

Power Systems

*Setting up the virtualization
environment*

IBM

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IBM

Note

Before using this information and the product it supports, read the information in "Notices" on page 37.

This edition applies to IBM AIX Version 7.2, to IBM AIX Version 7.1, to IBM AIX Version 6.1, to IBM i 7.3 (product number 5770-SS1), to IBM Virtual I/O Server Version 2.2.5.0, and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

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Setting up the virtualization environment

A template is a collection of configuration preferences that can be reused and quickly applied to multiple targets. You can use templates to set up your virtualization environment. Templates simplify the deployment process because templates contain many of the settings that you previously configured by using the Hardware Management Console (HMC) command-line interface or the HMC graphical user interface (GUI) version 8.1.0, or earlier. Templates are available only when you are using an HMC Enhanced, HMC Enhanced + Tech Preview (Pre-GA), or HMC Enhanced+ interface.

The procedures and functions of the HMC Enhanced + Tech Preview (Pre-GA) login option and interface type, which was provided with the Hardware Management Console (HMC) version 8.2.0, are the same as the HMC Enhanced+ login option and interface type that is provided with HMC version 8.3.0 and later. Only the HMC Enhanced+ is referred to in the documentation, but that content also applies to the HMC Enhanced + Tech Preview (Pre-GA) interface.

The templates functions are supported only when a server is managed by the HMC, or when a server is co-managed by the HMC and PowerVM® NovaLink, with the HMC in the master mode.

The PowerVM NovaLink architecture enables management of highly scalable cloud deployment by using the PowerVM technology and OpenStack solutions. The architecture provides a direct OpenStack connection to a PowerVM server. The NovaLink partition runs the Linux operating system and the partition runs on a server that is virtualized by PowerVM. The server is managed by PowerVC or other OpenStack solutions.

There are two types of templates: system template and partition template. You can use system templates to define system configuration settings that include general system properties and virtual environment settings. You can use partition templates to specify logical partition settings that include general partition properties, processor and memory configuration, virtual networks and virtual storage configuration, logical Host Ethernet Adapters and logical single root I/O virtualization (SR-IOV) port settings. Templates do not contain target-specific information. Therefore you can use templates to configure any system or partition in your environment.

Templates are further classified into quick-start templates or user-defined templates.

Quick-start templates are contained in the `template` folder that is accessible by using the template library. You cannot alter the quick-start template, however you can copy and change them to suit your requirements.

User-defined templates are the templates that you create. User-defined templates contain configuration details that are specific to your environment. You can create a user-defined template by using any of the following methods:

- Copy an existing template and modify the new template according to the requirements of your environment.
- Capture the configuration details of a currently running system or partition and save the details into a new template.

What's new in Setting up the virtualization environment

Read about new or changed information in Setting up the virtualization environment since the previous update of this topic collection.

October 2016

- The following topics were updated for the virtual Network Interface Controller (vNIC) failover support:
 - “Changing a partition template” on page 25
 - “Creating a logical partition by using a template” on page 33
- The following topic was updated for the IBM® i partitions with native I/O capability:
 - “Creating a logical partition by using a template” on page 33

May 2016

- The following topics were updated for the simplified remote restart feature:
 - “Viewing partition template details” on page 23
 - “Capturing a partition configuration” on page 24
 - “Changing a partition template” on page 25

October 2015

- The following topics were updated for the virtual Network Interface Controller (vNIC) adapter:
 - “Changing a partition template” on page 25
 - “Creating a logical partition by using a template” on page 33
- The following topics were updated for shared storage pool volumes:
 - “Changing a partition template” on page 25
 - “Creating a logical partition by using a template” on page 33
- The following topic is updated for the PowerVM NovaLink architecture:
 - “Setting up the virtualization environment” on page 1

June 2015

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The procedures and functions of the HMC Enhanced + Tech Preview (Pre-GA) login option and interface type, which was provided with the Hardware Management Console (HMC) version 8.2.0, are the same as the HMC Enhanced+ login option and interface type that is provided with HMC version 8.3.0 and later. Only the HMC Enhanced+ is referred to in the documentation, but that content also applies to the HMC Enhanced + Tech Preview (Pre-GA) interface.

Accessing the template library

All templates reside in the template library, which is accessible from the Hardware Management Console (HMC).

To view and select the templates that are available in the template library, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:

- a. In the navigation pane, click the **HMC Management** icon  .
- b. Click **Templates and OS Images**, or click **Template Library**.

2. Select the **System** tab to view the existing system templates, or the **Partition** tab to view the existing partition templates.
3. Select a template from the list of templates that are displayed.

You can view, modify, deploy, copy, import, export, or delete user-defined templates that are available in the template library. You cannot alter the quick-start templates, however you can edit a copy of the quick-start template.

System templates

System templates contain configuration information about resources such as system properties, shared processor pools, reserved storage pool, shared memory pool, physical I/O adapters, Host Ethernet Adapters, single root I/O virtualization (SR-IOV) adapters, Virtual I/O Server, virtual networks, virtual storage, and initial program load (IPL).

The single root I/O virtualization (SR-IOV) specification defines extensions to the PCI Express (PCIe) specification. SR-IOV allows virtualization of the physical ports of an adapter so that the ports can be shared by multiple partitions that are running simultaneously. For example, a single physical Ethernet port appears as several separate physical devices. To share the ports of an SR-IOV capable adapter, the adapter must first be enabled for the SR-IOV shared mode. After an adapter is enabled for SR-IOV shared mode, SR-IOV logical ports can be assigned to logical partitions.

Many of the system settings that you previously configured by using the Hardware Management Console (HMC) command-line interface or the HMC graphical user interface (GUI) version 8.1.0, or earlier can now be completed by using the **Deploy System from Template** wizard. For example, you can configure the Virtual I/O Servers, virtual network bridges, and virtual storage settings when you use the wizard to deploy a system by using a system template.

The template library includes quick-start system templates, which contain configuration settings based on common usage scenarios. Quick-start system templates are available for your immediate use.

You can also create user-defined system templates that contain configuration settings that are specific to your environment. You can create a user-defined template by copying any template that is available in the template library and then changing it to suit your requirements. You can also capture the configuration of an existing system and save the details in a template. You can deploy that template to other systems that require the same configuration.

System templates are primarily used to deploy settings to new systems. To deploy new systems, complete the following tasks:

1. "Viewing system template configuration information" on page 4
2. "Prerequisites for deploying a system by using a system template" on page 16
3. "Capturing a system configuration" on page 4 (optional)
4. "Deploying a system by using a system template" on page 16

You can also complete the following tasks by using system templates:

- "Changing a system template" on page 5
- "Copying a system template" on page 21
- "Importing a system template" on page 21
- "Exporting a system template" on page 22
- "Deleting a system template" on page 22

Viewing system template configuration information

Before you deploy a system template onto a system, you must review the configuration details of the template to determine whether you want to use a quick-start template or create a user-defined template. Unless you have already created one or more user-defined templates, quick-start templates are the only templates that are available in the template library.

To view the configuration information by using the Hardware Management Console (HMC), complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon.
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. In the Templates and O/S Images window, click the **System** tab.
 3. Select the system template that you want to view and click **Actions > View**. You can view the details of **Physical I/O**, **Host Ethernet Adapter**, **SR-IOV**, **Virtual I/O Servers**, **Virtual Networks**, **Virtual Storage**, **Shared Processor Pool**, **Shared Memory Pool** and **Reserved Storage**, and **Advanced System Settings** by clicking the relevant tabs that are displayed. Alternately, you can view the template details from the **Deploy System Template** wizard.
 4. Click **Close**.

Capturing a system configuration

Capturing a system gathers the current configuration of the system that is in the running state and includes information about the Virtual I/O Server (VIOS), virtual network, virtual storage, and system settings. You can capture these details of a running system and save the information as a user-defined system template by using the Hardware Management Console (HMC). This function is useful if you want to deploy multiple systems with the same configuration. If you want to use a quick-start template, you need not complete this task.

To capture the configuration of a running system by using the HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation pane, expand **Systems Management > Servers**.
 - b. Select the server from which you want to capture the configuration.
 - c. Click **Capture Configuration as Template**. Information about the server configuration such as Virtual I/O Servers, Virtual Networks, and Virtual Storage are displayed in the **Template Details** page. All non-target specific data is contained in the appropriate fields of the system template. Before you save the configuration, choose whether you want to capture the configuration with or without the physical I/O. This option is available only when the system is in the running state.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **Resources** icon .
 - b. Click **All Systems**. The **All Systems** page is displayed.
 - c. In the work pane, select the system and click **Actions > View System Properties**. The **Properties** page is displayed. You can choose only one system at a time.
 - d. Expand **System Actions > Templates > Capture Configuration as Template > with Physical I/O**, for capturing the configuration with physical I/O information. The option to capture physical I/O information is available only when the system is in the running state. Alternatively, for capturing the configuration without physical I/O information expand **System Actions > Templates > Capture Configuration as Template > without Physical I/O**. Information about the system configuration such as Virtual I/O Servers, Virtual Networks, and Virtual Storage is displayed in the **Template Details** page. All non-target specific data is contained in the appropriate fields of the system template.
2. In the **Capture as System Template** page, specify the name for the template file in the **Name and Description** field and click **OK** to save the captured template.
 3. Click **Cancel** if you want to cancel the operation.

The template is available in the template library. You can deploy a system by using this template, or you can modify any aspect of the template before using the template to deploy a system.

Related tasks:

“Deploying a system by using a system template” on page 16

You can deploy systems by using system templates that are available in the template library of the Hardware Management Console (HMC). The **Deploy System from Template** wizard guides you to provide target system specific information that is required to complete the deployment on the selected system.

“Changing a system template”

You can change the details that are specified in a captured, or user-defined system template and save the changes in a new system template. You can also overwrite the template by saving the changes in the same template. You can use this template to deploy other systems by using the Hardware Management Console (HMC).

