

Power Systems

*Setting up the virtualization  
environment*

**IBM**



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environment*

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**Note**

Before using this information and the product it supports, read the information in "Notices" on page 29.

This edition applies to the IBM Hardware Management Console version 7.80, and to all subsequent releases and modifications until otherwise indicated in new editions.

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## Introduction to system and partition templates

A template is a file that specifies the configuration details for a server or a logical partition. You can use templates to configure one or many servers or create one or many partitions. You can use any template once or many times.

The following are the benefits of using templates:

- Templates help reduce the time taken to set up and configure the server or logical partition. You can use the template that was modified to meet the needs of your environment, to deploy more servers or logical partitions. The same template can be reused multiple times, thereby reducing the time taken to deploy multiple servers or partitions.
- Templates reduce the complexity and make the installation and management of servers easier. You do not have to manually run all the configuration steps, each time you want to set up a server or a logical partition.
- The predefined templates specify the best practices in configuration and you can use these templates to ensure the integrity and viability of your environment.

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## Template functions

You can use a system template to deploy a server and Virtual I/O Server (VIOS) while you can use a partition template to create a logical partition. When you set up your environment, you can choose to use a predefined template or a custom template.

Predefined templates contain best practice configuration details and virtual environment settings of the server or the logical partition. If none of the predefined templates meet your needs, you can create a custom template that contains configuration details specific to your environment. Or, you can capture the configuration details of a running server or partition and copy the details into a system or partition template.

All templates reside in the template library. Refer to “The template library” on page 3 for more information about the library.

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## PDF file for Setting up the virtualization environment

You can view and print a PDF file of setting up the virtualization environment information.

### Setting up the virtualization environment PDF

The Setting up the virtualization environment topic provides information about using templates to create logical partitions and deploy servers by using the Hardware Management Console (HMC).

Setting up the virtualization environment (approximately 2 MB)

### Saving PDF files

Large PDF files can be difficult to open online. For best results, save the PDF file to your local drive for viewing or printing. Follow these steps:

1. Right-click the PDF link in your browser.
2. Click the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF file.
4. Click **Save**.

## Downloading Adobe Reader

You need Adobe Reader installed on your system to view or print these PDF files. You can download a free copy from the Adobe Reader website.



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## The template library

The template library, which is accessible from the Hardware Management Console (HMC), contains system and partition templates. You can import, deploy, copy, delete, view, or modify system and partition templates from within the template library.

By default, the template library includes predefined system and partition templates. Predefined templates contain best practice configuration details based on common environment scenarios. These templates are available for you to use immediately; however, you can also modify the predefined templates to fit your needs. The template library also stores any custom templates that you define including any templates that you create by capturing the configuration of an existing system or currently running partition.

You can view details and change the configurations of templates in the template library. You can also import templates into the library.

Refer to “Accessing the template library” for instructions.

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## Accessing the template library

The template library contains system and partition templates that help you set up and configure a server or to create a logical partition.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**. You can also
3. Select **System** to view the existing server templates, or **Partition** to view the existing partition templates.
4. You can select a template from the list of templates that are displayed.

You can view, modify, deploy, copy, export, or delete templates that are available in the template library. You can also import a template into the template library.



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## System templates

System templates contain configuration details for system resources like system I/O, memory, storage, processors, network, and physical I/O adapters. Information Technology Architects and System Administrators can deploy and manage systems with the predefined templates that are available in the template library or by creating their own custom templates.

The predefined system templates included in the template library enable you to rapidly deploy a server with best practice configurations. However, you can also create custom templates that contain configuration settings that are specific to your environment.

To assist you in setting up the systems in your environment, many of the tasks that you previously completed manually are now available from the Hardware Management Console (HMC). For example, you can configure the I/O adapter, system, VIOS installation, VIOS network bridge, and VIOS virtual storage settings from the **Deploy System from Template** wizard. Similarly, if you need to set up multiple systems with the same configuration, you can capture an existing system configuration as a custom template. In addition, you can modify many of the system settings by changing the system template from within the template library.

System templates are primarily useful for deploying new systems. The process for deploying new systems includes the following tasks:

- “Planning to deploy a system template”
- “Viewing system template configuration details” on page 6 (optional)
- “Capturing a system configuration” on page 7 (optional)
- “Deploying a system template” on page 7

You can also complete the following tasks with system templates:

- “Changing a system template” on page 10 including changing many of the system settings
- “Copying a system template” on page 15
- “Importing a system template” on page 15

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## Planning to deploy a system template

This topic contains information you should review before you deploy a system template.

You can deploy a system from any of the system templates in the template library. The **Deploy System from Template** wizard guides you through the procedure of deploying a system template. The wizard performs the server set up by completing the following stages:

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

A server can be in one of the three states prior to deploying a system template. Before you deploy a system template, review the following list to see the possible server states and the impact of continuing with the deployment when the server is in one of these states:

- The server is in the manufacturing default configuration. When the server is in this state prior to deploy, you see a normal confirmation message.

- The server is not in the manufacturing default configuration, but there are no partitions. When the server is in this state prior to deploy, you see a normal confirmation message.
- The server is not in the manufacturing default configuration, and there are no partitions. When the server is in this state prior to deploy, you see a more prominent confirmation message.

## Factory reset mode

The factory reset mode or manufacturing default configuration is the initial single partition setup of the managed system as received from your service provider.


You can use the Hardware Management Console (HMC) to erase all of your logical partitions and reset the server to a nonpartitioned configuration. You can use the server as if it were a single, nonpartitioned server.

**Attention:** By resetting a partitioned managed system to a nonpartitioned configuration, you will lose all of your logical partition configuration data.

When the deployment of a system template fails, you must exit the **Deploy System Template** wizard and restart the deployment. Also, you cannot run the **Deploy System Template** wizard on an already configured server. In such scenarios, you must reset the server to a nonpartitioned configuration and restart the deployment process. Additionally you must run the **rstprofdata** command from the HMC command line, before restarting the **Deploy System Template** wizard. Specify a value of 4 for the *restore type* parameter. The **rstprofdata** command removes the data disk, but leaves the boot disk intact.

Before you reset the server, ensure that the hardware placement in the server supports a nonpartitioned configuration. If the hardware placement in the server does not support a nonpartitioned configuration, you must move the hardware so that the hardware placement supports a nonpartitioned configuration. For more information about how to place the hardware in your server to support a nonpartitioned configuration, contact your sales representative or IBM Business Partner.

