HP Operations Orchestration

for the Windows and Linux operating systems

Software Version: 9.00.06

HP Virtual Connect Enterprise Manager Integration Guide

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1 Introduction

This section includes the following topics:

- Purpose of the HP Virtual Connect Enterprise Manager (VCEM) Integration
- Audience
- Prerequisites
- Supported Versions
- Downloading OO Releases and Documents on HP Live Network
- Related Documents

Purpose of the HP Virtual Connect Enterprise Manager (VCEM) Integration

HP Virtual Connect Enterprise Manager (VCEM) centralizes network connection management and workload mobility for HP BladeSystem servers that use Virtual Connect to access local area networks (LANs), storage area networks (SANs), and converged network environments.

Built on the Virtual Connect architecture integrated into every HP BladeSystem c-Class enclosure, VCEM provides a central console to administer network address assignments, perform group-based configuration management, and rapidly deploy, move, and failover server connections and workloads for 250 Virtual Connect Domains.

VCEM allows you to:

- Deploy new BladeSystem enclosures, server blades, and Virtual Connect (VC) Domains.

- Perform fast and cost-effective server recovery.

- Rapidly migrate and repurpose server blades to meet changing workload and application. Complete planned system maintenance with minimal downtime.

Supported Versions

Table 1   Supported Versions

Operations Orchestration Version	HP VCEM Version
9.00.06	6.3

Downloading OO Releases and Documents on HP Live Network

HP Live Network provides an **Operations Orchestration Community** page where you can find and download supported releases of OO and associated documents.

To download OO releases and documents, visit the following site:

https://www.www2.hp.com/

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

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

On the **HP Live Network** page, click **Operations Orchestration Community**.

The Operations Orchestration Community page contains links to announcements, discussions, downloads, documentation, help, and support.

Related Documents

This section provides a list of documents that are related to this document and that may be useful to consult along with it.

- VCEM 6.3 SDK Guide
- VCEM 6.3 User Guide
- VCM User Guide
- VCCLI User Guide

2 Getting Started with the VCEM Integration

This section includes the following topics:

- Installing and Configuring the Integration
- VCEM – OO Architecture
- VCEM Use Cases

Installing and Configuring the Integration

There are no special requirements for installing and configuring VCEM integration. However, if you want to use a Java client certificate-based authentication to log on to Insight Control/VCEM, you must set up the certificate as follows.

1 Generate a key pair from RAS Java keystore.

   For example:

   ```
   keytool.exe -keystore "C:\Program Files\Hewlett-Packard\Operations
   Orchestration\jre1.6\lib\security\cacerts" -genkey -alias
   CLIENT_CERT -keypass changeit -dname "cn=myserver.roo.hp.com, ou=OO,
   o=HP, l=Rosville, st=CA, c=US" -v -keyalg "RSA" -keysize 1024 -
   sigalg "SHA1withRSA" -validity 3650
   ```

   Note: **B**y default, storepass is changeit.

2 Export the client certificate.

   For example:

   ```
   keytool.exe -keystore "C:\Program Files\Hewlett-Packard\Operations
   Orchestration\jre1.6\lib\security\cacerts" -export -alias
   CLIENT_CERT -rfc -file c:\temp\vcemclient.cert
   ```

3 Obtain the HP System Insight Manager (SIM) server certificate.

   For example, access https://<name or the IP of Insight Control/VCEM system>:50000.GetCertificate and copy and paste the base64-encoded certificate to a file (for example, **vcemserver.cert**) on the RAS system.

   Be sure to include the "BEGIN CERTIFICATE" and "END CERTIFICATE" lines in your cut-and-paste.

4 Import HP Insight Control (formally known as System Insight Manager or SIM) server certificate into the RAS Java keystore.

   For example:

   ```
   keytool.exe -keystore "C:\Program Files\Hewlett-Packard\Operations
   Orchestration\jre1.6\lib\security\cacerts" -import -trustcacerts -
   file c:\temp\vcemserver.cert
   ```

5 Import the RAS client certificate into HP Insight Control.

   Follow the steps under "Importing the client certificate to Systems Insight Manager" in the VCEM SDK guide to import the client certificate file exported in step 2.

6 Make sure RAS system could be discovered and shows up as a Server with correct IP address in HP Insight Control.

7 Add the RAS client IP address into \config\RootTrustList.txt

   Note: Make sure that the Insight Control and RAS system can be nslookup ip/hostname each other.

