



Troubleshooting VM Lifecycle Management

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Issues with Template Creation

This section includes symptoms, possible causes, and solutions for issues associated with creating a template.

Symptom: Template creation fails with the message "OS not compatible:VMware tools not present on VM."

Error Message:

```
Jan 24, 2015 03:26:47 GMT Template Creation in Progress: 96 %
Jan 24, 2015 03:26:47 GMT Creating Template: OS not compatible:VMware tools not present
on VM
Jan 24, 2015 03:26:47 GMT Retrying: 2
```

Verification and Solution: Confirm the following:

- The image operating system (OS) is supported.
- VMware tools are installed in the VMware vCenter client.

Symptom: Template creation fails with the message "Cannot find appropriate ICA image."

Error Message:

```
Jan 23, 2015 23:35:15 GMT Handler failed with error - Cannot find appropriate ICA image
for the VmImage org-root/vm-img-CiscoITRH64smallscp, selectedContext=<None>
Jan 23, 2015 23:35:15 GMT Task #1 (InterCloud Create Template (Create Template in
Cloud)) failed after 0 seconds
```

Verification and Solution: In the VMware vCenter client, confirm that the image is based on a supported guest OS version.

Symptom: Intercloud Fabric 2.3.1 only supports Master Boot Record (MBR-based) partition tables. As a result, disks with a GUID Partition Table (GPT) fails and displays an error message.

Error Message:

Unsupported operating system.

Possible Cause: Intercloud Fabric does not support the GPT standard for disk partition tables for both Windows and Linux based operating systems. Possible conditions include:

- An on-board VM is moved back to enterprise.
- The VM is moved from enterprise to cloud.
- the user uploads an OVA on Prime Network Services Controller.

Verification and Solution: Check the partition style on the VM.

For Linux, run the command:

```
fdisk -lu
```

For Windows:

- 1 Select **Start > Control Panel**.
- 2 In the Control Panel, choose **System and Security > Administrative Tools > Computer Management**.
- 3 Select **Disk Management**.
- 4 Right-click on **Disk 0** and select **Properties**.
- 5 Select the **Volumes** tab and check the **Partition style** for the disk.

Issues with VM Migration

This section includes symptoms, possible causes, and solutions for issues associated with migrating a VM.

Symptom: While creating a virtual data center, the user group or policy drop-down lists are blank.

Possible Cause: The user group or the policies are not created.

Verification and Solution: Confirm that the user group and all required policies are created.

Symptom: The VM IP address is not shown in the VM report for private VMs.

Possible Cause: When a VM is migrated from the cloud to the private data center, the VM IP address does not appear in the VM report.

Verification and Solution: Use either of the following options to retrieve the VM IP address:

- To use the Intercloud Fabric GUI:
 - 1 In the Intercloud Fabric GUI, choose **Organization**, and click the **Reservations** tab.
 - 2 In the list of service requests, locate the service request ID that was used to create the VM.
The IP address associated with the service request ID is the required VM IP address.
- To use the end-user portal, confirm that VMware Tools has been installed on the VM.

Symptom: While creating a compute policy, the Select Resource drop-down list displays a blank list.

Possible Cause: The VMware vCenter IP address might be entered incorrectly or there is no connectivity to the VMware vCenter client.

Verification and Solution: Check the VMware vCenter IP address and connectivity.

Symptom: An end-user does not see the VM in the list or sees a blank list.

Possible Cause: The end-user VMs are assigned to a virtual data center that has a different user group than the user.

Verification and Solution: Log in and determine whether or not the VMs are assigned to a virtual data center that has the same user group as the user. If the user group is different, change it to the same user group as the user.

Symptom: The virtual data center list in the migration dialog is blank.

Possible Cause: The virtual data center list shown in the migration dialog box is the list of target-side virtual data centers (on the cloud when migrating to the cloud, or in the private data center when migrating to the private data center).

Verification and Solution: Determine whether or not the virtual data centers are created and have the same user group.

Symptom: The resource (host) list in the migration-back dialog is blank.

Possible Cause: The resource list of the compute policy that is associated with the target virtual data center is not configured.

Verification and Solution: Make sure that resource list is configured.

Symptom: The migration fails with the message, "VM does not have interfaces configured"

Possible Cause: The network policy for the destination virtual data center does not have at least one vNIC configured.

Verification and Solution: Make sure that the network policy has at least one vNIC configured.

Symptom: The migration fails with the message, "Failed to refresh"

Possible Cause: The connectivity from Prime Network Services Controller to the VMware vCenter client has failed.

