

Power Systems

*System plans*

**IBM**



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**Note**

Before using this information and the product it supports, read the information in "Notices" on page 33.

This edition applies to IBM Virtual I/O Server Version 2.2.3.0, and to all subsequent releases and modifications until otherwise indicated in new editions.

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## System plans

A *system plan* is a specification of the hardware and the logical partitions contained in one or more systems. You can use system plans in a number of ways that are useful for managing your system.

For example, you can use a system plan to create a record of hardware and logical partition configuration data for a system, to create a set of system specifications for ordering a system, or to deploy logical partitions to a system. A system plan is stored in a *system-plan file*, which has a file suffix of `.sysplan`. A system-plan file can contain more than one system plan, although multiple plans in a single file are not common. After you create a system plan, you also can view, delete, and export the system plan.

System plans have a number of valuable uses. For example, you can use system plans to accomplish the following goals:

- You can create a system plan as a means of capturing up-to-date system documentation. The system plan provides a record of the hardware and logical partition configuration of the managed system at a given time.
- You can use a system plan that you create for system documentation as part of your disaster recovery planning. On the Hardware Management Console (HMC) or the IBM® Systems Director Management Console (SDMC), you can export the system-plan file to an off-site location or to removable media for off-site storage so that you have the system documentation that you need available if you must recover a managed system.

**Note:** Although the system plan contains a large amount of system configuration information, it does not contain all the configuration information for a system. Consequently, the system plan is not intended to provide complete system documentation.

- You can use system plans as audit records to track system hardware resources for accounting and accountability purposes by exporting the information in them to a spreadsheet.
- You can use system plans to help you plan new workloads that require additional system and hardware resources. You can use a system plan, along with appropriate capacity planning information, to make decisions about whether your current system can handle a new workload.
- You can create a system plan based on one managed system and deploy the system plan on another system to more quickly and easily create logical partitions on that system.
- You can use the System Planning Tool (SPT) to design a managed system based on workload data from your current systems, based on new workloads that you want the managed system to support, based on sample systems that are provided with the utility, or based on your own custom specifications. You can then use the system plan to order a system based on the specifications that the system plan contains. Also, you can use the HMC to deploy the system plan to configure an existing system when the target system meets the requirements for deployment.

You can create a system plan by using one of the following methods:

- IBM System Planning Tool (SPT): You can create a system plan to capture the configuration of a system or systems that you want to order. A system-plan file created in the SPT can contain more than one system plan, although multiple plans in a single file are not common.
- HMC: You can create a system plan that documents the configuration of a system that is managed by the HMC.

## Related information:

 [System plans on the SDMC](#)

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## System planning tool

The System Planning Tool (SPT) helps you design a managed system that can support a specified set of workloads.

You can design a managed system based on workload data from your current systems, based on new workloads that you want the managed system to support, based on sample systems that are provided with the utility, or based on your own custom specifications. The SPT helps you design a system to fit your needs, whether you want to design a logically partitioned system or want to design an unpartitioned system. SPT incorporates the function from Workload Estimator to help you create an overall system plan. The SPT opens the Workload Estimator to help you gather and integrate workload data, and provides advanced users with the option of creating a system plan without the help of additional tools.

**Note:** The SPT currently does not help you plan for high availability on logical partitions or Redundant Array of Independent Disks (RAID) solutions.

There are a number of options available to help you get started with using the SPT:

- You can use the sample system plans that the SPT provides as a starting point for planning your system.
- You can create a system plan based on existing performance data.
- You can create a system plan based on new or anticipated workloads.
- You can create a system plan by using the Hardware Management Console (HMC) or the IBM Systems Director Management Console (SDMC). You can then use the SPT to convert the system plan to SPT format, and modify the system plan for use in system ordering or system deployment.
- With the SPT, you can copy logical partitions from a system in one system plan to either another system in the same system plan or to a different system in another system plan. For example, you can build up system plans that contain your own sample logical partitions, and then copy one or more of these sample logical partitions into a new system plan that you are creating. You also can copy a logical partition within the same system plan. For example, you can define the attributes of a partition within a system plan and then make 7 copies of that partition within the same plan.
- You can export a system plan as a .cfr file and import it into the marketing configurator (eConfig) tool to use for ordering a system. When you import the .cfr file into the eConfig tool, the tool populates your order with the information from the .cfr file. However, the .cfr file does not contain all the information that the eConfig tool requires. You will need to enter all required information before you can submit your order.

If you make any changes to the hardware assignments or placement in the system, the SPT validates the changes to ensure that the resulting system fulfills the minimum hardware requirements and hardware placement requirements for the logical partitions.

When you are done making changes to the system, you can save your work as a system plan. You can import this file into your HMC or SDMC. You then can deploy the system plan to a managed system that the HMC or the SDMC manages. When you deploy the system plan, the HMC or the SDMC creates the logical partitions from the system plan on the managed system that is the target of the deployment.

To download the SPT, see the IBM <http://www.ibm.com/systems/support/tools/systemplanningtool/> website.



**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

## System plan conversion

You can convert a system-plan file that you have created by using the Hardware Management Console (HMC) into the format that the System Planning Tool (SPT) uses.

Converting a system plan so that you can work with it in the SPT has several benefits:

- You can reconfigure your existing system and validate the changes in SPT before deploying them on your server. For example, you can try adding or moving some parts, or changing the layout of the partitions.
- You can plan an upgrade to a new system.
- You can move workloads from one system to another. You can even move a partition configuration from one system to another and ensure that the configuration works with the existing hardware.
- You can validate that the configuration on the system is what you want it to be.

To convert a system plan that you created by using the HMC into the SPT format successfully, ensure that you optimize the data that you collect when you create the plan. See “Optimizing data when creating a system plan on the HMC” on page 15 “Optimizing data when creating a system plan on the HMC” on page 15. You must also gather some information to prepare for the conversion and to understand the limitations of the conversion process.

After you complete the conversion process, you can edit the system plan for redeployment of newly added partitions.

For example, assume that you converted an HMC system plan that contains two client logical partitions. You can use the SPT to add another logical partition and specify virtual Ethernet adapters and virtual Small Computer System Interface (SCSI) adapters for the new partition. You can then use the HMC to redeploy the changed system plan to configure the new logical partition.

**Note:** Although you can add partitions, you cannot use SPT to change existing items and redeploy the system plan to the original managed system.

After you create or convert a system plan on the SPT, you can use the HMC to deploy the system plan. However, the SPT must validate this system plan successfully before you can deploy it. The HMC only supports deployment of system plans on which you have created logical partitions and logical partition profiles. It does not support deployment of system plans on which you have modified attributes of existing logical partitions and logical partition profiles. For example, if you use the SPT to add a logical partition and assign unassigned resources to the logical partition, you can deploy the system plan by using the HMC. However, if you use the SPT to move resources from an existing logical partition to a new logical partition, you cannot deploy the system plan by using the HMC. See “System plan validation for the HMC” on page 25 “System plan validation for the HMC” on page 25 to learn more about the validation considerations that can affect deployment of the system plan.

**Related concepts:**

“Optimizing data when creating a system plan on the HMC” on page 15

The quantity and quality of hardware information that the HMC can capture in a new system plan varies based on your version of the HMC and the operating environment of the logical partition for which you are capturing information.

## Preparing for system plan conversion

Before you convert the system plan to the format that the System Planning Tool (SPT) uses for system plans, you must collect some information to use during the conversion process.

Your original system-plan file remains intact after the conversion. You will not lose any of your data. When you convert your system plan to the format that the SPT uses for system plans, the SPT gives the converted plan a new name and saves it as a new system plan.

Before you convert a system plan to the format that the SPT uses for system plans, you must collect some information to use during the conversion process. Some of this information can help with potential conversion limitations. You must gather the following information:

- **System attributes:** You must provide the processor, server, and edition features for the system that you want to convert. The SPT Conversion Wizard narrows the options to those options that are valid for the system you are converting, but you must select the correct values from the list of valid options.
- **Additional system units:** If your processor feature has multiple system units that support different processor features, select the correct processor feature for each system unit from a list of valid options.
- **Backplane:** If the system in the plan that you are converting supports more than one type of backplane, select the backplane that your system uses from a list of valid options.
- **Logical partitions:** When you convert your system-plan file to the SPT format, select the logical partitions that you want to include in the converted plan. Thus, you can pick just the logical partitions that you want to work with in the SPT. For example, if you are considering moving a particular workload to a new system, you can select just those logical partitions that are used to run that workload and include them in the plan that is converted to the SPT format.

After you know the logical partitions that you want to include, select the profile to associate with each logical partition in the converted plan. The SPT can only associate one profile with a logical partition. For this reason, you might be required to convert your original system plan more than once to work with different views of the data. For example, if you have logical partitions that use one profile during the day and another profile at night, select the logical partitions and profiles that are used at the same time to ensure that your converted system plan has an accurate view of how your system is used.

