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How to Create a Virtual Server Environment with VMware Converter on Fujitsu PRIMERGY

PRIMERGY
Fujitsu industry-standard servers

Version 1.2

August 2008

FUJITSU LIMITED

Revision history

Revision date	Version	Updates
July 2007	1.0	Newly published.
July 2008	1.1	Modified the file location to assign the HAL.DLL and Ntoskrnl.exe files.
August 2008	1.2	<ul style="list-style-type: none">▪ Added Acronis True Image as a supported third-party imaging tool▪ Modified the flowchart: How to determine a migration method

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Introduction

VMware Converter provides migration solutions for machines, both from physical to virtual and virtual to virtual environments. VMware Converter is easy to use, allowing you to complete migrations by simply following the VMware Converter application wizards for set up. This document provides an overview of the VMware Converter products and migration procedures - mainly how to convert a physical machine to a virtual machine. Fujitsu recommends that you use this document alongside the VMware Converter user's manual provided by VMware, Inc.

Intended audience

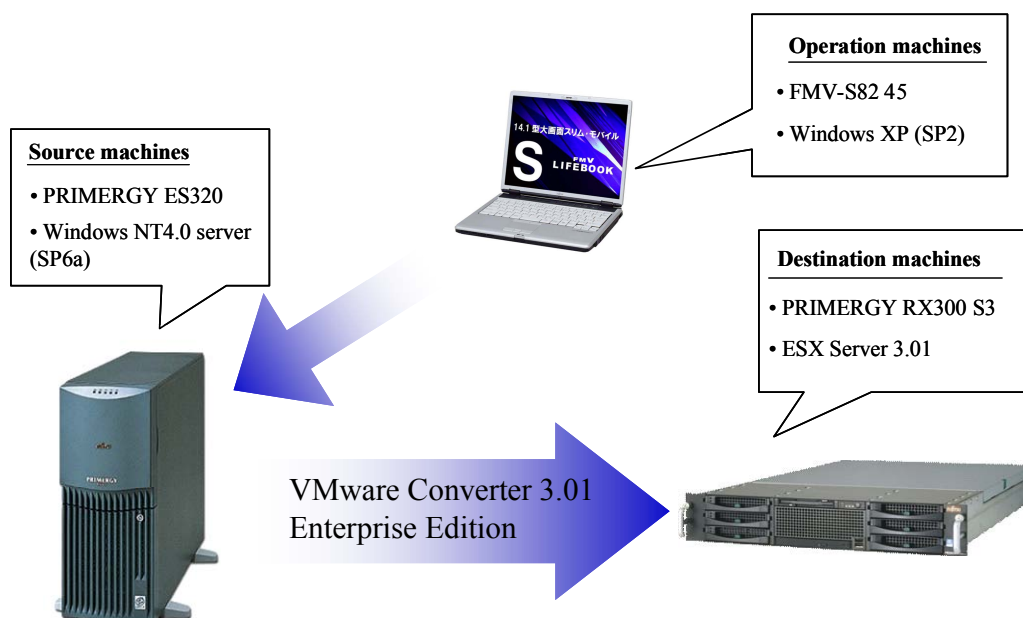
This document is intended for anyone who needs to use VMware Converter. This document, therefore, is written with an assumption that readers have a basic knowledge of VMware Infrastructure 3.

Terms used in this document

In this document, a source machine means the machine from which you import or create a virtual machine. A destination is a machine to which you import a virtual machine. An operation machine will work as an interface between your source machine and the destination to perform migrations. The operation machine is required when you choose remote hot migration or remote migration with third-party images.

Products used in this document

The following platform products are used in this document.

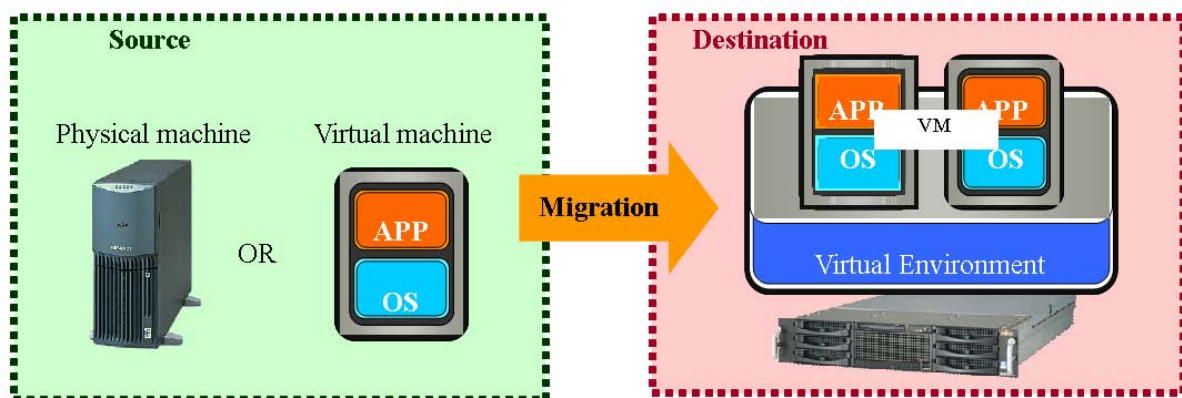


1. Overview of VMware Converter

This chapter provides an overview of VMware Converter, the product editions available and multiple migration methods.

1.1 About VMware Converter

VMware Converter lets you convert a running physical machine into a virtual machine. You can also migrate a virtual machine between VMware platforms, for example you can move your virtual machine from VMware Server to ESX Server.



Migrations are easy to perform. No complicated deployment procedures and setting are required just simply follow the migration wizards and task manager. s. VMware Converter supports three different migration methods (cold migration, hot migration and migration with third-party images). Choose the applicable migration mechanism that suits your existing system environment.

* For more details of each procedure, see “1.6 Migration patterns” in Chapter 1.

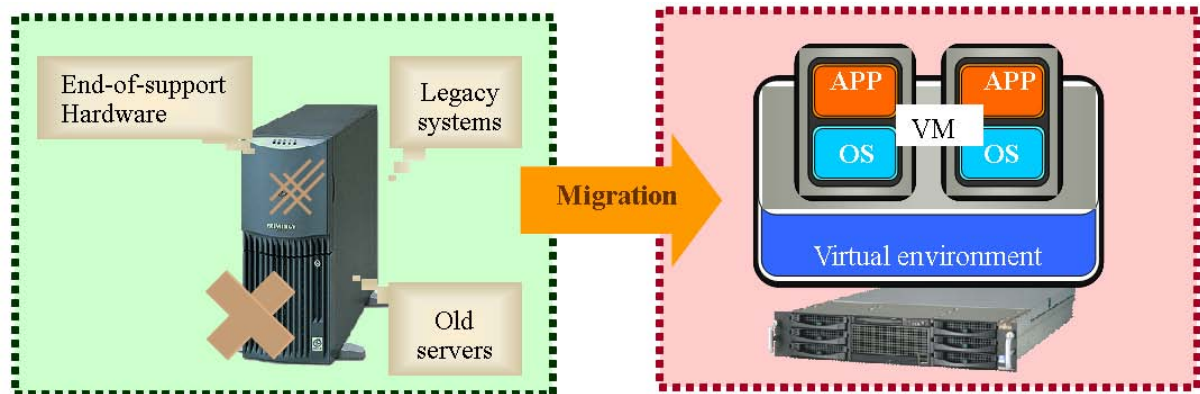
1.2 Use cases of VMware Converter

This section describes several use examples of VMware Converter. VMware Converter lets you create VMware virtual machine environments for use in many different ways. This document shows the following four usage scenarios.

- (1) Extend the life of an existing platform.
- (2) Consolidate physical servers.
- (3) Deploy a test environment.
- (4) Support a test-to-production cutover.

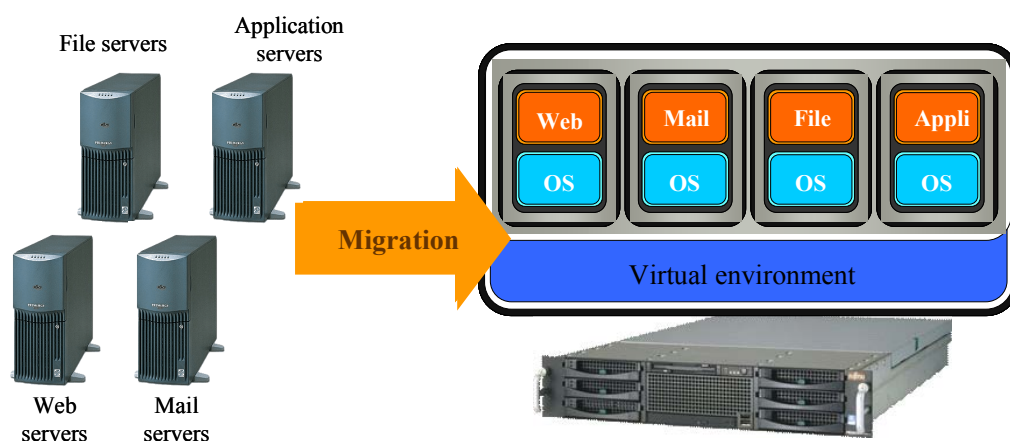
1.2.1 Extending life of your existing platforms

With VMware Converter, you can extend the life of existing hardware platforms that are either reaching end of support or use older system generations (e.g. Windows NT).



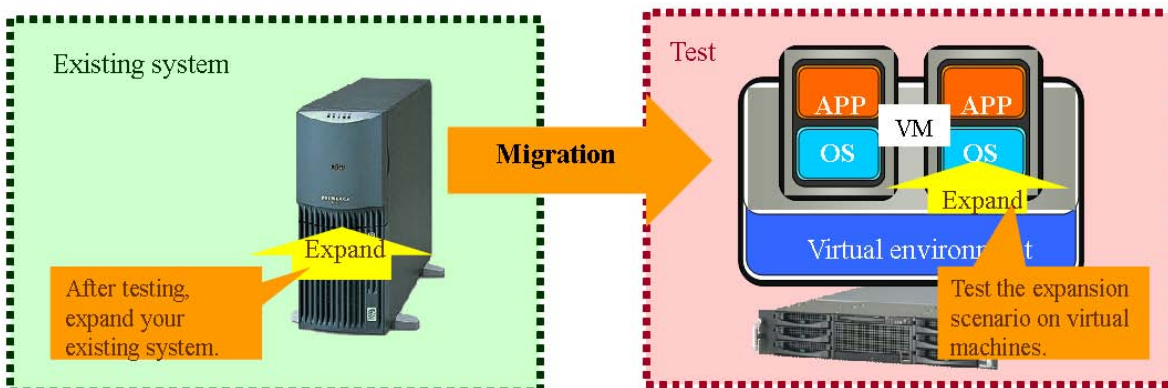
1.2.2 Consolidating physical servers

Multiple physical servers can be consolidated into a single virtual machine.