### Related information:

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

 [rstprofdata](#)

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## Viewing system template configuration details

Before you use a system template to set up your environment, you might want to review the configuration details in that template. By reviewing the configuration details, you can determine whether that template meets the needs of your environment. You can also consider whether the template you choose fulfills the requirements of your server, such as the required memory, storage, network, or available adapters. If you are already certain which template you want to use to deploy a system, this task is optional.

Refer to the following instructions to use the Hardware Management Console (HMC) to view the configuration details of a system template.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to view and click **View**. You can view the details of **Physical I/O**, **Host Ethernet Adapter**, **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 on the left.
4. Click **Close** to close the template.

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## Capturing a system configuration

You can capture the configuration details of a running server and save the information as a custom system template by using the Hardware Management Console (HMC). This function is useful if you want to deploy multiple servers with the same configuration. If you want to use a predefined template, you do not need to complete this task.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select the server whose configuration you want to copy.
3. You can perform one of the following actions:
  - To capture the system configuration along with the physical I/O details, click **Capture Configuration as Template > with Physical I/O**.

**Note:** You cannot change the captured physical I/O configuration during deployment. You must use this option when you want to deploy the template on a system with the same hardware I/O configuration.

- To capture the system configuration without any physical I/O details, click **Capture Configuration as Template > without Physical I/O**.

Details of the server configuration like Virtual I/O Servers (VIOS), Virtual Networks, Virtual Storage, among other details are displayed in the **Template Details** page. All non-target specific data is populated in the appropriate fields of the system template.

4. In the **Capture as System Template** page, specify the name for the template file in the **Template name** and click **OK** to save the captured template. Click **Cancel** if you want to cancel the operation.

If you chose to save the template, your custom template is now available in the template library. You can deploy a system from this template with the instructions in “Deploying a system template.” Or you can modify any aspect of the template with the instructions in “Changing a system template” on page 10.

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## Deploying 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 through the deployment process and configuration steps. You can deploy a system that includes physical I/O or VIOS, or you can omit configuring physical I/O and VIOS during the deployment process.

When you deploy a system from a template, the HMC checks whether the configuration specified in the chosen template matches the system capabilities. When there is a mismatch, an error message is displayed. You can either choose a different template that meets the system capabilities, or you can modify the template that you chose to meet the required system capabilities.

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

**Note:** At any point during the deployment, you can view the details of the template by clicking **Template Details**.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Tasks > Deploy System from Template**. Alternatively, you can also select a server and click **Tasks > Templates > Template Library**. Select **System** and click on a template from the list. Click **Deploy**.
3. In the work pane, select a system template from the list of templates and click **Next**.
4. If the chosen template is compatible to the target system, a **VIOS Configuration Summary** page is displayed. You can optionally change the VIOS name. Click **Next**.

**Note:** If you are using a captured system template, clicking **Next** prompts the HMC to map the generic location codes from the captured template to the real adapter location codes on the target system. The adapter descriptions are from the captured system, and might not reflect the adapters that are found on the target system after the mapping of the generic location codes.

Also, you do not assign adapters to the VIOS, the adapter table lists the assignment that was captured. When you are using a non-captured system or predefined template, clicking **Next** prompts the HMC to poll the target system and produce a list of adapters that are available to assign to a VIOS.

**Note:** If the template that you use for deployment does not contain any VIOS, the wizard displays only the **Configuration Summary**, and the **System Configuration Progress** pages. The **Configuration Summary** page displays the **System Settings**, **Host Ethernet Adapter**, and **Shared Processor Pools** content areas. Each of these content areas displays read-only information about those 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.

**Note:** If PowerVM is already configured on the system including a factory default full system partition, a message is displayed that asks whether you want to continue deploying the system, or exit the wizard.

5. In the **I/O Adapter Configuration** page, complete the following steps:
  - a. In the **Physical I/O Adapter** area, you can select the **Physical I/O Adapters** that are to be assigned to each VIOS that is going to be created. You can view the adapters that are available in other drawers of the server by selecting the drawer from the **View adapters** inlist.

**Note:** The HMC communicates with the target system and provides a list of physical I/O adapters that are available for assigning to a VIOS. You can assign each adapter to a single VIOS, but it is not required that all of the adapters must be assigned.

- b. In the **Host Ethernet Adapter** area, you can select the **Host Ethernet Adapter** for each of the VIOS that is going to be created. You can also select between and mode for the adapters. You can either assign a physical port in **Dedicated** mode to a single VIOS, or assign a physical port that is configured in **Shared** mode to as many VIOS as allowed by the multi-core Scaling (MCS) value of the port group. Click **Next**.

**Note:** The Host Ethernet Adapters contain port-level information. You can either assign a physical port in the dedicated mode to a single VIOS, or assign a physical port that is configured in the shared mode to as many VIOSs as allowed by the multi-core scaling (MCS) value of the port group. A Host Ethernet Adapter (HEA) is a physical Ethernet adapter that is integrated directly into the GX+ bus on a managed system. Host Ethernet Adapters offer high throughput, low latency, and virtualization support for Ethernet connections. After you have assigned the physical I/O to the VIOS, the VIOS partitions are created.

6. 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 displays the success of the configuration is displayed upon completion. When the system update is successful and the VIOS partition is created, you can install the VIOS software. Click **Next** to install the VIOS software.

**Note:** This process might take some time, especially when a restart of the system is required.

7. In the **VIOS Installation Configuration** page, you can modify the values of the **Installation Method** field. You can also modify the configuration values of the VIOS partitions that are listed. By clicking **Advanced Settings**, you can modify adapter speed, adapter duplex, VLAN tag priority, and the VLAN tag identifier default settings. The **Next** tab is enabled only when Remote Monitoring and Control (RMC) connections are successfully established for all VIOS. Click **Next**.

**Note:** You can choose to install the VIOS from a NIM server, a management console image, or a manual console session. When installing from a NIM server, you must specify the server IP address.

