings pane	Description
	Select Capacity Saving Function (Secondary)	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode (Secondary)	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.

### Submit Service settings

The following service template details apply to the Global-Active Device Setup service template.

Navigation pane	Settings pane	Description
Select Storage System	Primary Configuration Manager Connection	Specify the Configuration Manager connection of the primary (source) storage system for migration.
	Primary Storage System	Specify the primary (source) storage system for migration.
	Secondary Configuration Manager Connection	Specify the Configuration Manager connection of the secondary (target) storage system for migration.
	Secondary Storage System	Specify the secondary (target) storage system for migration.
Virtual Storage Machine Settings	VSM Configuration	Select whether to create a Virtual Storage Machine (VSM).

Navigation pane	Settings pane	Description
	VSM Creation Type	Select a VSM creation type. The options are: <ul style="list-style-type: none"> <li>▪ Duplicate the primary storage system VSM on the secondary storage system.</li> <li>▪ Create new VSMs on both the primary and secondary storage systems.</li> </ul>
	Virtual Storage Machine	Specify the VSM on the primary storage as the migration source.
	Virtual Model	Specify the virtual model to create a new user-defined virtual storage machine.
	Virtual Serial Number	Specify the virtual serial number to create a new user-defined virtual storage machine.
	Resource Group Name	Specify the name of the resource group on the primary and secondary storage for the virtual storage machines.
Quorum Settings	Quorum Configuration	Select whether to configure a Quorum disk.
	Quorum Disk ID	Specify the Quorum disk ID.
	Add Quorum Disk without Volume	Verify this when defining a Quorum disk which does not need external volumes.
	Volume Filter (Primary)	Use the filters to display only the primary volumes that match the specified criteria.
	Volume (Primary)	Select the volume to use as the Quorum disk on the primary storage system.

Navigation pane	Settings pane	Description
	Volume Filter (Secondary)	Use the filters to display only the secondary volumes that match the specified criteria.
	Volume (Secondary)	Select the volume to use as the Quorum disk on the secondary storage system.
Remote Path Setting	Configure Remote Paths	Select whether to set remote path groups.
	Remote Path Setting	Specify the remote path.
	Primary Storage MCU Initiator Port	Select the primary storage system MCU initiator port from the list.
	Primary Storage RCU Target Port	Select the primary storage system RCU target port from the list.
	Secondary Storage MCU Initiator Port	Select the secondary storage system MCU initiator port from the list.
	Secondary Storage RCU Target Port	Select the secondary storage system RCU target port from the list.
	Path Group ID	Specify the path group ID.
Select Pair Management Servers	Skip Pair Management Server Configurations (Primary)	Skip configuring a pair management server for the primary storage system if the configuration already exists.
	Use Existing or Create New (Primary)	Select whether to use an existing host group or iSCSI target or create a new host group or iSCSI target.
	Existing Host Groups or iSCSI Targets (Primary)	Select an existing host group or iSCSI Target.
	Port Type (Primary)	Select the port type.
	Host Group Settings (Primary)	Specifies the parameters needed to create a new host group or iSCSI target.  Port: Specifies the port of the host group target.



Navigation pane	Settings pane	Description
		<p>WWN Settings: Specifies the WWN settings when using the fibre port setting.</p> <p>Host Group Name: Specifies the host group name when using the fibre port type.</p> <p>iSCSI Settings: Specifies the iSCSI settings when using the iSCSI port type.</p> <p>iSCSI Target Name: Specifies the iSCSI target name when using the iSCSI port type.</p> <p>Host Mode: Specifies the host mode.</p> <p>Host Mode Options: Specifies the host mode options.</p>
	Skip Pair Management Server Configurations (Secondary)	Skip configuring a pair management server for the secondary storage system if the configuration already exists.
	Use Existing or Create New (Secondary)	Select whether to use an existing host group or iSCSI target or create a new host group or iSCSI target.
	Existing Host Groups or iSCSI Targets (Secondary)	Select an existing host group or iSCSI target
	Port Type (Secondary)	Select the port type.
	Host Group Settings (Secondary)	<p>Specifies the parameters needed to create a new host group or iSCSI target.</p> <p>Port: Specifies the port of the host group target.</p> <p>WWN Settings: Specifies the WWN settings when using the fibre port setting.</p>

Navigation pane	Settings pane	Description
		<p>Host Group Name: Specifies the host group name when using the fibre port type.</p> <p>iSCSI Settings: Specifies the iSCSI settings when using the iSCSI port type.</p> <p>iSCSI Target Name: Specifies the iSCSI target name when using the iSCSI port type.</p> <p>Host Mode: Specifies the host mode.</p> <p>Host Mode Options: Specifies the host mode options.</p>
Pair Management Server Settings	Security Enabled	Select this option to enable command device security.
	User Authentication Enabled	Select this option to enable user authentication.
	Device Group Definition Enabled	Select this option to enable device group definition.
	Volume Capacity	Specify the volume capacity.
	Volume Label	Specify the volume label.
	Volume Type (Primary)	Select the primary command device volume type.
	Pool (Primary)	Select the pool in which to create the primary command device.
	Parity Group (Primary)	Select the parity group.
	LDEV ID Starts from (Primary)	Specify the startup LDEV ID as a hexadecimal number for the volume to allocate. If this field is listed as "allocated" in another template, you must change it.
	LUN Starts From (Primary)	Specify the starting logical unit number assigned to the volume for a host.

Navigation pane	Settings pane	Description
	Select Capacity Saving Function (Primary)	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode (Primary)	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Volume Type (Secondary)	Select the secondary command device volume type.
	Pool (Secondary)	Select the pool in which to create the secondary command device.
	Parity Group (Secondary)	Select the parity group.
	LDEV ID Starts From (Secondary)	Specify the startup LDEV ID as a hexadecimal number for the volume to allocate. If this field is listed as "allocated" in another template, you must change it.
	LUN Starts From (Secondary)	Specify the starting logical unit number assigned to the volume for a host.
	Select Capacity Saving Function (Secondary)	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode (Secondary)	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.

## About the Online Migration with Configuration Manager service templates

The Ops Center Automator Online migration with Configuration Manager service templates are provided with the software and are preconfigured. These service templates use global-active device and enable you to automate portions of the online migration process.

### Create Online Migration Pair

Enables you to run a service from the creation of zones to the creation of copy pairs for online host migration through Configuration Manager. After this service is complete, you must submit the Migrate Data for Online Migration Pair service to complete the migration.

### Create Online Migration Pairs for Multiple Hosts

Enables you to submit a Create Online Migration Pair service task for each specified host. After the auto-submitted tasks are complete, you must submit the Migrate Data for Online Migration Pair service for each task to complete the migration.

### Migrate Data for Online Migration Pair

Enables you to run a service from the swap of copy pairs to the deletion of source volumes for online host migration through Configuration Manager. Before submitting this service, the Create Online Migration Pair service must be completed.

### Clean up Online Migration Pair

Enables you to clean up the resources created by the Create Online Migration Pair task.

The Ops Center Automator online migration services use global-active device (GAD) (as part of, or to complete) the migration process.

- For step-by-step instructions for setting up GAD before using the Online Migration service templates or for any other purpose, go to [Setting up global-active device \(on page 23\)](#).
- If you already set up GAD, and want to use the online migration templates, go to [Create Online Migration Pair: Service details \(on page 53\)](#), [Create Online Migration Pairs for Multiple Hosts: Service details \(on page 68\)](#), and [Migrate Data for Online Migration Pair: Service details \(on page 82\)](#).
- To see how to use the Online Migration with Configuration Manager service templates, see the [video](#).



**Note:** You cannot use the Create Online Migration Pair service template's Capacity Saving function with the following features:

- Page reservation for virtual volumes
- Active flash
- Direct Data Mapping (DDM) attribute
- ShadowImage quick restore

## Notes editing feature

The Create Online Migration Pair and Create Online Migration Pairs for Multiple Hosts services have a Notes feature to automatically describe the current migration progress. By checking Notes of these services, the user can determine the migration progress of the task (for example, whether the Migrate Data for Online Migration Pair task has been run) and decide the next action to take. The user can specify the first letters of Notes as a filter to display the Create Online Migration Pair tasks in a specific migration progress.



