HP Cloud Service Automation for Matrix 2011, June

Troubleshooting Guide

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Acknowledgements

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

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Troubleshooting Installation

Problem: CSA for Matrix installation fails

Symptoms	Installation of CSA for Matrix fails.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	CSA for Matrix
Other dependencies	
Failure message	• not found <filename> correct missing files or other problems • Neither OO Dir, IO Dir nor SiteScope dir are found on this server. Perhaps configuration is incorrect in <propertiesFile> • Central Login URL: <CentralURL> URL status: not available. • Central Login URL: <CentralURL> URL status: available. Logging on to Central: Invalid username or password. Could not open: <CentralURL>
Probable cause	• Required file <filename> is missing. • Directory path configured in the file `csa4mInstall.properties` is incorrect or the server does not host HP IO, OO, or SiteScope. • OO Central URL configured is wrong. • OO Central login credentials are specified incorrectly.
For more information	See the *HP Cloud Service Automation for Matrix Configuration Guide.*

Solution:

- For missing files, make sure the file <filename> exists and retry the installation.
  NOTE: If you use standalone OO, and if the displays that the HP IO directory is missing, make sure to complete the standalone OO configuration for HP IO and retry the installation.

- If the installer does not find IO, OO, or SiteScope directory, make sure the server hosts at least one of these products. Verify that the `csa4mInstall.properties` file is configured with correct paths for these directories.
  NOTE: These directory paths should not be left blank. If the server does not host a particular component, do not edit the default value for the component.

- Verify that the OO Central URL specified in the `csa4mInstall.properties` file is correct and working.

- Verify that the OO Central login details specified in the `csa4mInstall.properties` file are correct.

Troubleshooting Integration (HP SA)

Integration

Problem: No HP SA software listed in the IO Software Tab

This failure manifests when HP SA software does not appear in the HP IO Operations Console Software tab.

Symptoms	Unable to retrieve OS Policy or APP Policy Inventory from HP SA primary core. Any software presented by the HP SA server to HP IO is not listed on the HP IO Software tab.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component	HP IO and HP SA
Other dependencies	
Failure message	There might be a message in the HP IO or ALC log files, but not always.
Probable cause	The permissions of the account used by HP IO do not have list and view permissions to the software to be used by HP IO. HP SA is not fully up and running.
How to access log files	
For more information	See the *HP Cloud Service Automation for Matrix Configuration Guide.*

Solution:

Review the *HP Cloud Service Automation for Matrix Configuration Guide* chapter on setting HP SA account permissions. There are two parts to the permissions needed by this account. The first are those set in the OCC Web interface used to create the account and the appropriate group. The second are the folder permissions, viewable in the OCC Java application that contains the software packages, software profiles, OS profiles and OS sequences.

1) Verify that the HP SA server is up and running all HP SA services:
    a) Log in as root to the HP SA server.
    b) Run the command **`/etc/init.d/opsware-sas status`**
    c) Review the output to see that all status messages are marked SUCCESS.
2) Verify that network connectivity between the CMS and the target HP SA primary core is working (for example, perform a basic ping check).
3) Verify that the mxnode security credential that was supplied for the HP SA primary core is correct by opening a command shell on the CMS and running the following command: **`mxnodesecurity -l`**
    a) A valid credential must include the following:
        - The IP address or hostname of the HP SA primary core
        - A protocol type of **dsc_sas**
        - The login and password of account that was created on the HP SA primary core for BladeSystem Matrix's use and access

b) If the credential that was created is invalid, delete the current credential using the command:
mxnodesecurity –r –p dsc_sas –n <IP address or hostname>

NOTE: If the incorrect protocol type was specified, you must substitute the value that is currently stored in the invalid entry for **dsc_sas** above.

c) To recreate the credential, issue the command:
mxnodesecurity –a –p dsc_sas –c <username>:<password> -n <SA primary core IP Address or hostname>

4) Verify that network connectivity and the **mxnodesecurity** credential are correct. It is possible that the account that created on the HP SA primary core does not have access to the correct group or that the folder permissions on the HP SA primary core have not been correctly updated. Refer to the "Updating HP SA Security and Roles" in the *HP Cloud Service Automation for Matrix Configuration Guide* for details on configuring folder permissions.

HP IO also provides a support tool that can be used to retrieve a command-line listing of the current software inventory.

1) Open a command prompt on the CMS.
2) Change directory to: **C:\Program Files\HP\Insight Orchestration\support**
3) Execute the command: **sbapi.bat GetImages**

Problem: Orphaned servers observed in HP SA Devices folders

Symptoms	The HP SA **Devices** subfolders in the OCCWeb or NGUI have server records that are not associated with any active CSA for Matrix service.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	HP SA, HP IO
Other dependencies	A prior provision or de-provision of servers associated with the orphaned server records may have failed or had problems.
Failure message	None. Disconnected server icons or server icons marked with a red X appears as shown in the figures below.
Probable cause	
For more information	

Solution:

1) Log in to the HP SA server via the NGUI client.
2) Review each of the following subfolders under the Servers folder for orphaned resources:
   All Managed Servers
   Unprovisioned Servers
3) Evaluate any servers in the All Managed Servers folders that do not have corresponding managed instances in CSA for Matrix, or whose small blue server icon is not connected to a small network icon just to its right.
4) Evaluate any servers in the Unprovisioned Servers folders that do not have corresponding managed instances in CSA for Matrix, or whose small server icon has a red X.
5) Evaluate what is managed in HP SIM, HP IO, VSE, VCEM, vCenter/ESX and Hyper-V.

6) Review any server records that are stray or orphaned for deactivation and removal from the HP SA Servers sub-folders.

Figure 1 Orphaned Servers in HP SA Devices, Part One

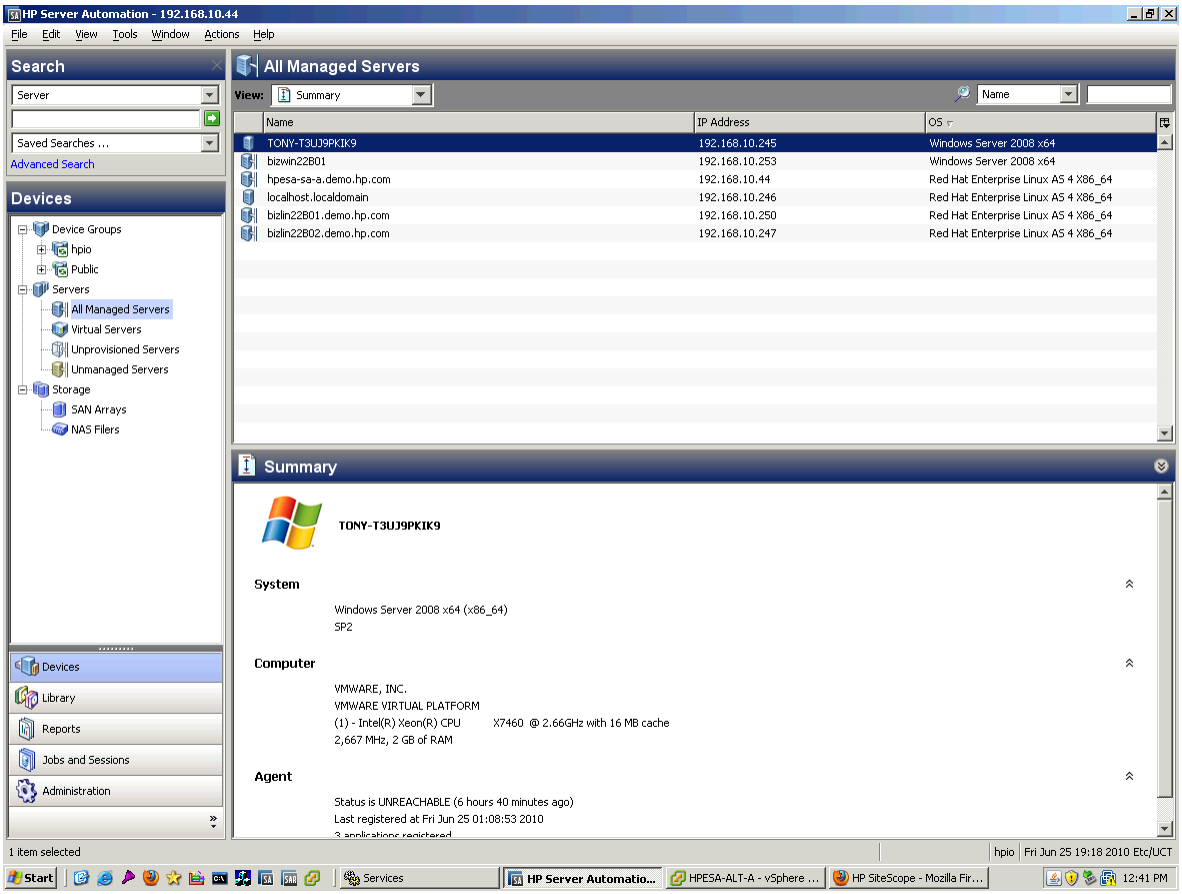
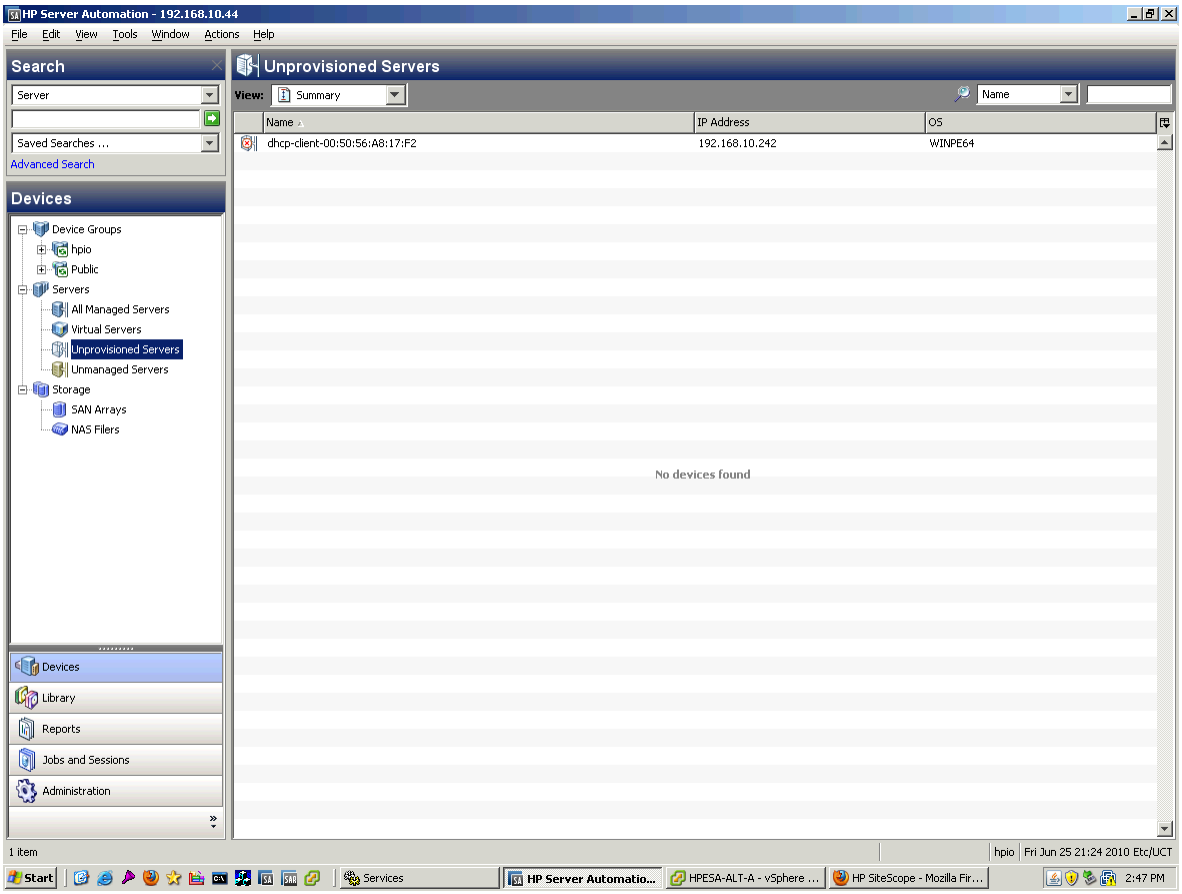


Figure 2: Orphaned Servers in HP SA Devices, Part Two



Problem: Personalization fails during provisioning on a dual-homed server

Symptoms	During HP SA provisioning, the provisioning fails at the personalization step.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HPIO, HP SA
Other dependencies	
Failure message	
Probable cause	• The network associated with the provisioning step is defined in the HP IO template as **DHCP**, but there is no actual DHCP server available on that network. • In the case of a dual-homed server, even if the boot network is correctly identified as **DHCP** and there is actually a DHCP server available, a provisioning failure at the personalization step occurs if any other networks are defined as DHCP-enabled and there is no associated DHCP server.
For more information	See the *HP Server Automation Installation and*

	Configuration Guide.

Solution:

Make sure that all networks identified in the template as **DHCP enabled** have DHCP services available at provision time.

Problem: Target server cannot download HP SA agent or OS

The service or production OS does not have a driver that enables it to use the system's primary network interface card (NIC).

Symptoms	The target server cannot do a network download of the HP SA agent or the OS components to be deployed.
Hardware	Any physical server or virtual machine (VM) guest type
Operating System(s)	Any
Is this an integration issue?	No
Primary software component	OS Install media and NIC driver software
Other dependencies	
Failure message	Target server cannot do a network download of the HP SA agent or the OS components to be deployed
Probable cause	Missing or incorrect NIC driver in the HP SA service or the production OS
For more information	

Solution:

Verify that the OS sequence can be deployed against each server type before adding the servers to the pool of available HP IO resources.

To do this you need to manually deploy each OS type from HP SA to each physical server or VM guest type in your environment that may deploy the OS.

After the server PXE boots, verify that the OS installation sequence can access the HP SA server infrastructure over the provisioning network.

Problem: Check reachability failure on HP SA

Check reachability failure on HP SA with "crypto" error during *Run OS* sequence.

Symptoms	Check reachability failure on HP SA with "crypto" error occurs during a *Run OS* sequence.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP SA
Other dependencies	
Failure message	"Check reachability failure" on HP SA
Probable cause	SSL certificate on the target server is invalid; therefore, the reachability check fails on HP SA.
For more information	

Solution:

1) Boot the target server and enter the BIOS settings of the target server.
2) Make sure the date/time in the BIOS settings of the target server are in sync with the HP SA Core date/time.
3) If the date/time are out of sync with the HP SA Core, change the date/time setting to reflect the date/time on the HP SA Core.
4) On the target server, the time and date goes out of sync with the HP SA Core after an **erase disk** on the BIOS settings, which resets the time. Changing the time on the OS does not fix this issue. Change the date/time on the BIOS settings of the target server, which become the default time settings for the server during provisioning.

Problem: The Create Service operation is not allowed in the current lifecycle state of the server

The Create Service operation is not allowed in the current lifecycle state of the server. The Create Service operation in the HP IO console fails with the following error:
`Failure: The requested operation is not allowed in the current lifecycle state of the server according to the deployment server. One possible reason is that a node with the same MAC address or UUID exists on the deployment server.`

Symptoms	The Create Service operation is not allowed in the current lifecycle state of the server. The Create Service operation in the HP IO console fails with the following error: `Failure: The requested operation is not allowed in the current lifecycle state of the server according to the deployment server. One possible reason is that a node with the same MAC address or UUID exists on the deployment server.`
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP SA
Other dependencies	
Failure message	Task for Logical Server <*system_name*> has failed. Logical server job (ID = <*system_name*>.domain.com) completed with a failure status. Failure: The requested operation is not allowed in the current lifecycle state of the server according to the deployment server. One possible reason is that a node with the same MAC address or UUID exists on the deployment server.
Probable cause	An entry of the server is already present on the deployment server (SA) in the managed or partially managed state.

Solution:

1) Open the devices tab in SA.
2) Verify that there is an entry of the target server on managed or un-provisioned servers.
3) If an entry of this server is present, delete the server (deactivate and delete if it is completely managed).

4) Recreate the IO service.

Problem: Server provisioning fails for OS sequences with defined policies

End-to-End server provisioning fails in HP IO when the SA OS sequence contains a defined policy.

Symptoms	End-to-End server provisioning fails in HP IO when the SA OS sequence contains a defined policy.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO, SA

Solution:

When you use an SA OS sequence with a defined policy, end-to-end server provisioning fails. Do the following for successfully provisioning a server with attached policies:

1) In SA, remove the policies attached to the OS sequence.
2) In the HP IO designer console, edit the Server Group Configuration in the template to add the policies as additional software in the (optional) Select additional software tab.
3) Save the template.
4) Create service with this template.

Problem: The Check Server Audit Compliance workflow fails

The Check Server Audit Compliance workflow fails.

Symptoms	The Check Server Audit Compliance workflow fails.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	SA, OO
Failure message	• Unable to get audit task name. Check if CSA_SA_AUDIT_TASKNAME_LIN and CSA_SA_AUDIT_TASKNAME_WIN System Properties are set. • Cannot initiate compliance check as list of CSA4M servers is empty. Please check if the target servers in the audit is set correctly.
Probable cause	• Audit Task is not set in the OO Studio. • Incorrect SA credentials on OO. • Incorrect HP IO-SA user account permissions. • The server is not part of the target list in the audit task.

Solution:

Error logs can be found in <CSA_DEBUG_LOGDIR>\<CSA_DEBUG_LOGNAME>.

- If you see the error message “System properties not set,” do the following:

1. Open OO Studio.
2. Set the appropriate task name variable under System Properties.

- If you see the error message "Cannot initiate compliance check as list of CSA servers is empty," add the server to the Target list in SA.
- Verify that the SA credentials are correctly set in the system account `HpioSACredentials`.
- Verify that the user SA user permissions are correctly set for the HPIO-SA user. See the *CSA for Matrix Configuration Guide* for more information.

NOTE: CSA_DEBUG_LOGDIR and CSA_DEBUG_LOGNAME are system properties that appear in OO Studio. For more information on these properties, see the *Configuring Workflows in the OO Studio* section in the *CSA for Matrix Configuration Guide*.

Troubleshooting Central Management Server (CMS)

CMS Installation

Problem: HP SIM install fails with missing files

HP SIM install fails with log indicating missing files in the install.

Symptoms	SIM install reports intermittent failures, while running the integrated installer
Hardware	Any
Operating System(s)	Windows
Is this an integration issue?	No
Primary software component	HP SIM
Other dependencies	No

Failure message	From the HP SIM install logs, for example:
	
	C:\HPIC\logs\ICM_2010072882213\HPIS--setup.log
	
	`[Wed Jul 28 23:03:36 MDT 2010] HPIC Install: CopyFile(src[C:\hpsmh.ini]dest[C:\HPIC\logs\ICM_201007282213\]bAddToDeletionList[false])`
	`[Wed Jul 28 23:03:36 MDT 2010] HPIC Install:` **`CopyFile failed: File not found`**
	`[Wed Jul 28 23:03:36 MDT 2010] HPIC Install: Trying again...`
	`[Wed Jul 28 23:03:36 MDT 2010] HPIC Install:` **`CopyFile failed: File not found`**
	`[Wed Jul 28 23:03:36 MDT 2010] HPIC Install:`
	`DeleteFile(sFile[C:\hpsmh.ini])`

Probable cause	HP IO performance of the DVD media or mounted ISO is falling below a specific performance level.
For more information	Review the HPIS-setup log: **C:\HPIC\logs\ICM_2010072882213\HPIS--setup.log**

Solution:

Run the integrated installer again.

Problem: HP SIM install cannot access HP SA

SA server cannot be reached during the installation.

Symptoms	HP SIM install refuses to carry on until HP SA server can be accessed.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	Integrated installer and HP SA
Other dependencies	
Failure message	Integrated installer does not proceed with the installation.
Probable cause	SA services could not be contacted.
For more information	

Solution:

Verify that the HP SA server is UP and running all the HP SA services.

1) Log in as root to the HP SA server.
2) Run the command **`/etc/init.d/opsware-sas status`**.
3) Review the output to see that all status messages are marked **SUCCESS**.

Verify that the HP SA server can be accessed using the IP address or FQDN that is given to the SIM installer by issuing an SSH command to the HP SA server IP address or issuing FQDN.

Verify that the HP SA account given to SIM can log in to the HP SA services:

1) Open a browser to `https://SA-IP-Address/`
2) Log in to the HP SA services with the same account you are giving to the HP SIM installer for accessing HP SA services.

CMS Configuration

Problem: No VM ESX or Hyper-V host or network resources in HP IO UI

Symptoms	When browsing the HP IO homepage, previously discovered, registered VM host resources do not appear in the Servers or Networks tab.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	vCenter, VMWare, VMM, HP IO, Hyper-V, LSM
Other dependencies	ESX resources may have shown up in the past or may never have shown up after discovery.
Failure message	None. But there will be missing entries for resources in the Servers and Networks tabs in HP IO.
Probable causes	• vCenter server is down or has shut down. • VMWare servers is down or shutdown. • VMWare hosts are not registered with HP SIM. • vCenter servers are not recognized by HP SIM. • e) Hyper-V hosts are not register with HP SIM.
For more information	

Solution:

Software	**Actions**
VMWare	Verify that VMWare hosts are running: 1) Log in to the Windows system that is hosting the vCenter server software. 2) Open the Windows Services management console. 3) Search for the service **VMWare VirtualCenter Server**. 4) Its status should be **Started**. If it is not, start the service. 5) Set the services Startup Type to **Automatic**.
Hyper-V	Verify that Hyper-V hosts are running.
Insight Dynamics	1) Go to **Options > VMware vCenter** >**Settings** to verify that any vCenter servers are visible to Insight Dynamics. 2) Go to **Configure**> **Virtual Machine**>**Register Virtual Machine Host** to verify that VMWare hosts, managed by the vCenter server(s), are registered. 3) Go to **Configure** > **Virtual Machine**>**Register Virtual Machine Host** to verify that any Hyper-V hosts are registered. 4) Go to **Tools** > **Virtualization manager** > **Tools** > **Logical Servers**. To refresh the system, select **Insight Control virtual machine management (VMM)**. NOTE: This should trigger a re-run of the API to collect hypervisor resource information within 10-15 minutes

To verify that the changes you have made:

1) Open the HP IO Portal Networks tab and **refresh** to verify that the servers above can now be seen from the UI.
2) Click the **Click to refresh** icon on the HP IO **Servers** tab.
3) Click the **Click to refresh** icon on the HP IO **Networks** tab.
4) Verify that the hypervisor server resources are visible.