Changing a system template

You can change the details that are specified in a captured, or user-defined system template and save the changes in a new system template. You can also overwrite the template by saving the changes in the same template. You can use this template to deploy other systems by using the Hardware Management Console (HMC).

To change the system template by using an HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and select the system template that you want to change.

3. Click **Action > Edit**. The **Template Detail** page is displayed.
4. To change the Physical I/O settings, click the **Physical I/O** tab. You can change enable or disable using captured I/O information. Click the **Use Captured I/O Information** check box to use the captured physical I/O information. When you enable or disable the **Use Captured I/O Information** check box, the check box is displayed in the read only mode in the **Hardware Virtualized I/O** tab for the system configuration, and in the **Hardware Virtualized I/O** tab of the **Add VIOS** wizard.
5. To change the Host Ethernet Adapter (HEA) or single root I/O virtualization (SR-IOV) settings, click the **Hardware Virtualized I/O** tab.
 - a. In the **Host Ethernet Adapter** tab, you can change the **HEA Port Group Settings** and the **HEA Physical Port Settings**. You can add an HEA by clicking the **Add** tab, and to remove an HEA, select the HEA and click the **Remove** tab. The HEA tab contains general adapter-level settings that are applied to all discovered physical HEA ports and HEA port groups during deployment of the system.
 - b. In the **SR-IOV** tab, the table displays the properties of the I/O adapters in the shared mode. You can also view the physical Ethernet port settings for the selected adapters. The physical Ethernet port settings are displayed in the **Captured Settings for Physical Ethernet Port** area by selecting a physical location code from the table. You can also view the **Speed, Flow Control, Label, Sub-label**, and the **MTU Size** of the adapter.
6. To change the Virtual I/O Server (VIOS) settings, click the **Virtual I/O Servers** tab. Select the VIOS that you want to rename. You can specify the name in the **VIOS Name** field. To add a VIOS, complete the following steps:
 - a. Click the **Add VIOS** tab.
 - b. In the **General** tab, you can specify the name for the VIOS in the **VIOS Name** field.
 - c. Select a value for the **Boot Mode** field from the list.
 - d. To enable synchronization of the current profile, select the **Save Configuration Change to profile** check box. When this option is selected, the partition profile is always synchronized with the last activated partition profile.
 - e. In the **Advanced Settings** area, you can enable the **Mover Service Partition, Connection Monitoring, Time Reference, VTPM, Allow Performance Information Collection**, and **Advanced Settings** fields. You can select a value for the **Processor Compatibility Mode** and **Idle Processor Sharing** fields from the lists that are available.
 - f. In the **Processor** tab, if you select **Shared** for the processor mode, you can set the processor weight as capped or uncapped. When you set the processor weight as uncapped, you must specify a value for the weight in the **Weight** field.
 - g. In the **Virtual Processors** area, you can specify values for the **Maximum, Allocated**, and **Minimum** fields.
 - h. In the **Advanced Settings** area, you can select a value for the **Processor Compatibility Mode** from the list.
 - i. In the **Processor** tab, if you select **Dedicated** as the processor mode, you can specify values for the **Maximum, Allocated**, and **Minimum** fields in the **Processors** area.
 - j. In the **Advanced Settings** area, you can select a value for the **Processor Compatibility Mode** and the **Idle Processor Sharing** fields from the lists that are available.
 - k. In the **Memory** tab, if you select **Shared** for the memory mode, you can set the value for the memory in either MB or GB.
 - l. In the **Memory Allocation** area, you can specify values for the **Maximum, Allocated**, and **Minimum** fields.
 - m. In the **Memory** tab, if you select **Dedicated** for the memory mode, you can set the value for the memory in either MB or GB.

- n. In the **Memory Allocation** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields. The **Advanced Settings** area is displayed only when you use dedicated memory. You can enable **Enable Memory Expansion**, **Huge Page Memory**, and the **BSR Array** field.
 - If you enable **Enable Memory Expansion**, you can specify a value in the range 1.0 - 10.0 for the Active Memory™ Expansion (AME) factor.
 - If you enable **Huge Page Memory**, you can specify values for **Minimum**, **Allocated**, and **Maximum** fields.
 - If you enable **BSR Array**, you can specify values for **Total**, **Allocated**, and **Available** fields.


Note: POWER8® processor-based systems do not support BSR.
- o. In the **Physical I/O Adapters** tab, if you select the **Use Captured I/O Information** check box, you can view the details of the physical I/O adapters that were captured.
- p. Click the **Hardware Virtualized I/O** tab and then click the **SR-IOV** tab. If you select the **Use Captured I/O Information** check box, you can view the details of the captured physical Ethernet port. If you do not use captured I/O information, you can select the logical port and the Shared Ethernet Adapter (SEA) backing device to be assigned to the VIOS from the table.
- q. If you do not select a SEA backing device and click the **Advanced Settings** tab, you can select values for the **OS MAC Address Restrictions**, **VLAN ID Restrictions**, **Port VLAN ID**, and the **802.1Q Priority** fields from the lists that are available.
- r. To remove a logical port, select the logical port to be removed and click **Remove Selected**.
- s. Click the **HEA** tab. You can select the logical port and the Shared Ethernet Adapter (SEA) backing device to be assigned to the VIOS from the table.
- t. To add an HEA, click the **Add** tab. In the **HEA Port Group Settings** area, you can select a value for the Multi-Core Scaling (MCS) Value field from the list. In the **HEA Physical Port Settings** area, you can set the speed, select full duplex or half duplex mode, enable or disable flow control, and specify the maximum receiving packet size.
- u. To remove an HEA, select the HEA to be removed and click **Remove Selected**.
- v. To delete a VIOS, select the VIOS and right-click and select **Remove VIOS**.
7. To change the virtual network settings, click the **Virtual Networks** tab. You can change the details of a specific virtual network, virtual switch, or network bridge by selecting the appropriate table row and right clicking on the selected virtual network entry in the table. You can also delete a network, switch, or network bridge. To add a virtual network, complete the following steps:
 - a. Click **Add Virtual Network**.
 - b. Click the **Network Name** tab.
 - c. In the **Virtual Network Settings** area, enter a value for the virtual network in the **Virtual Network Name** field.
 - d. Select a value for the **Virtual Network Type** field from the list. If you selected **Internal Network** for the **Virtual Network Type** field, enter a value in the **Virtual Network ID** field. Optionally, if you selected **Bridged Network**, you must to select a value for the **IEEE 802.1q Tagging** field from the list.
 - e. Select **Add new virtual network to all Virtual I/O Servers** check box to assign the virtual network to all the VIOS that is specified in the template.
 - f. In the **Virtual Switch Settings** area, click **Use an existing virtual switch** to use existing virtual switches, or click **Create a new virtual switch**. If you clicked **Create a new virtual switch**, enter a value for the name of the virtual switch in the **Virtual Switch Name** field.
 - g. Click **Next**.
 - h. If the template had any existing virtual network bridges, you can click **Select existing Virtual Network Bridge**. Optionally, you can also click **Create a New Virtual Network Bridge**.
 - i. In the **Virtual Network Bridge Settings** area, enter a value for the **Virtual Network Bridge PVID (PowerVM)** field.

- j. Select a value for the **Failover** field from the list. If you choose to use failover, you must also select a value for the **Secondary VIOS** and the **Load Sharing** fields from the lists.
 - k. Select a value for the **Primary VIOS** field from the list.
 - l. In the **Optional Settings** area, select values for the **Jumbo Frame**, **Large Send**, and **QoS** fields.
 - m. Click **Next**. Clicking **Next** will allow you to view and edit values in the **Load Sharing** tab only when you use an existing virtual network bridge. Otherwise, clicking **Next** will display the **Summary** tab.
 - n. In the **Load Sharing** tab, click **Use an existing Load Sharing Group** to use an existing load sharing group, or click **Create a new Load Sharing Group**.
 - o. If you select **Create a new Load Sharing Group**, enter a value for the **New Load Group PVID** field.
 - p. Click **Next**.
 - q. In the **summary** tab, a summary of the configuration that was selected for the virtual network is displayed. You can review the configuration details and click **Finish** to add the virtual network to the VIOS specified in the template.
8. To change the virtual storage settings, click the **Virtual Storage** tab. You can change the details of the **Shared Storage Pool Clusters**. You can assign each VIOS that is listed in the template to an actual shared storage pool cluster that is managed by the HMC. You can specify a **Media Repository** for each VIOS.
 9. To change the shared processor pool settings, click the **Shared Processor Pool** tab. You can add shared processor pools, rename the pools (except the Default Pool), and adjust the processing units that are assigned to each pool. You can also delete a shared processor pool.
 10. To change the Shared Memory Pool and Reserved Storage Pool settings, click the **Shared Memory Pool and Reserved Storage Pool** tab. You can change details of a Shared Memory Pool such as the size and maximum pool size. You can also specify whether Active Memory Deduplication must be enabled. You can also change the settings of the Reserved Storage Device Pool. You can select a single VIOS, or specify redundancy settings by selecting **Redundant VIOS**.
 11. To change the advanced system settings, click the **Advanced System Settings** tab. You can change details of the **Power On/Off Configuration**, and the **Memory and performance Configuration** fields. Click **Save and Exit** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Cancel** to exit without making any changes.

Changing physical I/O settings

You can change the system I/O settings of a system by changing a quick-start or captured system template by using the Hardware Management Console (HMC). This changed template is used to deploy the system.

To change the physical I/O settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:
 - a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and select the system template that you want to change.
3. Click **Action > Edit**. The **Template Detail** page is displayed.

4. To change the Physical I/O settings, click the **Physical I/O** tab. You can change enable or disable using captured I/O information. Click the **Use Captured I/O Information** check box to use the captured physical I/O information.
5. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

Changing Hardware Virtualized I/O settings

You can change the Hardware Virtualized I/O settings that are specified in a system template and either overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). You can change the Host Ethernet Adapter (HEA) and single root I/O virtualization (SR-IOV) settings.