**Note:** Whether the user runs the Create Online Migration Pair service or the Create Online Migration Pairs for Multiple Hosts service, the migration progress will be added only to Notes of the Create Online Migration Pair task.

The following strings are output to Notes:

- `Initial copy started`: Indicates whether the Migrate Data for Online Migration Pair task can be run when the Create Online Migration Pair task is terminated (for example, due to a server restart).
- `Initial copy finished`: Indicates whether the Create Online Migration Pair task has been finished.
- `Migration started (task id: task_id)`: Indicates whether the Migrate Data for Online Migration Pair task for the indicated task has been started.
- `Migration finished`: Indicates whether the Migrate Data for Online Migration Pair task has been finished.
- `Cleanup started (task id: task_id)`: Indicates whether the Clean up Online Migration Pair task for the indicated task has been started.
- `Cleanup finished`: Indicates whether the Clean up Online Migration Pair task has been finished.



**Note:** When using this feature, be aware of the following:

- Filtering can be performed in the task list window.
- The Online migration with Configuration Manager services must be in the same service group.
- Notes can contain a maximum of 1024 characters.
- Do not use Ops Center Automator to edit Notes of the Create Online Migration Pair tasks while the Create Online Migration Pair, Migrate Data for Online Migration Pair, and Clean up Online Migration Pair tasks are running.



**Note:** For information on the supported platforms required to run multiple task concurrently, see [Additional prerequisites for multiple runs \(on page 50\)](#).

**Default ports**

Port number	Use
443*	Secure communication from Ops Center Automator to Ops Center Administrator.
22015	Communication from Ops Center Automator client to Ops Center Automator server.
22016	Secure communication from Ops Center Automator client to Ops Center Automator server.
23450	Communication from Ops Center Automator to Ops Center API Configuration Manager.
23451	Secure communication from Ops Center Automator to Ops Center API Configuration Manager.
* Create Online Migration Pair	

**Online Migration with Configuration Manager service templates prerequisites****Create Online Migration Pair****Software prerequisites**

- Ops Center API Configuration Manager v10.7.0-00 or later
- When integrating with Cisco FC switches:  
Data Center Network Manager (DCNM) 7.1, 11.5
- When integrating with Brocade FC switches:  
Fabric OS (FOS) 8.2.2d, 8.2.3a, 8.2.3c1, 9.0.1b, 9.0.1e1, 9.1.0b
- Ops Center Administrator v10.1.0-00 or later

**Setup prerequisites**

- At least one remote path using FC or iSCSI has been defined for the storage systems of the migration source and the migration target used in this service.
- The path group, including the previous remote path, has been set up.
- A pool has been created in the migration target storage system.
- A VSM in the migration target storage system has been duplicated from the VSM (resource group) in the migration source volume.
- At least one Configuration Manager server has been added to Web Service Connection.
- The storage systems registered in Configuration Manager have the same credentials.
- Each source/target storage system must not be registered in more than one Configuration Manager.

- The ports used by Configuration Manager for communications between the primary and secondary sites must be open when a remote copy is performed. For details, see "Ports used during remote copy operations" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide*.
- Verify that the common credentials used to access all storage systems are assigned the following roles:
  - Security Administrator (View & Modify)
  - Storage Administrator (Provisioning)
  - Storage Administrator (Remote Copy)
  - Storage Administrator (Initial Configuration)
- The migration source volumes must not have any remote copy pairs configured.
- Create a web service connection for DCNM or FOS.
- For FOS, the user ID cannot be a user using RADIUS/LDAP access authentication.
- For FOS, verify the following:
  - FOS REST API is enabled.
  - Fabric name is set.
  - Ops Center Automator and FC switches are in the same LAN.
  - Ops Center Automator and FC switches are not connected via a proxy.
- For FOS, verify that the registered user is assigned the following roles:
  - For the default Fabric OS roles one of the following roles is required:
    - Admin
    - FabricAdmin
    - ZoneAdmin
- For user-defined roles, a role with both of the following permissions is required:
  - Fabric=O(Observe) or OM(Observe and Modify)
  - Zoning=OM(Observe and Modify)
- For Brocade FC switches with VirtualFabric feature enabled, the Virtual Fabric ID of the fabric to be operated is included in the Role-LF List for the user ID.
- For DCNM, verify that the registered user is assigned the network-admin role.

If you want to run multiple tasks concurrently, see [Additional prerequisites for multiple runs \(on page 50\)](#).

## Create Online Migration Pair for Multiple Hosts

### Software prerequisites

- Ops Center API Configuration Manager v10.7.0-00 or later
- When integrating with Cisco FC switches:  
Data Center Network Manager (DCNM) 7.1, 11.5

- When integrating with Brocade FC switches:  
Fabric OS (FOS) 8.2.2d, 8.2.3a, 8.2.3c1, 9.0.1b, 9.0.1e1, 9.1.0b
- Ops Center Administrator v10.7.0-00 or later

#### Setup prerequisites

- The Create Online Migration Pairs for Multiple Hosts must be the same version (VV.RR) as the Create Online Migration Pair service.
- When multiple hosts are selected, they must not have the same volume allocated to them.
- At least one remote path using FC or iSCSI has been defined for the storage systems of the migration source and the migration target used in this service.
- The path group, including the previous remote path, has been set up.
- A pool has been created in the migration target storage system.
- A VSM in the migration target storage system has been duplicated from the VSM (resource group) in the migration source volume.
- At least one Configuration Manager server has been added to Web Service Connection.
- The storage systems registered in Configuration Manager have the same credentials.
- Verify that the common credentials used to access all storage systems are assigned the following roles:
  - Security Administrator (View & Modify)
  - Storage Administrator (Provisioning)
  - Storage Administrator (Remote Copy)
  - Storage Administrator (Initial Configuration)
- The migration source volumes must not have any remote copy pairs configured.
- Each source/target storage system must not be registered in more than one Configuration Manager.
- The ports used by Configuration Manager for communications between the primary and secondary sites must be open when a remote copy is performed. For details, see "Ports used during remote copy operations" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide*.
- The migration source volumes must not have any remote copy pairs configured.
- Create a web service connection for DCNM or FOS.
- For FOS, the user ID cannot be a user using RADIUS/LDAP access authentication.
- For FOS, verify the following:
  - FOS REST API is enabled.
  - Fabric name is set.
  - Ops Center Automator and FC switches are in the same LAN.
  - Ops Center Automator and FC switches are not connected via a proxy.



- For FOS, verify that the registered user is assigned the following roles:
  - For the default Fabric OS roles one of the following roles is required:
    - Admin
    - FabricAdmin
    - ZoneAdmin
  - For user-defined roles, a role with both of the following permissions is required:
    - Fabric=O(Observe) or OM(Observe and Modify)
    - Zoning=OM(Observe and Modify)
- For Brocade FC switches with VirtualFabric feature enabled, the Virtual Fabric ID of the fabric to be operated is included in the Role-LF List for the user ID.
- For DCNM, verify that the registered user is assigned the network-admin role.
- If you already have Ops Center Administrator installed, you must import the Ops Center Administrator server certificate in the Ops Center Automator truststore, to use the host selection feature.
- If you enable the Use Diskless Quorum option, an unused common Quorum ID must exist for both the source and target.
- If you do not enable the Use Diskless Quorum option, you must create a Quorum disk to be used with global-active device.

If you want to run multiple tasks concurrently, see [Additional prerequisites for multiple runs \(on page 50\)](#).

### **Migrate Data for Online Migration Pair**

#### Software prerequisites

#### Setup prerequisites

- Submit the service as a user with the same permissions as the user who submitted the Create Online Migration Pair service.
- The target storage systems scheduled for migration must be registered in the same API Configuration Manager that was used when running the Create Online Migration Pair service and the API Configuration Manager must be registered in Web Service Connections.
- Each source/target storage system must not be registered in more than one Configuration Manager.
- The ports used by Configuration Manager for communications between the primary and secondary sites must be open when a remote copy is performed. For details, see "Ports used during remote copy operations" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide*.
- After the Create Online Migration Pair task that you select in the Edit/Submit Service window completes, you cannot make any changes to the configuration of the target resources before running the task.
- The migration source volumes must not have any remote copy pairs configured.

If you want to run multiple tasks concurrently, see [Additional prerequisites for multiple runs \(on page 50\)](#).

