HITACHI

Hitachi Vantara

Hitachi Virtual Storage Platform Universal Volume Manager with Cisco Intersight

Best Practices Guide

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Feedback

Please send comments to 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!

Revision history

Changes	Date
VSP Block High End terminology updates. Updated screenshots have been replaced, including those for workflow, creation, and inventory monitoring.	January 2026
Denormalized task and UI updates.	February 2025
Updated these topics New Storage LUN ID (LUN paths) and Disconnect Hitachi External Volume.	July 2024
Initial release.	August 2023

Contents

Best Practices Guide

This best practices guide covers the capabilities of the Hitachi Virtual Storage Platform (VSP) used in conjunction with the Cisco SaaS Intersight platform to virtualize, manage, and migrate data from third party as well as legacy storage systems to the VSP. In the context of this document a Hitachi Virtual Storage Platform E1090 is used as the target system while an IBM SAN Volume Controller (SVC) is used as the external subsystem being virtualized.

The Cisco and Hitachi Adaptive Solution is the latest converged infrastructure offering that is managed exclusively by Cisco Intersight, allowing administrators to instantly consolidate their applications onto an efficient modular, scalable system which allows cloud-based infrastructure management for the entire stack. It is designed to meet the requirements of modern applications and improve operational efficiency, agility, and scale with its modular architecture. With this approach, Hitachi VSP management can be completed by only using Cisco Intersight, which enables senior storage admins to delegate basic tasks to their organization in a self-service manner.

With the latest refresh in capabilities of the Hitachi VSP from Intersight, customers can now leverage Universal Volume Manager (UVM) which allows Hitachi VSP to claim and present external storage as native capacity of the target VSP, as well as being able to non-disruptively migrate the data from the external system to the target VSP using the data migration task within Intersight Cloud Orchestrator (ICO).

With these enhancements businesses can do the following:

- Use Cisco Intersight in combination with Hitachi VSP to manage storage systems that might not natively be supported from Intersight.
- Extend the life of older storage arrays by virtualizing behind the Hitachi VSP.
- View a unified inventory of storage assets once third party or legacy system has been virtualized behind the target VSP.
- Virtualized systems gain all capabilities of the Hitachi Storage Virtualization Operating System (SVOS).
- Reduce the need to purchase additional storage by using already purchased disk sets with compression and deduplication capabilities provided by VSP.
- Perform hot migration of external to internal resources non-disruptively.

Furthermore, Hitachi VSP storage systems truly enable a simplified approach to managing the datacenter by allowing multiple management options and features which allow further operational expenditure savings from a built-in capacity savings function in the form of deduplication and compression. Cisco UCS backed by the Hitachi VSP provides customers a future- proof converged infrastructure stack backed by one of the most reliable enterprise storage systems which guarantees 100% data availability.

This guide is written for professional services staff such as storage administrators, VMware administrators, sales engineers, field consultants, and validated Hitachi and Cisco resale partners. Readers of this document must have knowledge of RAID systems and functionality, as well as converged infrastructure.

Prerequisites

This section describes the prerequisites required to follow steps outlined within this best practices guide with the Hitachi Virtual Storage Platform (VSP) and Cisco Intersight.

VSP configuration

Hitachi VSP storage configuration is based on UCS with VSP best practices as outlined in the Cisco and Hitachi Adaptive solutions for Converged Infrastructure. Additionally, port mapping can be obtained from the Cisco and Hitachi Adaptive Solution with Cisco UCS X-Series Modular System and Hitachi Virtual Storage platform Reference Architecture Guide in the section *Physical cabling for the UCS 6454 with Hitachi Virtual Storage Platform*.

External storage system configuration

External storage systems need to be online and operational prior to using any steps as outlined in the best practices guide. Additionally, the following need to be verified:

- Verification that external storage system is supported by the Hitachi VSP UVM feature. See the Hitachi product compatibility guide at https://compatibility.hitachivantara.com/products/uvm to view the supported list of third party systems.
- Physical connectivity between Hitachi VSP and external storage system must be made and the correct port settings on target and external storage systems must be set.
- When using a switch in between controller connections, the correct zones must be set among ports required to be used for virtualization.
- Volumes in the external storage system must be mapped to the corresponding target storage ports on the Hitachi VSP.

Note: For VSP 5000 series, ports used for external path groups must be set to bidirectional ports.

Note: For VSP G1000, VSP G1500, or VSP F1500, ports used for external path groups must be set to external.

Intersight

To enable Hitachi VSP management using Cisco Intersight, the following prerequisites must be configured and operational:

- Hitachi VSP storage system
- Hitachi Ops Center API Configuration Manager
- Cisco Intersight Assist OVA
- Cisco Intersight account and license
- Domain Name System (DNS) server

See the Integrating Hitachi Virtual Storage Platform with Cisco Intersight Quick Start Guide for more information.

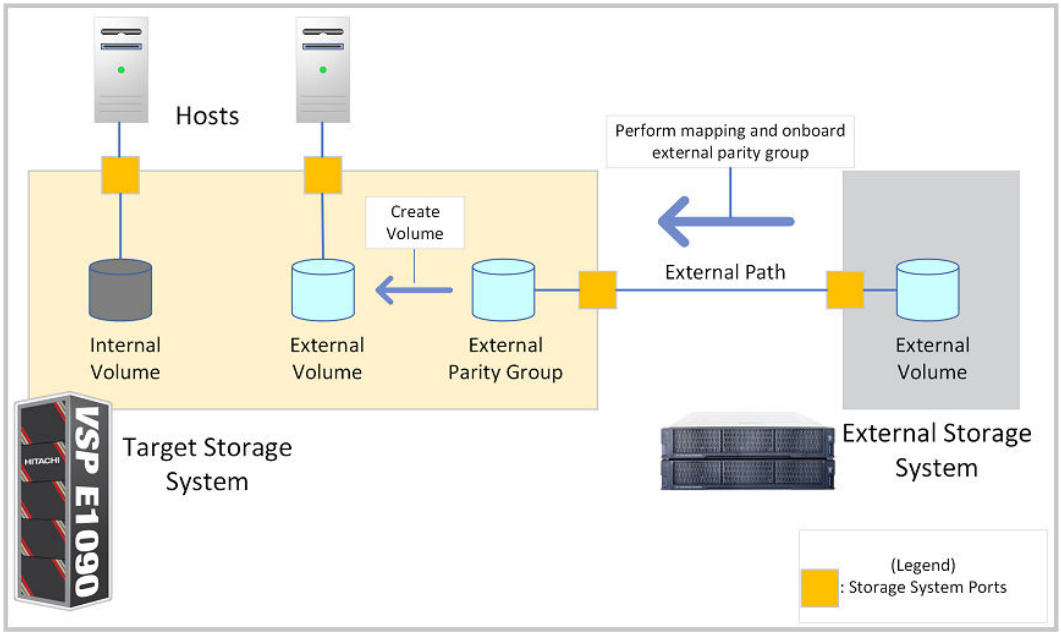
Hitachi VSP Universal Volume Manager overview

Universal Volume Manager (UVM) is a built-in capability that allows virtualization of storage devices behind the Hitachi VSP, this allows all storage to be managed from a single system. To use volumes on the external system on the target VSP, external path connections must be made between the controllers of the external storage system and the target VSP. Once physical connections are made, volumes of the external storage system must be mapped to the target VSP.

External volumes can be used in situations such as:

- Backup of target VSP storage volumes to an external storage system.
- Using the capacity of external storage system through the target VSP.
- Migration of data from legacy external storage system to the new target VSP.
- Using Cisco Intersight to manage heterogeneous storage environments.

The following figure shows the system components and configuration for UVM.



External paths provide a route by which the external connection port of the target storage system and the port of the external storage system are connected. You can set multiple routes as external paths. A group consisting of multiple external volumes that use the same external path is called an external path group. Additionally, external parity groups are used to manage external volumes on the target storage system.

Although an external parity group does not include parity information, it is managed in the same way as a parity group is managed. By registering external volumes on the target storage system as an external parity group, you can use the external volumes in the target storage system in the same way as local volumes in the target storage system.

For more information about UVM, see *Performing Universal Volume Manager Operations* at Ops Center API Configuration Manager REST API Reference Guide.

Hitachi VSP volume migration overview

Volume Migration is used to move data from one volume to another volume within the Hitachi VSP storage system including volumes on an external storage system that has been virtualized.

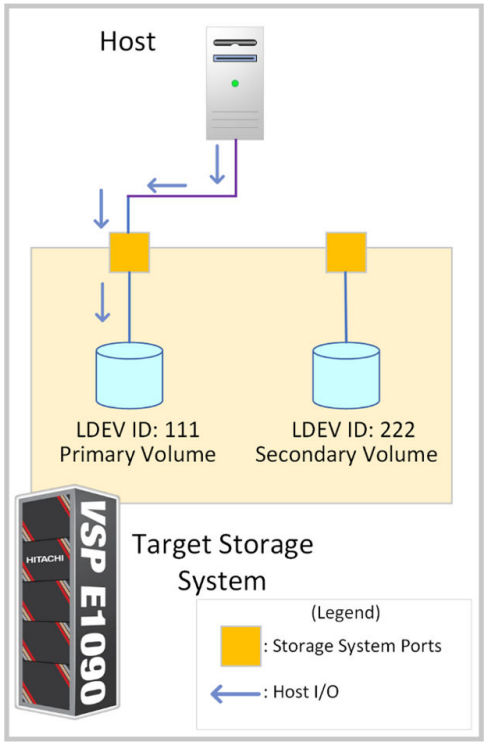
Volume migration can be used in the following situations:

- Migrating data from an old storage system to a new Hitachi VSP storage system.
- Migrating data that has low I/O frequency to an external storage system.
- Migrating data that has high I/O frequency to a volume on a drive with a lower usage rate or to a volume on a drive with higher performance.

The host can access data during migration. When migration is complete, the LDEV ID and the host I/O of the migration source volume are automatically swapped with those of the migration target volume. For this reason, the host can continue to access data after the migration by using the same path settings.

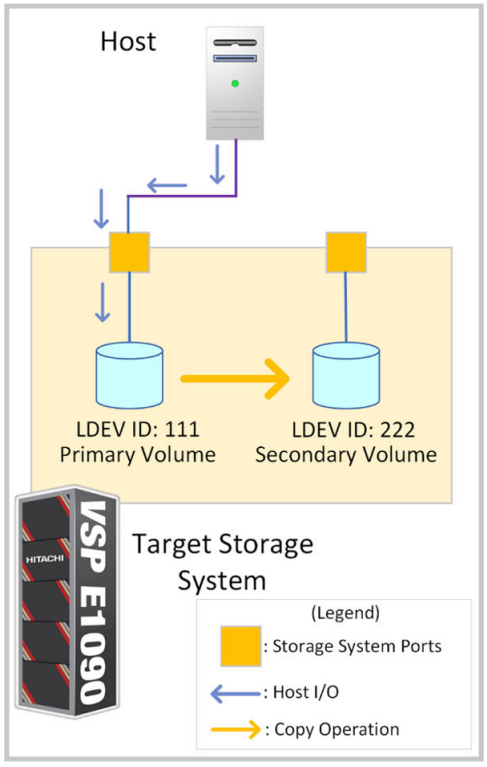
Before doing a volume migration, a secondary volume (S-VOL) with the same block capacity as the primary volume (P-VOL) must be created and allocated to a host prior to using data migration function using Intersight.

The following figure shows the target storage system state before starting data migration.



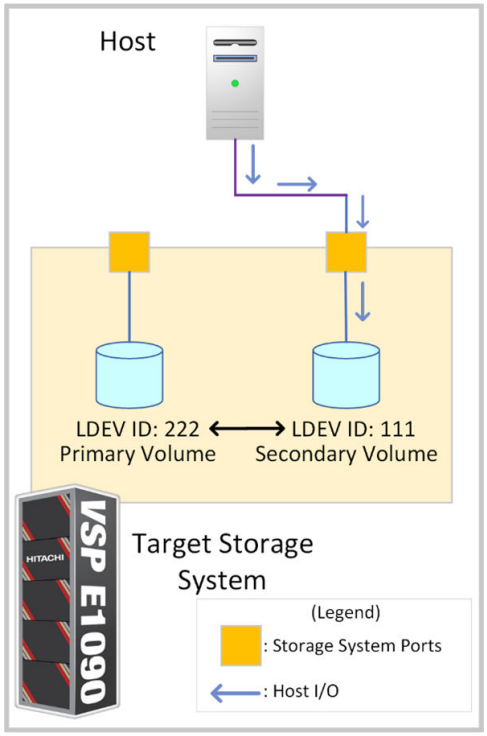
After data migration is started from Intersight, the P-VOL and S-VOL become a Shadow Image (SI) pair and data is copied from the P-VOL to S-VOL. This is a hot migration, and the host can read and write data while the migration is occurring. If a write I/O operation from the host is performed while the data is being copied, only the differential data is copied to the S-VOL. Copy operations continue to be performed until all differential data has been copied.

The following figure shows the system state when migration is started.



After the data is fully copied from P-VOL to the S-VOL, the LDEV IDs and host I/O are swapped. From the host perspective, the volume and path settings are the same as before the migration, but now the host is using the S-VOL prepared for migration for I/O operations.

The following figure shows system states after migration has been completed.

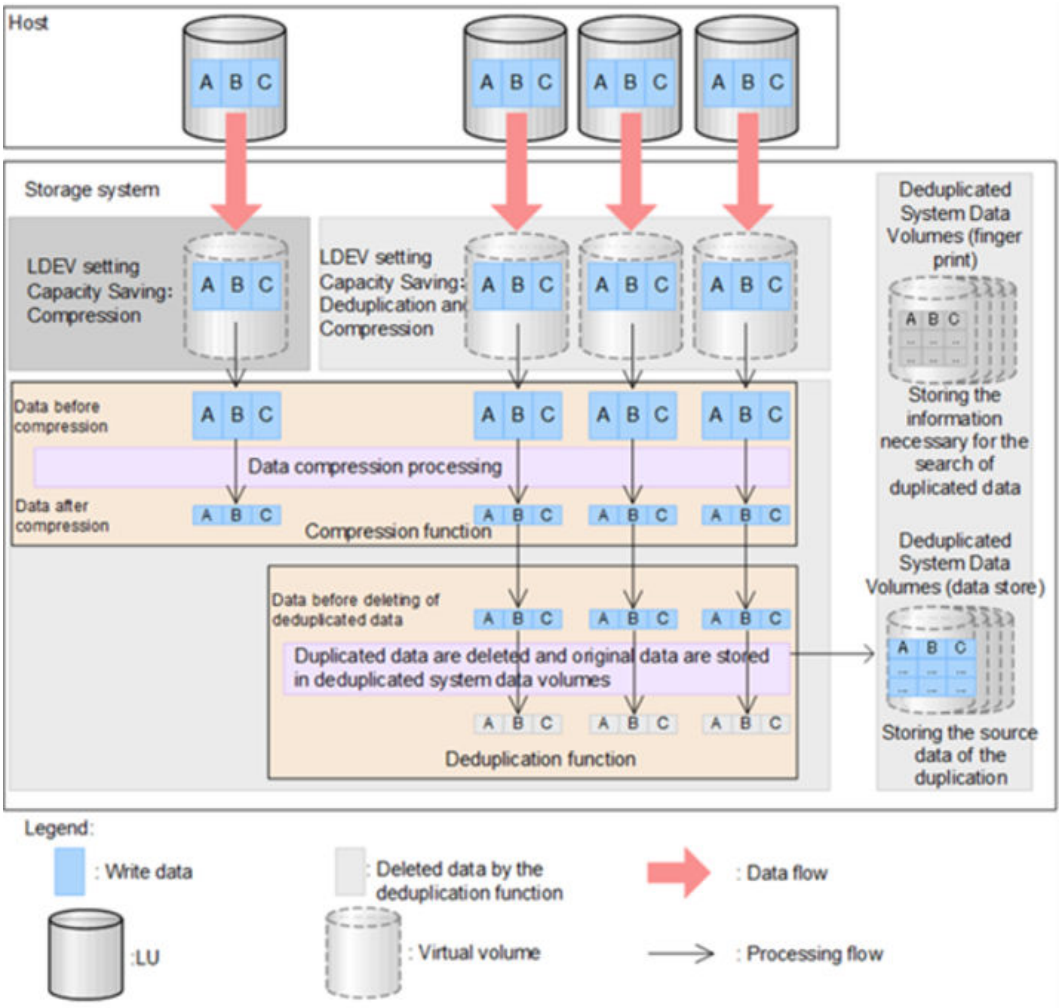


See *Performing Volume Migration Operations* at https://docs.hitachivantara.com/r/en-us/ops-center-api-configuration-manager/11.0.x/mk-99cfm000/performing-universal-volume-manager-operations for more information about the data migration function.

Capacity savings function

When enabled, data deduplication and compression is performed to reduce the size of data to be stored. Capacity saving can be enabled on dynamic provision volumes in Hitachi Dynamic Provisioning (HDP) pools and Hitachi Dynamic Tiering (HDT) pools. You can use the capacity saving function on internal and external storage.

The following figure shows how the Hitachi VSP makes use of the capacity saving function after it is enabled on the DP pool.



See https://knowledge.hitachivantara.com/Documents/Management_Software/SVOS/9.8.1/Volume_Management_-_VSP_E_Series/Data_Reduction/02_About_capacity_saving for more information about the Hitachi VSP capacity saving feature. To enable capacity saving, at the LDEV level when running the ICO New Storage Volume task, specify compression only or compression and deduplication.

Deduplication

The data deduplication function deletes duplicate copies of data written to different addresses in the same pool and maintains only a single copy of the data at one address. The deduplication function is enabled on a Dynamic Provisioning pool and then on the specified DP-VOLs in the pool. When deduplication is enabled, data that has multiple copies on the DP-VOLs assigned to that pool is removed.

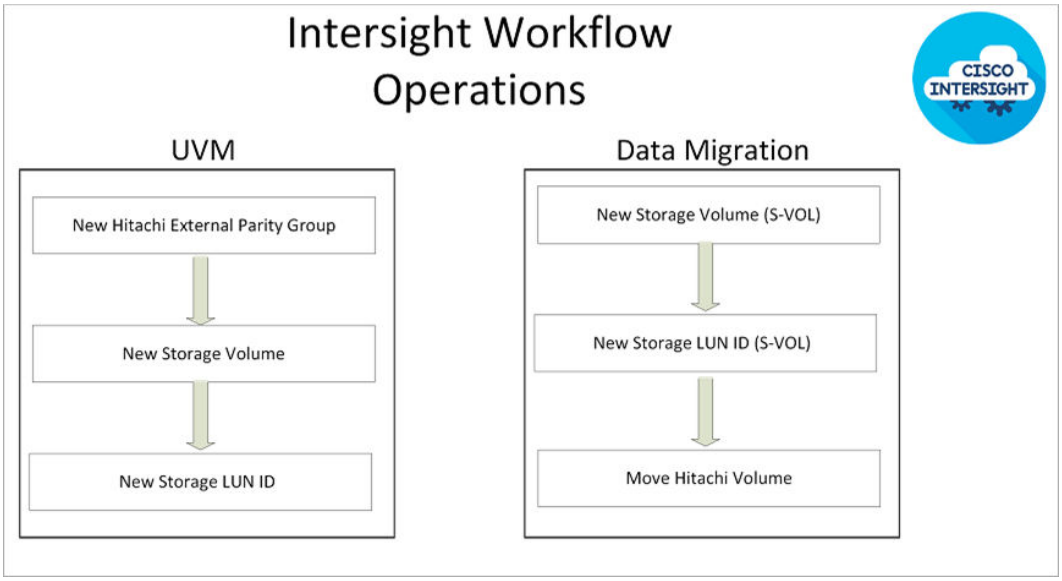
Compression

The data compression function enables you to convert the stored data into data with smaller data size by encoding without reducing the amount of data information. The LZ4 compression algorithm is used for data compression using software with the DKCMAIN microcode. The data compression function can be enabled for each DP-VOL used for Dynamic Provisioning or Dynamic Tiering.

Intersight operations

Intersight now enables Hitachi VSP users to execute UVM as well as volume migration using the Cisco ICO product. After physical storage systems are operational and prerequisitesd have been completed, the following Intersight tasks are used to create workflows.

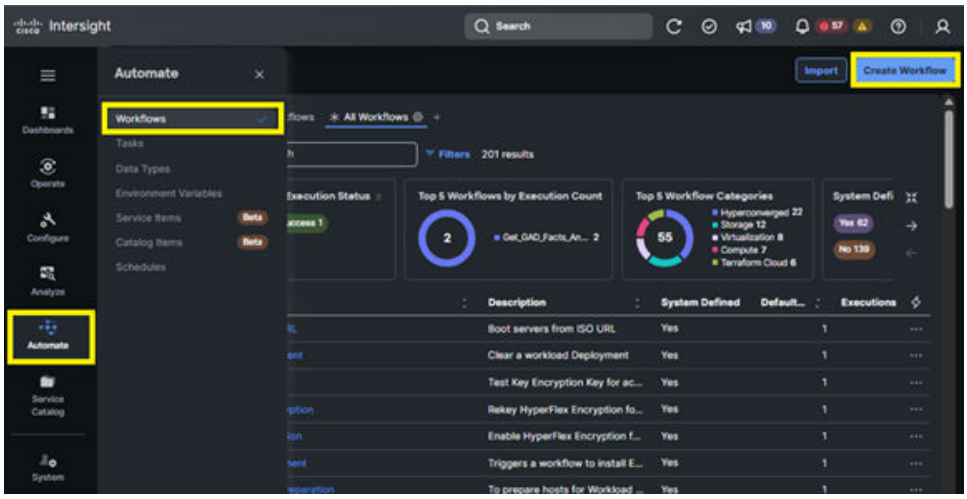
The following figure shows the series of Intersight workflow operations that are needed.



Workflow creation

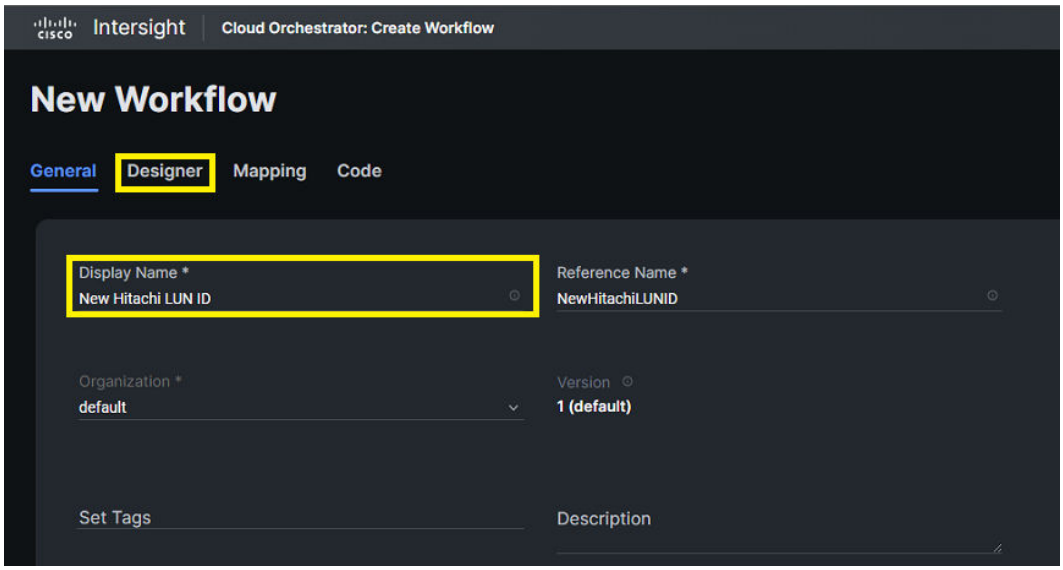
To enable workflow execution, users must compile tasks and create workflows from the Cisco Intersight UI to execute storage operations using ICO. After logging in to Cisco Intersight, users must select Automate from the navigation tree and select Workflows from the subtree menu and then select Create Workflow.

The following figure shows the vantage point of where workflows must be created.

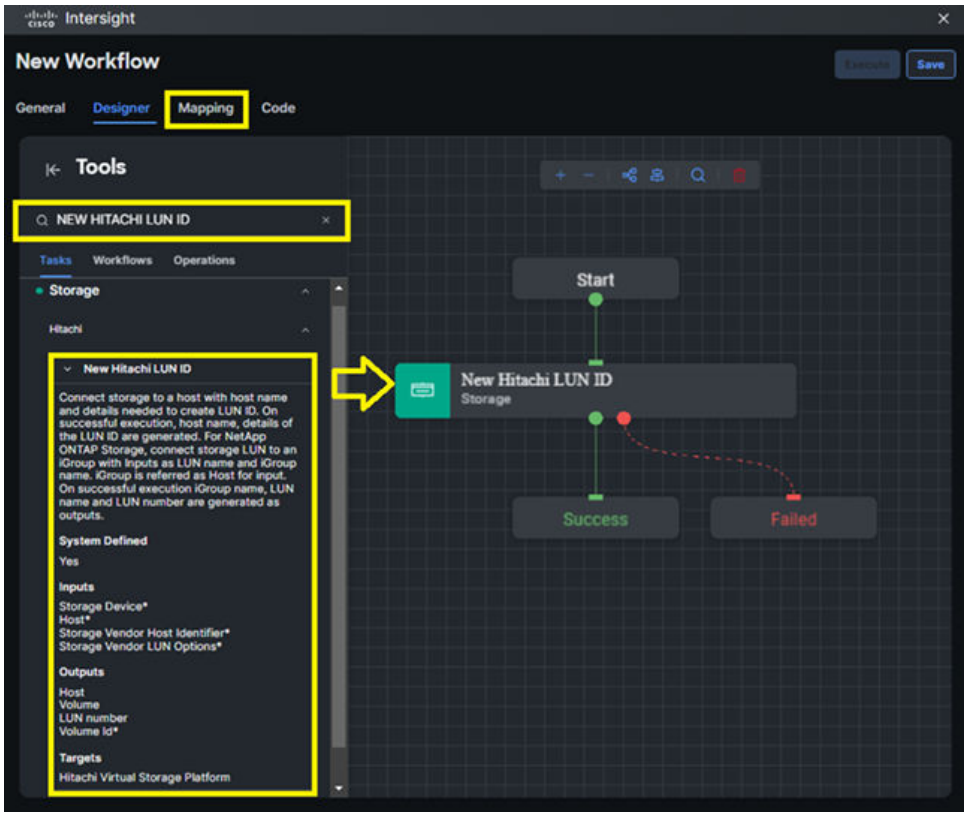


When Create Workflow is selected, the New Workflow wizard appears, users must define a Display Name, and then select the Designer tab to select which specific task or series of tasks they would like to execute within the workflow.