To change HEA and SR-IOV settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon.
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and select the system template that you want to change.
 3. Click **Action > Edit**. The **Template Detail** page is displayed.
 4. Click the **Hardware Virtualized I/O** tab.
 5. In the **Host Ethernet Adapter** tab, you can modify the **HEA Port Group Settings** and the **HEA Physical Port Settings**.
 - a. In the **HEA Port Group Settings** area, you can select a value for the Multi-Core Scaling (MCS) Value field from the list. You can complete this task for each port group that is listed.
 - b. In the **HEA Physical Port Settings** area, for each of the ports that are listed, you can set the speed, specify full duplex or half duplex mode, enable or disable flow control, and specify the maximum receiving packet size.
 - c. To add an HEA, click the **Add** tab.
 - d. In the **HEA Port Group Settings** area, you can select a value for the MCS Value field from the list.
 - e. In the **HEA Physical Port Settings** area, you can set the speed, specify full duplex or half duplex mode, enable or disable flow control, and specify the maximum receiving packet size.
 - f. To remove an HEA, select the HEA to be removed and click the **Remove** tab.
 6. In the **SR-IOV** tab, you must specify the SR-IOV physical Ethernet ports settings when you deploy the template.
 7. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

The HEA tab contains general adapter-level settings that are applied to all discovered physical HEA ports and HEA port groups during deployment. For example, if you set the Port Group MCS Value to 2, the value for Maximum Logical Ports changes accordingly. During deployment, each port group located on any Host Ethernet Adapter on the target system has a Port Group MCS Value of 2 and makes the appropriate number of logical ports available. Similarly, the four physical port settings apply to each physical port on all the HEAs discovered during deployment.

Changing Virtual I/O Server settings


You can change the Virtual I/O Server (VIOS) settings that are specified in a system template by using the Hardware Management Console (HMC). You can add or remove VIOS, change the properties of the VIOS, or change the resources that are assigned to the VIOS.

To change the VIOS settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and select the system template that you want to change.
 3. Click **Action > Edit**. The **Template Detail** page is displayed.
 4. To change the Virtual I/O Server (VIOS) settings, click the **Virtual I/O Servers** tab. Select the VIOS that you want to rename. You can specify the name in the **VIOS Name** field. To add a VIOS, complete the following steps:
 - a. Click the **Add VIOS** tab.
 - b. In the **General** tab, you can specify the name for the VIOS in the **VIOS Name** field.
 - c. Select a value for the **Boot Mode** field from the list.
 - d. To enable synchronization of the current profile, select the **Save Configuration Change to profile** check box. When this option is selected, the partition profile is always synchronized with the last activated partition profile.
 - e. In the **Advanced Settings** area, you can enable the **Mover Service Partition, Connection Monitoring, Time Reference, VTPM, Allow Performance Information Collection, and Advanced Settings** fields. You can select a value for the **Processor Compatibility Mode** and **Idle Processor Sharing** fields from the lists that are available.
 - f. In the **Processor** tab, if you select **Shared** for the processor mode, you can set the processor weight as capped or uncapped. When you set the processor weight as uncapped, you must specify a value for the weight in the **Weight** field.
 - g. In the **Virtual Processors** area, you can specify values for the **Maximum, Allocated, and Minimum** fields.
 - h. In the **Advanced Settings** area, you can select a value for the **Processor Compatibility Mode** from the list.
 - i. In the **Processor** tab, if you select **Dedicated** as the processor mode, you can specify values for the **Maximum, Allocated, and Minimum** fields in the **Processors** area.
 - j. In the **Advanced Settings** area, you can select a value for the **Processor Compatibility Mode** and the **Idle Processor Sharing** fields from the lists that are available.
 - k. In the **Memory** tab, if you select **Shared** for the memory mode, you can set the value for the memory in either MB or GB.
 - l. In the **Memory Allocation** area, you can specify values for the **Maximum, Allocated, and Minimum** fields.
 - m. In the **Memory** tab, if you select **Dedicated** for the memory mode, you can set the value for the memory in either MB or GB.

- n. In the **Memory Allocation** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields. The **Advanced Settings** area is displayed only when you use dedicated memory. You can enable **Enable Memory Expansion**, **Huge Page Memory**, and the **BSR Array** field.
 - If you enable **Enable Memory Expansion**, you can specify a value in the range 1.0 - 10.0 for the Active Memory Expansion (AME) factor.
 - If you enable **Huge Page Memory**, you can specify values for **Minimum**, **Allocated**, and **Maximum** fields.
 - If you enable **BSR Array**, you can specify values for **Total**, **Allocated**, and **Available** fields.

Note: POWER8 processor-based systems do not support BSR.


- o. In the **Physical I/O Adapters** tab, if you select the **Use Captured I/O Information** check box, you can view the details of the physical I/O adapters that were captured.
 - p. Click the **Hardware Virtualized I/O** tab and then click the **SR-IOV** tab. If you select the **Use Captured I/O Information** check box, you can view the details of the captured physical Ethernet port. If you do not use captured I/O information, you can select the logical port and the Shared Ethernet Adapter (SEA) backing device to be assigned to the VIOS from the table.
 - q. If you do not select a SEA backing device and click the **Advanced Settings** tab, you can select values for the **OS MAC Address Restrictions**, **VLAN ID Restrictions**, **Port VLAN ID**, and the **802.1Q Priority** fields from the lists that are available.
 - r. To remove a logical port, select the logical port to be removed and click **Remove Selected**.
 - s. Click the **HEA** tab. You can select the logical port and the Shared Ethernet Adapter (SEA) backing device to be assigned to the VIOS from the table.
 - t. To add an HEA, click the **Add** tab. In the **HEA Port Group Settings** area, you can select a value for the Multi-Core Scaling (MCS) Value field from the list. In the **HEA Physical Port Settings** area, you can set the speed, select full duplex or half duplex mode, enable or disable flow control, and specify the maximum receiving packet size.
 - u. To remove an HEA, select the HEA to be removed and click **Remove Selected**.
 - v. To delete a VIOS, select the VIOS and right-click and select **Remove VIOS**.
5. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

Changing virtual network settings

You can change the virtual network settings that are specified in a system template and overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). You can change the virtual switches or the properties of the network bridge. You can also add or remove virtual networks.

To change the virtual network settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:

- a. In the navigation pane, click the **HMC Management** icon  .
- b. Click **Templates and OS Images**, or click **Template Library**.

2. Click the **System** tab and select the system template that you want to change.
3. Click **Action > Edit**. The **Template Detail** page is displayed.



4. Click the **Virtual Networks** tab.
5. In the **Virtual Networks** area, right-click the virtual network that you want to change. You can change virtual network name, and the **Load Balance Group**. You can also delete the virtual network.
6. In the **Virtual Switches** area, right-click the virtual network that you want to change. You can change virtual switch name and specify whether the switching mode is Virtual Ethernet Bridging (VEB) or Virtual Ethernet Port Aggregator (VEPA).
7. In the **Virtual Bridges** area, right-click the network bridge that you want to change. You can change the network bridge name, specify whether failover and load balancing is enabled, and specify the VIOS that are associated with the network bridge.
8. In the **Advanced Settings** area, you can specify the Quality of Service (QoS) Priority, and enable **Jumbo Frame** and **Large Send**.
9. Click **OK**.
10. To add a virtual network, complete the following steps:
 - a. Click **Add Virtual Network**.
 - b. Click the **Network Name** tab.
 - c. In the **Virtual Network Settings** area, enter a value for the virtual network in the **Virtual Network Name** field.
 - d. Select a value for the **Virtual Network Type** field from the list. If you selected **Internal Network** for the **Virtual Network Type** field, enter a value in the **Virtual Network ID** field. Optionally, if you selected **Bridged Network**, you must to select a value for the **IEEE 802.1q Tagging** field from the list.
 - e. Select **Add new virtual network to all Virtual I/O Servers** check box to assign the virtual network to all the VIOS that is specified in the template.
 - f. In the **Virtual Switch Settings** area, click **Use an existing virtual switch** to use existing virtual switches, or click **Create a new virtual switch**. If you clicked **Create a new virtual switch**, enter a value for the name of the virtual switch in the **Virtual Switch Name** field.
 - g. Click **Next**.
 - h. If the template had any existing virtual network bridges, you can click **Select existing Virtual Network Bridge**. Optionally, you can also click **Create a New Virtual Network Bridge**.
 - i. In the **Virtual Network Bridge Settings** area, enter a value for the **Virtual Network Bridge PVID (PowerVM)** field.
 - j. Select a value for the **Failover** field from the list. If you choose to use failover, you must also select a value for the **Secondary VIOS** and the **Load Sharing** fields from the lists.
 - k. Select a value for the **Primary VIOS** field from the list.
 - l. In the **Optional Settings** area, select values for the **Jumbo Frame**, **Large Send**, and **QoS** fields.
 - m. Click **Next**. Clicking **Next** will allow you to view and edit values in the **Load Sharing** tab only when you use an existing virtual network bridge. Otherwise, clicking **Next** will display the **Summary** tab.
 - n. In the **Load Sharing** tab, click **Use an existing Load Sharing Group** to use an existing load sharing group, or click **Create a new Load Sharing Group**.
 - o. If you select **Create a new Load Sharing Group**, enter a value for the **New Load Group PVID** field.
 - p. Click **Next**.
 - q. In the **summary** tab, a summary of the configuration that was selected for the virtual network is displayed. You can review the configuration details and click **Finish** to add the virtual network to the VIOS specified in the template.
11. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

Changing virtual storage settings

You can change the virtual storage settings that are specified in a system template and either overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). You can change the Virtual I/O Server (VIOS) that belong to a shared storage pool, or you can add or remove media repositories.

