



IBM Systems
IBM Director z/VM Center
Release Notes

Version 5.10 Update 3





IBM Systems

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Version 5.10 Update 3

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Chapter 1. About this release

This document contains the release notes for the z/VM[®] Center extension that operates with IBM[®] Director Version 5.10 Update 3.

The z/VM Center extension provides a user interface for deploying and configuring Linux[®] systems on virtual hardware that is based on real IBM System z[™] hardware and the z/VM hypervisor. For details, see publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_c_vsd_and_sc.html in the IBM Systems Software Information Center.

See the IBM Director Web site for possible updates to these release notes and other documents at: www.ibm.com/servers/eserver/xseries/systems_management/ibm_director/resources/

New in this release

The z/VM Center extension for IBM Director Version 5.10 Update 3 includes the following improvements:

Support for vmcp

The z/VM Center extension for IBM Director Version 5.10 Update 3 adds support for vmcp, in addition to the previously-supported cpint, to enable Linux instances that run in z/VM guest virtual machines to issue z/VM control program (CP) commands.

Disk size indicator in Virtual Server Deployment windows

The Virtual Server Deployment panes that show disk information have a new **Size in Bytes** field that shows the disk size in MB.

Product fix history

This release of the z/VM Center extension for IBM Director fixes the following problems in z/VM Center for IBM Director Version 5.10 Update 1:

Installing the z/VM Center server extension on Windows[®] results in a completion message but the extension is not available.

Reboot Windows to complete the installation.

Upgrading the z/VM Center server extension on Windows from version 5.10 to version 5.10 Update 1 results in two entries in the Windows Add or Remove Programs utility.

If you want to remove the extension, you can use either entry. The removal process reboots Windows and uninstalls all components of the extension, but the Add or Remove Programs utility still shows one of the entries. To remove the remaining entry, run the remove process for this entry.

Specifying a new domain name results in a global domain change in /etc/hosts during personalization.

The personalization that runs after an operating system template was deployed might change all entries in the /etc/hosts file.

This occurs only if a fully qualified domain name has been given during the operator station task (OST) wizard and the new domain name is not equal to the old domain name.

Performing Level-1 discovery might not work if Level-1 systems have multiple network interfaces.

The Level-1 discovery might not find systems that have multiple network interfaces when IBM Director Server is unable to talk to the system on the primary network interface. Typically, the primary network interface is that one on which the default route is set.

The problem does not occur if the Level-1 systems are discovered as Level-0 systems first. Later, these Level-0 systems are promoted to Level-1.

Deleting an Operating System Template might result in an error message.

When deleting an operating system the following message might appear:

```
DNZZSM365E: The method DeleteInstallImage was called on 'root/cimv2:IBM_ZvmCbcProvisioningService.CreationClassName="IBM_ZvmCbcProvisioningService",Name="EPP4Z", SystemCreationClassName="IBM_ZvmComputerSystem",SystemName="000000000009980402.VMID2"' and returned with error.
```

This message can be ignored. The action is completed successfully.

The capacity of IBM 3390 Direct Access Storage Device (DASD) Model 9 is not displayed correctly.

When a DASD 3390-9 is defined in a file pool, a display of the DASD capacity in the file pool shows a capacity of 4020 MB instead of almost 8 GB.

Chapter 2. Installation and upgrade information

This section provides information about installing the z/VM Center extension for IBM Director Version 5.10 Update 3. Upgrading procedures for the z/VM Center extension are the same as for installation.

Also refer to the following topics in the IBM Systems Software Information Center:

- For information about preparing your z/VM environment for z/VM Center, including setting up a z/VM manageability access point, see publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_prepare.html. Additional information is provided in the *IBM Director Version 5.10 Update 3 Release Notes*, on the IBM Director Web site at www.ibm.com/servers/eserver/xseries/systems_management/ibm_director/resources/.
- For information about installing the z/VM Center server and console extensions, see publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_installing_zvmctr.html.
- For information about installing the required license key see publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_install_key.html.
- For information about installing the z/VM CIM instrumentation on the z/VM manageability access point, see publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_install_map_rpm.html.

To obtain an RPM for installing or upgrading the z/VM CIM instrumentation, complete the following steps:

1. Navigate to the IBM Director Downloads Web Site at www.ibm.com/servers/eserver/xseries/systems_management/xseries_sm/dwnl.html.
2. Select **IBM Director 5.10 for xSeries® and BladeCenter®** from the list, complete the requested information, and click **Submit**.
3. Under the Current version heading, click **IBM Director 5.10 Update 3**. The download package is named `dir5.10.3_zvmmmap-agent-linux-s390.tar`.

