

IBM Virtual Machine Manager 2.0



# Release Notes

**Note**

Before using this information and the product it supports, read the general information in “Notices” on page 13.

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## Chapter 1. About this release

IBM® Virtual Machine Manager (VMM) 2.0 is the second release of VMM.

The *IBM Virtual Machine Manager 2.0 Release Notes* (vmm200\_relnotes.pdf) is a new document created specifically to support VMM 2.0. This document contains the types of information that were provided in readme.txt files for previous releases of VMM.

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### New in this release

VMM 2.0 adds the following new features, functions, and enhancements:

#### General enhancements

VMM 2.0 adds the following general enhancements:

- Two new virtualization environments that are supported with VMM 2.0:
  - VMware ESX Server and VMM Agent for VMware ESX Server
  - VMware GSX Server and VMM Agent for VMware GSX ServerVMware VirtualCenter is not used in both of these virtualization environments.
- Support for hosts that are running VMware GSX Server in a VMware VirtualCenter environment.
- Improvements in migration of a single or all virtual machines on a host, including the ability to create a migration task to migrate all virtual machines on a host to the host with the lowest central processing unit (CPU) utilization.
- IBM Director Command Line Interface (DIRCMD) support for VMM functionality.
- VMM subtasks for creation of VMM farms and creation of migration tasks. These subtasks are in the Tasks pane of IBM Director Console.
- Attributes for VMM State and VMM Parent and other new attributes for various VMM objects.
- Attributes that can be displayed for guest-operating-system objects.

#### Coordinator objects

VMM 2.0 adds Scheduler tasks to discover all farms that are defined in VMware VirtualCenter and to revoke credentials.

#### VMM farm objects

VMM 2.0 adds support for the following enhancements:

- Introduction of the *VMM farm* concept that applies to farms in VMware VirtualCenter and collection of hosts in other supported virtualization environments. The phrase *VMM farm* replaces the phrase *farm* that was used in VMM 1.0.
- Ability to create a VMM farm for hosts that are not in VMware VirtualCenter environments.
- Ability to start and stop all hosts that are running Microsoft Virtual Server in one VMM farm. (VMM 1.0 only supported starting and stopping of Microsoft Virtual Server on one host at a time.)
- New event action to add a host to a VMM farm.

- Scheduler tasks to delete farms from VMware VirtualCenter server and to start and stop all hosts in a VMM farm that are running Microsoft Virtual Server.

### **Host objects**

VMM 2.0 adds support for the following enhancements:

- Host objects are discovered for systems that are running either VMM Agent for VMware ESX Server or VMM Agent for VMware GSX Server. These systems that are represented by these host objects are not in a VMware VirtualCenter environment.
- Host objects are discovered for systems that are running VMware GSX Server in a VMware VirtualCenter environment. These host objects are not running any VMM Agents. Instead, the system running VMware VirtualCenter Server is running VMM Agent for VirtualCenter.
- Scheduler tasks to discover all virtual machines on a host.

### **Virtual machine objects**

VMM 2.0 contains the following enhancements:

- Ability to create and delete a virtual machine.
- Ability to register and unregister virtual machines to and from a host.
- Addition of the pending state.
- Ability to change attribute values for virtual machines, including the ability to specify an action to take when powering on or off virtual machines that contain undoable disks.
- Ability to power on and migrate virtual machines that contain undoable disks.
- Static migration for virtual machines running under VMware GSX Server and VMware ESX Server (both without VMware VirtualCenter server control). (VMM 1.0 only supported static migration for virtual machines running under Microsoft Virtual Server. VMM 2.0 retains this support.)
- New event filters for attribute changes and for virtual machines in the pending state.
- Scheduler tasks for discovery, migration, and deletion of virtual machines.

For details about the functionality in VMM 2.0, see the *IBM Virtual Machine Manager Installation and User's Guide*.

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## **Compatibility with IBM Director**

VMM 2.0 is supported for use with IBM Director 4.22.

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## **VMM information resources**

You can find additional information about VMM and IBM Director in the product documentation and on the World Wide Web.

## **Documentation**

In addition to the *IBM Virtual Machine Manager 2.0 Release Notes*, VMM 2.0 is supported by the *IBM Virtual Machine Manager 2.0 Installation and User's Guide First Edition, July 2005* (vmm200\_user.pdf)

All documentation is in Portable Document Format (PDF). You need Adobe Acrobat Reader or Xpdf to view it.