To change the virtual storage settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



a. In the navigation pane, click the **HMC Management** icon

b. Click **Templates and OS Images**, or click **Template Library**.

2. Click the **System** tab and select the system template that you want to change.

3. Click **Action > Edit**. The **Template Detail** page is displayed.

4. Click the **Virtual Storage** tab.

5. In the **Virtual Shared Storage Pool Clusters** area, select the shared storage pool cluster that must be assigned to the VIOS. Alternatively, you can select **Choose at Deploy**. Complete this task for all the Virtual I/O Servers that are listed.

6. In the **Media Repositories** area, you can configure the media repository for each of the VIOS listed in the **Virtual Shared Storage Pool Clusters** area. In the **Media Repository Size** field, specify the size in percentage values. The unit of measurement can be GB or MB.

7. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

Changing shared processor pool settings

You can change the shared processor settings that are specified in a system template and either overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). This template can be used to deploy a system with the changed shared processor pool settings. You can configure a maximum of 63 shared processor pools.

To change the shared processor pool settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



a. In the navigation pane, click the **HMC Management** icon

b. Click **Templates and OS Images**, or click **Template Library**.

2. Click the **System** tab and select the system template that you want to change.

3. Click **Action > Edit**. The **Template Detail** page is displayed.

4. Click the **Shared Processor Pool** tab.
5. In the **Pool Name** field, you can specify a name for the pool. You can specify the reserved and maximum processing units that must be assigned to each processor pool in the **Reserved Processing Units** and **Maximum Processing Units** fields. This will add another row to the table.


Note: You cannot rename the default pool.

6. Click **Add Another** tab to add another shared processor pool and specify the name of the pool you want to add. This will add another row to the table.
7. To remove a shared processor pool, select the pool that you want to remove and click **Remove**.
8. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

Changing Shared Memory Pool and Reserved Storage Device Pool settings

You can change the Shared Memory Pool and Reserved Storage Device Pool settings that are specified in a system template and either overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). This template can be used to deploy a system with the changed shared memory pool and reserved storage settings.

To change the Shared Memory Pool and Reserved Storage Device Pool settings of a template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:
 - a. In the navigation pane, click the **HMC Management** icon  .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and select the system template that you want to change.
3. Click **Action > Edit**. The **Template Detail** page is displayed.
4. Click the **Shared Memory Pool and Reserved Storage** tab.
5. In the **Shared Memory Pool** area, you can specify a value for the pool size in the **Pool Size** field in GB or MB.
6. In the **Maximum Pool Size** field, you can specify a value for the maximum pool size in GB or MB.
7. From the **Active memory Deduplication** list, you can enable or disable Active memory Deduplication.
8. In the **Reserved Storage Pool** area, you can specify the names of the Virtual I/O Server (VIOS) to be used as the **First Paging VIOS** and the **Second Paging VIOS**.
9. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.


Changing advanced system settings

You can change the advanced system settings that are specified in a captured or user-defined system template and overwrite the template, or save the changes in a new template by using the Hardware Management Console (HMC). You can change the system performance and Power On and Power Off policies for the systems. This reduces the time taken to deploy multiple systems.

Changing system performance settings:

You can change your system performance settings for the system to efficiently use its resources. Effective performance management can help you quickly respond to changes in your system and save on expenses by postponing upgrades and service fees. You can also improve performance by setting appropriate values for the Logical Memory Block (LMB), Huge Page Count, and also by specifying the Power On and Power Off configuration.

To change the system performance settings, complete the following steps:


1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:
 - a. In the navigation pane, click the **HMC Management** icon  .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and select the system template that you want to change.
3. Click **Action > Edit**. The **Template Detail** page is displayed.
4. Click the **Advanced System Settings** tab.
 - a. In the **Memory and Performance Configuration** area, you can specify the **Logical Memory Block (LMB)** size.
 - b. In the **Huge Page Count** field, specify a value.
 - c. In the **BSR Array Size** field, specify a value.
 - d. In the **BSR Array Count** field, specify a value.

Note: BSR is not supported on POWER8 processor-based systems.
5. Click **Save and Exit** to overwrite the changes made in the template, or click **Save As** to save the changes in a new template.

Changing power policy settings:

You can change the power policy settings that are specified in a system template and overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). You can use this template to deploy a system with the changed power policy settings.

To change the system power policy settings, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:
 - a. In the navigation pane, click the **HMC Management** icon  .
 - b. Click **Templates and OS Images**, or click **Template Library**.

2. Click the **System** tab and select the system template that you want to change.
3. Click **Action > Edit**. The **Template Detail** page is displayed.
4. Click the **Advanced System Settings** tab.
 - a. In the **Power On/Off Configuration** area, select a value from the **Server Firmware Start Policy** list.
 - b. From the **System Power Off Policy** list, select a value
 - c. From the **Power On Speed** list, select a value.
 - d. You can enable or disable **Auto Power Restart**.
5. Click **Save and Exit** to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

Prerequisites for deploying a system by using a system template

Review the prerequisites before deploying a system by using templates.

The **Deploy System from Template** wizard guides you through the deployment operation by using a system template. The wizard includes the following tasks:

- Selecting a system template when starting the deployment from a system, or selecting a system when starting the deployment from a template library.
- Configuring the system settings, assigning I/O adapters, and creating Virtual I/O Servers.
- Installing the Virtual I/O Server (VIOS) software.
- Configuring the network and storage I/O settings.

A system can be in one of the following states before deploying a system template. Before you deploy a system template, review the following information to understand the impact of continuing with the deployment of the system when the system is in one of the following states:

- The system is in the manufacturing default configuration. You can start the system deployment on the system.
- The system is not in the manufacturing default configuration, but there are no partitions. If you attempt to deploy a system template on an already configured system, the HMC will display a warning message. If you click **OK**, the deployment continues and any previous partition configuration is removed. The system is configured with the partitions that are specified in the system template.
- The system is not in the manufacturing default configuration and has partitions. If you attempt to deploy a system template, the HMC will display a warning message. Starting the deployment will remove the existing logical partition configuration data.

You must back up your data to perform a system recovery, when needed.

Related information:

 [Backing up and recovering data](#)

Deploying a system by using a system template

You can deploy systems by using system templates that are available in the template library of the Hardware Management Console (HMC). The **Deploy System from Template** wizard guides you to provide target system specific information that is required to complete the deployment on the selected system.

Before you deploy a system, consider the following prerequisites:

- The HMC is at Version 8.1.0, Service Pack 1, or later.
- The hypervisor is in the operating or standby state.
- The managed system is in the operating or standby state.
- The managed system does not have any logical partition that is associated to it.

Note: If logical partitions are already configured on the managed system, a warning message is displayed. If you continue with the deployment, the HMC completes the following actions:

- All system level configurations will be initialized or set to default values.
 - All the logical partitions that are in the running state will be shutdown and removed automatically.
 - All the Virtual I/O Servers that are in the running state will be shutdown and removed automatically.
- If you install the VIOS from a Network Installation Management (NIM) server, you must have the NIM server information that is required by the HMC.


When you deploy a system from a template, the HMC checks whether the configuration specified in the chosen template suits the required system capabilities.

To deploy a system by using the system template, complete the following steps:

Note: During the deployment, you can view all of the configuration settings specified in the template by clicking the **Template Details** tab.

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation pane, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Deploy System from Template**. You can choose only one server at a time. When you deploy a template on the system, a system data check operation is done on the system that you selected. To check the status of a system, select a server from the list and click **Reset**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **Resources** icon .
 - b. Click **All Systems**. The **All Systems** page is displayed.
 - c. In the work pane, select the system and click **Actions > View System Properties**. The **Properties** page is displayed. You can choose only one system at a time.
 - d. Expand **System Actions > Templates > Deploy System from Template**. When you deploy a template on the system, a system data check operation is done on the system that you selected. To check the status of a system, select a server from the list and click **Reset**.
2. If the check operation displays warning or error messages, you can select another template from the template library. If the chosen template is compatible to the target system and no warning or error messages are displayed, or when the displayed warning message is acceptable, click **Next** to continue with the deployment. If the target system has logical partitions, you are prompted with a message that indicates that the logical partition and the current system settings will be deleted which cannot be recovered and whether you want to continue with the deployment. Click **Yes** to continue with the deployment, or **No** to exit the wizard. Alternatively, you can also select a system and click **Templates > Template Library**. Go to step 5.
3. If you choose to deploy the template from the template library, select the **System** tab and click on a template from the list. Click **Reset**. If the check operation displays warning or error messages, you can select another template from the template library. If the chosen template is compatible to the target system and no warning or error messages are displayed, or when the displayed warning message is acceptable, click **Next** to continue with the deployment. If the target system has any logical partitions, you are prompted with a message that indicates that the logical partitions will be deleted and whether you want to continue with the deployment. Click **Yes** to continue with the deployment, or **No** to exit the wizard.

4. In the **SR-IOV Adapter Settings** page, you can select the single root I/O virtualization (SR-IOV) capable adapters from the list. You can assign a logical port from an SR-IOV adapter that is in shared mode to a Virtual I/O Server (VIOS). By default, the adapters are in the dedicated mode.
 - a. Click **Shared** to change the mode to the shared mode.
 - b. Click **Configure**.
 - c. In the **SR-IOV Physical Ethernet Port Settings** area, you can view or change the **Label**, **Sub-Label** and **Speed** properties of the physical port. You can enable or disable the **Flow Control** option, set the **Port Switch Mode**, and select a value for the **MTU Size** field from the list.
 - d. Click **Next**.
5. If the chosen template is compatible to the target system, the **VIOS Configuration Summary** page is displayed. You can optionally change the VIOS name. Click **Next**.
6. In the **Physical I/O** page, complete the following steps:

- a. In the **Physical I/O Adapters** area, you can choose one or more Virtual I/O Servers to which you want to assign physical I/O adapters. You can view the adapters that are available in other drawers of the system by selecting the drawer from the list in the **View adapters in** field. You can choose not to assign any physical I/O adapters to the VIOS by selecting the **Unassigned** option.