You also might be required to select the operating system of the logical partition, if that information is unavailable in your original system plan.

- **Expansion units:** You must match the enclosures at the top and bottom of any double-high expansion units that are attached to your system. To perform this task, procure the serial numbers of the enclosures at the top and bottom of the double-high expansion unit when you use the wizard.
- **Adapters:** You must identify the adapters in each physical location on your system. Based on the vital product data that the system plan contains, the SPT identifies as many adapters as possible. For those adapters that the SPT is unable to identify, the SPT can provide a few possibilities for you to select from. However, if those possibilities are not correct, or if the SPT cannot identify any possibilities, you might be required to provide the FRU, CCIN, part number, or feature number of the correct adapter. If you do not know the number, you can find it by looking at the physical system or by using the following operating system commands to query and obtain the correct number:

Table 1. Operating system commands for identifying adapters

Operating environment	Command	When to use the command
Linux	<b>lsslot</b>	Use this command if you are trying to obtain information about an adapter in a hot-plug slot. By using this command, you can view all the adapters and integrated hardware for the hot-plug slot so that you can determine the adapter for which you need the number.
	<b>lscfg</b>	Use this command if you are trying to obtain information about an adapter that is not in a hot-plug slot, or if you have already used the <b>lsslot</b> command to obtain adapter information for a hot-plug slot.

You can find additional details about how to use these commands in the online help for the SPT Conversion Wizard.

After you finish preparing for the conversion process, export the system plan that you want to convert from the Hardware Management Console (HMC).

**Related concepts:**

“Limitations of system plan conversion”

You can convert a system plan that you created on the Hardware Management Console (HMC) for use in the System Planning Tool (SPT). However, there are some limitations in the data that the SPT can convert.

**Related tasks:**

“Converting a system plan to System Planning Tool format” on page 6

You can use the System Planning Tool (SPT) Conversion Wizard to convert a system plan, which you created on an Hardware Management Console (HMC), to the format that the SPT uses for system plans.

## Limitations of system plan conversion

You can convert a system plan that you created on the Hardware Management Console (HMC) for use in the System Planning Tool (SPT). However, there are some limitations in the data that the SPT can convert.

By setting up your system to optimize the hardware information that you capture when you create a system plan by using the HMC, you can ensure that your system plan provides you with the most valuable information possible. You can also ensure that you have the most usable configuration information possible when you convert the system plan for use in the SPT.

There are some limitations in the data that the SPT can convert at this time. The system plans that you create by using the HMC contain information about the hardware parts that are on your system. To convert one of these plans, the SPT maps the information about the parts back to the features that represent those parts.

In some cases, the HMC plans do not contain enough information for the SPT to do the necessary mapping conclusively. For hardware parts with inconclusive mapping information, the SPT performs one of the following actions to resolve the inconclusive mapping:

- When possible, the SPT Conversion Wizard prompts you for additional information about the parts during the conversion process. For example, in the case of PCI cards, the wizard prompts you to provide a part identifier for the card or to select the card from a list.
- The wizard identifies the part based on what it knows from the HMC system plan, even if the information is not conclusive.
- The wizard disregards the part if the level of information in the plan is insufficient to do any kind of identification.

The following table shows some specific examples of parts or configurations that are more difficult to convert and what SPT does when it encounters them.

*Table 2. Conversion examples*

Part or configuration	SPT action during conversion
Logical partitions with more than one partition profile	SPT can only convert one profile per logical partition. SPT prompts you to select the profile you want to use for that partition during the conversion process.
Cards that are referred to by more than one partition profile	SPT assigns the card to the first profile it encounters that references the card and discards all other references to the card.
CD, DVD, or optical storage	SPT does not convert these devices.
Disk drives in a Redundant Array of Independent Disks (RAID) array	SPT does not convert any information about these drives.

### Related concepts:

“Preparing for system plan conversion” on page 3

Before you convert the system plan to the format that the System Planning Tool (SPT) uses for system plans, you must collect some information to use during the conversion process.

“Optimizing data when creating a system plan on the HMC” on page 15

The quantity and quality of hardware information that the HMC can capture in a new system plan varies based on your version of the HMC and the operating environment of the logical partition for which you are capturing information.

“Troubleshooting system plan conversion” on page 8

When you convert a system plan into the format that the System Planning Tool (SPT) uses, you might encounter some problems that you must resolve or understand better.

### Related tasks:

“Converting a system plan to System Planning Tool format”

You can use the System Planning Tool (SPT) Conversion Wizard to convert a system plan, which you created on an Hardware Management Console (HMC), to the format that the SPT uses for system plans.

## Converting a system plan to System Planning Tool format

You can use the System Planning Tool (SPT) Conversion Wizard to convert a system plan, which you created on an Hardware Management Console (HMC), to the format that the SPT uses for system plans.

After you export a system plan from the HMC, you are ready to convert that system plan into the format that the System Planning Tool uses.

Before you use the SPT Conversion Wizard, be sure that you have the information you collected as described in “Preparing for system plan conversion” on page 3. Some of the information that you collect can help you minimize potential conversion limitations.

There are two parts to the conversion process. First, you convert the system-plan file to the SPT format by using the wizard. Second, you complete the conversion by handling any messages or warnings that you receive in the SPT.

After you gather the necessary information, complete these steps to convert the system plan by using the SPT Conversion Wizard:

1. Open the System Planning Tool.
2. On the Getting Started page, click **Open an existing system plan**. The Open System Plan window is displayed.
3. In the **File name** field, enter the name of the system plan you want to open in the SPT, or click **Browse** to select the system-plan file from the local file system.
4. Click **OK**. The Work with Planned Systems page appears with a message to indicate that you must convert the file to SPT format before you can use the SPT to edit it.
5. Click **Convert** to convert the system-plan file to SPT format. The Overview page of the Conversion Wizard appears.
6. Click **Next** to continue with the wizard. The System Attributes page opens.

**Note:** From the System Attributes page, and many others in the wizard, you can save your selections by clicking **Save as Draft**. The wizard saves the selections that you have made, but does not create a system-plan file because the conversion process is not complete. If you exit the wizard before converting the system plan and restart the wizard at a later time, your previous selections are displayed on the appropriate pages as you progress through the wizard.

7. As necessary, specify the **Processor feature**, **Server feature**, and **Edition feature** of your system, and click **Next**. If your processor feature supports multiple system units, the Additional system units page appears.

8. If your processor feature has multiple system units that support different processor features, select the **Processor Feature** that you want to associate with each system unit, and click **Next**. If your system in your plan supports different backplanes, the Backplane page appears.
  9. If your system supports multiple backplanes, select the appropriate backplane for your system and click **Next**. The Partitions page appears.
  10. Select the logical partitions that you want to include in the converted system plan and, if necessary, select the profile name and operating system for each selected logical partitions. By default, all logical partitions are selected to be included in the converted system plan. If a logical partition has more than one profile associated with it, you must select the profile that you want to include with this logical partition in the converted system plan. A logical partition can have only one profile associated with it in the SPT. If the SPT is unable to determine the operating system for the logical partition, select the operating system as well.
  11. Click **Next**. If you have double-high expansion units, the Expansion Units page appears.
  12. If the system has double-high expansion units, match the bottom part of each expansion unit with the corresponding top part of each unit, and click **Next**. You can use the serial numbers of the units to do this. If the wizard is unable to identify some adapters in the system plan, the Adapters page appears.
  13. Select the location of the adapter that you want to identify, and click **Identify** to select from a list of identification choices for the adapter in the selected location. You also can select **Group similar** for the list of adapters. This option groups those adapters that have the same set of possible feature code choices into a single group so that you can select all members of the group for identification. The Identify Adapters page appears.
  14. Select the adapter from a list of possible choices or click **Advanced lookup** to look up the adapter by FRU, CCIN, part number, or feature number. If you need help finding the FRU, CCIN, part number, or feature number, click **Help** to get instructions on how to find that information by using operating system commands.
  15. When you have identified the adapter in selected location, click **OK** to return to the Adapters page and identify additional adapters, as necessary.
- Note:** The wizard deletes from the system plan any adapters that you do not identify.
16. Click **Next**. The Summary page appears.
  17. Verify that the information on the summary page is accurate and click **Finish**. If you need to change any of the information, click **Back** to return to the relevant pages in the wizard and make corrections. The Work with Planned Systems page appears.

At this point, you have finished with the SPT Conversion Wizard. The SPT renames your original system-plan file by adding `-converted` to the end of the original file name. The next step is to handle any messages that the SPT provides about conversion results.

**Important:** Do not exit the converted system-plan file until you handle messages. If you close the system-plan file now, you can no longer view the messages from the conversion.