Verification and Solution: Check the connectivity with the VMware vCenter client.

Symptom: The migration fails with the message, "Port group profile mis-match."

Possible Causes:

- The VM is missing one or more NICs in the virtual data center network policy.
- The VM is missing one or more mandatory NICs in the network policy.

Verification and Solution: Add any missing NICs to the virtual data center network policy.

Symptom: The migration fails with the message, "Not able to connect to PNSC...."

Possible Cause: There is no connectivity to Prime Network Services Controller.

Verification and Solution: See [Issues with Prime Network Services Controller](#).

Symptom: Migration fails with some other error after showing a progress message of greater than 0%.

Possible Cause: The possible causes vary.

Verification and Solution: See [Issues with Prime Network Services Controller](#).

If the issue is still unresolved, send the Prime Network Services Controller log files and Cisco Intercloud Fabric Director (ICFD) log files to the next level of support. For more information, see [Obtaining Logs for Cisco Customer Support](#).

Symptom: Converting an image fails due to the VM having a partitioned disk.

Possible Cause: Cisco Intercloud Fabric Director does not support a VM with multiple disks or a partitioned disk.

Verification and Solution: Ensure that the VM does not have a partitioned disk.

Symptom: You choose multiple VMs to migrate, but only one VM is migrated.

Possible Cause: Cisco Intercloud Fabric Director does not support migrating multiple VMs concurrently.

Verification and Solution: Choose only one VM at a time to migrate.

Symptom: After choosing to migrate a VM, Cisco Intercloud Fabric Director has two or more service requests to migrate that VM.

Possible Cause: While a VM is being migrated, you attempt to migrate that VM again.

Verification and Solution: Do not migrate a VM while it is being migrated.

Symptom: You cannot cancel a VM task for a VM that is rebooting.

Possible Cause: The process is stuck due to the VM rebooting.

Verification and Solution: Restart the CPM process.

Symptom: VM Move to Cloud failed with error: These port-groups in the VM can not be found in network-profile: [vlan-34-test].

Possible Cause: The Port Profiles configured on the VM is not included the Intercloud VDC Network Policy.

Verification and Solution: Add the Port Profile to InterCloud Network Policy. The VM Move to Cloud is successful.

Symptom: The VM does not boot in the cloud provider.

Possible Cause: The VM fails to boot up on the cloud provider.

Verification and Solution: You can access the cloud providers portal to check the boot status by using one of the following options:

- In Amazon, select the VM on the Amazon console and choose Actions > Instance Settings > Get System Log to review the instance system log. You can use the VM boot log to determine if the reboot was successful or failed. A successful reboot will pass both status checks.
- In Azure, select the VM instance and click the **Monitor** tab to review the activity. Both the disk and the network should show activity.
- In Cisco Intercloud Services, you can use the instance console to verify the cVM has rebooted.
- In CloudStack, you can use the instance console to verify the cVM has rebooted.
- In Cisco Intercloud Services – V, open a support case.

Symptom: Migration of VM fails with error "Failed to shutdown VM Guest OS. Error: vmware-tools not present. Please shutdown the VM's Guest OS manually and reinitiate VM move".

Possible Cause: ICFs attempt to shutdown VM's Guest OS fails due to the absence of vmware-tools on the VM.

Verification and Solution: Manually shutdown the VM's Guest OS by logging into the VM and reinitiating the VM migration.

Symptom: If an enterprise Virtual Machine is created using the vCenter Guest Customization Wizard, while either cloning a VM or creating one from a template, the migration request will fail due to the Customization Wizard adding the following lines at the end of the ifcfg-ethxxx files in the cloned or created VM:

```
check_link_down() {
    return 1;
}
```

Possible Cause: The Intercloud Fabric code that attempts to migrate this Virtual Machine to the cloud does not have support for parsing function in Intercloud Fabric 2.3.1.

Verification and Solution: Cancel the service request, manually remove the lines that were added to the end of the ifcfg-ethxxx file, and retry the migration request.

Symptom: Intercloud Fabric 2.3.1 only supports Master Boot Record (MBR-based) partition tables. As a result, disks with a GUID Partition Table (GPT) fails and displays an error message.

Error Message:

```
Unsupported operating system.
```

Possible Cause: Intercloud Fabric does not support the GPT standard for disk partition tables for both Windows and Linux based operating systems. Possible conditions include:

- An on-board VM is moved back to enterprise.
- The VM is moved from enterprise to cloud.
- the user uploads an OVA on Prime Network Services Controller.