Note:

- The HMC communicates with the target system and provides a list of physical I/O adapters that can be assigned to a VIOS. You can assign each adapter to a single VIOS, you need not assign all of the adapters.
 - If you are using a captured system template, and use the captured I/O Information from the template, and where the hardware configuration details of the template matches the hardware of the target system, the Generic Location Code will be replaced with the Physical Location Codes. You cannot choose the adapters for all the Virtual I/O Servers because the selected adapters from the template are used. When you are using a template with no captured I/O information or a quick-start template, and if you click **Next**, the HMC polls the target system and displays a list of adapters that are available for assignment to a VIOS.
 - If the template that you use for deployment does not contain any VIOS, the wizard displays only the **System Configuration Progress**, and the **Configuration Summary** pages. The **Configuration Summary** page displays read-only information about the settings as defined in the template. You can review these settings, and click **Next** to view the **System Configuration Progress** page to start the deployment process.
 - If PowerVM is already configured on the system including a factory default full system partition, a message is displayed that indicates that a partition is already present on the system. You must reset the system manually before restarting the system deployment.
 - Slots that contain cable cards are non-partitionable and cannot be assigned to the VIOS. Therefore, the Physical I/O adapter configuration page does not display slots containing cable cards though they are associated with the system.
- b. In the **Hardware Virtualized I/O** area, you can assign logical ports to a physical port of an SR-IOV capable adapter. If you use captured I/O information, this page displays the list of adapters assigned for the configuration. If you are not using captured I/O information, you can select a value for the **Physical Port**, **Label**, **Sub-label** field. You can specify a value for the **Capacity** field. You can complete this step for each of the Virtual I/O Servers that are listed. Click **Next**. The sum of the capacity values for all the configured logical ports on a physical port must be less than or equal to 100%. To minimize the configuration effort when you add more logical ports, you can reserve some capacity for the additional logical ports.
7. In the **System Configuration Progress** page, when you click **Start**, the system configuration starts and you can view the progress of the system configuration and a message that indicates successful configuration is displayed upon completion.

8. When the system update completes and the when the VIOS partition is created, you can click the **Next** tab to install the VIOS image.

Note: This step might take some time, especially when you have to restart the system.

9. In the **VIOS Installation Configuration** page, you can choose the values for the **Installation Method** field. You can also change the configuration values of the VIOS partitions that are listed. By clicking **Advanced Settings**, you can change the adapter speed, adapter duplex, VLAN tag priority, and the VLAN tag identifier default settings. Click **Next**.

Note: You can install the VIOS from a NIM server, a management console image, or a manual console session. The fields that require data vary depending on the installation method that you choose. The following fields are available depending on the installation method:

- When you install the VIOS from a NIM server, you must specify the server IP address. The HMC must be able to connect to the NIM server.
- When you install the VIOS from an image repository, you must specify the HMC IP address and the VIOS image name.
- When you install the VIOS from a management console, you must specify the boot mode.

After you select the installation method, you must also specify an install adapter and port and the VIOS IP address, subnet mask, and default gateway. Additionally, you can view the MAC address of the system when you select the NIM server installation option. You can optionally change the adapter speed, adapter duplex, VLAN tag priority, and VLAN tag identifier default settings by clicking **Advanced Settings**. You can complete this step for each of the listed Virtual I/O Servers.

10. In the **VIOS Installation Progress** page, when you click **Start**, the VIOS software is installed on the system. To view the progress of the VIOS installation, click **Monitor vterm**. A message that indicates successful configuration is displayed when the installation is complete.
11. After the VIOS image is installed and after the RMC connection is established for all the Virtual I/O Servers, you can review the license agreement and click **Accept all VIOS Licenses** to accept the VIOS license agreement.
12. In the **VIOS Network Bridge Configuration** page, you can change the values of the listed network bridges. Click **Next**.

Note: A network bridge represents the Shared Ethernet Adapter (SEA) and trunk adapter that services a set of externally visible virtual networks. For redundant networks, the network bridge represents the matched set of Shared Ethernet Adapters and trunk adapters on both of the Virtual I/O Servers.

In the **NetBridge** area of the **Network Configuration** page, you can view a table that contains the available network adapters and ports that are assigned to the installed Virtual I/O Servers. Each VIOS that is installed and is associated with a Network Bridge in the template, has a separate table. You can select at least one port to create the Shared Ethernet Adapter for that VIOS, or select more than one physical port per VIOS, or choose to create a Link Aggregation Device from the ports that are selected on a VIOS. A link aggregation device also known as an EtherChannel device, is a network port-aggregation technology that allows several Ethernet adapters to be aggregated. The adapters that are aggregated then act as a single Ethernet device. Link aggregation provide more throughput over a single IP address than a single Ethernet adapter. When you are using a captured template for the system deployment, the ports and **Create Link Aggregation Device** might already be selected.

13. In the **VIOS Virtual Storage Configuration** page, you can associate a VIOS to a shared storage pool. You can configure the Reserved Storage Device Pool, and the media repository volume group. Click **Next**.

Note: You can assign a VIOS to a shared storage pool cluster or assign it later. A shared storage pool cluster provides distributed storage access to the VIOS partitions in the cluster. You can also

configure a Reserved Storage Device Pool. A Reserved Storage Device Pool has reserved storage devices that are also called paging space devices and is similar to a Shared Memory Pool of memory size 0 bytes.

When you configure a reserved storage pool, the wizard page displays the available Reserved Storage Devices. You can select from these available devices from the list to create the Reserved Storage Device Pool. You must select which VIOS should be the first and second paging VIOS. A paging VIOS is a VIOS partition that is assigned to the Shared Memory Pool and provides access to the paging space devices for the logical partitions that are assigned to the Shared Memory Pool.

In the Media Repository Volume Groups area, an editable field that contains the Media Repository name and a table that contains the available storage devices to assign to the Volume Groups is displayed. You can also configure a Media Repository.

14. In the **I/O Progress page**, when you click **Start**, the configuration process starts and you can view the I/O configuration. You can click **Next**, after you see a message that indicates successful installation.
15. In the **Summary** page, you can view a summary of the changes. Click **Finish**. Your system is now fully deployed based on the configuration settings that were specified in the template.

Note: If the configuration is unsuccessful, you must exit the wizard and restart the system deployment. You can exit the wizard by clicking **Finish**.

- You cannot deploy an incomplete template.
- If the deploy operation fails immediately after a machine data reset, all the current configuration of the target system is destroyed and you cannot restore the system to the previous state.
- If the deploy operation fails, the deploy system template wizard creates a VIOS and a message is displayed that indicates that the deployment competed with errors. The VIOS that was created cannot be rolled back. You must clean up the deployment manually or use the **Manage PowerVM** functionality available in the HMC to assign the network or storage to the VIOS that was created.



Recovering from a system deployment failure

If a system deployment by using the system template fails, use the Hardware Management Console (HMC) to reset the system to a nonpartitioned configuration. The factory reset mode (or manufacturing default configuration) is equivalent to the initial single partition configuration of the managed system as received from your service provider. After you reset the system, run the **Deploy System Template** wizard again.

If the system deployment by using the system template fails, the system is not restored or backed up to its previous state. You must manually configure the system by using the HMC command-line interface, or start a new deployment. If the deployment of a system fails, exit the Deploy System Template wizard. Reset the system to a nonpartitioned configuration and restart the deployment process. To reset the system, type the **rstprofdata** command from the HMC command line. Specify a value of 4 for the *restore type* parameter. Then, restart the Deploy System Template wizard. The **rstprofdata** command removes only the data disk, but the boot disk remains.

When the system deployment fails during the I/O adapter configuration, network configuration, or virtual storage configuration, you can exit the wizard and complete the configuration by using the **Manage PowerVM** functionality available in the HMC.

Related information:

-  [Resetting the managed system to a nonpartitioned configuration](#)
-  [rstprofdata](#)

Copying a system template

You can copy a quick-start or captured system template into a new system template along with the configuration details that are specified in the template by using the Hardware Management Console (HMC).

To copy a system template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon.
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and then select the system template that you want to copy and click **Action > Copy**.
 3. In the **Copy System Template** page, specify the name for the template in the **Template name** field. If a template with the same name exists, the copy fails and an error message is displayed.
 4. Click **OK**.

Importing a system template

You can import a system template into the template library by using the Hardware Management Console (HMC).

To import a system template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon.
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab and click **Import**. The following restrictions apply when you import a system template:
 - If the system template schema is different from the schema that is supported by the HMC, for example if a tag is used which is not a part of the template OpenDocument Spreadsheets (ODS) file element, the template cannot be imported and the operation fails.
 - If the template file size exceeds 10 MB, the template cannot be imported and the operation fails.
 3. In the **Import System Template** page, click **Browse** to navigate to the required template file. After you select the file, the selected file name is displayed in the **Template name** field. You can optionally change the name of the file. If a template with the same name exists, the import fails and an error message is displayed.
 4. Click **OK**.

Exporting a system template

You can export a system template from the template library by using the Hardware Management Console (HMC).

To export a system template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab. Select the template and click **Action > Export**. A browser-generated window opens where you can choose to save the exported file.
 3. Click the **Save file** tab and specify the file name to which the exported file must be saved.
 4. Click **OK**.

Deleting a system template

You can delete a system template from the template library by using the Hardware Management Console (HMC).

To delete a system template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **System** tab. Select the template and click **Action > Delete**.
 3. In the **Delete Template** page, click **Yes** to delete the selected template, or click **No** to close the **Delete Template** page.

Partition templates

Partition templates contain details about partition resources, such as physical adapters, virtual networks, and storage configuration. You can create client partitions from the quick-start templates that are available in the template library or from your own user-defined templates. You can use the **Deploy Partition template** wizard to create AIX®, IBM i, or Linux logical partitions.