When you finish using the Conversion Wizard, you must do additional configuration before your plan is valid in the System Planning Tool (SPT). To see the messages from the conversion and understand what the SPT did when it converted the file, click the link for the system plan name in the Work with Planned Systems page. When you click this link, the System Plan Messages page shows what the SPT did with the hardware parts that it was not able to identify in your original system-plan file. For more information about the type of hardware you can expect to be in the converted system plan, see “Limitations of system plan conversion” on page 5 “Limitations of system plan conversion” on page 5.

**Important:** After you save and exit your converted system plan-file, these messages are lost, so do not exit the converted file until you address these messages.

Messages with an *exclamation point icon* indicate that the SPT was not able to identify a part or was not able to interpret what to do with a part from your original system plan. You need to add the specified part manually into the converted plan.

Messages with an *informational icon* indicate that the SPT placed or configured a part based on the data it had available to it. You need to review these instances to be sure the information is correct.

**Related concepts:**

“Preparing for system plan conversion” on page 3

Before you convert the system plan to the format that the System Planning Tool (SPT) uses for system plans, you must collect some information to use during the conversion process.

“Limitations of system plan conversion” on page 5

You can convert a system plan that you created on the Hardware Management Console (HMC) for use in the System Planning Tool (SPT). However, there are some limitations in the data that the SPT can convert.

## Troubleshooting system plan conversion

When you convert a system plan into the format that the System Planning Tool (SPT) uses, you might encounter some problems that you must resolve or understand better.

**Problem:** My Hardware Management Console (HMC) system plan is not as detailed as I expected it to be.

**Solution:** The following factor influences the quantity of data that you can capture when you create your system plan:

- Type and level of management tool. You can capture most of the data by using an HMC Version 7.3.3, or later. Earlier versions of the HMC provide less detailed information for any managed system. You also cannot capture any VIOS provisioning information for POWER7<sup>®</sup> servers in earlier versions.

Ensure that you optimize the data that you collect in the system plan when you create the plan on the HMC.

**Problem:** I do not see some of my hardware in the converted plan

**Solution:** At this time, the SPT Conversion Wizard might not be able to identify all the hardware that is in your system plan. It identifies some components based on the information it has and ignores others if it does not have enough information to make an identification. When you get to the end of the wizard, you can view information about the hardware that the wizard was not able to identify. For more information about handling conversion messages, see [Converting a system plan](#).

**Related concepts:**

“Optimizing data when creating a system plan on the HMC” on page 15

The quantity and quality of hardware information that the HMC can capture in a new system plan varies based on your version of the HMC and the operating environment of the logical partition for which you are capturing information.

“Limitations of system plan conversion” on page 5

You can convert a system plan that you created on the Hardware Management Console (HMC) for use in the System Planning Tool (SPT). However, there are some limitations in the data that the SPT can convert.

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## System plans on the HMC

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

You can use system plans with the HMC to accomplish the following goals:

- You can deploy a system plan that you create based on one system that an HMC manages to other systems that the HMC manages with identical hardware as in the system plan. Any internal drive bays

and external SCSI cables also must be cabled in an identical manner on the target system. In this way, you can rapidly configure and use other, similar systems in your business.

- You can export a system plan from one HMC to another HMC and use it to deploy the system plan to other systems that the target HMC manages with identical hardware, and identical cabling, as that in the system plan. In this case and the previous case, you can use the system plan to create logical partitions on new managed systems that do not already have logical partitions created on them.
- You can convert a system plan that you created by using the HMC for use in the System Planning Tool (SPT). However, the SPT Conversion Wizard can convert a limited amount of hardware information from the original system plan. How much the wizard can convert depends on the operating environment of the logical partition and the version of the HMC that you used to create the system plan.

You must use the SPT to manually specify any missing or incomplete information. After you convert the system plan, you can use the SPT to edit the system plan for redeployment of newly added partitions. For example, assume that you converted an HMC system plan that contains two client logical partitions. You can use the SPT to add another logical partition and to specify Ethernet adapters, Small Computer System Interface (SCSI) disks, and virtual Ethernet adapters for the new partition. You can then use the HMC to redeploy the modified system plan to configure the new logical partition.

After you create or convert a system plan on the SPT, you can use the HMC to deploy the system plan. However, the SPT must validate this system plan successfully before you can deploy it. The HMC only supports deployment of system plans on which you have created logical partitions and logical partition profiles. It does not support deployment of system plans on which you have modified attributes of existing logical partitions and logical partition profiles. For example, if you use the SPT to add a logical partition and assign unassigned resources to the logical partition, you can deploy the system plan by using the HMC. However, if you use the SPT to move resources from an existing logical partition to a new logical partition, you cannot deploy the system plan by using the HMC.

To create logical partitions from a system plan, you must first complete the following tasks:

1. Create the system plan.
2. Import the system plan (when necessary).
3. If you are deploying a system plan that you created in the SPT, verify that cards and disk drives on the target system are in the same locations specified for the cards and disk drives that are in the system plan. Also, verify that any cabling instructions for disk-drive bays have been followed. You can obtain these instructions by using the Report function in the SPT.
4. If you are deploying a system plan that you created by using the HMC, verify that the hardware and cabling on the target system is identical to the hardware and cabling on the source system.
5. Deploy the system plan.

After you create a system plan, you also can view, delete, and export the system plan. The following table provides a complete overview of system plan tasks.

Table 3. Overview of the tasks for system plans

Task	Overview
Create a system plan	<p>You can create system plans by using any of the following methods:</p> <ul style="list-style-type: none"> <li>• System Planning Tool (SPT) <p><i>SPT</i> helps you design a system to fit your needs, whether you want to design a logically partitioned system or design an unpartitioned system. <i>SPT</i> incorporates the function from the Workload Estimator to help you create an overall system plan. The <i>SPT</i> opens the Workload Estimator to help you gather and integrate workload data, and provides advanced users with the option to create a system plan without the help of additional tools.</p> </li> <li>• Hardware Management Console (HMC) web-user interface <p>You can use the HMC to create a system plan based on the configuration of one managed system and then use the HMC to deploy that plan to another managed system. Based on the logical partition configuration in the system plan, the HMC creates logical partitions on the managed system to which it deploys the system plan.</p> </li> <li>• HMC command-line interface <p>You can use the <code>mksysplan</code> command to create a system plan. After the system plan is created, you can also use the command-line interface to deploy that plan to a managed system. Based on the logical partition configuration in the system plan, the HMC creates logical partitions on the managed system to which it deploys the system plan.</p> </li> </ul>
Import the system plan	<p>Before you can use a system plan to create logical partitions, the system-plan file must exist on the HMC that manages the managed system to which you want to deploy the system plan. If the system-plan file does not exist on the HMC, you must import the file into the HMC. You can use the HMC web-user interface to import the file into the HMC from one of the following sources:</p> <ul style="list-style-type: none"> <li>• Upload the system-plan file from the remote console (the computer from which you remotely access the HMC)</li> <li>• Copy the system-plan file to media (optical disc or USB drive), insert the media into the HMC, and import the file from the media.</li> <li>• Download the system-plan file from a remote FTP site.</li> </ul> <p>After you import the system-plan file into an HMC, you can deploy the system plan within that file to other systems that the HMC manages.</p> <p><b>Note:</b> You can also import a system plan by using any of the following methods:</p> <ul style="list-style-type: none"> <li>• Run the <code>cpsysplan</code> command from the HMC command-line interface.</li> <li>• Run the <code>cpsysplan</code> command from the HMC command-line interface.</li> <li>• Use the HMC web-user interface.</li> </ul>
Deploy the system plan	<p>You can choose to deploy a system plan in stages, with some logical partitions being created in one stage, and other logical partitions being created in later stages. However, you cannot deploy a system plan to a managed system if the managed system has logical partitions that are not also in the system plan. If you change resource allocations on logical partitions that you have already deployed in one stage, make the same changes in the system plan by using the <i>SPT</i>. The system plan can only then be validated successfully when you deploy additional logical partitions in later stages.</p> <p>When you deploy a system plan by using the HMC web-user interface, the HMC validates the system plan. The managed system on which you deploy a system plan must have hardware, including any internal drive bay cabling and external SCSI cabling, that is identical to the hardware in the system plan. The HMC deploys a system plan to a managed system only if the system plan level is supported by the HMC, the format of the system plan is valid, and the hardware and each existing logical partition on the managed system passes validation.</p>



Table 3. Overview of the tasks for system plans (continued)

Task	Overview
Export the system plan	<p>You can use the HMC web-user interface to export a system-plan file from the HMC to one of the following locations:</p> <ul style="list-style-type: none"> <li>• Save the system-plan file to the remote console (the computer from which you remotely access the HMC).</li> <li>• Export the system-plan file to media that is mounted to the HMC (such as optical discs or USB drives).</li> <li>• Export the system-plan file to a remote FTP site.</li> </ul>
View the system plan	<p>You can look at the contents of a system-plan file in the HMC by using the System Plan Viewer that is integrated with the HMC. The System Plan Viewer uses a navigation tree and tables to display the information in the system-plan file. It includes features such as dynamic table-column sorting and displaying EADS boundary lines. You can open a system plan in the System Plan Viewer, either by using the View System Plan task or by clicking the name of a system plan. When you start the System Plan Viewer, you must enter your HMC user ID and password before you can view the system plan.</p> <p><b>Note:</b> Some messages, such as cabling instructions for internal drive bays, are viewable only when you use the System Plan Viewer in the SPT.</p>
Print the system plan	<p>You can use the System Plan Viewer to print a system plan that you have open in the Viewer. You can print all of the system plan or a portion of the system plan, depending on the current view of the system plan. To print the current view of the system plan, click <b>Print</b> in the Actions pane of the System Plan Viewer.</p>
Delete the system plan	<p>You can delete unnecessary system plans from your HMC.</p>

**Related concepts:**

“System planning tool” on page 2

The System Planning Tool (SPT) helps you design a managed system that can support a specified set of workloads.