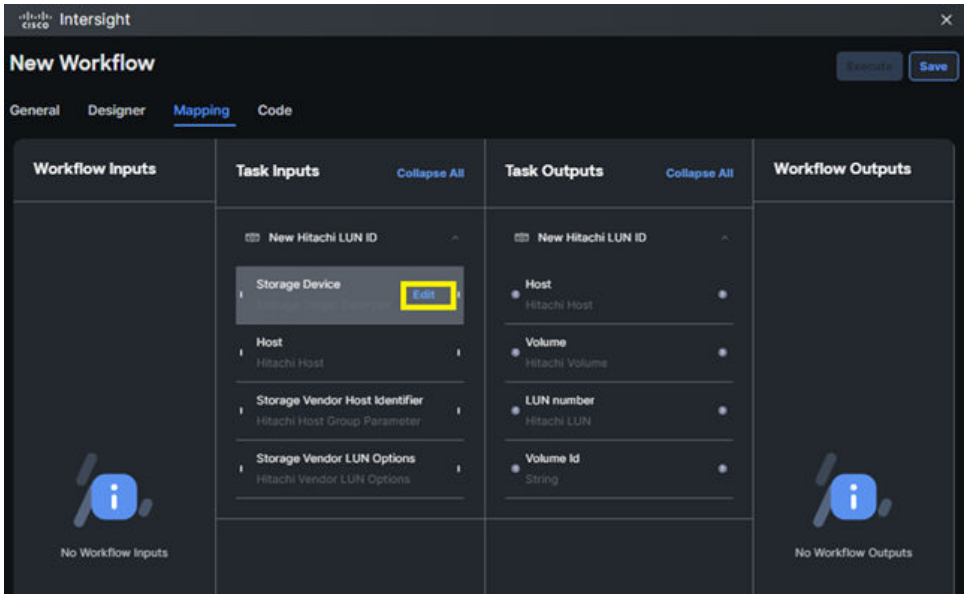
The following figure shows an example of a new workflow task called New Hitachi LUN ID.



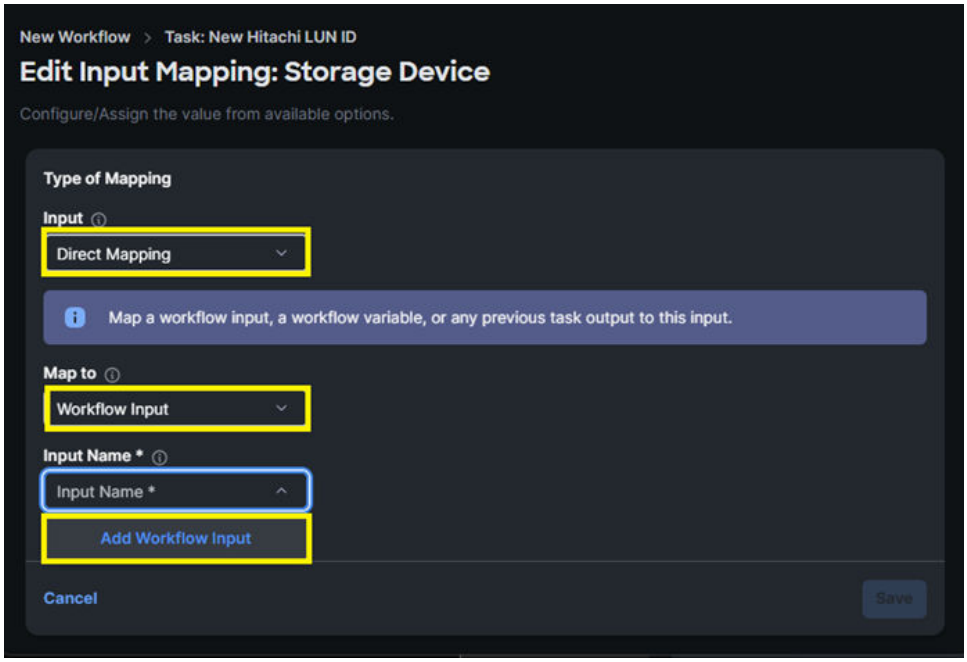
After the Designer tab is selected within the New Workflow wizard, the designer workspace along with the list of tasks, is presented. Search for the task to execute within the workflow using the built-in search function. In the following example, New Hitachi LUN ID is selected, and the task is then dragged and dropped onto the work pane. After the task has been mapped, select the Mapping tab to correlate workflow inputs correctly.



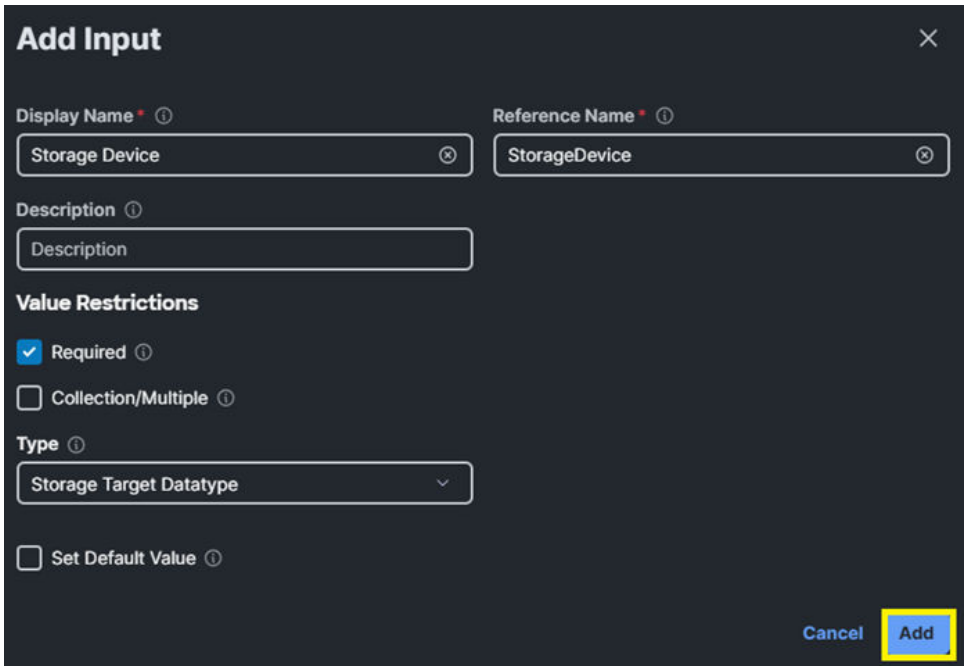
After the Mapping is selected, link the corresponding workflow inputs into the respective task inputs by selecting Edit as shown in the following figure.



After the **Edit Input Mapping** wizard is displayed, select Direct Mapping > Workflow Input > Add Workflow Input.

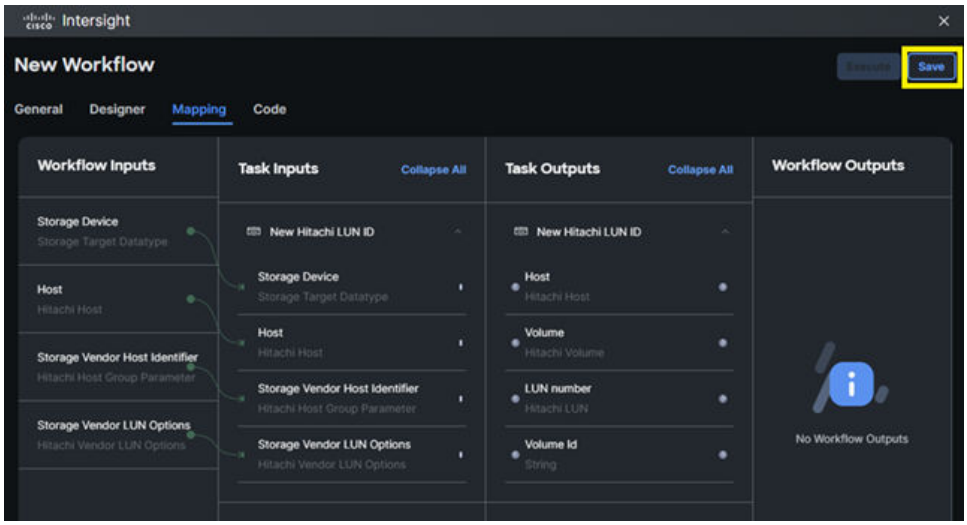


Under the Add Workflow input wizard, no changes are needed, and default inputs can be used. Click Add.

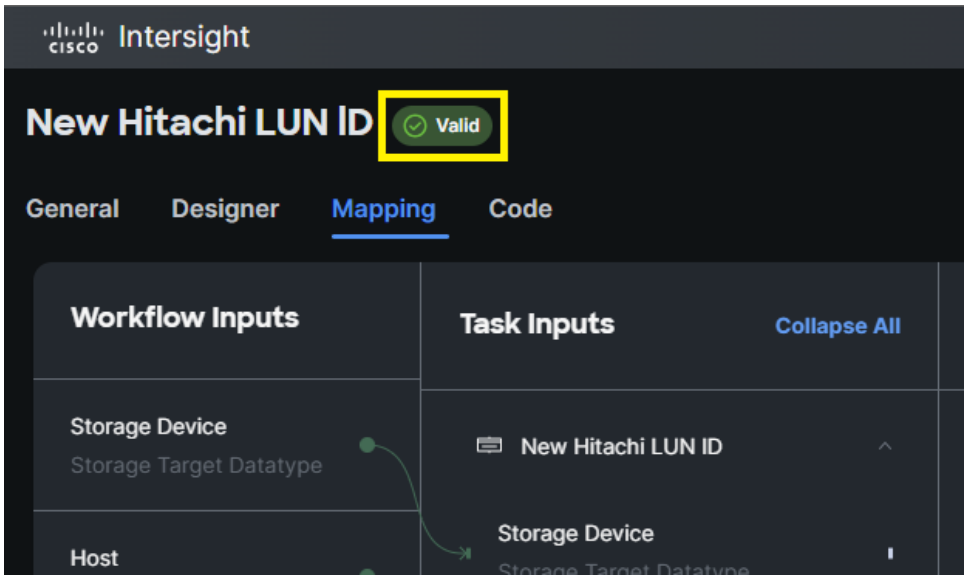


After input mappings have been set, click Save.

This procedure must be repeated for all input parameters of a task being used within a workflow. The following figure shows the state of the workflow after all input mappings have been defined.



Select Save after the workflow has been designed and mapping parameters identified. If everything has been validated correctly, the new workflow will display as Valid and can now be executed.



Best practices

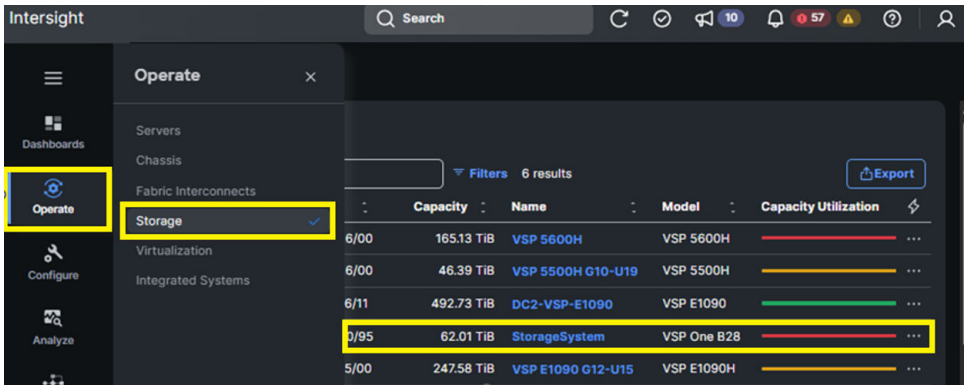
Before following these best practices, verify that prerequisites are complete. Additionally, confirm that workflows for tasks that must be executed from ICO have been created. Additionally, all input parameters, as well as successful execution of workflows, can be validated by referring to Hitachi Storage Navigator, Hitachi Embedded Administrator or using Hitachi RAIDCOM Command Control Interface (CCI).

Monitor external storage inventory capacity

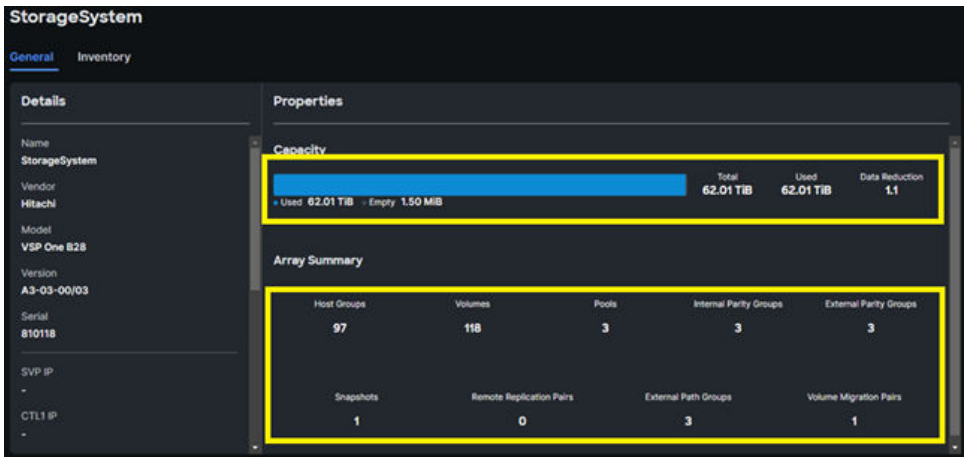
Cisco Intersight Infrastructure Service (IIS) enables admins to view storage system statistics and usage natively from Cisco Intersight reducing overhead so administrators can use Intersight as their single management platform for their data center operations.

Before you begin

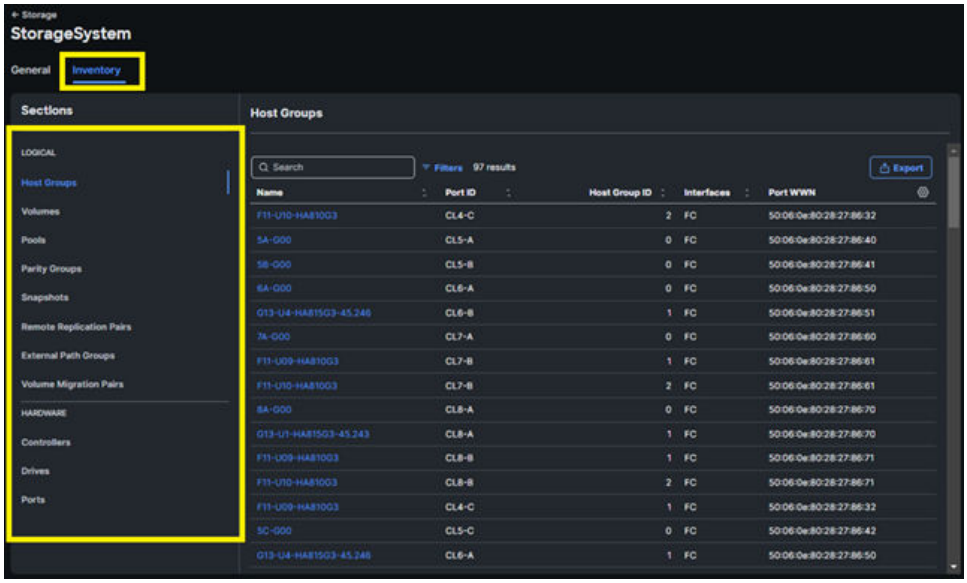
Log in to Intersight and from the left-side navigation tree select Operate Storage and select a VSP model.



After a VSP is chosen, a General summary page is displayed that highlights capacity, statistics and usage.



Additionally, the Inventory tab can be selected that provides access to Logical resources such as Host Groups, Volumes, Pools, Parity Groups (internal and external), Snapshots, Remote Replication Pairs, External Path Groups, Volume Migration Pairs, as well as Hardware resources native to the VSP such as Controllers, Drives, and Ports.



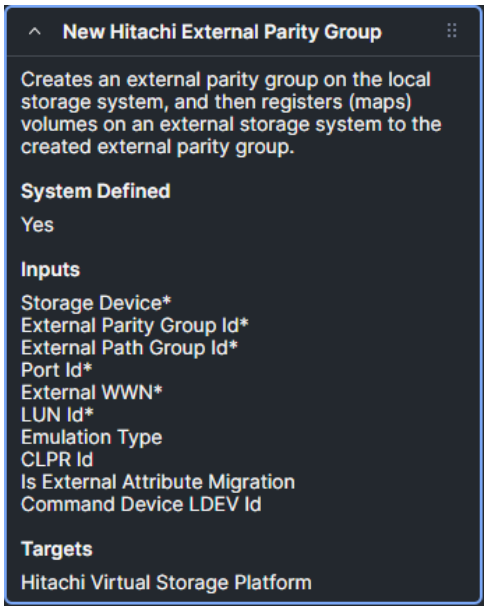
Onboard external storage

New Hitachi External Parity Group

New Hitachi External Parity Group enables virtualization of third party or legacy systems behind the target VSP. Furthermore, parameters are defined within the workflow that reflect the physical connection between the target VSP Storage Device and external system by defining the External WWN of the port of the external system as well as the Port ID of the target system which is connected or zoned to the External WWN.

Also, the LUN ID of the external volume presented to the target VSP is specified.

The following figure shows the Intersight task New Hitachi External Parity Group along with its input parameters.

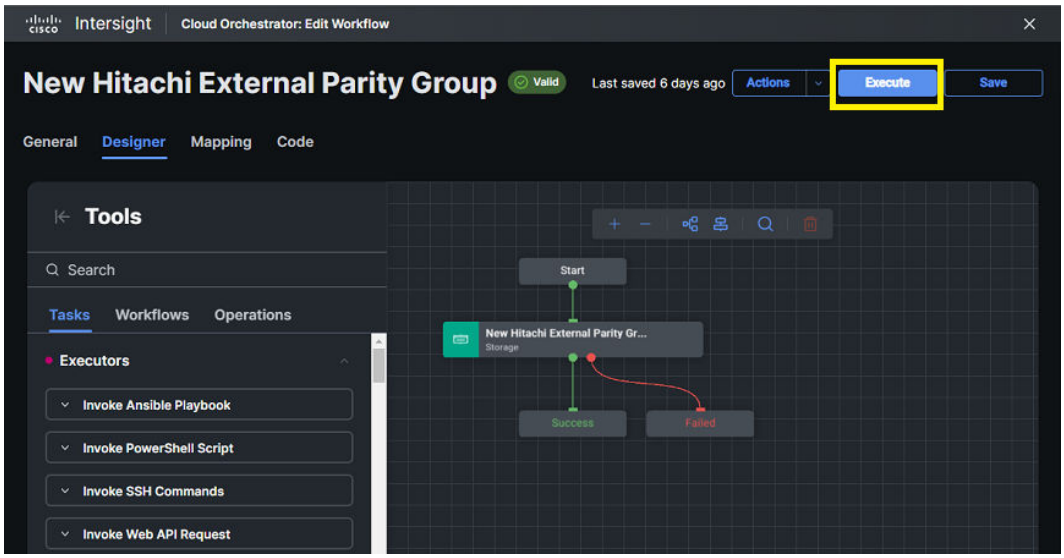


New Hitachi External Parity Group allows the target VSP to virtualize the external storage system and claim the presented LUNs as native parity. The inverse of this operation is the Remove Hitachi External Parity Group task.

To create a New Hitachi External Parity Group from the target VSP from ICO follow these steps.

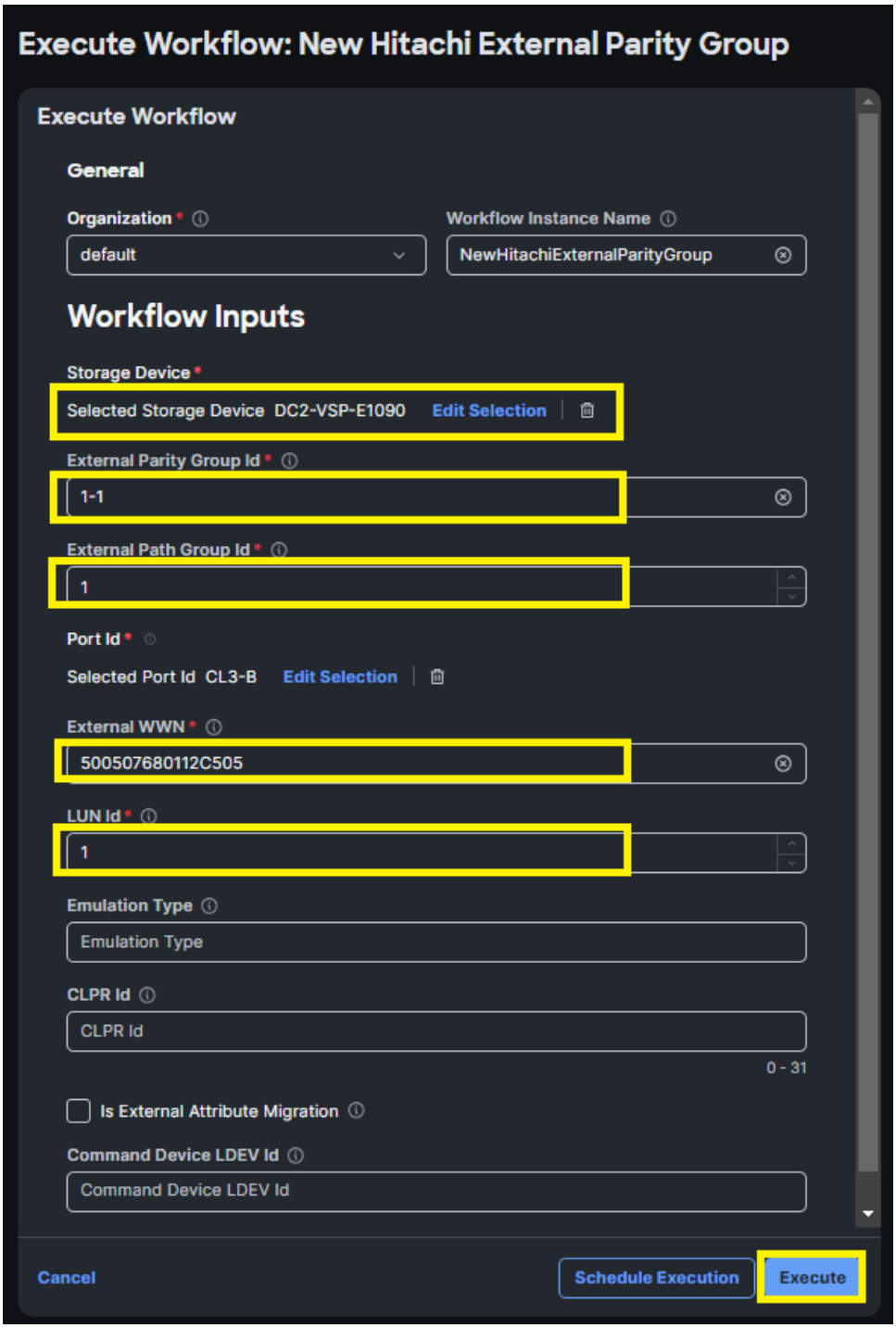
Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



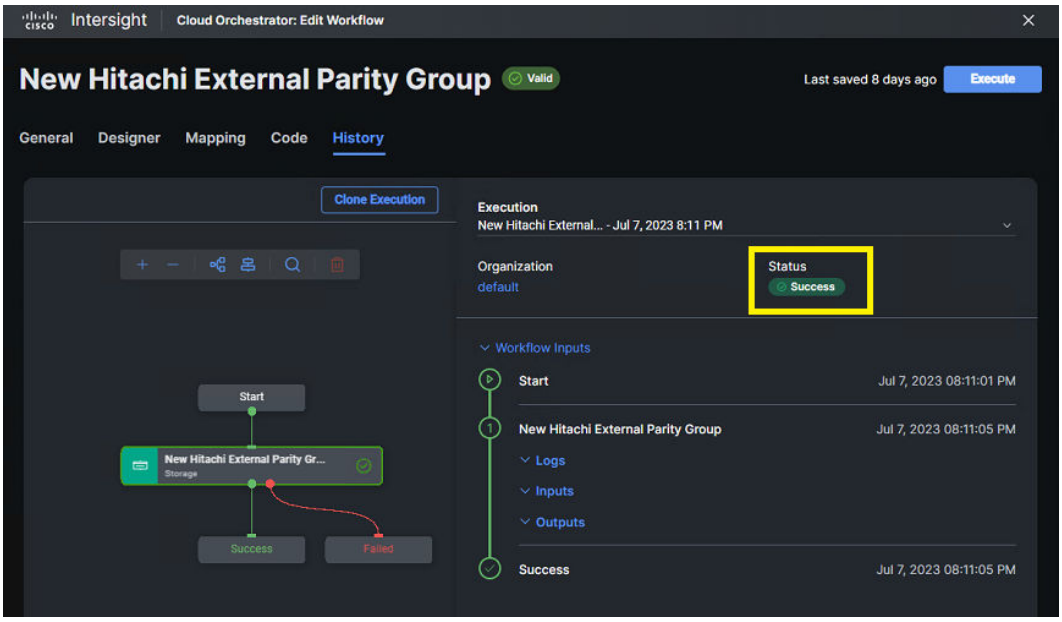
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **External Parity Group ID**, **External Path Group ID**, **Port ID**, **External WWN**, and **LUN ID**. Click **Execute**.

   Note: The LUN ID parameter is the LUN ID assigned from the external storage system to the external ports of the target VSP.



Result

If the input parameters are correct, ICO displays Success after the task is complete.



Next steps

After this task has been enabled within a workflow, select the VSP and define the External Parity Group ID local to the target system as well as the External Path Group ID.

Add Hitachi External Path

Add Hitachi External Path is used to add external data paths to a path group.

The following figure shows the Intersight task Add Hitachi External Path along with its input parameters.

Add Hitachi External Path is used to add additional paths from the target storage system to the external storage system. The inverse of this operation is the Remove Hitachi External Path task.