If the resources still don't show, do the following on the CMS:

1) Stop the HP IO service.
2) Restart the LSA service.
3) Wait until the LSA service is fully restarted, and then restart the HP IO service.

Problem: Virtual Connect cClass blade servers do not show up in HP IO UI

Resources do not show up in HP IO UI.

Symptoms	Virtual Connect cClass blade servers do not appear in the HP IO Server Pool tab.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	
Probable cause	• The Virtual Connect Domain Group/VCDG is not created. • The cClass enclosure not licensed. • Hardware problems exist with the cClass enclosure.
For more information	See the *HP Cloud Service Automation for Matrix Configuration Guide*.

Solution:

Address and verify each probable cause listed above:

1) Verify the virtual connect domain group (VCDG) setup. If there is no setup, then create one. For more information see the *HP Cloud Service Automation for Matrix Configuration Guide*, section."
2) License the cClass enclosure. For more information, see "Configure HP IO to use Blades" in the *HP Cloud Service Automation for Matrix Configuration Guide.*
3) Verify whether or not there are hardware problems with the enclosure. Access the Virtual Connect (VC) or Onboard Administrator (OA) to verify the settings and status of your enclosure. Sometimes a reset of the modules is necessary, depending on the state of your enclosure.

Problem: Cannot retrieve OS variation data for automated provisioning

HP IO Designer is unable to retrieve the OS variation data required for automated provisioning of deployment server to VMware VMs. This error is encountered while creating a VMWare-based VM server in an HP IO service template.

Symptoms	This error is seen in HP IO Designer under the **Software Selection** dialog that is used to select the OS software type for the target server.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component	HP IO, vCenter and LSM
Other dependencies	
Failure message	Designer is unable to retrieve OS variation data required for Deployment Server automated provisioning to VMware VMs.
Probable causes	• LSM service and HP IO UI may be out-of-sync. • vCenter server settings may be missing. • vCenter server may be down or unreachable. • VMware ESX hosts may not be registered. • VMware ESX hosts may be down or unreachable.
For more information	

Solution:

1) From the HP IO Portal, select **Options** > **VMware vCenter Settings** to verify that the correct vCenter server settings have been provided to HP SIM.
2) Select **Configure** > **Virtual Machine** > **Register Virtual Machine Hosts** to verify that the VMware ESX hosts have been discovered and registered in SIM.
3) Verify that the vCenter server is running:
   a) Log in to the Windows system that is hosting the vCenter server software.
   b) Open the Windows Services management console.
   c) Search for this service: **VMware VirtualCenter Server**. Its status should be **Started**. If it is not, start the service.
4) Make sure the service **Startup Type** is set to **Automatic**.
5) Verify that the VMware ESX host server(s) are running:
   a) Open a browser session or vSphere client to the VMware host server(s).
   b) Log in as a VMware administrator
6) Verify that the VMware ESX host server(s) can be seen by the vCenter server:
   a) Open a browser session or vSphere client to the vCenter server.
   b) Log in as a vCenter administrator.
   c) Verify that the VMware ESX hosts under management are part of the data center the vCenter server is managing.
7) After all of the verification steps have been successfully completed, do the following on the CMS:
   a) Stop the HP IO service.
   b) Restart the LSA service.

c) Wait until the LSA service is fully restarted.
d) Restart the HP IO service.

8) Return to the HP IO Portal and re-open the template in which you were unable to see the OS types.
9) Verify that the VMware OS types are now visible.
10) Refresh VMM by following these steps:
    a) Open Virtualization Manager in the HP Insight dynamics console (Tools > Virtualization Manager).
    b) Open Refresh Server Resource Information in Virtualization Manager (tools -> Logical Servers -> Refresh).
    c) Select Insight Control virtual machine management (VMM) and click Refresh.
    d) After the VMM is refreshed, log on to the IO designer console again. The OS variations now appear in the IO designer.

Problem: Virtual Connect (VC) server incorrectly appears to be in use

Software resources do not show up in HP IO UI.

Symptoms	Virtual Connect server incorrectly appears to be in use
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	
Probable cause	• The target server is powered on. • The target server already has a profile created.
For more information	

Solution:

1) Determine whether the target server is already in use and provisioned; make sure it is intended to stay in use. If it is not intended to stay in use in the current state, power off the server.
2) Go to **Tools** > **Integrated Consoles** > **VCEM** > **Profile**. Make sure the target server has an assigned profile. If it does, and you want to re-use your server for another provisioning, then un-assign the profile. Then you can continue the provisioning service for this server.

Problem: HP IO storage pool database is corrupt

Symptoms	The HP IO database has incorrect or missing storage pool entries.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component	HP IO, storage pool manager
Other dependencies	
Failure message	
Probable cause	Provisioning failures trigger the resource to be in the wrong state or unaccounted for.
For more information	

Solution:

1) Delete all Storage Pool Entries (SPEs) from logical server manager (LSM).
2) From a Command window on the CMS, stop the HP IO service by running the following command:

```
net stop "HP Insight Orchestration"
```

3) Stop the LSM service by running the following command:

```
net stop "HP Logical Server Automation"
```

IMPORTANT: Before proceeding, carefully understand the following:

- The **lsmutil –deletedb** operation **deletes** all of your existing logical servers and storage from SIM.
- Once deleted, servers, storage pool entries and storage pools must be re-discovered, re-created and re-populated.

4) Delete the LSM database by running the following command:

```
<VSE>\bin\lsmutil –deletedb
```

5) Restart LSM by running the following command:

```
net start "HP Logical Server Automation"
```

6) Wait until LSM fully starts before restarting HP IO.
7) Restart the HP IO service by running the following command:

```
net start "HP Insight Orchestration"
```

8) Rebuild your SPEs to return the database to a consistent state.

Problem: Orphaned VMs exist in vCenter inventory

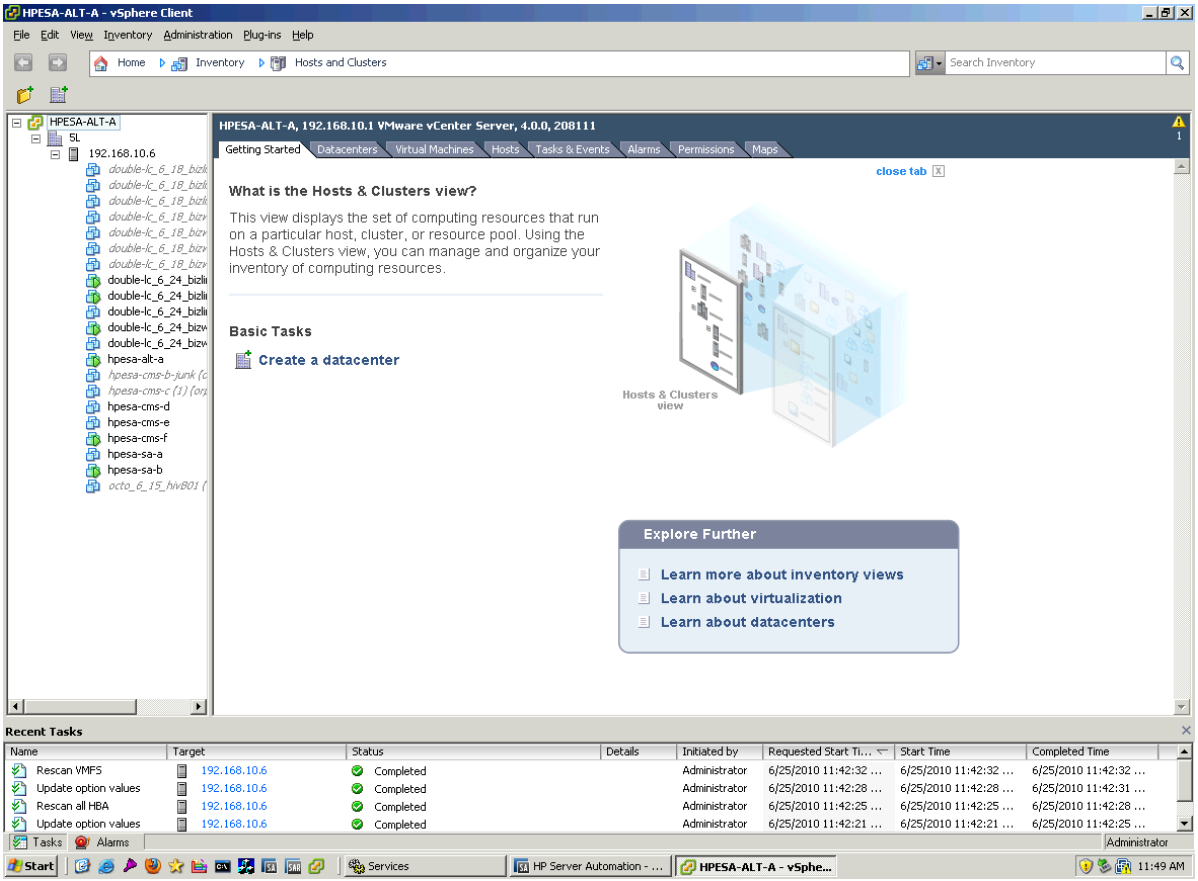
A provisioning failure leaves orphans in the VCenter database of VM storage, server or network resources.

Symptoms	The VM names are unavailable. The VMs are inaccessible and are marked (orphaned).
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	vCenter, ESX, HP IO
Other dependencies	A prior provision of servers associated with the orphaned VMs may have failed or had problems.
Failure message	None. But the unavailable, orphaned VMs appear as shown in the figure below.
Probable cause	
For more information	

Solution:

1) Open the vCenter console to the inventory section.
2) Carefully review the list of allocated VMs.
3) Note if any of the VMs are unavailable and marked (orphaned).
4) Verify in HP IO, VSE, and HP SA if any of the unavailable VMs are stale entries.
5) Right-click and select **Remove From Inventory** for each orphaned VM.

Figure 3 View of Orphaned VMs in VCenter



Problem: Orphaned VMs exist in ESX server

Orphaned VMs exist in VMWare server's data stores under **/vmfs/volumes**.

Symptoms	A VM from an older, deleted service cannot be recreated.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	VMWare ESX
Other dependencies	A prior provision or de-provision of servers associated with the orphaned VMs may have failed or had problems.
Failure message	Orphaned VMs may collide with new VMs of the same name.
Probable cause	
For more information	

Solution:

1) Log in to the VMWare server as **root**.
2) Change the directory:

```
cd /vmfs/volumes
```

3) Search for VMs:

```
find .|more
```

4) Look at the find output and note whether there are any `.vmx` files belonging to orphaned VM servers.
5) Carefully review the list of properly allocated VMs versus potentially orphaned ones.

Before proceeding, carefully verify in HP IO, VSE, VCenter and HP SA that any of the suspected orphan VMs are actually orphans. Once deleted, a VM cannot be reactivated or recovered and its storage is gone.

6) After confirming that the VMs are stale entries, remove them from the `/vmfs/volumes` subdirectory by using an **`rm`** command.

Problem: Orphaned servers observed in HP Insight Dynamics VSE UI

A provisioning failure leaves orphaned resources in the VSE database of logical servers.

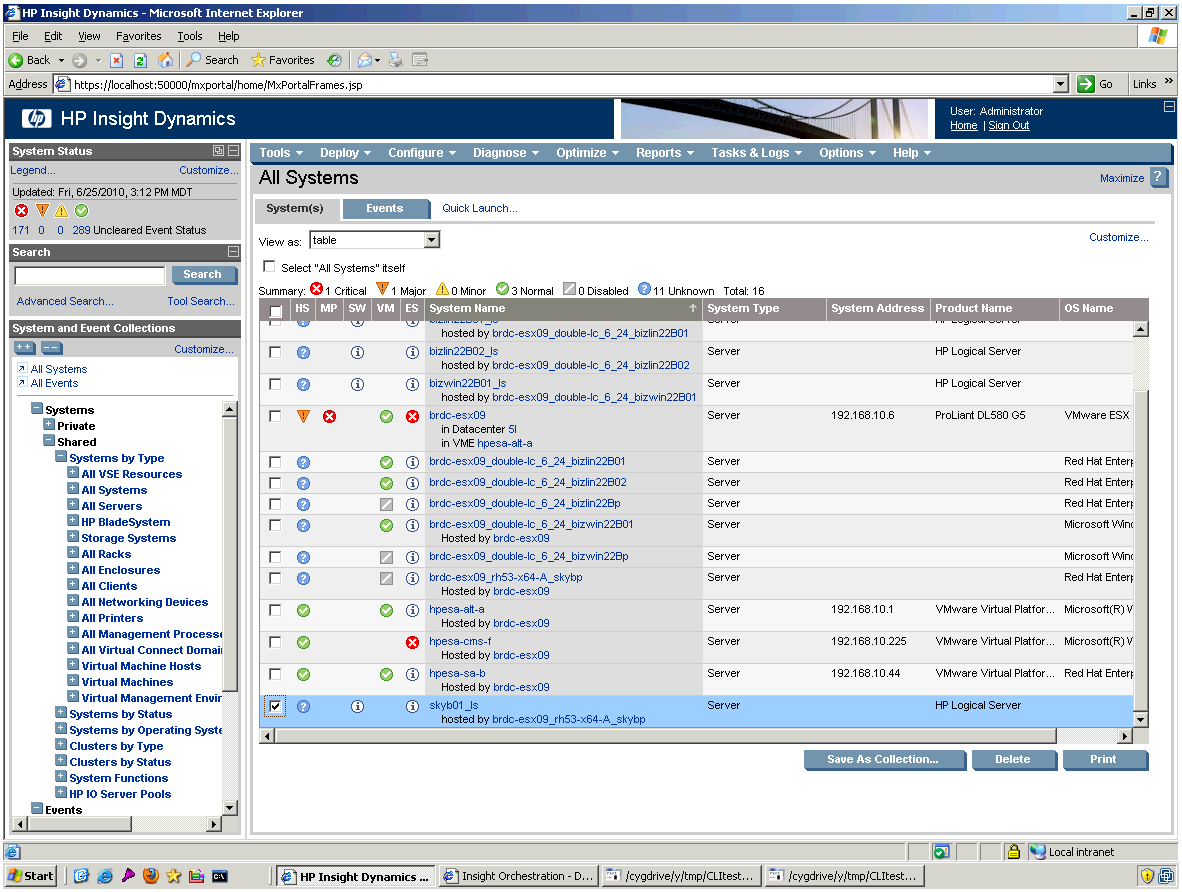
Symptoms	The **All Systems** subfolder in the ID VSE page has server records that are not associated with active CSA for Matrix services.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	VSE, HP IO
Other dependencies	A prior provision or de-provision of servers associated with the orphaned server records may have failed or had problems.
Failure message	None. But unaffiliated server entries appear as shown in the figure below.

Probable cause	
For more information	

Solution:

1) Log in to the SIM console on the CMS.
2) In the All Systems folder, select **System and Event Collections** to check for orphaned resources:
   a) Note any servers in this folder that do not have corresponding managed instances in HP IO.
   b) Perform a review of what is managed in SIM, HP IO, VSE, VCEM, vCenter/ESX and Hyper-V.
   c) Any server records that are stray or orphaned should be reviewed for deactivation and removal from the All Systems folder.

Figure 4 View of Orphaned Servers in IDE VSE ID



Problem: ESX VMs created outside of HP IO

If VMs are created outside of HP IO on an ESX server, HP IO takes some time to register that additional resources have been used and could over-provision the server.

Symptoms	Unexpected OS provision failures. Some may be related to disk space and pause a VM service creation to report that additional disk space is required.
Hardware	
Operating System(s)	
Is this an integration issue?	No

Primary software component(s)	HP IO
Other dependencies	ESX VMs
Failure message	Various messages related to failures or out of disk space on the ESX server.
Probable cause	IO does not scan the ESX servers at the beginning of a service request to make sure that resources exist for the new provision.
For more information	More information may be available be in the HP IO release notes.

Solution:

If possible, force HP IO to do a server re-scan after VMs are created outside of HP IO on an ESX server:

- From the Servers tab, select **Click to refresh server resources**. This forces HP IO to get updated usage information on the servers and hypervisors that HP IO uses.

Problem: Physical resources are not returned if a provision fails

Physical resources are not returned to appropriate pools if a provision fails.

Symptoms	If an OS provision fails, the physical resources (servers and SAN storage) are not returned to a usable state.
Hardware	Physical Servers and SAN storage
Operating System(s)	
Is this an integration issue?	No
Primary software component(s)	HP IO
Other dependencies	
Failure message	Any message relating to a physical server provision operation.
Probable cause	HP IO is designed so that when a failure occurs during the provisioning of physical servers, the resources are left in the same state they were in when the failure occurred. This allows the administrator to identify and resolve the issues that caused the failure.
For more information	See the *HP IO User Guide,* the HP IO Release Notes, and HP IO online help.

Solution:

After triage is complete, there are a number of steps to return physical resources to a usable state:

1) Make sure the servers in question are powered off.
2) Start HP SIM. If HP SIM is SSAP mode, click **Restore Size** in the top left corner, so that you can see all of the SIM menus.
3) From the **Tools** menu, select **Virtualization Manager**.
4) From the **Perspective** drop down box, select **Logical Server**.
5) Each failed server is renamed `Clean-me-<Service name>`. Select the check box associated with the first server.
6) From the **Visualization Tools** menu, select **Logical Servers** > **Deactivate**. Follow the prompts to deactivate the server.
7) After the server is deactivated, select the server again.

8) From the **Visualization Delete** menu, select **Delete Logical Server**. Follow the prompts to delete the server.
9) Go to Server Automation > Devices > Servers > Unmanaged Servers and delete the orphan record listed in critical state which is associated to the server for which the provisioning request has failed.
10) Repeat steps five through nine for each server marked `Clean-Me-<service name>`.
11) Return to the HP IO page (**Tools > Insight Orchestration**).
12) From the **Servers** tab, select the server pool that the server should be associated with and click **Modify Pool**.
13) From the **Select servers from pool** drop-down box, select **Maintenance**.
14) Select each server and click **>>** to move the server to the target server pool.
15) Click **Save** to save the changes.
16) Select **Click to refresh server resources** to update HP IO with the state of the newly added servers.

Problem: HP IO Service pauses because of IP Address limitation

Software resources do not show up in the HP IO UI.

Symptoms	HP IO service pauses because of an IP address limitation.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	
Probable cause	The network usable IP address space exceeded the capacity.
For more information	

Solution:

1) Go to **Tools** > **Insight Orchestration** > **Networking**.
    a) Select the network used by the paused service and click **Edit**.
    b) Under the **Usable IP Address** space section, verify the DCHP and Static IP Address Space, and their usage and IP address limitation. If all of the IP addresses in the address space are used, add extra IP addresses so the service can continue.
    c) To verify the network, the address space, and the type (*DCHP* or *Static*) used by the service template, follow these steps:
        i. Go to the **HP IO Templates** tab.
        ii. Select the template used by the paused service.
        iii. Click **Edit**.
        iv. Edit the **Networking** and the **Server** components.

Problem: The progress of the Create Service operation is not refreshed automatically

The progress of the Create Service operation is not refreshed automatically.

Symptoms	The progress of the Create Service operation is not refreshed automatically at the IO request tab.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	
For more information	

Solution:

To obtain the latest status, refresh the HP IO console by using the Refresh button of the web browser.

Problem: The Create Service operation in the HP IO console fails

The Create Service operation in the HP IO console fails with the following error:
`No MAC address found for network in HP Logical Service Automation (LSA) service`

Symptoms	The Create Service operation in the HP IO console fails with the following error: `No MAC address found for network in HP Logical Service Automation (LSA) service`
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	Task for Logical Server <*system_name*> has failed. Logical server job (ID = <*system_name*>.vlan8.lab) completed with a failure status. Failure: No MAC address was found for network VLAN8_Network in HP Logical Service Automation (LSA) service.
Probable cause	The template in the HP IO designer does not reflect the selected network. The template instead displays the default network.
For more information	

Solution:

1) Log on to the HP IO designer.
2) Open the template that you are using to create the service.
3) Check the name of the network on it. If the displayed network name is not the same as the name of the required network, double-click the network object.
4) Uncheck and check the network required. Now the template should display the correct network name.
5) Save the template, and then recreate the IO service.

Problem: Server registeration fails during the Create Service operation

The Create Service operation in the HP IO console fails with the following error:
`Failure: Encountered problem with the Deployment Server Access Layer`

Symptoms	The Create Service operation in the HP IO console fails with the following error: `Failure: Encountered problem with the Deployment Server Access Layer`
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	HP SA
Failure message	Task for Logical Server <*server_name*> has failed. Logical server job (ID = <*server_name*>.vlan7.lab) completed with a failure status. Failure: Encountered problem with the Deployment Server Access Layer.
Probable cause	The version of the opswclient.jar file on the CMS does not match with the version of the opswclient.jar file on the SA Core.
For more information	

Solution:

1. Delete the existing `opswclient.jar` file from the `C:\Program Files\HP\Systems Insight Manager\lib` folder on the CMS.
2. From the SA Core, copy the `opswclient.jar` file from the location `/opt/opsware/da/webapps/arm/WEB-INF/lib/opswclient.jar` (alternative location: `/opt/opsware/twist/extlib/client/opswclient.jar`), and then place the file in the `C:\Program Files\HP\Systems Insight Manager\lib` folder on the CMS.
3. Restart the "HP System Insight Manager" service.
4. Recreate the IO service now.

Problem: HP ProLiant DL servers remain in the powered ON state when the Delete Service operation is complete

HP ProLiant DL servers remain in the powered ON state even after the Delete Service operation is completed in the IO console.

Symptoms	After the Delete Service operation is completed in the IO console, HP ProLiant DL servers remain in the powered ON state.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	

Solution:

After deleting the service for the HP ProLiant DL server, follow these steps:

1. Open the iLO of the server and power it off.
2. Run a logical server refresh of the static servers.

   The server is now ready to be allocated for a new service.

To automatically power OFF the servers after service deletion, follow these steps:

1. On the CMS, go to the *<HPIO_Install_dir>/*`conf` directory
2. Open the `hpio.properties` file.
3. Change the `power.preserve.onfailure =true` setting to `power.preserve.onfailure =false`.
4. Restart the `HP Insight Orchestration` service.

Problem: Data disks added to a target server using dynamic Storage Pool Entry (SPE) are not visible

Data disks added to a target server using dynamic Storage Pool Entry (SPE) are not visible.

Symptoms	Data disks added to a target server using dynamic Storage Pool Entry (SPE) are not visible.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	

Solution:

If the data disk added to a target server is not visible after service completion, verify that the data volume added is masked in the SPE.