“System plan validation for the HMC” on page 25

You deploy a system plan to a system that is managed by a Hardware Management Console (HMC) managed system by using the System Plan Deployment Wizard. The wizard validates the information in the system plan against the configuration of the managed system before beginning the deployment process.

“Optimizing data when creating a system plan on the HMC” on page 15

The quantity and quality of hardware information that the HMC can capture in a new system plan varies based on your version of the HMC and the operating environment of the logical partition for which you are capturing information.

**Related tasks:**

“Creating a system plan by using the HMC”

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

“Deleting a system plan from an HMC” on page 31

Removing a system plan from the Hardware Management Console (HMC) does not undo any partition or hardware configuration changes that occurred if the specified system plan was deployed on a managed system.

“Deploying a system plan by using the HMC” on page 22

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

“Exporting a system plan from an HMC” on page 28

You can export a system-plan file from a Hardware Management Console (HMC) to various types of media, to a remote FTP site, or to the computer from which you remotely access the HMC.







“Importing a system plan into an HMC” on page 20

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

“Viewing a system plan on an HMC” on page 30

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

**Related information:**

-  [Creating a system plan by using the SDMC](#)
-  [Deleting a system plan from an SDMC](#)
-  [Deploying a system plan by using the SDMC](#)
-  [Exporting a system plan from an SDMC](#)
-  [Importing a system plan into an SDMC](#)
-  [Viewing a system plan on an SDMC](#)

## Creating a system plan by using the HMC

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

When you create a system plan on the HMC, you can deploy the resulting system plan to create identical logical partition configurations on managed systems with identical hardware. The system plan contains specifications for the logical partitions and partition profiles of the managed system that you used as the basis of creating the system plan.

The new system plan also can contain hardware information that the HMC is able to obtain from the selected managed system. However, the amount of hardware information that the HMC can capture for the new system plan varies based on the method that the HMC uses to gather the hardware information.

**Note:** When you use the HMC V7R7.1.0, or later, on POWER7 processor-based servers, system plans that are created by using the HMC do not include Virtual I/O Server (VIOS) provisioning information.

The HMC can potentially use two methods: inventory gathering and hardware discovery. For example, when using hardware discovery, the HMC can detect information about hardware that is unassigned to a partition or that is assigned to an inactive partition.

Ensure that you meet the requirements for using either or both of the inventory gathering and hardware discovery methods before you create your system plan. See [System plan creation requirements](#) for more information.

To create a system plan by using the Hardware Management Console, complete the following steps:

1. In the navigation area, select **System Plans**. The System Plans page opens.
2. In the Tasks area, select **Create System Plan**. The Create System Plan window opens.
3. Select the managed system that you want to use as the basis for the new system plan.
4. Enter a name and description for the new system plan.
5. Optional: Select whether you want to retrieve inactive and unallocated hardware resources. This option appears only if the managed system is capable of hardware discovery, and the option is selected by default.

**Note:** If you do not select the **Retrieve inactive and unallocated hardware resources** option, the HMC does not perform a new hardware discovery, but instead uses the data in the inventory cache on the system. The HMC still performs inventory gathering and retrieves hardware information for any active logical partitions on the managed server. The resulting new system plan contains hardware information from the inventory-gathering process and hardware information from the hardware inventory cache on the system.

6. Optional: Select whether you want to view the system plan immediately after the HMC creates it.
7. Click **Create**.

Now that you have a new system plan, you can export the system plan, import it onto another managed system, and deploy the system plan to that managed system.

**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

“Optimizing data when creating a system plan on the HMC” on page 15

The quantity and quality of hardware information that the HMC can capture in a new system plan varies based on your version of the HMC and the operating environment of the logical partition for which you are capturing information.

**Related tasks:**

“Deleting a system plan from an HMC” on page 31

Removing a system plan from the Hardware Management Console (HMC) does not undo any partition or hardware configuration changes that occurred if the specified system plan was deployed on a managed system.

“Deploying a system plan by using the HMC” on page 22

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

“Exporting a system plan from an HMC” on page 28

You can export a system-plan file from a Hardware Management Console (HMC) to various types of media, to a remote FTP site, or to the computer from which you remotely access the HMC.

“Importing a system plan into an HMC” on page 20

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

“Viewing a system plan on an HMC” on page 30

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

**Related information:**

 [Creating a system plan by using the SDMC](#)

**Requirements for creating a system plan on the HMC**

To use the Hardware Management Console (HMC) to create a system plan successfully, you need to ensure that your system meets a number of prerequisite conditions.

A system plan that you create by using HMC V7.3.3, or later, contains hardware information that the HMC is able to obtain from the selected managed system. However, the amount of hardware information that the HMC can capture for the new system plan varies based on the method that the HMC uses to gather the hardware information.

The HMC can potentially use two methods: inventory gathering and hardware discovery. For example, when using hardware discovery, the HMC can detect information about hardware that is unassigned to a partition or that is assigned to an inactive partition.

**Note:** You cannot create system plans on IBM BladeCenter® blade servers.

To create a system plan successfully, you need to ensure that your system meets the following requirements:

- “Requirements for inventory gathering on the HMC” on page 16
- “Requirements for hardware discovery on the HMC” on page 18

If you meet all requirements and system plan creation is failing with a specific type of problem or you are not capturing the type of information that you are expecting to capture, see “Troubleshooting system

plan creation for the HMC” on page 19“Troubleshooting system plan creation for the HMC” on page 19 to determine the possible nature of the problem and potential actions that you can take to resolve it.

**Related concepts:**

“Troubleshooting system plan creation for the HMC” on page 19

Use this information to help resolve problems that you might encounter when creating a system plan with the Hardware Management Console (HMC) Version 7 Release 3.3, and later.

**Optimizing data when creating a system plan on the HMC**

The quantity and quality of hardware information that the HMC can capture in a new system plan varies based on your version of the HMC and the operating environment of the logical partition for which you are capturing information.

The data that you bring into the System Planning Tool (SPT) is only as good as the data that you capture when you create your system plan.

The following factors affect the quantity of hardware information in a system plan that you create:

- Type and level of management tool. You can capture most of the data when using an HMC Version 7 Release 3.2, or later, because these versions of the HMC have two methods that they can use to gather hardware information. Earlier versions of the HMC do not have the same capabilities and provide less detailed information.

Depending on the code level of your HMC, the HMC can use different methods to capture data about the hardware on your system, as the following table describes.

*Table 4. Hardware information captured in a system plan based on available collection methods*

Method	HMC availability	Information captured
Inventory gathering	HMC Version 7 Release 3.0, and later	Hardware assigned to active logical partitions
Hardware discovery	HMC Version 7 Release 3.2, and later	Hardware assigned to inactive logical partitions or hardware that is not assigned to a logical partition
Enhanced hardware discovery	HMC Version 7 Release 3.3, and later	Hardware assigned to inactive logical partitions or hardware that is not assigned to a logical partition  The information captured also includes SCSI disk drives on POWER6® processor-based servers, and later. You must convert the system plan into SPT to see this information.

**Related concepts:**

“System plan conversion” on page 3

You can convert a system-plan file that you have created by using the Hardware Management Console (HMC) into the format that the System Planning Tool (SPT) uses.

“Limitations of system plan conversion” on page 5

You can convert a system plan that you created on the Hardware Management Console (HMC) for use in the System Planning Tool (SPT). However, there are some limitations in the data that the SPT can convert.

