Virtual Machine Mobility

Planning Guide
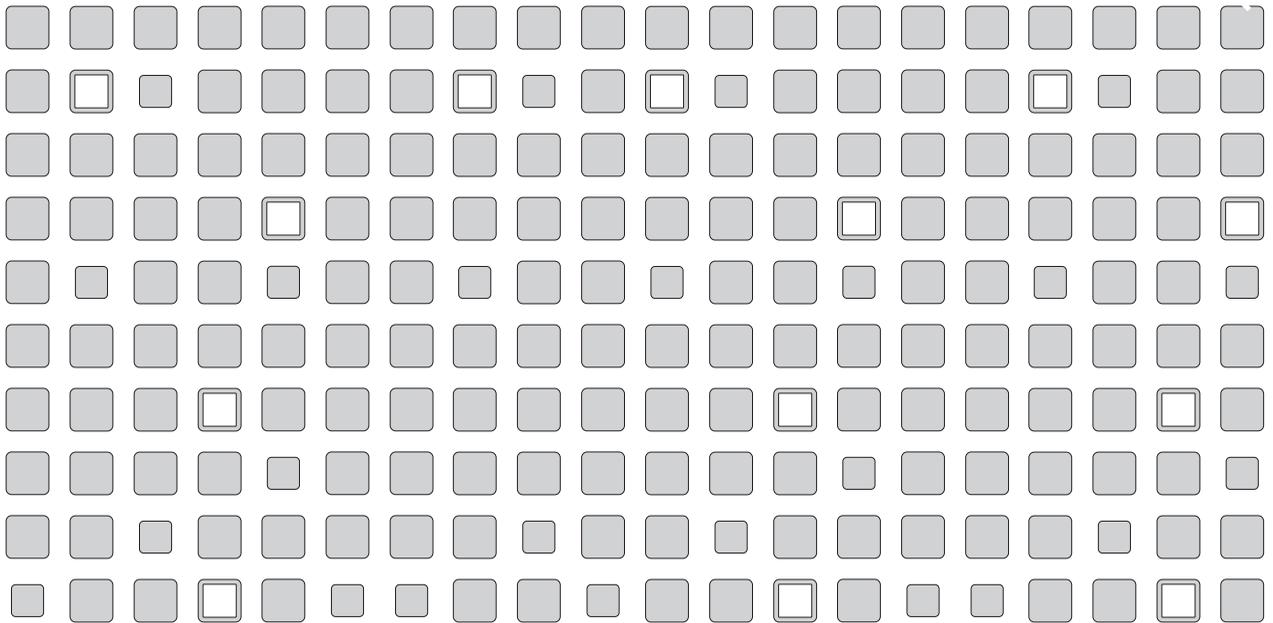
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Table of Contents

Virtual Machine Mobility

You may need to move virtual machines around for a variety of reasons — to move them from one host computer to another, to run them under different VMware products or to run them under different versions of the same VMware product. This guide provides information to help you plan a virtual computing environment that allows maximum mobility for your virtual machines. It also covers key issues you must deal with when moving virtual machines that must be modified to run in the new environment.

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Mobility Basics

This guide assumes that you intend to move your virtual machines manually, by copying the files that make up a virtual machine from one location to another or by using a different VMware product to run the virtual machine.

Considerations if You Move To or From ESX Server

VMware ESX Server uses a virtual disk file format that is different from the format used by VMware products that run on a host operating system — such as VMware GSX Server and VMware Workstation. As a result, when you move a virtual machine from a system running a different VMware product to an ESX Server host system, you must import the virtual disks following the instructions in the ESX Server documentation. And when you move a virtual machine from an ESX Server system to a system running a different VMware product, you must export the disks.

Keep the following points in mind:

• If the virtual disks on the ESX Server system are in undoable or append mode, you must either discard or commit the redo log files when you export the disks.

• If you plan to import disks from a Workstation or GSX Server virtual machine that has a snapshot, you must first remove the snapshot. See your product manual for details on how to ensure that the virtual machine is in the desired state before you remove the snapshot.