## **Clean up Online Migration Pair**

### **Software prerequisites**

- Ops Center API Configuration Manager v10.7.0-00 or later
- Ops Center API Configuration Manager v10.7.0-00 or later

### **Setup prerequisites**

- Submit the service as a user with the same permissions as the user who submitted the Create Online Migration Pair service.
- The target storage systems scheduled for cleanup must be registered in the same API Configuration Manager that was used when running the Create Online Migration Pair service and the API Configuration Manager must be registered in Web Service Connections.
- Each source/target storage system must not be registered in more than one Configuration Manager.
- The ports used by Configuration Manager for communications between the primary and secondary sites must be open when a remote copy is performed. For details, see "Ports used during remote copy operations" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide*.
- If you want to clean up a failed task due to an error instead of the task that was completed, remove the cause of the error and then submit the service.
- After the Create Online Migration Pair task that you select in the Edit/Submit Service window completes or fails, you cannot make any changes to the configuration of the target resources before running the task.
- If you want to run multiple tasks concurrently, see [Additional prerequisites for multiple runs \(on page 50\)](#).

## **Additional prerequisites for multiple runs**

The service templates provided and preconfigured in Ops Center Automator allow only a single task to run at the same time and do not support running multiple tasks concurrently. However, the following service templates allow up to 25 tasks to run concurrently by satisfying the following additional prerequisites.

- Create Online Migration Pair
- Migrate Data for Online Migration Pair
- Clean up Online Migration Pair

For multiple runs, the Create Online Migration Pairs for Multiple Hosts service template can be used to run multiple Create Online Migration Pair tasks at once.

**Software requirements for multiple runs**

- Ops Center Administrator v10.7.0 or later (only required when you specify "Select Hosts" for the "Source Selection" property)

**Setup requirements for multiple runs**

- The Ops Center Automator server and Ops Center API Configuration Manager server must be on different servers.
- The migration source storage system must be the same storage system for all migration tasks to be run at the same time.
- The migration target storage system must be the same storage system for all migration tasks to be run at the same time.

**Additional Ops Center Automator server settings**

- The Ops Center Automator server must be set to "High performance mode". For more information, refer to "Configuring the performance mode" in the *Hitachi Ops Center Automator Installation and Configuration Guide*.
- You must change the following values in the `config_user.properties` file:

```
plugin.threadPoolSize: 100
logger.TA.MaxFileSize: 100240
```

See "Changing the system configuration" in the *Hitachi Ops Center Automator Installation and Configuration Guide*.

**Additional Ops Center API Configuration Manager server settings**

- The communication mode must be "fcConnectionMode". For details, see "Appendix A. Changing the communication mode of the REST API server" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide*.
- The setting for the number of storage systems to be managed must be "BalanceMode" or "HighPerformanceMode". For more information, refer to "Setting the number of storage systems to be managed by the REST API" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide*.
- You must change the following values in `StartupV.properties`

```
rest.java.heapMemory.size: 6144
```

Refer to "Setting the java heap memory size on the Ops Center API Configuration Manager server" in the *Hitachi Ops Center Automator Installation and Configuration Guide* for more information.

- You must register a single Ops Center API Configuration Manager to be used in multiple runs as the notification destination of configuration changes in the migration source and target storage systems. See "Appendix D: Sending notifications about changes to storage system configurations" in the *Hitachi Ops Center API Configuration Manager REST API Reference Guide* for more information.

**Requirements for the server where the Ops Center product is installed**

Ops Center Automator must meet the system requirements described below in addition to the requirements described in the *Hitachi Ops Center Automator Installation and Configuration Guide*.

**Table 1 Additional server requirements for Ops Center Automator**

Item	Value
OS	Windows
CPU	8 Core or higher
Memory	16 GB or higher

The Ops Center API Configuration Manager must meet the system requirements described below in addition to the requirements described in "Hardware and disk space requirements" in the *Hitachi Ops Center API Configuration Manager System Requirements*.

**Table 2 Additional server requirements for Ops Center API Configuration Manager**

Item	Value
OS	Windows
CPU	4 Core or higher
Memory	8 GB or higher

**Scale of resources to be migrated**

The upper limit of resources to be migrated that can be specified when running multiple tasks is shown in below.

**Table 3 Upper limit of resources to be migrated**

Item	Upper limit value
Maximum number of hosts	Up to 25 hosts in total for multiple running tasks
Maximum number of volumes	Up to 500 volumes in total for multiple running tasks
Maximum number of volumes that can be selected in a single task	Up to 500 volumes
Maximum number of paths per volume	Up to 16 paths both before and after migration

You can specify up to 500 volumes for all running tasks, but the maximum number of initial copy pairs that can be run simultaneously in the storage system is 64 by default. The storage system will gradually perform initial copy as long as the maximum number of initial copies is not exceeded.

If you want to increase the number of initial copy pairs to be copied simultaneously, you must increase the maximum number of initial copies from the “Remote Replication Options” window in Storage Navigator. If the Diskless Quorum feature is not used, the maximum number of initial copies should not exceed 200, because the Quorum disk may not be able to handle it.

For details, refer to the Global-Active Device User Guide for each storage system.

### Storage systems supporting multiple runs

You must use the following storage systems when you run multiple Online Migration with Configuration Manager tasks.

#### Storage systems with the Use Diskless Quorum option enabled:

- VSP G1000, VSP G1500, and VSP F1500: 80-06-86-00/00 or later
- VSP 5100, 5500, 5100H, 5500H: 90-06-21-00/00 or later
- VSP 5200, 5600, 5200H, 5600H: 90-08-01-00/00 or later

#### Storage systems with the Use Diskless Quorum option disabled:

- VSP G1000, VSP G1500, and VSP F1500: 80-06-82-00/00-04 or later
- VSP 5100, 5500, 5100H, 5500H: 90-04-06-00/00-05 or later
- VSP 5200, 5600, 5200H, 5600H: 90-08-01-00/00 or later



**Note:** Multiple runs only support the VSP G1000, VSP G1500, and VSP F1500 as migration source storage systems and VSP G1000, VSP G1500, VSP F1500, VSP 5100, 5500, 5100H, 5500H, and VSP 5200, 5600, 5200H, 5600H as migration target storage systems.

## Create Online Migration Pair: Service details

The Create Online Migration Pair service template runs from the creation of zones to the creation of copy pairs for online host migration through Configuration Manager. After this service is complete, you must submit the Migrate Data for Online Migration Pair service to complete the migration.

When using this template, be aware of the following:

- The Online Migration with Configuration Manager service template that existed in v10.5.1 or earlier has been split into two service templates: Create Online Migration Pair and Migrate Data for Online Migration Pair. We recommend that you use the new service templates.
- In the configuration where the source volumes have clone pairs, before running the tasks, wait a few minutes after the clone process, or update the storage system cache of configuration information.
- In the configuration where the source volumes have clone pairs, make sure that no secondary volume of the clone pairs is included in the source volumes, and that no secondary volume of the clone pairs is allocated to the selected host as source hosts.

- When you use the Capacity Saving settings, remember that Capacity Saving works even when copying data by GAD, except when After migration is selected for the Set Capacity Saving property. See "About adaptive data reduction" in the *Provisioning Guide* for your storage system in advance.
- By default, this service automatically enables the host mode option "88. Port Consolidation" for the target host groups when the migration is performed. This lets you specify the same port on the target storage system even if there are multiple source storage systems for the same server. In v10.9.3 or later, you can disable this function by unchecking the "Set Host Mode Option 88 to Host Groups automatically" option.
- When you create a new host group, the host group number of the specified resource group is given priority. If the host group numbers that are registered in the specified resource group are insufficient, the host group number in the resource group named "meta\_resource" is used.
- If the Use Diskless Quorum option is enabled and the task fails and one of the following conditions are met, the automatically created Diskless Quorum might remain. In this case, check the Quorum ID shown in the message and manually delete the Diskless Quorum:
  - KNAE07604-I is not output to the task log. This message is output for the source and target storage systems respectively.
  - KNAE07606-I is output to the task log.
- The features integrating with FC switches are not supported when you select the "Host Mappings" option for "Mappings" in Target Settings. When you use any feature integrating with FC switches such as zoning, select the "Storage Port Mappings" option for "Mappings".

### Software and setup prerequisites

For software and setup prerequisites, see [Online Migration with Configuration Manager service templates prerequisites \(on page 46\)](#).