In the SPE, if the data volume added is unmasked, follow these steps:

1. Remove the volume from the SPE.
2. Save the SPE.
3. Add the volume into the SPE again, and save the SPE.
4. Rescan the disks on the target server. The disk should now be visible.

Problem: Error while creating dynamic storage pool entry (SPE)

The following error appears in the HP IO console while creating dynamic storage pool entry (SPE):
`presentation completed with errors`

Symptoms	The following error appears in the HP IO console while creating dynamic storage pool entry (SPE): `presentation completed with errors`
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	HP OO, ESA
Failure message	presentation completed with errors
Probable cause	If the failure occurs with the EMC CLARiiON array volume presentation, the target initiator port may not have been registered with the EMC CLARiiON array. If the failure occurs with the HDS or XP array volume, the time taken for the volume presentation to the server under the given configuration might be longer than the default time-out value.
For more information	

Solution:

If the failure occurs with the EMC CLARiiON array volume presentation, verify that the target initiator port is registered with the array. If not, register the port, and then try the presentation again.

If the failure occurs for the HDS or XP array volume presentation, increase the default time-out value to complete the volume presentation successfully, and then try the presentation again. See the *CSA for Matrix Configuration Guide* for more details on increasing the default time-out value.

Problem: Virtual server disappears from the Server Pool

Symptoms	Virtual server disappears from the Server Pool.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO and HP SIM
Other dependencies	
Failure message	
Probable cause	• ESX or Hyper-V services have been stopped. • HP SIM is missing the login credentials for ESX /Hyper-V.

Solution:

1) Verify system and application events.
    a) Verify whether or not the services for ESX and Hyper-V server are running.

b) Restart the services if necessary. NOTE: Hyper-V may require that you restart the following system services:
services : Hyper-v Image Management, Hyper-V Networking Management, Hyper-V Virtual Machine Management

2) Select **Options** > **Security** > **Credentials**.
3) Add ESX and/or Hyper-V login credentials to both HP SIM system credentials and global credentials under SIM menu. NOTE: You may need to identify /re-discover ESX and/or Hyper-V via HP SIM discovery.

Problem: Non-VC-enabled servers do not appear in HP IO UI

Symptoms	Non-VC-enabled servers do not appear under the HP IO UI Server Pools tab.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component	CSA for Matirx, HP IO, LSM, ESAS, and OO
Other dependencies	
Failure message	

Probable cause	One of the following:
	• Incorrect OO credentials have been added to the following file: `esa.properties`
	• Incorrect tags or values have been added to the three flow-input data files:
	  ○ `ServerInfo.xml`
	  ○ `InventoryList.xml`
	  ○ `uuidHostMapper.xml`

	• Mismatched UUID element values exist between the three files: o `ServerInfo.xml` o `InventoryList.xml` o `uuidHostMapper.xml` • Missing identification information exists for a ProLiant server in the following file: `blade_models.properties` • Incorrect ILO credentials exist for the target server listed by OO. • LSM database is out-of-sync. • HP IO database is out-of-sync.
For more information	See the *HP Insight Orchestration User Guide*.

Solution:

Verify that the CSA for Matrix flows that are being used to import the server inventory have run to completion correctly. Follow these steps:

1) From a browser window, log in to the OO Central dashboard on the CMS by entering the following command: **https://localhost:16443/PAS/static/Login.htm**

   NOTE: Use the CMS administrator credentials you provided at CMS installation.

2) Check the entries for the following flows to see if they have been run since restarting the services:
   - `GetServerInventory`
   - `GetServerInfo`
3) Check to see if the most recent `GetServerInventory` flow succeeded.
4) Check to see if the most recent `GetServerInfo` flows succeeded. NOTE: There should be one run of the `GetServerInfo` flow for each server entry in `InventoryList.xml`.
5) If any of the flows failed, you may be able to determine what went wrong by drilling down into the details of the failed flow:
   a) Right-click one of the failed flows in the OO Central dashboard.
   b) Try to determine what may have triggered the failure. Common problems are malformed or missing tags or values in the XML files.
6) Verify the following regarding `InventoryList.xml`, `serverInfo.xml` and `uuidHostMapper.xml`:
   a) Are these files in the right directory for the OO import workflows to find them?
   b) Do these files have syntax, format, or content errors?
   c) If either of the above conditions is present, fix the problems.

NOTE: These XML files are closely correlated, so it is important to verify that:
- `InventoryList.xml` has corresponding entries for each entry in `serverInfo.xml` file and vice-versa.

- `uuidHostMapper.xml` has corresponding entries for each entry in the `inventoryList.xml` and vice-versa.
- The UUID element is an index to identify each entry across these XML files. The value of the UUID tag in each file must match across all three files: `ServerInfo.xml`, `InventoryList.xml, uuidHostMapper.xml`

For more information about how these files are related, see "Configuring IO to list heterogeneous hardware" in the *HP Insight Orchestration User Guide*.

Verify the credentials that the CSA for Matrix flows used for OO sign-in. Follow these steps:

1) Verify that `<Root Drive>:\Program Files\HP\Virtual Server Environment\conf\esa.properties` includes the correct OO administrator password in the entry: **esa.oo.admin.password=<your-oo-admin-password>**

2) Verify and (if necessary) add entries to the file: `C:\Program Files\HP\Insight Orchestration\conf\blade_models.properties`
NOTE: Include all the Non-VC-enabled server models for each server model defined in the XML files. For more information see "Configuring IO to list heterogeneous hardware" in the *HP Insight Orchestration User Guide*.

3) Verify and (if necessary) correct iLO system credentials in OO for the non-VC-enabled server models. For more information, see "Configuring IO to list heterogeneous hardware" *HP Insight Orchestration User Guide*.

4) After making any corrections using the steps above, restart the following services on the CMS (in the order given):

a) Stop these OO and other services on the CMS:

```
net stop "RSScheduler"
net stop "RSCentral"
net stop "RSJRAS"
net stop "HP Extensible Storage & Server Adapter"
net stop "HP Logical Server Automation"
net stop "HP Insight Orchestration"
```

b) Restart the services in the following order:

```
net start "RSScheduler"
net start "RSCentral"
net start "RSJRAS"
net start "HP Extensible Storage & Server Adapter"
net start "HP Logical Server Automation"
```

(Pause here a minute or two until the HP Logical Server Automation service is fully started.)

```
net start "HP Insight Orchestration"
```

c) Wait about 10-15 minutes for the following CSA for Matrix flows to run:

- `GetServerInventory`
- `GetServerInfo`

d) Then verify that the flows were run after the services above restart. To verify that the flows were successfully run, do the following:

i. From a browser window and using OO administrator credentials, log in to the OO Central dashboard on the CMS at **https://localhost:16443/PAS/static/Login.htm**.

ii. Check the entries for the flows **GetServerInventory** and **GetServerInfo** to see if they have been run since restarting the services

iii. Make sure the most recent **GetServerInventory** flow succeeded.

iv. Make sure the most recent **GetServerInfo** flows succeeded. There should be one run of the **GetServerInfo** flow for each server entry in the **inventoryList.xml** file.

When the steps above have been successfully completed, return to the HP IO **Servers** tab. Refresh and then verify that the servers you defined can be seen in the **Unassigned** server pool.

Problem: A CSA for Matrix service delete fails

Symptoms	A CSA for Matrix service delete fails.
Hardware	
Operating System(s)	
Primary software component	HP IO and HP SA
Other dependencies	HP IO and HP SA
Failure message	There might be a message in the HP IO or ALC log files, but not always.
Probable cause	• Erase disk APX failed. • The HP SA server record is stuck in an intermediate state. • There are connectivity or NIC driver problems to the OS of the target being deleted. • The deactivate/delete operation of the logical server for the target server failed.
For more information	

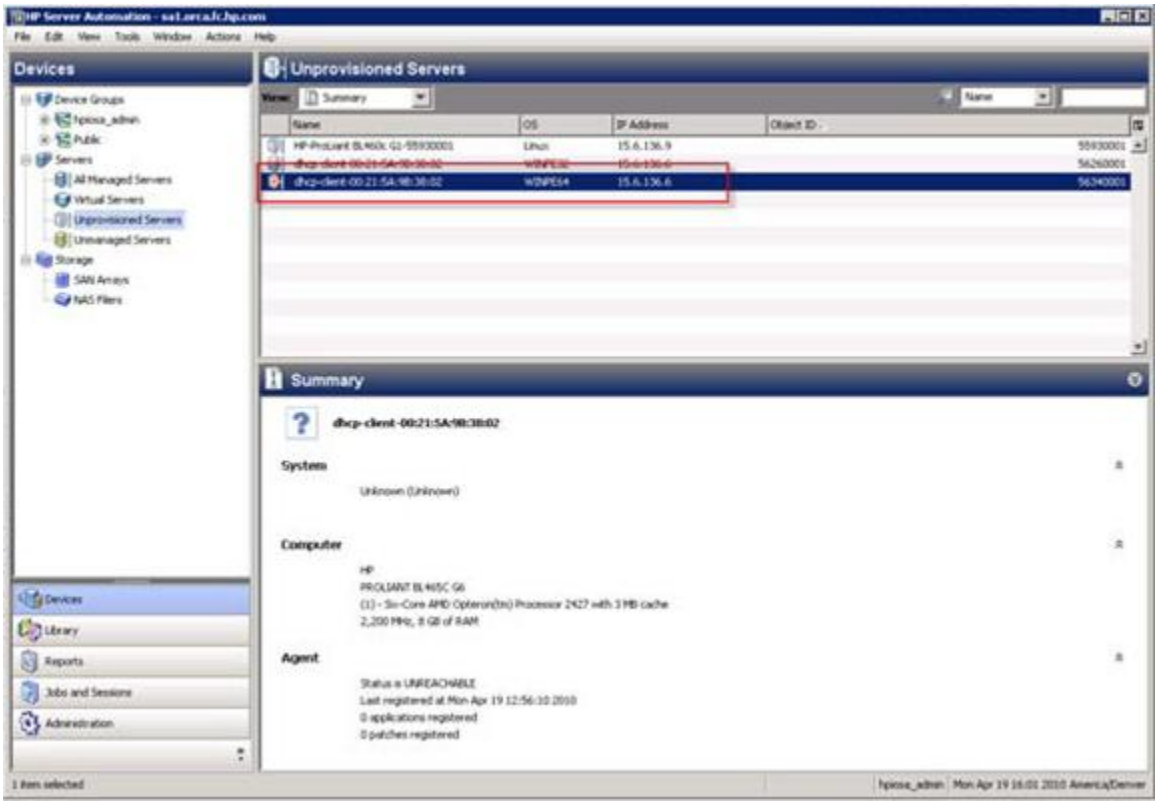
Solution:

HP IO attempts to automatically handle failure conditions by removing the failed target server from the HP SA primary core. This action allows the server to be re-used without further intervention once the underlying error condition has been triaged and resolved. The one exception to this is a failure during the erase disk process described below.

Erase disk fails

If HP IO cannot successfully clean the disks on the target server during service delete, the server is placed into a maintenance pool and a best effort is made to remove the server from the HP SA primary core. If the server cannot be removed from the HP SA primary core, it is vital that the server be manually removed from the HP SA primary core prior to attempting a new create service request involving the server. When this problem is encountered, it is most often necessary to go to the HP Server Automation CLIENT and explicitly remove the existing server record from the HP SA primary core. Then re-try the create service request, as shown in the figure below:

Figure 5 Service Delete Fails



The server record in the figure above exists and is in an unreachable state. If HP IO attempts to re-provision that the server in this state, the process fails during server registration. The workaround is to explicitly delete the server from HP SA by right-clicking on the server and selecting **Delete Server**. This scenario does not happen often, but can occur if there was a manual clean-up operation that has been run at the HP IO or Insight Dynamics level without also cleaning the server record from within HP SA.

Logical server cleanup process on a failed request

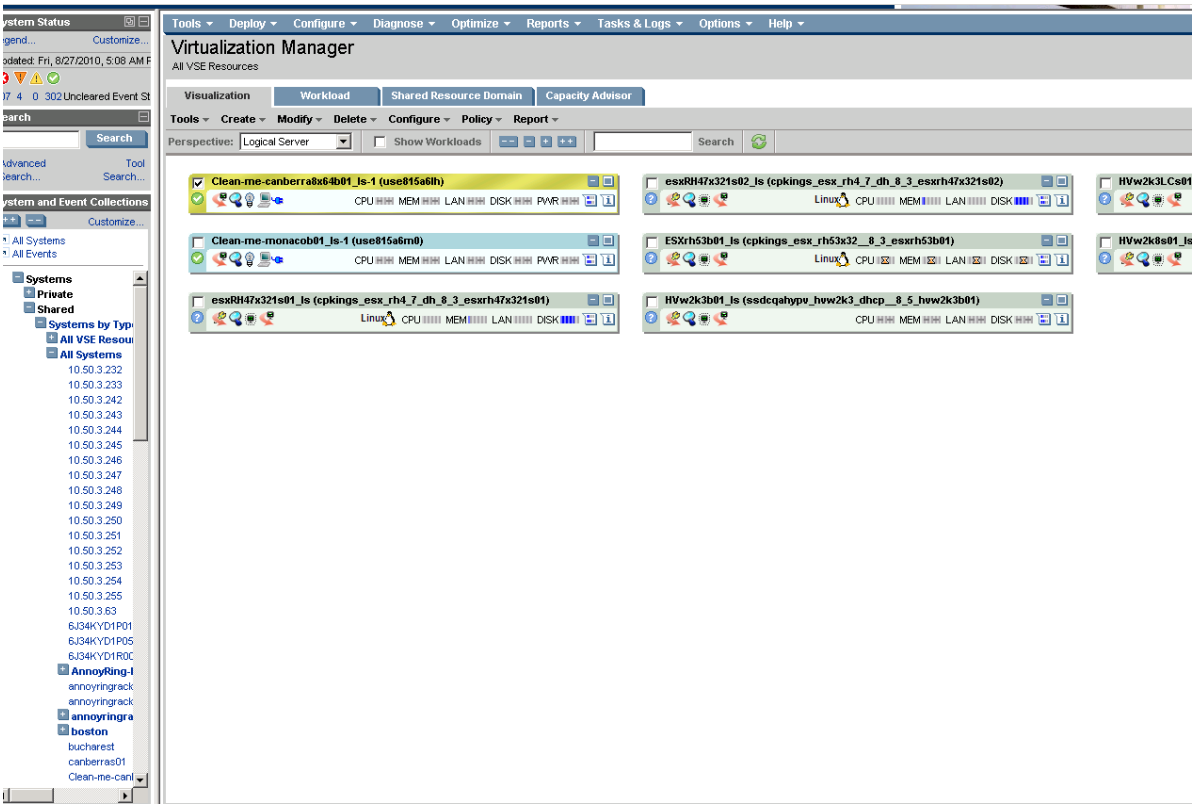
If HP IO has detected a failure involving a server, three things may occur:

1) The server is re-named with a “clean-me” prefix within the Insight Dynamics Operations Console.
2) It will be powered off.
3) It may be continue to be registered on the HP SA primary core.

This is intentional and leaves the failed server in a state where it cannot be inadvertently reused in another create service request until the underlying issues have been triaged and resolved. Therefore, server is left “in-tact” so that the administrator can work with the server in its failed state to determine the failure condition. Once the server has been repaired and is ready to be re-admitted into the free pool, perform the steps below.

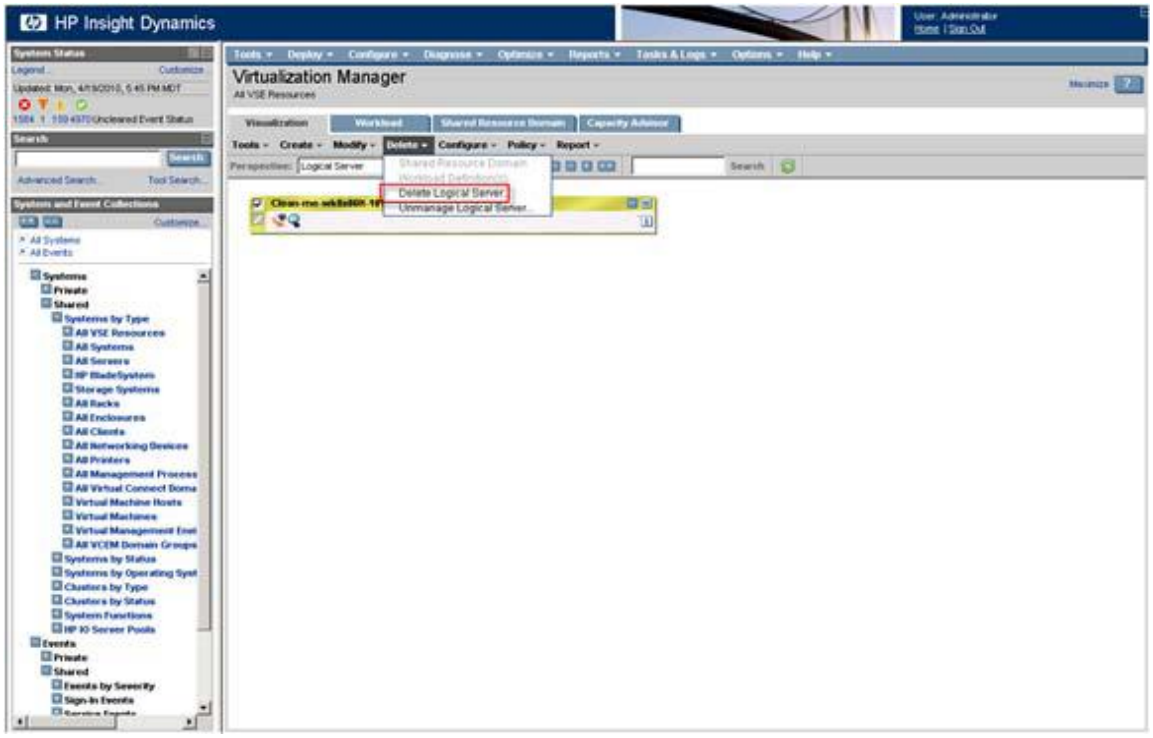
1) On the HP SA primary core, using the HP Server Automation CLIENT, locate the server record under either **All Managed Servers** or **Unprovisioned Servers**.
2) **Deactivate** and then **Delete** the server.
3) On the CMS, using the Insight Dynamics Operations Console and the Logical Server view, locate the server as shown in figure below:

Figure 6 Locate the Server



4) Select the server that is currently in an active state.
5) Deactivate the server.
    a. From the **Perspective** drop-down box, select **Logical Server**.
    b. Each failed server is renamed `Clean-me-<Service name>.`
    c. From the **Visualization Tools** menu, select **Logical Servers > Deactivate**. Follow the prompts to deactivate the server.
6) Once the server is deactivated, return to the Operations Console Logical Server view.
7) Select the server. From the **Visualization Delete** menu, select **Delete Logical Server**. Follow the prompts to delete it as shown in figure below.

Figure 7 Delete the Server



8) Following this process, the physical server remains assigned to the maintenance pool. Using the HP IO Operations Console, move the server from the Maintenance pool to its target pool.

9) Once the server has been moved back into the target pool, it can be used for a new create service request.

Problem: A CSA for Matrix service create fails

Symptoms	In the request summary, a service create is reported as failed for a variety of reasons.
Hardware	
Operating System(s)	
Primary software component	HP IO and HP SA
Other dependencies	HP IO and HP SA
Failure message	There might be a message in the HP IO or ALC log files, but not always.
Probable cause	• A server with a duplicate UUID was already provisioned by HP SA in a previous service create request. • A previous service create request failed and the HP SA server has a stale server record stuck in an intermediate state. • There are connectivity or NIC driver problems with the OS being deployed to the target.

	• The HP SA OS personalization APX's may not support the OS you are trying to provision.
For more information	

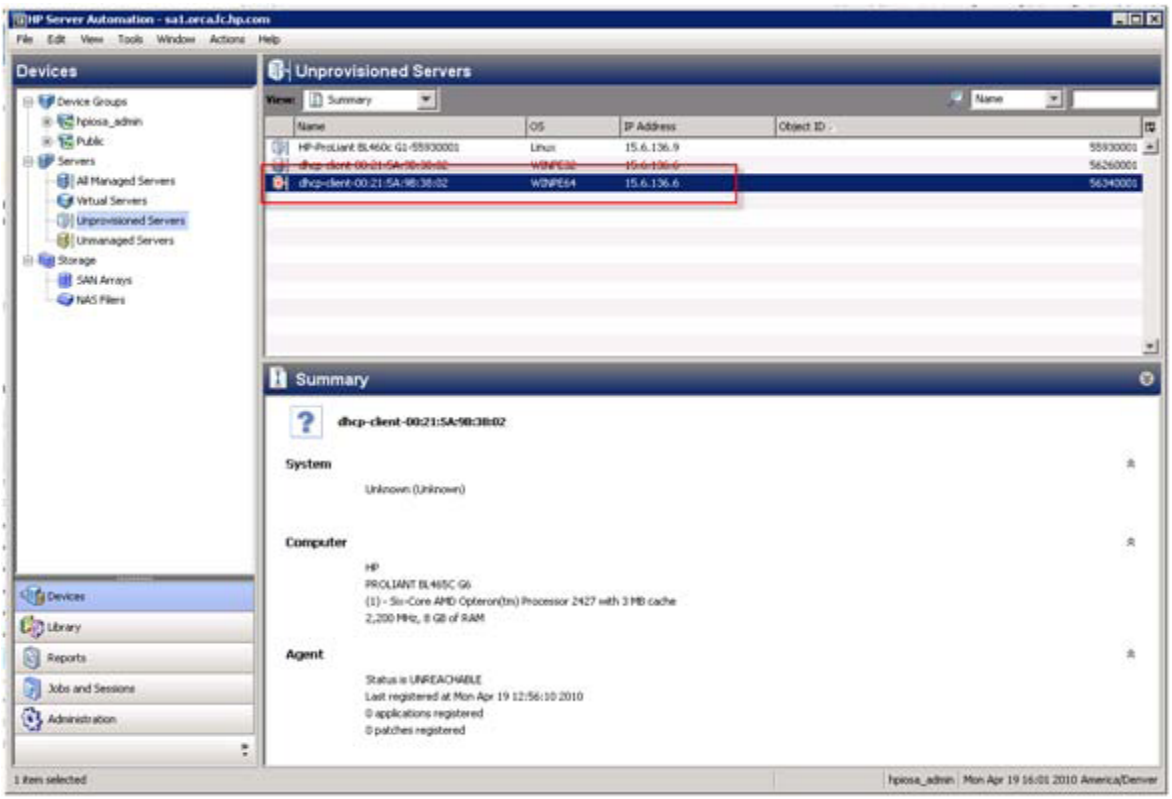
Solution:

There are several error conditions that may occur related to HP SA integration. The first scenario usually occurs if HP SA already has a server record for a server and the server is in the wrong lifecycle state. The next scenario is not specific to the HP SA integration, but typically indicates a basic OS Policy or Application Policy issue. The last scenario may occur if the personalization APX that is included with the HP SA integration encounters some sort of environmental condition on the target OS.