When you choose to install from an image repository, you must specify the HMC IP address and the VIOS image name. When you choose to install 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 (a MAC address is displayed in the case of a NIM image) and the VIOS IP address, subnet mask, and default gateway. You can optionally modify the adapter speed, adapter duplex, VLAN tag priority, and VLAN tag identifier default settings by clicking **Advanced Settings**. You can do these actions for each of the listed VIOS.

8. In the **VIOS Installation Progress** page, when you click **Start**, you can view the progress of the VIOS installation and a message that displays the success of the configuration is displayed upon completion. Click **Next**.

The VIOS installation involves five steps and you see the following messages for each of them:

- Getting location codes
- Ping test
- Netboot proceeding
- Starting installation
- Success

You can monitor the VIOS installation status by clicking the **Monitor vterm** link. A separate window opens for each of the VIOS. For a NIM server or manual console session, the installation is done in parallel, and for a management console image, the installation is serial. The installation process takes a while to complete.

9. In the **VIOS Network Bridge Configuration** page, you can modify 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 VIOSs.

In the **NetBridge** area of the **Network Configuration** page of the wizard, you can view a table that contains the available network adapters and ports that are assigned to the installed VIOS. Each VIOS that is installed and that is associated with a Network Bridge in the template has its own 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 select to create a Link Aggregation Device from the ports that are selected on a VIOS. A link aggregation, or EtherChannel device, is a network port-aggregation technology that allows several Ethernet adapters to be aggregated. The adapters that are aggregated can then act as a single Ethernet device. Link aggregation helps provide more throughput over a single IP address than would be possible with a single Ethernet adapter. When you are using a captured template for the deployment, the ports and **Create Link Aggregation Device** might already be selected.

10. In the **VIOS Virtual Storage Configuration** page, you can modify the values of the **Shared Storage Pool** of the listed VIOS partitions, the **Reserved Storage Device Pool**, and the **Media Repository Volume Groups**. Click **Next**.

**Note:** You can assign a VIOS to a shared storage pool cluster or choose to assign it later. A shared storage pool cluster provides distributed storage access to the VIOS partitions in the cluster. You can choose to configure a reserved storage device pool or omit the procedure. A reserved storage device pool has reserved storage devices that are called paging space devices and is similar to a shared memory pool of memory size 0 bytes. When you choose to configure a reserved storage pool, the wizard page displays two tables, one for each paging VIOS. Each table lists the available Reserved Storage Devices by Location Code, UDID, Device Name, and size in gigabytes. You can select from these available devices to create the Reserved Storage Device Pool. You must choose which VIOS should be the first and second paging VIOS by selecting from the provided list A paging VIOS is a VIOS partition that is assigned to the shared memory pool 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 choose to configure a Media Repository or omit the procedure.

11. 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 displays the success of the installation.
12. In the **Summary page**, you can view a summary of the changes that were made. Click **Finish**.

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

Your server is now fully deployed based on the configuration settings that were specified in the template.

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## Changing a system template

You can modify the details specified in a predefined, captured, or customized 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 quickly deploy other servers by using the Hardware Management Console (HMC).

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**. The **Template Description** page opens.
4. In the **Template Description** page, you can see the details of the system configuration like the number of VIOS, virtualization details like networking, memory, processor, and storage. You can click on a tab displayed on the left that you want to modify.
5. To change the Physical I/O settings, click the **Physical I/O** tab. You can modify details for the physical I/O adapters. Click the **Use Captured I/O Information** check box when you want to use the captured physical I/O information. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.
6. To change the Host Ethernet Adapter settings, click the **Host Ethernet Adapter** tab to modify the **HEA Port Group Settings** and the **HEA Physical Port Settings**. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes. The Host Ethernet Adapter tab contains general adapter-level settings that are applied to all discovered physical Host Ethernet Adapter ports and Host Ethernet Adapter port groups during deployment.
7. To change the Virtual I/O Server (VIOS) settings, click the **Virtual I/O Servers** tab. Select the VIOS whose details you want to modify and right click. You can also delete the selected VIOS or add a VIOS by clicking **Add VIOS**. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.
8. To change the virtual network settings, click the **Virtual Networks** tab. You can modify details for a specific virtual network, virtual switch, or network bridge details by selecting the appropriate table row and right click. You can also delete a network, switch, or network bridge. You can also add a virtual network by clicking **Add Virtual Network**. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.
9. To change the virtual storage settings, click the **Virtual Storage** tab. You can modify details for **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. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.



10. 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. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.
11. To change the shared memory pool and reserved storage pool settings, click the **Shared Memory Pool and Reserved Storage Pool** tab. You can modify details for a shared memory pool like the size and maximum Pool size. You can also specify whether Active Memory Deduplication must be enabled. You can also modify the settings of the Reserved Storage Device Pool. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.
12. To change the advanced system settings, click the **Advanced System Settings** tab. You can modify details for the **Power On/Off Configuration**, and the **Memory and performance Configuration**. Click **Save** to save the changes in the same template, or select **Save As** to save the changes in a new template. Click **Close** to exit without making any changes.

## Changing system settings

You can change the system settings that are specified in a predefined or captured system template and overwrite the template, or save the changes in a new template by using the Hardware Management Console (HMC).

You can use the template that you deployed the system with and use the template with the system modifications that are required in your new server. You can change the system performance and Power On and Power Off policies for the servers. This helps reduce the time taken to deploy multiple servers.

## Changing system performance settings

You can achieve the best possible services for your business by changing your server performance settings so that the server is efficiently using resources. Effective performance management can help you quickly respond to changes in your server 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. Click the **Advanced System Settings** tab.
  - a. In the **Memory and Performance Configuration** area, you can specify the **Logical Memory Block (LMB)** size.
  - b. Specify the value for the **Huge Page Count**.
  - c. Specify the value for the **BSR Array Size** from the list.
  - d. Select to enable or disable **BSR Array Count**.
6. Click **Save** when you want to overwrite the changes that are 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 either 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 server with the modified power policy settings.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. Click the **Advanced System Settings** tab.
  - a. In the **Power On/Off Configuration** area, select the **Server Firmware Start Policy** from the list.
  - b. Select the **System Power Off Policy** from the list.
  - c. Select the **Power On Speed** from the list.
  - d. Select to enable or disable **Auto Power Restart**.
6. Click **Save** when you want to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

## 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. Click the **Virtual I/O Servers** tab.
6. Right click in the VIOS row that you want to modify.
7. You can change the name of the VIOS.
8. If you want to add a VIOS, click the **Add VIOS** tab.
9. Click **Save** when you want 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 either overwrite the template or save the changes in a new template by using the Hardware Management Console (HMC). You can modify the virtual switches, or the properties of the network bridge, or you can add or remove virtual networks.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. In the **Virtual Networks** area, right click in the virtual network row that you want to modify.
6. You can change virtual network name, and the **Load Balance Group**. You can also delete the virtual network.
7. In the **Virtual Switches** area, right click in the virtual network row that you want to modify.