• You cannot import a suspended virtual machine. Be sure the virtual machine is powered off before you import it into ESX Server.

Special Mobility Tools

If you need to move virtual machines among host systems running ESX Server, GSX Server or some combination of the two, you should investigate the capabilities of VMware VirtualCenter. VirtualCenter significantly simplifies the tasks involved in moving virtual machines. For host systems running ESX Server, the VirtualCenter enhancement known as VMotion™ makes it possible to move virtual machines while they are powered on and performing transactions.

Same Product and Version

The simplest environments, as far as mobility is concerned, are those in which all users are running the same VMware product and version. In such an environment, moving a virtual machine is primarily a matter of moving its files to the new location.
For details on how to perform these simple moves, see the documentation for your VMware product.

Understanding Product Generations

If you are moving virtual machines among different VMware products, the simplest working environment uses VMware products of the same generation. And in general, cross-product mobility is best in the most recent generations.

Because different products were launched at different times, you cannot determine corresponding generations by matching product version numbers.

The following list provides a quick guide to the generations of currently supported products. Earlier products are no longer supported.

- **Generation 2 —** GSX Server 1, ESX Server 1.0 and 1.1

- **Generation 3 —** Workstation 3, GSX Server 2, ESX Server 1.5

- **Generation 4 —** Workstation 4, GSX Server 3, ESX Server 2 (uniprocessor and SMP)

- **Generation 5 —** Workstation 5, VMware Player

Products in the same generation provide similar capabilities and similar virtual hardware, making it easier to move virtual machines from one product to another. In the simplest cases, the virtual machines are interoperable — they can be moved back and forth without modification and they run without problems.

However, even within the same generation there may be differences that require you to take some special steps when moving a virtual machine from one product to another.

The most obvious example is SMP, a capability available only under ESX Server with Virtual SMP. When you install a guest operating system in a multiprocessor virtual machine, the installer typically configures the guest operating system with a kernel or hardware abstraction layer that provides special support for using multiple processors. A guest operating system installed in this way generally cannot run in a uniprocessor virtual machine.

Cross-Generation Mobility

The following table gives a high-level view of the effort required to move virtual machines from one generation of products to another. The references in each table

cell point you to more detailed information on special steps that may be needed to move virtual machines between particular generations of products.

		Moved to Host System Running			
		Generation 5	Generation 4	Generation 3	Generation 2
Virtual Machine Created Under	**Generation 5**	Easy in most cases See Generation 5 to Generation 5 on page 13	Special steps needed See Generation 5 to Generation 4 on page 17	Not supported See Generation 5 to Generation 3 on page 23	Not supported Generation 5 to Generation 2 on page 26
	Generation 4	Special steps needed or not supported See Generation 4 to Generation 5 on page 14	Easy in most cases See Generation 4 to Generation 4 on page 18	Special steps needed in most cases See Generation 4 to Generation 3 on page 23	Not supported See Generation 4 to Generation 2 on page 26
	Generation 3	One-way or not supported See Generation 3 to Generation 5 on page 15	Special steps needed or not supported See Generation 3 to Generation 4 on page 19	Easy in most cases See Generation 3 to Generation 3 on page 23	Not supported in most cases See Generation 3 to Generation 2 on page 26
	Generation 2	Not supported See Generation 2 to Generation 5 on page 15	One-way or not supported See Generation 2 to Generation 4 on page 21	Varies See Generation 2 to Generation 3 on page 24	Easy in most cases See Generation 2 to Generation 2 on page 27

In general, you can set up a working environment with products from the same generation or from two adjacent generations — 4 and 5, for example, or 3 and 4. If you make appropriate choices, you can move virtual machines back and forth among VMware products of the two generations.

In general, it is not possible to set up a working environment that allows you to move virtual machines around freely if you skip a generation — from generation 2 to generation 4, for example. In such an environment, you need to upgrade the virtual hardware so it will run under the generation 4 product. This is a one-way move. After you upgrade the virtual hardware, you can no longer run the virtual machine under the generation 2 product.