VCEM — OO Integration Architecture
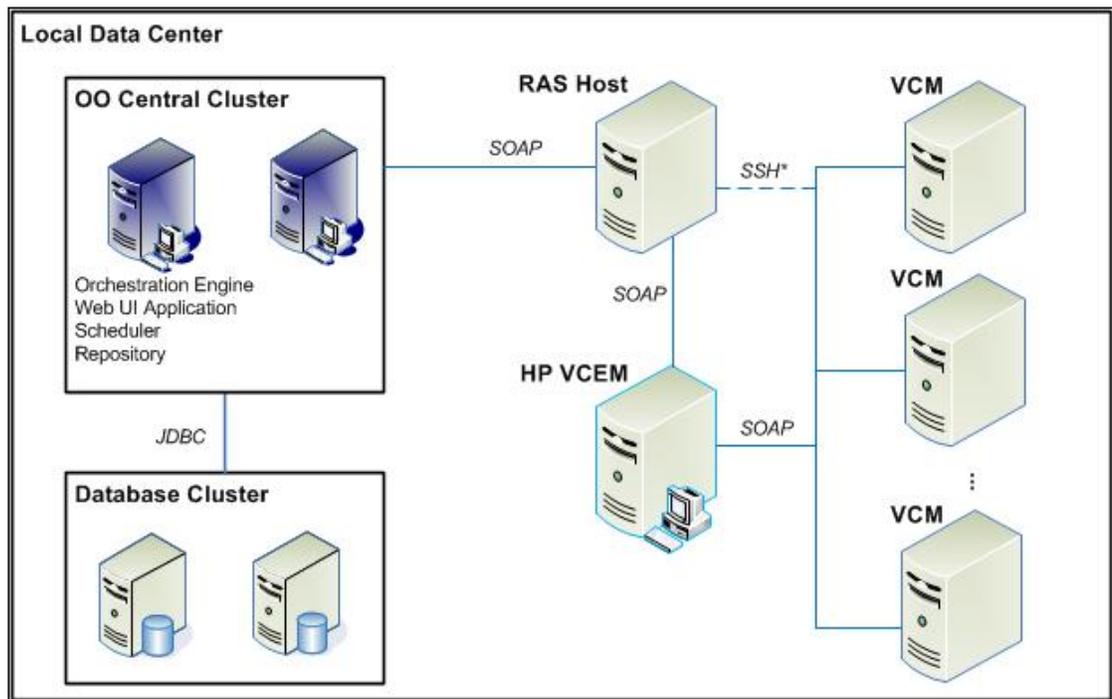
Figure 1 - VCEM - OO Architecture

VCEM Use Cases

Following are the major use cases for the VCEM integration.

Failover Manager

Failover management allows you to perform cost effective server recovery. You can use one of the following methods:

- Trigger a failover process by Enclosure name and Bay name.
- Trigger a failover process by Bay Server IP address.
- Trigger a failover process by Bay Server Hostname.

Maintenance Mode

Maintenance mode allows you to easily perform a planned server maintenance.

- Enable Maintenance Mode
- Complete Maintenance Mode
- Cancel Maintenance Mode

Profile Management

Profile management allows you to do server migration in order to repurpose servers to meet changing business and application priorities.

- Assign a server profile to a bay.

- Unassign a server profile from a bay.

- Find a server profile.

- Update a server profile.

Bays and Enclosure

- Find Bays and Enclosures

- Check power status of Bay

- Power Bay on and off

VC Domains and Domain Groups

- Find and list VC Domains and Domain Groups

3   Using the VCEM – OO Integration

This section includes the following topics:

- Location of VCEM Integration Operations and Flows in OO Studio
- Common Inputs in the Integration
- Descriptions of VCEM Integration Operations and Flows

Location of VCEM Integration Operations and Flows in OO Studio

The VCEM integration includes the following operations and flows in the OO Studio Library/Integrations/Hewlett-Packard/Virtual Connect Enterprise Manager/ folder.
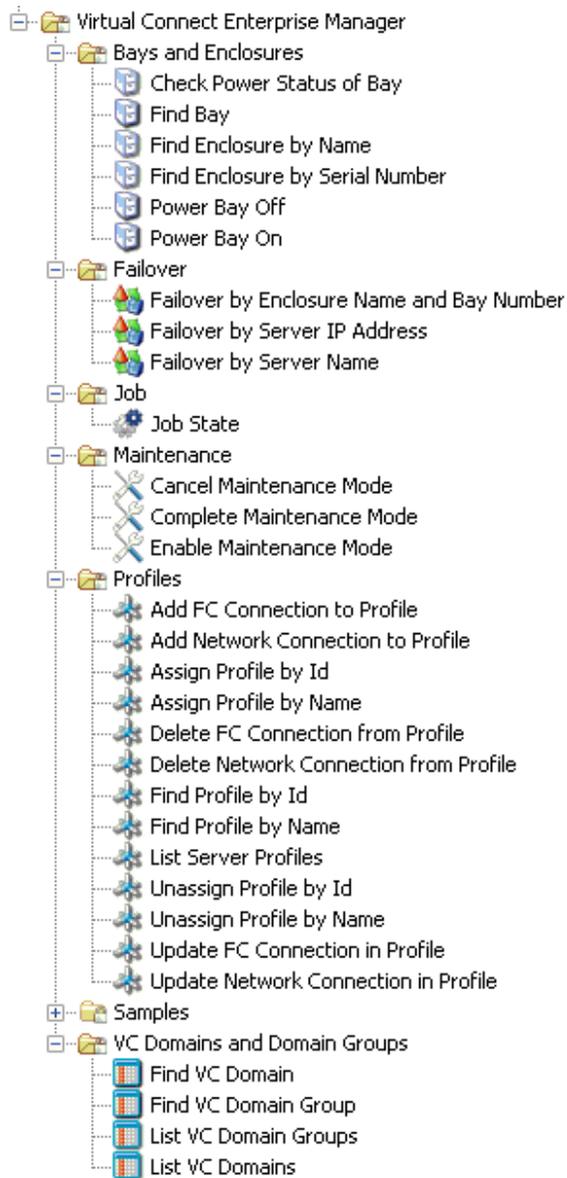
Figure 2 – Location of VCEM Integration Operations and Flows