8. You can change virtual switch name and specify whether the switching mode is Virtual Ethernet Bridging (VEB) or Virtual Ethernet Port Aggregator (VEPA).
9. In the **Network Bridges** area, right click in the network bridge row that you want to modify.
10. You can change network bridge name, specify whether failover and load balancing is enabled, and specify the VIOS that are associated with the network bridge.
11. In the **Advanced Settings** area, you can specify the Quality of Service (QoS) Priority, and enable **Jumbo Frame**, and **Large Send**.
12. Click **OK**.
13. If you want to add a virtual network, click the **Add Virtual Network** tab.
14. Click **Save** when you want 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. In the **Virtual Shared Storage Pool Clusters** area, select the shared storage pool cluster that you want to assign to the VIOS from the list. Alternatively, you can select **Choose at Deploy**. You can do this task for all the VIOS 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.
  - a. Specify the name for the media repository in the **Media Repository Name** field.
  - b. Specify the size in percentage values in the **Media Repository Size** field. The unit of measurement can be GB or MB.
7. Click **Save** when you want to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

## Changing system I/O settings

You can change the system I/O settings of a server by modifying a predefined or captured system template by using the Hardware Management Console (HMC). This modified template is used to deploy the server.

You can change the Host Ethernet Adapter (HEA) settings.

### Changing Host Ethernet Adapter settings

You can change the Host Ethernet Adapter (HEA) 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 modify the HEA port group settings and physical port settings.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.

3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. In the **HEA Port Group Settings** area, select a value for the **MCS Value** field from the list. You can do this task for each port group that is listed.
6. In the **HEA Physical Port Settings** area, for each of the ports that are listed, you can set the speed, specify whether full duplex or half duplex mode be used, enable or disable flow control, and specify the maximum receiving packet size.
7. Click **Save** when you want 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 present on any Host Ethernet Adapter on the target system has a Port Group MCS Value of "2" and make the appropriate number of logical ports available. Similarly, the four physical port settings available applies to each physical port on all the HEAs discovered during deployment.

## 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 server with the modified shared processor pool settings.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.
5. You can specify a name for the pool in the **Pool Name** field. You can specify the reserved and maximum processing units that must be assigned to each processor pool.

**Note:** You cannot rename the Default Pool.

6. You can click **Add Another** when you want to append a new table row to the bottom of the table.
7. Click **Save** when you want 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 settings

You can change the shared memory pool and reserved 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). This template can be used to deploy a server with the modified shared memory pool and reserved storage settings.

To change the shared memory pool and reserved storage settings of a template, complete the following steps:

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to modify and right click and select **View/Modify**.
4. In the **Template Description** page, you can see the details of the system configuration.

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. You can specify a value for the maximum pool size in the **Maximum Pool Size** field in GB or MB.
7. You can specify whether to enable or disable Active memory Deduplication by selecting the appropriate value for the **Active memory Deduplication** field from the list.
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** when you want to overwrite the changes that are made in the template, or click **Save As** to save the changes in a new template.

---

## Copying a system template

You can copy a predefined 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and select the system template that you want to copy and click **Copy**.
4. In the **Copy System Template** page, specify the name for the template in the **Template name** field.
5. 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab and click **Import**.
4. 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.
5. 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab. Select the template and click **Export**. A browser-generated window opens where you can choose to save the exported file.
4. Click **Save file** tab and specify the file name the exported file must be saved to.
5. 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **System** tab. Select the template and click **Delete**.
4. In the **Delete Template** page, click **Yes** to delete the selected template, or click **No** to close the **Delete Template** page.

---

## Example: Changing and deploying system a template

You can view an example of how to modify a template to meet your system requirements and use the modified template to deploy a system.

### Changing the system template

The following steps show you how to modify a captured or predefined system template.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select Server 1 and click **Templates > Template Library**.
3. Click the **System** tab and select the system template by the name Captured and click **Edit**.
4. In the **Template Description** page, you can view the template name and the description of the template that you selected. Specify Template A in the **Template Name** field. Click **Save As** to save the template in the template library.
5. Click the **Physical I/O** tab. Click **Use Captured I/O Information** so that you can use the captured physical I/O information. Click **Save**.
6. Click the **Host Ethernet Adapter** tab. In the **HEA Port Group Settings** area, select a value of 2 from the **MCS Value** list for port 1, and a value of 8 for port 2. In the **HEA Physical Port Settings** area, select **Auto** as the speed setting, **Auto** as the Duplex setting, **True** for the flow control and 1500 for the maximum packet receiving size fields. Click **Save**.
7. Click the **Virtual I/O Servers** tab. Specify VIOS 2 as the name for the Virtual I/O Server (VIOS). Click the **Add VIOS** tab. Complete the following steps to add a VIOS:
  - Specify VIOS 3 in the **VIOS Name** field.
  - In the **Advanced Settings** area, select the check boxes for the **Automatic Start with Managed System**, and **Enable VTPM** options.
  - Select POWER7<sup>®</sup> from the **Processor Compatability Mode** list.
  - Click the **Processor** tab. Select shared for the **Processor Mode**. In the **Virtual Processors** area, specify a value of 12.0 for the **Maximum Processors** field, 6.0 for the **Desired** field, and 1.0 for the **Maximum Processors** field. In the **Entitled Capacity** area, specify a value of 6.0 for the **Upper Limit** field, 5.5 for the **Desired** field, and 0.6 for the **Lower Limit** field.
  - Click the **Memory** tab. Select shared for the **Memory Mode**. In the **Memory Allocation** area, specify a value of 10240 for the **Maximum** field, 6144 for the **Assigned** field, and 1024 for the **Maximum** field. In the **Advanced Settings** area, select **Auto** as the option for the assigned I/O entitled memory. Select the **Enable Active Memory** check box.