VMware ACE

Although VMware ACE is a generation 4 product, it has special characteristics that affect your ability to move virtual machines between VMware ACE and other VMware products.

You can use virtual machines created with Workstation 4 or GSX Server 3 in VMware ACE projects. But because of the security features in VMware ACE, you cannot move VMware ACE virtual machines to other VMware products.

VMware Player

VMware Player runs virtual machines created by other VMware products. It cannot create virtual machines.

VMware Player runs virtual machines created under generation 4 and generation 5 products.

Note: To run ESX Server virtual machines under hosted products — including VMware Player — you must export the virtual disk files. For details on exporting the virtual disk files, see the *ESX Server 2 Administration Guide*.

If you want to use VMware Player to run a virtual machine created by a VMware product from generation 3 or earlier, you must first upgrade that virtual machine using a generation 4 or generation 5 product capable of creating virtual machines.

Moving to Generation 5 Products

This section summarizes the points you need to consider when moving virtual machines to a generation 5 product.

Generation 5 to Generation 5

Moving virtual machines among generation 5 products requires no special steps, as shown in the following table.

		Moved to Host System Running	
		Workstation 5	
Virtual Machine Created Under	Workstation 5	OK in most cases	

Interoperable Configurations

Virtual machines created on the first generation 5 product — Workstation 5 — are simple to move between host systems running Workstation 5. In general, moving a virtual machine from one host to another means copying all the files in the virtual machine's folder from the source computer to the destination computer.

For more details, see the *Workstation 5 User's Manual*.

Note: Workstation 5.5 supports two key capabilities that are not supported in Workstation 5.0 — 64-bit guest operating systems and Virtual SMP. A Workstation 5.5 virtual machine that uses either or both of these capibilities cannot be moved to Workstation 5.0.

Note: To take advantage of the experimental 3-D capabilities of Workstation 5.0 and 5.5, the virtual machine must be running the version of VMware Tools that corresponds to the version of Workstation you are using to run it. So a virtual machine running on Workstation 5.0 must be running the version of VMware Tools provided with Workstation 5.0. A virtual machine running on Workstation 5.5 must be running the version of VMware Tools provided with Workstation 5.5. If you move the virtual

machine and want to use the 3-D capabilities, be sure you have the correct version of VMware Tools installed.

Generation 4 to Generation 5

Moving virtual machines among generation 4 products requires relatively few special steps, as shown in the following table.

		Moved to Host System Running
		Workstation 5
Virtual Machine Created Under	**ESX Server 2 with Virtual SMP**	Not supported
	ESX Server 2	Export virtual disks Upgrade virtual hardware (one-way) or run in legacy mode
	GSX Server 3 or Workstation 4	Upgrade virtual hardware (one-way) or run in legacy mode

SMP Guest Operating Systems in Uniprocessor Virtual Machines

When you install a guest operating system in a multiprocessor virtual machine, the installer typically configures the guest operating system with a kernel or hardware abstraction layer that provides special support for using multiple processors. A guest operating system installed in this way generally cannot run in a uniprocessor virtual machine.

As a result, VMware does not support moving virtual machines from ESX Server with Virtual SMP to other VMware products.

Exporting an ESX Server Virtual Machine to a Hosted Product

ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to one of the hosted products, you must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server 2 Administration Guide*.

Generation 3 to Generation 5

Special steps are needed to move virtual machines from generation 3 products toWorkstation 5, as shown in the following table.

		Moved to Host System Running	
		Workstation 5	
Virtual Machine Created Under	**ESX Server1.5**	Export virtual disks Upgrade virtual hardware (one-way)	
	GSX Server 2 or Workstation 3	Upgrade virtual hardware (one-way)	

Moving from Generation 3 Hosted Products to Generation 5 Hosted Products

If you move a virtual machine from GSX Server 2 or Workstation 3 to Workstation 5, the process is one-way. You cannot move back to the previous product again. After you move the virtual machine, you must upgrade the virtual hardware. This gives you access to improvements in the virtual hardware that were introduced in Workstation 5.