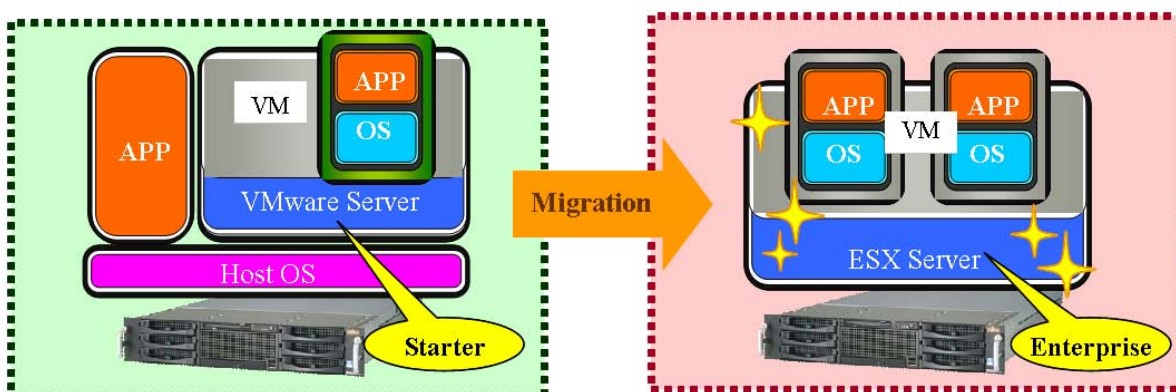
1.2.3 Deploying a test environment

With VMware Converter, you can create a virtual machine environment for testing purposes before expanding your current system.



1.2.4 Supporting a test-to-production cutover

You can use VMware Converter when going into production to perform the cutover from deployed virtual server environment with VMware Converter Starter Edition.



1.3 VMware Converter Editions

Two editions of VMware Converter are available, Starter and Enterprise. The Starter Edition is available as a free download. The Enterprise Edition provides the complete set of features. You can select either edition if it meets the particular needs of your different migration environments and use cases.

1.3.1 VMware Converter Starter Edition

You can download VMware Converter Starter from the VMware website, for free. The Starter Edition supports hot migration* (migration to VMware virtual environments from a running source machine) and migration with third-party images.

(*): The types of destination machines are limited.

1.3.2 VMware Converter Enterprise Edition

In addition to the features of VMware Converter Starter, Enterprise Edition supports all remaining migration mechanisms, including multiple simultaneous migrations. The Enterprise Edition is not sold separately as a standalone product. It is provided as part of the VCMS (VirtualCenter Management Server) features.

1.3.3 Comparison of the two editions

		Starter Edition	Enterprise Edition
Multiple concurrent migrations		Unsupported	Supported
Migration (* ¹)	Local cold migration	Unsupported	Supported
	Local hot migration	Supported	Supported
	Remote hot migration	Partially supported (* ²)	Supported
	Migration with third-party image formats	Supported	Supported
Licensing		Free download (You can download the Starter Edition from VMware website)	Licensed as a part of VCMS
Support available?		No	Yes

(*¹): See Chapter 2 to obtain the details of migration mechanisms.

(*²): Destinations are limited to VMware Workstation, VMware Server, VMware GSX Server and VMware Player.

1.4 System requirements

The following tools and machines are required when using VMware Converter to migrate your existing system to a virtual environment. The required tools and machines for migration may vary, depending on your system environments and migration methods. See “1.6 Migration Patterns” in Chapter 1.

1.4.1 Software

1) VMware Converter

Converter Boot CD:

VMware Converter Enterprise Edition comes with the Converter Boot CD. The Converter Boot CD is not be separately provided as a standalone product, and comes as feature of VCMS (VirtualCenter Management Server). You can download the CD (the ISO image file) from the VMware website for free, as long as you have a VirtualCenter.license.

VMware Converter application:

This binary file is a free download available from the VMware website (See URL below). The VMware Converter application is required when you install VMware Converter.

- VMware website (Japanese only): <http://www.vmware.com/ja/products/converter/>

2) Third-party images

Third-party images are used to migrate image files on your source machine. The following third-party images are supported for migrations (information as of July 2008).

- Symantec Backup Exec System Recovery (formerly LiveState Recovery)
- Symantec Norton Ghost 9 or later
- StorageCraft Shadow Protect
- Acronis True Image

Visit the VMware website to obtain the latest information about the supported third-party images.

http://www.vmware.com/jp/support/pubs/converter_pubs.html (Japanese only)

VMware Converter 3.x document

1.4.2 Hardware

1) Source machines

A source machine is either a physical or a virtual machine from which you can import or create a VMware virtual machine.

2) Destination machines

A destination machine is a machine on which you import a virtual machine. A destination must have sufficient specification to run the virtual machines. You are required to deploy a VMware environment before performing migrations.

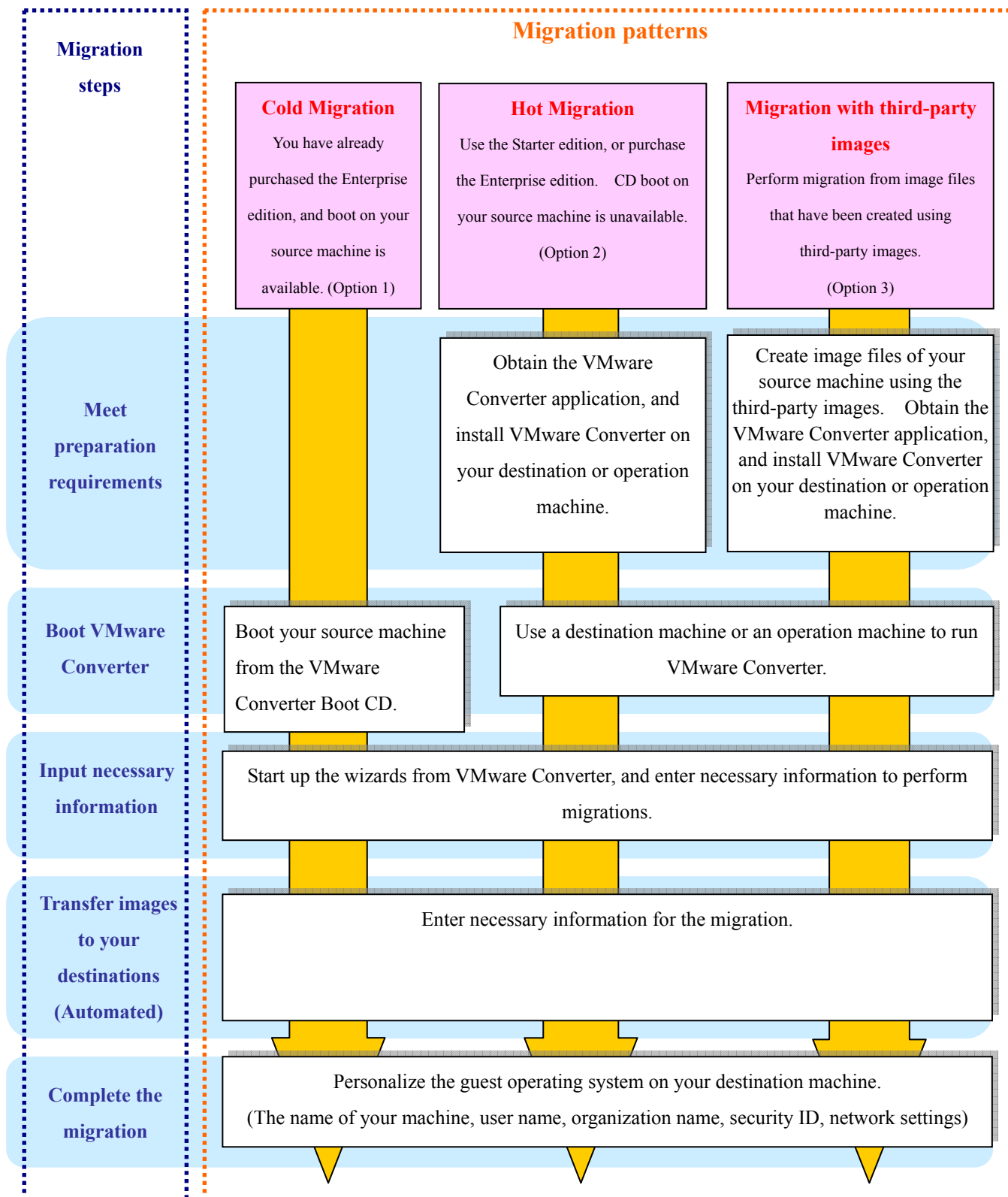
3) Operation machines

An operation machine will be used as an interface between your source machine and destination machine for migrations. Install VMware Converter on the operation machine to create the migration task. There is a limit to which operating systems are supported on the operation machine. Refer to the VMware Converter manual and select an appropriate supported operating system for your operation machine.

1.5 Migration procedures

The following chart shows the basic steps for migration. The required tools for each migration will be described later in this document.

1.5.1 Workflow



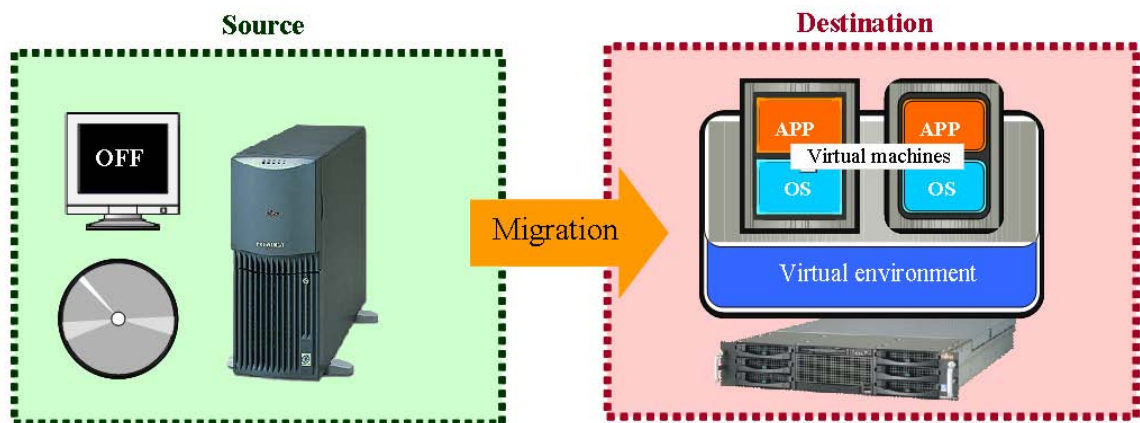
* Detailed migration procedures are provided later in this document.

1.6 Migration patterns

Migration methods are divided into three main categories (5 patterns). This chapter provides an overview and tool requirements for each migration pattern.

1.6.1 Cold Migration

Boot your source machine from the VMware Converter Boot CD, and transfer the images directly to your destination machine. The migration processes can be completed without causing any changes to your existing system environment. The Boot CD in VMware Converter Enterprise edition is required.



Tool requirements

(1) The VMware Converter Boot CD

- The Boot CD will be used to boot your source machine.