Common Inputs in the Integration

OO operations and flows use inputs to specify how they obtain the data that they need and when the data is obtained. The following inputs are used consistently throughout the VCEM integration's operations and flows.

host

The VCEM hostname or IP address.

port

The VCEM port number. If you specify a value for the **keystore** input, the default port is **50002**. Otherwise, the default port is **50001**.

username

The VCEM username.

password

The VCEM user's password. If you specify a value for the **keystore** input, this must be the keystore's password.

keystore

The local path of the keystore file (for example, **C:\Program Files\Hewlett-Packard\Operations Orchestration\jre1.6\lib\security\cacerts**). If you specify a value for the **keystore** input, logging on to VCEM will require a certificate. To learn how to set up the certificate, see *Installing and Configuring the Integration*.

async

Specifies whether to perform the task asynchronously. If you specify a value of **false**, the operation waits for the job to complete or time out if it reaches timeout.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the **timeout** input value is ignored.

Descriptions of VCEM Integration Operations and Flows

This section describes the VCEM integration's operations and flows, including their inputs, results, responses, examples, and other important information. The flows and operations are grouped in the following subfolders:

- Bays and Enclosures
- Failover
- Job
- Maintenance
- Profiles
- VC Domains and Domain Groups

Bays and Enclosures

Check Power Status of Bay

The **Check Power Status of Bay** operation provides the power status of a bay based on the enclosure name and bay number in HP Virtual Connect Enterprise Manager (VCEM). This operation returns the status of the indicated bay using one of the three strings: **ON**, **OFF**, or **UNKNOWN**. The power status for empty bays is always **UNKNOWN**.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

enclosureName

The enclosure name of the requested bay (for example, **ros-C7000-1**).

bayNumber

The bay number for which the status is requested (for example, **1**, **2**).

Results

The operation returns the following results:

returnResult

A message that indicates the status of the operation.

retBayStatus

The power status of the indicated bay (for example, **ON**, **OFF**, or **UNKNOWN**).

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Find Bay

The **Find Bay** operation finds a bay based on the enclosure name and bay number in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

enclosureName

The enclosure name. For example, **ros-C7000-1**.

bayNumber

The bay number in the associated enclosure. For example, **1**, **2**.

Results

The operation returns the following results:

returnResult

The message indicating that status of the operation.

retJsBay

A JavaScript Object string that is a bay object. The object contains the following information about a bay:

- **retBayStatus** - The bay status (for example, **AVAILABLE**).
- **retBayId** - The bay ID (for example, **3**).
- **retBayName** - The bay name (for example, **2**).
- **retBayNumber** - The bay number (for example, **2**).
- **retEnclosureName** - The enclosure name in which the bay resides (for example, **ros-C7000-1**).
- **retIsSpareBay** – Specifies whether the bay is a spare (for example, **false**).

Responses

The operation returns one of the following responses:

yes

The operation successfully found a matching bay.

no

The operation was not able to find a matching bay.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Find Enclosure by Name

The **Find Enclosure by Name** operation finds an enclosure based on the enclosure name in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

enclosureName

The enclosure name. For example, **ros-C7000-1**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJsEnclosure

A JavaScript Object string that is an enclosure object. The object contains the following information about an enclosure:

- **retEnclosureName** - The enclosure name. For example, **ros-C7000-1**.
- **retEnclosureSerialNumber** - The enclosure serial number. For example, **SGH046P724**.
- **retEnclosureUUID** - The enclosure UUID. For example, **09SGH046P724**.

Responses

The operation returns one of the following responses:

yes

The operation successfully found a matching enclosure.

no

The operation was not able to find a matching enclosure

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Find Enclosure by Serial Number

The **Find Enclosure by Serial Number** operation finds an enclosure based on the enclosure serial number in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

enclosureSerialNumber

The enclosure serial number. For example, **SGH046P724**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJsEnclosure

A JavaScript Object string that is an enclosure object. The object contains the following information about an enclosure:

- **retEnclosureName** - The enclosure name. For example, **ros-C7000-1**.
- **retEnclosureSerialNumber** - The enclosure serial number. For example, **SGH046P724**.
- **retEnclosureUUID** - The enclosure UUID. For example, **09SGH046P724**.

Responses

The operation returns one of the following responses:

yes

The operation successfully found a matching enclosure.

no

The operation was not able to find a matching enclosure.

failure

The operation did not complete successfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Power Bay Off

The **Power Bay Off** operation sends a power-off request to Virtual Connect Manager for a given bay. This operation returns the status of the indicated bay using one of the three strings: **ON**, **OFF**, and **UNKNOWN**. The power status for empty bays is always **UNKNOWN**.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

bayNumber

The bay number hosting the server to be powered off. For example, **1**, **2**.

enclosureName

The enclosure name containing the target bay. For example, **ros-C7000-1**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retBayStatus

The power status of the indicated bay. For example, **ON**, **OFF**, or **UNKNOWN**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Level Operator**.
- The bay must contain a server.

Power Bay On

The **Power Bay Off** operation sends a power-on request to Virtual Connect Manager for a given bay. This operation returns the status of the indicated bay using one of the three strings: **ON**, **OFF**, or **UNKNOWN**. The power status for empty bays is always **UNKNOWN**.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

bayNumber

The bay number hosting the server to be powered on. For example, **1**, **2**.

enclosureName

The enclosure name containing the target bay. For example, **ros-C7000-1**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retBayStatus

The power status of the indicated bay. For example, **ON**, **OFF**, or **UNKNOWN**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Level Operator**.
- The bay must contain a server.