For details, see the *Workstation 5 User's Manual*.

Exporting an ESX Server Virtual Machine to Workstation

ESX Server has its own file format for storing virtual disk files. Workstation typically stores virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to Workstation, you must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server 1.5 User's Manual*.

Generation 2 to Generation 5

Moving virtual machines from generation 2 products directly to generation 5 products is not supported.

You can use an intermediate product to move the virtual machines in a two-stage process. For example, if you have a generation 3 product, first move each virtual machine to the generation 3 product and upgrade the virtual hardware. Then move

each virtual machine to the generation 5 product and upgrade the virtual hardware again.
You can follow the same procedure using a generation 4 product as the intermediate product.

Moving to Generation 4 Products

This section summarizes the points you need to consider when moving virtual machines to a generation 4 product.

Generation 5 to Generation 4

Moving native generation 5 virtual machines to a generation 4 product is not supported. However, Workstation 5 allows you to create a legacy virtual machine — a generation 4 virtual machine. You can use this capability to create virtual machines for use on most generation 4 products, as shown in the following table.

<table>
<tr>
<td rowspan="2" colspan="2"></td>
<td colspan="3">Moved to Host System Running</td>
</tr>
<tr>
<td>ESX Server 2
with Virtual SMP</td>
<td>ESX Server 2</td>
<td>GSX Server 3 or
Workstation 4</td>
</tr>
<tr>
<td rowspan="1">Virtual Machine Created Under</td>
<td>Workstation 5</td>
<td>Maybe, depending on guest operating system

Possible only if you create a legacy virtual machine

Import virtual disks</td>
<td>Possible only if you create a legacy virtual machine

Import virtual disks</td>
<td>Possible only if you create a legacy virtual machine</td>
</tr>
</table>

Uniprocessor Guest Operating Systems in SMP Virtual Machines

Some operating systems installed in a uniprocessor virtual machine will run successfully in an SMP virtual machine. Check the documentation for your guest operating system to see whether it supports such a move.

Importing a Virtual Machine from a Hosted Product to ESX Server

ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from one of the hosted products to ESX Server, you must import the virtual disks so they are in a format that can be used by ESX Server.

For details on importing virtual disk files into ESX Server, see the *ESX Server 2 Administration Guide*.

Generation 4 to Generation 4

Moving virtual machines among generation 4 products requires relatively few special steps, as shown in the following table.

<table>
<tr><td rowspan="2"></td><td rowspan="2"></td><td colspan="3">Moved to Host System Running</td></tr>
<tr><td>ESX Server 2
with Virtual SMP</td><td>ESX Server 2</td><td>GSX Server 3 or
Workstation 4</td></tr>
<tr><td rowspan="3">Virtual Machine Created Under</td><td>ESX Server 2
with Virtual
SMP</td><td>OK</td><td>Not supported</td><td>Not supported</td></tr>
<tr><td>ESX Server 2</td><td>Maybe, depending on guest operating system</td><td>OK</td><td>Export virtual disks</td></tr>
<tr><td>GSX Server 3 or
Workstation 4</td><td>Maybe, depending on guest operating system
Import virtual disks</td><td>Import virtual disks</td><td>OK</td></tr>
</table>

Interoperable Configurations

Virtual machines created on Generation 4 hosted products — Workstation 4 and GSX Server 3 — are interoperable. You can move them freely from one product to another. In general, moving a virtual machine from one host to another means copying all the files in the virtual machine's folder from the source computer to the destination computer.

For more details, see the manuals for Workstation and GSX Server.

Similarly, you can freely move virtual machines between servers running ESX Server 2 with Virtual SMP. You can also freely move virtual machines between servers running the standard version of ESX Server 2.

For details, see the *ESX Server 2 Administration Guide*.

SMP Guest Operating Systems in Uniprocessor Virtual Machines

When you install a guest operating system in a multiprocessor virtual machine, the installer typically configures the guest operating system with a kernel or hardware abstraction layer that provides special support for using multiple processors. A guest operating system installed in this way generally cannot run in a uniprocessor virtual machine.