Verification and Solution: Check the partition style on the VM.

For Linux, run the command:

```
fdisk -lu
```

For Windows:

- 1 Select **Start > Control Panel**.
- 2 In the Control Panel, choose **System and Security > Administrative Tools > Computer Management**.
- 3 Select **Disk Management**.
- 4 Right-click on **Disk 0** and select **Properties**.
- 5 Select the **Volumes** tab and check the **Partition style** for the disk.

Issues with Linux Cloud VMs

This section includes symptoms, possible causes, and solutions for issues associated with Linux VMs on public clouds.

Symptom: RedHat/CentOS style cloud VMs deployed in Azure with Intercloud Fabric may cause traffic to be unpredictably routed.

Possible Cause: There may be two default routes in the IP routing table. For example, in the RedHat 6.1 CVM below, after ICF access tunnel is up, you will see:

- The Azure provisioned cloud interface, csc0 in subnet 10.200.0.0/16 with default route configured through 10.200.0.1.
- One overlay interface, eth0, provisioned by Intercloud Fabric in subnet 10.2.0.0/24 with default route configured through 10.2.0.75.

```
[root@rhel61-lnic ~]# ip route list
168.63.129.16 via 10.200.0.1 dev csc0
168.63.129.16 via 10.200.0.1 dev csc0 proto static
10.2.0.0/24 dev eth0 proto kernel scope link src 10.2.0.11
169.254.0.0/16 dev csc0 scope link metric 1002
169.254.0.0/16 dev eth0 scope link metric 1003
10.200.0.0/16 dev csc0 proto kernel scope link src 10.200.0.5
default via 10.2.0.75 dev eth0 <--- default route over overlay interface 'eth0' towards
the enterprise
default via 10.200.0.1 dev csc0 proto static <--- default route over provider interface
'csc0'
[root@rhel61-lnic ~]#
```

Verification and Solution: Delete the default route that directs traffic over the provider interface 'csc0'. For example, delete the default route over the provider interface for the following RedHat 6.1 VM:

```
[root@rhel61-lnic ~]# route delete default gw 10.200.0.1
[root@rhel61-lnic ~]# ip route list
168.63.129.16 via 10.200.0.1 dev csc0
168.63.129.16 via 10.200.0.1 dev csc0 proto static
10.2.0.0/24 dev eth0 proto kernel scope link src 10.2.0.11
169.254.0.0/16 dev csc0 scope link metric 1002
169.254.0.0/16 dev eth0 scope link metric 1003
10.200.0.0/16 dev csc0 proto kernel scope link src 10.200.0.5
default via 10.2.0.75 dev eth0 <---- Now there is only one default route via the overlay
interface 'eth0'
[root@rhel61-lnic ~]#
```

Issues with Windows Cloud VMs

This section includes symptoms, possible causes, and solutions for issues associated with Windows VMs on public clouds.

Symptom: There is no connectivity to the Windows cloud VM.

Possible Cause: The cause can be due to memory leaks, the necessary ports not being open, or a variety of other errors.

Verification and Solution:

- 1 Check the Windows cloud VM reachability by using **SSH** and a public IP address, or by using **RDP** or **ping** if these have not been disabled in the cloud VM.
 - a Check the cloud VM status in the EC2 console.
 - b If Amazon Elastic Compute Cloud (EC2) status shows "2/2 checks passed" and "running," reboot the cloud VM from the EC2 console and check connectivity.
 - c If connectivity is restored, check for any relevant errors in system event logs by using **eventvwr.msc**.
 - d If the system event logs do not contain any obvious errors, a memory leak might exist. Use **perfmon.exe** to isolate any excessive non-paged pool usage during upcoming boot sessions.
- 2 Check the EC2 firewall settings for the Windows cloud VM and ensure that the necessary ports are open: TCP and UDP port 6644, and TCP port 22.

Symptom: There is an issue related to the Windows cloud VM subagent.

Possible Cause: The subagent process is not running or the subagent process is not listening to the correct TCP port.

Verification and Solution: Try any of the following solutions:

- Confirm that the `sub_agent.exe` file is present in the `C:\Program Files\Cisco\ICA` folder. If the file is not present, copy the file to the folder.
- In a command window, determine whether or not the subagent process is running.

```
c:\>tasklist /FI "imagename eq sub_agent.exe"
Image Name                PID Session Name        Session#    Mem Usage
=====
sub_agent.exe             2616 Services                0          4,508 K
```

If the agent is not running, start it.