Failover

Failover by Enclosure Name and Bay Number

The **Failover by Enclosure Name and Bay Number** operation performs a failover based on the enclosure name and bay number of the failed server in HP Virtual Connect Enterprise Manager (VCEM). The operation checks the following conditions before it performs the failover:

- Finds a spare bay which doesn't have a server profile.
- The spare bay has a server and is powered off.
- The source bay and target spare bay are within the same VC domain group.
- The source bay has a server profile and a server.
- The source bay is powered off.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

enclosureName

The enclosure name of the failed server. For example, **ros-C7000-1**.

bayNumber

The bay number of the failed server. For example, **1**, **2**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the **timeout** input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Moving server profile from source bay to selected spare**.
- **retJobProgressTime** - The time of the last job progress. For example, **1314729600610**.
- **retJobStartTime** - The time that the job started. For example, **1314729592743**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **84**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.

- The spare bays must be designated from the UI and populated with servers. At this point, multiple spares can also be designated. VCEM will automatically find a qualified spare for the failover.

- The qualified spare bay has the same server model as the failed server.

- An auxiliary bay for a multi-blade server is not a qualified spare.

Failover by Server IP Address

The **Failover by Server IP Address** operation performs failover based on the IP address of the failed sever in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverIPAddress

The IP address of the failed server.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the **timeout** input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Moving server profile from source bay to selected spare**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314729600610**.

- **retJobStartTime** - The time that the job started. For example, **1314729592743**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **84**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.

- The source server and target server must be in the same VC Domain Group.

- The spare bays must be designated from the UI and populated with servers. At this point, multiple spares can also be designated. VCEM will automatically find a qualified spare for the failover.

- The qualified spare is a spare that does not have a profile, has a server blade physically present, is powered off, and is the same server model as the failed server.

- An auxiliary bay for a multi-blade server is not a qualified spare.

- The source bay needs to have a server profile and a server present.

- The server specified in the **serverIPAddress** input should be discovered by VCEM.

Failover by Server Name

The **Failover by Server Name** operation performs failover based on the server name of the failed sever in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverName

The server host name of the failed server.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the **timeout** input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Moving server profile from source bay to selected spare**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314729600610**.

- **retJobStartTime** - The time that job started. For example, **1314729592743**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **84**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.

- The source server and target server must be in the same VC Domain Group.

- The spare bays must be designated from the UI and populated with servers. At this point, multiple spares can also be designated. VCEM will automatically find a qualified spare for the failover.

- The qualified spare is a spare that does not have a profile, has a server blade physically present, is powered off, and is the same server model as the failed server.

- An auxiliary bay for a multi-blade server is not a qualified spare.

- The source bay needs to have a server profile and a server present.

- The server specified in the **serverName** input should be discovered by VCEM.

Job

Job State

The **Job State** operation reports the state of a job that involves a Write operation to Virtual Connect Enterprise Manager. This operation returns the state of the indicated job. Each job can have one of the following states:

- **PENDING** - The job is queuing while there are other jobs running for the same resource.
- **RUNNING** - The job is still running.
- **COMPLETED** - The job is complete.
- **FAILED** - The job failed.
- **WARNING** - The job succeeded with minor errors.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

jobId

The job ID. For example, **1**, **2**, **3**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Finished edit server profile**.
- **retJobProgressTime** - The time of the last job progress. For example, **1314375087737**.
- **retJobStartTime** - The time that job started. For example, **1314375073587**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **100**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Maintenance

Cancel Maintenance Mode

The **Cancel Maintenance Mode** operation cancels Maintenance mode for the given Virtual Connect Domain ID.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

vcDomainId

The VC Domain ID for which Maintenance mode operation is to be completed. For example, **1**, **2**, **3**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the **timeout** input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Finished canceling VC Domain Maintenance**.
- **retJobProgressTime** - The time of the last job progress. For example, **1314650041653**.
- **retJobStartTime** - The time that the job started. For example, **1314650006680**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **100**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Administrator**.

Complete Maintenance Mode

The **Complete Maintenance Mode** operation completes Maintenance mode for the specified Virtual Connect Domain ID.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

vcDomainId

The VC Domain ID for which Maintenance mode operation is to be completed. For example, **1, 2**, **3**.

restoreConfig

Specifies that if the new base configuration is not compatible with the current profile configuration, VCEM will restore the base configuration, overriding any changes done via VCM. The valid values are **true** and **false**. The default value is **true**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Finished VC Domain Maintenance process**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314650420280**.

- **retJobStartTime** - The time that job started. For example, **1314650391947**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **100**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Administrator**.

Enable Maintenance Mode

The **Enable Maintenance Mode** operation enables Maintenance mode for the specified Virtual Connect Domain ID. This operation changes the VCEM privileges on the VC Domain, allowing the user to change the domain configuration directly through Virtual Connect Manager, and updates the VC Domain status to **MAINTENANCE_MODE**.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

vcDomainId

The VC Domain ID for which Maintenance mode is to be enabled. For example, **1**, **2**, **3**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Administrator**.