“Troubleshooting system plan conversion” on page 8

When you convert a system plan into the format that the System Planning Tool (SPT) uses, you might encounter some problems that you must resolve or understand better.

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

**Related tasks:**

“Creating a system plan by using the HMC” on page 12

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

**Inventory gathering process on the HMC:**

The HMC always performs inventory gathering to capture detailed information for hardware that is assigned to an active logical partition.

The inventory gathering process can capture information for PCI cards and disk-drive configuration information for an active logical partition and record this information in your system plan. The inventory gathering process improves the quality of data that is available when you convert the system plan into the format that the System Planning Tool (SPT) uses. However, the process also extends the time it takes to create a system plan by several minutes.

*Requirements for inventory gathering on the HMC:*

By meeting the requirements for using the inventory gathering process, you can enhance the quality and quantity of data that you collect in the system plans that you create on the Hardware Management Console (HMC).

To maximize the amount and type of hardware information that the inventory gathering process is able to collect from the managed system, ensure that you complete the following tasks before you create a system plan:

- Ensure that data in the inventory cache on the managed system is maximized and current. See
- Ensure that the managed system is in the standby state or that the managed system is powered on.

**Note:** You cannot create a system plan if the managed system is in either the power-off state or the recovery state.

- Ensure that all the logical partitions are activated on the managed system from which you plan to base the new system plan.
- Ensure that the IBM Installation Toolkit for the Linux operating system is loaded if you are creating a system plan that will have information about a Linux system or logical partition running in the Linux environment. This toolkit is required so that systems and logical partitions that run in the Linux operating environment can perform inventory gathering. The IBM Installation Toolkit for the Linux operating system is available at the IBM Service and productivity tools website.
- Ensure that you have a Resource Monitoring and Control (RMC) connection between the HMC and each logical partition. An RMC connection is required for the inventory-gathering process. The use of

RMC ensures that the inventory gathering process can capture more detailed hardware information. Without RMC, for example, the inventory gathering process is not able to detect the types of disk drives installed on a managed system.

To ensure that the HMC can use RMC, complete the following steps:

1. In the HMC navigation area, select **HMC Management**.
2. In the contents area, select **Change Network Settings**. The Customize Network Settings window appears.
3. Click **LAN Adapters**, select the appropriate adapter from the list, and click **Details**.
4. On the Basic Settings page of the LAN Adapters Details window, ensure that **Partition communication** is selected.
5. On the Firewall Settings page, in the Available Applications list, select all instances of RMC, and click **Allow Incoming**, if necessary.
6. Click **OK** to close the LAN Adapter Details window.
7. Click **OK** to close the Customize Network Settings window.
8. Restart the HMC if you made any changes to these configuration settings.

For some operating systems, you might need to perform additional steps to ensure that RMC is configured and running correctly. To learn more about configuring and using RMC, see the Understanding RMC and resource managers website.

### Hardware discovery process on the HMC:

Starting with the Hardware Management Console (HMC) Version 7 Release 3.2, and later, the HMC can use the hardware discovery process to capture additional information in a system plan about the hardware on a managed system.

Some systems have the capability to provide greater details about their hardware inventory through the process of hardware discovery. Hence, you can create a system plan with more extensive hardware information. By using the hardware discovery process, the HMC Version 7 Release 3.2, and later, can capture information about hardware that does not have a logical partition assignment and hardware with assignments to inactive logical partitions.

**Note:** If you create a system plan with the intention of converting the system plan for use in the System Planning Tool (SPT), you must use the latest version of the HMC to create the system plan. For example, to obtain disk-drive configuration information that the SPT can convert successfully in a system plan, you must use HMC Version 7 Release 3.3, or later, to have the hardware discovery process capture detailed disk-drive configuration information.

Additionally, the hardware discovery process writes hardware inventory information to a cache on the system. The hardware inventory cache ensures that a certain amount of hardware information is available on the system when you create a system plan. The HMC can use the data in this cache when you create a system plan to obtain more detailed hardware information for any logical partitions that are active at that time.

On a system that can use hardware discovery, the hardware discovery process runs whenever the system is powered on in *hardware discovery* mode. When you enable this option, the system powers on in a special mode that performs the hardware discovery process and records hardware inventory information to a cache on the system. This collected information is then available for use when you display data for I/O devices or when creating a system plan.

You also can run the hardware discovery process when you create a system plan. If the managed system is capable of hardware discovery, the Create System Plan page provides an option for running hardware discovery. By using this option called **Retrieve inactive and unallocated hardware resources**, you can capture hardware configuration information for the managed system, regardless of the state of the

hardware. When using this option, the HMC uses both the data it collects from the updated inventory cache and the data it collects from the inventory gathering process as sources of information to create the system plan.

It is recommended that you use the **Retrieve inactive and unallocated hardware resources** option whenever you add or change the hardware while the new or changed hardware is deallocated from a partition. Otherwise, if the new or changed hardware is allocated to a partition, use this option to create the system plan when the partition is inactive. Doing so ensures that the inventory cache has the most current data possible.

When you create a system plan and do not select the **Retrieve inactive and unallocated hardware resources** option, the HMC does not perform a new hardware discovery. Instead the HMC uses the data in the inventory cache on the system. The HMC still performs inventory gathering and retrieves hardware information for any active logical partitions on the managed server. The resulting new system plan contains the hardware information that the HMC obtained from the inventory gathering process, and hardware information that the HMC obtained from the hardware inventory cache on the system.

*Requirements for hardware discovery on the HMC:*

By meeting the requirements for using the hardware discovery process, you can enhance the quality and quantity of data that you collect in the system plans that you create on the Hardware Management Console (HMC).

To use the hardware discovery capability when you create a system plan, ensure that you complete the following tasks:

- Ensure that a minimum of 0.5 processor is available.
- Ensure that a minimum of 256 MB of free memory is available.

**Note:** If you do not have the minimum processor or memory available, you can meet these requirements either by shutting down one or more logical partitions or by adjusting dynamic processor and memory settings for one or more logical partitions.

- Ensure that all logical partitions on the managed system for which you want to use the hardware discovery process are inactive to maximize the information that the hardware discovery process can capture. If a logical partition is active, the hardware discovery process cannot capture new information from the logical partition and instead retrieves information about the hardware assigned to the inactive logical partition from the hardware inventory cache on the managed system.

**Note:** Hardware discovery does not require the use of Resource Monitoring and Control (RMC).

- Ensure that the **Power off the system after all the logical partitions are powered off** attribute for the managed system is not selected. The hardware discovery process starts partitions and powers off partitions to gather information. If the hardware discovery process powers off the only running partition on the system, the managed system powers off and system plan creation fails. To verify the setting for this system attribute, complete these steps:
  1. In the HMC navigation area, select **Systems Management > Servers**.
  2. In the Tasks area, click **Properties**. The Properties window for the selected managed system opens.
  3. On the **General** tab, verify that the **Power off the system after all the logical partitions are powered off** attribute is not selected, and click **OK**.

**Tips for maximizing data in a system plan on the HMC:**

By setting up your system to optimize the hardware information that you capture in a system plan that you create by using the HMC, you can ensure that your system plan provides you with the most valuable information possible.



Setting up your system to optimize the hardware information that you capture in a system plan also ensures that you have the most usable configuration information possible when you convert the system plan for use in the System Planning Tool.

To ensure that you get the most detailed and complete data in your system plans, follow these guidelines:

1. After you place all the hardware in the system and verify that any internal drive bay cabling and external SCSI cabling is correct, maximize the amount of data in the inventory cache and keep the inventory cache current on the managed system. You can perform this action in one of following ways:
  - Power on your system with the Hardware Discovery option selected. Perform this action when you initially power on the system and whenever you add, remove, or move hardware on your system when making such a change requires that you power down the system to do so.
  - When you add, remove, or move hardware and such a change does not require that you power off the system to do so, update the cache by creating a system plan with the **Retrieve inactive and unallocated hardware resources** option selected. Create the system plan when the affected logical partitions are inactive.
2. Optimize the data for your logical partitions. To optimize the amount of data collected for your logical partitions, follow these steps:
  - a. Ensure that the data in the inventory cache is maximized and is current on the managed system, as described in the first guideline.
  - b. Now, you can activate the logical partitions that you want to include in the system plan and complete the Create a system plan task *without* using the **Retrieve inactive and unallocated hardware resources** option. This action ensures that the resulting system plan contains the most detailed and current information possible for all the hardware and logical partitions on the system. Perform this task any time that you create and activate new logical partitions.

## Troubleshooting system plan creation for the HMC

Use this information to help resolve problems that you might encounter when creating a system plan with the Hardware Management Console (HMC) Version 7 Release 3.3, and later.

Use HMC Version 7 Release 3.3, or later versions, to create system plans. These versions provide the best level of functions for capturing the highest quality and quantity of data from the managed system.