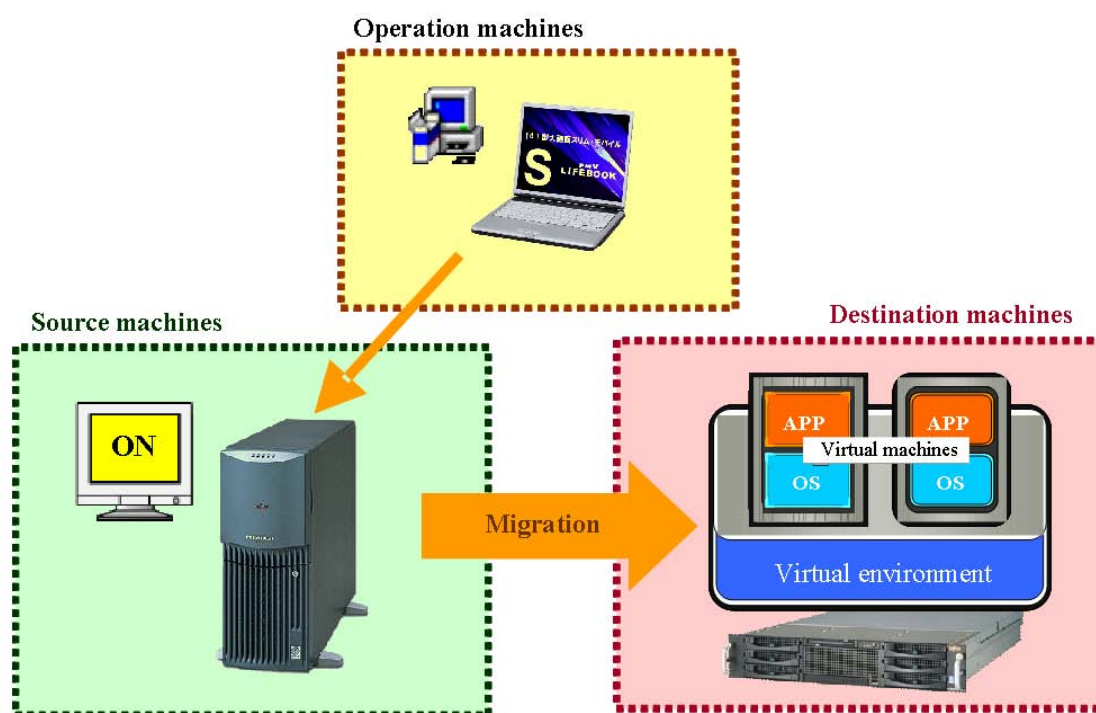
(2) A destination machine

- The destination will be used to import a migrated virtual machine.
- Create a VMware environment before migration. Make sure that your disk has sufficient free space to store the images.

1.6.2 Hot Migration

1) Remote Hot Migration

In hot migration, the migration processes can be performed while your source machine is running. Install VMware Converter on your operation machine, and run the migration task to start transferring system images from your source machine to the destination. Installing the VMware Converter Agent on your source machine will cause some changes to your existing system environment.



Tool requirements

(1) The VMware Converter application

- The application is required when installing VMware Converter on your operation machine.

(2) The operation machine

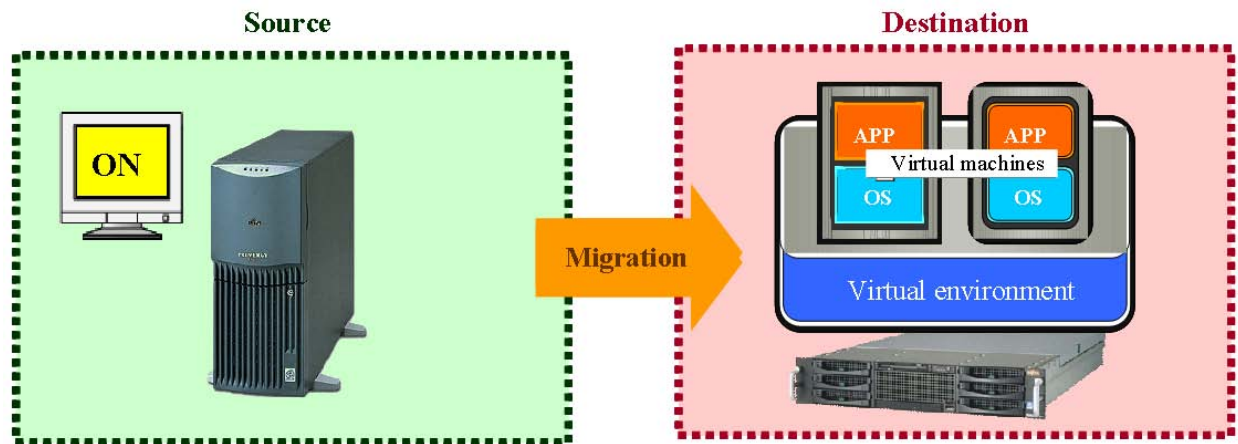
- VMware Converter will be installed on the operation machine.
- An operation machine performs the migration task between source and destination machines.

(3) The destination machine

- The destination will be used to import a migrated virtual machine.
- Create a VMware environment before migration. Make sure that your disk has sufficient free space to store the image file.

2) Local Hot Migration

In local hot migration, the migration processes can be completed while your source machine is running. Install VMware Converter on your source machine, and transfer the system images from your source machine to the destination. Installing the VMware Converter Agent on your source machine will cause some changes to your existing system environment.



Tool requirements

(1) The VMware Converter application

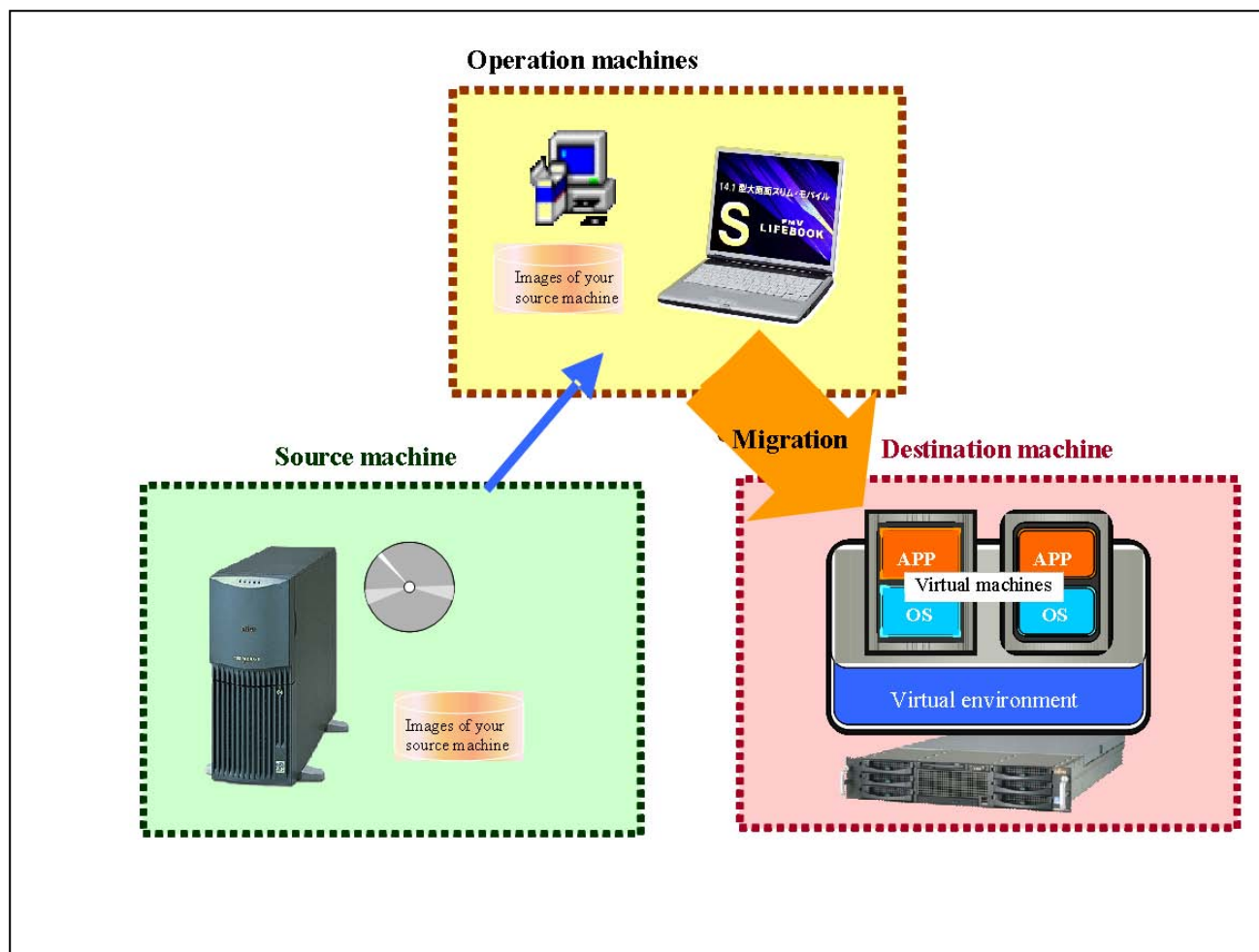
(2) The destination machine

- The destination will be used to import migrated virtual machines.
- Create a VMware environment before migration. Make sure that your disk has sufficient free space to store the image files.

Migration with third-party images

1) Remote migration with third-party images

In this migration mechanism, third-party image files are used. Copy the image files that have been created on your source machine to your operation machine, and transfer the images from the operation machine to your destination.



Tool requirements**(1) The VMware Converter application**

- The application is required to install VMware Converter on your operation machine.

(2) Third-party images

- Supported third-party images are required when you create an image file of your source machine.

(3) The operation machine

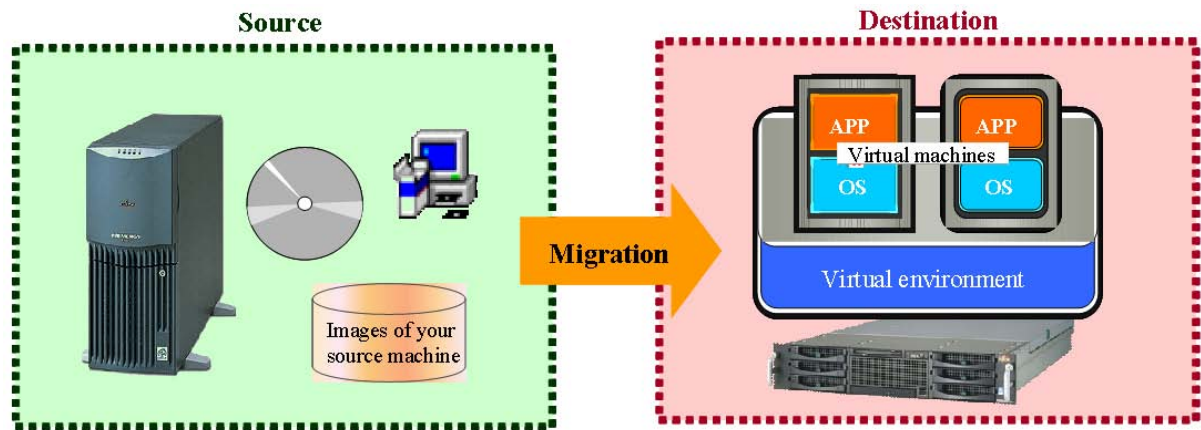
- VMware Converter will be installed on the operation machine.
- The operation machine will copy the image file of your source machine.
- The image file on your source machine will be used for migration.