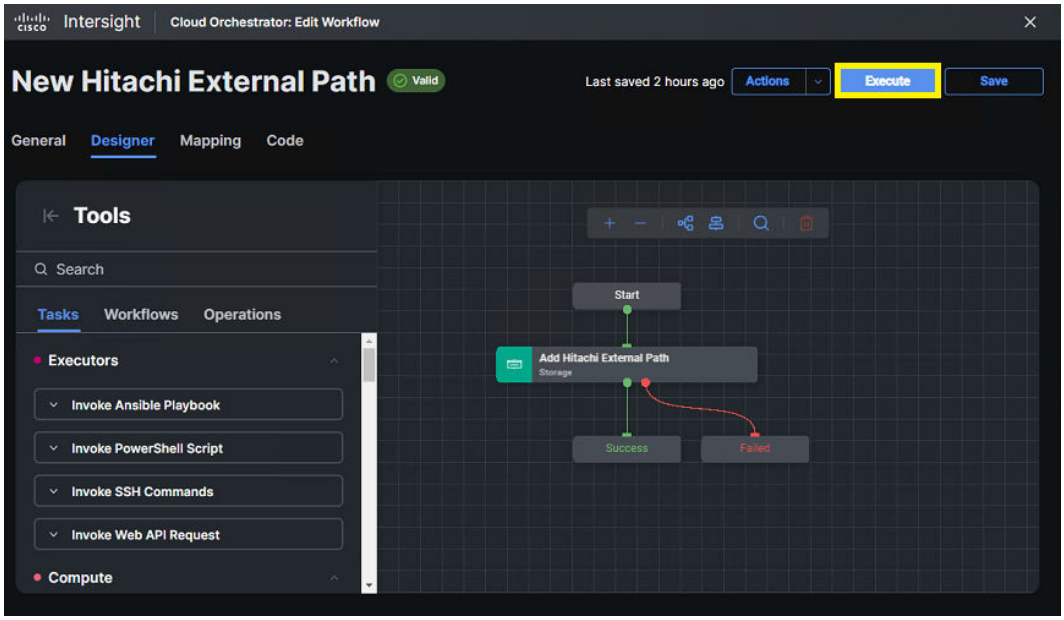
To Add a Hitachi External Path from the target VSP storage system from ICO follow these steps.

Before you begin

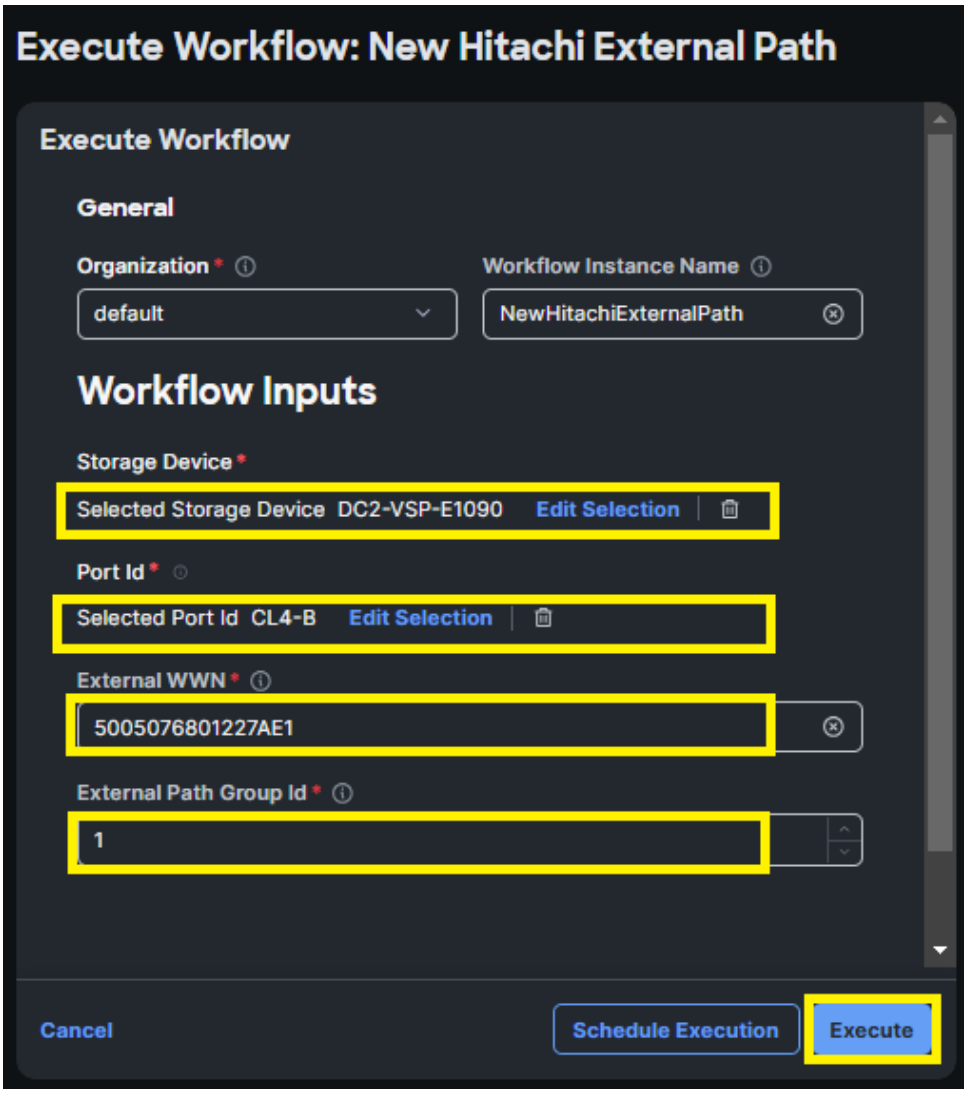
This task is used after the New Hitachi External Parity Group task has been executed and requires the addition of redundant paths to be added to a path group. Before running this task, verify that controller connections are made and required zone sets are in place if an intermediary switch is used.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

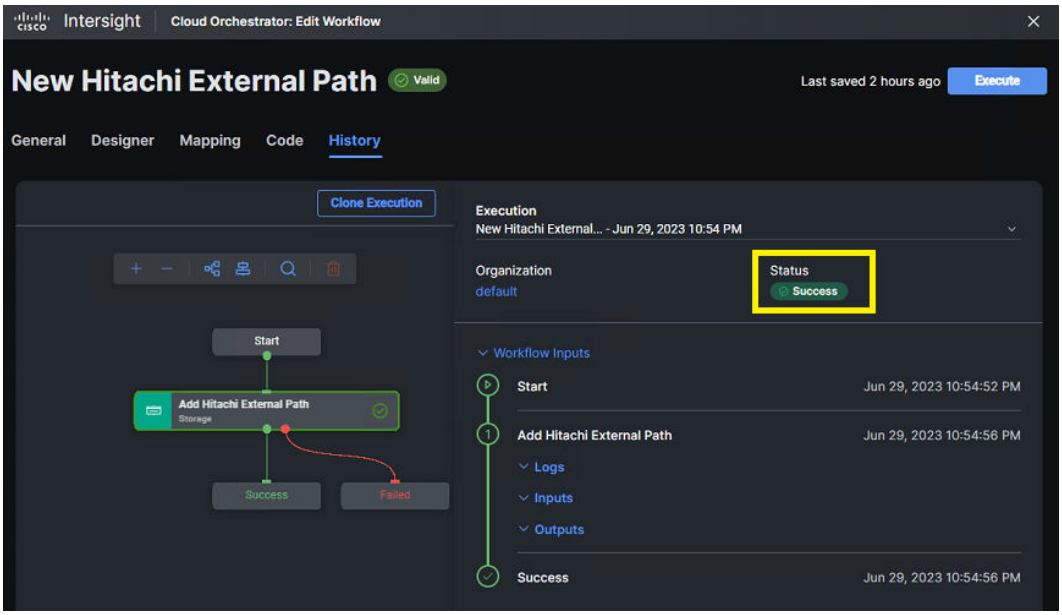


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **Port ID**, **External WWN**, and **External Path Group ID**. Click **Execute**.



Result

If the input parameters are correct, ICO displays Success after the task is complete.



Remove external storage

Disconnect Hitachi External Volume

Disconnect Hitachi External Volume is used to dismount the external volume from the target Storage Device without removing the external parity group or the external data.

The following figure shows the Intersight task Disconnect Hitachi External Volumes along with its input parameters.

The disconnect Hitachi External Volume task is used to dismount external volumes from the target storage system. When using this task, external path and path groups will not be deleted. Be aware that this task will dismount all external volumes related to an external parity group.

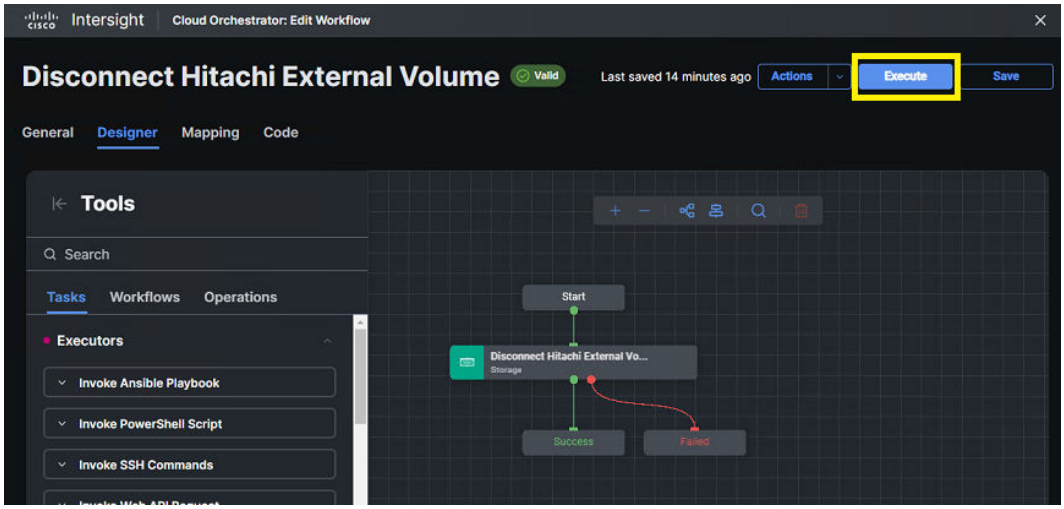
Note: When disconnecting an external volume from the VSP One Block High End or VSP One Block 20 system, the volume must then be deleted using the Remove Hitachi External Parity Group task. Otherwise, the LDEV will remain in BLOCK status. Systems that use the Storage Navigator can use the Reconnect External Volumes option to restore the LDEV from BLOCK status.

Note: Before using Disconnect Hitachi External Volume, verify that all LUN mappings have been deleted as well as any pools that have been created.

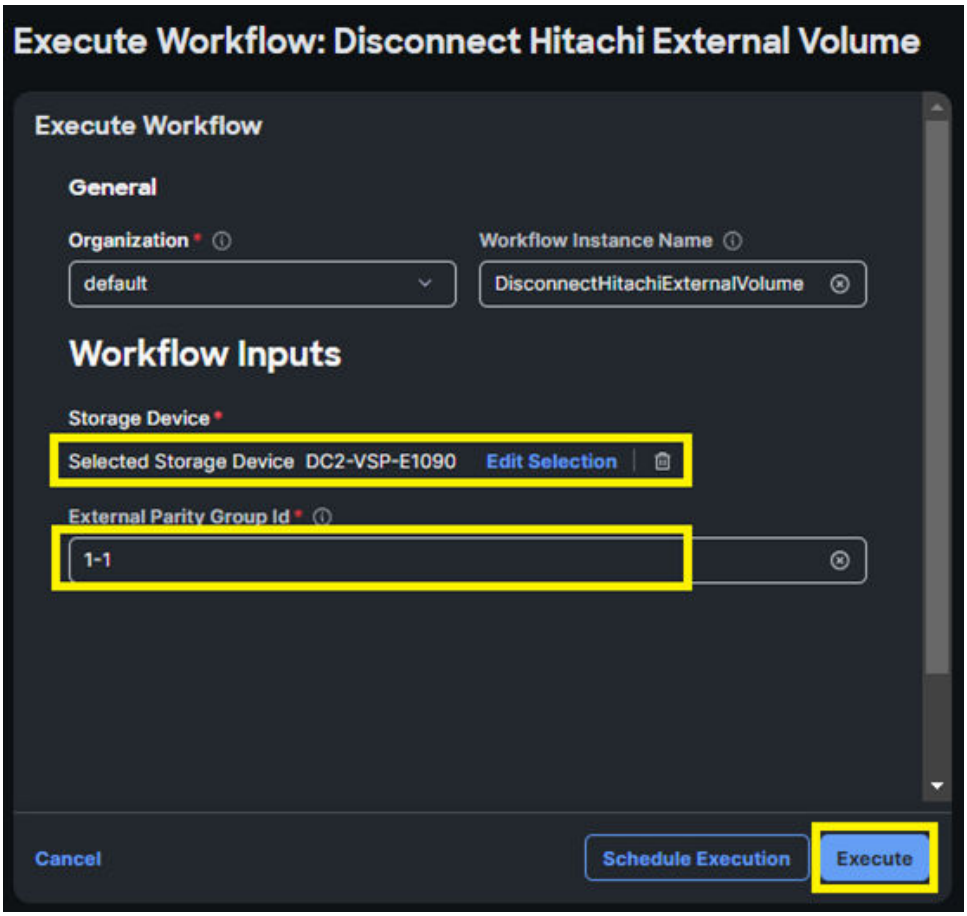
To disconnect a Hitachi external volume from the target VSP system from ICO follow these steps.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

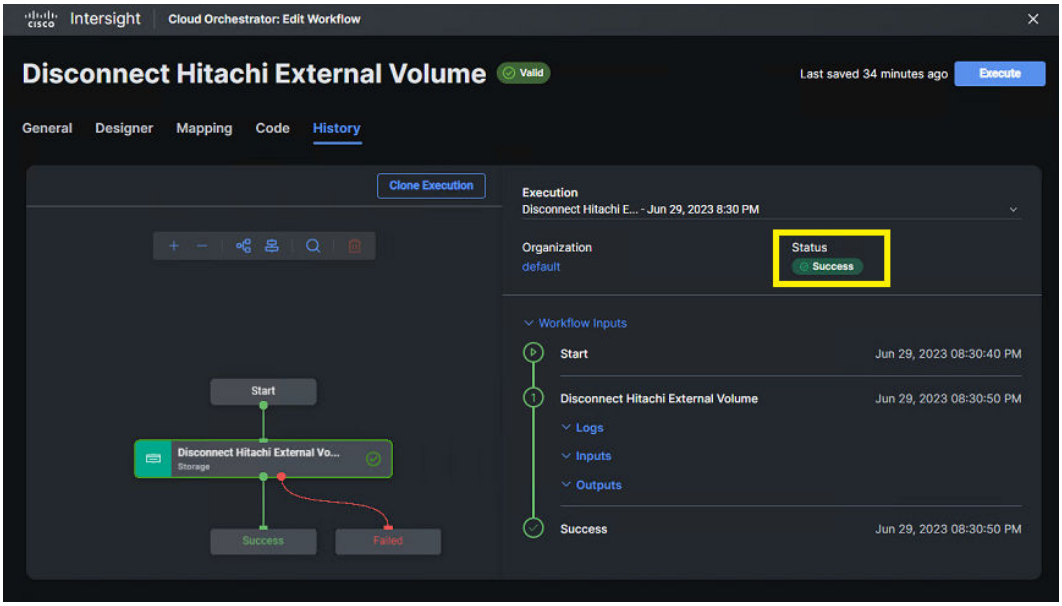


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, specify the external parity group ID, and click **Execute**.



Result

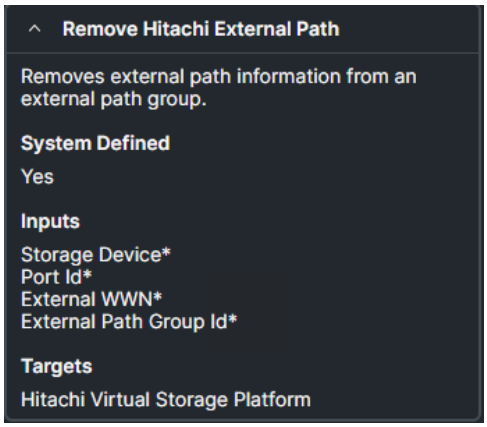
If the input parameters are correct, ICO displays Success after the task is complete.



Remove Hitachi External Path

Remove Hitachi External Path is used to remove external data paths from a path group.

The following figure shows the Intersight task Remove Hitachi External Path along with its input parameters.



The Remove Hitachi External Path task is used to remove a path from the target storage system to the external storage system. The inverse of this operation is Add Hitachi External Path operation.

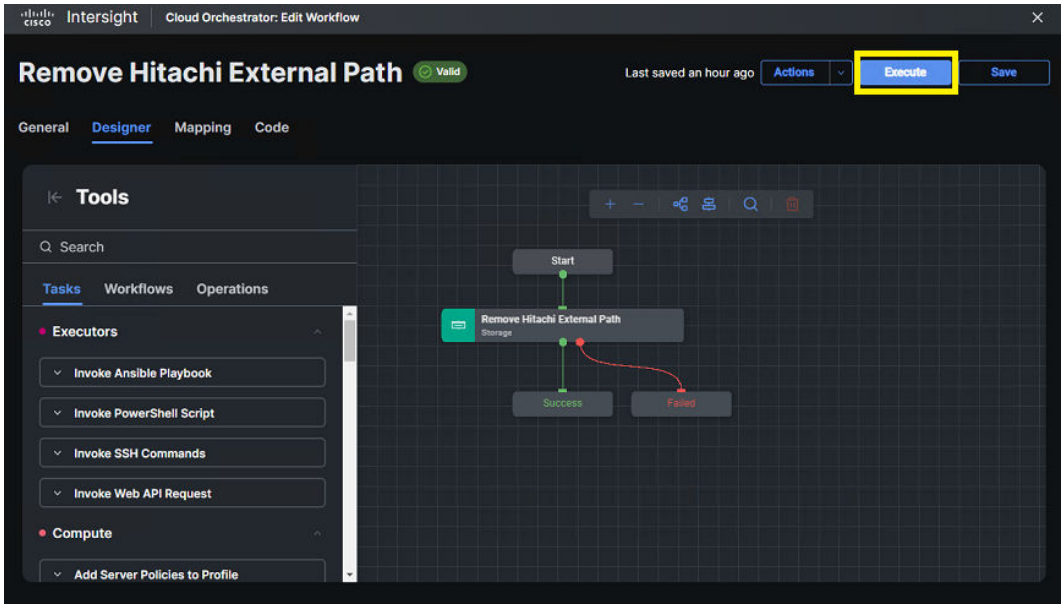
To disconnect a Hitachi External Path from the target VSP storage system using ICO follow these steps.

Before you begin

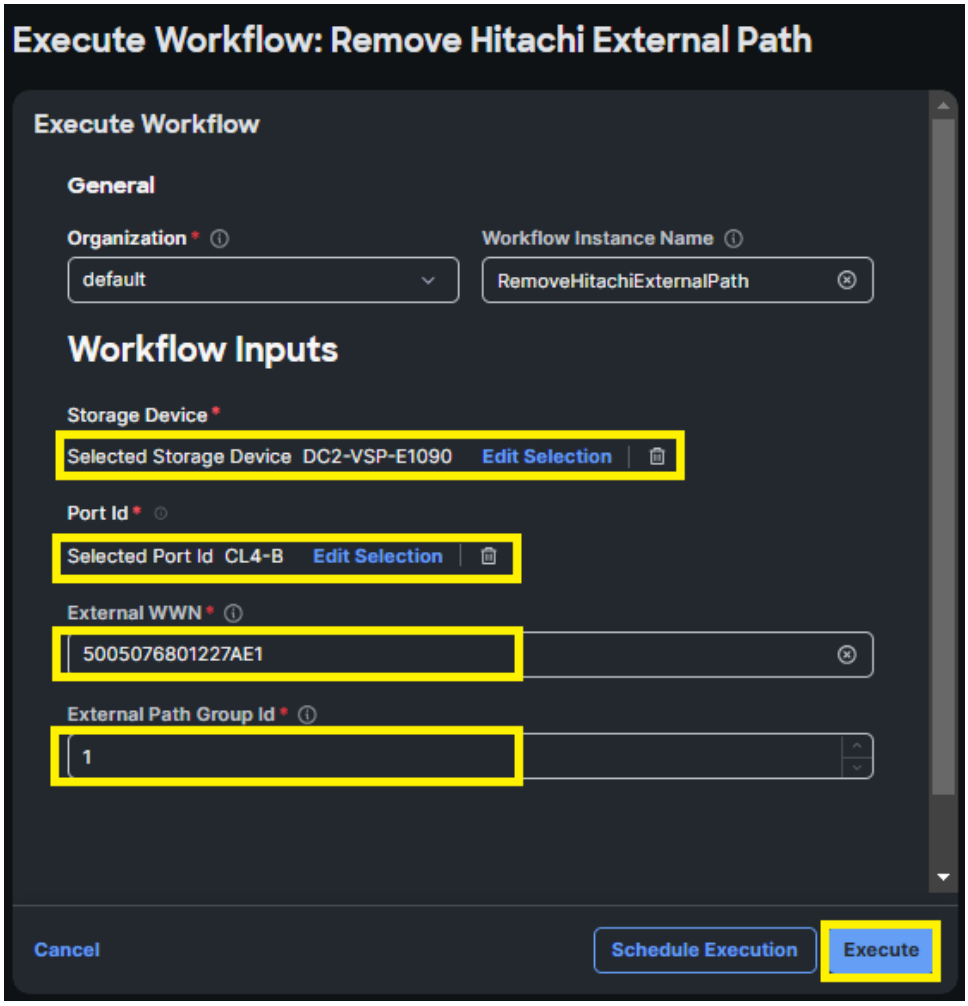
This task is used after the New Hitachi External Parity Group task has been executed.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

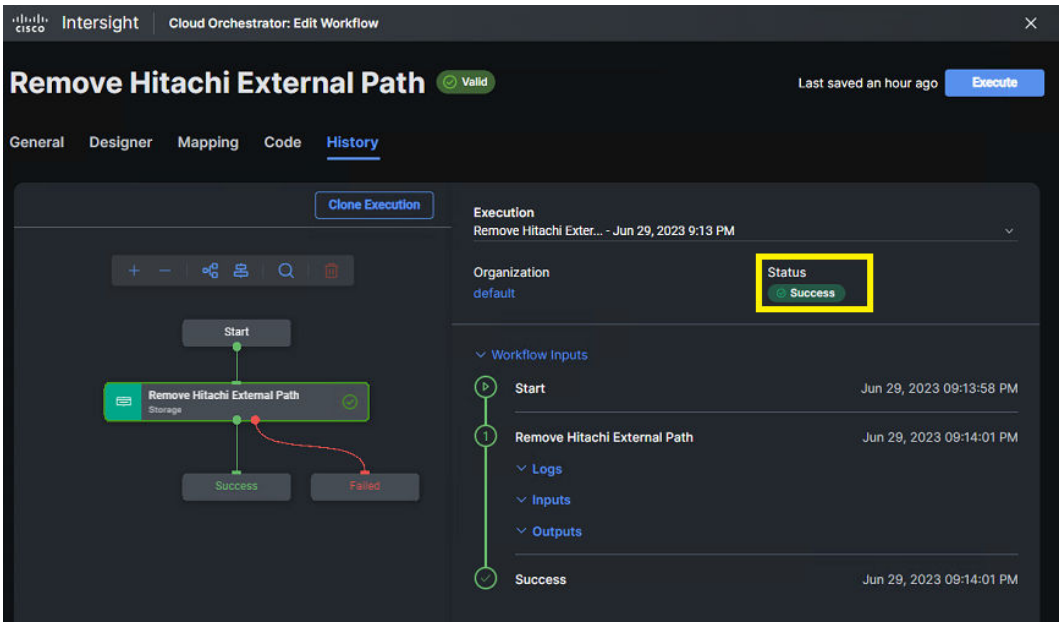


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **Port ID**, **External WWN**, and **External Path Group ID**. Click **Execute**.



Result

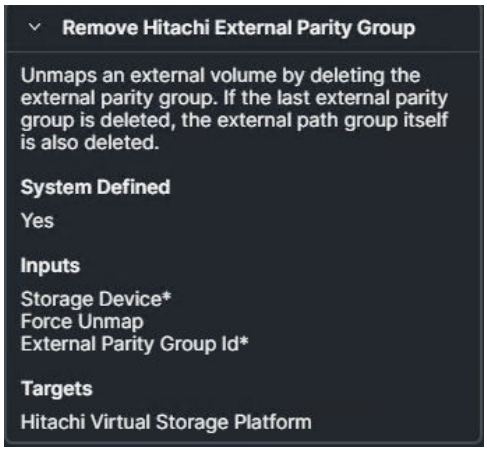
If the input parameters are correct, ICO displays Success after the task is complete.



Remove Hitachi External Parity Group

Remove Hitachi External Parity Group unvirtualizes all cross-system data paths and unmounts all external virtualized LDEVs that are mapped to the target VSP. This function is used to clean up storage environments after migration has been completed, or after the external system is no longer needed for external capacity.

The following figure shows the Intersight Remove Hitachi External Parity Group task along with its input parameters.



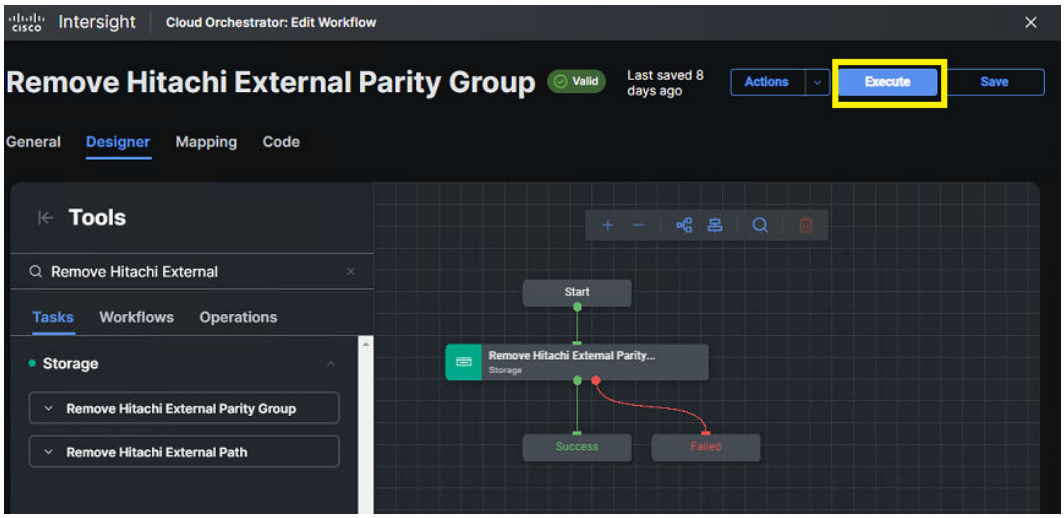
Note: This task will unmap all volumes mapped to the external parity group.