The system plan creation process writes any messages, including error messages to the `/var/hsc/log/mksysplan.log`. Use the information provided in this table to determine the type of problem you have and potential solutions for resolving the problem.

The following table contains information about resolving various errors that you might encounter when you create a system plan.

*Table 5. Problems and solutions for system plan creation*

Problem description	Corrective actions
The system plan that I created on my POWER7 processor-based server does not contain any VIOS provisioning information for the logical partitions.	You cannot create a system plan with this type of information for a POWER7 processor-based server.
The system plan that I created on my POWER7 processor-based server does not contain any operating environment installation information.	You cannot create a system plan with this type of information for a POWER7 processor-based server.

Table 5. Problems and solutions for system plan creation (continued)

Problem description	Corrective actions
<p>My system plan creation on HMC 7.7.1 fails with an error message similar to the following example:</p> <p>A system plan cannot be created from or deployed on the system when the system has its power off policy set to power off the system after all the logical partitions are powered off. Set the properties for this system to not power off after all the partitions are powered off to create or deploy the system plan.</p> <p>This type of failure occurs during system plan creation on a POWER7 processor-based server because the attribute of <b>Power off the system after all the logical partitions are powered off</b> is selected on the <b>General</b> tab of the Managed Systems Properties page.</p>	<p>To successfully use the hardware discovery process to create a system plan, ensure that the <b>Power off the system after all the logical partitions are powered off</b> attribute for the managed system is not selected.</p> <p>To verify this system attribute, complete these steps:</p> <ol style="list-style-type: none"> <li>1. In the HMC navigation area, select <b>Systems Management &gt; Servers</b>.</li> <li>2. In the Tasks area, select <b>Properties</b>. The Properties window for the selected managed system is displayed.</li> <li>3. On the <b>General</b> tab, verify that the <b>Power off the system after all the logical partitions are powered off</b> attribute is not selected, and click <b>OK</b>.</li> </ol>
<p>After I created my system plan, a logical partition that I did not create, with the name IOR Collection LP exists on my system. How did this partition get on my system and can I delete it?</p> <p>During the hardware discovery process, a new virtual logical partition named IOR Collection LP is created temporarily. This partition is typically deleted by the hardware discovery process before the <code>mksysplan</code> command is completed. If the <code>mksysplan</code> command or Create system plan task in the HMC completed, and the IOR Collection LP continues to exist after waiting several minutes, report the problem to the HMC technical support.</p>	<p>Contact IBM support, and additionally perform the following steps to delete the IOR Collection LP partition:</p> <ol style="list-style-type: none"> <li>1. Write down the partition ID from the partition view of the system on the HMC.</li> <li>2. Open a terminal connection to the HMC, either on the HMC console or remotely.</li> <li>3. Use this command: <code>rmsyscfg -r lpar -m &lt;managed system name&gt; --id &lt;partition id&gt;</code></li> <li>4. For more information, use <code>rmsyscfg --help</code> for help on this command.</li> </ol>

#### Related concepts:

“Requirements for creating a system plan on the HMC” on page 14

To use the Hardware Management Console (HMC) to create a system plan successfully, you need to ensure that your system meets a number of prerequisite conditions.

## Importing a system plan into an HMC

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

You can import a system-plan file into the HMC from any of the following locations:

- From the computer on which you remotely access the HMC.
- From various media that is mounted on the HMC, such as optical discs or USB drives.
- From a remote site by using FTP. To use this option, you must fulfill the following requirements:
  - The HMC must have a network connection to the remote site.
  - An FTP server must be active on the remote site.
  - Port 21 must be open on the remote site.

**Note:** You cannot import a system plan that has an identical name to any system plan that is available on the HMC.

To import a system-plan file, you must be a super administrator. For more information about user roles, see <http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/p7ha1/manageusersandtasks.htm>

To import a system-plan file into the HMC, complete the following steps:

1. In the navigation area of the HMC, select **System Plans**.
2. In the tasks area, select **Import System Plan**. The Import System Plan window opens.
3. Select the source of the system-plan file that you want to import. Use the following table to complete the appropriate steps for importing the system plan from the selected source location of the file.

Source of the system plan to import	Complete the following steps:
<b>This computer</b>	<ol style="list-style-type: none"> <li>1. Select <b>Import from this computer to the HMC</b>.</li> <li>2. Click <b>Import</b> to display the Upload File window.</li> <li>3. Click <b>Browse</b>.</li> <li>4. Select the system-plan file that you want to import and click <b>Open</b>.</li> <li>5. Click <b>OK</b> to upload the file.</li> </ol>
<b>Media</b>	<ol style="list-style-type: none"> <li>1. Select <b>Import from media</b>.</li> <li>2. In the <b>System plan file name</b> field, enter the name of the system-plan file. <b>Note:</b> The name of the system-plan file must end with the <code>.sysplan</code> file name suffix and can use alphanumeric characters only.</li> <li>3. In the <b>Sub-directory on media</b> field, enter the path in which the system-plan file is located on the media. <b>Note:</b> Specify the subdirectory location only, rather than the fully qualified path and file name.</li> <li>4. Click <b>Import</b> to display the Select Media Device window.</li> <li>5. Select the media that contains the system-plan file that you want to import. <b>Note:</b> Ensure that you know the name of the device that you want to select. For example, <code>/media/sda1</code> is typically the default device name for the USB drive on most systems. However, device names can vary from system to system.</li> <li>6. Click <b>OK</b>.</li> </ol>

Source of the system plan to import	Complete the following steps:
Remote FTP site	<ol style="list-style-type: none"> <li>1. Select <b>Import from a remote FTP site</b>.</li> <li>2. In the <b>System plan file name</b> field, enter the name of the system-plan file. <b>Note:</b> The name of the system-plan file must end with the <code>.sysplan</code> file name suffix and can use alphanumeric characters only.</li> <li>3. In the <b>Remote site hostname</b> field, enter the host name or IP address of the remote FTP site.</li> <li>4. In the <b>User ID</b> field, enter the user ID to use to access the remote FTP site.</li> <li>5. In the <b>Password</b> field, enter the password to use to access the remote FTP site.</li> <li>6. In the <b>Remote directory</b> field, enter the path in which the system-plan file is located on the remote FTP site. If you do not enter a path, the HMC uses the default path specified on the remote FTP site.</li> </ol>

4. Click **Import**. If the HMC returns an error, return to the Import System Plan window and verify that the information you entered is correct. If necessary, click **Cancel**, return to step 2, and redo the procedure, ensuring that the information you specify at each step is correct.

When you complete the process of importing the system-plan file, you can deploy the system plan in the system-plan file to a system that the HMC manages. If you imported the system-plan file from media, you can unmount the media by using the `umount` command from the HMC command-line interface.

**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

**Related tasks:**

“Creating a system plan by using the HMC” on page 12

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

“Deleting a system plan from an HMC” on page 31

Removing a system plan from the Hardware Management Console (HMC) does not undo any partition or hardware configuration changes that occurred if the specified system plan was deployed on a managed system.

“Deploying a system plan by using the HMC”

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

“Exporting a system plan from an HMC” on page 28

You can export a system-plan file from a Hardware Management Console (HMC) to various types of media, to a remote FTP site, or to the computer from which you remotely access the HMC.

“Viewing a system plan on an HMC” on page 30

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

**Related information:**

 Importing a system plan into an SDMC

## Deploying a system plan by using the HMC

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

When you deploy a system plan, the HMC creates logical partitions on the managed system according to the specifications in the system plan.

You do not have to deploy a system plan in its entirety. Instead, you can partially deploy a system plan on the target system by selecting the logical partitions in the plan to deploy. You can run the Deploy System Plan Wizard again at another time to deploy the remainder of the logical partitions in the system plan.

**Note:** HMC Version 7 Release 7.1, and later, does not support Virtual I/O Server (VIOS) provisioning and operating environment installation for POWER7 processor-based servers when you deploy a system plan.

Before you deploy a system plan, complete the following tasks:

- Ensure that the system-plan file exists on the HMC. If the system-plan file does not exist on the HMC, you must import the system-plan file into the HMC. For instructions, see “Importing a system plan into an HMC” on page 20 “Importing a system plan into an HMC” on page 20.
- Ensure that you meet all the appropriate requirements for deploying the system plan. See

To deploy a system plan on a managed system by using the HMC, complete the following steps:

1. In the navigation area of the HMC, select **System Plans**.
2. In the contents area, select the system plan that you want to deploy.
3. Select **Tasks > Deploy system plan**. The Deploy System Plan Wizard starts.
4. On the Welcome page, complete the following steps:
  - a. Select the system-plan file that contains the system plan that you want to deploy.
  - b. Select the managed system to which you want to deploy the system plan and click **Next**. If the system plan does not match the managed system to which you want to deploy the plan, the wizard displays a window with this information. Click **OK** to continue, or **Cancel** to select a different system plan.