(4) The destination machine

- The destination will be used to import a migrated virtual machine.
- Create a VMware environment before migration. Make sure that your disk has sufficient free space to store the image file.

2) Migration with third-party imaging tools

In this migration mechanism, third-party image files are used. Use VMware Converter on your source machine to migrate the image files so that the images can be used in a VMware environment. After that, transfer the migrated images to your destination machine.



Tool requirements

(1) The VMware Converter application

(2) Third-party images

- Supported third-party images are required when you create an image file of your source machine.

(3) The destination machine

- The machine will be used to import a migrated virtual machine.
- Create a VMware environment before migration. Make sure that your disk has sufficient free space to store the image files.

1.7 Advantages and disadvantages of each migration method

The five migration patterns described in the preceding chapter have relative advantages and disadvantages. See the comparison table below.

Comparison of migration methods; advantages and disadvantages

	Advantages	Disadvantages
Option 1 Local cold migration	<ul style="list-style-type: none"> No footprint will be left on your source machine after migration. 	<ul style="list-style-type: none"> You need to shut down your source machine for migration. VCMS is required. Your source machine must have at least 296MB of memory.
Option 2-1 Remote hot migration	<ul style="list-style-type: none"> Allows migration even if boot on your source machine is unavailable. Less effect on your existing system (source machines), compared to local hot migration. 	<ul style="list-style-type: none"> An operation machine is required. (*²) Installing the VMware Converter Agent on your source machine may cause some changes to your existing system environment.
Option 2-2 Local hot migration	<ul style="list-style-type: none"> Allows migration even if boot on your source machine is unavailable. Relatively easy to meet system and environmental requirements for migration. 	<ul style="list-style-type: none"> Installing the VMware Converter Agent on your source machine may cause some changes to your existing system environment.
Option 3-1 Remote migration with third-party images	<ul style="list-style-type: none"> No footprint will be left on your source machine after migration. (*¹) Shutting down your source machine is not required for migration. 	<ul style="list-style-type: none"> Required to obtain and install third-party images, if your source machine hasn't installed the images. An operation machine is required. (*²)
Option 3-2 Local migration with third-party images	<ul style="list-style-type: none"> Shutting down your source machine is not required for migration. (*¹) 	<ul style="list-style-type: none"> Required to obtain and install third-party images, if your source machine hasn't installed the images. You are required to install VMware Converter on your source machine.

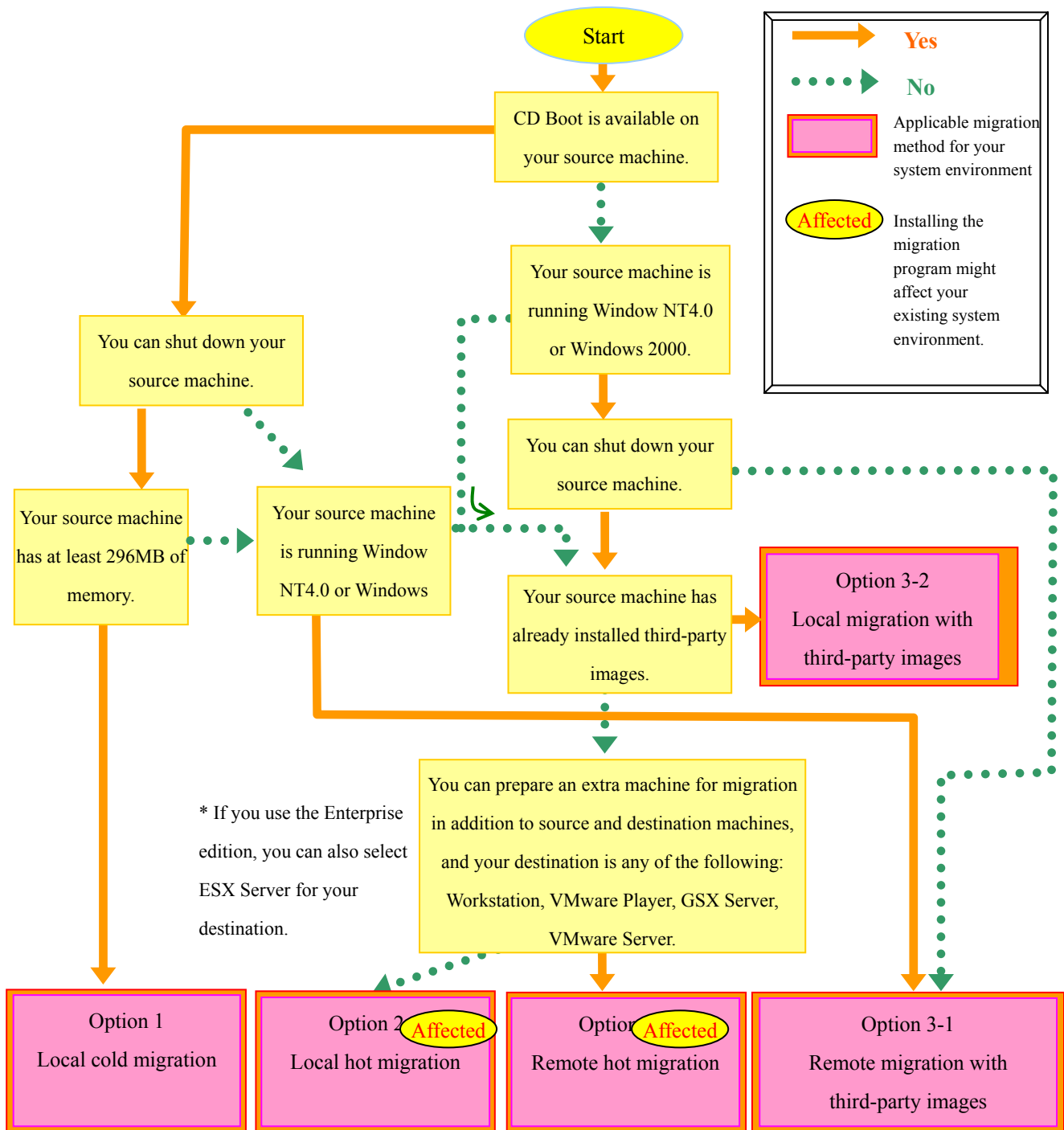
(*¹): If the third-party images have not been installed on your source machine, install them.

(*²): Your operation machine must have enough free disk space to store the image files of your source machine.

1.8 How to determine an appropriate migration pattern

This chapter provides a flowchart that lets you select the most applicable migration mode for your existing system environment. Refer to the flowchart below.

1.8.1 Flowchart of determining your migration pattern



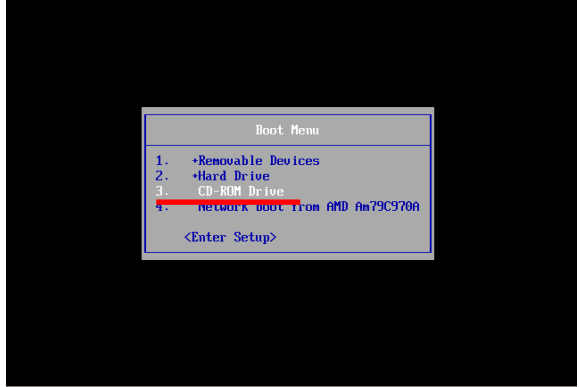

2. How to use VMware Converter

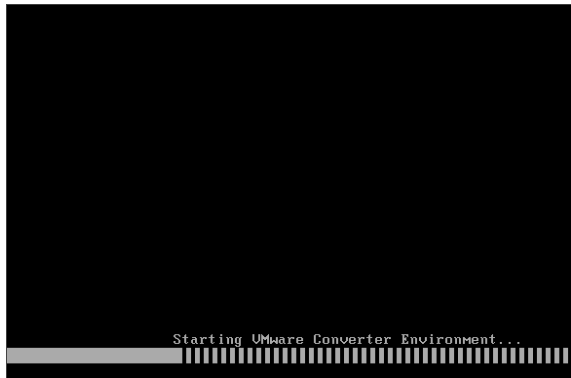
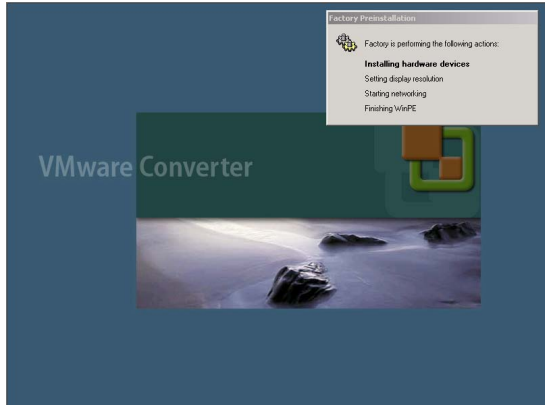
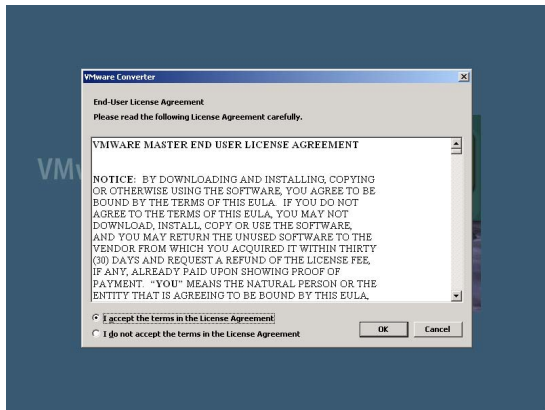
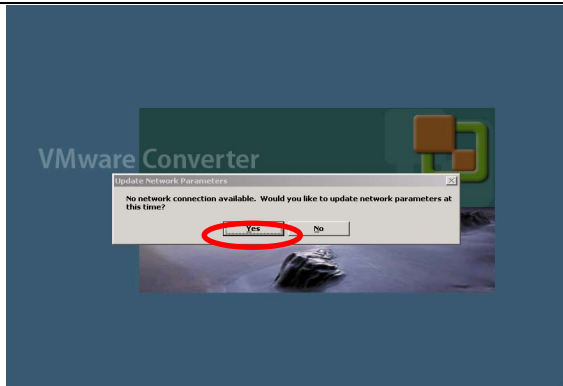
This chapter describes the procedures for using VMware Converter.