Profiles

Add FC Connection to Profile

The **Add FC Connection to Profile** operation adds a Fiber Channel (FC) connection to a server profile in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

serverProfileName

The server profile name. For example, **Profile_OO_default1**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

bootTargetLUN

The boot target LUN. A LUN can be a 3-digit integer from 0 to 255 or a 16-digit hexadecimal number for any value greater than 255. FC Boot Parameters are only set when you specify values for both the **bootTargetLUN** and **bootTargetPortWWN** inputs.

bootTargetPortWWN

The boot target WWN address. FC Boot Parameters are only set when you specify values for both the **bootTargetLUN** and **bootTargetPortWWN** inputs. For example, **50:01:43:80:02:A3:00:00**.

bootPriorityMode

The enable/disable function on the boot setting. The valid values are **Primary**, **Secondary**, **USE_BIOS**, and **Disabled**. The default value is USE_BIOS.

fabricName

The name of the FC fabric. Specify a value for this input if you want to create an assigned FC connection. You must specify a value for either the **fabricName** or **interconnectBay** input. If you specify a value for the **fabricName** input, the **interconnectBay** input is ignored. For example, **SAN_5**.

interconnectBay

The interconnect bay number. Specify a value for this input if you want to create an unassigned FC connection. You must specify a value for either the **fabricName** or **interconnectBay** input. If you specify a value for the **fabricName** input, the **interconnectBay** input is ignored. For example, **5**, **6**.

portSpeed

The port speed of the FC connection. The valid values are **AUTO**, **8**, **4**, **2**, **1**, and **DISABLED**. The default value is **AUTO**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Checking server profile bay assignment.**

- **retJobProgressTime** - The time of the last job progress. For example, **1314765624447**.

- **retJobStartTime** - The time that the job started. For example, **1314765619737**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **84**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Operator**.

- The bay that has a server associated with the server profile should be powered off.

Add Network Connection to Profile

The **Add Network Connection to Profile** operation adds a single network connection to a server profile in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

serverProfileName

The server profile name. For example, **Profile_OO_default10**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

networkName

The network name to add. For example, **ros-C7000-1**.

portSpeedSetting

The port speed setting type. The valid values are **Preferred**, **Auto**, **Custom**, and **Disabled**. The default value is **Preferred**.

portSpeed

If you select a value of **Custom** for the **portSpeedSetting** input, you must also specify a value for the **portSpeed** input. The value must be between **100** and **10000** and be a multiple of 100 (that is, a speed value of 1000 represents 1GB). For example, **1000**.

pxe

The PXE setting. The valid values are **USE_BIOS**, **Enabled**, and **Disabled**. The default value is **USE_BIOS**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Checking target resource**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314727406597**.

- **retJobStartTime** - The time that job started. For example, **1314727406597**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **0**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.

- The bay which has a server associated with the server profile should be powered off.

Assign Profile by Id

The **Assign Profile by Id** operation assigns a server profile identified by a profile ID to the bay specified by with the enclosure name and bay number in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The profile ID. For example, **135323849242290000**.

enclosureName

The enclosure name. For example. **ros-C7000-1**.

bayNumber

The bay number receiving the profile. For example, **1**, **2**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Pre-validating profile attributes**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314657826927**.

- **retJobStartTime** - The time that job started. For example, **1314657826697**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **20**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is VCEM Group Limited Operator.

- All VC Domains in use must belong to the same VC Domain Group.

- If any bay in the operation contains a server, the bay must be powered off. This implies that the destination bay must not have a server profile assigned.

Assign Profile by Name

The **Assign Profile by Name** operation assigns a server profile identified by a profile name to the bay specified by with the enclosure name and bay name in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileName

The profile name. For example, **Profile_OO_default5**.

enclosureName

The enclosure name. For example, **ros-C7000-1**.

bayNumber

The bay number receiving the profile. For example, **1**, **2**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Pre-validating profile attributes**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314657826927**.

- **retJobStartTime** - The time that job started. For example, **1314657826697**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **20**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator.**
- All VC Domains in use must belong to the same VC Domain Group.
- If any bay in the operation contains a server, the bay must be powered off. This implies that the destination bay must not have a server profile assigned.

Delete FC Connection from Profile

The **Delete FC Connection from Profile** operation deletes the last Fiber Channel (FC) connection from a server profile in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

serverProfileName

The server profile name. For example, **Profile_OO_default1**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Checking server profile bay assign**ment.
- **retJobProgressTime** - The time of the last job progress. For example, **1314765624447**.
- **retJobStartTime** - The time that the job started. For example, **1314765619737**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **84**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Operator**.
- The bay that has a server associated with the server profile should be powered off.

Delete Network Connection from Profile

The **Delete Network Connection from Profile** operation deletes the last network connection from a server profile in HP Virtual Connect Enterprise Manager (VCEM). You cannot remove the two default network connections with port numbers 1 and 2.

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

serverProfileName

The server profile name. For example, **Profile_OO_default10**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Start executing job**.
- **retJobProgressTime** - The time of the last job progress. For example, **1314728974050**.
- **retJobStartTime** - The time that job started. For example, **1314728973913**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **0**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.
- The bay which has a server associated with the server profile should be powered off.