"Unable to register server" in the HP IO request log

When this error occurs, it is almost always necessary to go to the HP Server Automation CLIENT and explicitly remove the existing server record from the HP SA primary core. Then re-try the create service request, as shown in the figure below.

Figure 8 Unable to Register Server



In this scenario, the server record above exists but is in an unreachable state. If HP IO attempts to re-provision that the server in this state, the process fails during server registration.

The workaround is to explicitly delete the server from HP SA by right-clicking on the server and selecting **Delete Server**. This scenario does not happen often, but can occur if there was a manual clean-up operation that has been run at the HP IO or Insight Dynamics level without also cleaning the server record from within HP SA.

OS Policy or Application Policy fails.

In scenarios where an OS Policy or an Application Policy fails, the first level of triage must occur within HP Server Automation CLIENT as shown in the figures below.

Figure 9 Job Logs

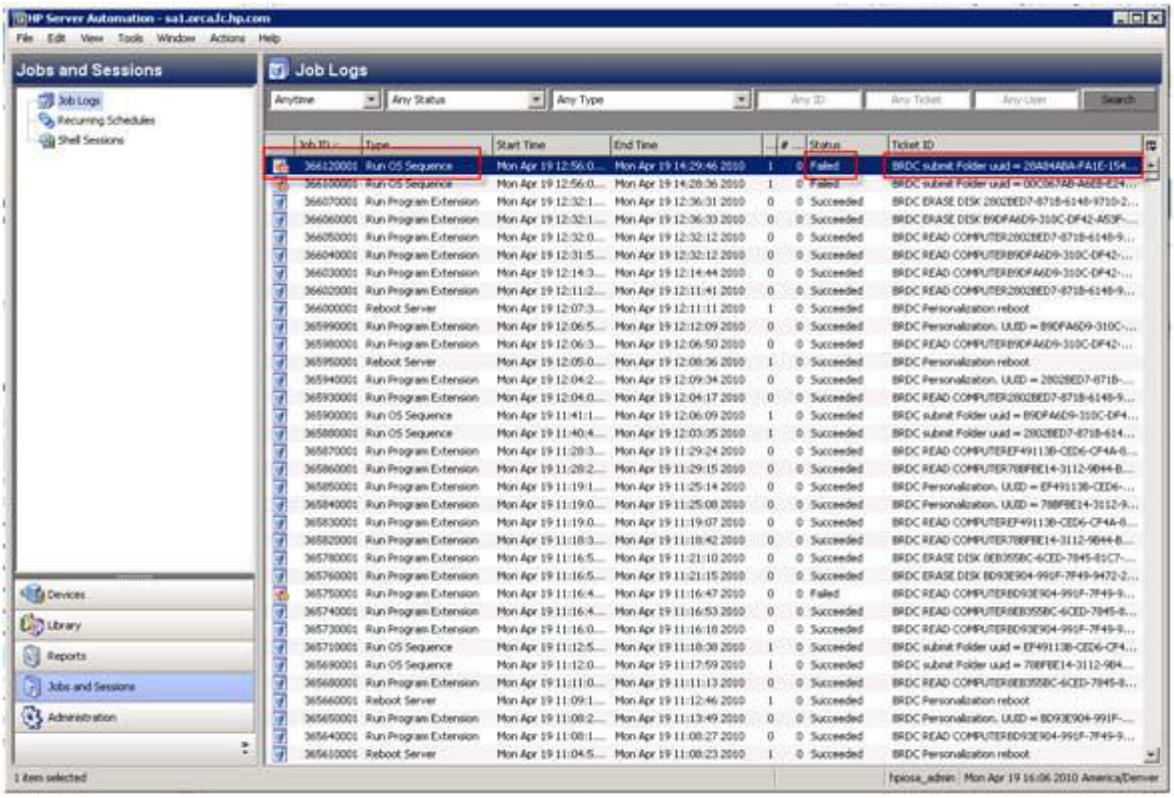
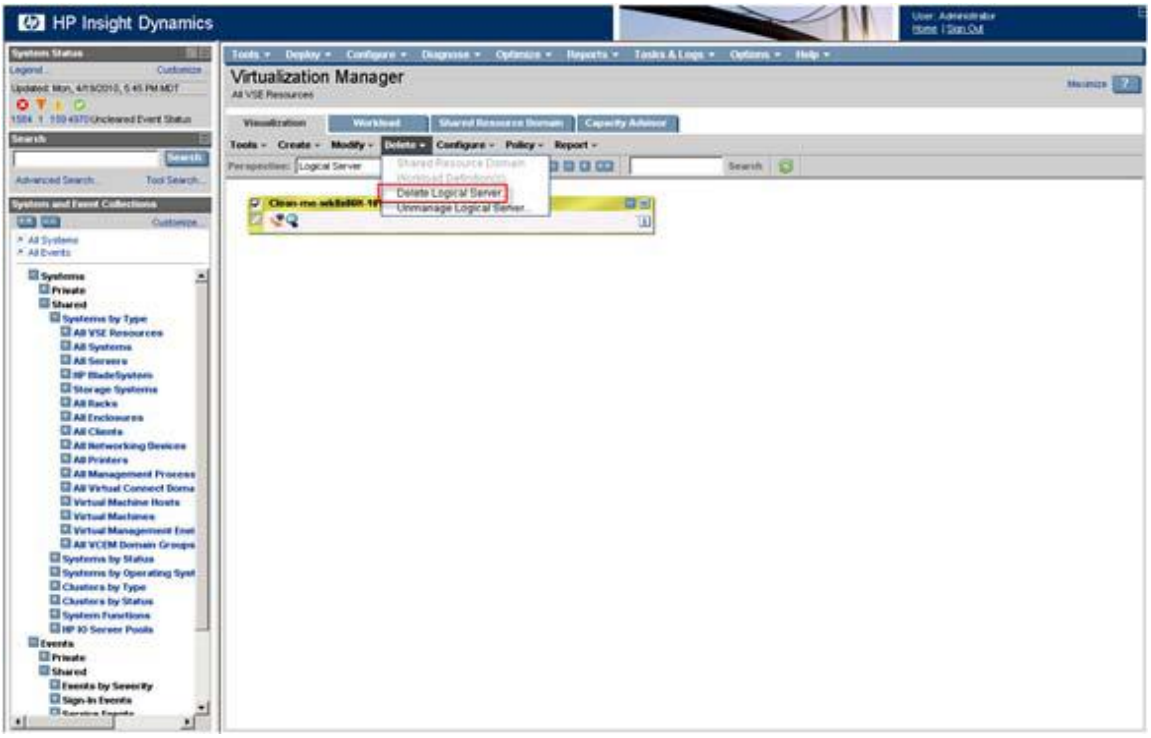


Figure 10 Delete Logical Server



In this scenario, the OS policy has failed following the initial reboot. The typical cause is either an intermittent network problem between the target server and the HP SA primary core, or a missing NIC driver in the OS policy. Assuming network connectivity is stable, the solution is to locate the NIC driver required for the target server type and update the OS Policy.

OS personalization fails

OS Personalization typically fails if there is some sort of HP SA agent connectivity issue following the OS Policy deployment process. If this occurs, consult the job log details for the failure. If network connectivity between the HP SA primary core and the target server has not been compromised, it may be necessary to contact HP Support regarding the failure condition. If testing is being performed for OS types outside those explicitly supported in the *Cloud Service Automation for Matrix Configuration Guide*, it is possible that the current HP SA personalization APX does not yet support the target OS.

Problem: The Create Service operation fails with timeout

The Create Service operation in HP IO fails due to timeout.

Symptoms	The Create Service operation in HP IO fails due to timeout.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	SA
Failure message	
Probable cause	Time taken by the job to create a single logical server exceeds the default timeout value set by HP IO properties.

Solution:

Edit the hpio.properties file to increase the timeout value.

1) Open the hpio.properties file found at the location <HPIO Install directory>/conf.
2) For physical servers, edit the property timeout.create.physical.logicalserver. Set the property to 180 (minutes) or more (default: 120 minutes).
3) For virtual servers, edit the property timeout.create.virtual.logicalserver. Set the property to 180 (minutes) or more (default: 120 minutes).
4) Save the file.
5) Restart the HP Insight Orchestration service.

Similarly, you can change the timeout value for the Delete Service operation too.

Problem: Local disk configured for a physical server is not visible in HP IO

Local disk configured for a physical server is not visible in HP IO.

Symptoms	The Local Disks field for a physical server in HP IO is empty after configuring the local disk for the server by using lsmutil.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	

Probable cause	LSM annotations in the XML file contains some empty tags.

Solution:

1) Discover the physical server.
2) On the CMS, open a command prompt and run the following command to export LSM annotations: **lsmutil -export -an -file lsm.xml**
3) Edit the local disk section <CliLocalDisk></CliLocalDisk> for each of the servers in the file lsm.xml:
   NOTE: Do not leave empty tags, otherwise the disk will not be updated to LSM.

```
<CliComputePhysical>
            <name>USE6452ADF</name>
            <uuid>36343034-3736-5355-4536-343532414446</uuid>
            <portabilityGroupId>123</portabilityGroupId>
            <portabilityGroupName>VC_GP</portabilityGroupName>
             <CliLocalDisk>
             <name>DAS</name>
             <description>Test</description>
             <deviceType>0</deviceType>
             <storageType>0</storageType>
             <storageDeviceType>0</storageDeviceType>
             <storageSizeType>MB</storageSizeType>
             <raidLevel>NONE</raidLevel>
             <volumeNumber>1</volumeNumber>
             <storageSize>10000</storageSize>
             <sharable>false</sharable>
             <storageSpeed>0</storageSpeed>
             <diskStatus>AVAILABLE</diskStatus>
             </CliLocalDisk>
</CliComputePhysical>
```

4) Save the changes.
5) Import LSM annotations by running the following command:
   lsmutil -import -an -file lsm.xml
6) Refresh LSM logical servers.
7) Refresh HP IO Server resources. The server is now updated with local disks.

Problem: OOWF servers show “in use” status

Operations Orchestration Workflows (OOWF) servers are discovered by HP IO, but the server status is always shown as “in use”.

Symptoms	OOWF server status is “in use”.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	HP OO
Failure message	
Probable cause	The OOWF server’s ILO credentials are not correctly configured on HP OO System accounts **ILOUser**. Because of this, OO workflows fail to get the power

	status of servers; HP IO reflects this as always “in use”.
For more information	

Solution:

8) Add the ILO credentials in the HP OO System Accounts **ILOUser** by following these steps:
   a) Launch the OO studio (**Start** > **Programs** > **Hewlett-Packard** > **Operation Orchestration** > **HP Operation Orchestration Studio**)
   b) Go to **Configuration** > **System Accounts** > **ILOUser**
   c) Check-out the ILOUser System Account by clicking the **Lock** icon.
   d) Add or edit the ILO credentials and description. NOTE: These credentials are used when OOWF servers get power status. This should be common for all OOWF servers.
   e) Check-in your changes by clicking **Lock** icon.
   f) Refresh the Logical Servers on Insight Dynamics to reinitiate OOWF server discovery.

Problem: HP IO shows blade status as always “in-use”

HP IO shows bade status as always “in-use”, even after cleaning up the Logical Server Entry.

Symptoms	HP IO shows blade status as always “in-use” even after cleaning up the Logical Server Entry.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	Blade is already in use
Probable cause	A Virtual Connect (VC) profile is already assigned to the server.
For more information	

Solution:

1) Check to see if a VC profile is already assigned to the server. NOTE: The VC profile is not automatically unassigned during blade logical server clean-up. The profile has to be manually unassigned to make the blade server available for further use.
2) If a VC profile is already assigned, un-assign the profile and wait until un-assign job completes.

The status of the blade server changes to “Unused” after the un-assign job completes and the blade server is now available for other services.

Problem: HP IO service fails with “Operation not completed” error

HP IO service fails with this error message: “Operation not completed. [Error during Create server profile]”

Symptoms	The HP IO Create Service fails with this error: “Operation not completed. [Error during Create server profile (…)]”
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO

Other dependencies	
Failure message	See below for an example message: "Operation not completed. [Error during Create server profile [BLWin2k8x323701_12a00cd80ce]. Details: There was a problem allocating the WWN address 50:01:43:80:02:A3:00:f0. Possible causes are: 1) The address is being requested by an upper level manager but it was not previously reserved. 2) The address is part of an exclusion range. 3) The address does not belong to any range known to VCEM. To resolve this issue, respectively: 1) Verify the address is reserved by the upper level manager application by checking the owner field of this address is correctly set. 2) Remove or adjust the exclusion range to leave out the address from the exclusion range. 3) Create a user defined address range that contains all the addresses in use by the server profiles. Then try to perform the Create Profile operation again.]"
Probable cause	The WWN used by the SPE is already in use by the VCEM.
For more information	

Solution:

1) Check the Worldwide Name (WWN) assigned to Storage Pool Entry (SPE) used by the service:
    a) Is the status “in-use” with an owner assigned to it?
    b) Is the status “free” with an owner assigned to it?

NOTE: The Create service fails in both the cases with the failure message shown in the table above.

2) Modify all the matching SPEs with free WWNs on VCEM (status must be “free” with no assigned owners).
3) Clean up the Logical Server and create the service again.

Troubleshooting HP SiteScope

HP SiteScope Client Access

Problem: Cannot access HP SiteScope using a browser

Various conditions cause the HP SiteScope Java Application to display incorrectly in the browser.

Symptoms	The browser displays “HP SiteScope" at the top of the frame, but shows only a small red [x] instead of the HP SiteScope application.
Hardware	
Operating System(s)	Windows

Primary software component	SiteScope
Other dependencies	
Failure message	
Probable cause	As a pre-requisite for displaying the HP SiteScope client, your browser must have the Java plug-in version 1.6 installed and enabled. In some cases, you must also flush the Java plug-in cache of temporary files. The Java plug-in can be downloaded from here

How to access log files	On the HP SiteScope server, the most important log files for diagnosing problems are shown in the example below:
	
	`c:\SiteScope\logs\error.log`
	`c:\SiteScope\logs\SiteScope2010_06_15.log`
	`c:\SiteScope\logs\RunMonitor.log`

For more information	HP SiteScope Documentation is location below the Install directory. By default, it can be found at C:\SiteScope\docs

Solution:

1) Download and install the Java plug-in on each client system, as required.
2) Determine the correct URL for the HP SiteScope server. The following example assumes that the HP SiteScope server hostname is **sitescopeServer**, and that the server is configured to listen on port 8080 (the installation default port number): `http://sitescopeServer:8080/SiteScope/`

IMPORTANT: You must replace the hostname and port number in the example URL above with the values you specified in the `csaInstall.properties` file during the CSA for Matrix **oo-sis-install** process.

3) Verify that the HP SiteScope server has a Java process listening on the port number specified in the HP SiteScope URL (see step above):
   a) From the HP SiteScope server command line, enter the following command:

      `netstat -anob > netstat.out`

   b) View the output file **netstat.out** in an editor.
   c) Verify that **SiteScope.exe** is on the specified port.
   d) If necessary, restart the HP SiteScope process:

      `net start SiteScope`

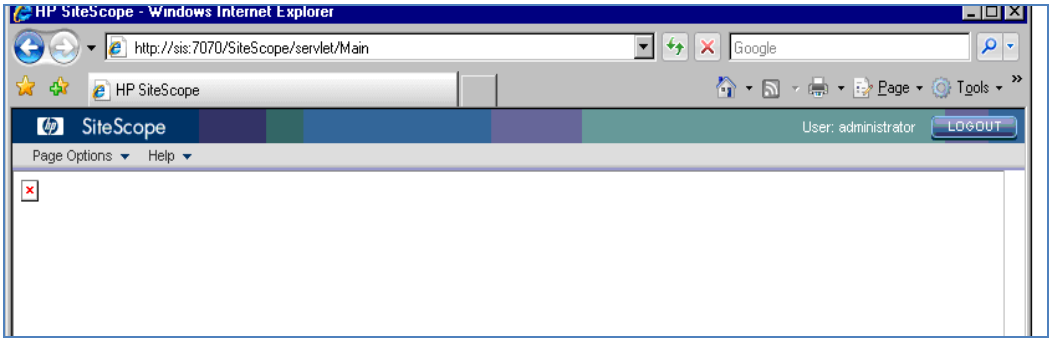
4) From each client system:
   a) Install or verify installation of the Java plug-in.
   b) Flush the browser cache, and quit all browser instances.
   c) Flush the Java cache as follows:
      i) Go to the Control Panel.
      ii) Launch the Java Configuration Applet.
      iii) Under **General** > **Temporary Internet Files,** click **Delete Files**.
      iv) Click **Settings** > **Delete Files.**
      v) Select all checkboxes, and press **OK**.
5) Start up a new browser session pointing to the new HP SiteScope URL.
   a) If the URL brings up a web page with “HP SiteScope” at the top, you know that the URL is correct and that the HP SiteScope service is running.

b) If the page displays a red X instead of the normal HP SiteScope application display, as shown in the figure below, follow these steps:

i) Install the Java plug-in on all client systems that connect to HP SiteScope

ii) Verify that Java is enabled in the browser.

Figure 11 HP SiteScope Browser Not Displaying



HP SiteScope CPU Monitor Configuration

Problem: The CPU monitor is not reporting on a Linux target

On a Linux target, the Disk and memory monitors are reporting, but the CPU monitor is not.

Symptoms	In the HP SiteScope dashboard, the CPU monitor for a Linux target, shows a red circled x, instead of showing a true measure for CPU usage. The disk and memory monitor reporting is OK.
Hardware	
Operating System(s)	RHEL5 or Suse10 Linux
Is this and integration issue?	No
Primary software component	HP SA OS installation profile
Other dependencies	
Failure message	
Probable cause	Missing `sysstat` module in the Linux kernel of the target OS.
For more information	

Solution:

Verify that the `sysstat` package has been installed and is available on the Linux OS that was provisioned to the server. To do this, follow these steps:

1) Log in as root to a target server running the Linux OS that is failing to produce data for the CPU monitor.
2) Enter the `mpstat` command from a terminal session on that target. NOTE: If the `mpstat` command is not found, you must install and activate the `sysstat` RPM package. HP SiteScope uses the `mpstat` command on the Linux target to retrieve CPU values.
3) If the target OS is missing the `sysstat` package, follow these instructions to install and configure the package:

RedHat Enterprise Linux (version 5, by default, does not have `sysstat` installed)

1) Add a directive to the `kickstart.cfg` to include the `sysstat` package in the kernel upon install. Modify the `kickstart.cfg` file (from the OS Installation profile) by adding the single line to the end of the `kickstart.cfg` file:
   sysstat

2) From the HP SA server's NGUI interface, upload the new `kickstart.cfg` file to the RHEL5 OS Installation profile.

Suse Linux

1) Add a directive to trigger YAST to install `sysstat` for you. You can edit the `autoinst.xml` response file for SUSE and search for `<software>`.
2) If you already have the following:

```
<packages config:type="list">
…
</packages>
```

   Then add this line:
   <package>sysstat</package>

   If not, insert the following lines just above </software>

```
<packages  config:type="list">
 <package>sysstat</package>
</packages>
```

3) Upload the **new** `autoinst.xml` from the HP SA server's NGUI interface to the SUSE OS installation profile.

HP SiteScope Installation

Problem: Problems with HP SiteScope templates

After installing HP SiteScope with CSA for Matrix templates, you would like to diagnose any problems that may exist. There are several conditions that should be verified:

- SiteScope service is running
- The HP SiteScope Client Application Help->About SiteScope shows Version 11.10
- The HP SiteScope Client Application shows a template container named *`CSA templates`*
- CSA templates for WINDOWS and LINUX can be manually deployed
- No errors are reported in the HP SiteScope error.log file

Symptoms	• Wrong HP SiteScope version number • Client URL doesn't seem to work • CSA templates container not present • Manual deployments fail
Hardware	
Operating System(s)	Windows

Primary software component	SiteScope
Other dependencies	
Failure message	
Probable causes	1) SiteScope service is not running 2) CSA templates were not imported during the oo-sis-install process 3) Wrong user name or password configured in one or both of the HP SiteScope target credentials: o `WINDOWS-CSA-TARGETS` o `LINUX-CSA-TARGETS`

How to access log files	On the HP SiteScope server, the most important log files for diagnosing problems are:
	
	`c:\SiteScope\logs\error.log`
	`c:\SiteScope\logs\SiteScope2011_06_15.log`
	`c:\SiteScope\logs\RunMonitor.log`
	
	NOTE: example filename for June 15, 2011

For more information	OO-SIS installation steps in the *Cloud Service Automation for Matrix Configuration Guide*.

Solution

1) HP SiteScope service is not running

   a) Verify that SiteScope.exe is listening on the port number specified during HP SiteScope installation.

   ```
   net start SiteScope
   netstat –anob > netstat.out
   ```

   b) Review `netstat.out` in an editor.
   c) The port number must also match the value defined in `csaInstall.properties` during the oo-sis-install process on the CMS (this is needed for OO to connect to HP SiteScope during monitor deploy and delete).

2) HP SiteScope version number is incorrect (patch not installed).

   See the *CSA for Matrix Support Matrix* to locate supported versions.
   If an unsupported version of HP SiteScope has been installed:
   i) Remove the incorrect version of HP SiteScope.
   ii) Install the correct SiteScope version.

3) A Container named **CSA templates** is not present in the HP SiteScope client.

   If the **CSA Templates** folder does not appear in the **Templates** folder in the SiteScope dashboard after installation, this indicates that the oo-sis-install process was not successful.

   There are two possible solutions:

   a) Copy the file `CSA-servers-autoimport.tmpl` (located in CSA4M.zip) to directory `C:\SiteScope\persistency\import\`

      After 90 seconds, the **CSA templates** container should appear under the HP SiteScope client **Templates** view. Otherwise, review error messages in `c:\SiteScope\logs\error.log` for clues.

b) The alternate solution is to manually import CSA for Matrix flows, and manually create the associated target credentials.

i) Copy the `file CSA-servers.tmpl` (located in `CSA4M.zip`) to directory `c:\SiteScope\export\.`

ii) Create the CSA templates container by right clicking on **HP SiteScope** in the HP SiteScope client **Templates** view and selecting **New > Template Container**.

iii) Name the new container **CSA templates** (NOTE: spelling is case sensitive, and must be correct in order to match the expectations of the CSA OO flows).

iv) Right click on the new container and select **import**.

v) Verify that the ***Path*** value shows "c:\SiteScope\export" (this is the directory where you should have copied the .tmpl file).