To remove Hitachi External Parity Group from the target VSP storage system from ICO follow these steps.

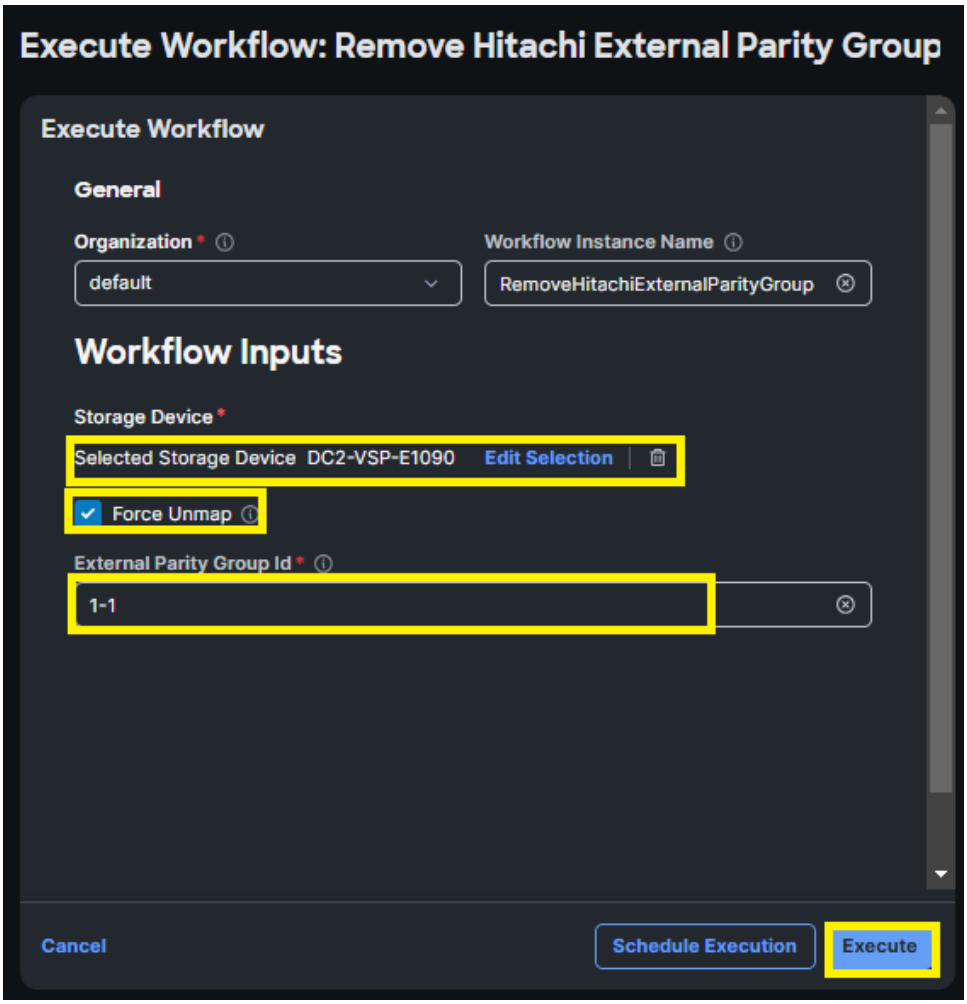
Before using Remove Hitachi External Volume, verify that all LUN mappings have been deleted as well as any pools that have been created.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

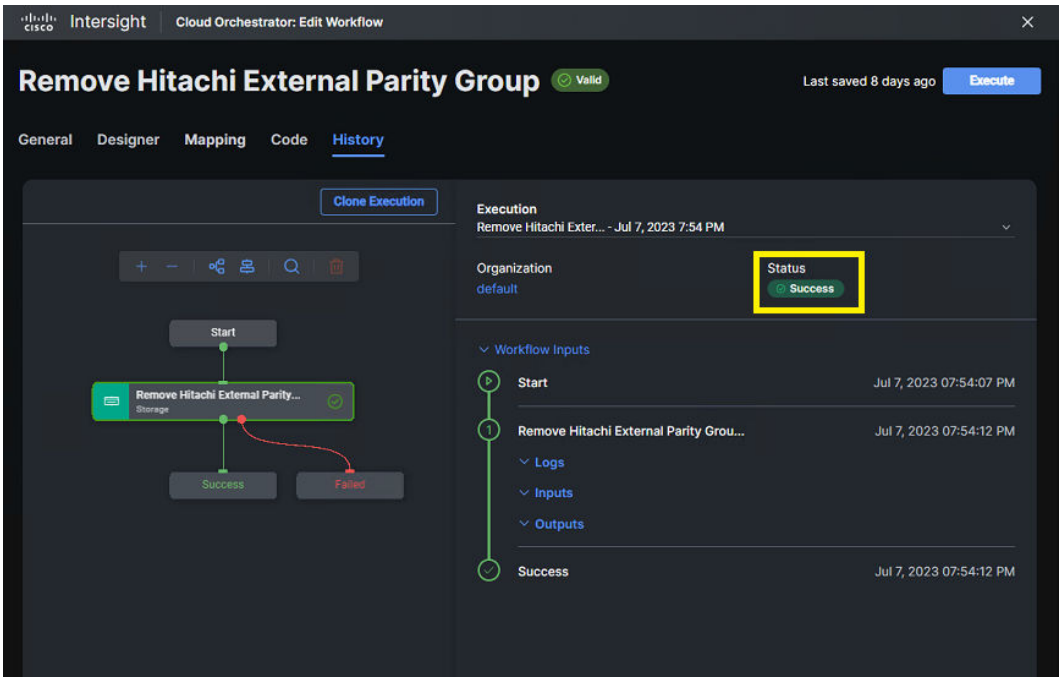


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, select **Force Unmap** if you have not used the Disconnect Hitachi External Volume task before de-staging existing volumes, specify the external parity group ID and click **Execute**.



Result

If the input parameters are correct, ICO displays Success after the task is complete.



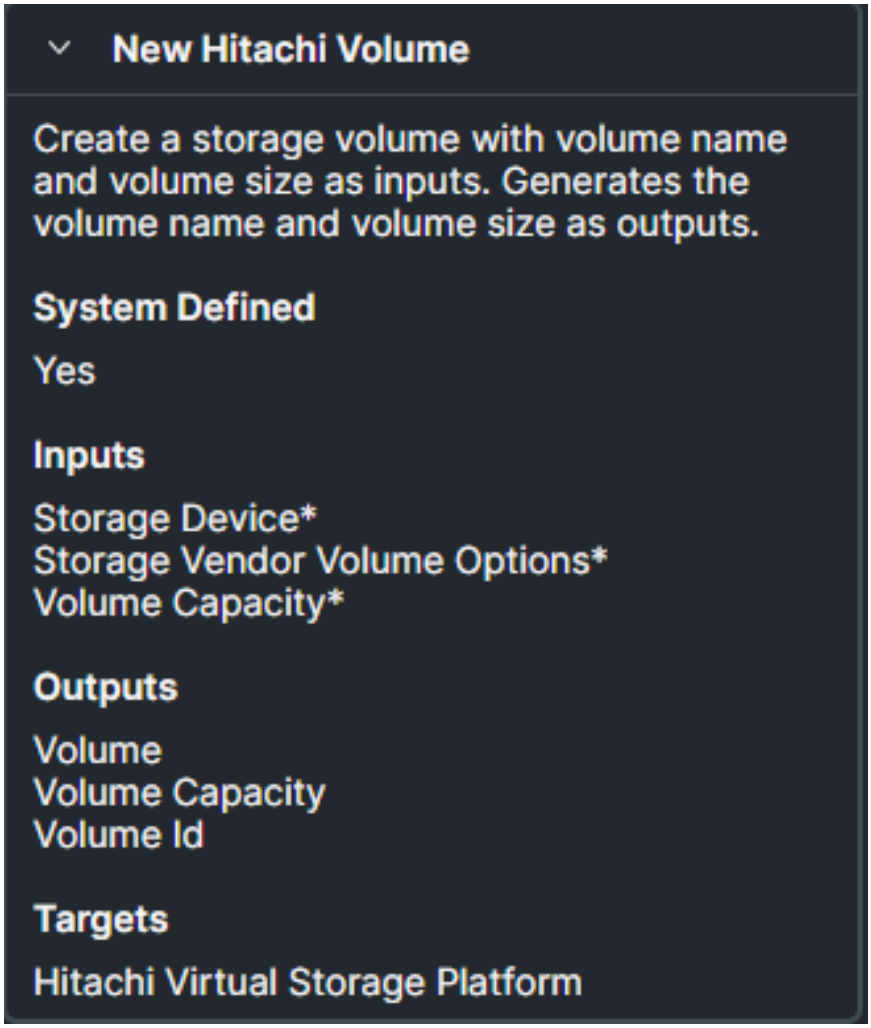
Provisioning

New Hitachi Volume

The New Hitachi Volume function enables LDEV creation from internal or external parity groups. After the external parity group from the external storage system has been virtualized from the New Hitachi External Parity Group workflow in ICO, use New Hitachi Volume to define an LDEV ID. To pass-through LDEVs that have application data on the external parity, claim the entire capacity of the volume.

If the external storage does not have any application data and the system will be providing only capacity, allocate a portion of the external parity by defining a portion of the total external parity capacity. In this case the LDEV will be formatted. For data migration using the Move Hitachi Volume task in ICO, the New Hitachi Volume task is also used to create an S-VOL from an available HDP or HDT pool for the SI pair used to migrate data.

The following figure shows the Intersight task New HitachiVolume along with its input parameters.



Additionally, when using external storage as capacity, after creating a pool with external storage, the New Hitachi Volume task can be reused to create additional virtual volumes (VVOLs) and use data reduction modes such as compression and deduplication.

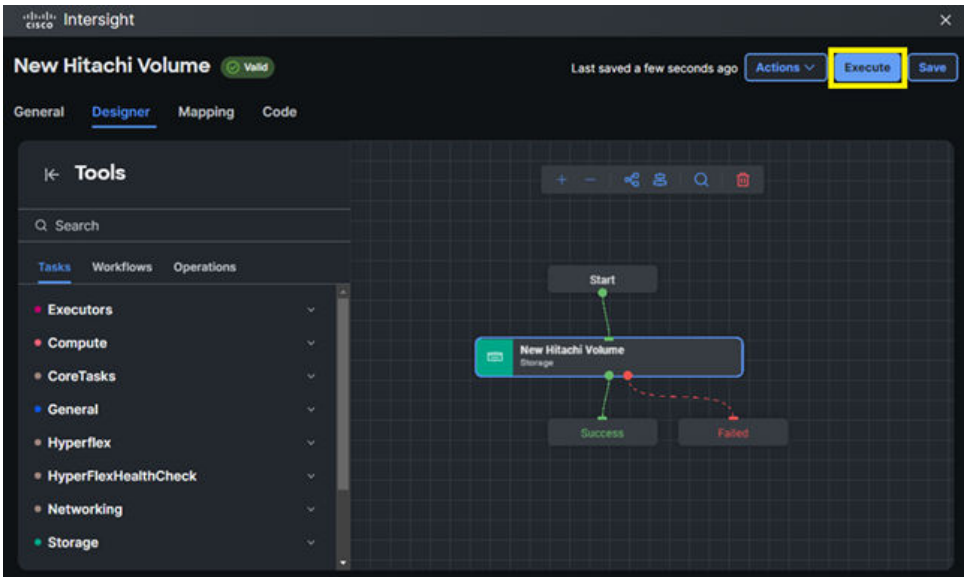
Note: For pass-through data, the entire parity capacity must be claimed. If it is partially claimed, data will be formatted.

Note: Data Direct Mapping (DDM) is not supported from the Configuration Manager Rest API. The capacity limit for volumes is 4 TB.

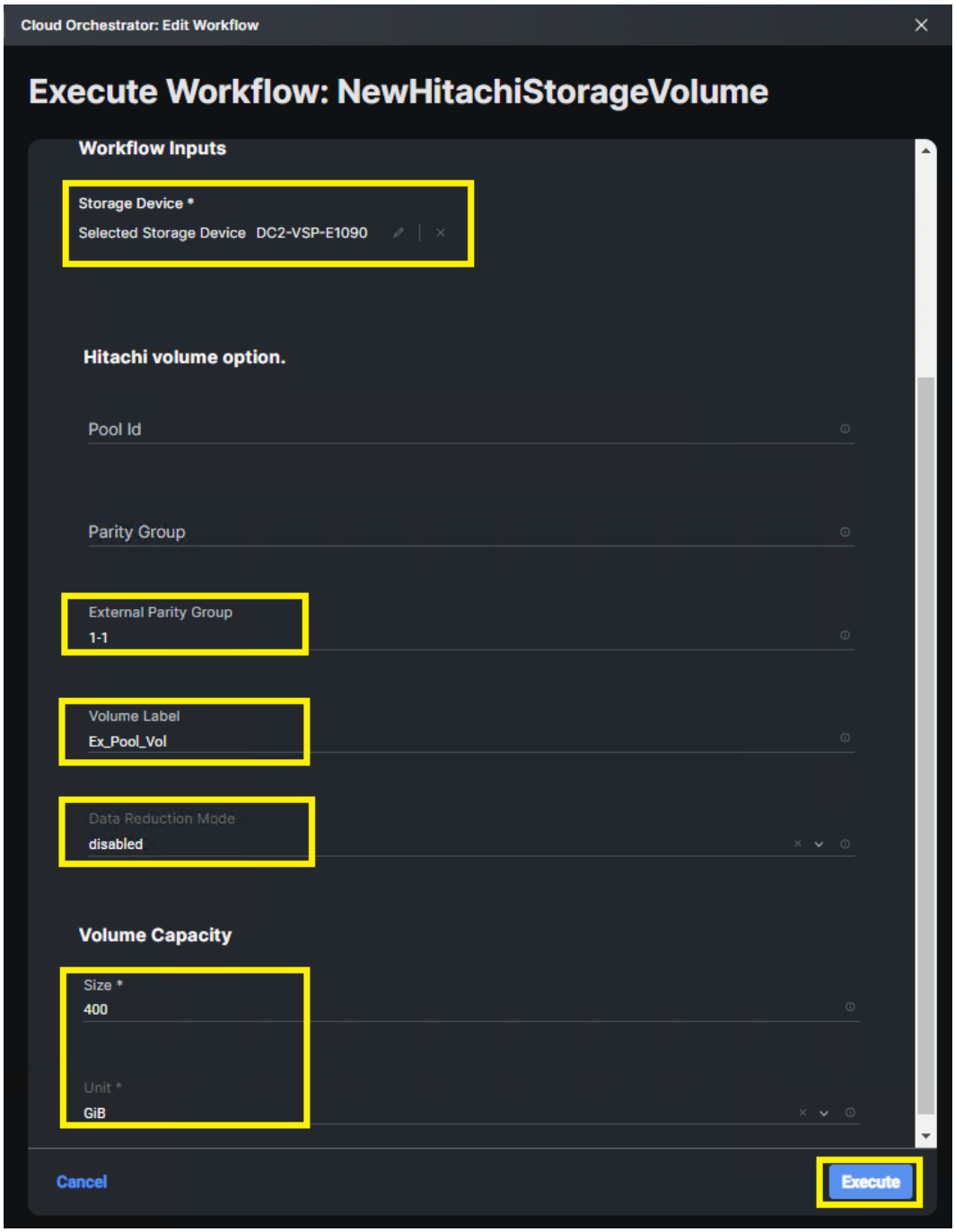
To create a New Hitachi Volume from ICO follow these steps.

Procedure

1. Confirm that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

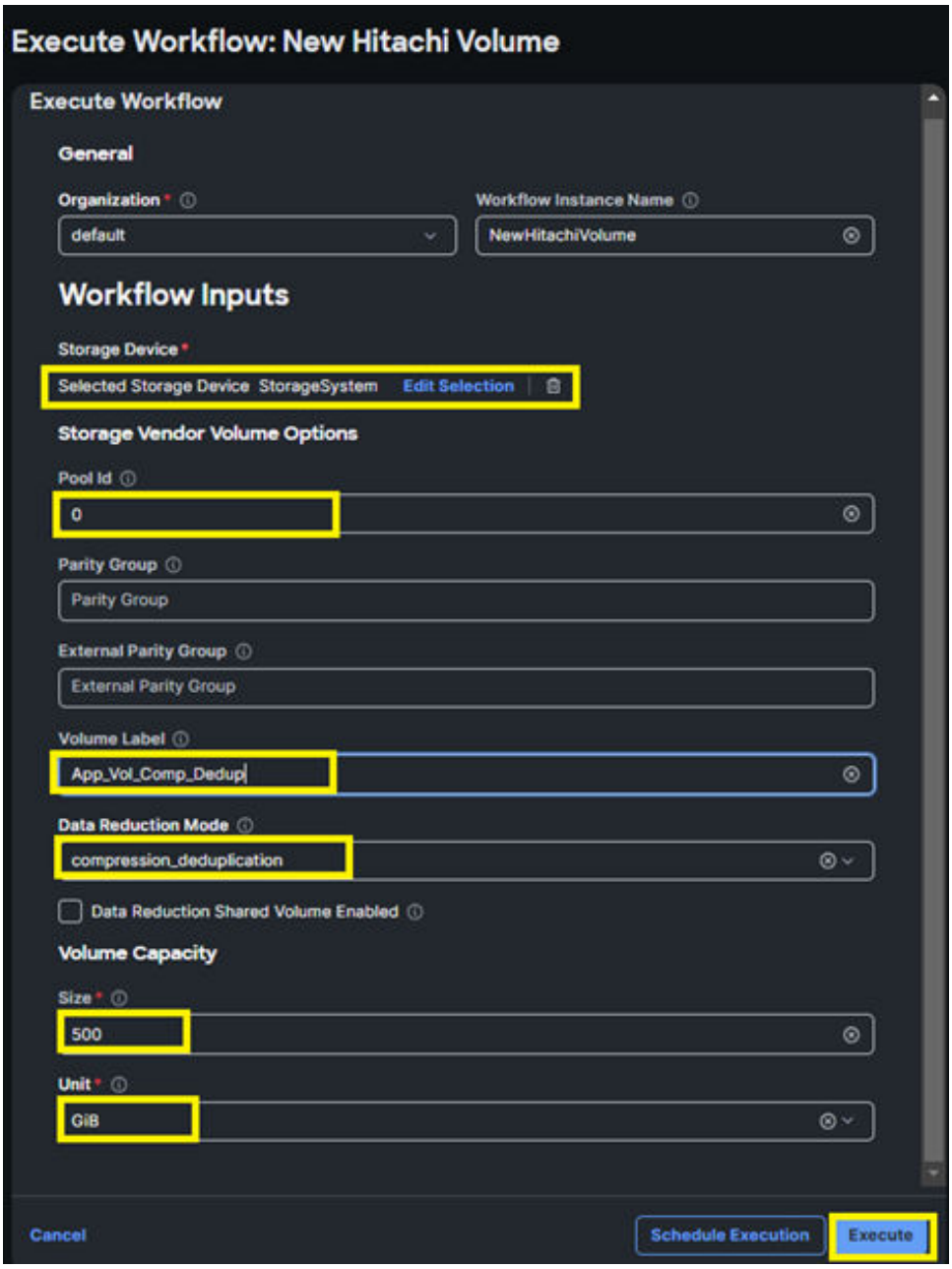


4. From the **Execute Workflow** wizard, select a target VSP **Storage Device**, specify the **External Parity Group ID**, define a **Volume Label**, set the **Data Reduction** mode to **disabled**, and specify the volume capacity size and unit. Click **Execute**.



Note: For pass-through volumes, verify that the entire parity capacity is being claimed. After it is claimed, a LUN ID can be assigned, and volumes will be mounted to the host. When using external parity as capacity, after a New Hitachi Volume within ICO is executed, you can proceed to create a Pool.

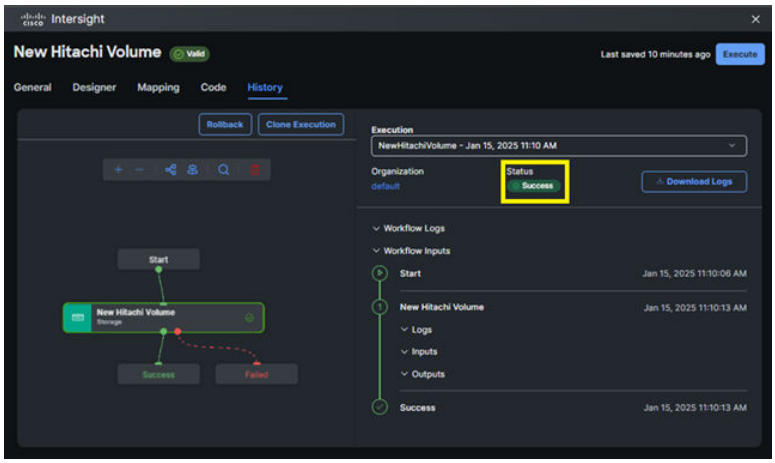
5. Alternatively, when allocating a VVOL using a pool created from external storage, define the **Pool ID**, **Volume Label**, **Data Reduction** mode, and **Volume Capacity**.



Note: If data reduction mode has been enabled on an external storage volume or migration target volume, data migration is not supported. For migration a data reduction mode capability such as compression and deduplication should be turned off from Storage Navigator before migration. After migration is complete re-enable data reduction modes from Storage Navigator. If data migration is needed, verify that additional RAW capacity is available on the source VSP after data saving attributes have been disabled.

Result

If input parameters are correct, ICO displays Success after the task is complete.

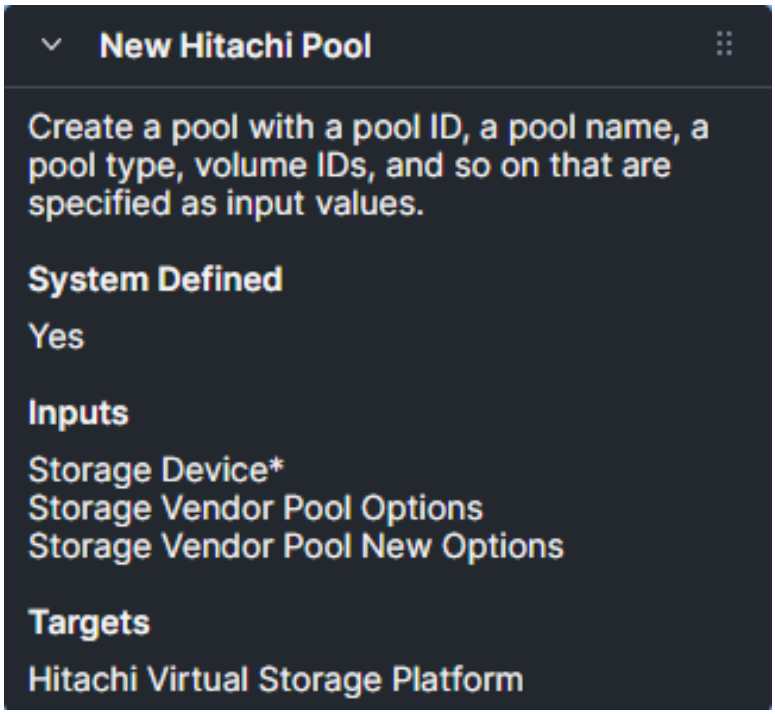


New Hitachi Pool

The New Hitachi Pool Capability is used to create either Hitachi Dynamic Provisioning (HDP), Dynamic Tiering (HDT), or Thin Image (TI) pools from ICO. From UVM, VSP can use external storage capacity to create pools on the target VSP.

Note: VSP One Block High End and VSP One Block 20 systems do not support Dynamic Drive Protection (DDP). However, the New Hitachi Pool task can be leveraged using external parity groups after BASIC volumes have been established.

The following figure shows the Intersight New Hitachi Pool task along with its input parameters.



Creating HDT or HDP pools enables thin provisioning of resources as well as data reduction mode and snapshot capabilities.

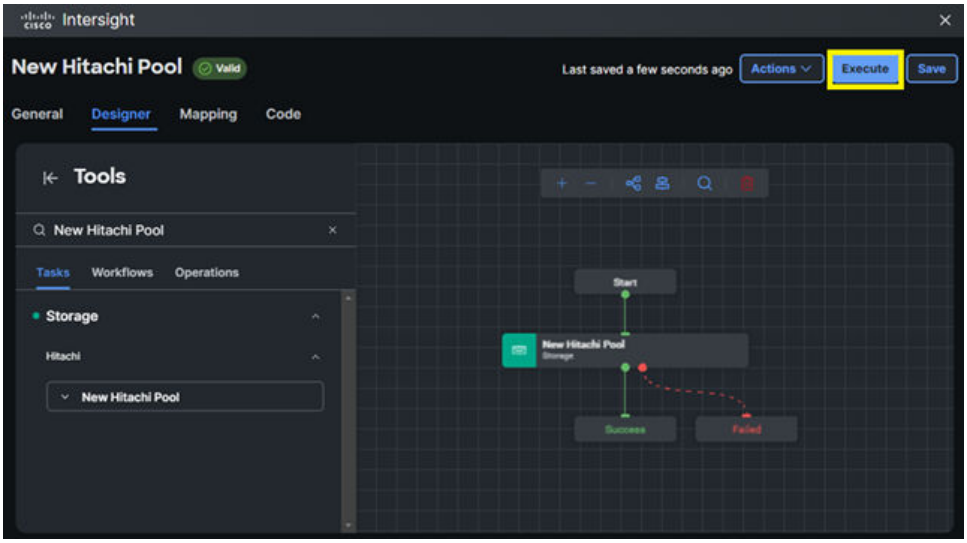
To create a storage pool within ICO follow these steps.

Before you begin

Create storage pools with external storage after New Hitachi External Parity Group has been executed and a basic volume has been created from the New Storage Volume task.