### Edit service settings

The following table lists the Edit Service settings for the Create Online Migration Pair service template.

Navigation pane	Settings pane	Description
Source Settings	Source Selection	Specify the source resource as volumes or hosts.
	Source Storage Management Connection	Specify the source storage management connection for selecting migration source hosts.
	Source Hosts Filter	Use the filters to display only the source hosts that match the specified criteria.

Navigation pane	Settings pane	Description
	Join Host Filters By	Use the "and" and the "or" operators to join multiple filters.
	Source Host Filter (Rows/ Page)	Use the filter to display only the specified number of source hosts.
	Source Host Filter (Current Page)	Use the filter to display only the specified page number of the rows per page number of source hosts.
	Source Hosts	Specify the source hosts.  If you select a host to which the clone copy pair volume is attached, confirm that the volume is not the secondary volume of the clone copy pair.
	Source Configuration Manager Connection	Specify the source Configuration Manager connection for migration.
	Source Storage System	Specify the source storage system for migration.
	Source Volume Filter (Resource Group)	Use the filters to display only the source volumes that belong to the resource group.
	Resource Group Name	Select the resource group to filter.
	Source Volume Filter	Use the filters to display only the source volumes that match the specified criteria.
	Join Filters By	Use the "and" and the "or" operators to join multiple filters.
	Source Volume Filter (Rows/Page)	Use the filter to display only the specified number of source volumes.
	Source Volume Filter (Current Page)	Use the filter to display only the specified page number of the rows per page number of source volumes.
	Source Volumes	Specify the source volumes.  If you select a host to which the clone copy pair volume is attached, confirm that the volume is not the secondary volume of the clone copy pair.
Target Settings	Target Configuration Manager Connection	Specify the target Configuration Manager connection for migration.

Navigation pane	Settings pane	Description
	Target Storage System	<p>Specify the target storage system for migration.</p> <p>In the "Compression Acceleration" column, "unavailable" is displayed in the following cases:</p> <ul style="list-style-type: none"> <li>▪ The migration target storage system does not have the required settings to enable Compression Acceleration.</li> <li>▪ The migration target storage system is a storage model that does not support enabling Compression Acceleration.</li> </ul> <p>If "available" is displayed, Compression Acceleration will be automatically enabled when the capacity saving function is enabled. If "unavailable" is displayed, Compression Acceleration will be automatically disabled when the capacity saving function is enabled.</p>
	Target Resource Group	Specify the target resource group.
	Target Pool	Specify the target pool.
	LDEV ID range starts from	Search for undefined LDEV IDs and allocate target volumes in order from the specified physical LDEV ID. If a physical LDEV ID is not specified, volumes with the same LDEV ID are allocated first.
	LDEV ID range ends at	Specify the last LDEV ID in the LDEV ID range. If the last LDEV ID is not specified, LDEV IDs are used up to the storage system maximum.
	Resource Group for preferential use with LDEV IDs	Specify the resource group to use first when searching for available physical LDEV IDs. If there are not enough available LDEV IDs in the resource group with the specified option, LDEV IDs in the resource group with the unspecified option are also used.



Navigation pane	Settings pane	Description
	Mappings	Specify the Storage Port Mappings or Host Mappings.
	Storage Port Mappings	Specify mappings for the source and target storage ports. Based on the mappings, the system configures the I/O path between the host and the target storage ports.
	Source Storage Port	Select a source storage port from the list of registered ports.
	Target Storage Ports	Select one or more target storage ports from the list of registered ports.
	Host Mode / Host Mode Options	Specify the parameters for creating new Host Mode and Host Mode Options. If a host group/iSCSI Target already exists at the migration target, the existing value will not be changed.
	Host	Specify the host.
	Host Mode	Specify the host mode.
	Host Mode Options	Specify the host mode options.
	Host Mappings	Specify individual migration target ports for each host port (HBA). For hosts or clusters that use the same storage port on the migration source, you can configure each host port to use different storage ports on the migration target.
	Host-WWN/iSCSI name	Specify the source hosts and WWN/iSCSI name.
	Target Storage Ports	Specify the target storage ports.
	Capacity Saving Settings for Target Volumes	Specify how to apply Capacity Saving settings to target volumes.  If "Same as source volumes" is specified, the settings will be applied in the same way as the Capacity Saving settings for source volumes.

Navigation pane	Settings pane	Description
		<p>If "Specify Capacity Saving settings" is specified, the settings selected in the following properties will be applied.</p> <p>If you select the storage system with "Compression Acceleration" available in the "Target Storage System", then Compression Acceleration is enabled when the capacity saving function is enabled. If you select a storage system where "Compression Acceleration" is unavailable, then Compression Acceleration is disabled.</p>
	Select Capacity Saving Function	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Set Capacity Saving	<p>Specify when to apply Capacity Saving settings to the target volumes.</p> <p>If "Before migration" is specified, the settings are applied before copying from the source volumes to the target volumes. In this case, Capacity Saving is in effect from the start of migration, but the time required for migration increases.</p> <p>If "After migration" is specified, the settings are applied after copying from the source volumes to the target volumes is complete. In this case, the migration time will not increase, and Capacity Saving will begin after the migration is complete.</p>
Replication Settings	Copy Pace	Specify the copy speed. Increasing the value increases the copy speed.
	Path Group ID Selection	Specify whether to manually select the path group ID.

Navigation pane	Settings pane	Description
	Path Group ID	Specify the path group ID.
	Use Diskless Quorum	Specify whether to use automatic diskless volume creation.
	Quorum Disk	Specify the quorum disk.
	Run Zero Page Reclaim	Specify whether to run zero page reclaim when the online migration is completed.
Email Settings	Send email notification when the migration target volume path allocation is complete.	Specify whether to send an email notification when the migration target volume path allocation is complete. This enables you to confirm the path allocation listed in the email, then bring it online.
	To:	Specify the primary (To) email notification addresses.
	Cc:	Specify additional Cc email notification addresses.
	Bcc:	Specify additional Bcc email notification addresses.
	Subject:	Specify the email subject.
	Notification mail body	Specify the text of the email body.
Migration Settings	Delete the Host Group	Select the check box to delete the host group.
	Delete the Volume	Select the check box to delete the volume.
	Storage System Lock Wait Time (seconds)	Specify the lock waiting time upper limit when acquiring the storage lock while changing the configuration.
	Set Host Mode Option 88 to Host Groups automatically	Select the checkbox to set Host Mode Option 88 to Host Groups automatically.

Navigation pane	Settings pane	Description
	Add Migration Progress to Notes	Specify whether to automatically add the migration progress to Notes of the Create Online Migration Pair task. If you enable this feature, create the Migrate Data for Online Migration Pair and Clean up Online Migration Pair services in the same service group as the Create Online Migration Pair service.
Fabric Settings	Use Fabric Settings	Specify True to enable fabric information collection.
	Target Fabrics	Specify the fabric name. Separate multiple values by commas. If omitted, all fabrics defined as FOS_PrimarySwitch or DCNM in Connections will be used.
	Fabric Connection Type	Specify the fabric type, either FOS_PrimarySwitch or DCNM to filter the Category in Connections.
	Connections	Specify the connection defined in the Web Service Connections on the Administration tab. If this value is omitted, the system uses all connections that are defined for the product name listed in the Web Service Connections.
	Use Existing Zone	Specifies whether to select a predefined zone or any connectable path. If you select this option, the system selects paths within the range of the existing active Zone setting. If you do not select this option, the system selects connectable paths regardless of the existing Zone setting.
	Number of Hops Restriction	Determines whether the service will fail if there is no path that matched the specified collection range.
	Maximum Number of Hops	When using the Number of Hops Restriction option, specify the collection range by the number of hops.

Navigation pane	Settings pane	Description
Zone Settings	Update Zone Configurations	Specify True to enable the modify zone settings functionality.
	Use Existing Zone Aliases	Specify True to use predefined zone aliases regardless of the naming conventions the user specifies. If you specify False, the system selects zone aliases that follow the naming conventions. In either case, if there are no existing zone aliases, the system creates new zone aliases that follow the naming conventions.
	Update Current Active Zone Configuration	Specify True to add a zone to the active zone configuration.
	Zone Configurations to Update	To add a zone to a zone configuration other than the active configuration, specify the name of the zone configuration in which to add the zone.
	Script for Zone Naming	Specify the naming convention script that determines the zone name for the path.
	Script for Host Zone Alias Naming	Specify the naming convention script that determines the zone alias name for the host port.
	Script for Storage Zone Alias Naming	Specify the zone information.