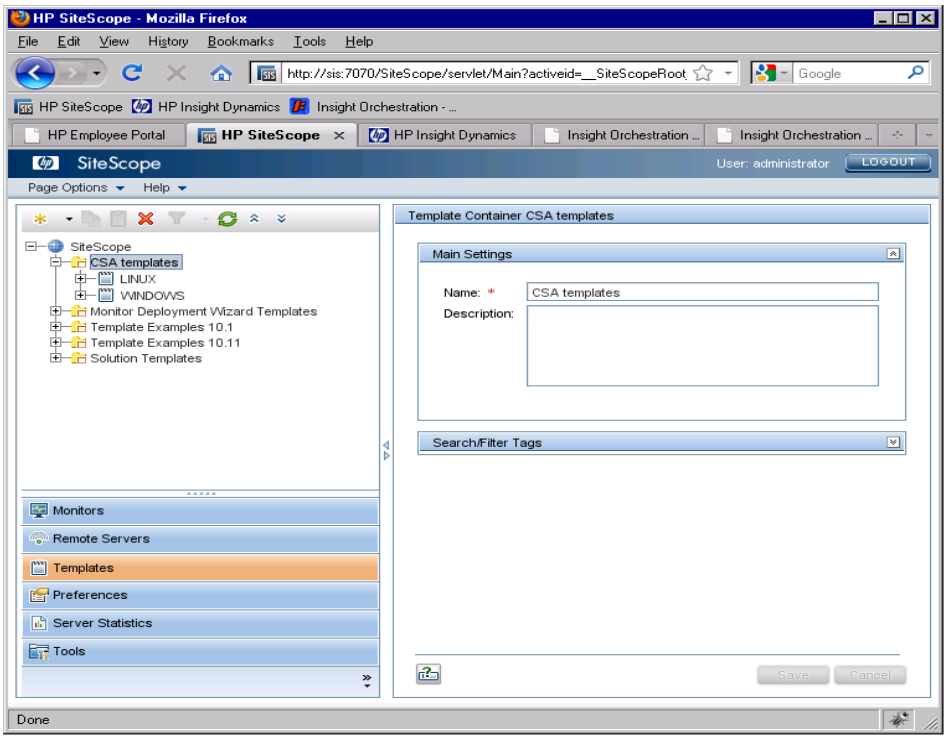
vi) After the file name prompt, enter: `CSA-servers.tmpl`

vii) If the import fails, review the error messages in `c:\SiteScope\logs\error.log`.

viii) If the import is successful, two new templates will appear under the CSA templates container, named **WINDOWS** and **LINUX**.

NOTES: The HP SiteScope client URL must be based on the HP SiteScope server hostname, and the port number specified during HP SiteScope installation. These values must also match the IP address and port number specified during the CSA oo-sis-install process (in the `csaInstaller.properties` file) on the CMS server.

Figure 12 CSA Templates Folder



Problem: Communication error between HP OO and HPIO

At the end of a successful completion of a service provision, an error is listed in the Request Details in HP IO. No monitors are deployed to monitor any of the servers in the service.

Symptoms	At the end of a successful completion of a service provision, an error is listed in the Request Details in HP IO.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component(s)	HP IO, HP SiteScope
Failure message	`"09/01/2010 10:00 AM",MAJOR,"A communication error occurred between Operations Orchestration and Insight Orchestration, the external workflow Deploy Monitors cannot be executed. The current request will continue its execution."`
Probable cause	The template in use is configured with the OO workflows to manage the HP SiteScope monitors. However, the workflows are not installed on the OO server used by HP IO. This can occur if the template is exported and then imported into an HP IO configuration where the OO_SiS work flows have not yet been installed.
For more information	See the OO-SIS installation steps in the *Cloud Service Automation for Matrix Configuration Guide*.

Solution:

Install the OO-SiteScope workflows as described the *Cloud Service Automation for Matrix Configuration Guide*.

Problem: Monitor Deployment on SiteScope fails

Monitor deployment on the SiteScope server fails.

Symptoms	Monitor deployment on the SiteScope server fails.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component(s)	HP SiteScope
Other dependencies	OO
Probable cause	• SiteScope extension license is missing. • Some of the inputs needed for the deployment are specified incorrectly. • SiteScope is configured to use secured APIs.

Solution:

1. If deploying a solution template fails, verify that the extension license for the respective solution template is installed.

2. Verify that the required inputs for deploying the template are correctly configured in OO Studio. Check the required system properties and system accounts.
3. On the SiteScope server, verify that the required credential profiles are configured correctly.
4. On the SiteScope server, remove secure API configuration by following these steps:
    a. Stop the SiteScope service:
    c:\> net stop SiteScope
    b. Open the SiteScope master configuration file located at "c:\SiteScope\groups\master.config"
    c. Change the following property value from true to false: "_accessControlled=false"
    d. Save the file.
    e. Restart the SiteScope service:
    c:\> net start SiteScope

SiteScope Configuration

Problem: The Deploy Monitors operation fails to create monitor

A Deploy Monitors OO workflow triggered by an HP IO workflow callout fails to create the target(s) monitor in the HP SiteScope server.

Symptoms	A "Deploy Monitors" operation to instantiate CPU, DISK and MEMORY monitors for a provisioned target fails to create a monitor and the monitor does not appear in the HP SiteScope server dashboard.
Hardware	
Operating System(s)	Windows 2003
Is this an integration issue?	Yes
Primary software component	HP SiteScope server
Other dependencies	

Failure message	In the OO log on the CMS for the "Deploy Monitors" flow, you may see an error similar to this one:
	`com.mercury.sitescope.api.configuration.exception.ExternalServiceAPIException: Error: Parameter error occurred property The following properties had verification errors: Property Disk : / is not a valid disk drive`
	`Error: Error Code: 12017. Error Description: Unable to deploy the template because it contains a reference to a credential (LINUX-CSA-TARGETS) that no longer exists in SiteScope. Add the missing credential to Credential Preferences or manually enter credentials for the resource in the template object, and deploy the template again.;returnResult=Unknown error: com.mercury.sitescope.api.configuration.exception.ExternalServiceAPIException`

Probable cause	The credentials for the OS deployed in the credentials profile—(in this case **LINUX-CSA-TARGETS**) either don't exist on the HP SiteScope server, or they do not match sufficient credentials on the deployed target's OS to initiate monitoring of the target.
How to access log files	Log onto CMS and look at the OO central service under the URL: **https://localhost:16443/PAS/app** a) Navigate to the **Reports** section. b) Select the instance of the flow run that corresponds to the failed flow. c) Enable **Advanced** viewing of the flows operations.

	d) Add **Result** to the **Report Columns** and look for an error similar to the "Failure message" above in the results for the "Deploy Template" Step# column.
For more information	

Solution:

1) Go to the HP SiteScope dashboard on your HP SiteScope server.
2) Open the **Preferences** dialog.
3) Open the **Credential Preferences** dialog.
4) Add or repair the "LINUX-CSA-TARGETS" credentials object to match the credentials for the Linux OS' of your target(s).
5) While you are in this part of the HP SiteScope dashboard, also verify that the "WINDOWS-CSA-TARGETS" credentials object matches the credentials for the Windows operating system of your target(s).

Problem: Application monitor deployment fails

Symptoms	Application monitor deployment on managed systems fails.
Hardware	
Operating System(s)	
Is this an integration issue?	
Primary software component	SiteScope
Other dependencies	OO
Probable cause	• If you attempt to deploy application monitors on a managed server without deploying the server monitor, the deployment fails. • While deploying solution templates, the SiteScope extension license is missing. • System accounts or properties needed for the application are configured incorrectly.

Solution:

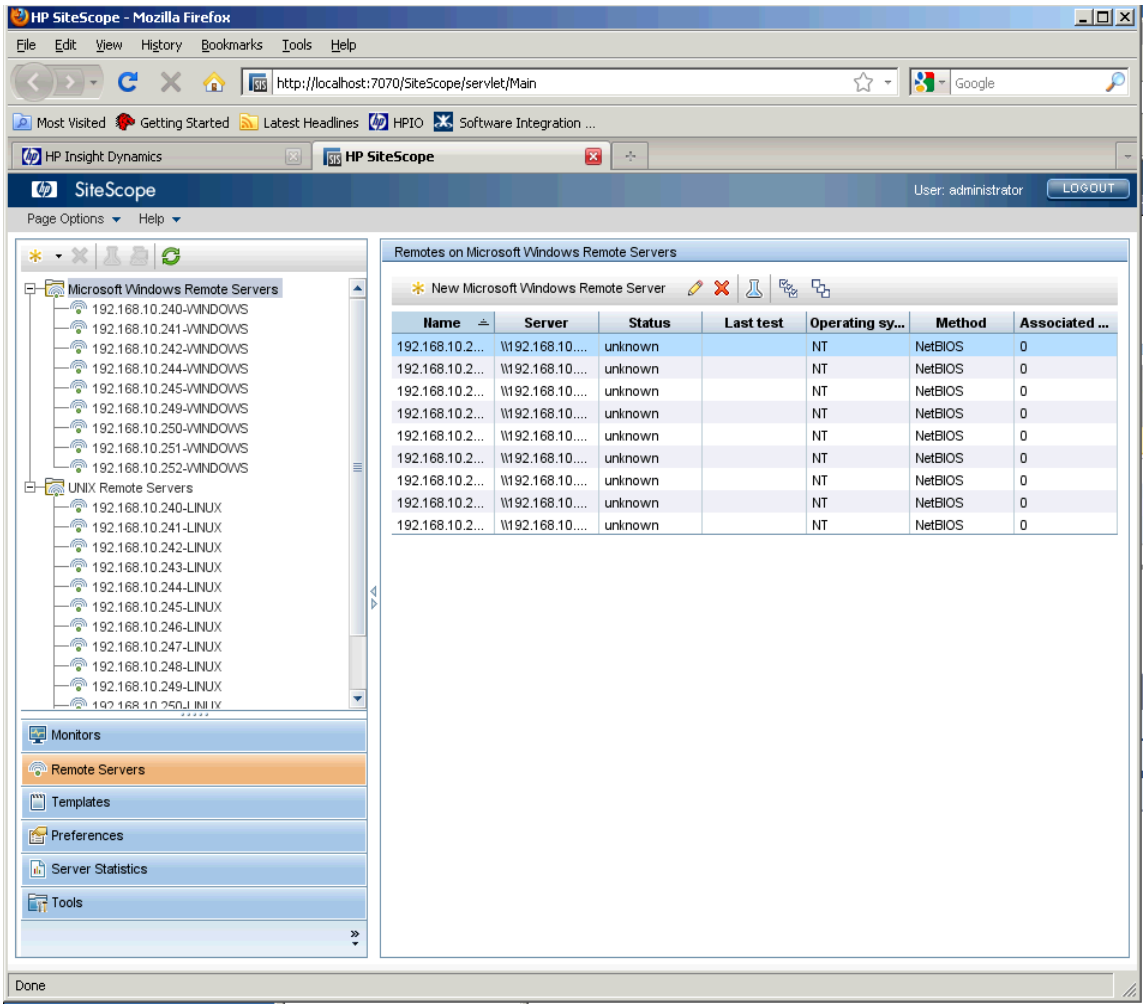
- Add the server monitors for the server before deploying the application monitors. In the HP IO template, add the workflows for server monitoring before application monitoring workflows.
- Verify that the extension license for the solution template is installed.
- Verify that the required system properties and system accounts for the application are correctly configured in OO Studio.

Problem: Orphaned entries exist in the HP SiteScope console under the Remote Servers tab

Symptoms	Lists of no longer monitored or non-existent servers have stale entries in the HP Site Remote Servers tab
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	SiteScope
Other dependencies	A prior de-provision of managed servers cannot delete the remote server entries.
Failure message	None. Orphaned remote servers may collide with new service deploys with different monitoring credentials.

Probable cause	Bad or incorrect SAN zoning Bad or incorrect WWN's Bad or incorrect LUN mapping
How to access log files	NA
For more information	

Figure 13 New Service Deploys with Different Monitoring Credentials



Solution:

- Log in to the HP SiteScope dashboard on your HP SiteScope server.
- Open the **Remote Servers** tab from the lower left.
- Review the list of **Microsoft Windows Remote Servers** and **UNIX Remote Servers** for extraneous entries.
- Open the **Microsoft Windows Remote Servers** folder and select with left clicks any extraneous servers.
- Left click the red-X to **Delete Remote Server** in that pane
- Repeat the steps for any extraneous servers in the **UNIX Remote Servers** folder

Troubleshooting CSA for Matrix Workflows

Problem: CSA for Matrix flows do not appear in HP OO Studio

If CSA for Matrix HP OO flows do not appear after running the CSA for Matrix flows installer you can try to manually import flows using HP OO Studio.

Symptoms	After running the CSA for Matrix OO flows installer, OO Studio shows missing flows, or flow names appear in red text. The CSA for Matrix Flows imported by the `oo-sis-install` process are: • `/Library/Hewlett-Packard/Insight Orchestration/Service Actions/Deploy Monitors` • `/Library/Hewlett-Packard/Insight Orchestration/Service Actions/Disable Monitors` • `/Library/Hewlett-Packard/Insight Orchestration/Service Actions/Enable Monitors` • `/Library/Hewlett-Packard/Insight Orchestration/Service Actions/Delete Monitors` CSA System Properties (shown with example values) are: • `/Configuration/System Properties/SiSFQDN = sitescope.server.hp.com` • `/Configuration/System Properties/SiSUserName = Administrator` • `/Configuration/System Properties/SiSPassword = password` • `/Configuration/System Properties/SiSIPPort = 8080` • `/Configuration/System Properties/SiSDefaultMonitorFrequency = 60` • `/Configuration/System Properties/SiSProtocol = http` • `/Configuration/System Properties/SiSCSATemplateFolder` • `= CSA templates` The CSA installer imports 4 flows and 7 properties in OO Studio, under **Library** and **Configuration**, respectively. If successfully imported, the flow names appear in blue, as shown in **Error! Reference source not found.**. Problems are indicated if a flow is missing, or if it appears with red text, as shown in **Error! Reference source not found.**.

Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	OO, HP SiteScope
Other dependencies	The SiS System Properties must match the HP SiteScope configuration, especially the following: • `/Configuration/System Properties/SiSFQDN : SiteScope hostname` • `/Configuration/System Properties/SiSPassword : SiteScope Administrator password` • `/Configuration/System Properties/SiSIPPort : port number specified during SiteScope installation`
Failure message	Problems are indicated if a flow is missing, or if it appears with red text as shown in **Error! Reference source not found.**.
Probable cause	Mismatch between HP SiteScope System Property settings and HP SiteScope server configuration.
How to access log files	Relevant OO logfiles are: • `c:\Program Files\HP\Operations Orchestration\Central\logs\Central_wrapper.log` • `c:\Program Files\HP\Operations Orchestration\Central\logs\audit.log` • `c:\Program Files\HP\Operations Orchestration\RAS\Java\Default\webapp\logs\wrapper.log`
For more information	The README file included with the CSA for Matrix SiteScope Flows installer (CSA4M.zip) contains additional information.

Solution

NOTE: if a manual import is attempted after running the CSA for Matrix flows installer, the first two steps listed below may have already been performed by the installer.

1) Copy the flow .zip files to `c:\Program Files\HP\Operations Orchestration\Studio`.
2) Unzip each of the two flow archive files into the `Studio` directory.
3) Login to OO Studio
4) From the **Repository** menu, choose **Import Repository**.
5) From the file selector popup box, choose **csaServiceActions.flows.zip**.
6) In the Import popup box, click the plus (+) icon on the toolbar.
7) For each of the four CSA for Matrix flows, verify the **Action** and **Description** columns:
    a) The **Action** column will have the green **Up Array** icon highlighted.
    b) The description column will say **Modify in Repository**.
    c) If necessary, click the green **Up Array** in the **Action** column.

8) When all flows are correctly configured, click the **Apply** icon on the toolbar (the rightmost icon, colored in with Red, Green and blue).

Repeat the import steps for the file `csaSystemProperties.flows.zip`:

1) From the **Repository** menu, choose **Import Repository**.
2) From the file selector popup, choose **csaServiceActions.flows.zip**.
3) For each of the seven CSA System Properties, verify the **Action** and **Description** columns.
4) When all flows are correctly configured, click the **Apply** icon on the toolbar (the rightmost icon, colored in with Red, Green and blue).

Check the imported flows and System Properties into the Repository:

1) Right click **Library** and click **Repository -> check in -> OK**.
2) Right click **Configuration** and click **Repository -> check in -> OK**.

Figure 14 Successful Import of CSA for Matrix Flows

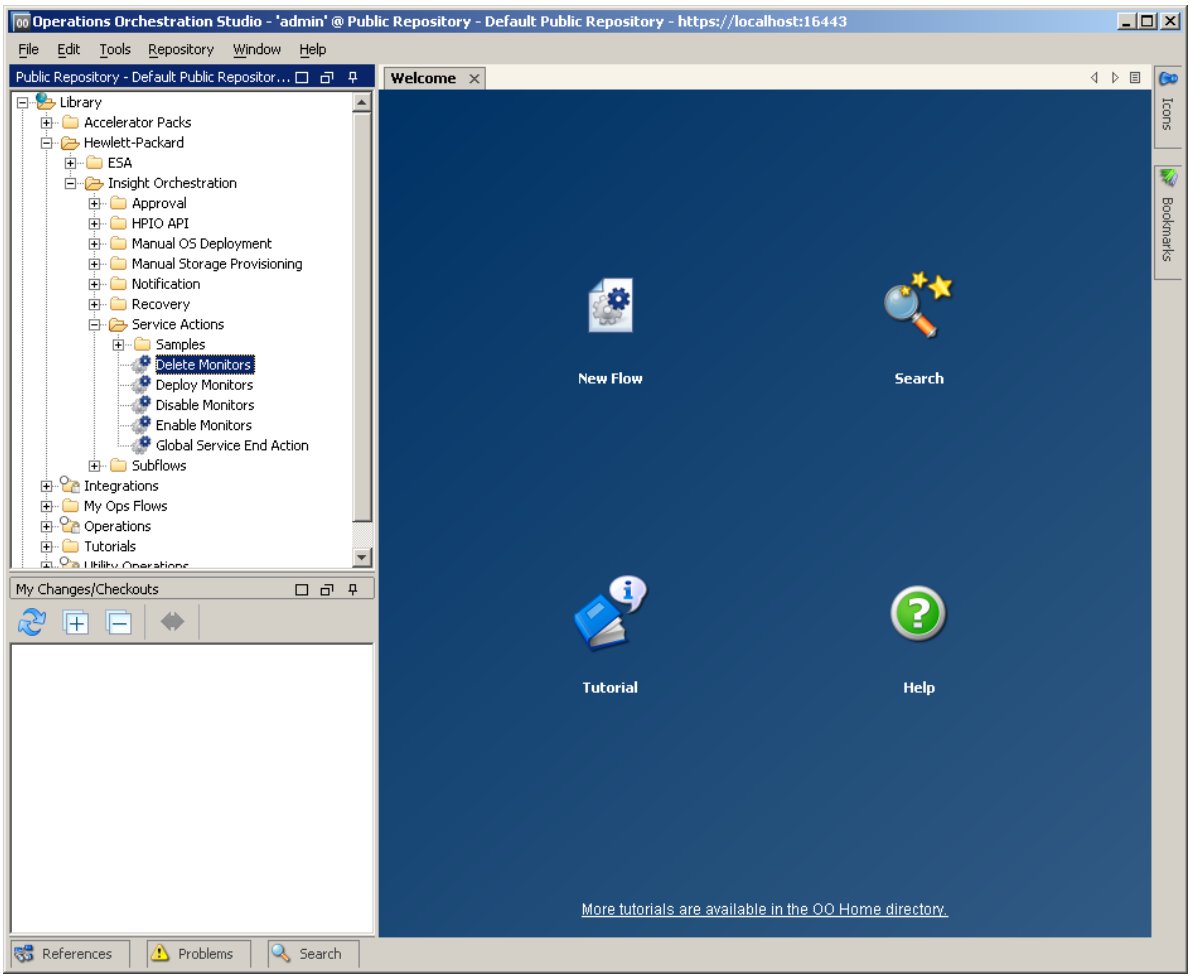
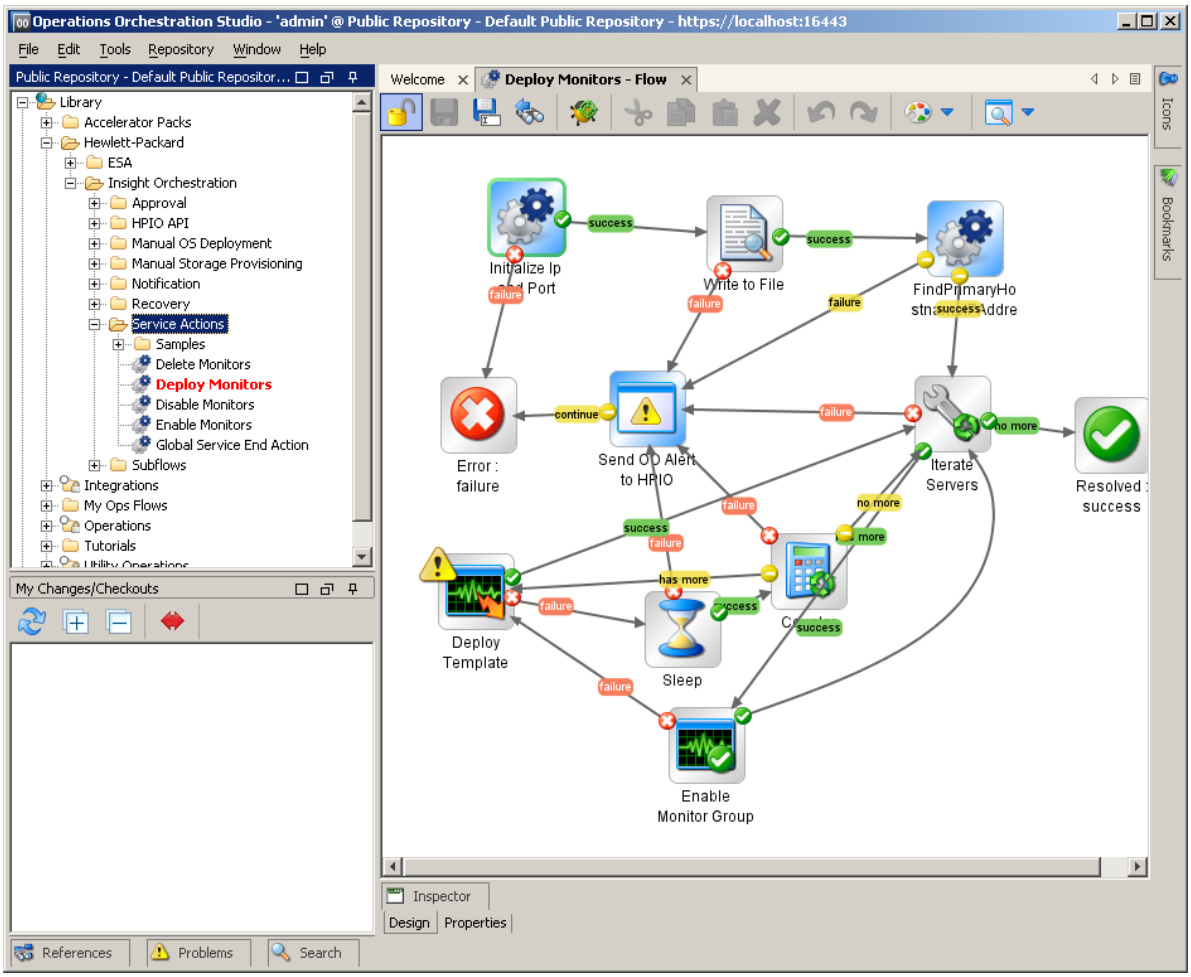


Figure 15 Unsuccessful Import of CSA for Matrix Flows



Problem: Using OO Studio to debug the CSA for Matrix Deploy Monitor Flow.