- Confirm that the subagent process is listening on TCP port 6644.

```
c:\>netstat -anB

Active Connections
...
TCP    0.0.0.0:6644          0.0.0.0:0           LISTENING
[sub_agent.exe]
...
```

Symptom: There is no connectivity to the SSH server.

Possible Causes:

- The `vm_trust.properties` file does not exist.
- The SSH server is not running.
- The SSH server is not listening to the correct TCP port.
- The SSH public key for the root user cannot be retrieved.

Verification and Solution: Try any of the following solutions:

- If the subagent process is running, but the process is not listening on TCP port 6644, determine whether or not the `C:\Program Files (x86)\Cisco\vm_trust.properties` file exists.

If `vm_trust.properties` file is absent, determine whether or not the SSH server is running:

```
c:\>sc query freesshdservice
SERVICE_NAME: freesshdservice
        TYPE               : 110  WIN32_OWN_PROCESS (interactive)
        STATE                : 4    RUNNING
                                (STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN)
        WIN32_EXIT_CODE       : 0    (0x0)
        SERVICE_EXIT_CODE    : 0    (0x0)
        CHECKPOINT           : 0x0
        WAIT_HINT            : 0x0
```

If the SSH server is not running, confirm that the SSH server directory is populated with the necessary files:

```
c:\>dir "C:\Program Files (x86)\Cisco\"
Volume in drive C has no label.
Volume Serial Number is 7C21-C2FC
Directory of C:\Program Files (x86)\Cisco
07/16/2013  05:23 AM    <DIR>          .
07/16/2013  05:23 AM    <DIR>          ..
07/16/2013  02:28 AM                672 DSAKey.cfg
07/16/2013  02:28 AM                256 freesshd.log
03/29/2013  07:33 PM           1,360,896 FreeSSHDSvc.exe
07/16/2013  02:28 AM           1,096 FreeSSHDSvc.ini
07/16/2013  02:27 AM                386 root
```

- Determine whether or not the SSH server is listening on TCP port 22 and SSH connections can be established:

```
c:\>netstat -anB

Active Connections
...
TCP        0.0.0.0:22                0.0.0.0:0                LISTENING
[FreeSSHDSvc.exe]
...
```

- Determine whether or not the SSH public key for the root user can be retrieved successfully using the `wget.exe` command from the EC2 VM user data:

```
C:\Program Files\Cisco\ICA>wget.exe -t 1 --bind-address [peth IP] -O
C:\Windows\Temp\ec2pubkey
http://169.254.169.254/latest/meta-data/public-keys/0/openssh-key
```

Symptom: There is an issue related to the Intercloud Agent Service (ICASVC).

Possible Cause:

- The ICASVC is not installed.
- The ICASVC is not running.
- The ICASVC is not set to the AUTO_START startup type.

Verification and Solution: Try any of the following solutions:

- If the ICASVC is not installed, determine whether or not the following registry entry is present:

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ICASvc]
"Type"=dword:00000010
"Start"=dword:00000002
"ErrorControl"=dword:00000001
"ImagePath"=hex(2):22,00,43,00,3a,00,5c,00,50,00,72,00,6f,00,67,00,72,00,61,00,\
6d,00,20,00,46,00,69,00,6c,00,65,00,73,00,5c,00,43,00,69,00,73,00,63,00,6f,\
00,5c,00,49,00,43,00,41,00,5c,00,49,00,63,00,61,00,53,00,76,00,63,00,2e,00,\
65,00,78,00,65,00,22,00,00,00
"DisplayName"="Cisco InterCloud Agent Service"
"ObjectName"="LocalSystem"
"Description"="Cisco InterCloud Agent Service"
```

If the registry entry is absent, import the ICASVC key into HKLM\System\CCS\Services.

- Determine whether or not the ICASVC is set to the AUTO_START startup type:

```
c:\>sc qc icasvc
[SC] QueryServiceConfig SUCCESS
SERVICE_NAME: icasvc
        TYPE               : 10    WIN32_OWN_PROCESS
        START_NAME           : 2     AUTO_START
        ERROR_CONTROL        : 1     NORMAL
        BINARY_PATH_NAME     : "C:\Program Files\Cisco\ICA\IcaSvc.exe"
        LOAD_ORDER_GROUP    :
        TAG                  : 0
        DISPLAY_NAME         : Cisco InterCloud Agent Service
        DEPENDENCIES         :
        SERVICE_START_NAME  : LocalSystem
```

Symptom: The ICASVC startup scripts are not running.

Possible Cause: The startup scripts are not present in the correct folder.

Verification and Solution: Confirm that the StartIca.vbs, StartSubagent.vbs, and start_subagent.bat files are present under the C:\Program Files\Cisco\ICA folder.

Symptom: The cloud VM has lost connectivity with the private data center.

Possible Cause: The certificate is not installed or is not correct.

Verification and Solution:

1 Confirm that the `ctdrv.sys` and `ctmp.sys` files are present in the `C:\Program Files\Cisco\ICA` folder.

2 Confirm that the Windows ICA driver certificate is installed:

```
C:\Program Files\Cisco\ICA>CertMgr.exe /s TrustedPublisher
=====Certificate # N =====
Subject::
  [0,0] 2.5.4.6 (C) US
  [1,0] 2.5.4.8 (S) California
  [2,0] 2.5.4.7 (L) San Jose
  [3,0] 2.5.4.10 (O) Cisco Systems, Inc
  [4,0] 2.5.4.11 (OU) Digital ID Class 3 - Microsoft Software Validation v2
  [5,0] 2.5.4.3 (CN) Cisco Systems, Inc
...
```

Symptom: Encrypted/encapped packet injection is not working.

Possible Cause: Weakhost sends and receives are enabled.

Verification and Solution: For the encrypted/encapped packet injection to work, the provider adapter must have weakhost sends and receives disabled, which is the default setting.

1 Determine whether weakhost sends and receives are enabled or disabled:

```
> netsh interface ipv4 show interfaces level=verbose
Interface Local Area Connection 2 Parameters
...
Weak Host Sends           : disabled
Weak Host Receives        : disabled
...
```

2 If weakhost sends and receives are enabled, disable them:

```
> netsh interface ipv4 set interface [InterfaceNameOrIndex] weakhostsend=disabled
> netsh interface ipv4 set interface [InterfaceNameOrIndex] weakhostreceive=disabled
```

Symptom: The access tunnel with the Windows VM is broken.

Possible Cause: Third-party Windows Filtering Platform (WFP) filters are blocking datagrams on TCP port 6644 or the UDP port over which the subagent has initiated the Datagram Transport Layer Security (DTLS) connection.

Verification and Solution: Enter the following command and examine the output:

```
> netstat -anB
```

- To determine whether or not the UDP port is causing the problem, look for the `subagent.exe` port.
- To determine whether or not third-party WFP filters are causing the problem, look at the `sysinfo` section of the output for WFP filters for Windows VMs.

To resolve the issue, restart the services.

Symptom: There is an issue with the data path between the overlay miniport and the cloud provider miniport.

Possible Cause: Third-party Network Driver Interface Specification (NDIS) intermediate drivers or additional NDIS miniports are affecting the data path between the overlay miniport and the cloud provider miniport.

Verification and Solution: Enter the following command and examine the output:

```
> netstat -anB
```

All NDIS drivers are enumerated in the sysinfo section of the output for Windows VMs.

Symptom: cVM deployment fails for one of the two interfaces.

Possible Cause: By default, port profiles are named "icfCloud" if a name is not provided during the Intercloud Fabric tenant configuration.

Verification and Solution: When deploying cVM, make sure you have a network policy defined with port profiles for each vNIC that is on the same tenant. When modifying the port profiles after cVM deployment, ensure to configure the appropriate tenant on the port profiles that does not violate the deployment solution above.

Symptom: Migration of a Windows 2012 VM or import of a Windows 2012 VM OVA fails with error "VM Guest OS was not shutdown gracefully. Please resume and shutdown Windows fully prior to initiating import or move actions on this VM image".

Possible Cause: ICF detected that the VM was not shutdown gracefully prior to the user initiating a VM migration or exporting it as an OVA from vCenter. Not shutting down the Guest OS gracefully can lead to corruption of the file system.

Verification and Solution: Power on your VM on vCenter and gracefully shutdown the Guest OS. Reinitiate your VM migration or export of OVA from vCenter.

Issues with Monitoring VMs

This section includes symptoms, possible causes, and solutions for issues associated with monitoring VMs.

Symptom: The VM statistics in the end-user portal show VMs that do not exist.

Possible Cause: The VMs were deleted from the VMware vCenter client but, because the periodic refresh has not occurred, the VMs still appear.

Verification and Solution: Manually refresh the VM list.