Installation notes

This section provides additional information about installing z/VM Center extension components for IBM Director Version 5.10 Update 3 on the management server and the management console.

You can run z/VM Center extension components on Linux, AIX®, Windows, and i5/OS®.

Notes:

1. On i5/OS, the z/VM Center extension components are automatically installed with IBM Director Version 5.10 Update 3. A separate installation of z/VM Center extension components is not required.
2. The z/VM Center extension for AIX is not updated in Version 5.10 Update 3.

Note:

Complete the following steps to obtain the z/VM Center extension components for Linux and Windows:

The z/VM Center extension components for Linux can be installed on Linux on System z, Linux on System p™, or Linux on System x™.

There is a separate package for each operating system. Each package contains the installation files for both the server extension and the console extension for that operating system. Table 1 provides an overview of the available download packages.

1. Navigate to the IBM Director Downloads Web Site at www.ibm.com/servers/eserver/xseries/systems_management/xseries_sm/dwnl.html.
2. Select **IBM Director 5.10 for xSeries and BladeCenter** from the list, complete the requested information, and click **Submit**.
3. Under the **Current version** heading, click **IBM Director 5.10 Update 3**.
4. Click the link for the package you want to download.

Table 1. Download packages and content

Component	Package file name
IBM Director 5.10 Update 3 z/VM Center Extension for Linux Contains the following full install packages for IBM Director Server and IBM Director Console: <ul style="list-style-type: none"> • zVMCenterServerExt-5.10.3.noarch.rpm • zVMCenterConsoleExt-5.10.3.noarch.rpm 	dir5.10.3_zvmcenterext-linux.tar
IBM Director 5.10 Update 3 z/VM Center Extension for Windows Contains the following full install packages for IBM Director Server and IBM Director Console: <ul style="list-style-type: none"> • zVMCenterServerExt_5.10.3_windows.exe • zVMCenterConsoleExt_5.10.3_windows.exe 	dir5.10.3_zvmcenterext-windows.zip

You can download the z/VM Center extension code for free. However, to be able to use z/VM Center, you must purchase the IBM Director Extensions, V5.10 feature of IBM Virtualization Engine™ and Infrastructure Services for Linux on System z, V2.1 and install a license key. For details, see publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_install_key.html in the IBM Systems Software Information Center.

The following sections provide separate installation information for the z/VM Center server and console extensions. You can, but need not, install the server and console extension on the same system.

Management server

Consider the following information when installing z/VM Center extension components for IBM Director Version 5.10 Update 3 on your management server.

You must have installed IBM Director Server before you start installing the z/VM Center server extension. Perform these steps:

1. Download the installation package to a temporary directory on the system where you want to install the extension. Refer to Table 1 to identify the correct package for your operating system.

2. Extract the installation files from the installation package using one of the commands in Table 2.

Table 2. Commands for extracting the installation files from the installation package

For	Type the following command and press Enter
Linux	<code>tar -xf dir5.10.3_zvmcenterext-linux.tar</code>
Windows	<code>unzip dir5.10.3_zvmcenterext-windows.zip</code>

3. Proceed with the installation according to the instructions in publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_installing_zvmctr.html in the IBM Systems Software Information Center.

Windows only:

- Reboot Windows after installing or uninstalling z/VM Center.
- Uninstall z/VM Center before you uninstall IBM Director Server.

Management console

Consider the following information when installing z/VM Center components for IBM Director Version 5.10 Update 3 on your management console.

You must have installed IBM Director Console before you start installing the z/VM Center console extension. Perform these steps:

1. Download the installation package to a temporary directory on the system on which you want to install the extension. Refer to Table 1 on page 4 to identify the correct package for your operating system.
2. Extract the installation files from the installation package using one of the commands in Table 3.

Table 3. Commands for extracting the installation files from the installation package

For	Type the following command and press Enter
Linux	<code>tar -xf dir5.10.3_zvmcenterext-linux.tar</code>
Windows	<code>unzip dir5.10.3_zvmcenterext-windows.zip</code>

3. Proceed with the installation according to the instructions in publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/vsd0_t_installing_zvmctr.html in the IBM Systems Software Information Center.