### Submit service settings

The following table lists the Submit Service settings for the Create Online Migration Pair service template.

Navigation pane	Settings pane	Description
Source Settings	Source Selection	Specify the source resource as volumes or hosts.
	Source Storage Management Connection	Specify the source storage management connection for selecting migration source hosts.

Navigation pane	Settings pane	Description
	Source Hosts Filter	Use the filters to display only the source hosts that match the specified criteria.
	Join Host Filters By	Use the "and" and the "or" operators to join multiple filters.
	Source Host Filter (Rows/ Page)	Use the filter to display only the specified number of source hosts.
	Source Host Filter (Current Page)	Use the filter to display only the specified page number of the rows per page number of source hosts.
	Source Hosts	Specify the source hosts.  If you select a host to which the clone copy pair volume is attached, confirm that the volume is not the secondary volume of the clone copy pair.
	Source Configuration Manager Connection	Specify the source Configuration Manager connection for migration.
	Source Storage System	Specify the source storage system for migration.
	Source Volume Filter (Resource Group)	Use the filters to display only the source volumes that belong to the resource group.
	Resource Group Name	Select the resource group to filter.
	Source Volume Filter	Use the filters to display only the source volumes that match the specified criteria.
	Join Filters By	Use the "and" and the "or" operators to join multiple filters.
	Source Volume Filter (Rows/Page)	Use the filter to display only the specified number of source volumes.
	Source Volume Filter (Current Page)	Use the filter to display only the specified page number of the rows per page number of source volumes.

Navigation pane	Settings pane	Description
	Source Volumes	Specify the source volumes.  If you select a host to which the clone copy pair volume is attached, confirm that the volume is not the secondary volume of the clone copy pair.
Target Settings	Target Configuration Manager Connection	Specify the target Configuration Manager connection for migration.
	Target Storage System	Specify the target storage system for migration.  In the "Compression Acceleration" column, "unavailable" is displayed in the following cases: <ul style="list-style-type: none"> <li>▪ The migration target storage system does not have the required settings to enable Compression Acceleration.</li> <li>▪ The migration target storage system is a storage model that does not support enabling Compression Acceleration.</li> </ul> If "available" is displayed, Compression Acceleration will be automatically enabled when the capacity saving function is enabled. If "unavailable" is displayed, Compression Acceleration will be automatically disabled when the capacity saving function is enabled.
	Target Resource Group	Specify the target resource group.
	Target Pool	Specify the target pool.
	LDEV ID range starts from	Search for undefined LDEV IDs and allocate target volumes in order from the specified physical LDEV ID. If a physical LDEV ID is not specified, volumes with the same LDEV ID are allocated first.
	LDEV ID range ends at	Specify the last LDEV ID in the LDEV ID range. If the last LDEV ID is not specified, LDEV IDs are used up to the storage system maximum.

Navigation pane	Settings pane	Description
	Resource Group for preferential use with LDEV IDs	Specify the resource group to use first when searching for available physical LDEV IDs. If there are not enough available LDEV IDs in the resource group with the specified option, LDEV IDs in the resource group with the unspecified option are also used.
	Mappings	Specify the Storage Port Mappings or Host Mappings.
	Storage Port Mappings	Specify mappings for the source and target storage ports. Based on the mappings, the system configures the I/O path between the host and the target storage ports.
	Source Storage Port	Select a source storage port from the list of registered ports.
	Target Storage Ports	Select one or more target storage ports from the list of registered ports.
	Host Mode / Host Mode Options	Specify the parameters for creating new Host Mode and Host Mode Options. If a host group/iSCSI Target already exists at the migration target, the existing value will not be changed.
	Host	Specify the host.
	Host Mode	Specify the host mode.
	Host Mode Options	Specify the host mode options.
	Host Mappings	Specify individual migration target ports for each host port (HBA). For hosts or clusters that use the same storage port on the migration source, you can configure each host port to use different storage ports on the migration target.
	Host-WWN/iSCSI name	Specify the source hosts and WWN/iSCSI name.
	Target Storage Ports	Specify the target storage ports.
	Capacity Saving Settings for Target Volumes	Specify how to apply Capacity Saving settings to target volumes.



Navigation pane	Settings pane	Description
		<p>If "Same as source volumes" is specified, the settings will be applied in the same way as the Capacity Saving settings for source volumes.</p> <p>If "Specify Capacity Saving settings" is specified, the settings selected in the following properties will be applied.</p> <p>If you select the storage system with "Compression Acceleration" available in the "Target Storage System", then Compression Acceleration is enabled when the capacity saving function is enabled. If you select a storage system where "Compression Acceleration" is unavailable, then Compression Acceleration is disabled.</p>
	Select Capacity Saving Function	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Set Capacity Saving	<p>Specify when to apply Capacity Saving settings to the target volumes.</p> <p>If "Before migration" is specified, the settings are applied before copying from the source volumes to the target volumes. In this case, Capacity Saving is in effect from the start of migration, but the time required for migration increases.</p> <p>If "After migration" is specified, the settings are applied after copying from the source volumes to the target volumes is complete. In this case, the migration time will not increase, and Capacity Saving will begin after the migration is complete.</p>

Navigation pane	Settings pane	Description
Replication Settings	Copy Pace	Specify the copy speed. Increasing the value increases the copy speed.
	Path Group ID Selection	Specify whether to manually select the path group ID.
	Path Group ID	Specify the path group ID.
	Use Diskless Quorum	Specify whether to use automatic diskless volume creation.
	Quorum Disk	Specify the quorum disk.
	Run Zero Page Reclaim	Specify whether to run zero page reclaim when the online migration is completed.
Email Settings	Send email notification when the migration target volume path allocation is complete.	Specify whether to send an email notification when the migration target volume path allocation is complete. This enables you to confirm the path allocation listed in the email, then bring it online.
	To:	Specify the primary (To) email notification addresses.
	Cc:	Specify additional Cc email notification addresses.
	Bcc:	Specify additional Bcc email notification addresses.
	Subject:	Specify the email subject.
	Notification mail body	Specify the text of the email body.
Migration Settings	Delete the Host Group	Select the check box to delete the host group.
	Delete the Volume	Select the check box to delete the volume.
	Storage System Lock Wait Time (seconds)	Specify the lock waiting time upper limit when acquiring the storage lock while changing the configuration.
	Set Host Mode Option 88 to Host Groups automatically	Select the checkbox to set Host Mode Option 88 to Host Groups automatically.

Navigation pane	Settings pane	Description
	Add Migration Progress to Notes	Specify whether to automatically add the migration progress to Notes of the Create Online Migration Pair task. If you enable this feature, create the Migrate Data for Online Migration Pair and Clean up Online Migration Pair services in the same service group as the Create Online Migration Pair service.
Fabric Settings	Use Fabric Settings	Specify True to enable fabric information collection.
	Target Fabrics	Specify the fabric name. Separate multiple values by commas. If omitted, all fabrics defined as FOS_PrimarySwitch or DCNM in Connections will be used.
	Fabric Connection Type	Specify the fabric type, either FOS_PrimarySwitch or DCNM to filter the Category in Connections.
	Connections	Specify the connection defined in the Web Service Connections on the Administration tab. If this value is omitted, the system uses all connections that are defined for the product name listed in the Web Service Connections.
	Use Existing Zone	Specifies whether to select a predefined zone or any connectable path. If you select this option, the system selects paths within the range of the existing active Zone setting. If you do not select this option, the system selects connectable paths regardless of the existing Zone setting.
	Number of Hops Restriction	Determines whether the service will fail if there is no path that matched the specified collection range.
	Maximum Number of Hops	When using the Number of Hops Restriction option, specify the collection range by the number of hops.