The CSA for Matrix Deploy Monitor Flow can be run in debug mode using default values. By creating DNS entries for a default Windows server and a default Linux server, it is possible to partially test the configuration of OO and HP SiteScope.

Symptoms	You need to verify that OO is able to connect to HP SiteScope with the current OO System Properties and that HP SiteScope CSA templates and credentials are correctly configured.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component	OO, HP SiteScope
Other dependencies	OO SiS System Properties must match HP SiteScope configuration for hostname, port, username and password.

	NOTE 1: By default, OO is installed on the CMS at `c:\Program Files\HP\Operations Orchestration` *NOTE 2*: by default, HP SiteScope is installed on the HP SiteScope server at `c:\SiteScope`
Failure message	Failure to deploy within one or two minutes may be caused by ping timeouts for the two test server alias names. If the deploy fails, the failed steps are marked with a red X, and should be examined for clues as to the cause of the failure.
Probable cause	• Configuration of OO SiteScope System Properties is not valid • One or more OO services not running on the CMS server • SiteScope service not running on HP SiteScope server

How to access log files	Relevant OO logfiles:
	• `c:\Program Files\HP\Operations Orchestration\Central\logs\Central_wrapper.log`
	•
	• `c:\Program Files\HP\Operations Orchestration\Central\logs\audit.log`
	•
	• `c:\Program Files\HP\Operations Orchestration\RAS\Java\Default\webapp\logs\wrapper.log`
	
	Relevant HP SiteScope logfiles:
	`c:\SiteScope\logs\error.log`
	`c:\SiteScope\logs\RunMonitor.log`
	`c:\SiteScope\logs\SiteScope2010_06_15.log`
	
	NOTE: example filename for Jun 15, 2010

For more information	The README file included with the CSA for Matrix SiteScope Flows installer (`CSA4M.zip`) contains additional information.

Solution:

1) Add a new DNS alias named `siswintarg` to refer to an existing Windows server.
2) Add a new DNS alias named `sislintarg` to refer to an existing Linux server.
3) Under **SiteScope > Preferences > Credentials**, edit CSA target credentials:
   - LINUX-CSA-TARGETS must match login requirements for the islintarg alias.
   - WINDOWS-CSA-TARGETS must match login requirements for the siswintarg alias.
4) Verify that you can ping both of these aliases from a command line on the CMS server.
5) Edit the `Deploy Monitors.xml` file, changing all references to the appropriate values for your network:

   `<OODIR>\Studio\csaServiceActions.flows\data\Library\Hewlett-Packard\Insight Orchestration\Service Actions\Deploy Monitors.xml`

   NOTE 1: `<OODir>` refers to the Operations Orchestration installation directory
   NOTE 2: `Deploy Monitors.xml` is created when the oo-sis-install is run on the CMS.

6) Import `csaServiceActions.flows`, containing the modified `Deploy Monitors.xml` file. For information on how to manually import CSA for Matrix flows, see the section of this document called "**Error! Reference source not found.**."
7) In OO Studio, double-click the **Deploy Monitors** flow.
8) Click the debug icon in the taskbar above the **Deploy Monitors** pane.
9) Click the **Play** icon (a green triangle on the left side of the toolbar) to start the flow.
10) Verify the creation of a **CSA monitors** group, with associated monitors, under the **Monitors** pane.

Failure to deploy within a minute or more may be caused by ping timeouts for the two test server alias names. If the deploy fails, the failed steps are marked with a red X and should be examined for clues as to the cause of the failure.

After performing these tests, restore HP SiteScope credentials (`LINUX-CSA-TARGETS and WINDOWS-CSA-TARGETS`) for the OS images that will be deployed by HP SA. The username and password must match the values specified in `unattend.xml`, `kickstart.xml`, or equivalent for target OS images.

Problem: How to prepare the CMS prior to installing CSA OO Flows

The oo-sis-install process assumes that a fresh OO instance has just been installed by HP IO and that none of the CSA for Matrix flows are present in OO. Before a re-installation can be attempted, OO must be properly prepared.

Symptoms	One or more CSA flows and/or SiteScope System Properties are visible in OO Studio prior to running the CSA4M.zip CSA flows installer.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component(s)	OO, HP SiteScope
Other dependencies	The SiteScope System Properties must match the HP SiteScope configuration, especially the following: • `/Configuration/System Properties/SiSFQDN : SiteScope hostname` • `/Configuration/System Properties/SiSPassword : SiteScope Administrator password`
Failure message	
Probable cause	Most commonly, this is the result of a previous CSA for Matrix flows installation.
How to access log files	Relevant OO logfiles are: • `c:\Program Files\HP\Operations Orchestration\Central\logs\Central_wrapper.log` • `c:\Program Files\HP\Operations Orchestration\Central\logs\audit.log` • `c:\Program Files\HP\Operations Orchestration\RAS\Java\Default\webapp\logs\wrapper.log`

For more information	The README file included with the CSA SiteScope Flows installer (CSA4M.zip) contains additional information.

Solution:

The oo-sis-install process assumes that a fresh OO instance has just been installed by HP IO, and that none of the CSA flows are present in OO. To meet these expectations, it is necessary to perform preparatory steps before running the the `install.bat` file `from the CSA4M.zip`, as described in the README file.

The pre-install preparation steps are as follows:

1) Start OO Studio.
2) Delete all CSA flows (right-click each flow, select **Delete**, and answer **Yes** to all prompts).
   ```
   /Library/Hewlett-Packard/Insight Orchestration/Service Actions/
    Deploy Monitors
   /Library/Hewlett-Packard/Insight Orchestration/Service Actions/
    Disable Monitors
   /Library/Hewlett-Packard/Insight Orchestration/Service Actions/
    Enable Monitors
   /Library/Hewlett-Packard/Insight Orchestration/Service Actions/
    Delete Monitors
   ```
3) Delete the CSA System Properties.

   ```
   /Configuration/System Properties/SiSFQDN
   /Configuration/System Properties/SiSUserName
   /Configuration/System Properties/SiSPassword
   /Configuration/System Properties/SiSIPPort
   /Configuration/System Properties/SiSDefaultMonitorFrequency
   /Configuration/System Properties/SiSProtocol
   /Configuration/System Properties/SiSCSATemplateFolder
   ```
4) Check in changes to the repository.
   a. Right-click **Library** and select **Repository** > **Check in Tree**.
   b. Answer **Yes** or **OK** to all prompts.
   c. Right-click **Configuration** and select **Repository** > **Check in Tree**.
   d. Answer **Yes** or **OK** to all prompts.
5) Stop services:
   ```
   net stop "RSScheduler"
   net stop "RSCentral"
   net stop "RSJRAS"
   net stop "HP Extensible Storage & Server Adapter"
   net stop "HP Logical Server Automation"
   net stop "HP Insight Orchestration"
   ```
6) Delete the OO metadata directory, including all subfiles:
   ```
   C:/Program Files/HP/Operations Orchestration/central/rcrepo/
   data/.metadata
   ```
7) Restart services:
   ```
   net start "RSScheduler"
   net start "RSCentral"
   net start "RSJRAS"
   ```

```
net start "HP Extensible Storage & Server Adapter"
net start "HP Logical Server Automation"
net start "HP Insight Orchestration"
```

8) OO is now ready for the CSA flows to be re-installed.

Diagnosing Failed CSA Flow imports

If CSA OO Flows did not install successfully, be sure to verify that all the preparatory steps have been performed, as listed above. The following log files can provide useful clues regarding possible causes of errors.

```
C:\Program Files\HP\Operations
Orchestration\Central\logs\Central_wrapper.log
C:\Program Files\HP\Operations Orchestration\Central\logs\audit.log
C:\Program Files\HP\Operations Orchestration\RAS\Java\Default\webapp\logs\
wrapper.log
```

Problem: Audit policy not deleted after compliance scan

Symptoms	Audit policies are not deleted in SA after running only the compliance scan without remediation.
Hardware	
Operating System(s)	Windows
Is this an integration issue?	No
Primary software component(s)	OO
Other dependencies	SA

Solution:

Audit policies will not be deleted if you run only the compliance scan without remediation. In this case, delete the audit copy manually in the SA console. The audit copy will have a name in the following format:
<SA Audit task name>-<CSA service name>.
The SA audit task name will be defined in OO system properties— one for Windows and one for Linux.
For example, an audit copy may look like `CSA_WindowsAudit-CSA_SVC_001`.
NOTE: Compliance check may fail the next time if the audit copy is not removed.

Problem: How to Recognize Problems with CSA Flows in OO Studio

Symptoms	Missing or mis-configured flows are displayed in OO Studio
Hardware	
Operating System(s)	Windows
Is this an integration issue?	Yes
Primary software component(s)	OO, HP SiteScope
Other dependencies	The SiS System Properties must match the HP SiteScope configuration, especially the following: • `/Configuration/System Properties/SiSFQDN : SiteScope hostname` • `/Configuration/System Properties/SiSPassword`

	: SiteScope Administrator password
Failure message	Flow problems are indicated if a flow is missing, or if displayed in red text, as shown in **Error! Reference source not found.**.
Probable cause	OO was not properly prepared prior to `CSA4M.zip` installation.
How to access log files	Relevant OO log files are: • `c:\Program Files\HP\Operations Orchestration\Central\logs\Central_wrapper.log` • `c:\Program Files\HP\Operations Orchestration\Central\logs\audit.log` • `c:\Program Files\HP\Operations Orchestration\RAS\Java\Default\webapp\logs\wrapper.log`
For more information	The README file included with the CSA SiteScope Flows installer (CSA4M.zip) contains additional information.

Solution:

Open OO Studio and verify that the installed CSA flows and properties are present.

CSA Flows imported by the oo-sis-install process are:

```
/Library/Hewlett-Packard/Insight Orchestration/Service
Actions/Deploy Monitors
/Library/Hewlett-Packard/Insight Orchestration/Service
Actions/Disable Monitors
/Library/Hewlett-Packard/Insight Orchestration/Service
Actions/Enable Monitors
/Library/Hewlett-Packard/Insight Orchestration/Service
Actions/Delete Monitors
```

CSA System Properties (shown with example values) are:

```
/Configuration/System Properties/SiSFQDN                    =
sitescope.server.hp.com
/Configuration/System Properties/SiSUserName                =
Administrator
/Configuration/System Properties/SiSPassword                =
password
/Configuration/System Properties/SiSIPPort                  = 8080
/Configuration/System Properties/SiSDefaultMonitorFrequency = 60
/Configuration/System Properties/SiSProtocol                = http
/Configuration/System Properties/SiSCSATemplateFolder       = CSA
templates
```

After successful installation of CSA flows, all four flows and seven System Properties will appear in OO Studio under Library and Configuration, respectively. In addition, flow names will appear in blue as shown in **Error! Reference source not found.**, rather than in red as shown in **Error! Reference source not found.**

Problem: Operation Orchestration workflows do not run for third party servers.

Symptoms	Operation Orchestration workflows do not run for third party servers.
Hardware	

Operating System(s)	
Is this an integration issue?	Yes
Primary software component	HP IO and OO
Other dependencies	
Failure message	N/A
Probable cause	• Incorrect OO credentials have been added to `esa.properties` file. • Incorrect tag values in the three data files: `ServerInfo.xml`, `InventoryList.xml`, `uuidHostMapper.xml`. • Mismatching `UUID` element values between the three data files: `ServerInfo.xml`, `InventoryList.xml`, `uuidHostMapper.xml`. • Missing identification info for third party ProLiant server in the `blade_models.properties` file. • Incorrect iLO credentials for the target server listed by OO.
How to access log files	
For more information	

Solution:

1) Add the correct credentials for OO sign-in:
   a) Modify `<Root Drive>:\Program Files\HP\Virtual Server Environment\conf\esa.properties` to include the HP OO Administrator password.

      `Esa.oo.admin.password=<your-oo-admin-password>`

   b) Verify the value of each in the files: `ServerInfo.xml, InventoryList.xml, uuidHostMapper.xml`. For more information use the *HP Insight Orchestration User Guide*, "Configuring IO to list heterogeneous hardware" section.

2) The `UUID` element value should match for all three data files:

   `ServerInfo.xml`
   `InventoryList.xml`
   `uuidHostMapper.xml`.

3) Edit the `C:\Program Files\HP\Insight Orchestration\conf\blade_models.properties` file to include the third party target server model. For more information see the *HP Insight Orchestration User Guide*, "Configuring IO to list heterogeneous hardware" section.

4) Verify and, if needed, correct the iLO system credentials for the third party target server in OO. For more information see the *HP Insight Orchestration User Guide*, “Configuring IO to list heterogeneous hardware” section.
5) You may need to stop the services HP IO, LSA, ESA, RSCentral, RSJRAS and restart them in reverse order.

Troubleshooting Storage

Storage Configuration

Problem: Not enough VM storage available

Not enough VM storage is available during activation or deactivation of VM servers.

Symptoms	Server deactivation or activation fails from inadequate VM host storage availability.
Hardware	Virtual Servers and VM storage
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	Any message for a physical server provision
Probable cause	HP IO is designed so that if a failure occurs during the provisioning of physical servers, the resources are left in the same state as when the failure occurs. The administrator must power on and access the servers to resolve the issues that caused the failure.
How to access log files	The default location of the HP IO log file on the CMS server is as follows: `c:\Program Files\HP\Insight Orchestration\logs\hpio-controller.log`
For more information	*HP Insight Orchestration User Guide*, *HP Insight Orchestration Release Notes,* and HP Insight Orchestration online help

Solution:

1) From a command line on the CMS, run:

```
net stop "HP Insight Orchestration"
```

2) Open the `hpio.properties` file in a text editor. The default location of the HP IO properties file on the CMS server is:

```
C:\Program Files\HP\Insight Orchestration\conf\hpio.properties
```

3) Increase the value of the **vm.memory.overhead** property; for example:

```
vm.memory.overhead = 1.2
```

4) Increase the value of the `vm.disk.overhead` property, for example:

```
vm.disk.overhead = 10
```

5) Save the `hpio.properties` file.

6) From a command line on the CMS, run the following:

```
net start "HP Insight Orchestration"
```

Problem: Servers do not return to HP IO Server Pool after failed provision

Symptoms	Servers don't return to the Server Pool after a failed provisioning request.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO
Other dependencies	
Failure message	
Probable cause	Logical server listed in "clean-me" state.
For more information	See the troubleshooting section of the *HP Insight Orchestration User Guide*.

Solution:

HP IO is designed so that if a failure occurs during the provisioning request of physical servers, the resources are left in the "in-use" state when the failure occurs. Leaving the resources in the "in-use" state allows the administrator to power on and to access the servers; then to identify and resolve the issues that caused the failure. This problem occurs with physical servers managed using Virtual Connect-enabled hardware and with non-Virtual Connect (third party OOWF) servers.

1) Make sure the identified servers are powered off.
2) Launch Insight Dynamics (CMS).
3) Go to **Tools menu** > **Virtualization Manager**; select **Perspective = Logical Server**.
    a. Select the server that is listed in the "clean me" state.
    b. Go to **Tools** > **Logical Server** > **Deactivate**.
    c. After the logical server is deactivated, go to **Delete** > **Logical Server**.
    d. If the target server is a third-party server, go to **Delete** > **Unmanage Logical Server**.
    e. Repeat the above steps for each logical server that is listed in the "clean-me" state.
4) Each deleted server is placed in the Maintenance Server Pool. You must move it back to its dedicated server pool.
    a. Go to **Tools** > **Insight Orchestration**.
    b. From **Servers** tab, select a server pool that was associated with one or more logical servers listed as in the "clean me" state and press **Modify Pool**.
    c. From the **Select servers from pool** drop-down, select **Maintenance**.
    d. Select the server that was associated with selected pool and press **>>** to move the server back to the selected pool.
    e. Press **Save**.
5) Repeat steps 3 and 4 for each server identified in step 3a.
6) From the **Server Pool** tab, refresh server resources to update HP IO with the new state for the identified servers.

Problem: Allocated SAN storage not detected

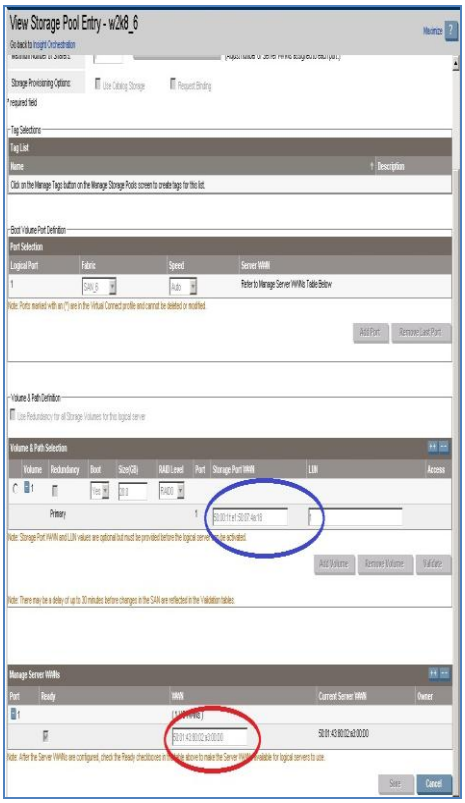
Target server fails to detect SAN storage that was allocated to it from the CMS.

Symptoms	Target server fails to detect SAN storage that was allocated to it from the HP Insight Dynamics CMS
Hardware	
Operating System(s)	
Is this an integration issue?	
Primary software component	OS Install media and HBA driver software.
Other dependencies	
Failure message	
Probable cause	A missing HBA driver in the production operating system or a zoning issue.
For more information	

Solution:

1) Check the Worldwide Name (WWN) allocated to the HBA in the target server. This should be done in two places to make sure that they agree:
    a. In HP IO go to the SPE to view the volume allocated to the provisioning job that failed. Note the server WWN, as shown in the figure below (red) and the volume details as shown in the figure below (blue).
    b. On the target server go into the HBA BIOS. Check to see that the WWN allocated to the active port is the same as the one in the SPE.
        - If there is more than one active port, deactivate any ports that are not operating with this WWN and retry the operation after the next steps.
        - If none of the ports have the required WWN, deactivate all but one port and retry the provision after the next steps.

Figure 16: Check WWN and Volume Details



2) Contact the storage administrator with the server WWN and volume details. Request that the storage administrator check that the volume is presented to the specified server WWN and to no others.

   NOTE: It is important that the volume and the server are connected via a zone whose definition contains only those two WWNs and that the server WWN is not included in any other zones.

3) All of the above should be rechecked by the storage administrator and altered as required.
4) The user can then re-attempt the provision request. If it still fails, contact HP Professional Services for more detailed SAN troubleshooting.

Problem: Target server fails to install OS to SAN

The target operating system does not have a driver for local or SAN storage boot disk.

Symptoms	Target server fails to install operating system to SAN storage allocated to it from the CMS • Windows "black screens" • Server continuously rebooting into PXE, defaulting to non-existent local disk and looping until it times out • No boot disk detected • Failed to format disk • Failure message
Hardware	
Operating System(s)	
Is this an integration issue?	
Primary software component	OS Install media and HBA driver software
Other dependencies	
Failure message	The following message displays in some cases: `Diskpart has finished scanning your configuration-disk not valid-there is no disk supported.`
Probable cause	• Missing or incorrect disk driver in the production operating system • Incorrect operating system configuration files • Incorrect boot disk order (local-disk-enabled)
For more information	HP Server Automation documentation

Solution:

When deploying an operating system, HP Server Automation (HP SA) starts by booting the target server into a known state using PXE. This known state provides a minimal operating system (either Windows or Linux) with up-to-date drivers that can detect basic devices.

Soon after, HP SA deploys the production operating system configured by the user to the target server. For most late-model operating systems, many, if not all, of the necessary drivers are already in place. For older software (for example, Windows 2003 x86), the SAN HBA drivers are likely to be missing and must be installed.

1. Go to www.hp.com.
2. Select **Support & Drivers** > **Download drivers and software (and firmware)**. To complete the download, you must identify the server type.

Generally, this problem requires you to generate a new **sysprep** image with the correct drivers in place. For Linux, installing a later minor release of the OS normally resolves the problem. Add the missing storage drivers for the target server. See the HP recommended storage drivers for the identified target server.

Check operating configuration files for Linux or `unattend` file for Windows to make necessary corrections. For more information, refer to the HP Server Automation documentation.

Verify the boot disk order is setup correctly as described in the *Cloud Service Automation for Matrix Configuration Guide*. If SAN boot provisioning continues to fail, disable the local disk as part of the BIOS disk boot order.

Problem: SAN storage resources do not show up in HP IO UI

SAN storage resources do not show up in HP IO UI.