Chapter 3. Known limitations, problems, and workarounds

This section provides information about known limitations, problems and workarounds.

Limitation

The z/VM Center extension for IBM Director Version 5.10 Update 3 has the following known limitation:

New default port for SUSE Linux Enterprise Server 9

In SUSE Linux Enterprise Server 9, the default port has been changed from 5989 to 15989. For more information, see Chapter 4, “Documentation updates,” on page 9.

Problems

The z/VM Center extension for IBM Director Version 5.10 Update 3 has the following known problems:

Changes to user directory not picked up

Changes to a directory entry of a z/VM user ID, for example, a virtual server, might not show up in IBM Director if the corresponding interface in DirMaint™ is not running. For more information, see Chapter 4, “Documentation updates,” on page 9.

Uninstalling the z/VM Center console extension on Windows while IBM Director Console is running causes a reboot of Windows.

The reboot does not occur if you stop all instances of IBM Director Console before uninstalling the extension.

Querying the disk pools may result in errors if the z/VM DIRMAINT diskpool specification in the EXTENT CONTROL file includes volume IDs which are not valid. If you have specified more than one volume ID in the EXTENT CONTROL files diskpool section of the DirMaint facility that is not valid, you might encounter errors or even stop the CIM Server. To prevent this, ask your z/VM administrator to avoid volume IDs that are not valid in disk pool specifications.

Workaround

This section includes a solution to a problem you might encounter when using the z/VM Center extension for IBM Director Version 5.10 Update 3.

If your system load is very high, you might encounter timeout problems.

You can change timeout values according to your needs for almost all virtual shared disk (VSD) operations in the following file:

`/opt/ibm/director/data/ZvmCenterVSDConfig.properties`

Chapter 4. Documentation updates

This section includes documentation updates that might not appear in the IBM Director 5.10 online help or the version of an online or printed IBM Director 5.10 publication that you might receive or access.

Support for vmcp

The z/VM Center extension for IBM Director Version 5.10 Update 3 adds support for vmcp, in addition to the previously-supported cpint, to enable Linux instances that run in z/VM guest virtual machines to issue z/VM control program (CP) commands. You need to be able to issue CP commands from Linux instances that are:

- z/VM manageability access points
- Linux master systems
- Linux instances to be cloned or managed with z/VM Center

For the following Linux distributions, either cpint or vmcp (or both) are included, and z/VM Center installs and enables the required CP command support for you:

- SUSE Linux Enterprise Server 9 for IBM System z™ (any Service Pack level)
- Red Hat Enterprise Linux AS, version 4, for IBM System z Update 3 or later

If your Linux distribution is Red Hat Enterprise Linux AS, version 4, for IBM System z Update 2 or earlier, consider upgrading your distribution to Red Hat Enterprise Linux AS, version 4, for IBM System z Update 3 or later. If upgrading is not possible, you can download a cpint tar file from linuxvm.org/Patches/. You need version 2.5.3 or later. The tar file includes a readme file with instructions on how to compile and install cpint.

Note: Installing a kernel module that you have downloaded from the Web might affect any support contract you have for your distribution.

Disk size indicator in Virtual Server Deployment windows

The Virtual Server Deployment windows that show disk information include a new field, **Size in Bytes**, that shows the disk size in MB. The affected windows include the following:

- Operating System Template pane: Exclusive Disks page
- Operating System Template pane: Shared Disks page
- z/VM Virtual Server pane: Disks page
- Operating System pane: Disks page

In these windows, if the disk is not a part of a physical disk but an entire physical disk, the following fields all display a zero value:

- **Size in Bytes**
- **Start**
- **Range**
- **Units**
- **Blocks**
- **Size**

The type of physical disk is indicated by the **Type** field.

Preparing the directory manager

z/VM Center requires a directory manager to manage z/VM guest virtual machines.

Before you start:

- If you are using DirMaint as your directory manager, you will need DirMaint FL510 with the PTFs for APARs VM63700, VM63733, and VM63639.
- To perform this task you need access to the z/VM MAINT user ID or an alternative user ID that is authorized to issue commands for your directory manager.

z/VM maintains information about its guest virtual machines in the z/VM directory. The z/VM directory contains an entry for each guest virtual machine. Each entry consists of a set of directory statements that define the guest virtual machine in terms of the resources and attributes that are assigned to it.

The installation and customization of a directory manager is product-dependent. For illustration purposes, this topic describes how to set up IBM z/VM Directory Maintenance Facility (DirMaint) for z/VM Center. DirMaint is shipped with z/VM but you must obtain a license for using it.