**Note:** If the system-plan file contains multiple system plans, the wizard provides a step so that you can select a specific system plan from the file. The wizard does not provide this step unless there is more than one system plan in the specified file.

5. On the Validation page, complete the following steps:
  - a. Wait for the wizard to validate the managed system and its hardware against the system plan. The validation process can take several minutes.
  - b. If the validation process completes successfully, click **Next**.
  - c. If the validation process fails, correct the problems that the error messages indicate, click **Cancel** to exit the wizard, and restart this procedure from the beginning. To help you correct any validation problems, you might want to create a system plan that is based on the current configuration of the managed system. By using such a system plan, you can compare the system plan that you want to deploy with the current configuration of the managed system. You can do this by using the Create System Plan task in the HMC, or by running the following command from the HMC command line:

```
mksysplan -m name_of_managed_system -f name_of_new_system_plan.sysplan
```

This action creates a system plan that you can view and compare to the old system plan to help diagnose any problems.

6. Optional: On the Partition Deployment page, if you do not want to create all the logical partitions, partition profiles, virtual adapter types, or virtual adapters in the system plan, clear the boxes in the **Deploy** column next to the logical partitions, partition profiles, virtual adapter types, or virtual adapters that you do not want to create. Virtual serial adapters are required in virtual slots 0 and 1 for each logical partition. You cannot create the logical partition unless you create these virtual serial adapters.

7. On the Summary page, review the system deployment step order and click **Finish**. The HMC uses the system plan to create the specified logical partitions. This process can take several minutes.

**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

“System plan validation for the HMC” on page 25

You deploy a system plan to a system that is managed by a Hardware Management Console (HMC) managed system by using the System Plan Deployment Wizard. The wizard validates the information in the system plan against the configuration of the managed system before beginning the deployment process.

**Related tasks:**

“Creating a system plan by using the HMC” on page 12

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

“Deleting a system plan from an HMC” on page 31

Removing a system plan from the Hardware Management Console (HMC) does not undo any partition or hardware configuration changes that occurred if the specified system plan was deployed on a managed system.

“Exporting a system plan from an HMC” on page 28

You can export a system-plan file from a Hardware Management Console (HMC) to various types of media, to a remote FTP site, or to the computer from which you remotely access the HMC.

“Importing a system plan into an HMC” on page 20

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

“Viewing a system plan on an HMC” on page 30

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

**Related information:**

 [Deploying a system plan by using the SDMC](#)

## Requirements for deploying a system plan on the HMC

To use the Hardware Management Console (HMC) to deploy a system plan successfully, you must ensure that your system meets the prerequisite conditions.

To deploy or to create a system plan successfully, you must ensure that your system meets the requirements in the following tables.

*Table 6. Hardware validation prerequisites for system plan deployment*

Prerequisite	Description
System setup	Delete the logical partition that was provided with your server, and delete any other logical partition that is not in the system plan. For instructions, see <a href="#">Deleting a logical partition</a> . The name of the logical partition that was provided with the server is the serial number of the managed system, and the name of the partition profile is default_profile.

Table 6. Hardware validation prerequisites for system plan deployment (continued)

Prerequisite	Description
Requirements for physical disk I/O adapter	<p>Locate the physical disk I/O adapters that belong to each logical partition. Verify that the disk drives that are attached to these physical I/O adapters support the configuration for each logical partition that you want. The Deploy System Plan Wizard only validates that the physical disk I/O adapters match the system plan. It does not validate that the disk drives are configured for the physical disk I/O adapters. If you are deploying a system plan that you created in the System Planning Tool (SPT), verify that all hardware is in the correct location, and that internal drive bays and external SCSI cables are cabled according to SPT instructions. If you are deploying a system plan that you created by using the HMC, verify that the hardware and cabling on the target system is identical to that on the source system.</p> <p>If the system plan includes a storage area network (SAN) or fibre channel adapters, ensure that the adapters are cabled and that the SAN is configured.</p>

If you meet all the listed prerequisite conditions and system plan deployment is failing with a specific type of problem, see the troubleshooting topics to determine the possible nature of the problem and potential actions that you can take to resolve it.

**Related concepts:**

“Troubleshooting system plan deployment for an HMC” on page 27

Use the following information to help resolve problems that you might encounter when deploying a system plan with the Hardware Management Console (HMC) Version 7.3.3, and later.

**System plan validation for the HMC**

You deploy a system plan to a system that is managed by a Hardware Management Console (HMC) managed system by using the System Plan Deployment Wizard. The wizard validates the information in the system plan against the configuration of the managed system before beginning the deployment process.

The Deploy System Plan wizard validates the system plan before deployment to ensure that it can be deployed successfully. The wizard validates the system plan in two phases. The first phase of the validation process is hardware validation. During this phase, the wizard validates that the processors, memory, and I/O adapters that are available on the managed system match or exceed those that the system plan specifies. The wizard also validates that the hardware placement on the managed system matches the hardware placement that the system plan specifies.

The second phase of the validation process is partition validation. During this phase, the wizard validates that the logical partitions on the managed system match the logical partitions in the system plan.

If any step in the partition validation process fails for the system plan, validation of the entire system plan fails.

**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

“Troubleshooting system plan deployment for an HMC” on page 27

Use the following information to help resolve problems that you might encounter when deploying a system plan with the Hardware Management Console (HMC) Version 7.3.3, and later.

**Related tasks:**

“Deploying a system plan by using the HMC” on page 22

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

**Hardware validation on the HMC:**

During the hardware validation process, the HMC compares the hardware information in the system plan with the hardware available on the managed system to ensure that the system plan can deploy successfully to the target managed system.

When validating the hardware on the managed system, the HMC compares the following information from the system plan with the hardware available on the managed system:

- Processor and memory amounts
- Physical I/O adapter placement

The hardware described in the system plan passes validation if it matches the hardware specified by the managed system. The hardware on the managed system can contain resources in addition to those resources specified in the system plan and still pass validation. However, the hardware on the managed system must at least match the hardware specified in the system plan.

**Note:** With HMC Version 7 Release 7.4.0, or later, the System Planning Tool (SPT) stores detailed information about I/O adapters. During the hardware validation process, this information is used to obtain more accurate validation of the hardware.

For example, a system plan specifies a server with two processors, 8 GB of memory, and a specific placement of physical I/O adapters within the system unit. A server that contains two processors, 16 GB of memory, a matching placement of physical I/O adapters within the system unit, and an expansion unit with additional physical I/O adapters would allow the system to pass validation. A server that contains 4 GB of memory can cause the system to fail validation. A system plan can also fail validation if the system plan specifies one type of physical I/O adapter in a slot but the actual system unit has a different type of physical I/O adapter in that slot. However, if the system plan specifies an empty slot, the validation allows any type of physical I/O adapter to be in that slot on the actual system.

The HMC does not validate the disk drives that are attached to physical I/O adapters against the disk drives specified in the system plan. You must ensure that the disk drives installed in the managed system support the logical partition configuration that you want. The HMC also does not validate that internal drive bay cabling and external SCSI cabling with what is specified in a system plan that was created in the System Planning Tool (SPT). You must validate these items manually before you deploy the system plan. Embedded devices automatically pass hardware validation because they are embedded into the system and cannot be removed.

**Partition validation on the HMC:**

During the partition validation process, the HMC compares the logical partition information in the system plan with any existing logical partitions on the managed system to ensure that the system plan can deploy successfully to the target managed system.



Any existing logical partition found on the managed system must appear in the system plan and must match the system plan as it appears on the managed system. For example, hardware on the managed system that is referenced by the actual partition must at least match the hardware referenced by that same partition in the system plan. When validating an existing logical partition, the HMC validates the following items for that logical partition:

1. Whether a logical partition in the system plan has the same partition ID and name as the existing logical partition specified in the machine default configuration.
2. Whether an existing logical partition has partition profiles that match each partition profile specified for the logical partition in the system plan.
3. Whether the partition profiles for any existing logical partitions contain the resources specified in the corresponding partition profiles in the system plan.
4. Whether the partition on the managed system has only those same virtual adapters and adapter types (and that they use the same adapter ports) as those specified for the partition in the system plan.

For example, if the server has an existing logical partition with a partition ID 1, the HMC examines the logical partition in the system plan that has a partition ID of 1. If this logical partition exists and has a partition profile that is named SUPPORT, the HMC looks at the existing logical partition to see if it also has a partition profile that is named SUPPORT. If so, the HMC verifies that the resources specified in the SUPPORT partition profile in the system plan are contained in the SUPPORT partition profile in the existing logical partition.