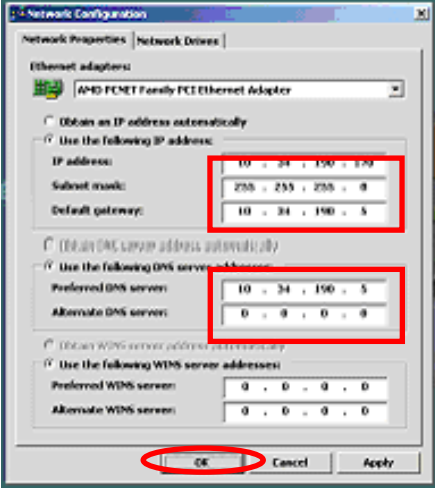
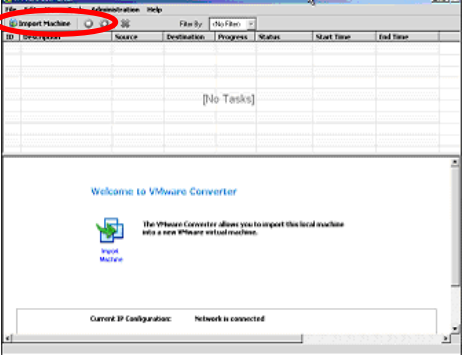
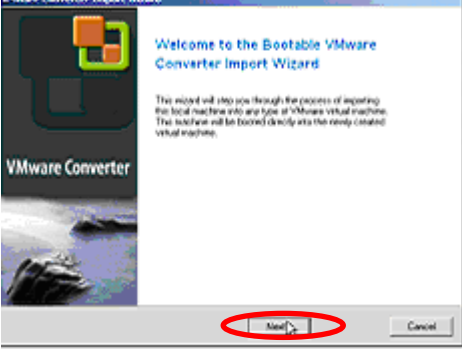
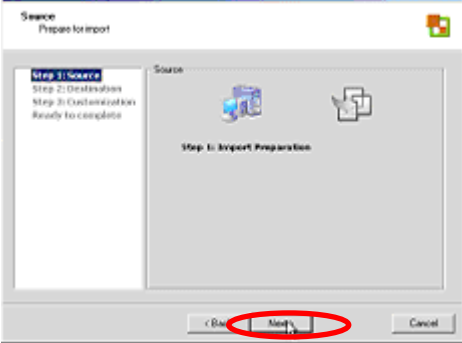
2.1 Cold Migration

Refer to “1.6.1 Cold Migration” in Chapter 1 to see the overview of the cold migration mechanism.

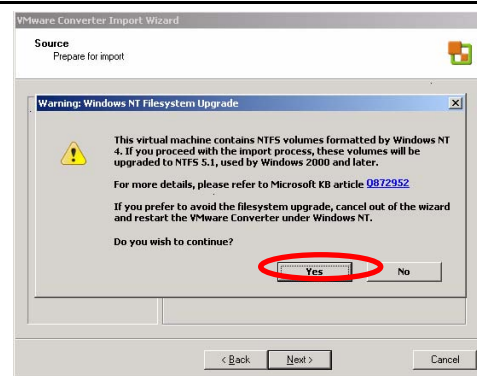
2.1.1 Local Cold Migration

Bootting your source machine from the VMware Converter Boot CD		
1	Insert the VMware Converter Boot CD in the source machine. * The source machine must have at least 264MB of memory.	
2	Turn on the source machine, and change to CD Boot in the BIOS menu.	
3	From the Boot Menu, choose CD-ROM Drive and press the Enter key.	
4	If the Press any key to boot from CD... message appears, hit any key.	

5	<p>The Starting VMware Converter Environment... message will be displayed, and VMware Converter will start booting.</p>	
6	<p>On the VMware Converter page, the Factory Pre-installation pop-up window will appear, and the following processes will be automatically performed.</p> <ul style="list-style-type: none"> - Installing hardware devices - Setting display resolution - Starting networking - Finishing WinPE 	
7	<p>The End-User License Agreement page will be displayed.</p> <p>Choose I accept the terms in the License Agreement and click OK.</p>	
8	<p>In Starting networking, the Update Network Parameters pop-up window will appear. Click the Yes button.</p>	

9	<p>The Network Configuration page will appear. Choose the Network Properties tab to set up an IP address, DNS and WINS for the source machine.</p> <p>*If you need to collect logs, click the Network Drives tab to allocate the network drives.</p> <p>Click OK when all settings are completed.</p>	
Launching the VMware Converter application		
10	<p>The VMware Converter application will boot. Click Import Machine in the toolbar.</p>	
Starting the VMware Converter wizard		
11	<p>Click the Next button on the Welcome to the VMware Converter Import Wizard page.</p>	
Setting your source machine		
12	<p>The Source page will be displayed. Click Next.</p>	

- 13 A warning message for NT Filesystem upgrade will appear.
- *If you migrate a disk on a partition basis during cold migration, the Converter will upgrade the virtual machine's NTFS version to NTFS5.1. Therefore, CHKDSK on NTFS will fail to run correctly after the changes if your operating systems are using old versions of NTFS (ex. Windows NT).

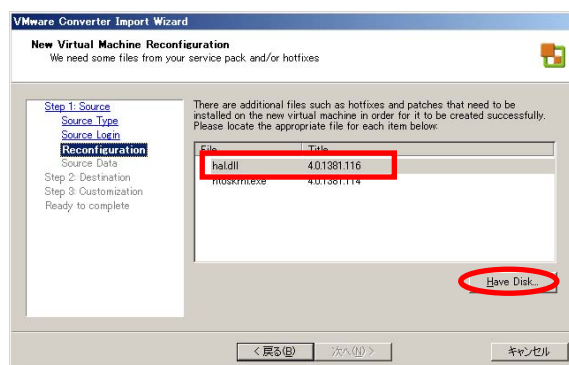


Multiple processors on a source physical machine

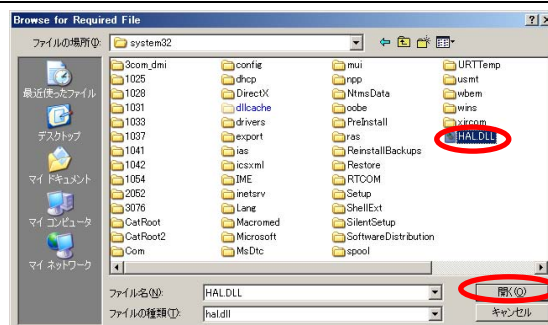
*The following steps (Steps 14 to 18) will be required only when your source physical server is running Windows NT in a multiple CPU configuration. A guest operating system on NT will be automatically changed to a single-CPU configuration, asking you to replace the kernel and HAL upon reconfiguration. You are required to newly create a single-CPU Windows NT-based virtual machine, and prepare Hal.dll and Ntoskrnl.exe files in advance.

(CD-ROM installation media is required if your machine is running Windows NT).

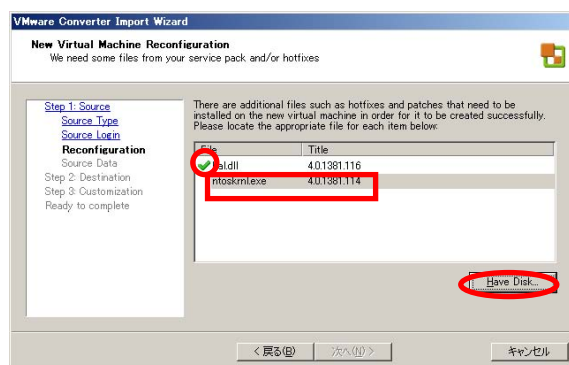
- 14 The **Reconfiguration** page will appear.
- Choose **Hal.dll**, and click the **Have Disk** button.

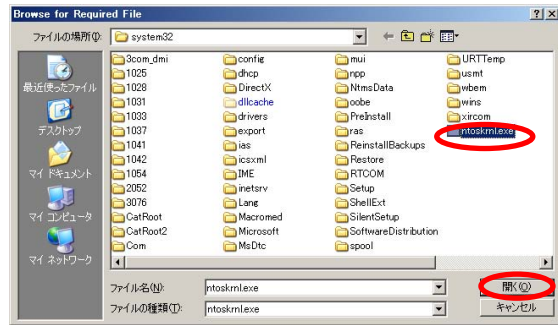
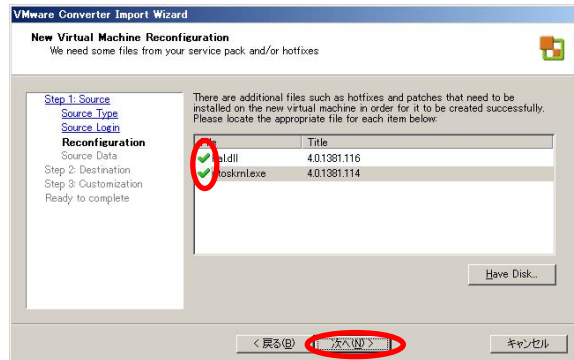
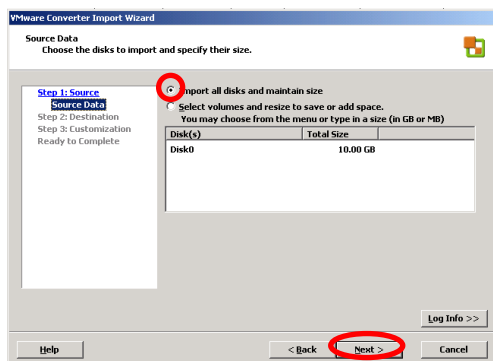
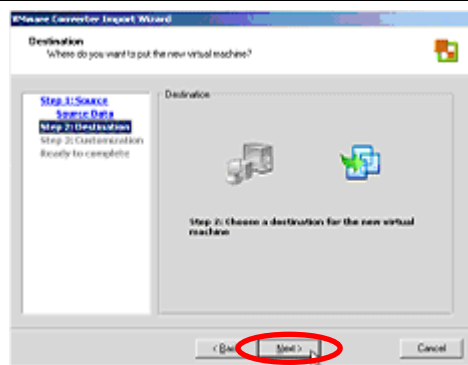


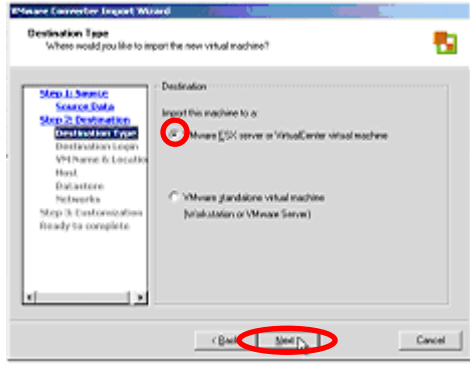
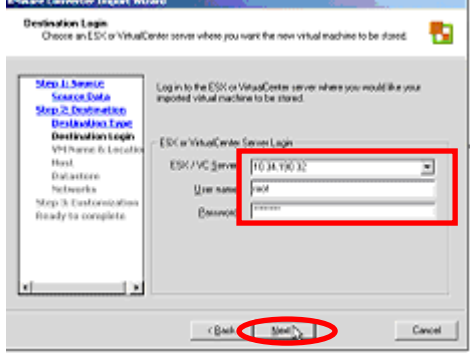
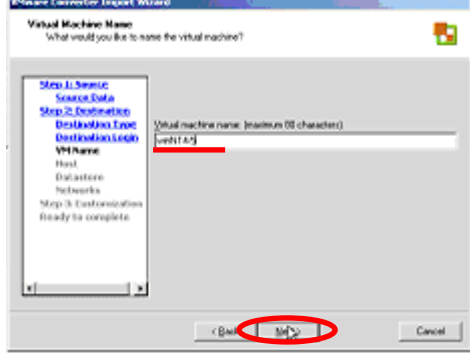
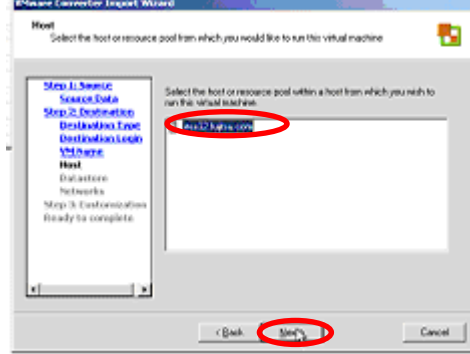
- 15 Select the **HAL.DLL** file that you have prepared, and click the **Open** button.
- *The actual screen may differ from the one shown in the right.