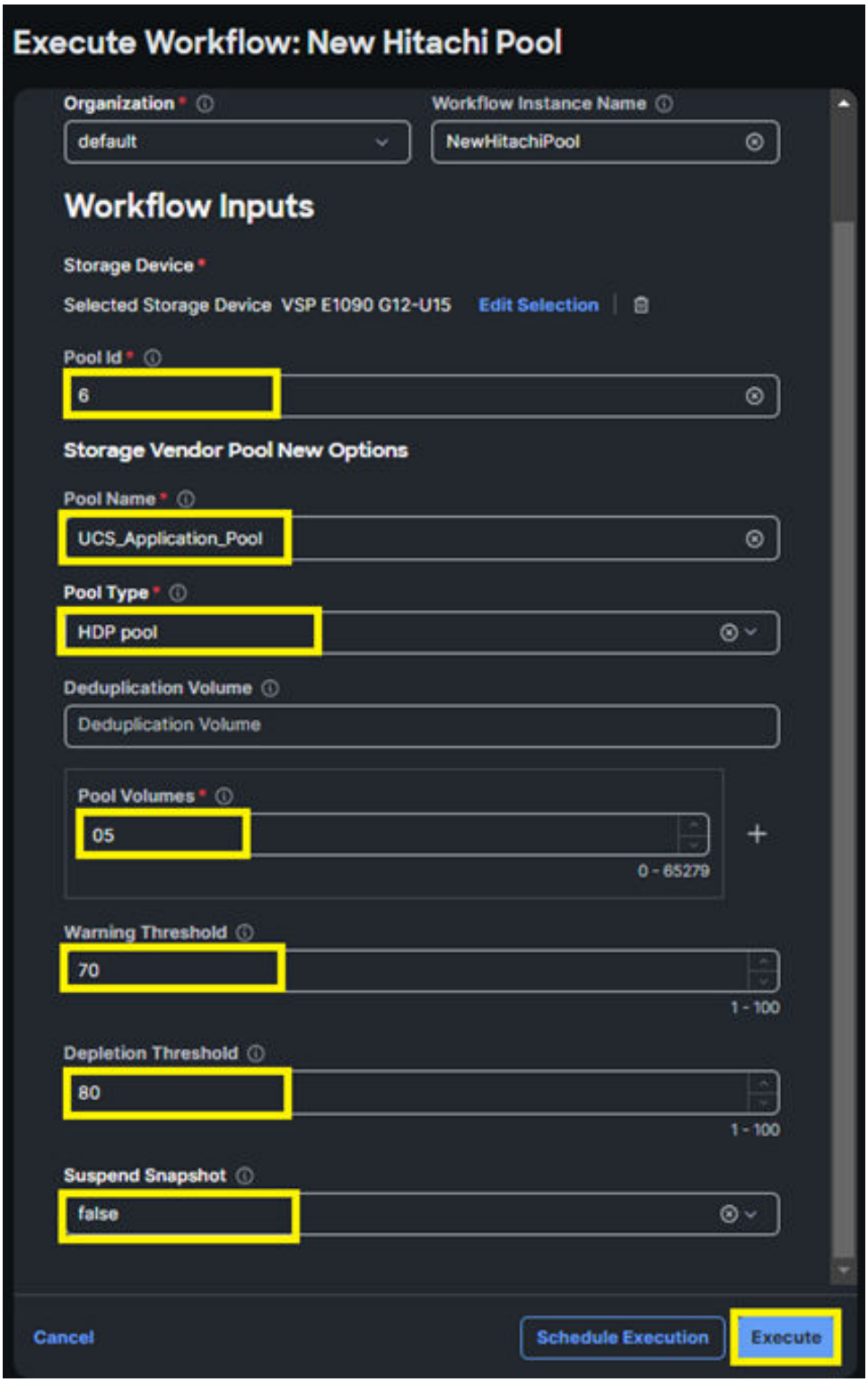
Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **Pool Name**, **Pool Type (HDP/HDT/HTI)**, **Pool Volume**, **Warning and Depletion Thresholds**, and **Suspend Snapshot** settings. Click **Execute**.

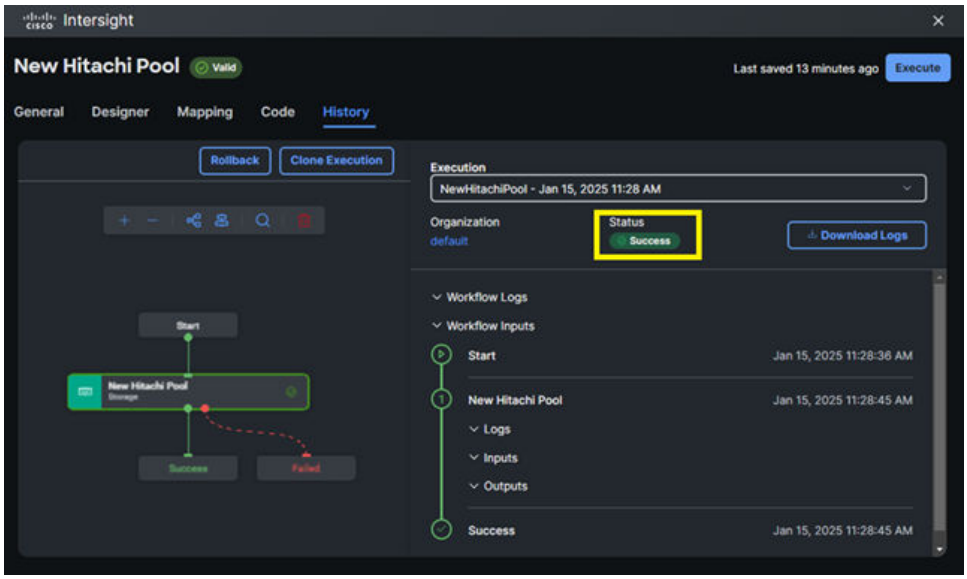
> **Note:** Suspend Snapshot Setting – Specify whether to suspend Thin Image pairs when the depletion threshold is exceeded. You can specify this attribute if the pool to be created is an HDP pool for storing snapshot data. By setting this value to true, Thin Image pairs will be suspended when the depletion threshold is exceeded. By setting value to false, Thin Image pairs will not be suspended when the depletion threshold is exceeded. You cannot specify this parameter for Thin Image pools.



Note: When creating HDP or HDT pools, define multiple Pool Volumes for additional capacity by selecting the **+** icon.

Result

If input parameters are correct, ICO will display Success after the task is complete.



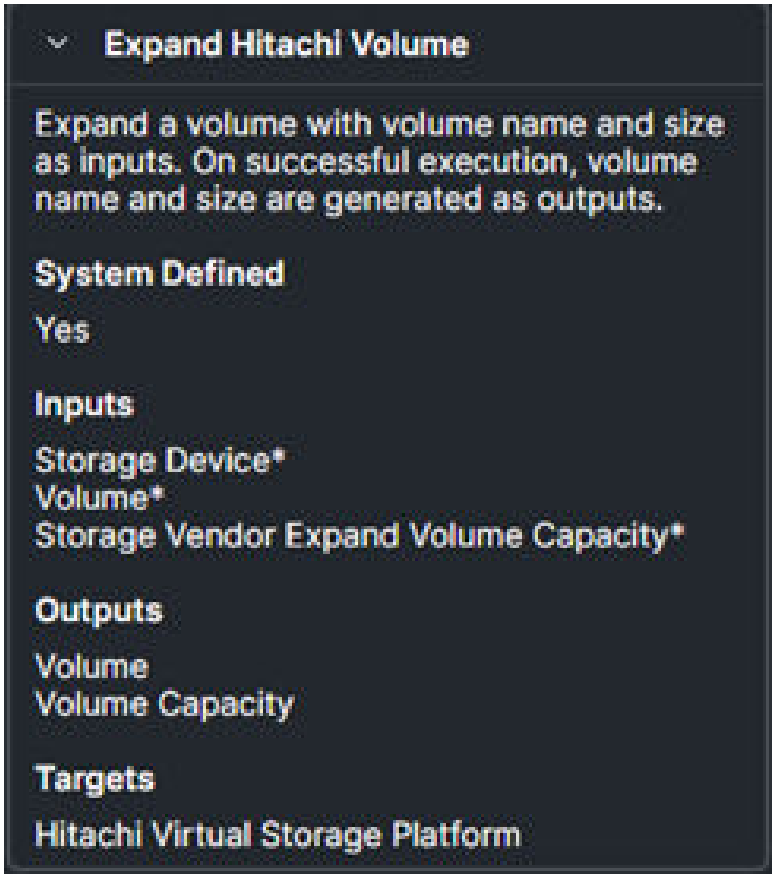
Next steps

After pools have been created, use typical thin provisioning or dynamic tiering operations as well as controller-based compression and deduplication for volumes carved within the pool using the New Hitachi Volume task.

Expand Hitachi Volume

Expand Hitachi Volume within ICO is used to define additional capacity for LDEVs after they are carved from an HDP or HDT pool.

The following figure shows the Intersight task, Expand Storage Volume along with its input parameters.

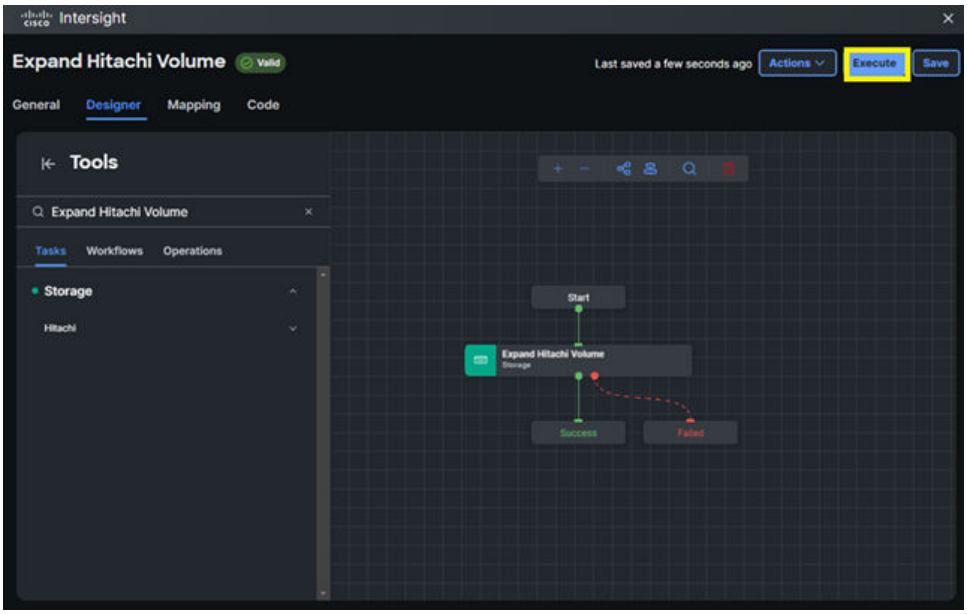


Note: Expand Storage Volume will not work with parity groups or pass-through volumes. LDEVs can only be expanded as part of an HDP or HDT pool. If using pass-through volumes with production data, use Move Hitachi Volume to migrate data to internal parity groups using HDP or HDT pools, and then expand the volume.

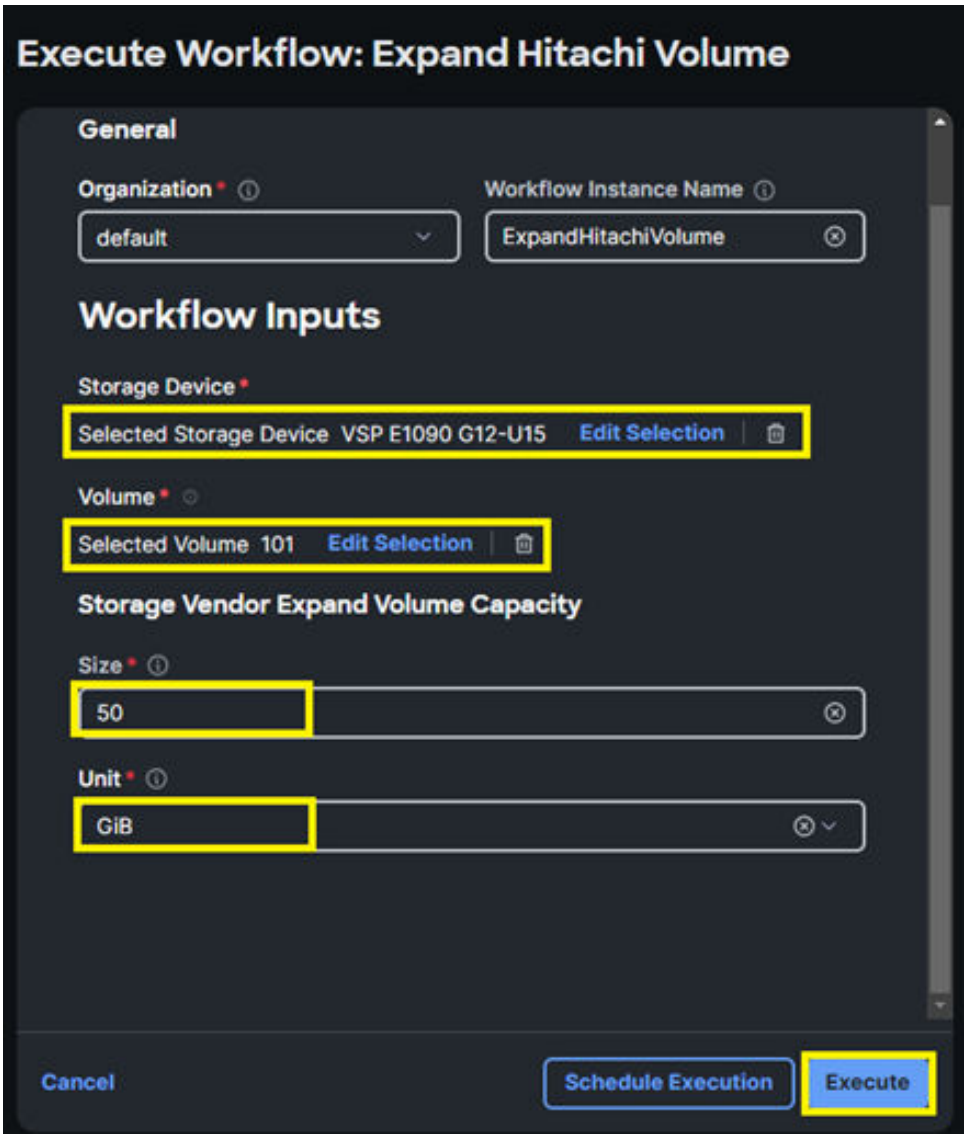
Note: Expand Storage Volume does not work on parity, as well as volumes carved from parity.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

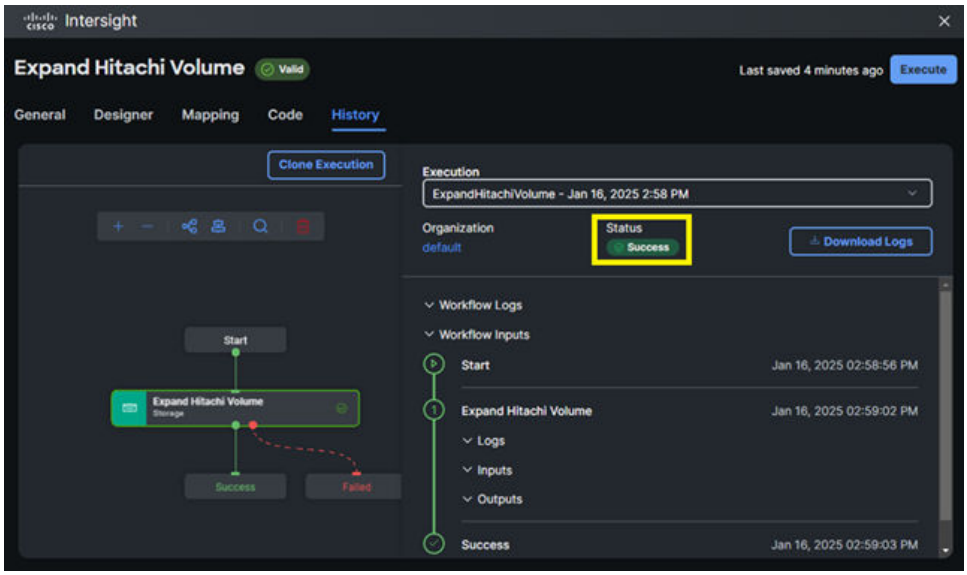


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **LDEV**, **Size**, and **Unit**. Click **Execute**.



Result

If the input parameters are correct, ICO displays Success after the task is complete.

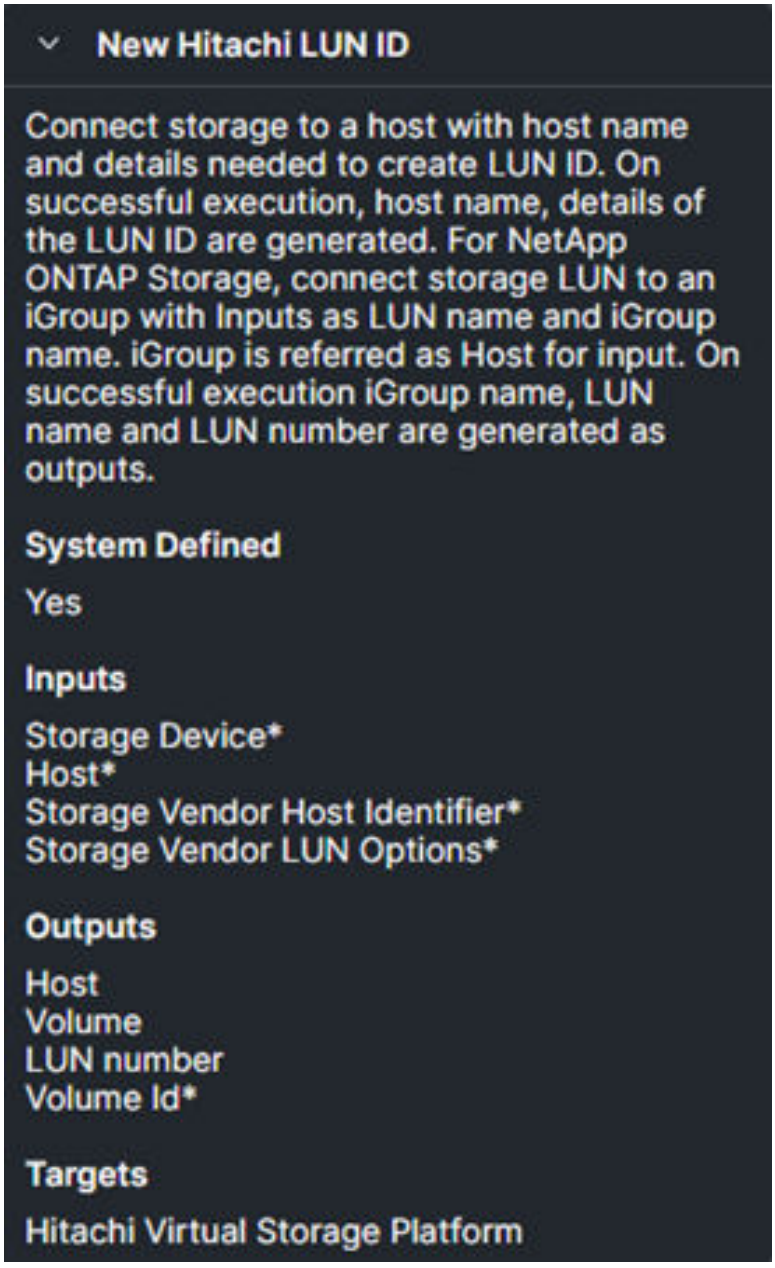


New Hitachi LUN ID (LUN paths)

New Hitachi LUN ID is used to map an LDEV to the host from host group selection as well as to define the LUN ID mapped to the host. This function is used when external storage has been virtualized and needs to be mapped to the host as a pass-through volume. It is also used after an HDP or HDT pool has been created with external parity and a vVOL has been created that requires mapping, as well as when the S-VOL for SI pair has been created that also needs to be mapped to the host for volume migration.

Note: If the task of allocating pass-through volumes to host groups created via the VSP One Block High End or VSP One Block 20 Native UI fails, users can delete the existing host groups and recreate them using the ICO workflow to successfully add LUN paths.

The following figure shows the Intersight task New Storage LUN ID along with its input parameters.



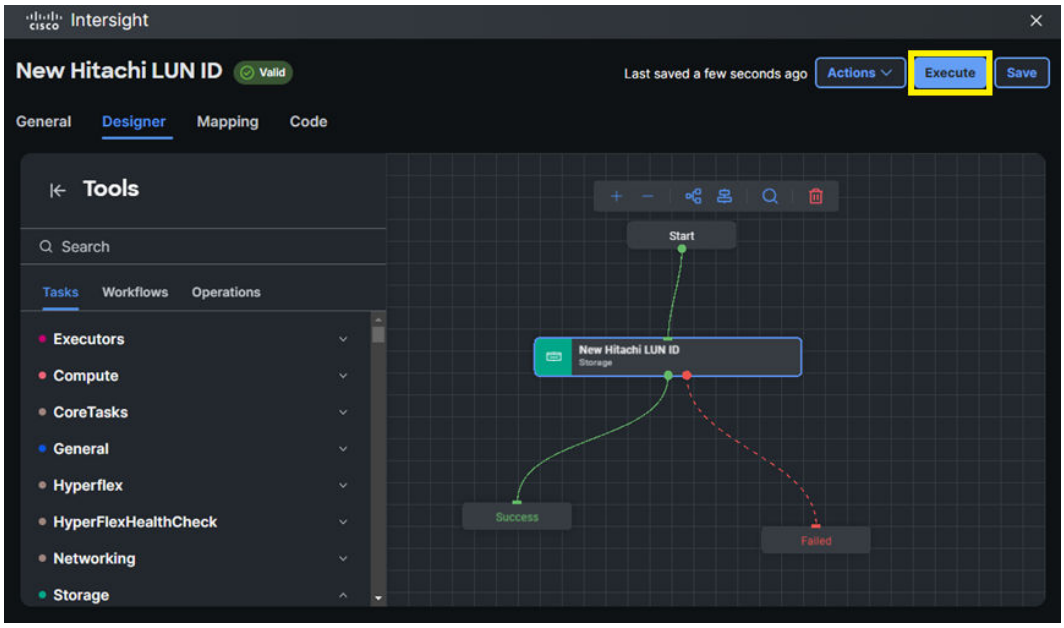
Before you begin

Before completing this operation, verify that zoning is in place and that host groups have been created.

To add LUN mappings from ICO, follow these steps.

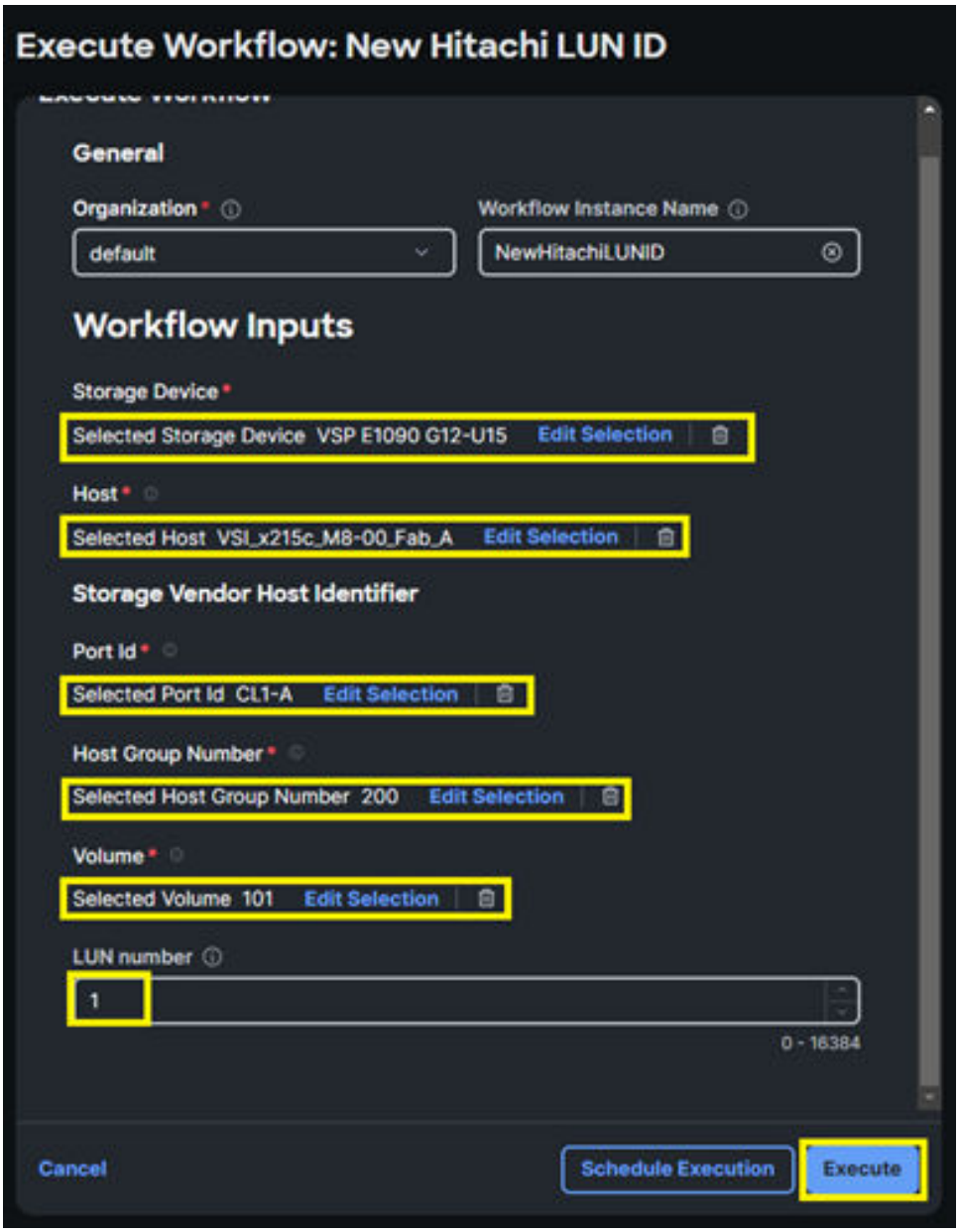
Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



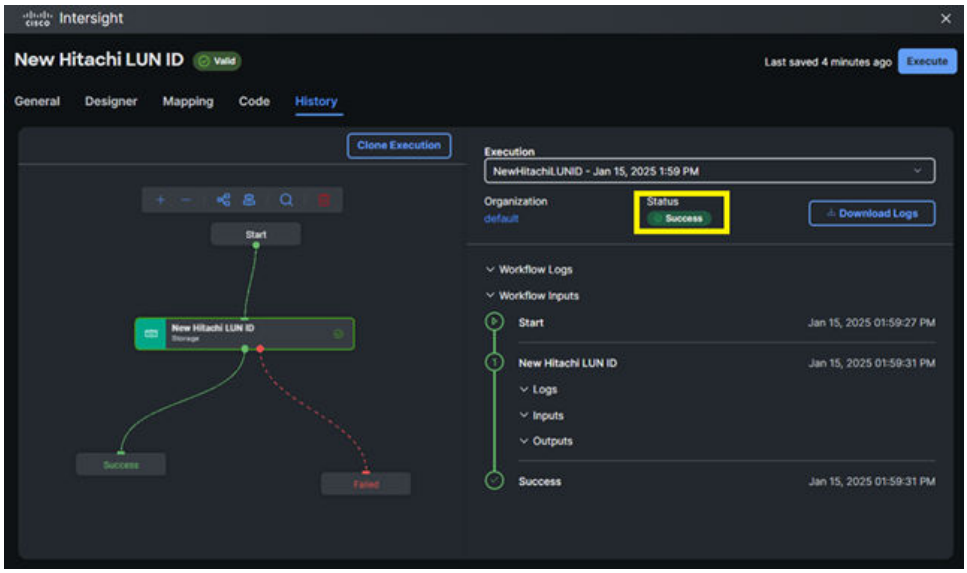
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **Host** (host group name), **Port Id**, **Host Group Number**, **LDEV**, and **LUN number**. Click **Execute**.