As a result, VMware does not support moving virtual machines from ESX Server with Virtual SMP to other VMware products.

Uniprocessor Guest Operating Systems in SMP Virtual Machines

Some operating systems installed in a uniprocessor virtual machine will run successfully in an SMP virtual machine. Check the documentation for your guest operating system to see whether it supports such a move.

Exporting an ESX Server Virtual Machine to a Hosted Product

ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to one of the hosted products, you must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server 2 Administration Guide*.

Importing a Virtual Machine from a Hosted Product to ESX Server

The considerations for this case are the inverse of those for exporting an ESX Server virtual machine.

For details on importing virtual disk files into ESX Server, see the *ESX Server 2 Administration Guide*.

Generation 3 to Generation 4

Moving virtual machines between generation 3 and generation 4 products is possible in most cases. You may need to take some special steps, as shown in the following table.

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="3">Moved to Host System Running</td></tr>
<tr><td>ESX Server 2 with Virtual SMP</td><td>ESX Server 2</td><td>GSX Server 3 or Workstation 4</td></tr>
<tr><td rowspan="2">Virtual Machine Created Under</td><td>ESX Server 1.5</td><td>Upgrade virtual hardware (one-way) or run in legacy mode

Cannot add second CPU</td><td>Upgrade virtual hardware (one-way) or run in legacy mode</td><td>Export virtual disks</td></tr>
<tr><td>GSX Server 2 or Workstation 3</td><td>Not supported</td><td>Import virtual disks</td><td>Upgrade virtual hardware (one-way) or run in legacy mode</td></tr>
</table>

Generation 3 Virtual Machines and ESX Server with Virtual SMP

Importing generation 3 virtual machines into ESX Server with Virtual SMP is not supported. Among the problems with such an import, guest operating systems installed in a uniprocessor virtual machine may not run correctly in an SMP virtual machine.

Moving ESX Server 1.5 Virtual Machines to ESX Server 2

Before making the move from ESX Server 1.5 to ESX Server 2, you should decide whether you want to be able to move back to ESX Server 1.5 again.

If you do want to be able to move the virtual machine back — to run it under ESX Server 1.5 at some later time — you should run the virtual machine in legacy mode under ESX Server 2.

If you are making a one-way move and don't need to run the virtual machine under ESX Server 1.5 at a later time, you should upgrade the virtual hardware after you move the virtual machine. This approach gives you access to improvements in the virtual hardware that were introduced in ESX Server 2.

For details, see the *ESX Server 2 Administration Guide.*

Moving from Generation 3 Hosted Products to Generation 4 Hosted Products

Before making the move from GSX Server 2 or Workstation 3 to GSX Server 3 or Workstation 4, you should decide whether you want to be able to move back to the previous product again.

If you do want to be able to move the virtual machine back — to run it under the previous product at some later time — you should run the virtual machine in legacy mode under GSX Server 3 or Workstation 4.

If you are making a one-way move and don't need to run the virtual machine under GSX Server 2 or Workstation 3 at a later time, you should upgrade the virtual hardware after you move the virtual machine. This gives you access to improvements in the virtual hardware that were introduced in GSX Server 3 and Workstation 4.

For details, see the manual for the generation 4 product to which you are moving the virtual machine — GSX Server 3 or Workstation 4.

Exporting an ESX Server 1.5 Virtual Machine to a Hosted Product

ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to one of the hosted products, you must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server 1.5 User's Manual.*

Importing a Virtual Machine from a Hosted Product to ESX Server 2

The considerations for this case are the inverse of those for exporting an ESX Server virtual machine.

For details on importing virtual disk files into ESX Server, see the *ESX Server 2 Administration Guide.*

Generation 2 to Generation 4

Special steps are needed to move virtual machines from generation 2 products to GSX Server 3 or Workstation 4, as shown in the following table. Moving virtual machines from generation 2 products to ESX Server 2 or to ESX Server 2 with Virtual SMP is not supported.