Find Profile by Id

The **Find Profile by Id** operation finds a server profile identified by a profile ID in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJsServerProfile

A JavaScript Object string that is a server profile object. The object contains the following information about a server profile:

- **retServerProfileName** - The server profile name. For example, **Profile_OO_default3**.
- **retServerProfileId** - The server profile id. For example, **135323849242290000**.
- **retServerProfileSerialNumber** - The server profile serial number. For example, ":".
- **retServerProfileUUID** - The server profile UUID. For example, ".".
- **retVcDomainGroupName** - The name of a VC domain group. For example, **VCEMDomainGroup-oo1**
- **retBayNumber** - The bay number if it exists. For example, **3**.

Responses

The operation returns one of the following responses:

yes

The operation successfully found a server profile.

no

The operation was not able to find a server profile.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Find Profile by Name

The **Find Profile by Name** operation finds a server profile identified by a profile name in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileName

The server profile name. For example, **Profile_OO_default1**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJsServerProfile

A JavaScript Object string that is a server profile object. The object contains the following information about a server profile:

- **retServerProfileName** - The server profile name. For example, **Profile_OO_default3**.
- **retServerProfileId** - The server profile ID. For example, **135323849242290000**.
- **retServerProfileSerialNumber** - The server profile serial number. For example, ":".
- **retServerProfileUUID** - The server profile UUID. For example, ".".
- **retVcDomainGroupName** - The name of a VC domain group. For example, **VCEMDomainGroup**.
- **retBayNumber** - The bay number if it exists. For example, **3**.

Responses

The operation returns one of the following responses:

yes

The operation successfully found a server profile.

no

The operation was not able to find a server profile.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

List Server Profiles

The **List Server Profiles** operation lists server profiles in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs are described in *Common Inputs in the Integration*.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJsServerProfiles

A JavaScript Object string that is a server profile object. The object contains the following information about a server profile:

- **retServerProfileName** - The server profile name. For example, **Profile_OO_default1**.
- **retServerProfileId** - The server profile id. For example, **135323849233620000**.
- **retServerProfileSerialNumber** - The server profile serial number. For example, ":".
- **retServerProfileUUID** - The server profile UUID. For example, ".".
- **retVcDomainGroupName** - The name of a VC domain group. For example, **VCEMDomainGroup-oo1**.
- **retBayNumber** - The bay number if it exists. For example, **10**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Unassign Profile by Id

The **Unassign Profile by Id** operation unassigns a server profile identified by a profile ID in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The profile ID to unassign. For example, **135323849260210000**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Pre-validating profile attributes**.
- **retJobProgressTime** - The time of the last job progress. For example, **1314657826927**.
- **retJobStartTime** - The time that job started. For example, **1314657826697**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **20**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.

- The profile must exist.

- The profile must be associated with a bay.

- If the bay contains a server, the bay must be powered off.

Unassign Profile by Name

The **Unassign Profile by Name** operation unassigns a server profile identified by a profile name in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileName

The profile name to unassign. For example, **Profile_OO_default5**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**..

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Pre-validating profile attributes**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314657826927**.

- **retJobStartTime** - The time that job started. For example, **1314657826697**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **20**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Limited Operator**.

- The profile must exist.

- The profile must be associated with a bay.

- If the bay contains a server, the bay must be powered off.

Update FC Connection in Profile

The **Update FC Connection in Profile** operation updates a Fiber Channel (FC) connection in a server profile in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

serverProfileName

The server profile name. For example, **Profile_OO_default1**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

portNumber

The port number of the FC connection to be updated. For example, **1**, **2**.

bootTargetLUN

The boot target LUN. A LUN can be a 3-digit integer from 0 to 255 or a 16-digit hexadecimal number for any value greater than 255. FC Boot Parameters are updated only when you specify values for both the **bootTargetLUN** and **bootTargetPortWWN** inputs.

bootTargetPortWWN

The boot target WWN address. FC Boot Parameters are updated only when you specify values for both the **bootTargetLUN** and **bootTargetPortWWN** inputs. For example, **50:01:43:80:02:A3:00:00**.

bootPriorityMode

Specifies the enable/disable function on the boot setting. The valid values are **Primary**, **Secondary**, and **USE_BIOS,Disabled**.

fabricName

The name of the FC fabric that will be assigned to the FC connection. For example, **SAN_5**.

portSpeed

The port speed of the FC connection. The valid values are **AUTO**, **8**, **4**, **2**, **1**, and **DISABLED**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**..

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Checking server profile bay assignment**.
- **retJobProgressTime** - The time of the last job progress. For example, **1314765624447**.
- **retJobStartTime** - The time that the job started. For example, **1314765619737**.
- **retJobProgressPercent** - The percent of the last job progress. For example, **84**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM Group Operator**.
- The bay that has a server associated with the server profile should be powered off.

Update Network Connection in Profile

The **Update Network Connection in Profile** operation updates a single network connection in a server profile in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

serverProfileId

The server profile ID. For example, **135323849242290000**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

serverProfileName

The server profile name. For example, **Profile_OO_default10**. You must specify a value for either the **serverProfileId** or **serverProfileName** input. If you specify a value for the **serverProfileId** input, the **serverProfileName** input is ignored.

networkConnectionPortId

The network connection port ID to modify. For example, **3**.

networkName

The network name to add. For example, **ros-C7000-1**.

portSpeedSetting

The port speed setting type. The valid values are **Preferred**, **Auto**, **Custom**, and **Disabled**. The default value is **Preferred**.

portSpeed

If you specify a value of **Custom** for the **portSpeedSetting** input, you must also specify a value for the **portSpeed** input. The value must be between 100 and 10000 and be a multiple of 100 (for instance, a speed value of 1000 represents 1GB). For example, **1000**.

pxe

The PXE setting. The valid values are **USE_BIOS**, **Enabled**, and **Disabled**. The default value is **USE_BIOS**.

timeout

The time to wait in seconds before the operation is considered to have failed. If you specify a value of **true** for the **async** input, the timeout input value is ignored. The default value is **180**.