Click **Save**.

8. Click the **Virtual Networks** tab.
  - In the **Virtual Networks** area, right click the network by the name Production A. Click **Modify Load Balance Group**. Select the Load Balance Group whose value is 1. Click **OK**. Right click the network by the name Production B. Click **Remove Virtual Network**. Click **OK**.

- In the **Virtual Switches** area, right click the switch by the name ETHERNET0. Click **Modify Virtual Switch**. Specify vSwitch0 as the virtual switch name. Select VEB as the switch mode. Click **OK**.
- In the **Virtual Bridges** area, right click the virtual bridge by the name Virtual Bridge 2. Click **Advanced Settings**. Specify Next Available as the option for the **Adapter ID**. Click **OK**.

Click **Save**.

9. Click the **Virtual Storage** tab.

- In the **Shared Storage Pool Clusters** area, select cluster 2 from the list for VIOS 1, and Choose at Deploy for VIOS 2.
- In the **Media Repositories** area, select VIOS 1. Specify rootvg as the repository name, and 1024 GB as the repository size. **Modify Virtual Switch**. Specify vSwitch0 as the virtual switch name. Select VEB as the switch mode.

Click **Save**.

10. Click the **Shared Processor Pool** tab.

- Specify Production A in the **Pool Name** field Specify a value of 1.0 for **Reserved Processing Units** field, and a value of 5.0 for the **Maximum Processing Units** field.
- Click the **Add another** tab. Specify Test in the **Pool Name** field. Specify a value of 0.3 for **Reserved Processing Units** field, and a value of 1.3 for the **Maximum Processing Units** field.

Click **Save**.

11. Click the **Shared Memory Pool and Reserved Storage Pool** tab.

- In the **Shared Memory Pool** area, specify a value of 2.5 GB in the **Pool Size** field, and a value of 4.0 GB in the **Maximum Pool Size** field. Select Enabled for the **Active Memory Deduplication** field.
- In the **Reserved Storage Pool** area, select **VIOS 1** as the first paging VIOS, and **VIOS 2** as the second paging VIOS.

Click **Save**.

12. Click the **Advanced System Settings** tab.

- In the **Power On/Off Configuration** area, select Standby for the **Server Firmware Start Policy** field, Automatic for the **System Power Off Policy**, Fast for the **Power On Speed** field, and enable **Auto Power Restart**.
- In the **Memory and performance Configuration** area, specify a value of 2.5 GB in the **Logical Memory Block** field, a value of 2.5 in the **Huge Page Count** field, a value of 2.5 in the **BSR Array Size** field, and a value of 2.5 in the **BSR Array Size** field.

Click **Save**.

## Deploying the system template

The following steps show you how to deploy the template that you modified in the example that is shown earlier.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select Server 2 and click **Templates > Deploy System from Template**.
3. In the work pane, select Template A from the list of templates and click **Next**.
4. In the **VIOS Configuration Summary** page, retain the VIOS name as VIOS 1 and VIOS 2. Click **Next**.
5. In the **I/O Adapter Configuration** page, assign VIOS 1 to the first three adapters that are listed in the table, and VIOS 1 to the other adapters. In the **Host Ethernet Adapter** area, select VIOS 1 to be dedicated the physical port whose location code is U78A5.001.WHO163-P1-C1-T1, and for the physical port U78A5.001.WHO163-P1-C1-T2, select the shared mode and the port is set to be shared with both VIOS 1 and VIOS 2. Click **Next**.

6. In the **System Configuration Progress** page, click **Start**. This is a long running process and a message that displays the success of the configuration is displayed after completion of the process. Click **Next**.
7. In the **VIOS Installation Configuration** page, select **Management console image** as the installation method.
  - Select IP1 for the **Management Console IPV4 Address**.
  - Select Image 1 for the **VIOS Image** field.
  - In the **VIOS 1** area, select U78A5.001.WHO163-P1-C1-T1 for the VIOS network field. Specify the IP address 192.168.1.15, 255.255.255.0 for the subnet mask, and 192.168.1.1 for the gateway fields. Click **Advanced Settings**. Select Auto for the **Adapter Speed** field, Auto for the **Adapter Duplex** field, a value of 2 for the **VLAN Tag Priority** field, and a value of 1 for the **VLAN Tag identifier** field.
  - In the **VIOS 1** area, select U78A5.001.WHO163-P1-C1-T2 for the VIOS network field. Specify the IP address 192.168.1.27, 255.255.255.0 for the subnet mask, and 192.168.1.1 for the gateway fields. Click **Advanced Settings**. Select a value of 100 for the **Adapter Speed** field, Full for the **Adapter Duplex** field, a value of 0 for the **VLAN Tag Priority** field, and a value of 0 for the **VLAN Tag identifier** field. Click **Next**.
8. In the **VIOS Installation Progress** page, click **Start**. You can view the progress of the VIOS installation and a message that displays the success of the configuration is displayed upon completion. Click **Next**.
9. In the **VIOS Network Bridge Configuration** page. In the **Virtual Bridge 2** area, select **Create Link Aggregation Device**. Select the ports U78A5.001.WHO163-P1-C1-T1 and U78A5.001.WHO163-P1-C2-T1 for VIOS 1, and port U78A5.001.WHO163-P1-C3-T1 for VIOS 2. Click **Next**.
10. In the **VIOS Virtual Storage Configuration** page, modify the values of the **Shared Storage Pool**.
  - In the **Shared Storage Pool** area, assign Cluster 1 to VIOS 1, and for VIOS 2, select **Do not assign now**, from the list.
  - In the **Reserved Storage Device Pool** area, select **Configure a Reserved Storage Device Pool**. Assign VIOS 1 as the first paging VIOS. Select the first and second entries from the **Physical Volume Location Code** table. Similarly, assign VIOS 2 as the second paging VIOS. Select the first and second entries from the **Physical Volume Location Code** table.
  - In the **Media Repository Volume Groups** area, select the first and second entries from the **Physical Volume Location Code** table. Click **Next**.
11. In the **I/O Progress page** page, click **Start**. The configuration process starts and you can view the I/O configuration. You can click **Next** after you see a message that displays the success of the installation.
12. In the **Summary page** page, you can view a summary of the changes that were made. Click **Finish**.