   Note: LDEV IDs are in decimal format.



Result

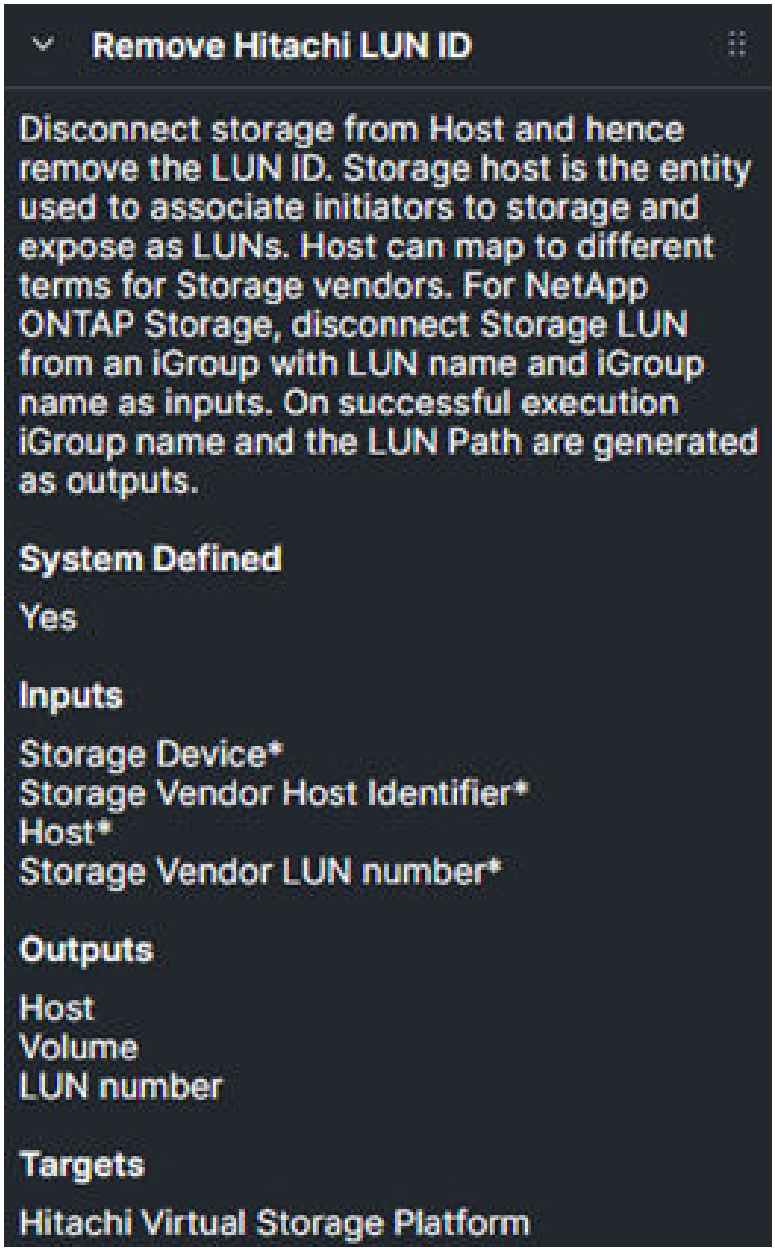
If the input parameters are correct, ICO displays Success after the task is complete.



Remove Hitachi LUN ID (LUN paths)

Remove Hitachi LUN ID is used to remove a LDEV that has been allocated to a VSP host group with an associated LUN ID to the respective operating system.

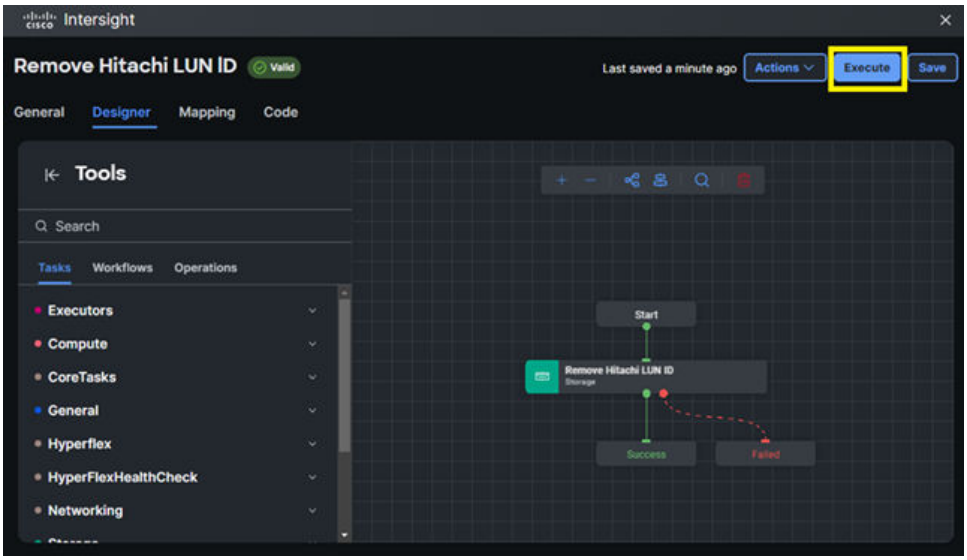
The following figure shows the Intersight task Remove Hitachi LUN ID along with its input parameters.



To remove LUN mappings using ICO, follow these steps.

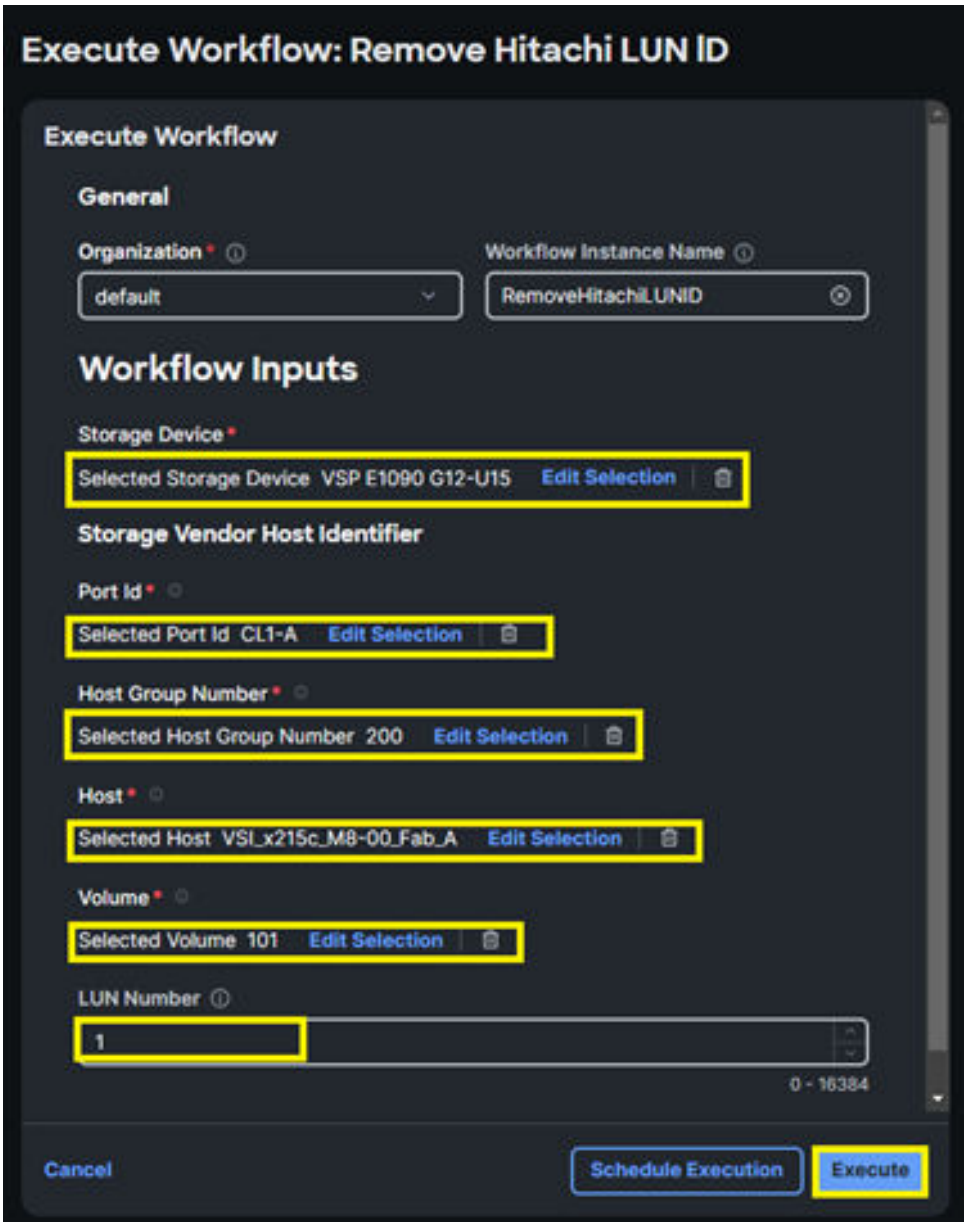
Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



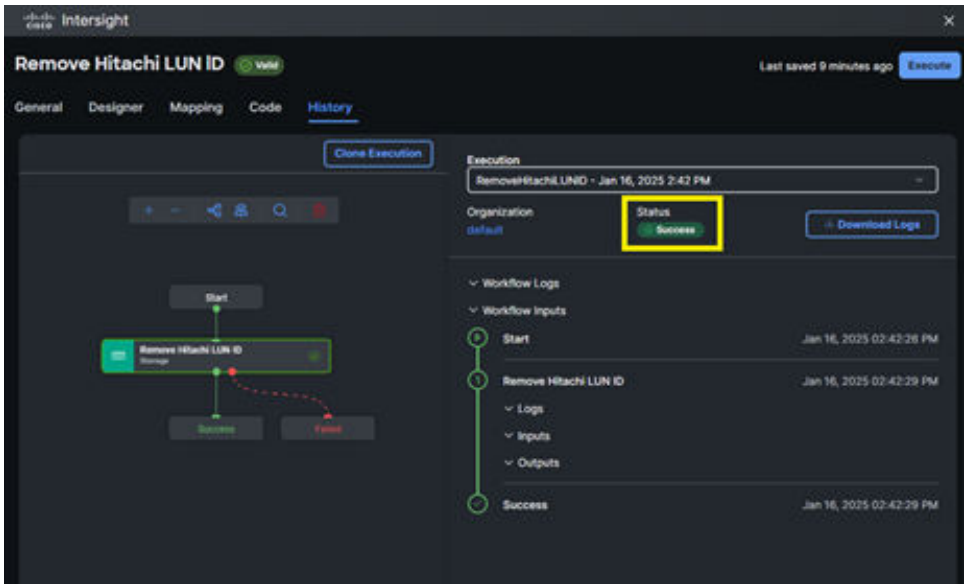
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, and specify the **Host** (host group name), **Port ID**, **Host Group Number**, **LDEV** and **LUN** number. Click **Execute**.

   Note: LDEV IDs are in decimal format.



Result

If the input parameters are correct, ICO displays Success after the task is complete.

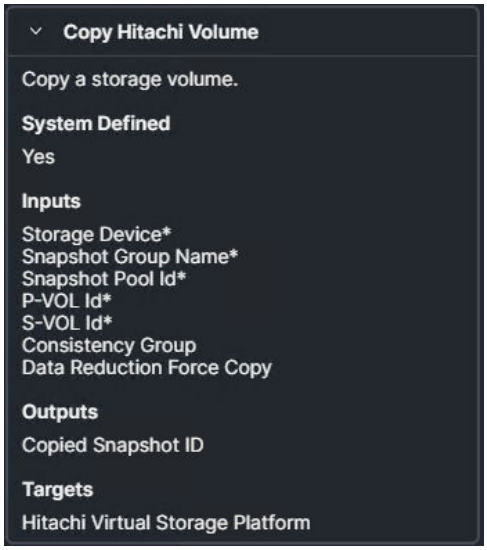


Clones

Copy Hitachi Volume

Copy Hitachi Volume is used to use in-system replication in the form of snap clones. Snap clones enable 1 to 1 identical copies of data within the target VSP storage system, unlike TI snapshots which are point in time differential copies that share a common P-VOL.

The following figure shows the Intersight task CopyHitachi Volume and its input parameters.



To Use Copy Hitachi Volume follow these steps.

Note: S-VOLs do not require host mappings to create a snap clone.

Note: Volumes that are already used as S-VOLs cannot be reused for new snap clone operations.

Note: Volumes that are part of migration plans cannot be used for S-VOLs. Use the ICO function Remove Hitachi Pair for Volume Migration to remove volumes from migration plans.

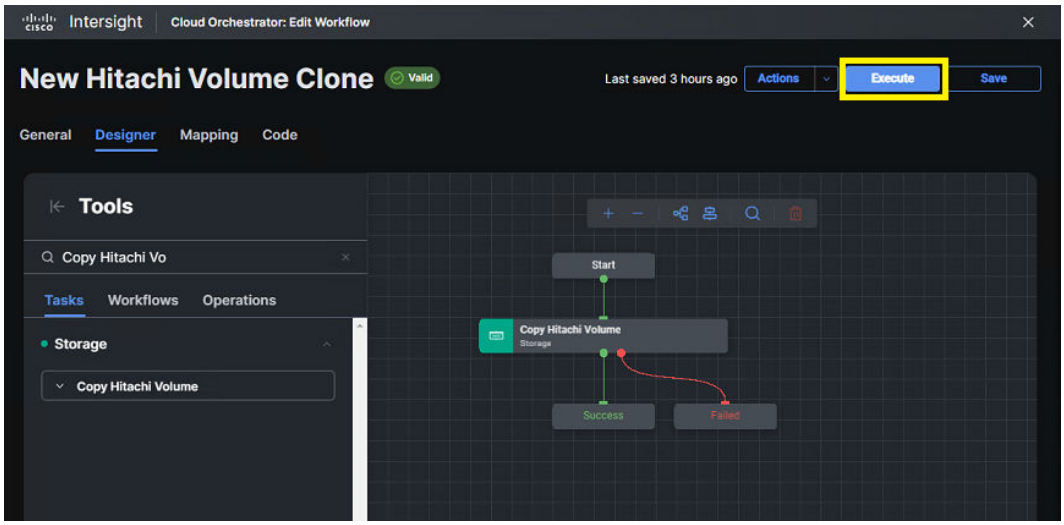
Note: For VSP One Blocksystems, verify that Apply to Snapshot is not enabled on the P-VOL.

Before you begin

Before creating a snap clone, confirm P-VOL, S-VOL, and pools are in place.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

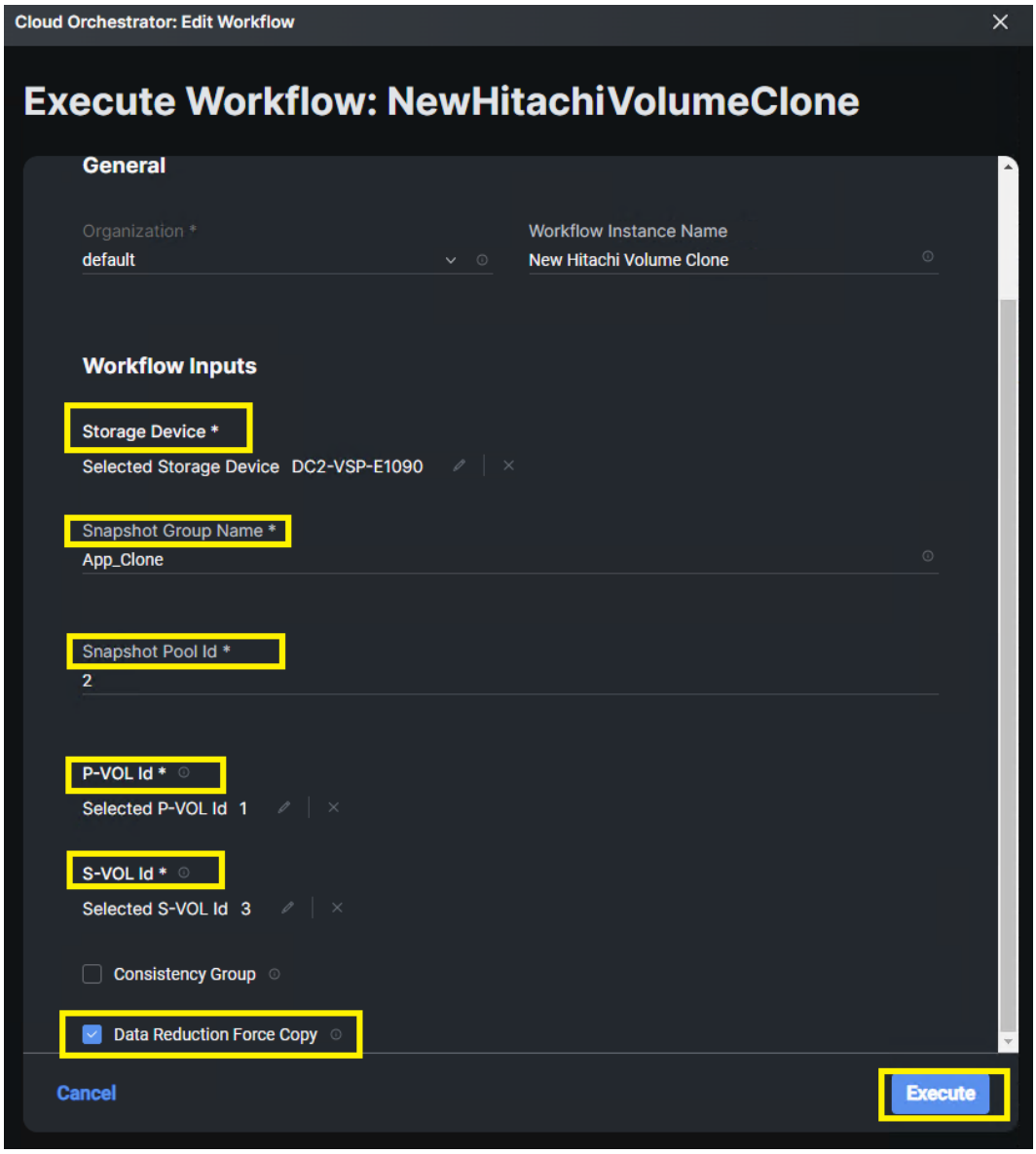


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device Primary Volume ID**, **Secondary Volume ID**, **Snapshot Pool ID**, and **Snapshot Group Name**. Click **Execute**.

Note: If the P-VOL has capacity saving function enabled, select the **Data Reduction Force Copy Attribute** to a create TI pair.

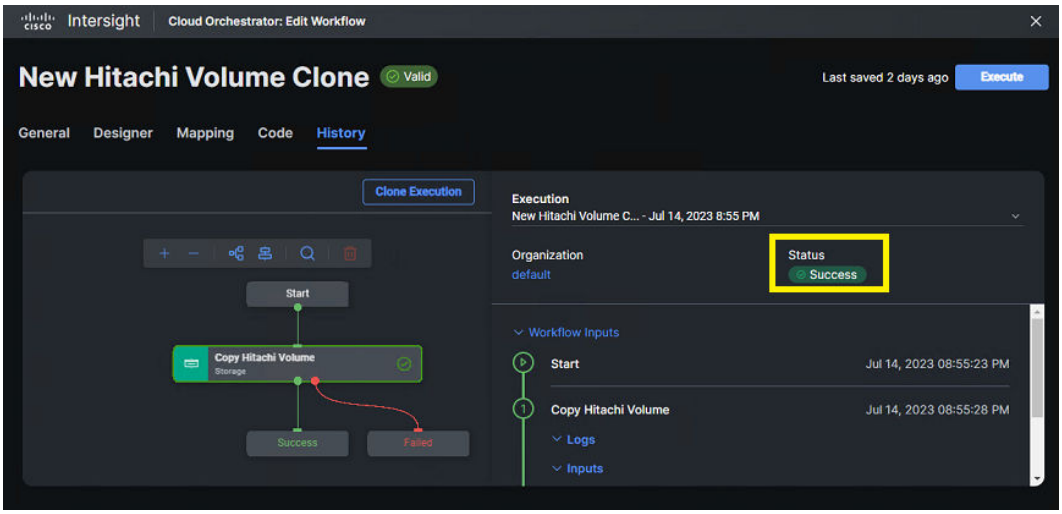
Note: The Consistency Group feature can be used to group a set of volumes together to be recovered together.

Note: LDEVs IDs are in decimal format.



Result

If the input parameters are correct, ICO displays Success after the task is complete.

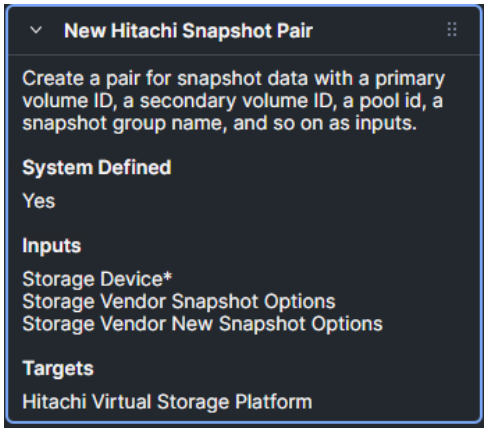


Snapshots

New Hitachi Snapshot Pair

New Hitachi Snapshot Pair enables in-system replication in the form of Thin-Image (TI) snapshots on the target VSP storage system. TI snapshots are point-in-time differential copies that can be used for quick backups or test-dev copies of data that can be distributed among organizations.

The following figure shows the Intersight task New Hitachi Snapshot Pair and its input parameters.



New Hitachi Snapshot Pair allows point-in-time lightweight copies of data within VSP.

To Use New Hitachi Snapshot Pair follow these steps.

Note: S-VOLs do not require host mappings to create a TI pair.

Note: Volumes that are already used as S-VOLs cannot be reused for new TI pairs.

Note: For VSP One Block High End or VSP One Block 20 systems, verify that Apply to Snapshot is not enabled on the P-VOL.

Note: Volumes that are part of migration plans cannot be used for S-VOLs. Use the ICO function Remove Hitachi Pair for Volume Migration to remove volumes from migration plans.

Before you begin

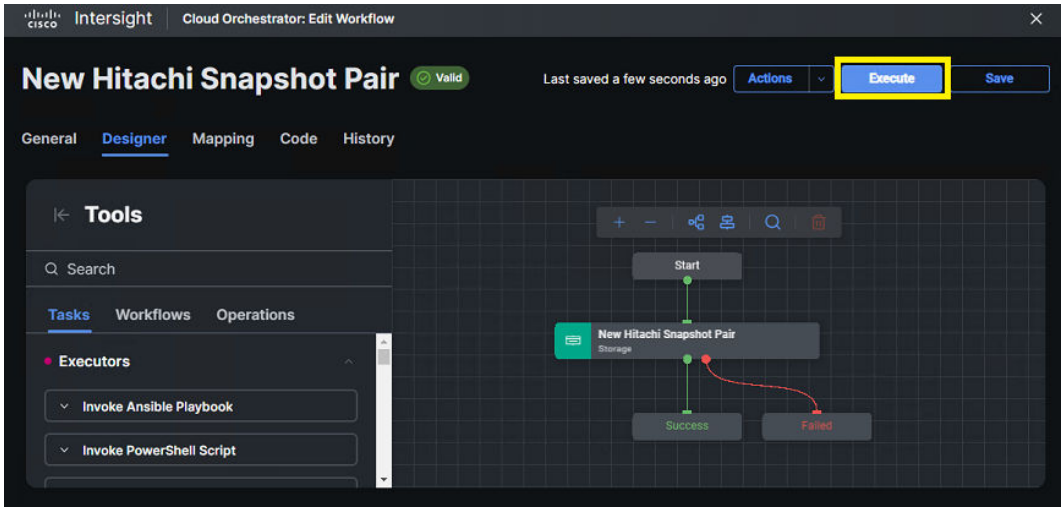
Before using a New Hitachi Snapshot pair, verify that an S-VOL is available with the same capacity as the P-VOL as well as an available HDP, HDT, or Thin Image pool to store the differential copies. After being virtualized, external storage can be used for these operations.