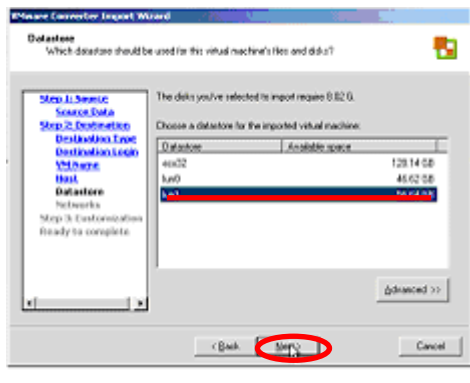
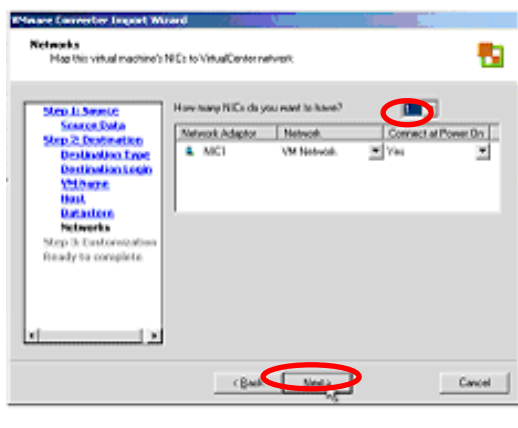
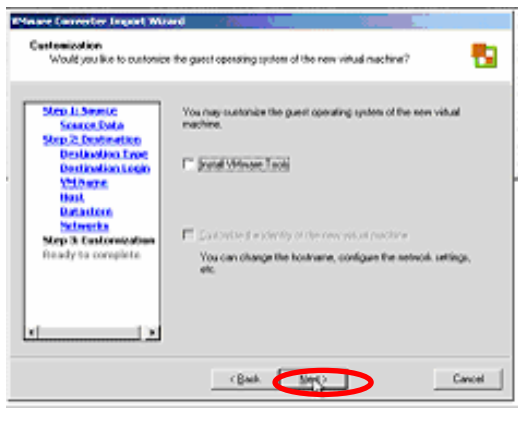
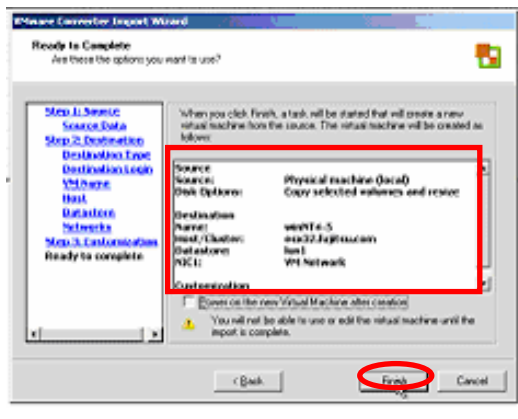


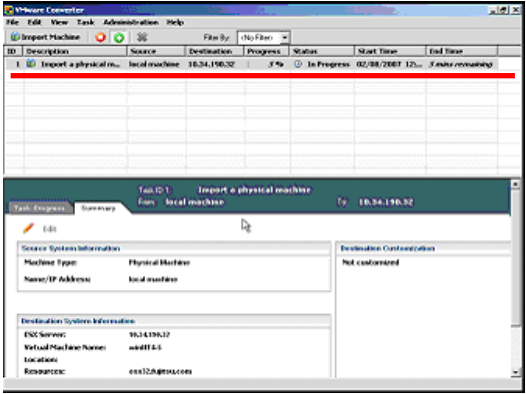
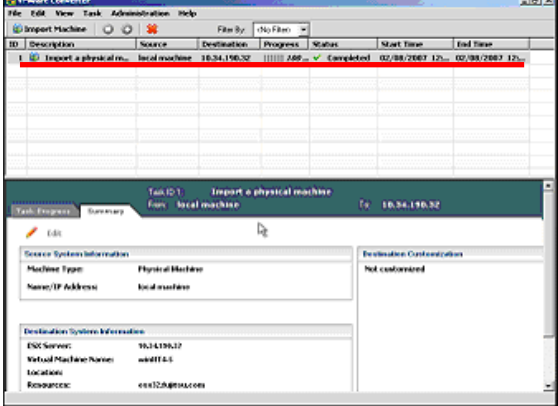

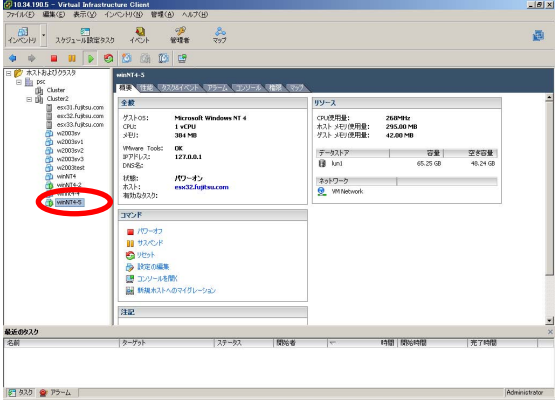
- 16 Make sure that **Hal.dll** is being selected.
- Choose **Ntoskrnl.exe**, and click the **Have Disk** button.



17	<p>Select the Ntoskrnl.exe file that you have prepared, and click the Open button.</p> <p>*The actual screen may differ from the one shown in the right.</p>	
18	<p>Make sure that both hal.dll and ntoskrnl.exe are being selected.</p> <p>Click Next.</p>	
Selecting disks		
19	<p>The Source Data page will be displayed.</p> <p>If you want to import all disks on your source machine, select the Import all disks and maintain size radio button.</p> <p>*If you want to select volumes or resize volumes, select the Select volumes and resize to save or add space radio button and specify the volumes that you want to migrate.</p> <p>Click Next.</p>	
Choosing and setting up your destination machine		
20	<p>On the Destination page, click the Next button.</p>	

21	<p>The Destination Type page will appear.</p> <p>Select the VMware ESX Server or VirtualCenter virtual machine radio button and click Next.</p>	
22	<p>The Destination Login page will be displayed.</p> <p>Type in the name (or IP address) of the destination server (ESX Server or VirtualCenter Server), your user name and a password that has administrator privileges.</p> <p>Click Next.</p>	
23	<p>The Virtual Machine Name and Folder page will appear.</p> <p>Enter the name that you wish to assign to the virtual machine and click Next.</p>	
Setting a machine configuration after migration		
24	<p>The Host page will be displayed.</p> <p>Choose your destination host and click Next.</p>	

25	<p>The Datastore page will appear.</p> <p>Specify the datastore that stores the virtual machine's images, and click Next.</p>	
26	<p>The Network page will appear.</p> <p>Specify the number of NICs that the virtual machine will use, and click the Next button.</p>	
Starting the migration		
27	<p>The Customization page will be displayed.</p> <p>*You are required to manually install VMware Tools separately.</p> <p>Click Next.</p>	
28	<p>The Ready to Complete page will be displayed.</p> <p>Make sure the settings of your virtual machine are correct.</p> <p>*If you need to boot the virtual machine after the migration, select Power on the new Virtual Machine after creation.</p> <p>Click Finish to close the wizard.</p>	

29	<p>The migration job will start. (The progress status can be shown by percentage.)</p>	
Closing the wizard		
30	<p>Make sure that the task status is indicating Completed.</p> <p>Click the x button in the upper right part of the titlebar.</p> <p>Your source machine will reboot automatically.</p>	
31	Remove the Converter Boot CD.	
Performing verification		
32	<p>Boot Virtual Infrastructure Client from a terminal that is accessible to VirtualCenter, and login to VirtualCenter.</p>	
33	<p>Make sure the guest operating system migrated by the Converter Boot CD has been created.</p> <p>Open the console of the guest operating system to verify proper operation.</p>	



The cold migration procedures are completed.

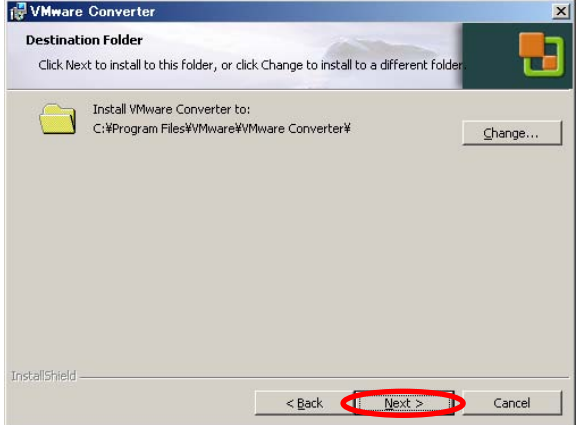
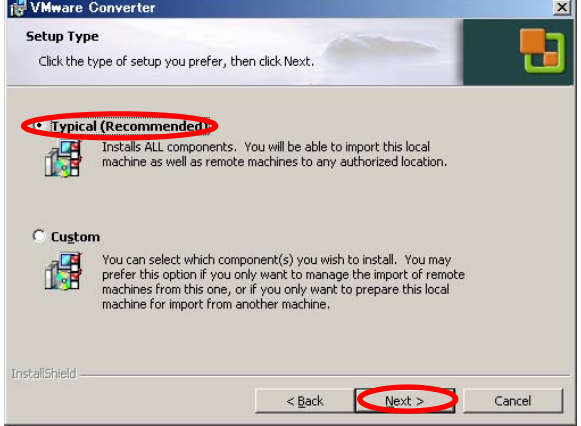
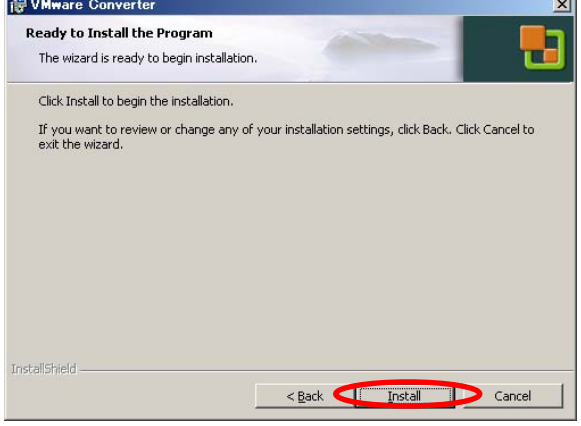
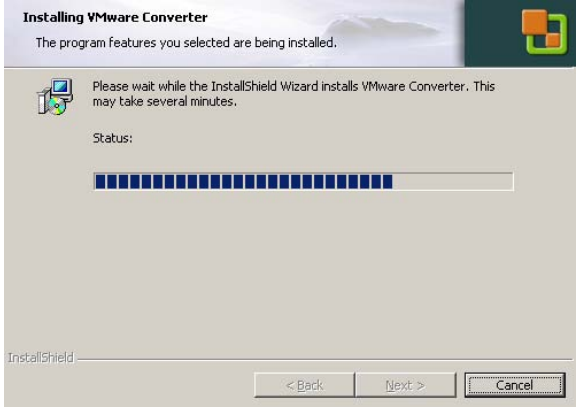
2.2 Hot Migration