Navigation pane	Settings pane	Description
Zone Settings	Update Zone Configurations	Specify True to enable the modify zone settings functionality.
	Use Existing Zone Aliases	Specify True to use predefined zone aliases regardless of the naming conventions the user specifies. If you specify False, the system selects zone aliases that follow the naming conventions. In either case, if there are no existing zone aliases, the system creates new zone aliases that follow the naming conventions.
	Update Current Active Zone Configuration	Specify True to add a zone to the active zone configuration.
	Zone Configurations to Update	To add a zone to a zone configuration other than the active configuration, specify the name of the zone configuration in which to add the zone.
	Script for Zone Naming	Specify the naming convention script that determines the zone name for the path.
	Script for Host Zone Alias Naming	Specify the naming convention script that determines the zone alias name for the host port.
	Script for Storage Zone Alias Naming	Specify the zone information.

## Create Online Migration Pairs for Multiple Hosts: Service details

This service automatically submits a Create Online Migration Pair service task for each specified host. After the auto-submitted tasks are complete, you must submit the Migrate Data for Online Migration Pair service for each task to complete the migration.

When using this template, be aware of the following:

- The automated run of Create Online Migration Pair tasks used by this service is only supported only when Source Selection is Select Hosts. Since this service does not support volume selection, Select Volumes is not displayed in the Edit Service window.
- When multiple hosts are specified in this service, they are always divided into one-host per one-task format, and Create Online Migration Pair is run. If you want to run Create Online Migration Pair on multiple hosts at once, such as multiple hosts in a cluster configuration or multiple hosts to which the same volume has been allocated, you must select multiple hosts and submit the Create Online Migration Pair service, instead of using this service.
- When you select multiple hosts in this service, the Create Online Migration Pair service will be automatically submitted by the number of hosts selected, so the selected number of hosts must be the upper limit or less of multiple runs of Create Online Migration Pair, Migrate Data for Online Migration Pair, and Clean up for Online Migration Pair tasks. A maximum of 25 hosts can be selected for execution. However, if  $N$  multiple task runs have already been performed for Create Online Migration Pair, Migrate Data for Online Migration Pair, and Clean up for Online Migration Pair, the maximum number of hosts that can be specified for this service is  $25 - N$ . If you do not meet the requirements for multiple runs, the maximum number of hosts that can be specified in this service is 1.

See [Additional prerequisites for multiple runs \(on page 50\)](#) for more information.

- While the Create Online Migration Pairs for Multiple Hosts service task is running, do not edit the auto-created Create Online Migration Pair service whose name starts with "[Auto-registered Service for Create Online Migration Pair]". Since this service automatically edits the Create Online Migration Pair service, it is possible that the automatic run of the Create Online Migration Pair task might fail or run with incorrect input parameters if it is manually edited during that time.
- When running multiple tasks by the automatic run of Create Online Migration Pair tasks using this service, not all tasks are run automatically simultaneously, but each task is run sequentially after a few minutes.
- By default, this service automatically enables the host mode option "88. Port Consolidation" for the target host groups when the migration is performed. This lets you specify the same port on the target storage system even if there are multiple source storage systems for the same server. In v10.9.3 or later, you can disable this function by unchecking the "Set Host Mode Option 88 to Host Groups automatically" option.
- If the Use Diskless Quorum option is enabled and the task fails and one of the following conditions are met, the automatically created Diskless Quorum might remain. In this case, check the Quorum ID shown in the message and manually delete the Diskless Quorum:
  - KNAE07604-I is not output to the task log. This message is output for the source and target storage systems respectively.
  - KNAE07607-I is output to the task log.

### Software and setup prerequisites

For software and setup prerequisites, see [Online Migration with Configuration Manager service templates prerequisites \(on page 46\)](#).

**Edit service settings**

The following table lists the Edit service settings for the Create Online Migration Pair for Multiple Host service template.

Navigation pane	Settings pane	Description
Source Settings	Source Selection	Specify the source resource as hosts.
	Source Storage Management Connection	Specify the source storage management connection for selecting migration source hosts.
	Source Hosts Filter	Use the filters to display only the source hosts that match the specified criteria.
	Join Host Filters By	Use the "and" and the "or" operators to join multiple filters.
	Source Host Filter (Rows/ Page)	Use the filter to display only the specified number of source hosts.
	Source Host Filter (Current Page)	Use the filter to display only the specified page number of the rows per page number of source hosts.
	Source Hosts	Specify the source hosts.  If you select a host to which the clone copy pair volume is attached, confirm that the volume is not the secondary volume of the clone copy pair.
	Source Configuration Manager Connection	Specify the source Configuration Manager connection for migration.
	Source Volume Filter (Resource Group)	Use the filters to display only the source volumes that belong to the resource group.
	Resource Group Name	Select the resource group to filter.
Target Settings	Target Configuration Manager Connection	Specify the target Configuration Manager connection for migration.
	Target Storage System	Specify the target storage system for migration.

Navigation pane	Settings pane	Description
		<p>In the "Compression Acceleration" column, "unavailable" is displayed in the following cases:</p> <ul style="list-style-type: none"> <li>▪ The migration target storage system does not have the required settings to enable Compression Acceleration.</li> <li>▪ The migration target storage system is a storage model that does not support enabling Compression Acceleration.</li> </ul> <p>If "available" is displayed, Compression Acceleration will be automatically enabled when the capacity saving function is enabled. If "unavailable" is displayed, Compression Acceleration will be automatically disabled when the capacity saving function is enabled.</p>
	Target Resource Group	Specify the target resource group.
	Target Pool	Specify the target pool.
	LDEV ID range starts from	Search for undefined LDEV IDs and allocate target volumes in order from the specified physical LDEV ID. If a physical LDEV ID is not specified, volumes with the same LDEV ID are allocated first.
	LDEV ID range ends at	Specify the last LDEV ID in the LDEV ID range. If the last LDEV ID is not specified, LDEV IDs are used up to the storage system maximum.
	Resource Group for preferential use with LDEV IDs	Specify the resource group to use first when searching for available physical LDEV IDs. If there are not enough available LDEV IDs in the resource group with the specified option, LDEV IDs in the resource group with the unspecified option are also used.

Navigation pane	Settings pane	Description
	Storage Port Mappings	Specify mappings for the source and target storage ports. Based on the mappings, the system configures the I/O path between the host and the target storage ports.
	Source Storage Port	Select a source storage port from the list of registered ports.
	Target Storage Ports	Select one or more target storage ports from the list of registered ports.
	Capacity Saving Settings for Target Volumes	<p>Specify how to apply Capacity Saving settings to target volumes.</p> <p>If "Same as source volumes" is specified, the settings will be applied in the same way as the Capacity Saving settings for source volumes.</p> <p>If "Specify Capacity Saving settings" is specified, the settings selected in the following properties will be applied.</p> <p>If you select the storage system with "Compression Acceleration" available in the "Target Storage System", then Compression Acceleration is enabled when the capacity saving function is enabled. If you select a storage system where "Compression Acceleration" is unavailable, then Compression Acceleration is disabled.</p>
	Select Capacity Saving Function	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.



Navigation pane	Settings pane	Description
	Set Capacity Saving	<p>Specify when to apply Capacity Saving settings to the target volumes.</p> <p>If "Before migration" is specified, the settings are applied before copying from the source volumes to the target volumes. In this case, Capacity Saving is in effect from the start of migration, but the time required for migration increases.</p> <p>If "After migration" is specified, the settings are applied after copying from the source volumes to the target volumes is complete. In this case, the migration time will not increase, and Capacity Saving will begin after the migration is complete.</p>
Replication Settings	Copy Pace	Specify the copy speed. Increasing the value increases the copy speed.
	Path Group ID Selection	Specify whether to manually select the path group ID.
	Path Group ID	Specify the path group ID.
	Use Diskless Quorum	Specify whether to use automatic diskless quorum creation. If selected, a common diskless quorum is created for each generated task of the Create Online Migration Pair service.
	Quorum Disk	Specify the quorum disk.
	Run Zero Page Reclaim	Specify whether to run zero page reclaim when the online migration is completed.
Email Settings	Send email notification when the migration target volume path allocation is complete.	Specify whether to send an email notification when the migration target volume path allocation is complete. This enables you to confirm the path allocation listed in the email, then bring it online.
	To:	Specify the primary (To) email notification addresses.