Results

The operation returns the following results:

returnResult

A message indicating that status of the operation.

retJobState

The state of the job. For example, **COMPLETED**, **FAILED**, **PENDING**, **WARNING**, or **RUNNING**.

retJsJobProgresses

A JavaScript Object string that contains the following information about the job progress if the operation fails or times out:

- **retJobProcessDescription** - The description of the last job progress. For example, **Start executing job**.

- **retJobProgressTime** - The time of the last job progress. For example, **1314728974050**.

- **retJobStartTime** - The time that job started. For example, **1314728973913**.

- **retJobProgressPercent** - The percent of the last job progress. For example, **0**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The **minimum role-based security required to run this operation is VCEM Group** Limited Operator.

- The bay which has a server associated with the server profile should be powered off.

VC Domains and Domain Groups

Find VC Domain Group

The **Find VC Domain Group** operation finds a VC domain group that matches the value you specify for the **vcDomainGroupId** or **vcDomainGroupName** input in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

vcDomainGroupId

A VC domain group ID. You must specify a value for either the **vcDomainGroupId** or **vcDomainGroupName** input. If you specify a value for the **vcDomainGroupId** input, the **vcDomainGroupName** input is ignored. For example, **1124, 24567**.

vcDomainGroupName

A VC domain group name. You must specify a value for either the **vcDomainGroupId** or **vcDomainGroupName** input. If you specify a value for the **vcDomainGroupId** input, the **vcDomainGroupName** is ignored. For example, **VCEMDomainGroup-oo1**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJsVCDomainGroup

A JavaScript Object string that is a VC domain group object. The object contains the following information about a VC domain group:

- **retVcDomainGroupStatus** - The status of a VC domain group. For example, **MANAGED**.

- **retVcDomainGroupName** - The VC domain group name. For example, **VCEMDomainGroup-oo1**.

- **retVcDomainGroupId** - The VC domain group ID. For example, **1**.

Responses

The operation returns one of the following responses:

yes

The operation successfully found a matching VC domain group.

no

The operation was not able to find a matching VC domain group.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

Find VC Domain

The **Find VC Domain** operation finds the VC domain you specify in the **vcDomainName** input value in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs except the following are described in *Common Inputs in the Integration*.

vcDomainName

A VC domain name. For example, **ros-C7000-1_vc_domain**.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJsVCDomain

A JavaScript Object string that is a VC domain object. The object contains the following information about a VC domain:

- **retVcDomainStatus** - The status of a VC domain. For example, **MANAGED**.
- **retVcDomainGroupName** - The VC domain group name of a VC domain. For example, **VCEMDomainGroup-oo1**.
- **retVcDomainName** - The name of a VC domain. For example, **ros-C7000-1_vc_domain**.
- **retVcDomainId** - The ID of a VC domain. For example, **1**.
- **retVcDomainGuid** - The UUID of a VC domain. For example, **09SGH046P724**.
- **retVcDomainGroupId** -The ID of the VC domain group to which a VC domain belongs. For example, **1**.

Responses

The operation returns one of the following responses:

yes

The operation successfully found a matching VC domain.

no

The operation was not able to find a matching VC domain.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

List VC Domain Groups

The **List VC Domain Groups** operation lists the VC domain groups in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs are described in *Common Inputs in the Integration*.

Results

The operation returns the following:

returnResult

A message indicating the status of the operation.

retJsVCDomainGroups

A JavaScript Object string that is an array of VC domain group objects. Each object in the array contains the following information about a VC domain group:

- **retVcDomainGroupStatus** - The status of a VC domain group. For example, **MANAGED**.
- **retVcDomainGroupName** - The VC domain group name. For example, **VCEMDomainGroup-oo1**.
- **retVcDomainGroupId** - The VC domain group ID. For example, **1**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

List VC Domains

The **List VC Domains** operation lists the VC domains in HP Virtual Connect Enterprise Manager (VCEM).

Inputs

All of the operation's inputs are described in *Common Inputs in the Integration*.

Results

The operation returns the following results:

returnResult

A message indicating the status of the operation.

retJsVCDomains

A JavaScript Object string that is an array of VC domain objects. Each object in the array contains the following information about a VC domain:

- **retVcDomainStatus** - The status of a VC domain. For example, **MANAGED**.
- **retVcDomainGroupName** - The VC domain group name of a VC domain. For example, **VCEMDomainGroup-oo1**.
- **retVcDomainName** - The name of a VC domain. For example, **ros-C7000-1_vc_domain**.
- **retVcDomainId** - The ID of a VC domain. For example, **1**.
- **retVcDomainGuid** - The UUID of a VC domain. For example, **09SGH046P724**.
- **retVcDomainGroupId** - The ID of the VC domain group that a VC domain belongs. For example, **1**.