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## Partition templates

Partition templates contain configuration details for the partition resources. Information Technology Architects and System Administrators can configure and deploy client partitions with the predefined templates that are available in the template library or by creating their own custom templates.

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

Templates are similar to profiles in that templates contain configuration details; however, templates differ from profiles in that you can use a single template once or many times. Another difference is that templates are not required to create or activate a partition. Templates offer more flexibility than profiles because you can choose from the following three options when you create a partition from a template:

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

The predefined partition templates included in the template library contain best practice configurations for partition resources. However, you can also create custom templates that contain configuration settings that are specific to your environment. Custom templates enable you to ensure that the correct resources are allocated to the partitions in your system.

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

- “Planning to create a logical partition from a template”
- “Viewing partition template details” on page 20 (optional)
- “Capturing a partition configuration” on page 20 (optional)
- “Creating a logical partition from a template” on page 20

You can also complete the following tasks with partition templates:

- “Changing a partition template” on page 22
- “Copying a partition template” on page 25
- “Importing a partition template” on page 25

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## Planning to create a logical partition from a template

This topic contains information you should review before you create a logical partition from a template.

You can create a logical partition from any of the partition templates in the template library. The **Create Partition from Template** wizard guides you through the procedure of creating a logical partition.

The server must be in running state before you create a logical partition from a template on that server. You cannot create a partition from a template when the server 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 from a template, you might want to review the details in that template. By reviewing the configuration details, you can determine whether that template meets the needs of your environment. If you are already certain which template you want to use to create a logical partition, this task is optional.

Refer to the following instructions to use the Hardware Management Console (HMC) to view the details of a partition template.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Tasks > Templates > Template Library**. You can also select the partition template from the list of templates that is available in the **Create Partition from Template** wizard.
3. Click the **Partition** tab and select the partition template that you want to view and click **View**.

---

## Capturing a partition configuration

You can capture the configuration details from a running partition and save the configuration as a custom template. This function is useful if you want to create multiple partitions with the same configuration. If you want to use a predefined template, you do not need to complete this task.

To capture the current configuration of a running logical partition by using the HMC, complete the following steps:

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select the server on which the logical partition is located.
3. Select the logical partition. In the work pane, click **Templates**. You can perform one of the following actions:
  - To capture the partition configuration along with the physical I/O details, click **Capture Configuration as Template > with Physical I/O**.
  - To capture the partition configuration without any physical I/O details, click **Capture Configuration as Template > without Physical I/O**.

The **Capture as Partition Template** page opens and you must specify the name of the captured template in the **Template name** field. Details of the partition configuration like processors, memory, physical I/O adapters, and virtualized I/O adapters, among other details are displayed in the **Template Details** page. All non-target specific data is populated in the appropriate fields of the partition template.

4. Click **OK** to save the template, or click **Cancel** to exit the page.

If you chose to save the template, your custom template is now available in the template library. You can create a partition from this template with the instructions in “Creating a logical partition from a template.” Or you can modify any aspect of the template with the instructions in “Changing a partition template” on page 22.

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## Creating a logical partition from 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**. You see an error message when there is a mismatch. You either choose another template that matches the capabilities, or edit the template and use the modified template for creating the logical partition.

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a logical partition and you can create a logical partition by doing 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 system form the list and select **Create**. You can view the details of the template by clicking the template.
3. Click **Next**. If the chosen template is compatible to the target system, a **Partition Configuration Summary** page is displayed.
4. In the **Partition Configuration Summary** page, change the partition name and ID. For AIX®/Linux partitions, you also select the option for the **Shared Processor Pool** field from the list. Click **Next**.
5. In the **Physical I/O** page, you can select the physical I/O adapters for the logical partition. To view the adapters that are available in other drawers of the server, select the drawer from the **View adapters in** list. You can also select the Logical Host Ethernet Adapters from the adapters that are listed in the table. Click **Next**.
6. The **Network Configuration** page displays a summary of the virtual networks to which the partition will be connected, as specified in the template if the you chose to specify networks prior to partition creation. Otherwise, the page displays a list of available networks if the you chose not to specify networks by using a template prior to partition creation. In either case, you can specify the virtual Ethernet adapter ID. Click **Next**.
7. In the **Storage Configuration** page, you can do the following steps:

**Note:** These steps can help you to configure storage resources like virtual Small Computer Serial Interface (SCSI), virtual Fibre Channel, virtual Optical devices, and physical Optical devices. With virtual adapters, you can connect logical partitions with each other without using physical hardware. Operating systems can display, configure, and use virtual adapters just like they can display, configure, and use physical adapters. Depending on the operating environment that is 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 to simplify the backup and maintenance operations on your managed system. When you back up the data on the server logical partition, you also back up the data on each client logical partition. With N\_Port ID Virtualization (NPIV), you can configure the managed system so 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 and edit the VIOS connections for the physical volumes by clicking **Edit Connections**. To view more physical volumes in the table, click **Show assigned physical volumes**.
- c. In the **Logical units** area, you can assign logical units and select the cluster from the **Shared Storage Pool Cluster Name** list.
- 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 **Physical Optical Devices**. The **Physical Optical Devices** content area displays the available physical optical devices that available for use by the logical partition.
  - g. Click **Next**.
8. In the **Summary page** page, you can view a summary of the changes that were made. You can choose any one of the following options to be performed when you click **Finish**:
- Click **Apply configuration**, when you want to create the logical partition with resources allocated to the partition.
  - Click **Apply and activate partition**, when you want to create the logical partition with resources allocated to the partition. Also, the logical partition must be activated.
  - Click **Create partition only**, when you want to create the logical partition without allocating any resources to it.
9. Click **Finish**.

---

## Changing a partition template

You can modify the details that are specified in a predefined 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 this template to quickly create a logical partition by using the Hardware Management Console (HMC).