Navigation pane	Settings pane	Description
	Cc:	Specify additional Cc email notification addresses.
	Bcc:	Specify additional Bcc email notification addresses.
	Subject:	Specify the email subject.
	Notification mail body	Specify the text of the email body.
Migration Settings	Delete the Host Group	Select the check box to delete the host group.
	Delete the Volume	Select the check box to delete the volume.
	Storage System Lock Wait Time (seconds)	Specify the lock waiting time upper limit when acquiring the storage lock while changing the configuration.
	Set Host Mode Option 88 to Host Groups automatically	Select the checkbox to set Host Mode Option 88 to Host Groups automatically.
	Add Migration Progress to Notes	Specify whether to automatically add the migration progress to Notes of the Create Online Migration Pair task. If you enable this feature, create the Migrate Data for Online Migration Pair and Clean up Online Migration Pair services in the same service group as the Create Online Migration Pairs for Multiple Hosts service.
Fabric Settings	Use Fabric Settings	Specify True to enable fabric information collection.
	Target Fabrics	Specify the fabric name. Separate multiple values by commas. If omitted, all fabrics defined as FOS_PrimarySwitch or DCNM in Connections will be used.
	Fabric Connection Type	Specify the fabric type, either FOS_PrimarySwitch or DCNM to filter the Category in Connections.

Navigation pane	Settings pane	Description
	Connections	Specify the connection defined in the Web Service Connections on the Administration tab. If this value is omitted, the system uses all connections that are defined for the product name listed in the Web Service Connections.
	Use Existing Zone	Specifies whether to select a predefined zone or any connectable path. If you select this option, the system selects paths within the range of the existing active Zone setting. If you do not select this option, the system selects connectable paths regardless of the existing Zone setting.
	Number of Hops Restriction	Determines whether the service will fail if there is no path that matched the specified collection range.
	Maximum Number of Hops	When using the Number of Hops Restriction option, specify the collection range by the number of hops.
Zone Settings	Update Zone Configurations	Specify True to enable the modify zone settings functionality.
	Use Existing Zone Aliases	Specify True to use predefined zone aliases regardless of the naming conventions the user specifies. If you specify False, the system selects zone aliases that follow the naming conventions. In either case, if there are no existing zone aliases, the system creates new zone aliases that follow the naming conventions.
	Update Current Active Zone Configuration	Specify True to add a zone to the active zone configuration.
	Zone Configurations to Update	To add a zone to a zone configuration other than the active configuration, specify the name of the zone configuration in which to add the zone.

Navigation pane	Settings pane	Description
	Script for Zone Naming	Specify the naming convention script that determines the zone name for the path.
	Script for Host Zone Alias Naming	Specify the naming convention script that determines the zone alias name for the host port.
	Script for Storage Zone Alias Naming	Specify the zone information.
Auto-registration Task Settings	Automatically Set the Task Name	Select to set the task name automatically for auto-registered tasks.
	Task Name	Specify the task name for auto-registered tasks.
	Mark the Tasks as "To Do"	Select to mark the auto-registered tasks as To Do.

### Submit service settings

The following table lists the Submit service settings for the Create Online Migration Pair for Multiple Host service template.

Navigation pane	Settings pane	Description
Source Settings	Source Selection	Specify the source resource as hosts.
	Source Storage Management Connection	Specify the source storage management connection for selecting migration source hosts.
	Source Hosts Filter	Use the filters to display only the source hosts that match the specified criteria.
	Join Host Filters By	Use the "and" and the "or" operators to join multiple filters.
	Source Host Filter (Rows/ Page)	Use the filter to display only the specified number of source hosts.
	Source Host Filter (Current Page)	Use the filter to display only the specified page number of the rows per page number of source hosts.

Navigation pane	Settings pane	Description
	Source Hosts	Specify the source hosts.  If you select a host to which the clone copy pair volume is attached, confirm that the volume is not the secondary volume of the clone copy pair.
	Source Configuration Manager Connection	Specify the source Configuration Manager connection for migration.
	Source Volume Filter (Resource Group)	Use the filters to display only the source volumes that belong to the resource group.
	Resource Group Name	Select the resource group to filter.
Target Settings	Target Configuration Manager Connection	Specify the target Configuration Manager connection for migration.
	Target Storage System	Specify the target storage system for migration.  In the "Compression Acceleration" column, "unavailable" is displayed in the following cases: <ul style="list-style-type: none"> <li>▪ The migration target storage system does not have the required settings to enable Compression Acceleration.</li> <li>▪ The migration target storage system is a storage model that does not support enabling Compression Acceleration.</li> </ul> If "available" is displayed, Compression Acceleration will be automatically enabled when the capacity saving function is enabled. If "unavailable" is displayed, Compression Acceleration will be automatically disabled when the capacity saving function is enabled.
	Target Resource Group	Specify the target resource group.
	Target Pool	Specify the target pool.

Navigation pane	Settings pane	Description
	LDEV ID range starts from	Search for undefined LDEV IDs and allocate target volumes in order from the specified physical LDEV ID. If a physical LDEV ID is not specified, volumes with the same LDEV ID are allocated first.
	LDEV ID range ends at	Specify the last LDEV ID in the LDEV ID range. If the last LDEV ID is not specified, LDEV IDs are used up to the storage system maximum.
	Resource Group for preferential use with LDEV IDs	Specify the resource group to use first when searching for available physical LDEV IDs. If there are not enough available LDEV IDs in the resource group with the specified option, LDEV IDs in the resource group with the unspecified option are also used.
	Storage Port Mappings	Specify mappings for the source and target storage ports. Based on the mappings, the system configures the I/O path between the host and the target storage ports.
	Source Storage Port	Select a source storage port from the list of registered ports.
	Target Storage Ports	Select one or more target storage ports from the list of registered ports.
	Capacity Saving Settings for Target Volumes	Specify how to apply Capacity Saving settings to target volumes.  If "Same as source volumes" is specified, the settings will be applied in the same way as the Capacity Saving settings for source volumes.  If "Specify Capacity Saving settings" is specified, the settings selected in the following properties will be applied.

Navigation pane	Settings pane	Description
		If you select the storage system with "Compression Acceleration" available in the "Target Storage System", then Compression Acceleration is enabled when the capacity saving function is enabled. If you select a storage system where "Compression Acceleration" is unavailable, then Compression Acceleration is disabled.
	Select Capacity Saving Function	Specify the Capacity Saving Function for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Select Capacity Saving Mode	Specify the Capacity Saving Mode for the target volumes. Refer to your storage system product documentation for the optimal setting.
	Set Capacity Saving	Specify when to apply Capacity Saving settings to the target volumes.  If "Before migration" is specified, the settings are applied before copying from the source volumes to the target volumes. In this case, Capacity Saving is in effect from the start of migration, but the time required for migration increases.  If "After migration" is specified, the settings are applied after copying from the source volumes to the target volumes is complete. In this case, the migration time will not increase, and Capacity Saving will begin after the migration is complete.
Replication Settings	Copy Pace	Specify the copy speed. Increasing the value increases the copy speed.
	Path Group ID Selection	Specify whether to manually select the path group ID.
	Path Group ID	Specify the path group ID.

Navigation pane	Settings pane	Description
	Use Diskless Quorum	Specify whether to use automatic diskless quorum creation. If selected, a common diskless quorum is created for each generated task of the Create Online Migration Pair service.
	Quorum Disk	Specify the quorum disk.
	Run Zero Page Reclaim	Specify whether to run zero page reclaim when the online migration is completed.
Email Settings	Send email notification when the migration target volume path allocation is complete.	Specify whether to send an email notification when the migration target volume path allocation is complete. This enables you to confirm the path allocation listed in the email, then bring it online.
	To:	Specify the primary (To) email notification addresses.
	Cc:	Specify additional Cc email notification addresses.
	Bcc:	Specify additional Bcc email notification addresses.
	Subject:	Specify the email subject.
	Notification mail body	Specify the text of the email body.
Migration Settings	Delete the Host Group	Select the check box to delete the host group.
	Delete the Volume	Select the check box to delete the volume.
	Storage System Lock Wait Time (seconds)	Specify the lock waiting time upper limit when acquiring the storage lock while changing the configuration.
	Set Host Mode Option 88 to Host Groups automatically	Select the checkbox to set Host Mode Option 88 to Host Groups automatically.