## World Wide Web resources

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

### **IBM Virtual Machine Manager 2.0**

[http://www.ibm.com/servers/eserver/xseries/systems\\_management/xseries\\_sm/vmm.html](http://www.ibm.com/servers/eserver/xseries/systems_management/xseries_sm/vmm.html)

This Web page presents an overview of VMM and links to download the product, release notes, and user's guide.

### **IBM Support page**

<http://www.ibm.com/pc/support/>

Locate support for IBM hardware and systems-management software. For systems-management software support, click **Systems management**.

### **IBM Systems Management Software: Download/Electronic Support page**

[http://www.ibm.com/pc/us/eserver/xseries/systems\\_management/dwnl.html](http://www.ibm.com/pc/us/eserver/xseries/systems_management/dwnl.html)

Download IBM systems-management software, including VMM.

### **IBM xSeries Systems Management page**

[http://www.ibm.com/pc/ww/eserver/xseries/systems\\_management/index.html](http://www.ibm.com/pc/ww/eserver/xseries/systems_management/index.html)

Obtain an overview of IBM systems management and IBM Director. This Web page also contains links to Web pages for IBM Director extensions including Remote Deployment Manager (RDM), Scalable Systems Manager (SSM), Server Plus Pack, and Software Distribution (Premium Edition).

### **IBM ServerProven<sup>®</sup> page**

<http://www.ibm.com/pc/us/compat/index.html>

Obtain information about xSeries, BladeCenter, and IntelliStation<sup>®</sup> hardware compatibility with IBM Director.





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## Chapter 2. Installation and upgrade information

VMM has three software components that are installed on different servers in your network:

- VMM Server is installed on the management server that is running IBM Director Server.
- VMM Console is installed on the management console that is running IBM Director Console.
- The applicable version of VMM Agent is installed on a managed system that is running one of the following sets of software:
  - IBM Director Agent, VMware VirtualCenter server, and VMware VirtualCenter Web service
  - IBM Director Agent and VMware ESX Server (service console only)
  - IBM Director Agent and VMware GSX Server
  - IBM Director Agent and Microsoft Virtual Server

Installation instructions, including other system requirements, are provided in the *IBM Virtual Machine Manager 2.0 Installation and User's Guide*.



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## Chapter 3. Limitations, general problems, and workarounds

This chapter contains information about limitations, general problems, and workarounds.

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### Limitations

The limitations in VMM 2.0 are specific to the VMM Agent that is being used.

#### Limitations for any component of VMM

VMM 2.0 has the following limitations for any component of VMM:

##### **Unable to use DIRCMD with Korean version of Windows**

IBM Director command-line interface (DIRCMD) and VMM commands use the backslash (\) for various commands. For example, the backslash is used when designating the full path name to a virtual machine configuration file. However, the Korean version of Windows uses a different character for backslash. Therefore, when a backslash is used with DIRCMD, it fails to execute on the Korean version of Windows.

##### **VMM icon does not display properly on Korean version of Windows 2000**

After you install a VMM component on a system that is running Windows, the VMM program is listed as a currently installed program on the "Add/Remove Programs" window. However, when the system is running the Korean version of Windows 2000, the icon displayed with the VMM program does not display properly.

#### Limitations when using VMM Agent for VMware VirtualCenter

VMM 2.0 has the following limitations when using VMM Agent for VMware VirtualCenter:

##### **Adding a host to a VMM farm**

If you use VMM to add a host to a VMM farm in VMware VirtualCenter and you enter correct credentials for the coordinator, a failure message is displayed about Web services communication with the vendor failing. If you try to add the host again, a different failure message is displayed about the host already existing. When this happens, the host is defined in VirtualCenter, but it takes several minutes to appear in IBM Director Console.

Further, if you use add a host to a VMM farm, but you enter incorrect credentials for the coordinator, then later when you enter the correct credentials for the coordinator, this operation can take several more minutes to successfully complete.

##### **Excessive windows prompting for undoable disk power actions**

When a virtual machine has one or more undoable disks and a power operation occurs on that virtual machine, VMware VirtualCenter requires user input to complete the operation. If the power operation is originated by VMM, then VMM will provide the required input. However, if there is a VMware Remote Console open at the time the power operation occurs, then a window displays that asks for the required information even though it has been provided by VMM. When a user attempts to provide the information requested, an error message is displayed.