Symptoms	Storage pool entries and storage resources do not show up in HP IO UI.
Hardware	
Operating System(s)	
Is this an integration issue?	
Primary software component	SPM, HP IO, VCEM
Other dependencies	
Failure message	
Probable cause	• Timing issue • LSM database is out of synch • The SPE is not made available for HP IO use
For more information	

Solution:

1) Wait few minutes after the creation of SPE for HP IO Storage Pools to be updated.
2) Refresh the resources:
    a. Go to **Tools** > **Virtualization Manager** > **Tools** > **Logical Servers** > **Refresh**
    b. Check **Storage Pool Entries**.
    c. Select **Refresh**.
    d. Return to **Tools** > **Insight Orchestration**. Select the **Storage** tab.
    e. Verify that the storage pool entries are listed.
3) If the storage pool entries are still not found, the entries may not have the **Ready** checkbox enabled.
    a. Go to **Tools** > **Insight Orchestration**. Select the **Storage** tab.
    b. Click **Manage Storage Pools**.
    c. Select the SPE that should be listed under **IO Storage Pools UI**.
    d. Click **Modify**.
    e. Under **Manage server WWNs**, select the **Ready** check box for the SPE.
    f. Select **Save**.
    g. Repeat step 2 to verify that you can see all the storage listed.

Problem: HP IO service pauses during SAN boot with request for data disk

Symptoms	HP IO service pauses during SAN boot with a request for a data disk.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	HP IO and HP SA
Other dependencies	
Failure message	
Probable cause	• Disk size listed by SPE does not meet the minimum limits for successful provisioning. • HP IO template requests a data disk, but there is no Storage Pool Entry (SPE) with a data disk record matching the service template • The data disk is not presented to the target server. • The data disk available has insufficient disk space. • The SPE has two volumes but both of them are listed as boot disks. • The Storage Pool Entry lists a data disk with an incorrect RAID level or LUN. • Incorrect disk presentation/zoning.
For more information	*HP Insight Orchestration User Guide*

Solution:

HP IO must list sufficient Storage Pool Entries (SPEs) available in an "Unused" state to meet the service template requirements. The minimum required sizes for Windows, Linux, and Solaris are as follows:

- Windows requires a minimum of 20 GB.
- Linux and Solaris require 10 GB for OS installation only.

1) Verify SPE entries are in an available state:
   a. Go to **Tools** > **Insight Orchestration**. Select the **Storage** tab.
   b. Click **Refresh**.
   c. Verify the availability status of the SPE that is necessary to meet the service template requirements.
2) If the SPE is missing a data disk or available resources in the storage pool:
   a. Go to **Tools** > **Virtualization Manager** > **Modify** > **Logical Server Storage Pools**
   b. Edit the SPE used by the service that has paused:
      i. Add a new volume with **type = data**
      ii. List the correct RAID level, size, and LUN information retrieved from the array manager for this disk/volume.

NOTE: Verify that the new data disk meets the service template requirements for size and type (correct numbers of boot and data disks).

3) Using the array manager, present the data disk that was added to SPE to the target server.
4) Verify that the switch zoning is listing the correct WWN information for the target server. For more information, see "Corrective Procedures" in the *HP Insight Orchestration User Guide*.
5) Verify that the volume presentation has the correct information (matching the information from SPE; see WWN.) in the array manager.

Problem: SAN and local boot provisioning fails for non-VC Proliant servers

Symptoms	SAN and local boot provisioning can fail for non-VC-enabled ProLiant Servers, if the storage pool entry used by the service request contains both a SAN boot disk and a SAN data disk at the request starting time.
Hardware	
Operating System(s)	
Is this and integration issue?	
Primary software component	HP IO
Other dependencies	VSE/SPEs configuration
Failure message	
Probable cause	The OS attempts deploy on the data disk instead of the boot disk listed in the SPE. For non-VC-enabled ProLiant servers, there is no guarantee which disk is used first for OS deployment. A failure occurs if the data disk does not meet the minimum disk space for OS provisioning.
How to access log files	
For more information	

Solution:

1) For non-VC-enabled ProLiant blade-server provisioning, service requests for a boot disk and a data disk should be created separately.
2) If the operating system is booted to SAN, the Storage Pool Entry (SPE) should initially list only the SAN boot disk. When a local boot disk is used for operating system provisioning, no SPE should be created for the SAN data disk in the initial service request.
   NOTE: After the SAN or local boot, the service request provisioning pauses to request that you manually allocate the SAN data disk to an already existing SPE or create a new SPE for the SAN data disk.
3) When the request pauses, modify the identified SPE to include the second volume as a data disk:
   a. Go to **IO** > **Storage Pool tab** > **Manage Storage Pools**.
   b. Select the associated SPE for the target server.
   c. Click **Modify**.
   d. Go to **Volume** and click **Add volume** to add the data disk. Make sure you select **boot option = NO**.
   e. Enter the RAID level and disk space.
   f. Click **Save** and **Close**.
   g. Go to **IO Storage Pool** tab. Select **Refresh** to see changes to SPE.
   h. Go to **IO request**.
   i. Click **Restart/Continue IO request**.

SAN Usage

Problem: HPIO Delete Service fails due to HP SA erase disk failure

Symptoms	Software resources do not show up in HP IO UI.
Hardware	
Operating System(s)	
Is this an integration issue?	Yes
Primary software component	IO and HP SA
Other dependencies	
Failure message	N/A
Probable cause	SA failed to erase the disk.
For more information	*HP IO User Guide*, Troubleshooting section

Solution:

1) If HP SA failed to erase the disk during the service deletion, the server and the disk will be left in an unstable state. If this occurs, do the following:
    a) Remove references to HP SA from any leftover records on the server, and manually scrub the disk.
    b) For more information, see the *HP IO User Guide*, Manual Clean-up process section.

Problem: Storage pool entries for the third party servers show N/A

Symptoms	Storage Pool Entry for the third party servers show available status = N/A.
Hardware	
Operating System(s)	
Is this an integration issue?	
Primary software component	HP IO and VSE
Other dependencies	
Failure message	
Probable cause	SPE/Storage Pool Entry for OOWF/non-Virtual Connect/third party servers shows available status = N/**A.**
For more information	

Solution:

The listing of the **available** status as N/A for the third party servers in the **Manage Storage Pool** user interface is by design. Instead, you can verify the correct status (used/unused) in the **IO Storage Pool** tab after that tab is refreshed.

Only SPEs for third party servers will have the available status of N/A. The SPEs Virtual Connect/cClass blade servers will list the available value of 1 or 0. These values can be associated with the unused/used value shown for SPE in the **IO Storage Pool** tab.

Problem: The HP IO service pauses when a Local boot is performed and asks for data disk allocation

Symptoms	The HP IO service pauses when a Local boot is performed and asks for data disk allocation, even though the SPE lists both boot and data disks.
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	IO and HP SA
Other dependencies	
Failure message	Provisioning request for <servername> has paused. Manual data disk allocation using VSE Logical Server Storage Pools is required. An HP IO Administrator has been notified.
Probable cause	1) There is an Operating System mismatch between the template, SPE, and host OS assignment in the Array Manager (e.g. CV-EVA). 2) There is a Raid level mismatch for the data disk between the template, SPE, and disk in the Array Manager (e.g. CV-EVA). 3) Both 1) and 2) above are correct, but the request continues to pause although the SPE has both boot and data disks that match what the template requests. This is possibly caused by a previous de-provision of the server, which failed due to an Erase Disk issue.
How to access log files	

Solution:

1) Verify the following to make sure they all specify the same OS:
   - The template for the server-allocated Operating System
   - The SPE Storage Entry Operating System
   - The host-associated OS in the Array Manager (CV-EVA)

2) To resolve an OS mismatch:
   a) In the Template:
      i) Go to **Edit Template> Server**. Right-click on **Server**. Edit the **Server Group Configuration**.
      ii) Go to the **Software** tab and select the correct OS.
      iii) Save and close the tab.
   b) For the SPE:
      i) Go **to IO** > **Storage Pool > Manage Storage Pools**.
      ii) Select the associated SPE for the target server.
      iii) Click **Modify** and edit **Storage Entry Operating System** to include the correct OS.
      iv) Save your changes.

   c) On the Host:
      i) Go to the Array Manager (CV-EVA).
      ii) Click **Hosts;** then select the target server and click **Properties**.
      iii) In the **General** tab, correct the OS.
      iv) Save your changes.
   d) Go to the HP IO Storage Pool and refresh the view to see the changes to the SPE.
   e) Go to the HP IO **Request** tab and click **Restart/Continue HP IO Request**.

3) Verify that the Raid level for the disks used by SPE, the template, and the array manager (for example, CV-EVA) match.
   a) In the Template:
      i) Go to Edit **Template> Server** and right-click on the disk.
      ii) Edit the **Storage Configuration** by selecting the appropriate **Raid Level**.
      iii) Save your changes.
   b) For the SPE:
      i) Go to **IO > Storage Pool > Manage Storage Pools** and select the associated SPE for the target server.
      ii) Click **Modify** and go to the **Volume** section to make sure the disks listed have the appropriate Raid Level (the level needs to match the value of the Raid found for these disks in the Array Manager).
      iii) Save your changes.
   c) For the Disk:
      i) Go to the Array manager (e.g. CV-EVA) and select the virtual disk associated with the target server.
      ii) Select the **Redundancy** option to verify that it matches the value in the SPE.
   d) Go to the HP IO Storage Pool and refresh the view to see the changes to the SPE.
   e) Go to the IO **Request** tab and **select Restart/Continue IO Request**.

4) If the steps above do not apply, you may need to remove the data disk from SPE and re-add it:
   a) For the SPE, go to **IO** > **Storage Pool** > **Manage Storage Pools**:
      i) Select the associated SPE for the target server.
      ii) Click **Modify** and go to the **Volume** section.
      iii) Select the disk labeled **boot = No** (this is your data disk) and delete it.
      iv) Save your changes.

b) Re-add the data disk to the SPE that was modified above by going to **IO** > **Storage Pool** > **Manage Storage Pools** and selecting the associated SPE for the target server. Click **Modify.**
   i) Go to the **Volume** section.
   ii) Click **Add volume** to add the data disk.
   iii) Enter the Raid level and disk space.
   iv) Save your changes.
c) Go to the IO Storage Pool and refresh the view to see the changes to the SPE.
d) Go to the IO **Request** tab and select **Restart/Continue IO request**.

Other Troubleshooting Processes

Enabling logging in product components

CSA for Matrix

Set the system property CSA_DEBUG in OO Studio to `true` to enable CSA for Matrix to log diagnostic messages into a log file. The name and location of the log file are specified in OO Studio with the CSA_DEBUG_LOGDIR and CSA_DEBUG_LOGNAME properties.
NOTE: The log file does not include results of Audit and Remediation operations. You can see results of Audit and Remediation operations in OO Central as results of the workflows.

You can send email notifications on success and failure of workflows. See the Insight Dynamics documentation for information on configuring email notification. If you want to send notifications only when workflows fail, set the CSA_NOTIFY_ONLY_FAILURE property in OO Studio to `true`. When the property is set to false, notifications are sent for all events.

HP IO

1) Edit the file **log4j.properties** in the HP IO install directory (for example, `c:\Program Files\HP\Insight Orchestration\conf`).
2) Change these entries in this file FROM:

```
log4j.category.com.hp.hpio.sbapi=INFO
log4j.category.com.hp.hpio.controller=INFO
```

TO

```
log4j.category.com.hp.hpio.sbapi=DEBUG
log4j.category.com.hp.hpio.controller=DEBUG
```

3) Save the file and restart the HP IO service.

VMM

1) Go to the **VMM install directory** (for example, `c:\Program Files\HP\HP Insight Virtual machine management\clientapi\bin\`).
2) Follow these steps:
   a) Enter the following command: **adminlogin.cmd**
   b) Enter the following command: **cli setLogLevel -level DEBUG**
   c) Restart the VMM service.

VSE

1) From the VSE install directory (for example, `c:\program files\hp\virtual server environment`), copy the file .**vsedebug.xml** to **c:\vsedebug.xml**
2) Restart the VSE service.

Extra log files are added to a new folder: **C:/var/opt/vse/logs**

HP SIM

1) To enable debug for Administrator, enter the following command:
   mxuser -m Administrator -p debug
2) Log in to **https://localhost:50000/mxdebug/dbgMain.jsp**
3) Use the debug page to set debug levels for the various components.

4) Use the debug page to enable file logging.

NOTE*:* HP SIM debugging choices should generally be self-explanatory.

HP SA Access Layer and Areslite Controller

1) Edit the file **DomainManager.props** file (for example, `Systems Insight Manager\config\debugsettings\DomainManager.props)`.
2) Change these entries in this file FROM:

```
com.hp.sa.LSUplugin.SAAccessLayer=false,0,com.hp.sa.LSUplugin.SAAcce
ssLayer,
com.hp.sa.LSUplugin.SAplugin=false,0,com.hp.sa.LSUplugin.SAplugin,
```

TO:

```
com.hp.sa.LSUplugin.SAAccessLayer=true,40,com.hp.sa.LSUplugin.SAAcce
ssLayer,
com.hp.sa.LSUplugin.SAplugin=true,40,com.hp.sa.LSUplugin.SAplugin,
```

3) For each of the **com.hp.alc** entries in this file, change the instances of **false,0** to **true,40**.
4) Restart SIM:
   Run **`mxstop`** and wait for all HP SIM processes to finish.
   Run **`mxstart`** and wait for all HP SIM processes to start.

HP SA Server

The HP SA job logs are the primary logging source for HP SA. On the HP SA primary core, it is possible to locate server logs directly by their MAC addresses. Go to the following directory:

```
/var/opt/opsware/log/buildmgr/servers
```

Problem: Data disk presented to the LINUX host is not visible

Data disk presented by the IO service to the LINUX target server is not visible.

Symptoms	Data disk presented by the IO service to the LINUX target server is not visible.
Hardware	
Operating System(s)	Any Linux target server
Is this an integration issue?	No
Primary software component	
Other dependencies	
Failure message	
Probable cause	
For more information	

Solution:

Rescan the bus on the LINUX host to which the disk is presented.
Use the following commands:
echo 1 > /sys/class/fc_host/host<n>/issue_lip
echo - - - > /sys/class/scsi_host/host<n>/scan

In this instance, the number of host adapter ports that need to be rescanned is **n-1**.
For example, host0 for a host with only one port, host1 for a host with two ports, and so on.
The disk should be visible now.

Problem: VMM is not able to connect to the host

The Create Service operation in the HP IO console fails with the following error:
`VMM is not able to connect to the host`

Symptoms	The Create Service operation in the HP IO console fails with the following error: `VMM is not able to connect to the host`
Hardware	
Operating System(s)	
Is this an integration issue?	No
Primary software component	VMware VirtualCenter
Other dependencies	
Failure message	Task for Logical Server *<server_name>* has failed. Logical server job (ID = *<server_name>*.vlan8.lab) completed with a failure status. Failure: VMM is not able to connect to the host.
Probable cause	VMware VirtualCenter Server service has stopped on the VCenter server
For more information	

Solution:

1. Verify that the “VMware VirtualCenter Server” service is running on the VCenter server.
2. If the “VMware VirtualCenter Server” service is stopped, start the service.
3. Recreate the IO service.

Performance and Tuning

This section provides preliminary steps for configuration and tuning of various components in the CMS environment to improve performance and reliability.

VMware Virtual Center Server Configuration and Tuning

Microsoft Sysprep files in Virtual Center Server

Install the precise version of **sysprep** files recommended by VMware from the following Knowledge Base articles:

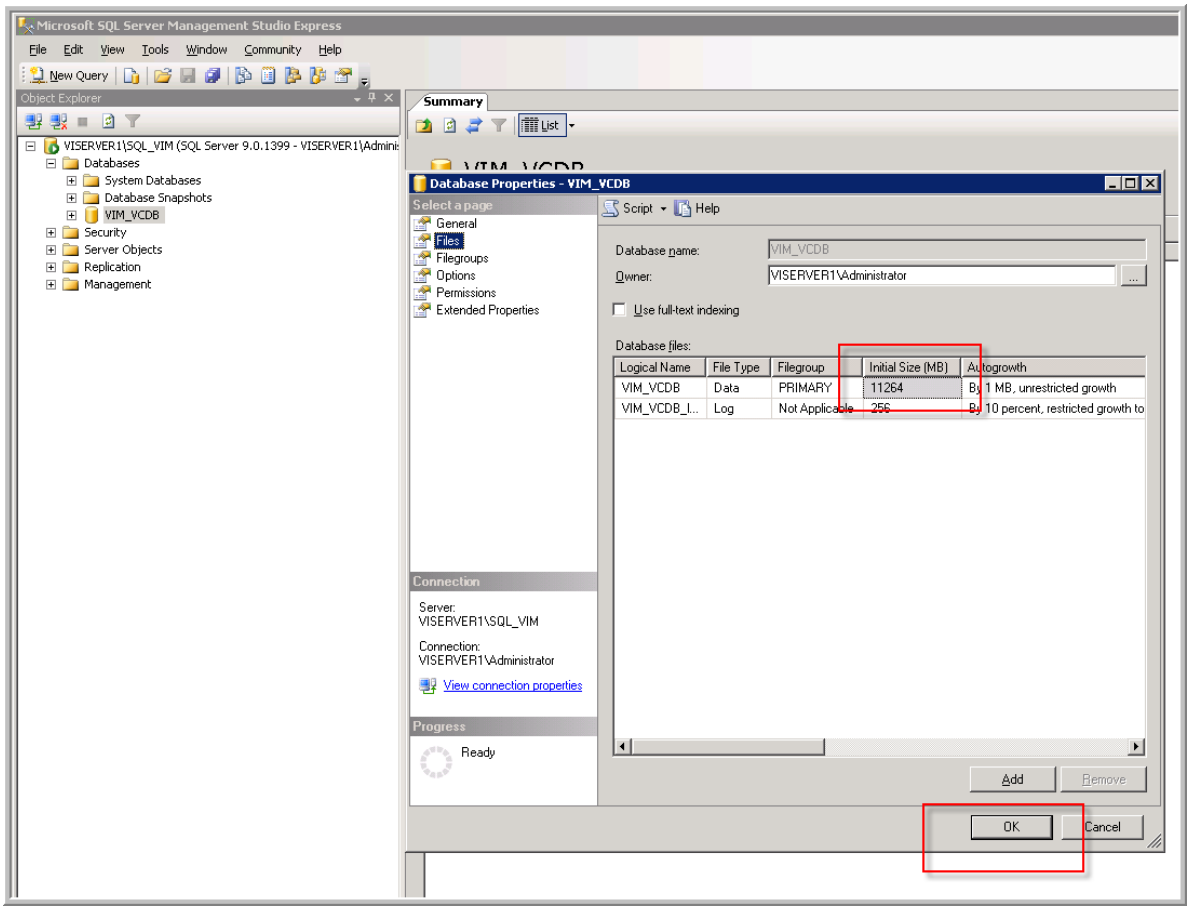
http://kb.vmware.com/kb/1005593
http://support.microsoft.com/kb/926028/en-us

- WindowsServer2003.WindowsXP-KB926028-v3-x64-ENU.exe
  (for example, W2K3 SP2 x64 sysprep tools)
- WindowsServer2003-KB926028-v2-x86-ENU.exe
  (for example, W2K3 SP2 x86 sysprep tools)

vCenter Database Size

1) Log in to the Windows vCenter server and open SQL Studio Express.
2) Select the database **VM_VCDB** and right click for properties.
3) Select the **Initial Size (MB)** cell. You can use the increment control, or just type the new size directly into the cell.
4) Select OK to persist the value.
   NOTE: If the value is not accepted, it may indicate that you are running SQL Express (which has a maximum database size of 4 GB).

Figure 17 vCenter Database Size

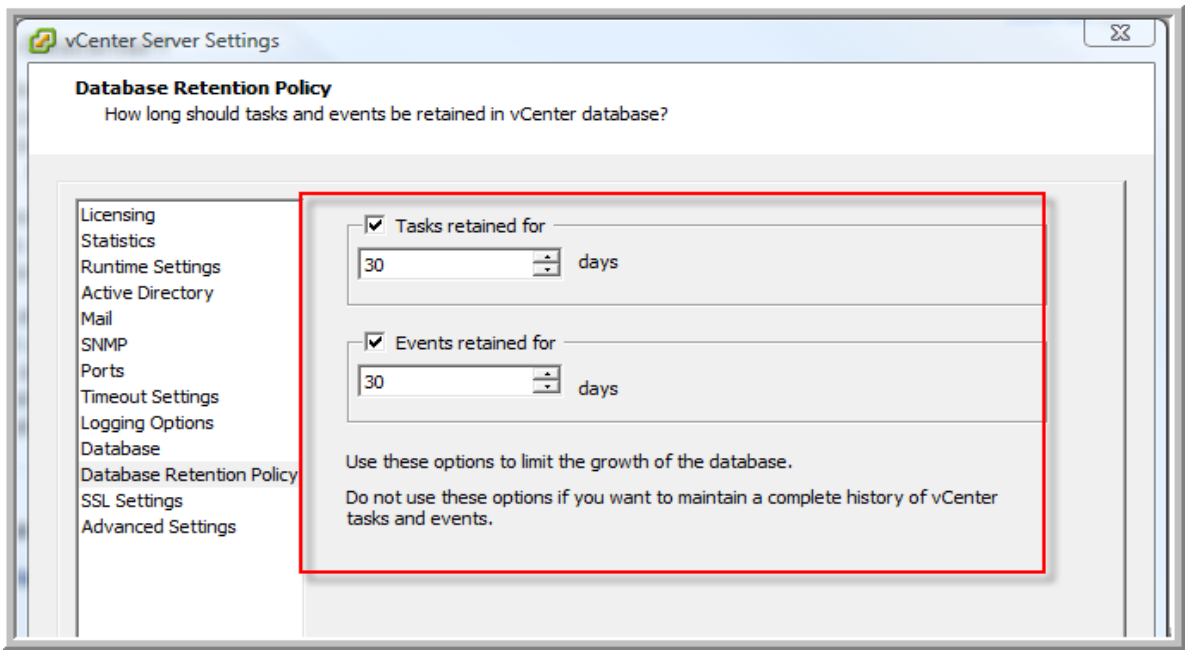


vCenter Database Retention Policy

Set the database retention policy VCenter as follows.

1) Set tasks to be retained for **30 days**.
2) Set events to be retained for **30 days**.

Figure 18 vCenter Data Base Retention Policy



HP IO Properties Configuration and Tuning

Several settings should be configured in the HP IO properties file.