Before you begin

Before executing New Hitachi Snapshot Pair verify that P-VOL, S-VOL and pools are in place.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



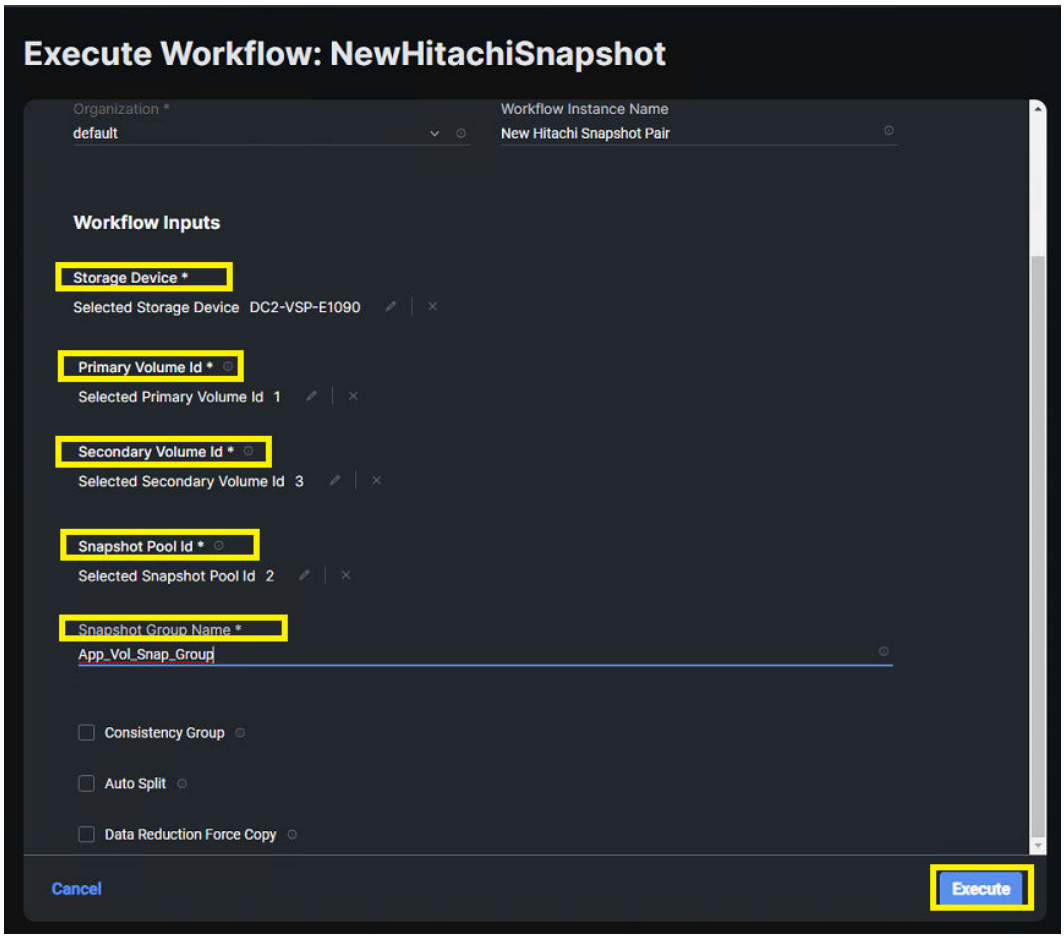
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, **Primary Volume ID**, **Secondary Volume ID**, **Snapshot Pool ID**, and **Snapshot Group Name**. Click **Execute**.

Note: If a P-VOL has capacity saving function enabled, the Data Reduction Force Copy Attribute must be selected to a create TI pair.

Note: The Auto Split capability can be used to take on-demand snapshots using a single workflow. If this is not checked, New Hitachi Snapshot Data can be used to split the pair and create a point-in-time snapshot.

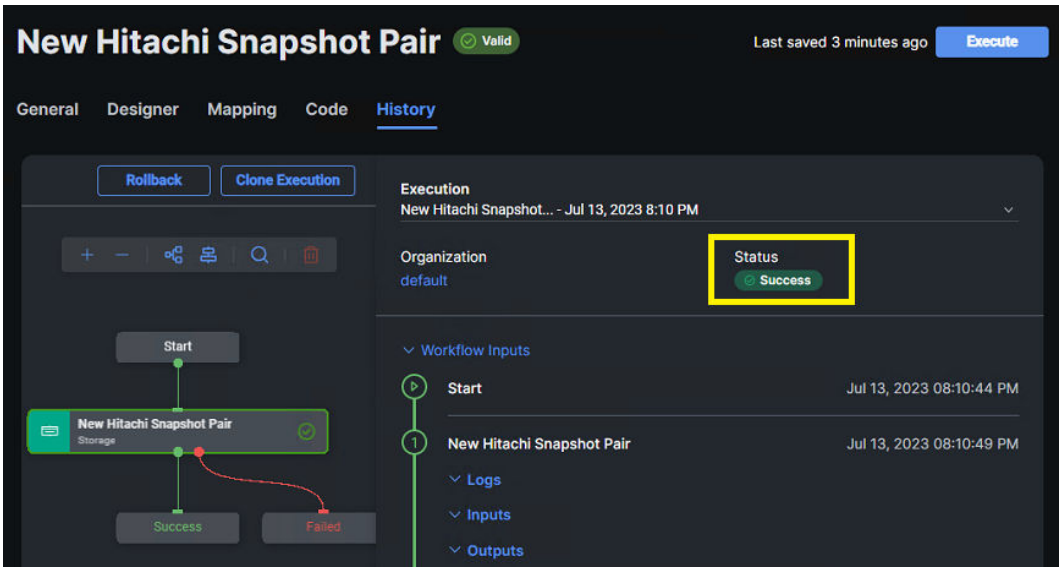
Note: Consistency Group can be used to group a set of volumes together to be recovered together.

Note: LDEVs IDs are in decimal format.



Result

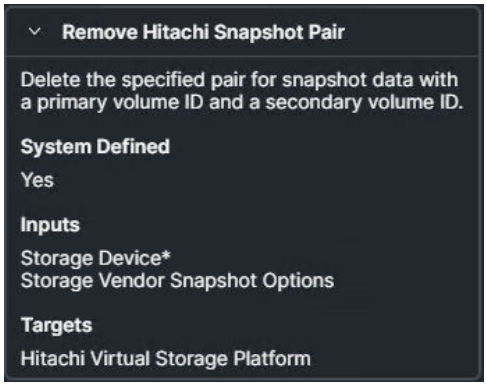
If the input parameters are correct, ICO displays Success after the task is complete.



Remove Hitachi Snapshot Pair

Remove Hitachi Snapshot Pair cleans up the P-VOL and S-VOL relationship within a TI pair. This is the inverse operation of New Hitachi Snapshot Pair.

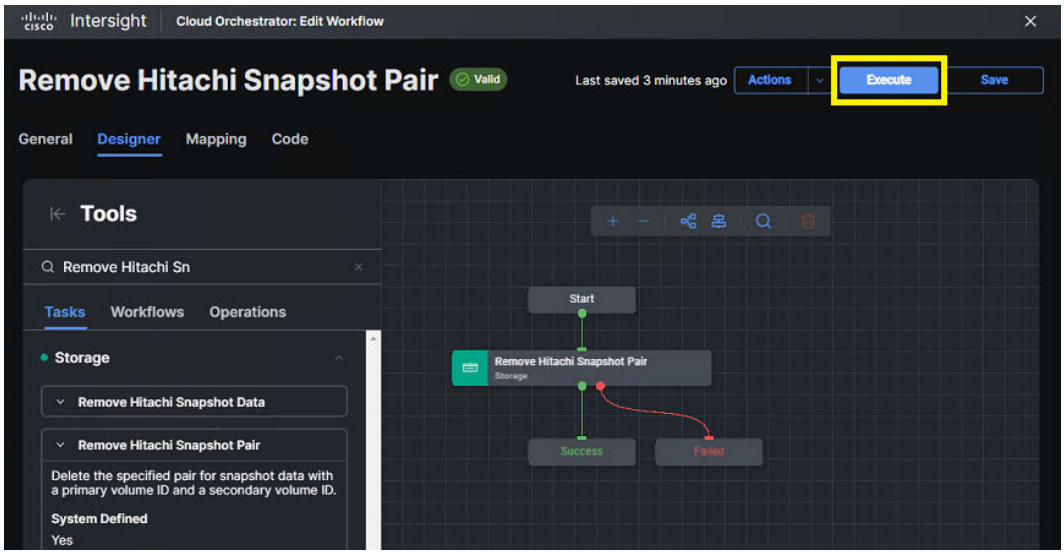
The following figure shows the Intersight task Remove Hitachi Snapshot Pair and its input parameters.



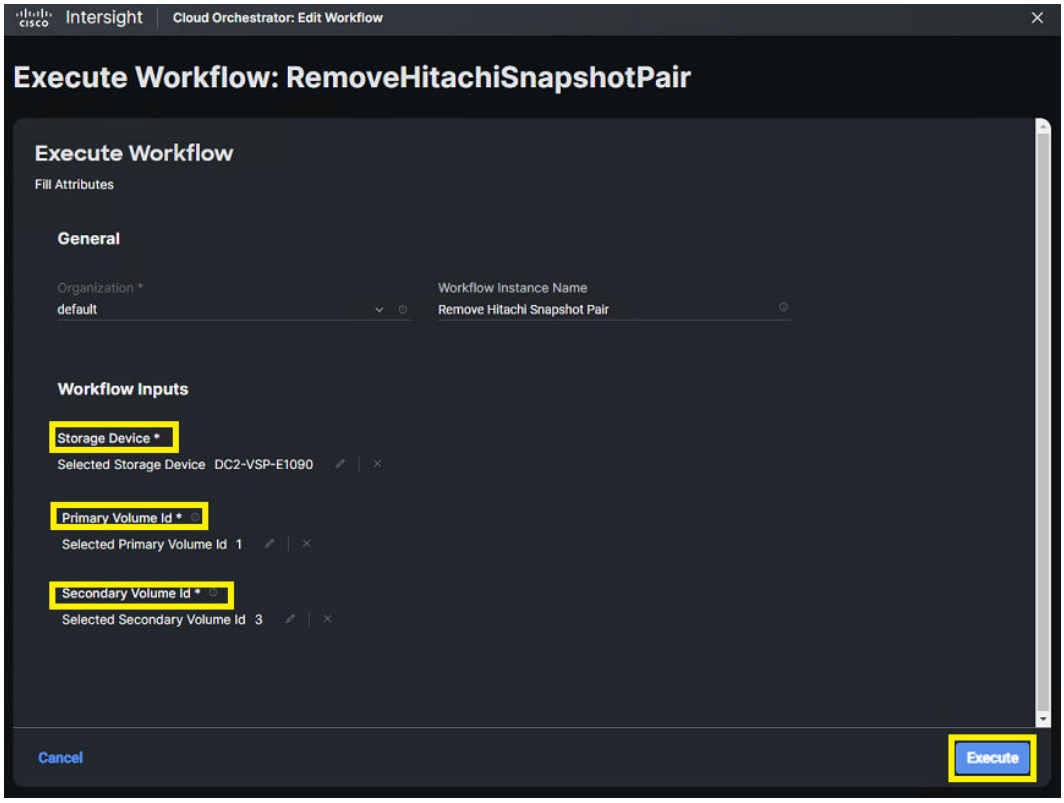
To use Remove Hitachi Snapshot Pair follow these steps.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestra or, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

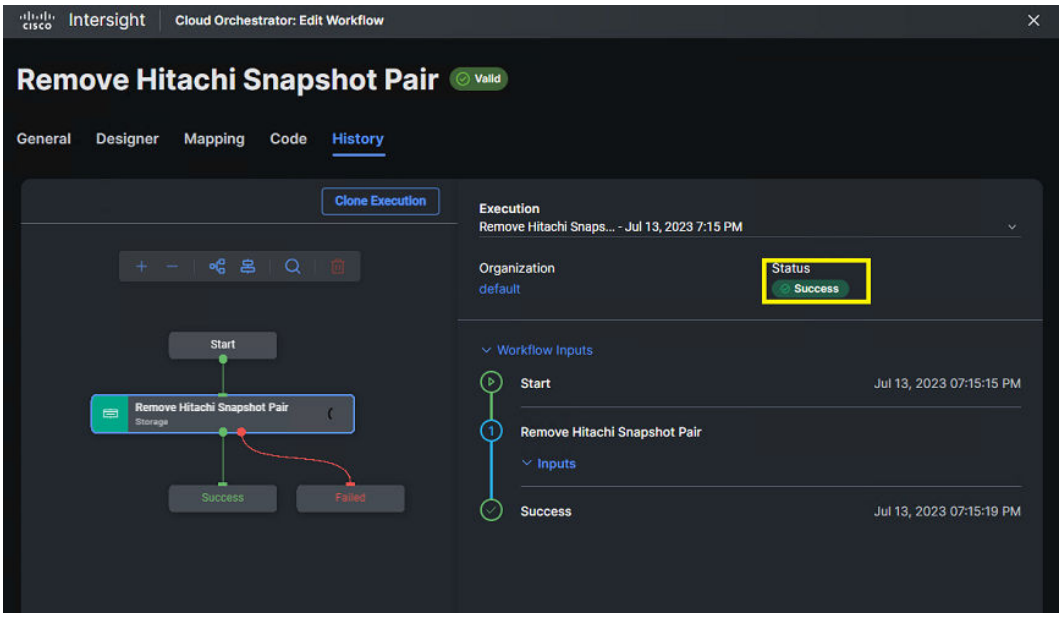


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, **Primary Volume ID**, **Secondary Volume ID**, **Snapshot Pool Id**, and **Snapshot Group Name**. Click **Execute**.



Result

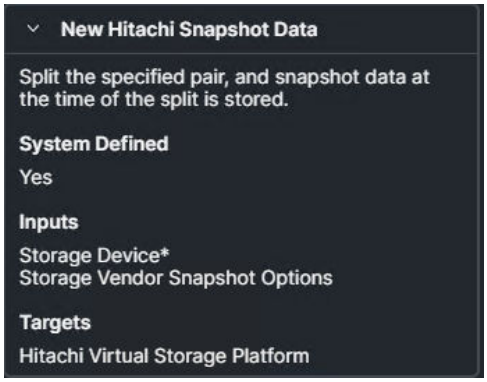
If the input parameters are correct, ICO displays Success after the task is complete.



New Hitachi Snapshot Data

New Hitachi Snapshot Data splits the TI pair and provides a point in time copy of data that resides on the P-VOL. New Hitachi Snapshot data is used after New Hitachi Snapshot Pair has been executed from ICO if the auto split capability was not defined.

The following figure shows the Intersight task New Hitachi Snapshot Data and its input parameters.

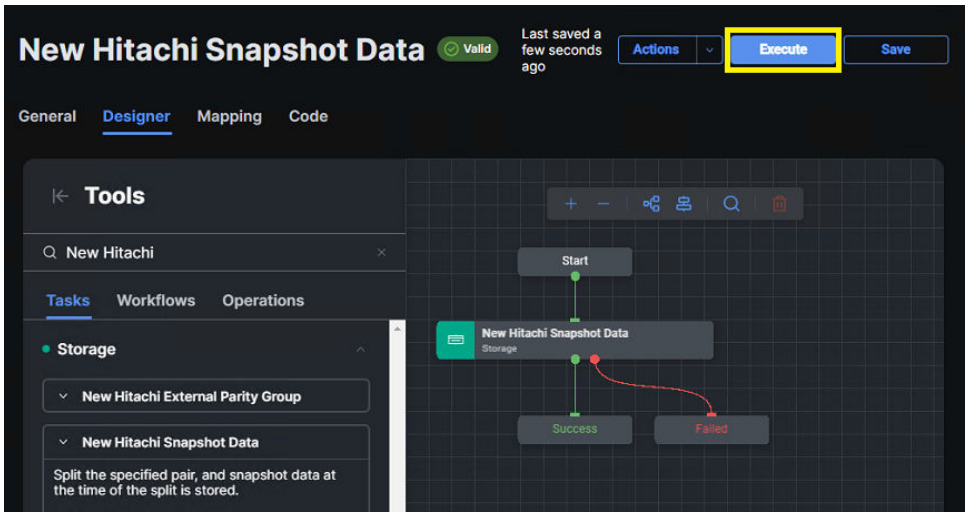


The New Hitachi Snapshot Data task is used to split a TI pair to provide a point in time copy of data.

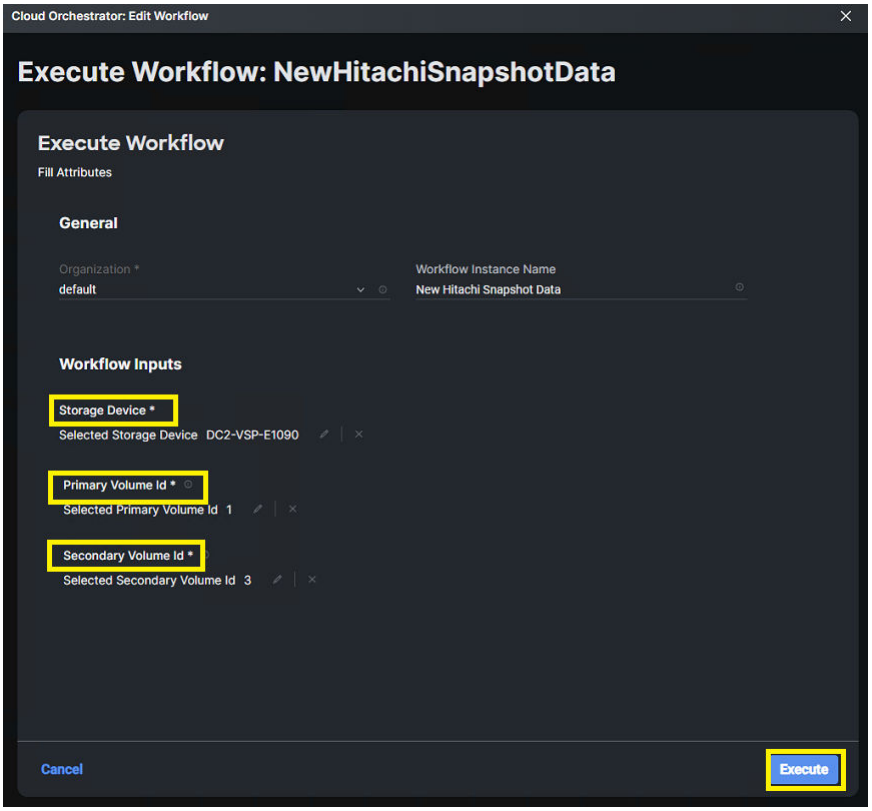
To use New Hitachi Snapshot Data from ICO, follow these steps.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



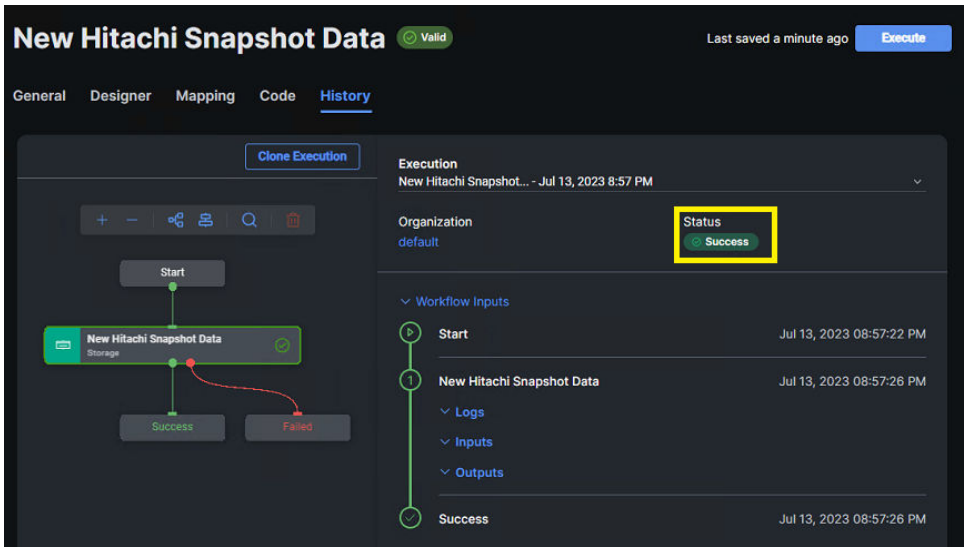
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, **P-VOL ID**, and **S-VOL ID**. Click **Execute**.



Note: LDEV IDs are in decimal format.

Result

If the input parameters are correct, ICO displays Success after the task is complete.



Restore Hitachi Snapshot Data

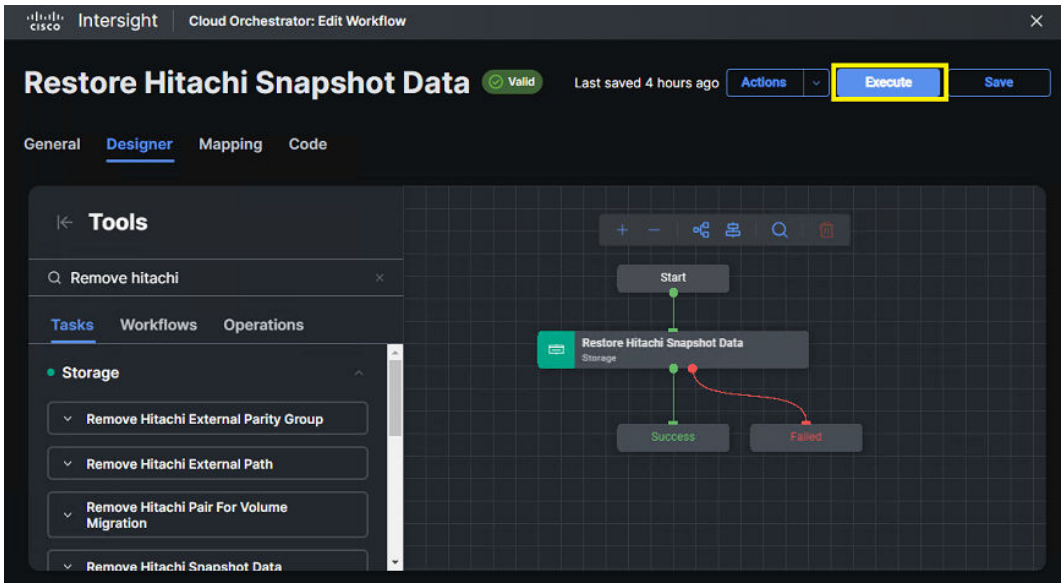
Restore Hitachi Snapshot Data puts the TI pair back into PAIR status and overwrites P-VOL data with that of the S-VOL.

The following figure shows the Intersight task Restore Hitachi Snapshot Data and its input parameters.

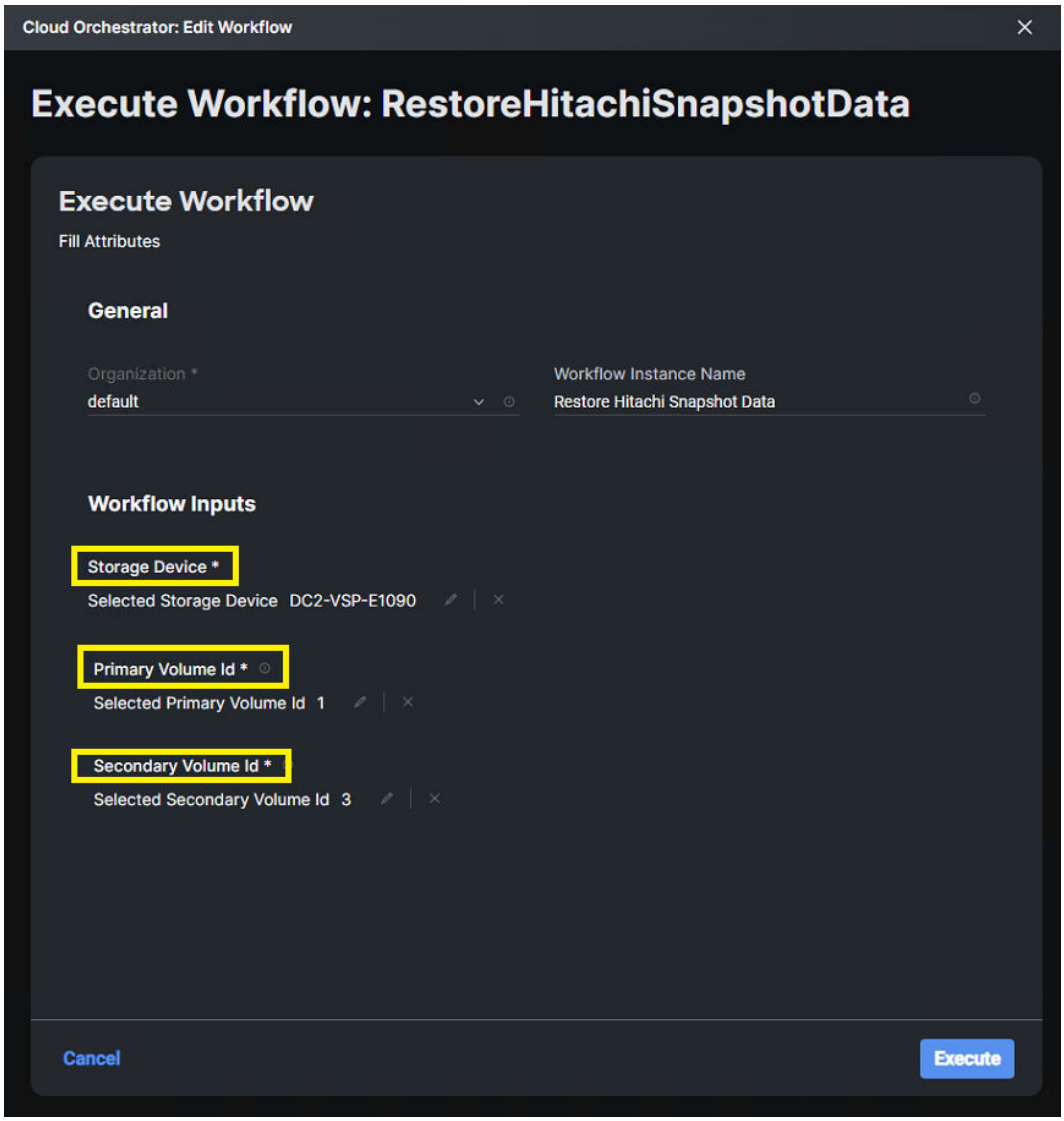
To use Restore Snapshot Data from ICO, follow these steps.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



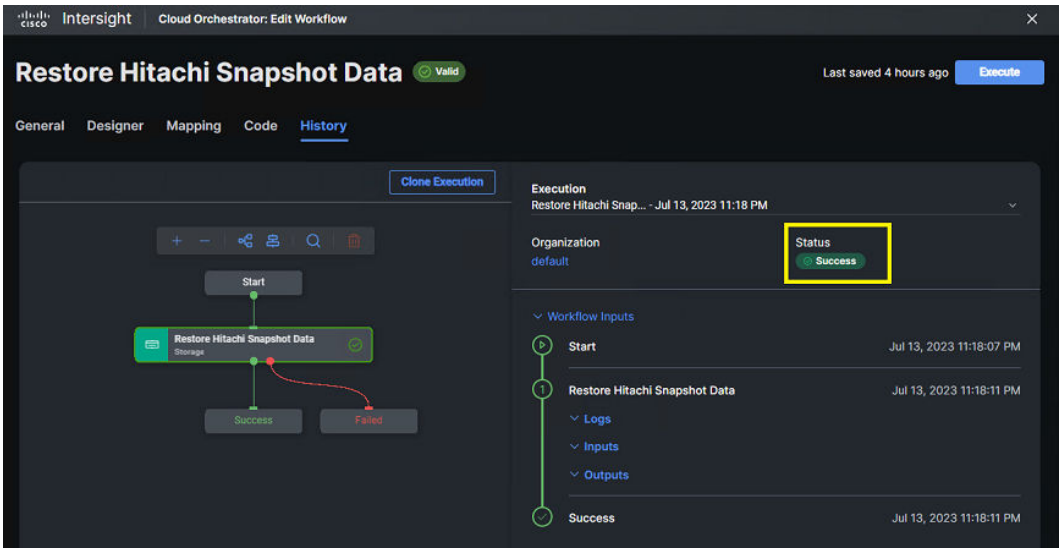
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, P-VOL ID, and S-VOL ID. Click **Execute**.