In previous releases, partitions were associated with profiles, which stored the configuration information for that partition. It was only possible to turn on a partition after you activated the partition by choosing a profile.

With the Hardware Management Console (HMC) Version 8.1.0, Service Pack 1, or later, when you create a partition by using a template, a default profile for that partition is created automatically. The profile is based on the configuration specified in the template that was used to create the partition. After you create a partition by using a template, the template does not retain any association with the partition that you created. You need not use a template to create a new partition, however, using templates can simplify the partition creation process. Templates offer more flexibility than profiles because you can choose from the following options when you create a partition by using a template:

- **Create partition** - Creates a partition based on the template you chose, but does not turn on the partition.
- **Create and activate partition** - Creates a partition based on the template you chose and commits the resources associated with that template to the partition. Unlike the **Create partition** option, this option turns on the partition.

The quick-start partition templates included in the template library contain configurations based on common scenarios. However, you can also create user-defined templates that contain configuration settings that are specific to your environment.

Partition templates are primarily useful for creating new partitions. The process of deploying a partition by using a template includes the following tasks:

1. “Prerequisites for creating a logical partition by using a template”
2. “Viewing partition template details” (optional)
3. “Capturing a partition configuration” on page 24 (optional)
4. “Creating a logical partition by using a template” on page 33

You can also complete the following tasks by using partition templates:

- “Changing a partition template” on page 25
- “Copying a partition template” on page 31
- “Importing a partition template” on page 31

Prerequisites for creating a logical partition by using a template

Review the prerequisites before you create a logical partition by using a template.

You can create an AIX, IBM i, or Linux logical partition by using any of the partition templates from the template library. The **Create Partition from Template** wizard guides you through the procedure of creating a logical partition.

The system must be in the running state before you create a logical partition from a template on that system. You cannot create a partition from a template when the system is in the powered-off state.

You can choose only one template or system at a time. The system that you chose to deploy to, or the template name that you chose from the template library is displayed on the screen.


Viewing partition template details

Before you create a logical partition by using a template, review the details in that template. By reviewing the configuration details, you can determine whether that template suits the requirements of your environment. If you are already certain which template you want to use to create a logical partition, this task is optional.

To view the details of a partition template by using the Hardware Management Console (HMC), complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **Partition** tab and select the partition template that you want to view.
 3. Click **Action > View**. You can view the details such as the processor, memory, physical I/O adapter and the general properties of the partition. You can view the **Virtualization Capabilities** area of the general properties tab to verify whether the partition supports the simplified remote restart feature. You can also view the **Virtual Networks**, **Virtual NICs**, **Virtual Storage**, and **Hardware Virtualized I/O** details of the partition by clicking the relevant tabs that are displayed. Alternately, you can view the template details from the **Create Partition from Template** wizard.


Capturing a partition configuration

You can capture the configuration details from a running partition or from a partition that is not activated and save the configuration as a custom template. You can use this function to create multiple partitions with the same configuration. If you want to use a quick-start template, you need not complete this task.

To capture the current configuration of a running logical partition by using the Hardware Management Console (HMC), complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation pane, expand **Systems Management > Servers**.
 - b. Select the server on which the logical partition is located.
 - c. Select the logical partition. In the work pane, click **Templates > Capture Configuration as Template**. The **Capture as Partition Template** page is displayed. In the **Template name** field, specify the name of the captured template. Details about the partition configuration such as processors, memory, physical I/O adapters, and virtualized I/O adapters are displayed in the **Template Details** page. All data that is not specific to a target is captured in the appropriate fields of the partition template.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **Resources** icon .
- b. Click **All Systems**. The **All Systems** page is displayed.
- c. In the work pane, select the system on which the partition is located and click **Actions > View System Partitions**. All the partitions that are available on the system are displayed.
- d. Select the partition for which you want to capture the configuration information and click **Actions > Templates > Capture Partition as a Template**. Details about the partition configuration such as processors, memory, physical I/O adapters, and virtualized I/O adapters are displayed in the **Template Details** page. If the configuration is captured for a partition that

supports the simplified remote restart capability, the captured template displays the feature as enabled in the **Virtualization Capabilities** area of the general properties tab. All data that is not specific to a target is captured in the appropriate fields of the partition template.

2. Click **OK** to save the template.

If you chose to save the template, your custom template is now available in the template library. You can create a partition by using this template. For instructions, see “Creating a logical partition by using a template” on page 33. You can also change the configuration details of the template. For instructions, see “Changing a partition template.”


Changing a partition template

You can change the details that are specified in a user-defined or captured partition template and save the changes in a new partition template. You can also overwrite the template by saving the changes in the same template. You can use the template to create a logical partition by using the Hardware Management Console (HMC).

To change the partition template by using the HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **Partition** tab and select the partition template that you want to change.
 3. Click **Action > Edit**.
 4. To change the partition properties of the template, click the **Properties** tab. In the **Overview** area of the **General** tab, you can change the general properties such as the partition name and the type of partition. You can enable or disable partition-level features and capabilities such as Suspend/Resume, and Simplified Remote Restart, in the **Virtualization Capabilities** area of the **General** tab. You can choose one of the following three options for the value of the **Simplified Remote Restart** field:
 - When you select the value **Enabled**, the HMC validates whether the server supports the simplified remote restart capability. If the server supports the feature, the partition is created successfully during partition creation by using the **Create Partition from Template** wizard. When the server does not support the feature, creation of the partition fails and an error message is displayed.
 - When you select the value **Enable if Possible**, the HMC validates whether the server supports the simplified remote restart capability. If the server supports the feature, the partition is created successfully during partition creation by using the **Create Partition from Template** wizard. Otherwise, the **Create Partition from Template** wizard completes successfully without the simplified remote restart capability.
 - When you select the value **Disabled**, the partition is created during partition creation by using the **Create Partition from Template** wizard without the simplified remote restart capability.

In the **Advanced settings** area, you can configure, enable and disable advanced AIX, Linux, or IBM i features. You can also disable the Live Partition Mobility feature for an AIX, Linux, or IBM i partition. The **Advanced** settings that are displayed depend on the type of partition you have selected. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.

5. To change the shared processor settings of the template, click the **Processor** tab and select Shared for the **Processor Mode** field.
 - a. From the **Shared Processor Pool** field, select the shared processor pool for the partition.
 - b. Select **Capped** or **Uncapped** as the processor weight. For capped processor weight, specify a value for the weight in the **Weight** field.
 - c. In the **Virtual Processors** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields.
 - d. In the **Processing Units** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields.
 - e. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
6. To change the dedicated processor settings of the template, click the **Processor** tab and select Dedicated for the **Processor Mode** field. If you select **Dedicated** as the processor mode, the options for specifying the virtual processors, and processing units, and selecting capped or uncapped processor weight are not available.
 - a. In the **Processors** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields.
 - b. Click the **Advanced Settings** tab to change the **Processor Compatibility Mode** or enable or disable the **Dedicated Donor Mode**.
 - c. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
7. To change the shared memory settings of the template, click the **Memory** tab and select Shared for the **Memory Mode** field.
 - a. You can select MB or GB as the memory unit.
 - b. In the **Memory Allocation** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields.
 - c. Click the **Advanced Settings** tab to change the advanced memory settings for the logical partition. From the **Assigned I/O Entitled memory** list, select **Auto** or **Manual**. If the operating system environment is IBM i, you can use **Huge Page Memory**. If the operating system environment is AIX, you can also choose to use active memory expansion by selecting **Enable Active memory Expansion**.
 - d. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
8. To change the dedicated memory settings of the template, click the **Memory** tab and select Dedicated for the **Memory Mode** field.
 - a. You can select MB or GB as the memory unit.
 - b. In the **Memory Allocation** area, you can specify values for the **Maximum**, **Allocated**, and **Minimum** fields.
 - c. Click the **Advanced Settings** tab to change the advanced memory settings for the logical partition. If the operating system environment is IBM i, you can choose use **Huge Page Memory**. If the operating system environment is AIX, you can also choose to use active memory expansion by selecting **Enable Active memory Expansion**. If the processor mode is dedicated, then you can set the memory only to the dedicated mode.
 - d. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
9. To change the physical I/O settings of the template, click the **Physical I/O Adapters** tab. When you use a template with captured I/O information, the **Physical I/O Adapters** tab displays a table of the captured I/O adapter information and the descriptions of those adapters as captured from the original system. These descriptions might not display the actual adapter type to which the location codes are mapped on the target system. You cannot change the I/O adapter settings when the

captured I/O information matches that of the target system. If you do not want to use the captured information, clear the **Use captured information** check box. You can assign I/O adapters that are displayed to the partition.