Location: C:\Program Files\HP\Insight Orchestration\conf\hpio.properties

Changes required:

- cleanup.messages.max.age = **44640**
- oo.service.action.fail.request = **true**
- esx.max.concurrent.requests=**15**
- vm.memory.overhead = **1.0**

Actions required for changes to take effect:

- Save the properties file.
- Restart the "HP Insight Orchestration" service.

HP IO Sysprep Files

Several **sysprep.inf** files have been created for the various Windows Server 2003, Windows Server 2008, 32-bit, and 64-bit operating systems. These **sysprep.inf** files must be copied from the POC to the production environment.

Location: C:\Program Files\HP\Insight Orchestration\conf\sysprep*.inf

Actions required for changes to take effect:

- Copy files from POC CMS to Production CMS.
- Ensure HP IO templates refer to the correct sysprep files.

HP LSM Properties

The HP IO log contains the full record of the provisioning requests; it is not necessary to keep the full history in the HP LSM level of the infrastructure. Consequently, the number of jobs retained in the LSM log should be reduced.
Location: C:\Program Files\HP\Virtual Server Environment\conf\lsa\lsa.properties

Changes required:

- JOB_ROLLOVER_MAX=**500**

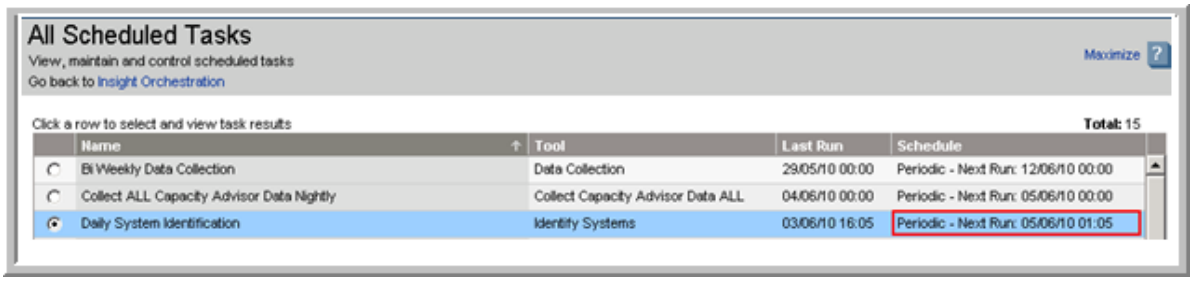
Actions required for changes to take effect:

- Save the properties file.
- Restart the HP Logical Server Automation service.

HP SIM Tuning

Change default HP SIM Daily Identification scheduled task to run at **1:05 AM CET**.

Figure 19 HP SIM Scheduled Tasks



CMS Server Tuning

1) Turn off power capping on the CMS through the BIOS, if it is enabled.
2) Set the performance mode for the CMS blade in iLO to **High Performance**.
3) For 32-bit operating systems, add the **/PAE** parameter to the **boot.ini** file to access **> 4 GB** physical memory.
4) Set the virtual memory to at least the amount of physical memory in the CMS server.
    a. Select **System properties** and note the amount of physical memory on the system.
    b. Verify virtual memory settings are the same as the physical memory setting in task manager (see above).

Figure 20 Verify Physical Memory Settings

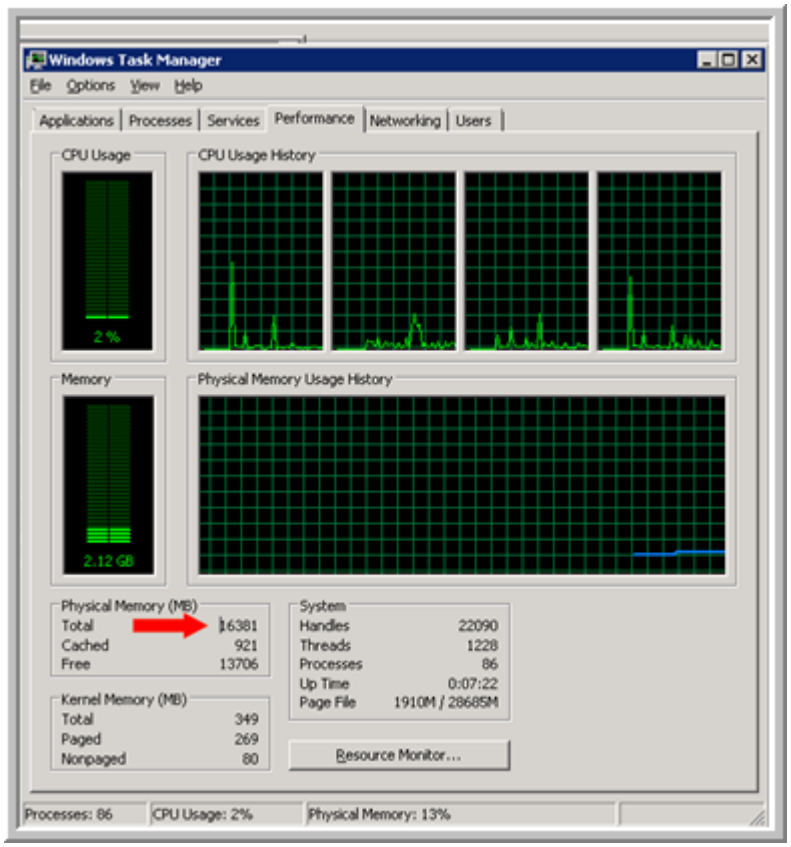
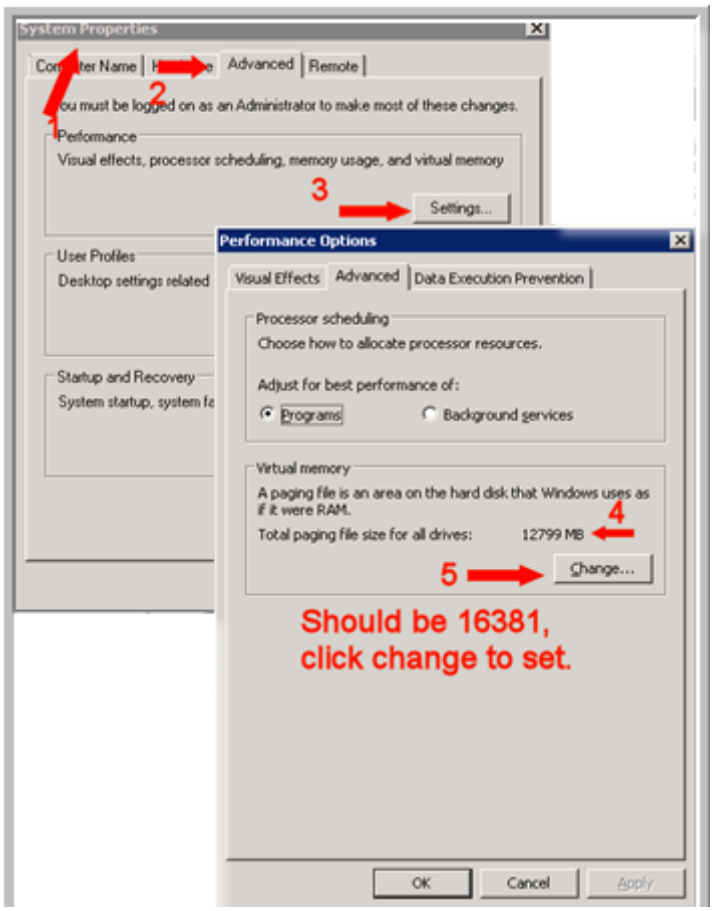


Figure 21 Verify Virtual Memory Settings



CMS Database Tuning

Overview

To tune the database, follow these steps:

1) Open a remote desktop the database server.
2) Run SQL Server Management Studio.
3) Select the appropriate database instance.
4) Right click and select properties.

Tuning Database Operating System: only for CMS using an off-host Database

Follow steps on the database server described under the section “CMS Server Tuning”.

1) Turn off power capping on the CMS, if enabled.
2) Set performance mode for the CMS blade in iLO to **High Performance**.
3) For 32-bit operating systems, add the **/PAE** parameter to the **boot.ini** file to access **> 4 GB** physical memory.
4) Set virtual memory at least the amount of physical memory in the CMS server.

Set the MIN and Max memory and AWE

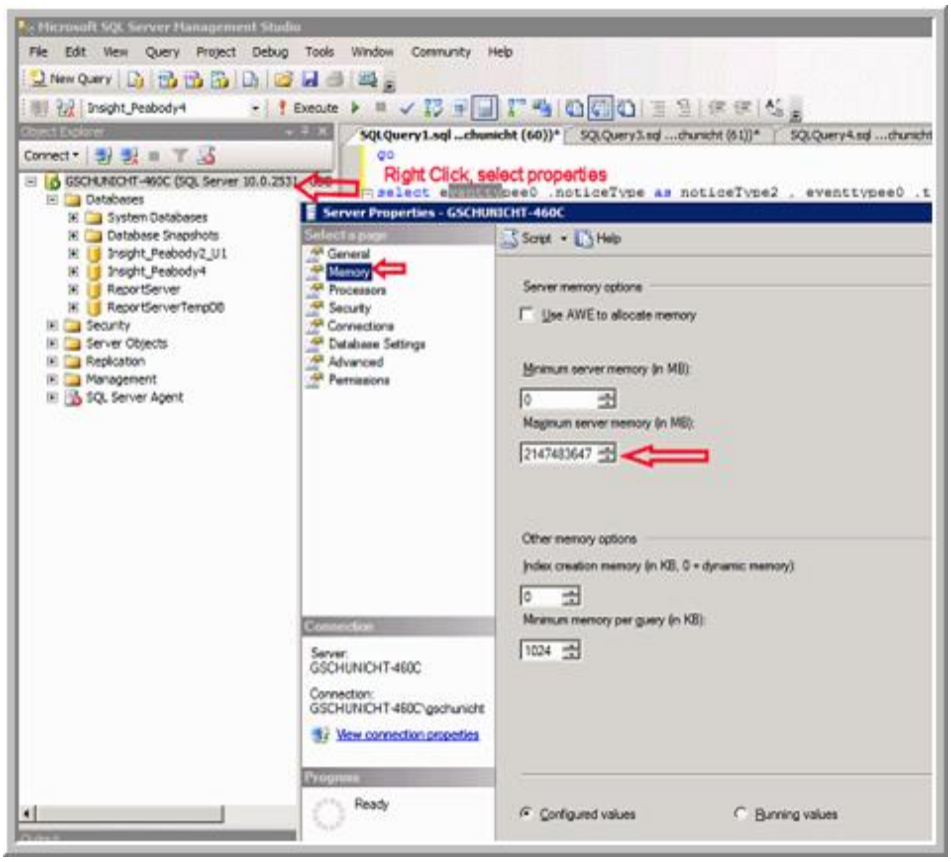
1) Select the **Memory** page on the database server properties screen.
2) Value should be set per the following formula:

   Physical Memory - 2 GB for OS - 1 GB for Multiple Page Access (MPA) - 1 GB for every 8 cores

   Example of database server with 32 GB of memory and 8 cores:

   32 GB - 2 GB – 1 GB – 1 GB = 28 GB = 28672 MB
3) Specify the value calculated in the previous step in both the MIN and MAX memory fields, as illustrated below.
4) Check the **Use AWE to allocate memory** checkbox, as well.

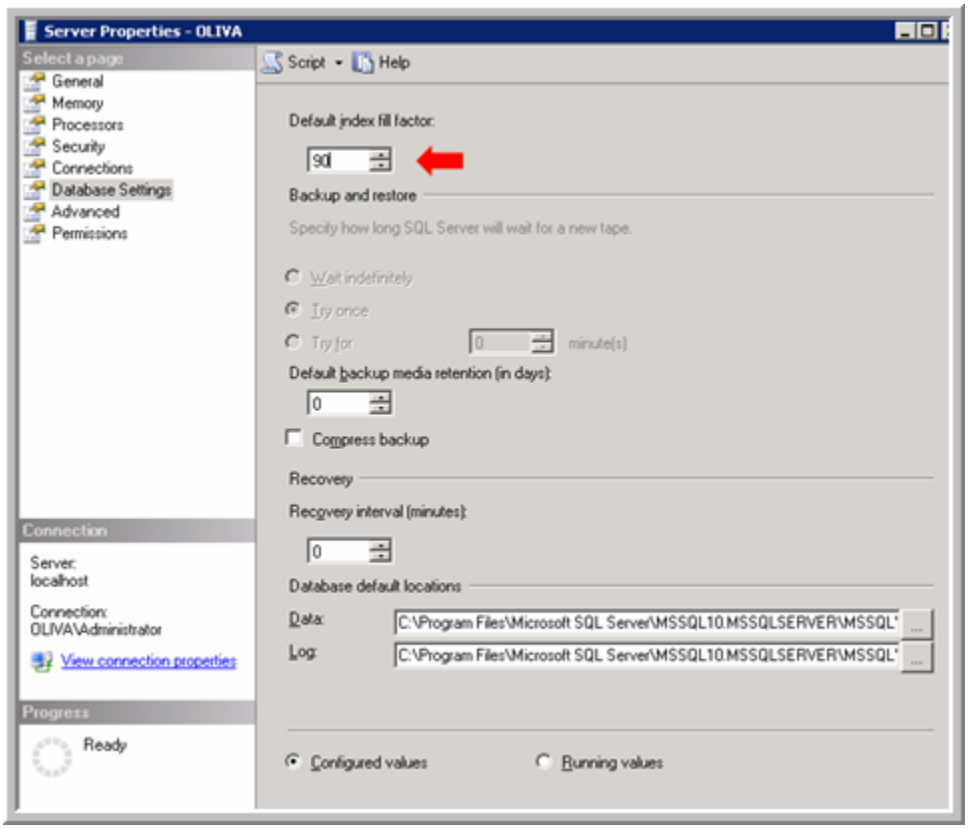
Figure 22 Set MIN, MAX memory and AWE



Set Database Index Fill Factor

1) Select the **Database Settings** page on the database server properties screen.
2) Change the Default index fill factor to **90** as shown below.

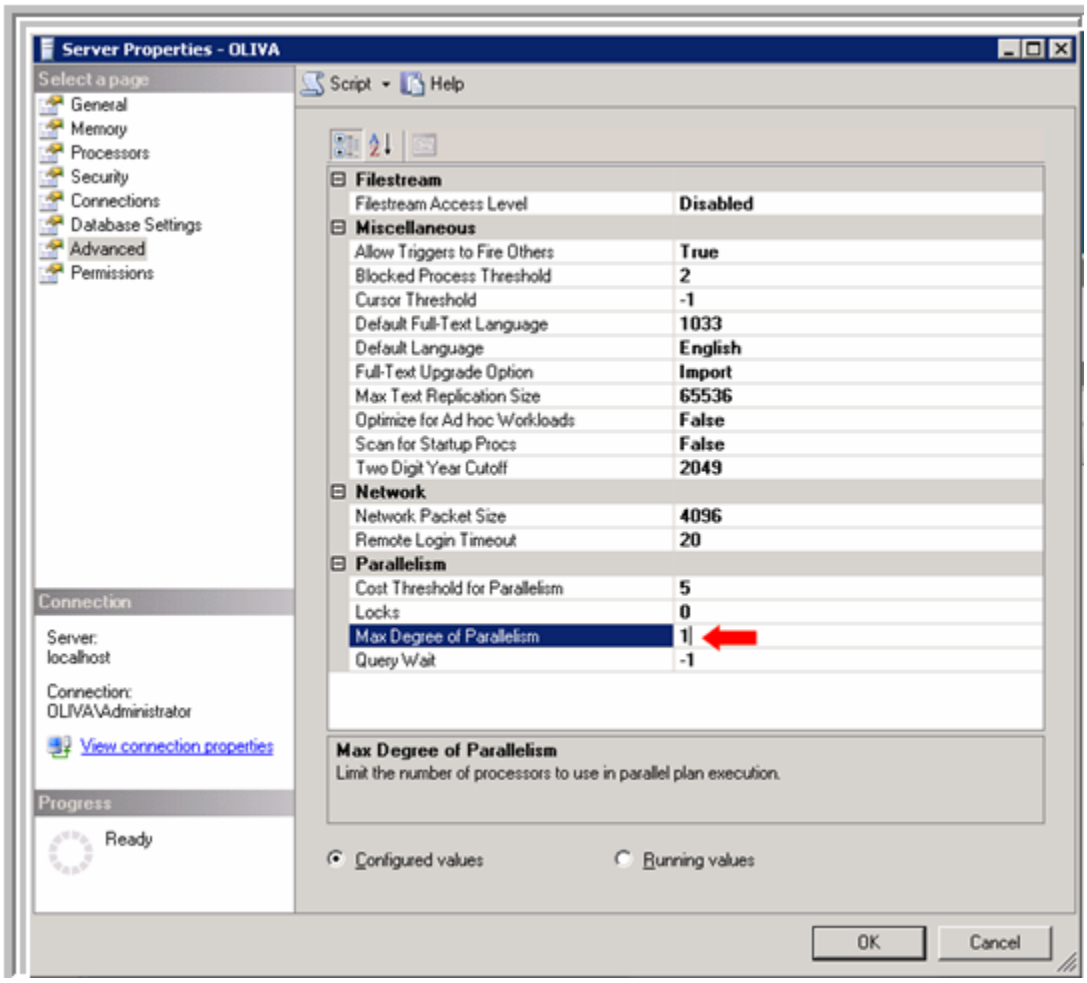
Figure 23 Set Database Index Fill Factor



SQL Server Max Degree of Parallelism

1) Select the **Advanced** page on the database server properties screen.
2) Change the **Max Degree of Parallelism** to **1** for systems with fewer than 16 processor cores. Set this property to **8** for systems with 16 or more processor cores.

Figure 24 Change Max Degree of Parallelism



SQL Memory Page Locking (64-bit systems only)

Installing Cumulative Update 4

Install the Cumulative Update 4 for SQL Server 2005.

- SQL 2008 Standard, Enterprise edition SP1 CU2 (Cummulative Update 2)
- SQL 2005 Standard, Enterprise edition SP3 CU4 (Cummulative Update 2)

The update can be downloaded from:
http://support.microsoft.com/kb/970279
Documentation for this feature can be found at:
http://blogs.msdn.com/psssql/archive/2009/05/19/an-update-for-standard-sku-support-for-locked-pages.aspx

Set Trace Flag in SQL Startup Parameters

1) In SQL Server Configuration Manager, click SQL Server Services.
    a) In the right pane, right-click SQL Server (<instance_name>), and then click Properties.
    b) On the Advanced tab, in the Startup Parameters box, add **–T845**; (ensure all parameters are separated by a semicolon).
    c) References:
2) The following explains how to configure locked pages:
    http://support.microsoft.com/kb/970070
3) The following explains all SQL server parameters:
    http://msdn.microsoft.com/en-us/library/ms190737.aspx
4) The following explains how to set SQL server parameters:
    http://msdn.microsoft.com/en-us/library/ms345416.aspx

Enable User Rights for Locked Pages in Memory

- IF THE ACCOUNT running SQL is LOCAL SYSTEM STOP, it already has this right.
- If the database is running on another system than the CMS the changes below may optimize the environment. If the database is running on the same system as the CMS, none of the changes below are required.

If changes are warranted, follow these steps. For **64-bit** installations of SQL Server 2008/2005, the **lock pages in memory right** needs to be granted to the user running SQL Server service. The Default LOCAL SYSTEM user already has that right, but it is not recommended to run SQL Server with the system account in production for security reasons, and rather have a SQL specific windows account and add the right to it.

To enable the lock pages in memory option

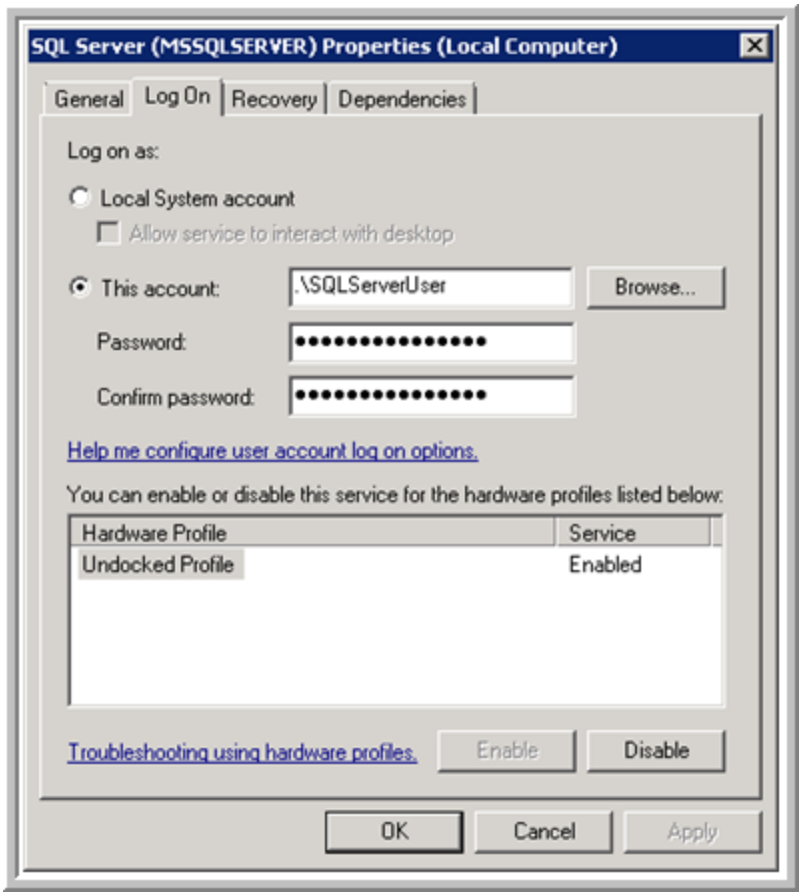
1) On the **Start** menu, click **Run**. In the **Open** box, type **gpedit.msc**.
2) The **Group Policy** dialog box opens.
3) On the **Group Policy** console, expand **Computer Configuration**, and then expand **Windows Settings**.
4) Expand **Security Settings**, and then expand **Local Policies**.
5) Select the **User Rights Assignment** folder.
6) The policies will be displayed in the details pane.
7) In the pane, double-click **Lock pages in memory**.
8) In the **Local Security Policy Setting** dialog box, click **Add**.

9) In the **Select Users or Groups** dialog box, add an account with privileges to run sqlservr.exe

The user running SQL Server can be identified by opening Windows Services:

- Right click on the SQL Server service.
- Select properties and view the Log On tab.

Figure 25 The SQL Server Log On Tab



Run **gpedit.msc** from the RUN menu item and add the user determined above to the list of Users or Groups that are allowed to **Lock pages in memory**.

Figure 26 Lock Pages in Memory