Note: LDEV IDs are in decimal format.

Result

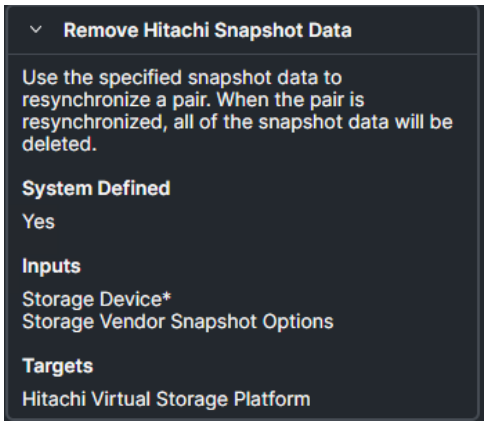
If the input parameters are correct, ICO displays Success after the task is complete.



Remove Hitachi Snapshot Data

Remove Hitachi Snapshot Data is used to wipe snapshot data from an S-VOL used within a TI pair.

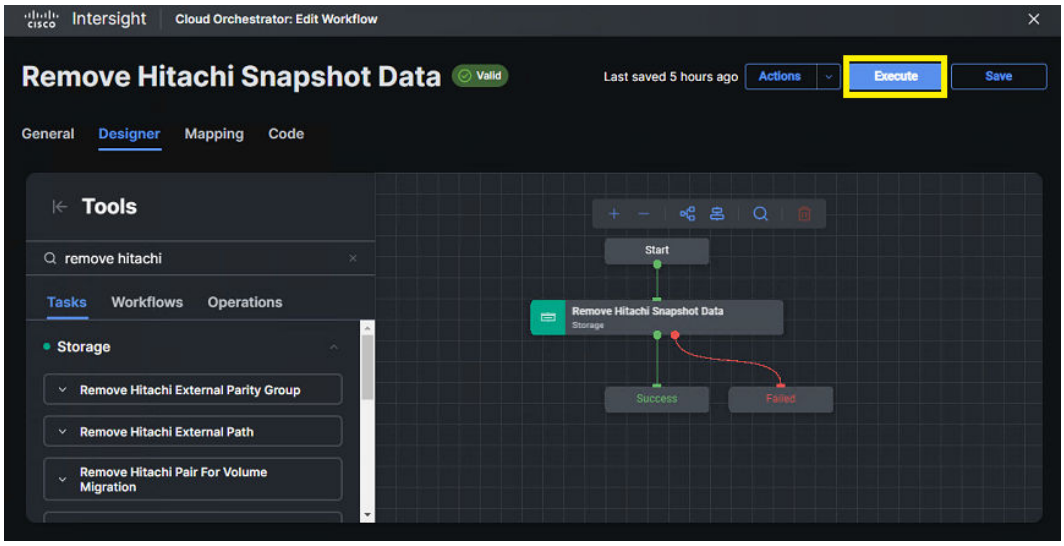
The following figure shows the Intersight task Remove Hitachi Snapshot Pair and its input parameters.



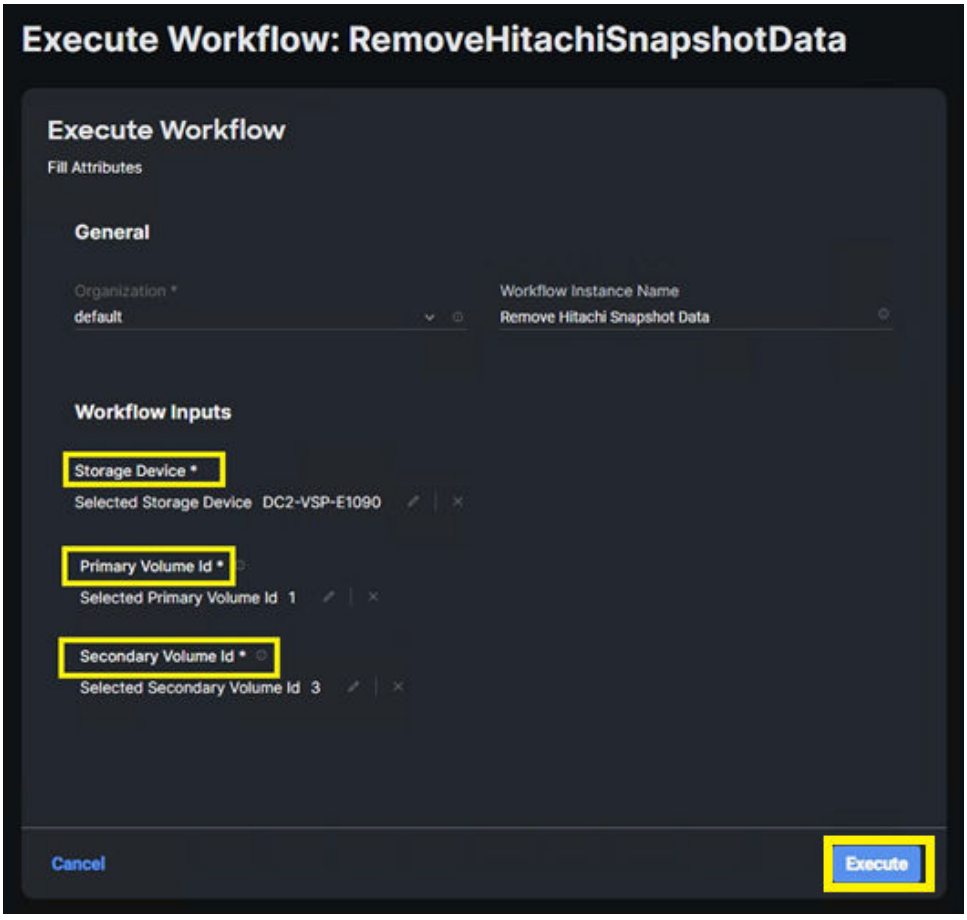
To use Remove Hitachi Snapshot Data from ICO, follow these steps.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



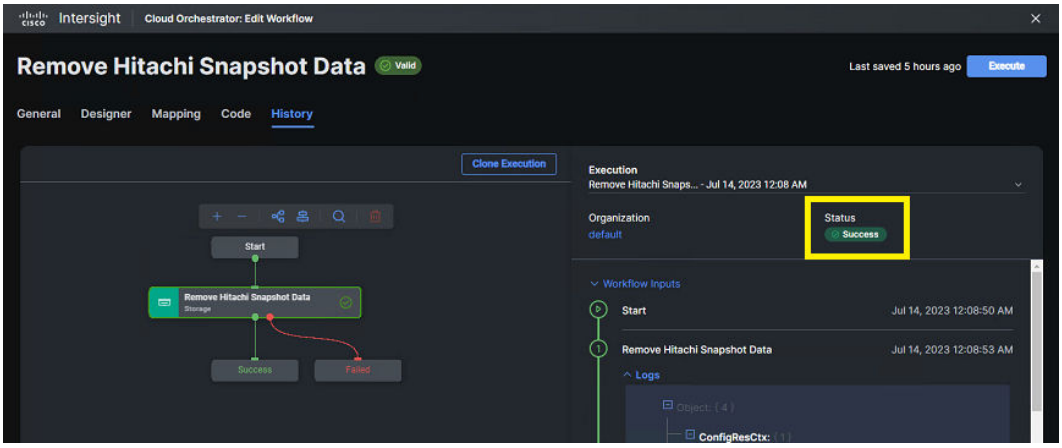
4. From the **Execute Workflow** wizard, select the target VSP **Storage Device**, **P-VOL ID**, and **S-VOL ID**. Click **Execute**.



Note: LDEV IDs are in decimal format.

Result

If the input parameters are correct, ICO displays Success after the task is complete.

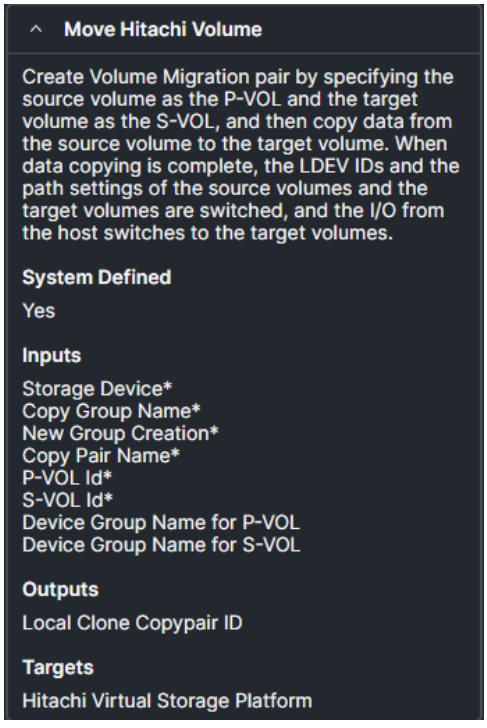


Migration

Move Hitachi Volume

Move Hitachi Volume is used to move data within the Hitachi VSP, including external to internal volume migration.

The following figure shows the Intersight task Move Hitachi Volume along with its input parameters.



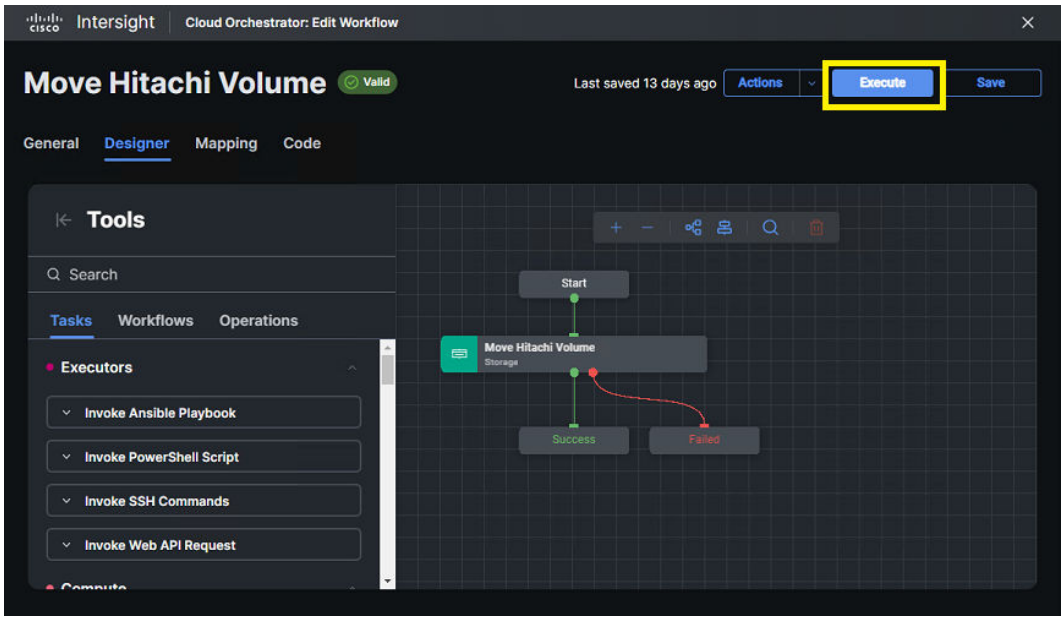
To use Move Hitachi Volume from ICO, follow these steps.

Before you begin

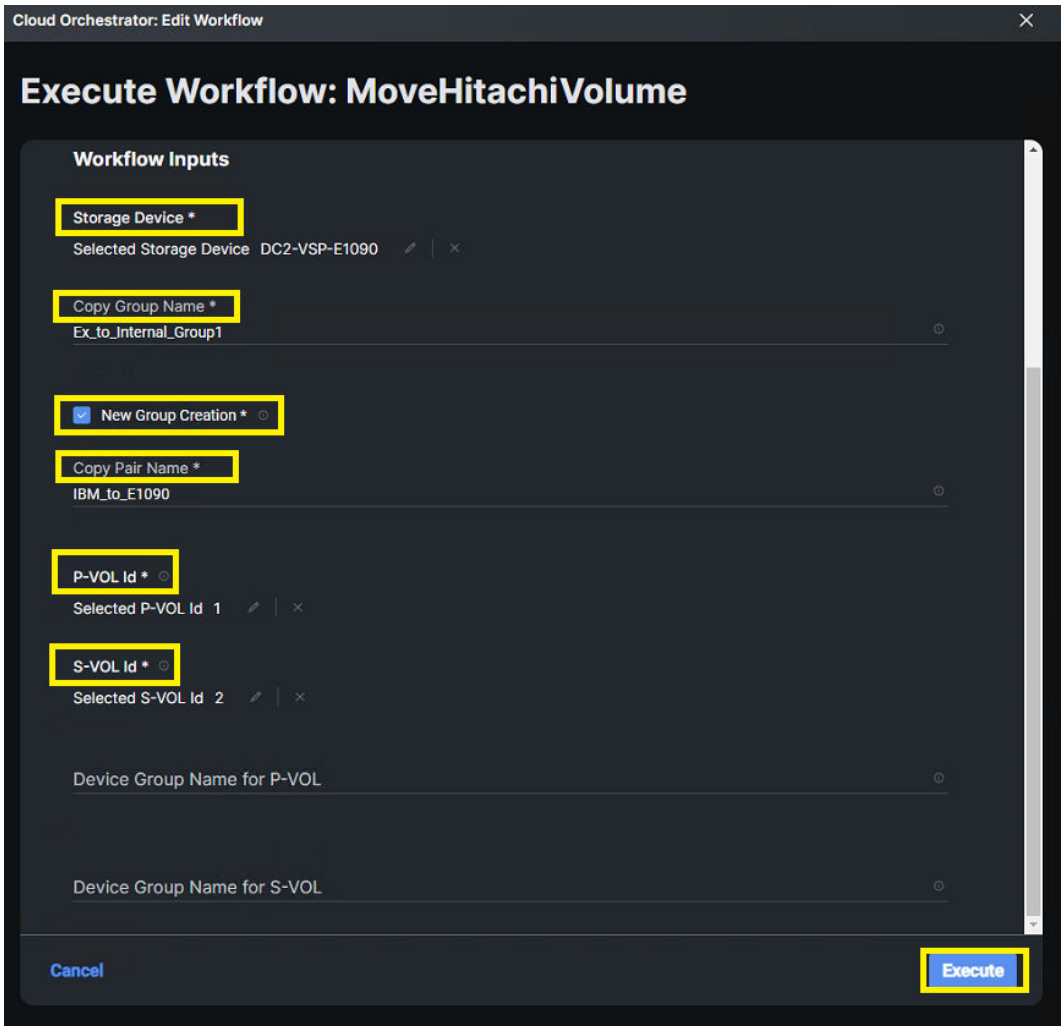
Before executing Move Hitachi Volume, an S-VOL must be created and allocated to the target host.

Procedure

1. Verify that the workflow has been created.
2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.



4. From the **Execute Workflow**, select the target VSP **Storage Device**, **Copy Group Name** (Optional), **Copy Pair Name**, **P-VOL ID** and **S-VOL ID**. Click **Execute**.



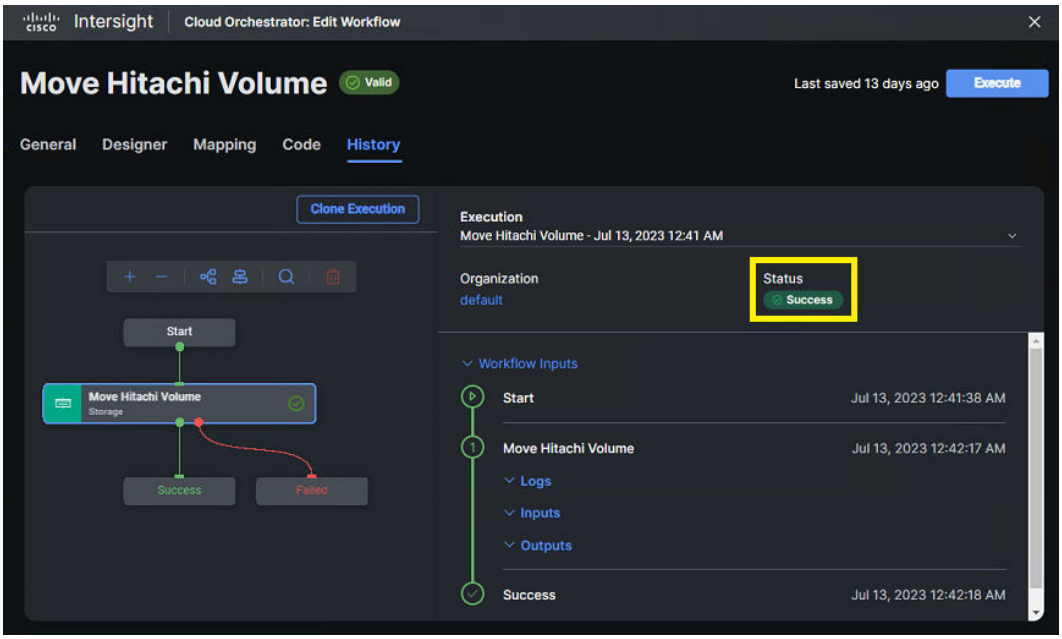
A new **Copy Group Name** must be selected if this is a new copy group,

Note: LDEV IDs are in decimal format.

Note: If data reduction mode has been enabled on an external storage volume or migration target volume, data migration is not supported. A data reduction mode capability such as compression and deduplication is turned off from Storage Navigator before migration. After migration has been completed re-enable data reduction modes from Storage Navigator.

Result

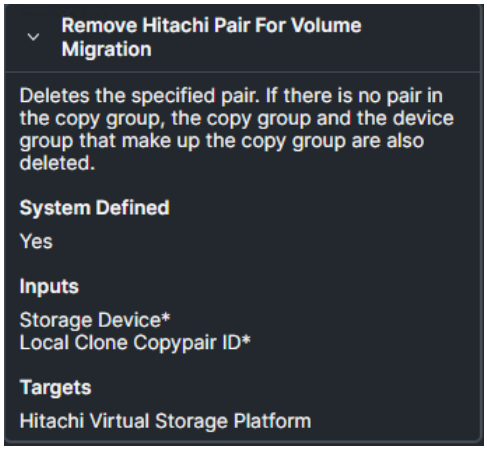
If the input parameters are correct, ICO displays Success after the task is complete.



Remove Hitachi Pair for Volume Migration

Remove Hitachi Pair for Volume Migration is used to destage volume pairs that have been executed with the Move Hitachi Volume workflow. After Migration is completed, use Remove Hitachi Pair for Volume Migration so the newly migrated P-VOL can be used for replication operations.

The following figure shows the Intersight task Remove Hitachi Pair for Volume Migration and its input parameters.



To Remove Hitachi Pair for Volume Migration, follow these steps.

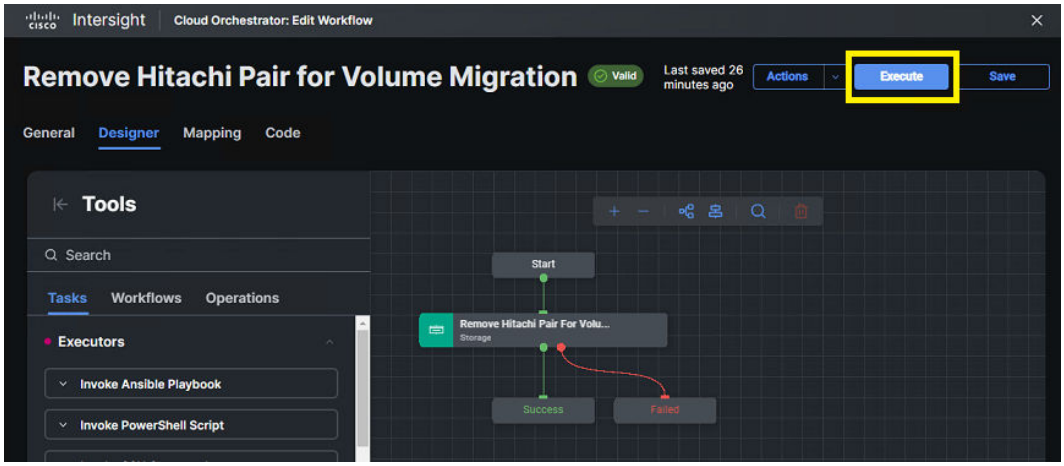
Before you begin

Remove Hitachi Pair for Volume Migration should be used after data migration has been completed using Move Hitachi Volume.

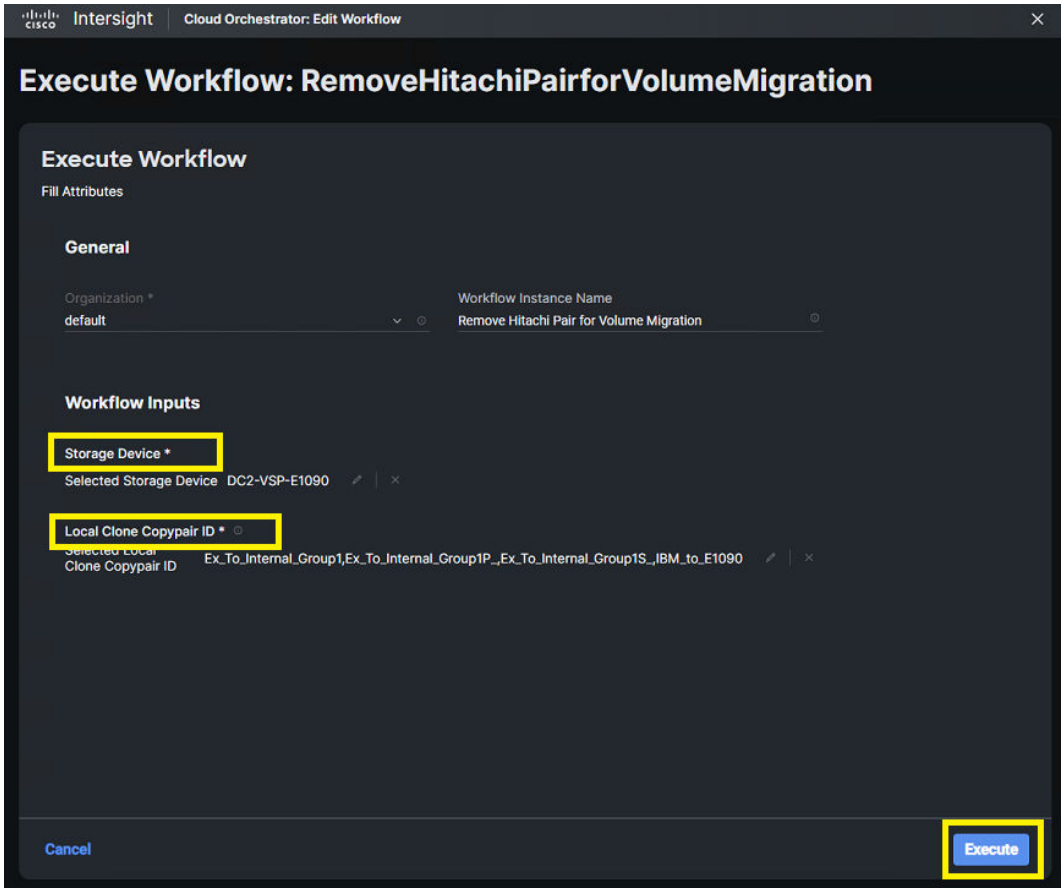
Procedure

1. Verify that the workflow has been created.

2. From Intersight Cloud Orchestrator, select the workflow.
3. On the **Edit Workflow** window, click **Execute**.

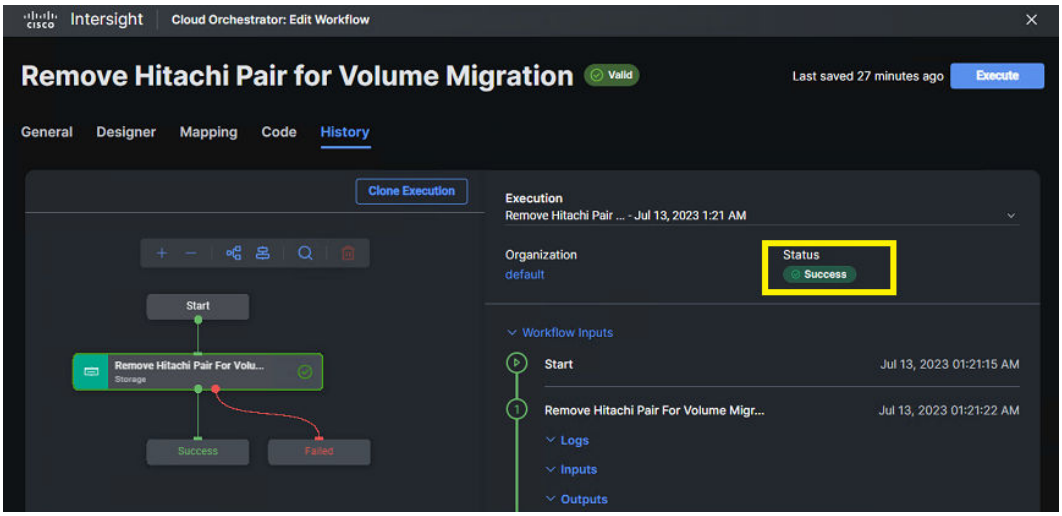


4. From the **Execute Workflow** wizard, select the target VSP **Storage Device** and the **Local Clone Copypair ID** that was created during the Move Hitachi Volume task. Click **Execute**.



Result

If the input parameters are correct, ICO displays Success after the task is complete.


Intersight
Cloud Orchestrator: Edit Workflow
Remove Hitachi Pair for Volume Migration
Valid
Last saved 27 minutes ago
Execute
General
Designer
Mapping
Code
History
Clone Execution
Start
Remove Hitachi Pair For Volu...
Storage
Success
Failed
Execution
Remove Hitachi Pair ... - Jul 13, 2023 1:21 AM
Organization
default
Status
Success
Workflow Inputs
Start
Jul 13, 2023 01:21:15 AM
Remove Hitachi Pair For Volume Migr...
Jul 13, 2023 01:21:22 AM
Logs
Inputs
Outputs

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