This same behavior can be observed when two VMware Remote Console sessions are open to the same virtual machine. In that case, even though

the question might be answered at one console, the window at the second console remains open and returns an error if the user attempts to answer the question.

#### **Error message when testing an action to remove a host from a VMM farm**

When you customize an event action to remove a host from a VMM farm in VMware VirtualCenter and test this customized event action, IBM Director displays the following error message:

Error communicating with server. If the problem persists, you may need to restart the server.

However, the event action completes as expected and you do not need to restart the server.

## **Limitations when using VMM Agent for VMware ESX Server**

VMM 2.0 has the following limitations when using VMM Agent for VMware ESX Server:

#### **Changed UUIDs can cause virtual machine objects to disappear from IBM Director Console**

If you power off a virtual machine with the VMware Console and select to always create a new universal unique identifier (UUID) and later use VMM to migrate that virtual machine, then the UUID for the virtual machine is changed when the virtual machine is eventually powered on at the destination host. This sequence of events causes the virtual machine object to be deleted from IBM Director and causes a "Virtual Machine, Deleted" event to occur.

To restore the virtual machine object to IBM Director Console, you must use VMM to discover the virtual machines on the host. From IBM Director Console, in the Group Contents pane, right click the managed object for the host and click **Host Management** → **Discover Virtual Machines**.

#### **Names of virtual machines created by VMM cannot contain some special characters**

VMM Agent for ESX does not support the creation of virtual machines that contain backslashes (\), forward slashes (/), colons (:), or semicolons (;). This problem only affects creation of the virtual machines through VMM. Note that when a virtual machine is created with these characters through VMware VirtualCenter client, VMM can manage the virtual machine.

## **Limitations when using VMM Agent for VMware GSX Server**

VMM 2.0 has the following limitations when using VMM Agent for VMware GSX Server:

#### **Shutting down and powering off a virtual machine that is running Windows 2000**

If you use VMM to shut down and power off a virtual machine that is running Windows® 2000, the virtual machine is only shut down, it is not powered off. You must use the VMware Console to power the virtual machine off. Further, in VMM, the virtual machine remains in the transition state. After the virtual machine has been powered off through the VMware Console, use VMM to rediscover the virtual machine so that VMM will reflect the powered off state.

#### **Migrating a powered-on virtual machine that is running Windows 2000**

If a powered-on virtual machine is migrated, the migration process cannot be completed as the VMM Agent for GSX cannot power off the virtual machine, which is required for static migration. To resolve this issue, use

the VMware Console to manually power off the virtual machine. If the power off occurs within the timeout period of the VMM Server (generally 5 minutes), VMM will detect the state change of the virtual machine and continue the migration.

## Limitations when using VMM Agent for Microsoft Virtual Server

VMM 2.0 has the following limitations when using VMM Agent for Microsoft Virtual Server:

### **Shutting down and powering off a virtual machine when the guest operating system is locked**

If you use VMM to shut down and power off a virtual machine when the guest operating system is locked, the virtual machine is not shut down nor powered off. You must use the Administration Web site to Microsoft Virtual Server. Further, in VMM, the virtual machine remains in the transition state. After the virtual machine has been powered off through the Administration Web site, use VMM to rediscover the virtual machine so that VMM will reflect the powered off state.

### **Migrating a powered-on virtual machine when the guest operating system is locked**

If a powered-on virtual machine is migrated, but the guest operating system is locked, the migration process cannot be completed as the VMM Agent for Virtual Server cannot power off the virtual machine, which is required for static migration. To resolve this issue, use the Administration Web site to Microsoft Virtual Server to manually power off the virtual machine. If the power off occurs within the timeout period of the VMM Server (generally 5 minutes), VMM will detect the state change of the virtual machine and continue the migration.

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## General problems

This section contains information about these general problems applicable to VMM 2.0:

### **Start Vendor Software task and VMware VirtualCenter client**

If a user who does not have Windows administration privileges tries to use the Start Vendor Software task to run the VMware VirtualCenter client, an exception error message is displayed that does not indicate the true problem. If an exception error occurs, make sure that the user has Windows administration privileges on the system from which the user is trying to run VMware VirtualCenter client.

### **Multiple power operations in a Microsoft Virtual Server environment**

Sometimes one or two events are not received by VMM Server when VMM Agent is monitoring multiple events from power operations that occur on virtual machines that are in a Microsoft Virtual Server environment. This problem occurs intermittently when more than 50 virtual machines are associated with one host. When a power operation event is not received by VMM Server, VMM cannot update the state icons for the virtual machine. If this happens, manually discover the virtual machines that are associated with a host.