		Moved to Host System Running		
		ESX Server 2 with Virtual SMP	**ESX Server 2**	**GSX Server 3 or Workstation 4**
Virtual Machine Created Under	**ESX Server 1.0**	Not supported	Not supported	Export virtual disks
	GSX Server 1 or Workstation 2	Not supported	Not supported	Upgrade virtual hardware (one-way)

Moving from Generation 2 Hosted Products to Generation 4 Hosted Products

If you move a virtual machine from GSX Server 1 or Workstation 2 to GSX Server 3 or Workstation 4, the process is one-way. You cannot move back to the previous product again. After you move the virtual machine, you must upgrade the virtual hardware. This gives you access to improvements in the virtual hardware that were introduced in GSX Server 3 and Workstation 4.
For details, see the manual for the generation 4 product to which you are moving the virtual machine — GSX Server 3 or Workstation 4.

Exporting an ESX Server Virtual Machine to a Hosted Product

ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to one of the hosted products, you

must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server User's Manual*.

Moving to Generation 3 Products

This section summarizes the points you need to consider when moving virtual machines to a generation 3 product.

Generation 5 to Generation 3

Although it is not possible to move virtual machines from generation 5 products to generation 3 products, you can move virtual machines in the opposite direction. The general rule is that you should create the virtual machine under the generation 3 product, then import it so it will run under the generation 5 product. For details, see .

Generation 4 to Generation 3

Although it is not possible to move virtual machines from generation 4 products to generation 3 products, you can create virtual machines that run under products of both generations. The general rule is that you should create the virtual machine under the generation 3 product, then run it in legacy mode under the generation 4 product.

Environments Combining Generation 4 and Generation 3 Products

For more information on creating virtual machines so they can be used under both generation 3 and generation 4 products, see .

Generation 3 to Generation 3

Moving virtual machines among generation 3 products requires relatively few special steps, as shown in the following table.

		Moved to Host System Running	
		ESX Server 1.5	**GSX Server 2 or Workstation 3**
Virtual Machine Created Under	**ESX Server 1.5**	OK	Export virtual disks
	GSX Server 2 or Workstation 3	Import virtual disks	OK

Interoperable Configurations

Virtual machines created on generation 3 hosted products — Workstation 3 and GSX Server 2 — are interoperable. You can move them freely from one product to another. In general, moving a virtual machine from one host to another means copying all the files in the virtual machine's folder from the source computer to the destination computer.

For details, see the manuals for Workstation and GSX Server.

Similarly, you can freely move virtual machines between servers running ESX Server 1.5.

For details, see the *ESX Server 1.5 User's Manual*.

Exporting an ESX Server Virtual Machine to a Hosted Product

ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to one of the hosted products, you must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server 1.5 User's Manual*.

Importing a Virtual Machine from a Hosted Product to ESX Server

The considerations for this case are the inverse of those for exporting an ESX Server virtual machine.

For details on importing virtual disk files into ESX Server, see the *ESX Server 1.5 User's Manual*.

Generation 2 to Generation 3

Moving virtual machines from ESX Server 1.0 to ESX Server 1.5 should work smoothly. Some special steps are needed to move virtual machines from generation 2 hosted products to generation 3 hosted products, as shown in the table below. Moving

virtual machines from generation 2 hosted products to ESX Server 1.5 or from ESX Server 1.0 to generation 3 hosted products is not supported.

		Moved to Host System Running	
		ESX Server 1.5	**GSX Server 2 or Workstation 3**
Virtual Machine Created Under	**ESX Server 1.0**	OK	Not supported
	GSX Server 1 or Workstation 2	Not supported	Upgrade virtual hardware or run in legacy mode

Moving ESX Server 1.0 Virtual Machines to ESX Server 1.5

In general, ESX Server 1.0 virtual machines can be used interoperably under ESX Server 1.5. For details on using ESX Server 1.0 virtual machines under ESX Server 1.5, see the *ESX Server 1.5 User's Manual.*

Moving from Generation 2 Hosted Products to Generation 3 Hosted Products

Before making the move from GSX Server 1 or Workstation 2 to GSX Server 2 or Workstation 3, you should decide whether you want to be able to move back to the previous product again.