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

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **Partition** tab and select the system template that you want to modify and click **View/Modify**.
4. To change the general settings of the template, click the **General** tab in the **Details** area. You can modify the partition name, and enable or disable partition-level features and capabilities like Live Partition Mobility, Suspend/Resume, and Remote Restart in the **Virtualization Capabilities** area. In the **Advanced settings** area, you can configure, enable and disable advanced AIX, Linux, or IBM® i features. The **Advanced** settings that are displayed depend on the type of partition that you have selected. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
5. To change the shared processor settings of the template, click **Processor > Processor Shared**, when you want to use shared processors for the logical partition.
  - a. Select **Shared** as the processor mode for the **Processor Mode** field from the list.
  - b. Select the shared processor pool for the partition for the **Shared Processor Pool** field from the list.
  - c. Select **Capped** or **Uncapped** as the processor weight. For capped processor weight, specify a value for the weight in the **Weight** field.
  - d. In the **Virtual Processors** area, you can specify values for the **Maximum Processors**, **Desired**, and **Minimum Processors** fields.
  - e. In the **Processing Units** area, you can specify values for the **Maximum**, **Assigned**, and **Minimum** fields.
  - f. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
6. To change the dedicated processor settings of the template, click **Processor > Processor Dedicated**, when you want to use dedicated processors for the logical partition. When you select **Dedicated** as the processor mode, the options for specifying the virtual processors, processing units, selecting capped or uncapped processor weight are not available.

- a. Select **Dedicated** as the processor mode for the **Processor Mode** field from the list.
  - b. In the **Processors** area, you can specify values for the **Maximum**, **Assigned**, and **Minimum** fields.
  - c. Click the **Advanced Settings** tab to modify the **Processor Compatability Mode** or enable or disable the **Dedicated Donor Mode**.
  - d. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
7. To change the shared memory settings of the template, click the **Memory > Memory Shared** tab when you want to use shared memory for the logical partition.
    - a. Select **Shared** as the memory mode for the **Memory Mode** field from the list.
    - b. Select MB or GB for the memory unit by moving the tab to the left or right.
    - c. In the **Memory Allocation** area, you can specify values for the **Maximum**, **Desired**, and **Minimum** fields.
    - d. Click the **Advanced Settings** tab to modify the advanced memory settings for the logical partition. You can select **Auto** or **Manual** for the **Assigned I/O Entitled memory** field. When the operating system environment is IBM i, you can choose whether or not to use **Huge Page Memory**. When the operating system environment is AIX, you can also choose whether or not to use active memory expansion by selecting **Enable Active memory Expansion**.
    - e. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
  8. To change the dedicated memory settings of the template, click the **Memory > Memory Dedicated** tab when you want to use dedicated memory for the logical partition.
    - a. Select **Dedicated** as the memory mode for the **Memory Mode** field from the list.
    - b. Select MB or GB for the memory size by moving the tab to the left or right.
    - c. In the **Memory Allocation** area, you can specify values for the **Maximum**, **Assigned**, and **Minimum** fields.
    - d. Click the **Advanced Settings** tab to modify the advanced memory settings for the logical partition. When the operating system environment is IBM i, you can choose whether or not to use **Huge Page Memory**. When the operating system environment is AIX, you can also choose whether or not to use active memory expansion by selecting **Enable Active memory Expansion**.
    - e. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
  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 information, the **Physical I/O Adapters** tab displays a table of the captured adapter information and the descriptions of those adapters as captured from the original system. These descriptions might not accurately reflect the actual adapter type to which the location codes get mapped on the target system. You can choose whether or not to use the captured information by selecting or keeping the **Do not use captured information** check box cleared.
  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 the you choose **Specify Virtual Networks in this Partition Template**, you must specify the VLAN Name and VLAN ID and select check box to specify the VLAN information during deployment. To add a virtual network, click the **Add Network** tab. A row will be appended to the bottom of the table with the appropriate fields available. To remove a network, select a network to be deleted from the table and click **Remove Selected**. Click the **More > Show Advanced** to view more configuration options for each VLAN in the table.

- c. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
11. 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 choose to **Configure Virtual SCSI storage during deployment**, **Configure Virtual SCSI storage with captured information**, or **Do not configure Virtual SCSI storage**.
    - b. In the **Logical Units** area, you can configure logical units by specifying whether thin provisioning must be enabled or not by selecting from the list in the in the **Thin Provisioning** field.
    - c. In the **Shared Storage Pool Cluster Name** field, you can choose the cluster name from the list or choose at the time of deployment.
    - d. To add a logical unit, click the **Add Logical Unit** tab.
    - e. To delete a logical unit, click the **Remove** tab that is displayed in the row of the logical unit that you want to delete.
    - f. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
  12. To change the virtual Fibre Channel settings of the template, click the **Virtual Fibre Channel** tab.
    - a. You can choose to **Configure Virtual Fibre Channel storage during deployment**, **Configure Virtual Fibre Channel storage with captured information**, or **Do not configure Virtual Fibre Channel storage**. When the template is a captured template, the captured Fibre Channel Port information is also included.
    - b. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
  13. To change the virtual optical device settings of the template, click the **Virtual Optical Device** tab.
    - a. You can choose to **Configure Virtual Optical Disk during deployment**, **Configure Virtual Optical Disk with captured information**, or **Do not configure Virtual Optical Disk**. When the template is a captured template, the table also contains the names of captured virtual optical devices.
    - b. Click **Add Virtual Optical Device** to append a row to the table with an editable field for the device name.
    - c. To delete a device, click the **Remove** tab that is displayed in the row of the optical device that you want to delete.
    - d. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.
  14. To change the physical optical device settings of the template, click the **Physical Optical Device** tab.
    - a. You can choose to **Configure Physical Optical Disk during deployment**, **Configure Physical Optical Disk with captured information**, or **Do not configure Physical Optical Disk**. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes. When the template is a captured template, the tab also displays the generic location code for the captured physical optical device.
  15. In the **Details** area, click the **SRIOV/HEA/HCA** tab. SRIOV and HCA are not supported.
    - a. Click the **HEA** tab. You can modify the operating system-level VLAN ID and MAC address restrictions for each Logical Host Ethernet Adapter that is listed in the table. You cannot add or remove any Logical Host Ethernet Adapter.

- b. Click **Save As** to save the changes that are made to the template in a new name template, or click **Save** to overwrite the changes in the chosen template. Click **Cancel** to exit without making any changes.

---

## Copying a partition template

You can copy a predefined 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **Partition** tab and select the system template that you want to copy and click **Copy**.
4. In the **Copy Partition Template** page, specify the name for the template in the **Template name** field.
5. 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **Partition** tab and click **Import**.
4. 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.
5. 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. In the navigation pane, expand **Systems Management > Servers**.
2. Select a server and click **Templates > Template Library**.
3. Click the **Partition** tab. Select the template and click **Export**. A browser-generated window opens where you can choose to save the exported file.
4. Click **Save file** tab and specify the file name the exported file must be saved to.
5. 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. In the navigation pane, expand **Systems Management > Servers**.