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## Chapter 4. Corrections to the VMM 2.0 documentation

This chapter provides corrections to the VMM 2.0 documentation and online help.

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### Corrections to the Installation and User's Guide (vmm200\_users.pdf)

#### Additional migration requirements

(Chapter 3, "VMM objects and their discovery" on page 36) The following information is added to the list of migration requirements:

- Source and destination hosts must have a virtual network device with the same label.
- Virtual machines to be migrated cannot be connected to a removable device such as a CD or floppy.
- Secure copy (scp) must be enabled on all VMware ESX Server hosts that are using VMM Agent for ESX. For more information, see "Static migration with VMM Agent for ESX."

#### Static migration with VMM Agent for ESX

(Chapter 3, "VMM objects and their discovery on page 35) The following information should be added to a new section after static migration:

VMM supports static migration of virtual machines when using VMM Agent for ESX. This type of static migration copies files from the source host to the destination host.

To enable static migration for VMware ESX Server hosts, you must enable secure copy (scp) on all VMware ESX Server hosts. Secure copy must be enabled using RSA certificates, which provides secure transfer of files without requiring the user ID and password for each file transfer operation.

Static migration through VMM will fail for a destination host unless you can copy (pull) a file at the destination host from a source host by using the scp command without entering a password.

For information about enabling secure copy, see "Enabling secure copy (scp) on a destination host."

#### Enabling secure copy (scp) on a destination host

(Chapter 3, "VMM objects and their discovery on page 35) The following information should be added to a new section after static migration with VMM Agent for ESX:

Secure copy must be enabled on every destination host that will be used for migration. If an attempt to execute the scp command results in a request for a password, static migration through the VMM Agent for ESX will not work.

If the hosts are moved to a different network, the steps in this procedure must be repeated.

Complete the following steps to enable secure copy (scp) on a destination host that is running VMM Agent for ESX:

1. Create a RSA public key:
  - a. At the command prompt of the source host, enter **ssh-keygen -t rsa**.
  - b. Store the generated key in a default location and do not use a passphrase.

**Note:** If you specify a different location other than `/root/.ssh/`, you must adjust any other steps that use the default path.
2. Add the public key to the `authorized_keys` file for any ESX host that you would like to use as a destination host for migration:
  - a. On the source host where you created the RSA public key, copy the `.pub` file to a directory that is accessible through file transfer protocol (FTP).
  - b. Use FTP to log in to both ESX hosts (source and destination) and copy the `.pub` file from the source host to the destination host.
  - c. From the console of the destination host, copy the `.pub` file to `/root/.ssh/authorized_keys`.

**Note:** If this file already exists, do not overwrite it. Instead, add the information in the `.pub` file to the existing `/root/.ssh/authorized_keys` file.
3. Change the permissions on the `authorized_keys` file and the `ssh` subdirectory:
  - a. On the console of the destination host, type **cd**
  - b. Type **chmod go-w . .ssh .ssh/authorized\_keys**
4. On all ESX hosts that will be destination hosts, add the ESX host to the `known_host` list:
  - a. On the console of the destination host, type **ssh source\_IPAddress**.
  - b. When it asks if you would like to add the host to the `known_host` list, answer yes.
  - c. Exit the secure shell.
  - d. Repeat steps a through c for all destination hosts until they have added the source hosts to the `known_host` list.
  - e. Repeat steps a through c for all source hosts until each has added the destination hosts to the `known_host` list.
5. Copy the required perl scripts onto each host:
  - a. From the Comprehensive Perl Archive Network (CPAN), download the `ShellQuote.pm`, `SCP.pm` and `SSH.pm` scripts.
  - b. Copy `SCP.pm` and `SSH.pm` into `/usr/lib/vmware/perl5/site_perl/perl_version/Net/` directory. You will probably have to create the `Net` subdirectory.
  - c. Copy the `ShellQuote.pm` file into `/usr/lib/vmware/perl5/site_perl/perl_version/String/` Directory. You will probably have to create the `String` folder.

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## Corrections to the help system

The help system requires the additional information that is added to the *IBM Virtual Machine Manager 2.0 Installation and User's Guide*. For details, see "Corrections to the Installation and User's Guide (`vmm200_users.pdf`)" on page 11.



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