Responses

The operation returns one of the following responses:

success

The operation completed successfully.

failure

The operation completed unsuccessfully.

Prerequisites

- The minimum role-based security required to run this operation is **VCEM User**.

4 Using Virtual Connect Manager Command Line Interface with VC Domain Maintenance operations

This section includes the following topics:

- Using Virtual Connect Manager Command Line Interface in Combination with the VC Domain Maintenance Operations

HP Virtual Connect Enterprise Manager Integration Guide

Using Virtual Connect Manager Command Line Interface in Combination with the VC Domain Maintenance Operations

VC Domain Maintenance is a useful way to perform updates on a particular VC Domain without removing it from a VC Domain Group, and to apply the common domain, network, and storage configuration changes automatically to all other VC Domains that belong to the same VC Domain Group. VCEM accomplishes this by temporarily enabling domain, network, and storage changes through the local Virtual Connect Manager for the selected domain.

You can use the existing OO SSH operations to run any SSH-based commands documented in the Virtual Connect Manager's command line interface (VCMCLI) to perform any number of the tasks below from within an OO flow. The sample flow **Add SAN Fabric and FC Connection** in the Library/Integrations/Hewlett-Packard/Virtual Connect Enterprise/Manager/Samples/ folder shows an SSH example. The VC Domain must be in Maintenance Mode before you can run these commands; this is shown in the sample flow as well.

Some of the useful domain-level operations enabled during VC Domain Maintenance include:

- Upgrading firmware
- Backing up VC Domain configuration
- Administering local user accounts
- Setting LDAP directory settings
- Changing VC Domain configuration
- Domain name
- Static IP address
- Setting SSH
- Setting SSL Certificate
- Resetting Virtual Connect Module (soft reset)
- Monitoring network ports
- Configuring networks
- Configuring storage

Some of the useful network-level operations enabled during VC Domain Maintenance include:

- Monitoring network ports
- Changing network configurations

5 Troubleshooting

This section includes the following topics:

- Troubleshooting Overview

HP Virtual Connect Enterprise Manager Integration Guide

Troubleshooting Overview

Common exception handling to report error message numbers and description is described in the "Troubleshooting the SDK" section of the *HP Insight Software VCEM Web Client SDK 6.3 User Guide*.

6 Security

This section includes the following topics:

- **About VCEM Security**

HP Virtual Connect Enterprise Manager Integration Guide

About VCEM Security

This section describes how security is handled by the VCEM integration.

Role-based access control (RBAC)

VCEM provides five types of role-based user access privileges. Each API requires different access control privileges based on the object and the Read/Write operation being invoked. Access control is based on the credentials used in the login APIs. These credentials are specified by the **username** and **password** inputs for each operation. The **Description** tab of each OO VCEM operation lists the minimum role-based security required to run the operation. The five types are shown below:

- **VCEM Administrator** — Manages all VCEM resources. All operations are permitted to all resources.

- **VCEM Domain Group Administrator** — Manages VC Domains and server profiles in one or more VC Domain Groups.

- **VCEMDomainGroupLimitedOperator** — Manages the same tasks as the **VCEM Domain Group Operator** except for creating, editing, and deleting a server profile.

- **VCEM Domain Group Operator** — Manages server profiles in one or more VC Domain Groups.

- **VCEM User (Read Only)** —Read-only access to all VCEM resources.

RBAC Best Practices

In a configuration where VCEM is used in conjunction with a higher level manager such as LSM or Insight Dynamics-VSE, make sure that operations invoked through the VCEM SDK do not disrupt the functioning of the higher level manager. The **VCEM User Interface** warns the administrator when it detects the risk of conflict. The *HP Insight Software VCEM Web Client SDK 6.3 User Guide* includes warnings for the APIs which can cause disruptions.

You can configure SIM users to prevent conflicts between VCEM and higher level managers by prohibiting the VCEM user from making changes to resources that would disrupt the higher level manager. To prevent conflicts:

- Define specific SIM users for VCEM and VCEM SDK.

- Define additional SIM users for higher level tools.

- Remove VCEM user roles (if needed) to prevent conflict with higher level managers.

- Set permissions on VC Domain Groups so that specific SIM users can access them.

7 OO Tools

This section includes the following topic:

- OO Tools You Can Use with the VCEM - OO Integration

OO Tools You Can Use with the VCEM – OO Integration

Following are OO tools that you can use with the VCEM integration:

- **RSFlowInvoke.exe and JRSFlowInvoke.jar**

  RSFlowInvoke (RSFlowInvoke.exe or the Java version, JRSFlowInvoke.jar) is a command-line utility that allows you to start a flow without using Central (although the Central service must be running). RSFlowInvoke is useful when you want to start a flow from an external system, such as a monitoring application that can use a command line to start a flow.

- **Web Services Wizard (wswizard.exe)**

  When you run the Web Services Wizard, you provide it with the WSDL for a given Web service. The WSDL string you provide as a pointer can be a file's location and name or a URL. The Web Services Wizard displays a list of the methods in the API of the Web service that you specify. When you run the wizard, pick the methods you want to use, and with one click for each method you have selected, the wizard creates an HP OO operation that can execute the method. This allows you to use the Web Services Wizard to create operations from your monitoring tool's API.

These tools are available in the Operations Orchestration home folder in /Studio/tools/.