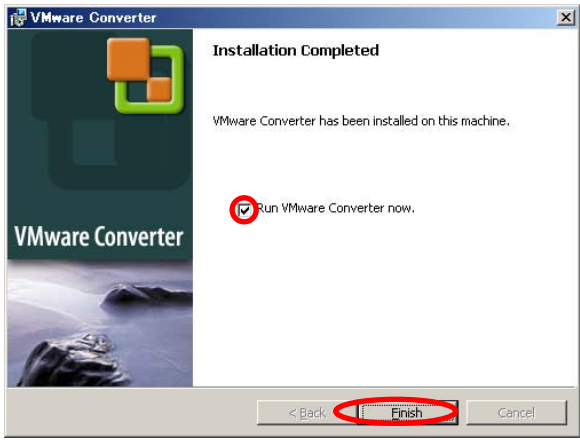
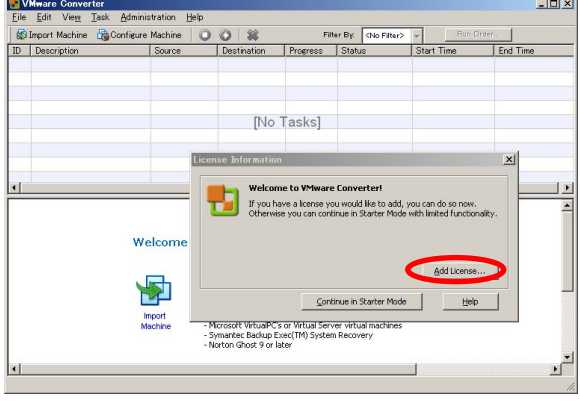
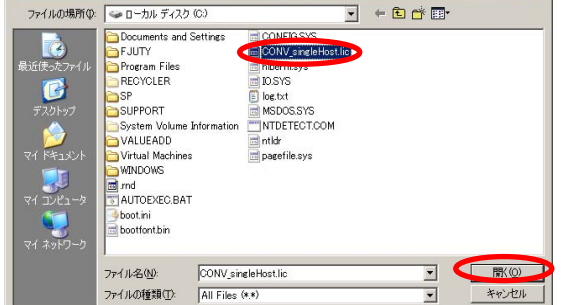
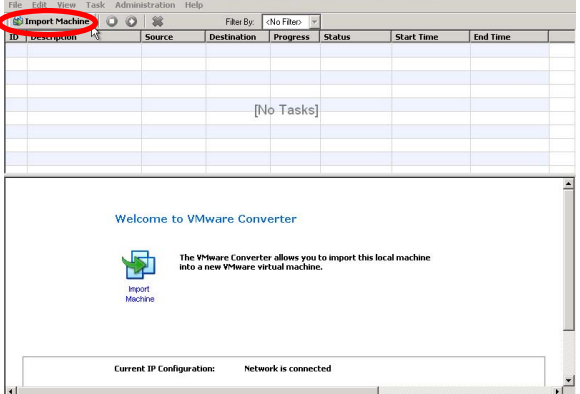
Refer to “1.6.2 Hot Migration” in Chapter 1 for an overview of the hot migration mechanism.

2.2.1 Remote hot migration

Fujitsu highly recommends you back up your source machine before installing the VMware Converter Agent. (For more details, refer to **Summary** on page 63.)

Installing VMware Converter		
1	<p>Boot your operation machine to install the VMware Converter application.</p> <p>*The VMware Converter application is a module of the following file name. VMware-p2v-3.x.x-<xxxx>.exe (<xxxx> is the name of the build.)</p> <p>*You can also install VMware Converter from the VMware Converter Boot CD.</p> <p>The VMware Converter installation wizard will open.</p>	
2	<p>The installer will start with the Welcome to the installation Wizard for VMware Converter page.</p> <p>Click the Next button.</p>	
3	<p>In the End-User License Agreement page, select the I accept the terms in the License Agreement radio button, and click Next.</p>	

4	<p>The Destination Folder page will appear.</p> <p>If you want to change the installation folder, choose Change... and specify your preferred folder to install VMware Converter.</p> <p>Click Next.</p>	
5	<p>The Setup Type page will be displayed.</p> <p>Select the Typical (Recommended) radio button, and click Next.</p>	
6	<p>Click Install on the Ready to Install the Program page.</p>	
7	<p>The installation job will start.</p>	

8	<p>The Installation Completed page will appear. Click Finish to close the installation wizard.</p> <p>*If your machine is running Windows NT4.0 Server or Windows 2000, a machine reboot is required.</p>	
Adding a license file		
9	<p>After the installation job is completed, boot VMware Converter.</p> <p>Click the Add License... button.</p>	
10	<p>Specify the license file, and click the Open button.</p> <p>*If your directory name is too long or written in Japanese, that will result in errors.</p>	
11	<p>Click Import Machine.</p>	

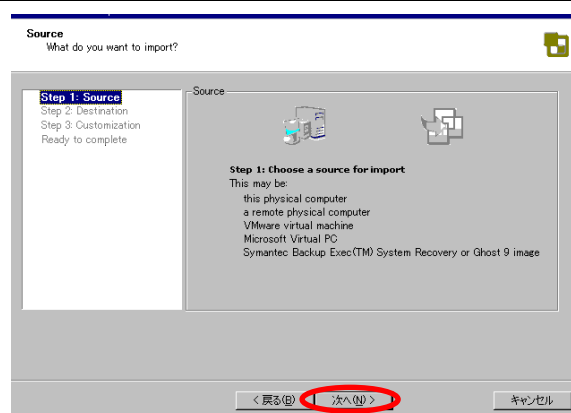
Starting the import wizard

12 Click the **Next** button.

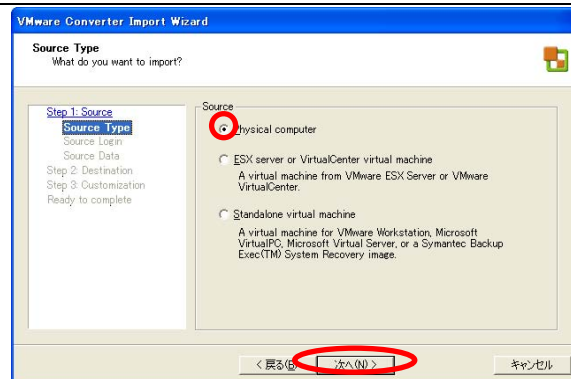


Selecting your source machine

14 Click **Next** on the **Source** page.

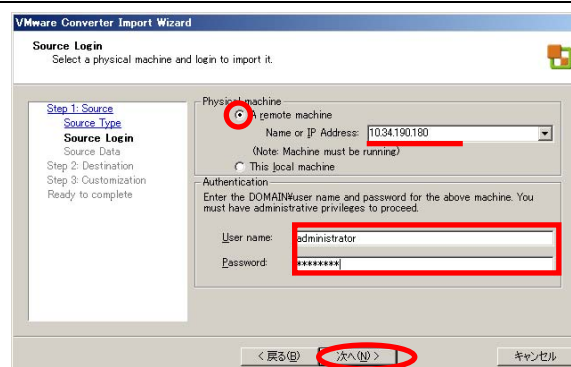


13 The **Source Type** page will appear.
Select **Physical computer**, and click **Next**.



14 Choose **A remote machine** on the **Source Login** page.

Type in the name (or IP address) of your physical machine, user name and password. (To install the Agent, you need to assign a user name that has administrator privileges.)

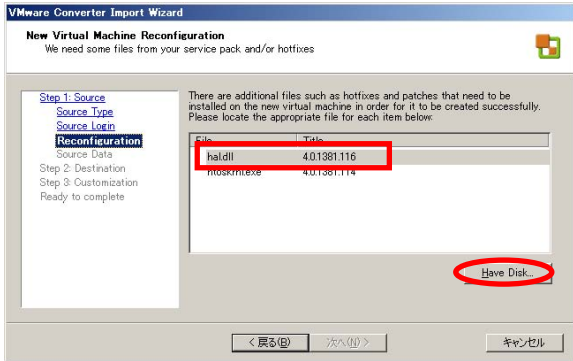
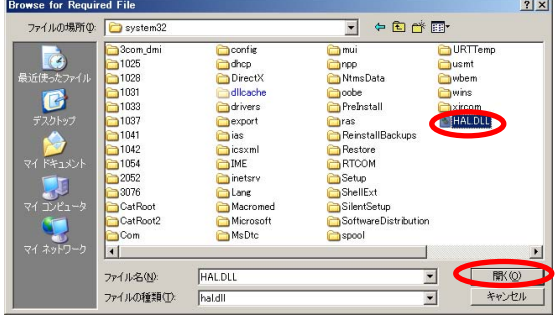
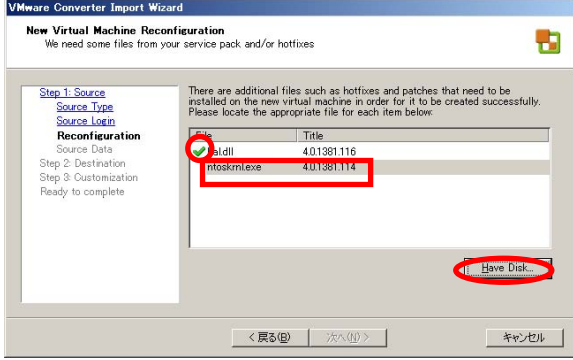
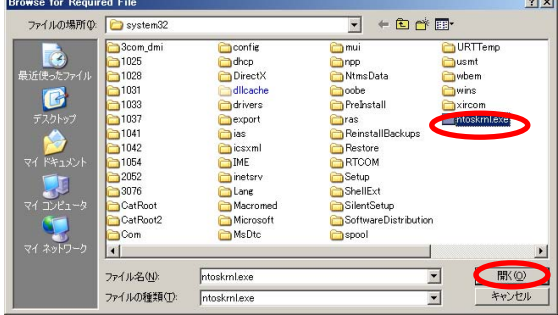


Multiple processors on a source physical machine

*The following steps (Steps 14 to 18) are required only when your source physical server is running Windows NT in a multiple CPU configuration. A guest operating system on NT will be automatically changed to a single-CPU configuration, asking you to replace the kernel and HAL upon reconfiguration.

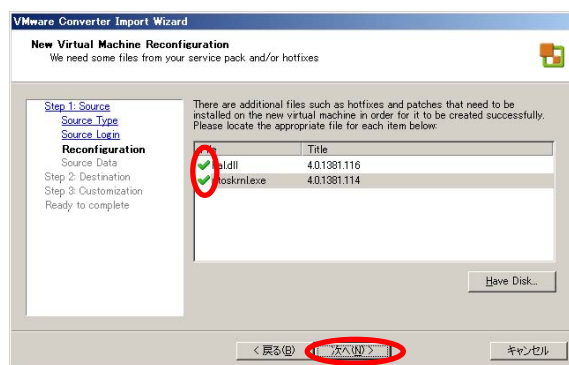
You are required to newly create a single-CPU Windows NT-based virtual machine, and prepare Hal.dll and Ntoskrnl.exe files in advance.