When the HMC validates partition profiles, it compares the following resources in the partition profiles:

- Processor and memory amounts
- Physical I/O slot assignments

The following examples illustrate how the HMC compares resources in the partition profiles during the validation process to determine whether the system plan is valid for a managed system:

- If the SUPPORT partition profile in the system plan specifies 2 GB of memory and the SUPPORT partition profile for the existing logical partition specifies 3 GB of memory, the amount of memory is valid.
- If the SUPPORT partition profile in the system plan specifies 4 GB of memory and the SUPPORT partition profile for the existing logical partition specifies 3 GB of memory, the amount of memory is not valid.
- If physical I/O slot P1 is assigned to the SUPPORT partition profile in the system plan but not to the SUPPORT partition profile for the existing logical partition, the physical slot assignment is not valid.
- If physical I/O slot P2 is not assigned to the SUPPORT partition profile in the system plan, it does not matter whether slot P2 is assigned to the SUPPORT partition profile for the existing logical partition.

## **Troubleshooting system plan deployment for an HMC**

Use the following information to help resolve problems that you might encounter when deploying a system plan with the Hardware Management Console (HMC) Version 7.3.3, and later.

The system plan deployment process writes any messages, including error messages to the `/var/hsc/log/iqzdtrac.trm` file or to the `/var/hsc/log/deploy_validation.log` file if there are validation errors.

When you deploy a system plan, the validation process checks the information in the system plan with the configuration of the managed system. Some differences between the plan and the system can result in either hardware or partition validation errors. To deploy the system plan successfully, you must either change the system plan or change the target managed system.

### Related concepts:

“Requirements for deploying a system plan on the HMC” on page 24

To use the Hardware Management Console (HMC) to deploy a system plan successfully, you must ensure that your system meets the prerequisite conditions.

“System plan validation for the HMC” on page 25

You deploy a system plan to a system that is managed by a Hardware Management Console (HMC) managed system by using the System Plan Deployment Wizard. The wizard validates the information in the system plan against the configuration of the managed system before beginning the deployment process.

## Exporting a system plan from an HMC

You can export a system-plan file from a Hardware Management Console (HMC) to various types of media, to a remote FTP site, or to the computer from which you remotely access the HMC.

You can export a system-plan file from the HMC to any of the following locations:

- To the computer on which you remotely access the HMC.
- To media that is mounted on the HMC (such as optical discs or USB drives).
- To a remote site by using FTP. This allows you to import the system-plan file into a different HMC and deploy the system plan to a managed system with identical hardware. To use this option, you must fulfill the following requirements:
  - The HMC must have a network connection to the remote site.
  - An FTP server must be active on the remote site.
  - Port 21 must be open on the remote site.

To export a system-plan file, you must be a super administrator. For more information about user roles, see <http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/p7ha1/manageusersandtasks.htm><http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/p7ha1/manageusersandtasks.htm>.

To export a system-plan file that is stored on the HMC, complete the following steps:

1. In the navigation area of your HMC, select **System Plans**.
2. In the contents area, select the system-plan file that you want to export.
3. Click **Tasks** and select **Export System Plan**. The Export System Plan window opens.
4. Select the export destination for the system plan. Use the following table to complete the appropriate steps for exporting the system plan to the selected destination location of the file.

Export destination for the system plan	Complete the following steps:
This computer	<ol style="list-style-type: none"><li>1. Select <b>Export to this computer from the HMC</b>.</li><li>2. Click <b>Export</b> to display the Save File window.</li><li>3. Click the file name link and use the save file function of your browser to save the file to a location on your local file system.</li><li>4. Click <b>OK</b> to close the window after you have saved the file.</li></ol>

Export destination for the system plan	Complete the following steps:
<b>Media</b>	<ol style="list-style-type: none"> <li>1. Select <b>Export to media</b>.</li> <li>2. In the <b>Sub-directory on media</b> field, enter the path on the media to which to export the system-plan file. <b>Note:</b> Specify the subdirectory location only, rather than the fully qualified path and file name.</li> <li>3. Click <b>Export</b> to display the Select Media Device window.</li> <li>4. Select the media to which you want to export the system plan file.</li> <li>5. Click <b>OK</b>.</li> </ol>
<b>Remote FTP site</b>	<ol style="list-style-type: none"> <li>1. Select <b>Export to a remote site</b>.</li> <li>2. Enter the host name or IP address of the remote FTP site into the <b>Remote site hostname</b> field.</li> <li>3. Enter the user ID to use to access the remote FTP site into the <b>User ID</b> field.</li> <li>4. Enter the password to use to access the remote FTP site into the <b>Password</b> field.</li> <li>5. Enter the path to which you want to export the system-plan file into the <b>Remote directory</b> field. If you do not enter a path, the HMC exports the system-plan file to the default path specified on the remote FTP site.</li> </ol>

5. Click **Export**. If the HMC returns an error, verify that the information you entered in this window is correct. If necessary, click **Cancel**, return to step 3, and redo the procedure, ensuring that the information you specify at each step is correct.

If you exported the system-plan file to media, you can unmount the media by using the **umount** command from the HMC command-line interface. You can then import the system-plan file into a different HMC so that you can deploy the system plan to systems that the other HMC manages.

### Related concepts:

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

### Related tasks:

“Creating a system plan by using the HMC” on page 12

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

“Deleting a system plan from an HMC” on page 31

Removing a system plan from the Hardware Management Console (HMC) does not undo any partition or hardware configuration changes that occurred if the specified system plan was deployed on a managed system.

“Deploying a system plan by using the HMC” on page 22

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

“Importing a system plan into an HMC” on page 20

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

“Viewing a system plan on an HMC”

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

### Related information:

 Exporting a system plan from an SDMC

## Viewing a system plan on an HMC

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

The System Plan Viewer uses a navigation tree and tables to display the information in a system-plan file. The viewer includes the dynamic table-column sorting feature. The System Plan Viewer is included with the HMC so that it can be accessed from the HMC. However, you must re-enter your user ID and password before you can view the system plan.

### Notes:

- Some messages, such as internal drive bay cabling instructions can be viewed only when you use the System Plan Viewer in the SPT.
- With HMC Version 7 Release 7.4.0, or later, you can view information about expansion units, such as expansion unit loops and cable characteristics.

To view a system plan from the HMC, complete the following steps:

1. From the navigation area, select **System Plans**.
2. In the contents area, select the system plan that you want to view.
3. Click **Tasks** and select **View System Plan**. The System Plan Viewer opens in a separate browser window.

**Note:** You can also open the system plan in the System Plan Viewer by clicking the name of the system plan.

4. Enter your HMC **Username** and **Password** to log in to the System Plan Viewer.

**Note:** As an alternative to the HMC web-user interface, you can use the IBM Systems Director Management Console (SDMC) web-user interface to view a system plan.

**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

**Related tasks:**

“Creating a system plan by using the HMC” on page 12

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“Importing a system plan into an HMC” on page 20

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

**Related information:**

 [System Planning Tool](#)

 [Viewing a system plan on an SDMC](#)

## Deleting a system plan from an HMC

Removing a system plan from the Hardware Management Console (HMC) does not undo any partition or hardware configuration changes that occurred if the specified system plan was deployed on a managed system.

To remove a system plan from the HMC, complete the following steps:

1. From the navigation area, select **System Plans**.
2. In the contents area, select the system plan that you want to delete.
3. Click **Tasks** and select **Remove System Plan**. The Remove System Plans window opens.
4. Confirm that the system plan is the one that you want to remove and click **Remove System Plan** to delete the system plan.

**Note:** As an alternative to the HMC web-user interface, you can use the IBM Systems Director Management Console (SDMC) web-user interface to delete a system plan.

**Related concepts:**

“System plans on the HMC” on page 8

You can use system plans with the Hardware Management Console (HMC) to perform a number of high-level system management tasks.

**Related tasks:**

“Creating a system plan by using the HMC” on page 12

You can use the Hardware Management Console (HMC) to create a system plan, based on an existing system configuration, and then deploy that system plan to other managed systems.

“Deploying a system plan by using the HMC” on page 22

You can use the Hardware Management Console (HMC) to deploy all or part of a system plan to a managed system.

“Exporting a system plan from an HMC” on page 28

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“Importing a system plan into an HMC” on page 20

You can import a system-plan file into a Hardware Management Console (HMC) from various types of media, a remote FTP site, or the computer from which you remotely access the HMC. You can then deploy the imported system plan to a system that the HMC manages.

“Viewing a system plan on an HMC” on page 30

You can use the System Plan Viewer on the Hardware Management Console (HMC) to view a system plan.

**Related information:**

 [Deleting a system plan from an SDMC](#)

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## Programming Interface Information

This System plans publication documents intended Programming Interfaces that allow the customer to write programs to obtain the services of Virtual I/O Server Version 2.2.3.0.

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