10. To change the virtual network settings of the template, click the **Virtual Networks** tab in the **Details** area.
 - a. In the **Partition Virtual Networks** area, you can choose either **Choose Virtual Networks during Deployment** or **Specify Virtual Networks in this Partition Template**.
 - b. If you choose **Specify Virtual Networks in this Partition Template**, you must specify the virtual local area network (VLAN) Name and VLAN ID. To add a virtual network, click the **Add Network** tab. A row is appended to the bottom of the table with the appropriate fields. To remove a network, select a network to be deleted from the table and click **Remove Selected**.
 - c. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
11. To change the virtual Network Interface Controller (vNIC) settings of the template, click the **Virtual NICs** tab in the **Details** area.
 - a. You can edit, add or remove vNICs only when you clear the **Use Captured I/O Information** check box. To add vNICs to the template, click **Add Virtual NIC**. You can specify values for the **Port VLAN ID**, **VLAN ID restrictions**, **MAC Address**, **OS MAC Address restrictions**, **Backing Device Capacity (%)** and **Backing Device Failover Priority** fields. The default value for the **Backing Device Failover Priority** field is Use Default. To modify the default values for the backing device or to add and remove backing devices to the vNIC, select the virtual NIC and click **Action > Modify Backing Device**. You can enable or disable Virtual NIC Auto Priority Failover. To add more backing devices to the vNIC, click **Add Backing Device**. To remove a backing device, select the backing device and click **Remove**. To change the settings of a vNIC, select the vNIC that you want to change and click **Actions > Modify**. To remove a vNIC, select a vNIC to be deleted from the table and click **Actions > Remove**. If the **Use Captured I/O Information** check box is selected, you can only view the vNICs listed in the table and you cannot edit the vNICs. To view the details of a vNIC, select the vNIC and click **Actions > View**.
 - b. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
12. To change the virtual storage settings of the template, click the **Virtual Storage** tab in the **Details** area.
 - a. In the **Virtual SCSI** tab, you can configure the virtual SCSI adapters that are required for a partition activation. If you are using a captured template, the table displays all the shared storage pool volumes that are captured in the template.
 - b. In the **Shared Storage Pool Volume** area, click the **Add SSP Volume** tab to add shared storage pool volumes, or click **Remove Selected** to remove the selected shared storage volume. You must specify a shared storage pool volume in the template to add any shared storage pool volumes when you are creating the partition by using the template.
 - c. You can choose to specify the shared storage pool cluster when you are creating the partition by selecting the value **Choose at deploy** from the Shared Storage Pool Cluster Name list, or you can specify the shared storage pool and the tier.
 - d. You can also enable or disable thin provisioning for the shared storage volume pools.
 - e. In the **Physical Volumes** area, you can enable **Configure Physical Volumes**.
 - a. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
13. To change the virtual Fibre Channel settings of the template, click the **Virtual Fibre Channel** tab.
 - a. You can choose **Configure Virtual Fibre Channel storage during deployment**, **Configure Virtual Fibre Channel storage with captured information**, or **Do not configure Virtual Fibre Channel storage**. If you are using a captured template, the captured Fibre Channel Port information is also displayed.

- b. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
14. To change the virtual optical device settings of the template, click the **Virtual Optical Device** tab. You can choose to configure the virtual optical device adapter that is required for the partition activation. The table displays all the Virtual Optical Devices that are captured in the template.
 - a. Click **Add Virtual Optical Device** to add an optical device.
 - b. To delete a device, click the **Remove** tab that is displayed in the row of the optical device that you want to delete.
 - c. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.
 15. In the **Details** area, click the **Hardware Virtualized I/O** tab.
 - a. Click the **HEA** tab. You can change the operating system-level VLAN ID and MAC address restrictions for each logical Host Ethernet Adapter (LHEA) that is listed in the table. If you select the **Use Captured I/O Information** check box, you cannot add or remove any logical ports or edit the **Advanced Settings** tab. You cannot add or remove any LHEA. HEA is not supported on POWER8 processor-based systems.
 - b. Click the **SR-IOV** tab. The **Use Captured I/O Information** check box is selected by default. If you are using captured I/O information, you cannot add or remove any logical ports or edit the **Advanced Settings** tab.
 - c. If you are not using the captured I/O information by clearing the **Use Captured I/O Information** check box, you can change the properties that are specific to Ethernet logical ports. You can also specify the capacity of the logical port as a percentage of the capability of the physical port. The capacity level determines the amount of resources that are assigned to the logical port from the physical port.
 - d. To edit the settings of the logical port, select the port from the list and click the **Advanced Settings** tab. You can select values for the **OS MAC Address Restrictions** and **VLAN ID Restrictions** fields.
 - If you selected **Allow Specified** as the value for the **OS MAC Address Restrictions** field, you must specify the MAC addresses in the **Specify allowed MAC Address(es)** field. To add more MAC addresses, click the plus sign (+) and to remove MAC addresses, click the minus sign (-).
 - If you selected **Allow Specified** as the value for the **VLAN ID Restrictions** field, you must specify the VLAN ID or range of VLAN IDs in the **Specify VLAN ID(s) or range** field.
 - If you specify the value for the VLAN ID as 0, the **802.1Q Priority** priority field is disabled. However, if you specify any value in the range 2 - 4094, you can set the priority value. Priority is used to prioritize the frames in a VLAN network.
 - The **Promiscuous** option is disabled unless the logical port is used as the physical device for bridging virtual Ethernet adapters on client partitions. When the logical port is in promiscuous mode, the **VLAN ID Restrictions** and the **OS MAC Address Restrictions** fields are disabled. Click **Close**.
 - e. To add a logical port, click the **Yes** tab.
 - f. To remove a logical port, click the **Remove Selected** tab.
 - g. Click **Save As** to save the changes in a new name template. Otherwise, click **Save and Exit** to overwrite the changes in the template.

Changing a partition template to disable Live Partition Mobility


You can disable the Live Partition Mobility feature of a logical partition by changing a user-defined or captured partition template and save the changes in a new partition template by using the Hardware Management Console (HMC).

The HMC provides the **Disable Migration** option to disable the Live Partition Mobility feature at a logical partition level. This option can be used by customers to address application licensing requirements

of Independent Software Vendors (ISV). To disable the Live Partition Mobility feature for a logical partition by using the HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:

- a. In the navigation pane, click the **HMC Management** icon .
- b. Click **Templates and OS Images**, or click **Template Library**.

2.

3. Click the **Partition** tab and select the partition template that you want to change.

4. Click **Action > Edit**.

5. To change the partition properties of the template, click the **Properties > Advanced settings** tab.

6. Select the **Disable Migration** check box.

7. Click **Save and Exit** to save the changes in the same template, or select **Save As** to save the changes in a new template.

Some Independent Software Vendors might require you to purchase a license for all systems where their application can be migrated. Rather than disabling the Live Partition Mobility feature at a system level, IBM provides this logical partition level mechanism that can be audited, to disable migration to address ISV licensing requirements while preserving the ability to leverage migration for applications running on other logical partitions on the system.

Note: IBM software does not stipulate such licensing requirements.

The **Disable Migration** option is supported on all firmware versions, and when the system is managed by an HMC that is at version 8.4.0, or later. Also, you can run the **chsyscfg** command with a value 1 for the *migration_disabled* attribute, from the HMC command line. To disable the Live Partition Mobility feature of a logical partition during partition creation, run the **mksyscfg** command with a value 1 for the *migration_disabled* attribute, from the HMC command line. The **Disable Migration** option is also supported by the Representational State Transfer (REST) application programming interfaces (APIs).

Note: PowerVM NovaLink supports the **Disable Migration** option when the system is co-managed by an HMC. However PowerVM NovaLink does not provide an option to disable Live Partition Mobility feature.

Viewing system event logs for the Live Partition Mobility disable operation

Any changes that are made to the **Disable Migration** option provided by the Hardware Management Console (HMC) is logged as a system event, and can be checked for auditing purposes. A system event is also logged when the remote restart or simplified remote restart capability is set. The system event logs are read only and cannot be modified.

A system event is logged when the following actions occur:

- The remote restart, simplified remote restart, or Live Partition Mobility attributes are set during creation of a logical partition.
- The remote restart, simplified remote restart, or Live Partition Mobility attributes are changed.
- When you restore profile data. For more information about restoring profile data, see Restoring profile data.

You can view the system events by running the **lssvcevents** command from the HMC command-line interface. You can also view the system events by using the graphical user interface (GUI). For more information about using the GUI, see View HMC Events. By running the **chhmc** command from the HMC command-line interface, these system events can also be sent to a remote server that is on the same network as the HMC.

The following system events can be logged:

Table 1. Event ID and the corresponding message string

Event ID	Event message String
2420	User name {0}: Disabled partition migration for partition {1} with ID {2} on managed system {3} with MTMS{4}
2421	User name {0}: Enabled partition migration for partition {1} with ID {2} on managed system {3} with MTMS{4}
2422	User name {0}: Disabled Simplified Remote Restart for partition {1} with ID {2} on managed system {3} with MTMS{4}
2423	User name {0}: Enabled Simplified Remote Restart for partition {1} with ID {2} on managed system {3} with MTMS{4}
2424	User name {0}: Disabled Remote Restart for partition {1} with ID {2} on managed system {3} with MTMS{4}
2425	User name {0}: Enabled Remote Restart for partition {1} with ID {2} on managed system {3} with MTMS{4}

The following are examples of System Events:

- Command to check which logical partitions managed by an HMC have the Live Partition Mobility feature disabled or enabled:

```
lssvcevents -t console | grep vclient
```

The following examples show a sample output of the **lssvcevents** command:

```
time=10/30/2015 10:11:32,text=HSCE2521 UserName hscroot: Enabled partition migration for partition vclient10 with Id 10 on Managed system ct05 with MTMS 8205-E6D*1234567.
```

```
time=10/30/2015 10:01:35,text=HSCE2520 UserName hscroot: Disabled partition migration for partition vclient9 with Id 9 on Managed system ct05 with MTMS 8205-E6D*1234567.
```

- Command to check which logical partitions managed by an HMC have the Live Partition Mobility feature disabled:

```
lssvcevents -t console | grep HSCE2520
```

The following example shows a sample output of the **lssvcevents** command:

```
time=10/30/2015 10:01:35,text=HSCE2520 UserName hscroot: Disabled partition migration for partition vclient9 with Id 9 on Managed system ct05 with MTMS 8205-E6D*1234567.
```

- Command to check which logical partitions managed by an HMC have the Live Partition Mobility feature disabled or enabled for a particular system (1234567):

```
lssvcevents -t console | grep "partition migration for partition" | grep 1234567
```

The following examples show a sample output of the **lssvcevents** command:

```
time=10/30/2015 10:11:32,text=HSCE2521 UserName hscroot: Enabled partition migration for partition vclient10 with Id 10 on Managed system ct05 with MTMS 8205-E6D*1234567.
```

```
time=10/30/2015 10:01:35,text=HSCE2520 UserName hscroot: Disabled partition migration for partition vclient9 with Id 9 on Managed system ct05 with MTMS 8205-E6D*1234567.
```

- Command to check whether a specific logical partition (vclient9) in a specific system (1234567) managed by an HMC has the Live Partition Mobility feature disabled or enabled:

```
lssvcevents -t console | grep "partition migration for partition vclient9" | grep 1234567
```

The following example shows a sample output of the **lssvcevents** command:

Copying a partition template

You can copy a quick-start or captured partition template into a new partition template along with the configuration details that are specified in the template by using the Hardware Management Console (HMC).