If you are using DirMaint as the directory manager, complete the following steps. If you are using another directory manager, refer to the product documentation of your directory manager and perform equivalent steps.

1. Define tagged comments. z/VM Center requires tagged comments to store operating system information within z/VM directory records.
 - a. On your z/VM, establish a CMS session with your MAINT user ID or with your alternative user ID.
 - b. Query the tagged comments that are already defined for your z/VM. Issue:
DIRM DEFINESTAG ? ALL

z/VM issues a number of DVHDST3404I messages. Messages that inform you of an existing tagged comment are of the form *tagname nnn*, where *tagname* is a unique comment name that begins with an asterisk (*) and ends with a colon (:), and *nnn* is a unique number for the comment.

Example: In the following sample output, the existing tagged comments have the names *STAGVAR1: and *STAGVAR2: and use the numbers 000 and 001:

```
DVHREQ2288I Your DEFINESTAG request ...
DVHDST3404I The current ...
DVHDST3404I tagname sortorder.
DVHDST3404I *STAGVAR1: 000
DVHDST3404I *STAGVAR2: 001
DVHREQ2289I Your DEFINESTAG request ...
```

- c. Verify whether the existing tagged comments include:
 - *CIMGOS01:
 - *CIMIMG:
- d. Ensure that there are tagged comments of the form *CIMNIC*mm*:, where *mm* is a 2-digit decimal number from 01 to 99.

The number of these tagged comment variables limits the number of network interfaces you can clone for a z/VM virtual server. Define as many

tagged comments of this form as the number of interfaces you expect to use on any one of your z/VM virtual servers. You can define more tagged comments as the need arises.

- e. If either of the tagged comments from step 1c on page 10 do not already exist or if there are not enough tagged comments of the form *CIMNIC mm ;, define them. For each missing comment, issue a command of the form:

```
DIRM DEFINESTAG CREATE tagname nnn
```

where *tagname* is the name of the missing comment and *nnn* is any 3-digit decimal number that is unique for the tagged comment.

Example:

```
DIRM DEFINESTAG CREATE *CIMGOS01: 100
DIRM DEFINESTAG CREATE *CIMIMG: 101
DIRM DEFINESTAG CREATE *CIMNIC01: 102
DIRM DEFINESTAG CREATE *CIMNIC02: 103
DIRM DEFINESTAG CREATE *CIMNIC03: 104
```

In this example, three tagged comments of the form *CIMNIC mm : have been defined. With this setup, all z/VM virtual server that are created by z/VM Center are limited to three network interfaces.

2. Ensure that the following setting is made in your local CONFIGxx DATADVH member for DirMaint:

```
ALLOW_ASUSER_NOPASS_FROM= VSMERVE *
```

5.10 Update 3 and later: For IBM Director version 5.10.3 and later, the following setting must also be made in the local CONFIGxx DATADVH member for DirMaint:

```
ASYNCHRONOUS_UPDATE_NOTIFICATION_EXIT.UDP= DVHXNE EXEC
```

3. **Optional:** If you are an experienced z/VM system programmer, you might want to define one or more z/VM virtual server prototypes.

In a prototype, you specify defaults that you can use when you create z/VM virtual servers with z/VM Center.

Refer to the description of the DIRM ADD command in *z/VM Directory Maintenance Facility Commands Reference*, SC24-6133, for details.

4. **Optional:** Define additional z/VM DATAMOVE service machines for copying disks.

A DATAMOVE server is a z/VM service machine that has the privileges to perform disk copy operations. For disk copy operations z/VM Center requires at least one DATAMOVE server.

Multiple DATAMOVE servers might allow you to simultaneously clone multiple systems. For details, refer to *z/VM Directory Maintenance Facility Tailoring and Administration Guide*, SC24-6024.

Adding a z/VM system manually

You can manually add new a new z/VM system for IBM Director to manage.

To add a new z/VM system to IBM Director Console, complete the following steps:

1. In IBM Director Console, click **Console** → **New** → **Managed Objects** → **z/VM Systems**.
2. In the Add z/VM Systems window, complete the information for the new system:

- a. In the **IP Address** field, type the IP address of the z/VM Management Agent that is running on the z/VM manageability access point (MAP).
- b. In the **Port Number** field, type the port for the z/VM Management Agent. The default value is 5989.