If you do want to be able to move the virtual machine back — to run it under the previous product at some later time — you should run the virtual machine in legacy mode under GSX Server 2 or Workstation 3.

If you are making a one-way move and don't need to run the virtual machine under GSX Server 1 or Workstation 2 at a later time, you should upgrade the virtual hardware after you move the virtual machine. This gives you access to improvements in the virtual hardware that were introduced in GSX Server 2 and Workstation 3.

For details, see the manual for the generation 3 product to which you are moving the virtual machine — GSX Server 2 or Workstation 3.

Moving to Generation 2 Products

This section summarizes the points you need to consider when moving virtual machines to a generation 2 product.

Generation 5 to Generation 2

You cannot move virtual machines from a generation 5 product to a generation 2 product and you cannot create virtual machines that run under products of both generations.

You can move virtual machines in the opposite direction with the help of an intermediate product. For details, see Generation 2 to Generation 5 on page 15.

Generation 4 to Generation 2

Although it is not possible to move virtual machines from generation 4 products to generation 2 products, you can move virtual machines in the opposite direction. The general rule is that you should create the virtual machine under the generation 2 product, then upgrade it so it will run under the generation 4 product. For details, see Generation 2 to Generation 4 on page 21.
SMP virtual machines cannot be moved to generation 2 products.

Generation 3 to Generation 2

Although it is not possible to move virtual machines from generation 3 hosted products to generation 2 products, you can create virtual machines that run under products of both generations. The general rule is that you should create the virtual machine under the generation 2 product, then run it in legacy mode under the generation 3 product. For details, see Generation 2 to Generation 3 on page 24.

ESX Server 1.5 virtual machines are not supported under generation 2 hosted products.

		Moved to Host System Running	
		ESX Server 1.0	GSX Server 1 or Workstation 2
Virtual Machine Created Under	**ESX Server 1.5**	OK	Not supported
	GSX Server 2 or Workstation 3	Not supported	Not supported

Moving ESX Server 1.5 Virtual Machines to ESX Server 1.0

In general, ESX Server 1.5 virtual machines can be used interoperably under ESX Server 1.0. For details on using ESX Server 1.5 virtual machines under ESX Server 1.0, see the *ESX Server 1.5 User's Manual*.

Generation 2 to Generation 2

Moving virtual machines among generation 2 products requires relatively few special steps, as shown in the following table.

		Moved to Host System Running	
		ESX Server 1.0	GSX Server 1 or Workstation 2
Virtual Machine Created Under	**ESX Server 1.0**	OK	Export virtual disks
	GSX Server 1 or Workstation 2	Import virtual disks	OK

Interoperable Configurations

Virtual machines created on generation 2 hosted products — Workstation 2 and GSX Server 1 — are interoperable. You can move them freely from one product to another.

In general, moving a virtual machine from one host to another means copying all the files in the virtual machine's folder from the source computer to the destination computer.

For more details, see the manuals for Workstation and GSX Server.

Similarly, you can freely move virtual machines between servers running ESX Server 1.0.

For details, see the *ESX Server 1.0 User's Manual*.

Exporting an ESX Server Virtual Machine to a Hosted Product
ESX Server has its own file format for storing virtual disk files. The hosted products — Workstation and GSX Server — typically store virtual disk files on the host computer's file system or on a network server that can be accessed by the host operating system. When you move a virtual machine from ESX Server to one of the hosted products, you must export the virtual disks so they are in a format that can be used by the hosted product.

For details on exporting the virtual disk files, see the *ESX Server 1.0 User's Manual*.

Importing a Virtual Machine from a Hosted Product to ESX Server
The considerations for this case are the inverse of those for exporting an ESX Server virtual machine.

For details on importing virtual disk files into ESX Server, see the *ESX Server 1.0 User's Manual*.

Index