To copy a partition template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **Partition** tab and select the partition template that you want to copy and click **Action > Copy**.
 3. In the **Copy Partition Template** page, specify the name for the template in the **Template name** field. If a template with that name exists, the copy fails and an error message is displayed.
 4. Click **OK**.

Importing a partition template

You can import a partition template into the template library by using the Hardware Management Console (HMC).

To import a partition template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
- If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **Partition** tab and click **Import**. The following restrictions apply when you import a partition template:
 - If the partition template schema is different from the schema that is supported by the HMC, for example if a tag is used which is not a part of the template OpenDocument Spreadsheets (ODS) file element, the template cannot be imported and the operation fails.
 - If the template file size exceeds 10 MB, the template cannot be imported and the operation fails.

3. In the **Import Partition Template** page, click **Browse** to navigate to the required template file. After you select the file, the selected file name is displayed in the **Template name** field. You can optionally change the name of the file. If a template with that name exists, the import fails and an error message is displayed.
4. Click **OK**.


Exporting a partition template

You can export a partition template from the template library by using the Hardware Management Console (HMC).

To export a partition template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:



- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **Partition** tab. Select the template and click **Action > Export**. A browser-generated window opens where you can choose to save the exported file.
 3. Click **Save file** tab and specify the name of the file.
 4. Click **OK**.


Deleting a partition template

You can delete a partition template from the template library by using the Hardware Management Console (HMC).

To delete a partition template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. Select a server and click **Templates > Template Library**.
 - If you are using an HMC Enhanced+ interface, complete the following steps:




- a. In the navigation pane, click the **HMC Management** icon .
 - b. Click **Templates and OS Images**, or click **Template Library**.
2. Click the **Partition** tab. Select the template and click **Action > Delete**.
 3. In the **Delete Template** page, click **Yes** to delete the selected template. Otherwise click **No** to close the **Delete Template** page.

Creating a logical partition by using a template

You can create a partition by using partition templates that are available in the template library of the Hardware Management Console (HMC). The Create a Partition from Template wizard guides you through the deployment process and configuration steps.

The HMC checks whether the template that you selected matches the system capabilities when you click **Next**. If the template does not match the system capabilities, an error message is displayed. You can choose another template that matches the capabilities, or edit the template and use the changed template for creating the logical partition.

To create a partition by using the partition template, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
 - If you are using an HMC Enhanced interface, complete the following steps:
 - a. In the navigation pane, expand **Systems Management > Servers**.
 - b. Select the server on which you want to create the logical partition and complete one of the following actions:
 - Click **Templates > Create Partition from Template** to start the wizard. In the work pane, select a template from the list of templates and click **Next**.
 - Click **Templates > Template Library** to start the wizard. Click the **Partition** tab. Select a template from the list and right-click **Deploy**. You can also view the details of the template by clicking the template.
 - If you are using an HMC Enhanced+ interface, complete the following steps:
 - a. In the navigation pane, click the **Resources** icon  .
 - b. Click **All Systems**. The **All Systems** page is displayed.
 - c. In the work pane, select the system and click **Actions > View System Properties**. The **Properties** page is displayed.
 - d. Expand **System Actions > Templates > Create Partition from Template**. Alternatively, you can create a partition by accessing the template library.
2. Click **Next**. If the selected template is compatible with the target system, the **Partition Configuration Summary** page is displayed. For servers that do not support IBM i partitions with native I/O capability, you must enable IBM i restricted I/O mode by selecting the **Restricted I/O Partition** check box. If you continue with the partition creation without selecting the **Restricted I/O Partition** check box, a warning message is displayed. You must run the wizard again and select the **Restricted I/O Partition** check box to continue with the partition creation.
3. In the **Partition Configuration Summary** page, you can change the default partition name. For AIX or Linux partitions, you can also select the **Shared Processor Pool** option if the partition template specifies that the partition uses shared processors. For IBM i logical partitions, the **IBM i Tagged I/O** tab is displayed (for more information on **IBM i Tagged I/O** tab, see step 8). Click **Template Details** to view the details of the template. Click **Next**.

Note: If the template has details related to the virtualization capabilities like Live Partition Mobility, you can view the details by clicking **Template Details**.

4. Click the **Physical I/O** page. If the I/O configuration of the system does not match the I/O configuration that is captured in the selected template, the create partition operation fails.
 - a. In the **Physical I/O Adapters** area, you can select the physical I/O adapters for the logical partition. To view the adapters that are available in other drawers of the system, select the drawer from the **View adapters in** list.

- b. In the **Logical SR-IOV Ethernet Adapters** area, you can assign the SR-IOV logical ports that are displayed to the logical partition.
- 5. If you had specified the networks in the template before creating the partition, the **Network Configuration** page displays a summary of the virtual networks to which the partition will be connected. The page displays a list of available networks if you had not specified the networks before creating the partition. In both cases, you can specify the virtual Ethernet adapter ID. Click **Next**.
- 6. In the **Virtual NIC Configuration** page, the table displays all the virtual Network Interface Controllers (vNICs) that are in the template. When the template uses captured I/O information, you can change the value of the **Hosting Partition** field and select a physical port that matches the hosting partition. When the template does not use captured I/O information, you can change the value of the **Capacity (%)**, **Physical Port**, **Hosting Partition**, and **Failover Priority** fields for each backing device. The number of physical ports must be equal to or greater than the number of backing devices of the vNICs that are specified in the template, because each backing device of a vNIC must be created on a different physical port. You can also specify values for the **MAC Address** field depending on the template settings. Click **Next**.
- 7. In the **Storage Configuration** page, complete the following steps:

Note: You can configure storage resources such as virtual Small Computer Serial Interface (SCSI), virtual Fibre Channel, and virtual Optical devices. When using virtual adapters, you can connect logical partitions with each other without using physical hardware. Operating systems can display, configure, and use virtual adapters similar to how it can display, configure, and use physical adapters. Depending on the operating environment used by the logical partition, you can create virtual Ethernet adapters, virtual Fibre Channel adapters, virtual Optical devices, and virtual SCSI adapters. You can use virtual SCSI (vSCSI) to simplify the backup and maintenance operations on your managed system. When you back up the data on the system logical partition, you also back up the data on each client logical partition. You can configure the managed system with N_Port ID Virtualization (NPIV), such that multiple logical partitions can access independent physical storage through the same physical Fibre Channel adapter. NPIV is a standard technology for Fibre Channel networks. NPIV enables you to connect multiple logical partitions to one physical port of a physical Fibre Channel adapter.

- a. Click **Virtual SCSI**.
- b. In the **Physical Volume** area, you can assign physical volumes. Click **Edit Connections** to edit the Virtual I/O Server (VIOS) connections for the physical volumes. Click **Show assigned physical volumes** to view more physical volumes in the table.
- c. In the **Shared Storage Pool Volumes** area, you can select the shared storage pool cluster and the tier that you want to assign the device to. You can also enable or disable thin provisioning for the device. In a thin-provisioned device, the used storage space might be greater than the actual used storage space. If the blocks of storage space in a thin-provisioned device are unused, the device is not entirely backed up by physical pool storage space. By using thin-provisioning, you can exceed the storage capacity of the storage pool.
- d. Click **Virtual Fibre Channel**. The **Virtual Fibre Channel** content area displays a table with the available Virtual Fibre Channel ports to which the partition can connect. You can select the Virtual Fibre Channel port from the displayed list of ports.
- e. Click **Virtual Optical Devices**. The **Virtual Optical Devices** content area displays the devices that are specified in the template. You can optionally change the VIOS on which the device will be created.
- f. Click **Next**.
- 8. For IBM i logical partitions, the **IBM i Tagged I/O** page is displayed. Select values for the **Load Source**, **Alternate Restart Device**, **Console**, **Alternate Console**, and **Operations Console** fields.
- 9. In the **Summary page** page, you can view a summary of the changes. Select one of the following options:

- **Activate partition** - Creates the client partition with the resources you have selected in this wizard and activates the partition.
- **Create partition and Apply Configuration** - Creates the partition with resources you have selected in this wizard.

10. Click **Finish**.

Note: The deploy operation fails and a partition is not created, if the system does not match all the configuration including the I/O adapter configuration that is provided by the selected template. If the virtual network or virtual storage mapping fails, the partition is created and a message is displayed that indicates that the partition was created with errors. The created partition cannot be rolled back. You must manually delete the partition or go to the **Manage PowerVM** functionality available in the HMC to assign the network or storage to the created partition.

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Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully.

Overview

The IBM Power Systems servers include the following major accessibility features:

- Keyboard-only operation
- Operations that use a screen reader

The IBM Power Systems servers use the latest W3C Standard, WAI-ARIA 1.0 (www.w3.org/TR/wai-aria/), to ensure compliance with US Section 508 (www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards) and Web Content Accessibility Guidelines (WCAG) 2.0 (www.w3.org/TR/WCAG20/). To take advantage of accessibility features, use the latest release of your screen reader and the latest web browser that is supported by the IBM Power Systems servers.

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Keyboard navigation

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Programming interface information

This Setting up the virtualization environment publication documents intended Programming Interfaces that allow the customer to write programs to obtain the services of IBM AIX Version 7.2, IBM AIX Version 7.1, IBM AIX Version 6.1, IBM i 7.3, and IBM Virtual I/O Server Version 2.2.5.0.

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