5.10 Update 3 and later: For SUSE Linux Enterprise Server 9, change the port to 15989.

- c. In the **System Name** field, type the name of the z/VM system that you are adding.
- d. In the **Computer System Name** field, type the specification for the hardware that runs the z/VM system in the format: *csname.LPAR_name*
csname The zSeries hardware.

LPAR_name

The logical partition in which the z/VM system is running.

If you do not know the **Computer System Name**, then you can use the default value. The default value is replaced by the presence check after the managed object is unlocked.

- e. In the **Version** field, type the version of IBM Director that the z/VM system is running. If you do not know the version, use the default value. The default value is replaced by the Presence Check period (minutes) after the managed object is unlocked.
- f. In the **z/VM Management Profile Version** field, type the version of the z/VM Management Profile. You can accept the default value of **1.1.0**.

3. Click **OK**.

z/VM virtual server has no network

This problem affects both the Virtual Server Deployment task and the Server Complexes task.

Problem

The Linux instance on a newly created z/VM virtual server cannot be reached within the expected network or ping is not working.

Investigation

Check your network specification for the new Linux instance. A Linux instance that is created with the Virtual Server Deployment task must be in the same subnet as the master Linux system on which the new Linux instance is based.

Check your master Linux system. A correct network specification must be included in the master system directory entry. Ensure that:

- The device numbers for any OSA devices are included.
- Where applicable, NICDEF definitions are included.
- If the connection uses a VSWITCH, that access to the switch has been granted to the new user.

If guest LAN definitions on the master Linux have resulted in a VSWITCH definition for the new Linux instance, the guest LAN might be restricted or the guest LAN did not exist when the new Linux instance was created. Ensure that the guest LAN exists and can be accessed by the z/VM Manageability Access point.

If you have z/VM skills, you can use your directory manager to correct the faulty network definitions. Alternatively, you can delete the z/VM virtual server with the new Linux instance and, after ensuring that the guest LAN exists and can be accessed by the z/VM Manageability Access point, create a new z/VM virtual server.

Documentation updates in the information center

Users might want to see the following updated topics in the IBM Systems Software Information Center:

- Preparing to install IBM Director on a System z server
- Preparing a master Linux system
- Linux guest operating system is not associated with a z/VM

Appendix A. Related information

Besides this documentation, there is additional information related to IBM Director.

IBM Director resources on the World Wide Web

The following Web pages provide resources for understanding, using, and troubleshooting IBM Director and other system-management tools.

IBM Director information center

publib.boulder.ibm.com/infocenter/eserver/v1r2/topic/dirinfo/fqm0_main.html

Updated periodically, the IBM Director information center contains the most recent documentation available on a wide range of topics.

IBM Director Web site on ibm.com[®]

www.ibm.com/servers/eserver/xseries/systems_management/ibm_director/

The IBM Director Web site on ibm.com has links to downloads and documentation for all currently supported versions of IBM Director. Information on this site includes:

- Downloads and documentation for the following IBM Director releases:
 - IBM Director 5.10 Update 3 (5.10.3)
 - IBM Director 5.10 Update 2 (5.10.2)
 - IBM Director 5.10 Update 2 (5.10.2) UIMs
 - IBM Director 5.10 Update 1 (5.10.1)
 - IBM Director 5.10 Update 1 (5.10.1) UIMs
 - IBM Director 5.10
 - IBM Director 5.10 UIMs
 - IBM Director 4.22
 - IBM Director 4.22 UIMs
 - IBM Director 4.21
 - IBM Director 4.20
- *IBM Director Hardware and Software Support Guide* document, which lists supported IBM systems and all supported operating systems. It is updated every 6 to 8 weeks.
- Printable documentation for IBM Director available in Portable Document Format (PDF) in several languages

IBM Director Software Developers Kit information center

publib.boulder.ibm.com/infocenter/dirinfo/toolkit/index.jsp

The IBM Director Software Developers Kit (SDK) information center provides information about the IBM Director SDK – a set of tools and documentation to help extend the capabilities of IBM Director by using the APIs and CLIs, creating tasks, and launching tools from the IBM Director user interface.

IBM Systems Software information center

www.ibm.com/servers/library/infocenter/

This Web page provides information about IBM Virtualization Engine, IBM Director, External Application Launch Wizard, Virtual System Manager, and other topics.

IBM ServerProven® page

www.ibm.com/servers/eserver/serverproven/compat/us/

This Web page provides information about IBM System x™, BladeCenter, and IntelliStation® hardware compatibility with IBM Director.