Navigation pane	Settings pane	Description
	Add Migration Progress to Notes	Specify whether to automatically add the migration progress to Notes of the Create Online Migration Pair task. If you enable this feature, create the Migrate Data for Online Migration Pair and Clean up Online Migration Pair services in the same service group as the Create Online Migration Pairs for Multiple Hosts service.
Fabric Settings	Use Fabric Settings	Specify True to enable fabric information collection.
	Target Fabrics	Specify the fabric name. Separate multiple values by commas. If omitted, all fabrics defined as FOS_PrimarySwitch or DCNM in Connections will be used.
	Fabric Connection Type	Specify the fabric type, either FOS_PrimarySwitch or DCNM to filter the Category in Connections.
	Connections	Specify the connection defined in the Web Service Connections on the Administration tab. If this value is omitted, the system uses all connections that are defined for the product name listed in the Web Service Connections.
	Use Existing Zone	Specifies whether to select a predefined zone or any connectable path. If you select this option, the system selects paths within the range of the existing active Zone setting. If you do not select this option, the system selects connectable paths regardless of the existing Zone setting.
	Number of Hops Restriction	Determines whether the service will fail if there is no path that matched the specified collection range.
	Maximum Number of Hops	When using the Number of Hops Restriction option, specify the collection range by the number of hops.

Navigation pane	Settings pane	Description
Zone Settings	Update Zone Configurations	Specify True to enable the modify zone settings functionality.
	Use Existing Zone Aliases	Specify True to use predefined zone aliases regardless of the naming conventions the user specifies. If you specify False, the system selects zone aliases that follow the naming conventions. In either case, if there are no existing zone aliases, the system creates new zone aliases that follow the naming conventions.
	Update Current Active Zone Configuration	Specify True to add a zone to the active zone configuration.
	Zone Configurations to Update	To add a zone to a zone configuration other than the active configuration, specify the name of the zone configuration in which to add the zone.
	Script for Zone Naming	Specify the naming convention script that determines the zone name for the path.
	Script for Host Zone Alias Naming	Specify the naming convention script that determines the zone alias name for the host port.
	Script for Storage Zone Alias Naming	Specify the zone information.
Auto-registration Task Settings	Automatically Set the Task Name	Select to set the task name automatically for auto-registered tasks.
	Task Name	Specify the task name for auto-registered tasks.
	Mark the Tasks as "To Do"	Select to mark the auto-registered tasks as To Do.

## Migrate Data for Online Migration Pair: Service details

The Migrate Data for Online Migration Pair service template runs from the swap of copy pairs to the deletion of source volumes for online host migration through Configuration Manager. Before submitting this service, the Create Online Migration Pair service must be completed.

**Note:**

- The Online Migration with Configuration Manager service template that existed in v10.5.1 or earlier has been split into two service templates: Create Online Migration Pair and Migrate Data for Online Migration Pair. We recommend that you use the new service templates.
- Tasks that do not meet the following conditions cannot be migrated:
  - Template key name: Copy\_NDM\_CM
  - Template vendor ID: com.hitachi.software.dna.cts
  - Template version: The service template version (VV.RR in VV.RR.SS) of the Create Online Migration Pair task must be the same as the Migrate Data for Online Migration Pair service template.
  - Status: Completed or Failed
  - Task status: The following conditions must be met:
    - The Create Online Migration Pair task has reached the "Wait for Copy Completion" step placed under the "Create Online Migration Pair" step.
    - Other Migrate Data for Online Migration Pair tasks or Clean up Online Migration Pair tasks that target the same Create Online Migration Pair task have not been started.
- Only non-archived Create Online Migration Pair tasks can be migrated. With the default settings, the Create Online Migration Pair task is archived 7 days after the task ends. Change this setting if you need to migrate after 7 days.
- You must run the Migrate Data for Online Migration Pair task with the same permissions as the user who ran the Create Online Migration Pair task.
- The target storage systems must be registered in the same API Configuration Manager that was used when running the Create Online Migration Pair task and the API Configuration Manager must be registered in Web Service Connections.
- If the Use Diskless Quorum option is enabled and the task fails and the following condition is met, the automatically created Diskless Quorum might remain. In this case, check the Quorum ID shown in the Results tab and manually delete the Diskless Quorum:
  - KNAE07604-I is not output to the task log. This message is output for the source and target storage systems respectively.

**Software and setup prerequisites**

For software and setup prerequisites, see [Online Migration with Configuration Manager service templates prerequisites \(on page 46\)](#).

**Edit service settings**

The following table lists the Edit service settings for the Migrate Data for Online Migration Pair service template.

Navigation pane	Settings pane	Description
Target Selection	Target Task Filter (Rows/ Page)	Specify the number of tasks to display on the window. The default is 1000.
	Target Task Filter (Current Page)	Specify the number of pages of tasks to display. The default is 1.
	Target Task	Select the target task.
Migration Settings	Storage System Lock Wait Time (seconds)	Specify the lock waiting time upper limit when acquiring the storage lock while changing the configuration. The default is 604800.
	Response Timeout (minutes)	Specify the maximum wait time for the response in minutes. The default is 20160.

### Submit service settings

The following table lists the Submit service settings for the Migrate Data for Online Migration Pair service template.

Navigation pane	Settings pane	Description
Target Selection	Target Task Filter (Rows/ Page)	Specify the number of tasks to display on the window. The default is 1000.
	Target Task Filter (Current Page)	Specify the number of pages of tasks to display. The default is 1.
	Target Task	Select the target task.

### Clean up Online Migration Pair: Service details

The Clean up Online Migration Pair service template enables you to clean up the resources created by the Create Online Migration Pair task.

**Note:**

- Tasks that do not meet the following conditions cannot be cleaned up
  - Template key name: Copy\_NDM\_CM
  - Template vendor ID: com.hitachi.software.dna.cts
  - Template version: The service template version (VV.RR in VV.RR.SS) of the Create Online Migration Pair task must be the same as the Clean up Online Migration Pair service template.
  - Status: Completed or Failed
  - Task status: The Migrate Data for Online Migration Pair task that targets the Create Online Migration Pair task has not been started.
- Only non-archived Create Online Migration Pair tasks can be cleaned up. With the default settings, the Create Online Migration Pair task is archived 7 days after the task ends. Change this setting if you need to clean up after 7 days.
- You must run the Clean up Online Migration Pair task with the same permissions as the user who ran the Create Online Migration Pair task.
- The target storage systems must be registered in the same API Configuration Manager that was used when running the Create Online Migration Pair task and the API Configuration Manager must be registered in Web Service Connections.
- To clean up a Create Online Migration Pair task with errors, you must remove the cause of the error before running the Clean up Online Migration Pair task.
- If the target resources configuration changes before the Clean up Online Migration Pair task is run, it might not be able to delete them. If there are resources that could not be deleted, a warning message is displayed. Confirm the message and then delete the target resources manually.
- If the Clean up Online Migration Pair task ends in an error, you must remove the cause of the error, and then resubmit the task.
- The task will fail with a KNAE07538-E message if the pair status becomes abnormal due to a storage system failure after the Create Online Migration Pair task has successfully completed. In this case, perform recovery according to the following procedure.
  1. Recover from the failure by referring to "Disaster recovery of global-active device" in the Global-Active Device User Guide for each storage system.
  2. After recovering according to the Global-Active Device User Guide, refresh the storage system information in Ops Center API Configuration Manager from the Ops Center Automator server.
  3. Submit the Clean up Online Migration Pair service again.

**Software and setup prerequisites**

For software and setup prerequisites, see [Online Migration with Configuration Manager service templates prerequisites \(on page 46\)](#).

**Edit Service settings**

The following table lists the Edit Service settings for the Clean up Online Migration Pair service template.

Navigation pane	Settings pane	Description
Target Selection	Target Task Filter (Rows/ Page)	Specify the number of tasks displayed on the window at one time.
	Target Task Filter (Current Page)	Specify the page number of tasks displayed in the window.
	Target Task	Select the clean up target task.
Cleanup Settings	Storage System Lock Wait Time (seconds)	Specify the lock waiting time upper limit when acquiring the storage lock while changing the configuration.
	Response Timeout (minutes)	Specify the maximum wait time for the response in minutes.

**Submit Service settings**

The following table lists the Submit Service settings for the Clean up Online Migration Pair service template.

Navigation pane	Settings pane	Description
Target Selection	Target Task Filter (Rows/ Page)	Specify the number of tasks displayed on the window at one time.
	Target Task Filter (Current Page)	Specify the page number of tasks displayed in the window.
	Target Task	Select the clean up target task.