2. Select a server and click **Templates > Template Library**.
3. Click the **Partition** tab. Select the template and click **Delete**.
4. In the **Delete Template** page, click **Yes** to delete the selected template, or click **No** to close the **Delete Template** page.

---

## Example: Changing and deploying a partition template

You can view an example of how to modify a template to meet your partition requirements and use the modified template to create a partition.

### Changing the partition template

The following steps show you how to modify a captured or predefined partition template.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select Server 1 and click **Templates > Template Library**.
3. Click the **Partition** tab and select the system template by the name Captured and click **View/Modify**.
4. In the **Template Description** page, you can view the template name and the description of the template that you selected. Specify Template A in the **Template Name** field. Click **Save As** to save the template in the template library.
5. Click the **General** tab.
  - Specify Partition 1 in the **Partition Name** field. Select AIX/Linux from the list for the **OS Type/Environment** field.
  - In the **Virtualization Capabilities** area, select Enabled from the list for the **Live Partition Mobility (LPM)**, **Suspend/Resume**, and **Remote restart** fields.
6. Click **Processor > Processor Shared**.
  - Select **Shared** as the processor mode for the **Processor Mode** field from the list.
  - Select Default Pool (0) from the list for **Shared Processor Pool** field
  - Select **Uncapped** as the processor weight.
  - In the **Virtual Processors** area, specify a value of 1 for the **Maximum Processors**, **Desired**, and **Minimum Processors** fields.
  - In the **Processing Units** area, specify a value of 0.1 for the **Maximum**, **Assigned**, and **Minimum** fields.
7. Click **Memory > Memory Shared**.
  - Select **Shared** as the memory mode for the **Memory Mode** field from the list.
  - Select MB as the memory unit by moving the tab to the left.
  - In the **Memory Allocation** area, specify a value of 10240 for the **Maximum** field, a value of 6144 for the **Desired** field, and a value of 1024 for the **Minimum** field.
8. Click the **Physical I/O Adapters** tab. You can view a report of the captured adapter information and the descriptions of those adapters as captured from the original system.
9. Click the **Virtual Networks** tab.
  - Choose the option **Specify Virtual Networks in this Partition Template**. Specify Production A in the **Virtual Network Name** field, and a value of 2 in the **VLAN ID** field.
  - Click **More > Show Advanced**. Specify ETHERNET 0 in the **Virtual Switch** field, and select Next Available for the **Virtual Ethernet Adapter ID** field.
  - Select the first two entries from the ones that are listed in the available virtual networks table.
10. Click the **Virtual Storage** tab.
  - Select the option **Configure Virtual SCSI storage with captured information**.
  - In the **Logical Units** area, select Choose at Deploy for the **Shared Storage Pool Cluster Name** field, and Enabled for the **Thin Provisioning** field.



- Click the **Virtual Fibre Channel** tab. Select the option **Configure Virtual Fibre Channel storage with captured information**.
  - Click the **Virtual Optical Device** tab. Select the option **Configure Virtual Optical Disk with captured information**. Select the first optical device cd0 from the **Virtual Optical Device Name** field.
  - Click the **Physical Optical Device** tab. Select the option **Configure Physical Optical Disk with captured information**.
11. Click the **SRIOV/HEA/HCA** tab.
    - Click the **HEA** tab.
    - Click the first row of the **Logical Host Ethernet Adapters** table. Select **Modify Port**.
    - In the **MAC Address Settings** area, select the Allow all from the list for the **OS MAC Address Restrictions** field.
    - In the **VLAN ID Settings** area, select the Allow all from the list for the **VLAN ID Restrictions** field.
    - Click **OK**
- Click **Save**.

## Creating the partition from the template

The following steps show you how to deploy the template that you modified in the example that is shown earlier.

1. In the navigation pane, expand **Systems Management > Servers**.
2. Select Server 2 and click **Templates > Deploy System from Template**.
3. In the work pane, select Template A from the list of templates and click **Next**.
4. In the **Partition Configuration Summary** page, specify Partition B in the **Name** field, and a value of 4 in the **Partition ID** field. Select Default Pool (0) from the list for the **Shared Processor Pool** field. Click **Next**.
5. In the **Physical I/O** page, select the first two entries from the table in the **Physical I/O Adapters** area. In the **Logical Host Ethernet Adapters** area, elect the first and the third entries from **Available Logical Host Ethernet Adapters** table. Select Yes from the list for the **Dedicated** field. Click **Next**.
6. The **Network Configuration** page displays a summary of the virtual networks to which the partition connects, as specified in the template. Click **Next**.
7. In the **Storage Configuration** page, complete the following steps:
  - a. Click **Virtual SCSI**.
  - b. In the **Add Physical Volume** area, select the first two entries from the table. Click **Edit connections** and select Next available for the **Server Adapter ID** field. Click **OK**.
  - c. In the **Logical units** area, select the first two entries from the table. Select Cluster 1 for the first entry and Cluster 2 for the second entry for the **Shared Storage Pool Cluster Name** fields. Click **Edit connections** and select Next available for the **Server Adapter ID** field. Click **OK**.
  - d. Click **Virtual Fibre Channel**.
  - e. In the **Available Fibre Channel** area, select the first two entries from the table. Click **Edit connections** and select Next available for the both of the **Server Adapter ID** fields for both of the listed Fibre Channel ports for VIOS 1. Repeat the same step for VIOS 2. **OK**.
  - f. Click **Virtual Optical Device**. Select VIOS 1 for the device name cd0 and VIOS 2 for device name cd1. Click **Edit connections** and select Next available for both of the **Server Adapter ID** fields. Click **OK**.
  - g. Click **Physical Optical Device**. Select the first entry in the **Available Optical Device** table. Click **OK**.
8. On the **Summary page** page, you can view a summary of the changes that were made. Select the option **Apply and activate partition**.

9. Click **Finish**.

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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 7.1, IBM AIX Version 6.1, IBM i 7.1, and IBM Virtual I/O Server Version 2.2.3.0.

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