IBM Servers

www.ibm.com/servers/

This Web page on ibm.com links to information, downloads, and IBM Director extensions such as Remote Deployment Manager, Capacity Manager, Systems Availability and Software Distribution (Premium Edition) for the following IBM products:

- IBM BladeCenter
- IBM System i™
- IBM System p™
- IBM System x
- IBM System z

IBM Virtualization Engine systems services fixes

www14.software.ibm.com/webapp/set2/sas/f/VirtualizationEngine/home2.html

This Web page provides information about the required fixes for the Virtualization Engine system services. The fixes include operating system fixes that are required for each system service as well as application-level fixes that are required for each system service to function correctly.

IBM forums

www.ibm.com/developerworks/forums/dw_esforums.jsp

This Web page on ibm.com links to several forums, available as Web pages or using rich site summary (RSS) feeds, in which users can discuss technology issues relating to IBM servers.

Three of these forums are of particular interest to IBM Director users:

System x IBM Director forum

www.ibm.com/developerworks/forums/dw_forum.jsp?forum=759&cat=53

A forum for discussing any IBM Director topics. This Web page includes a link for obtaining the forum using an RSS feed.

System x Server forum

www.ibm.com/developerworks/forums/dw_forum.jsp?forum=740&cat=53

A forum for discussing System x server topics, including questions related to drivers, firmware, operating systems, clustering, and storage. This Web page includes a link for obtaining the forum using an RSS feed.

IBM Director SDK forum

www.ibm.com/developerworks/forums/dw_forum.jsp?forum=849&cat=53

A forum for discussing how to use the IBM Director SDK to extend the functionality of IBM Director to meet your specific needs. This Web page includes a link for obtaining the forum using an RSS feed.

IBM Redbooks™ publications

www.ibm.com/redbooks/

You can download the following documents from the IBM Redbooks Web page. You can also search this Web page for documents that focus on specific IBM hardware; such documents often contain systems-management material.

Note: Be sure to note the date of publication and to determine the level of IBM Director software to which the Redbooks publication refers.

- *Creating a Report of the Tables in the IBM Director 4.1 Database* (TIPS0185)
- *IBM Director Security* (REDP-0417)
- *IBM BladeCenter Systems Management with IBM Director V4.1 and Remote Deployment Manager V4.1* (REDP-3776)
- *Implementing IBM Director 5.10* (SG24-6188)
- *Integrating IBM Director with Enterprise Management Solutions* (SG24-5388)
- *Managing IBM TotalStorage® NAS with IBM Director* (SG24-6830)
- *Monitoring Redundant Uninterruptible Power Supplies Using IBM Director* (REDP-3827)

Remote Supervisor Adapter

Remote Supervisor Adapter overview

www.ibm.com/support/docview.wss?uid=psg1MIGR-4UKSML

This Web page includes links to the *Remote Supervisor Adapter User's Guide* and the *Remote Supervisor Adapter Installation Guide*.

Remote Supervisor Adapter II overview

www.ibm.com/support/docview.wss?uid=psg1MIGR-50116

This Web page includes information about the Remote Supervisor Adapter II.

Other documents

For planning purposes, the following documents might be of interest:

- *Planning and Installation Guide - IBM BladeCenter (Type 8677)*
- *IBM Management Processor Command-Line Interface (MPCLI) User's Guide version 5.10*

Appendix B. Contacting customer support

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your System x or IntelliStation system, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself.

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system is turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that are included with your system. You can find information about diagnostic tools for BladeCenter and System x systems in the *Problem Determination Service Guide* on the IBM System x Documentation CD. You can find information about diagnostic tools for IntelliStation in the *IntelliStation Hardware Maintenance Manual* at the IBM Support Web site.
- Go to the IBM Support Web site at www.ibm.com/support/us to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the publications that are provided with your system and software. The information that comes with your system also describes the diagnostic tests that you can perform. Most BladeCenter, System x, and IntelliStation systems, operating systems, and programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the information for the operating system or program.

Using the documentation

Information about your IBM BladeCenter, System x, or IntelliStation system and preinstalled software, if any, is available in the documentation that is included with your system. That documentation includes printed books, online books, readme files, and help files.

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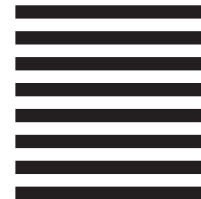
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