(CD-ROM installation media is required if your machine is running Windows NT).

15	<p>The Reconfiguration page will appear.</p> <p>Choose Hal.dll, and click the Have Disk button.</p>	
16	<p>Select the HAL.DLL file that you have prepared, and click the Open button.</p> <p>*The actual screen may differ from the one shown in the right.</p>	
17	<p>Make sure that Hal.dll is being selected.</p> <p>Choose Ntoskrnl.exe, and click the Have Disk button.</p>	
18	<p>Select the Ntoskrnl.exe file that you have prepared, and click the Open button.</p> <p>*The actual screen may differ from the one shown in the right.</p>	

- 19 Make sure that both **hal.dll** and **ntoskrnl.exe** are being selected.

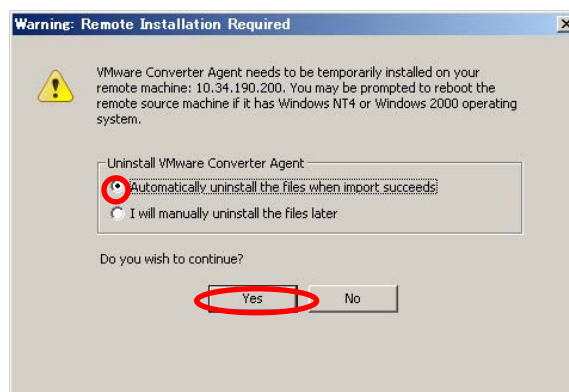
Click **Next**.



Installing the VMware Converter Agent

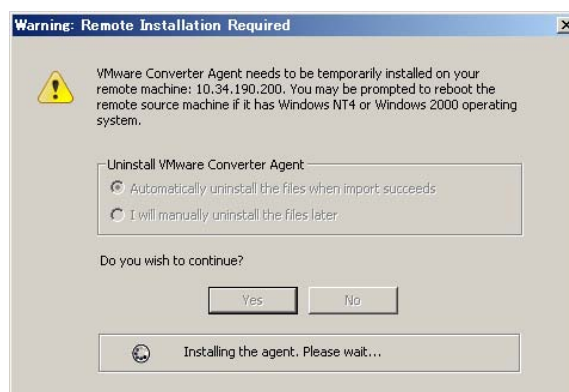
- 20 The **Warning: Remote Installation Required** page will be displayed. You will be asked whether you want to automatically uninstall the Converter Agent upon completion of the import job.

Choose **Automatically uninstall...**, and click **Yes**.



- 21 The VMware Converter Agent will start being installed on your source machine.

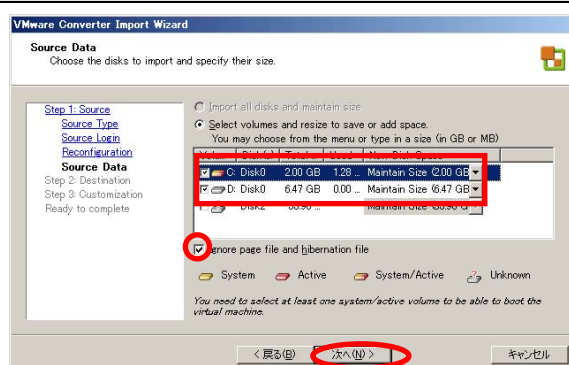
*If your source machine is running Windows NT4 or Windows 2000, the source will automatically reboot after the installation.



Selecting disks

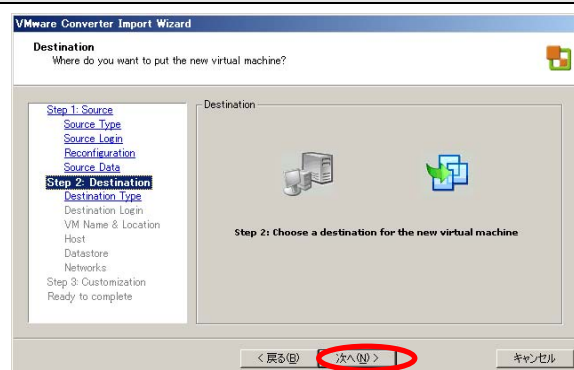
- 22 The **Source Data** page will be displayed.

Specify drives for your source machine, and click **Next**.



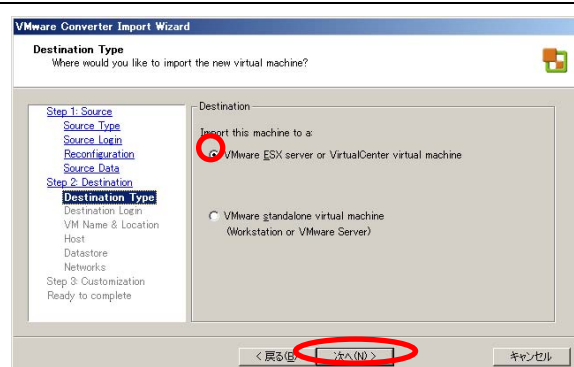
Choosing and setting up your destination machine

24 On the **Destination** page, click the **Next** button.



25 The **Destination Type** page will appear.

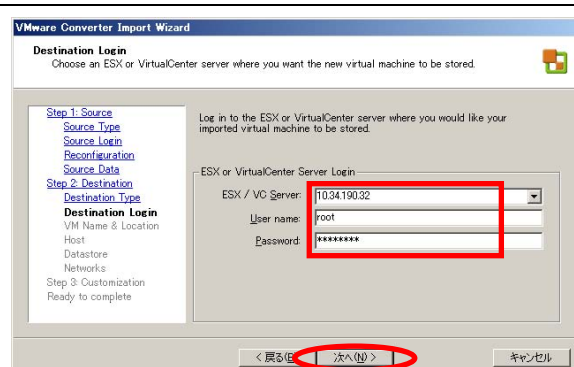
Select the **VMware ESX Server or VirtualCenter virtual machine** radio button and click **Next**.



26 The **Destination Login** page will be displayed.

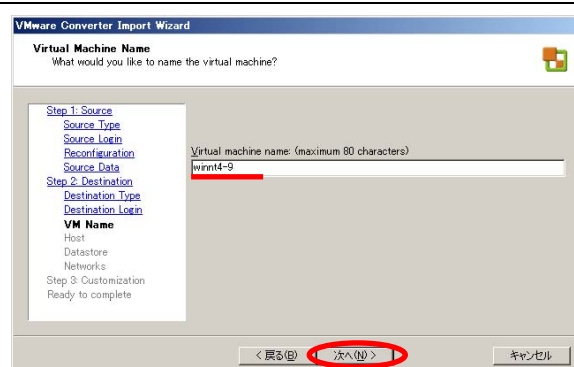
Enter the IP address of your destination machine (ESX server or VirtualCenter), your user name and the password.

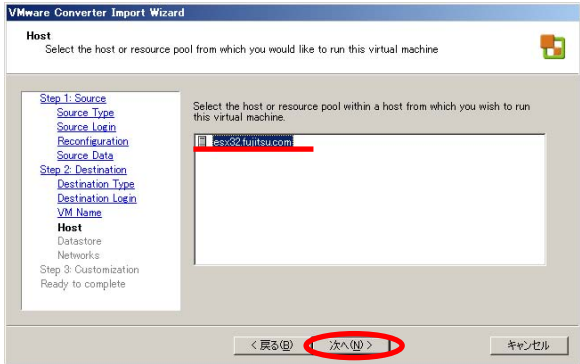
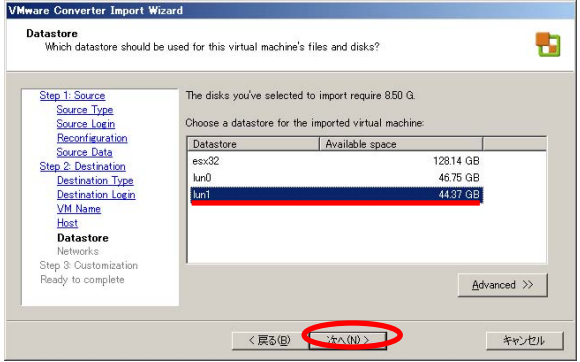
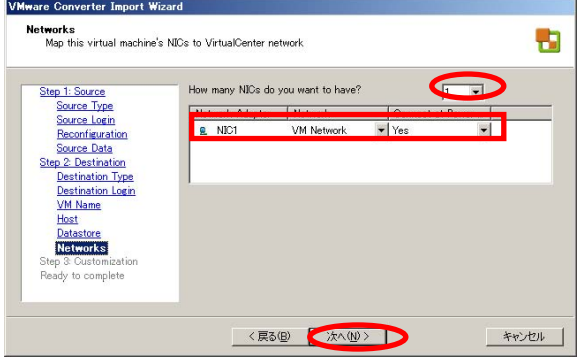
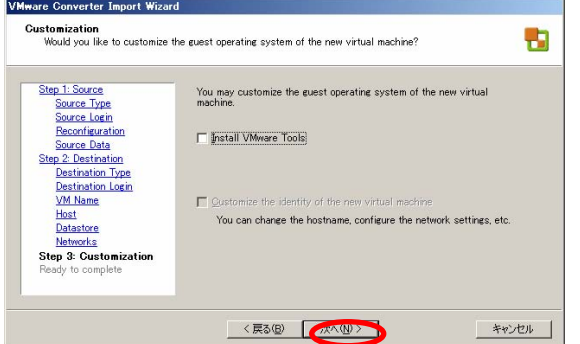
Click **Next**.

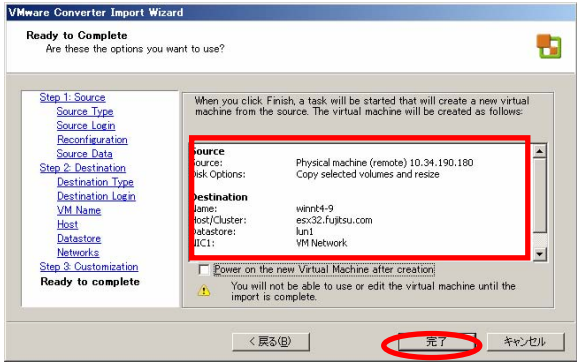
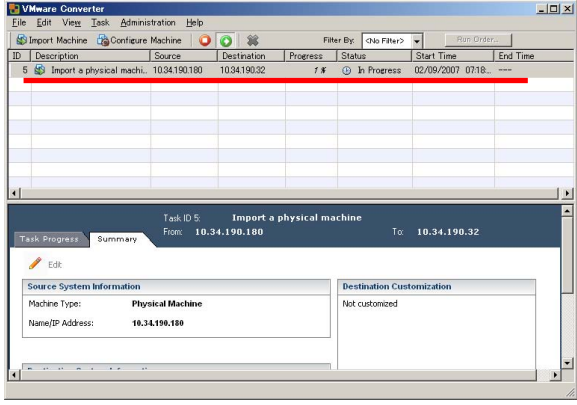
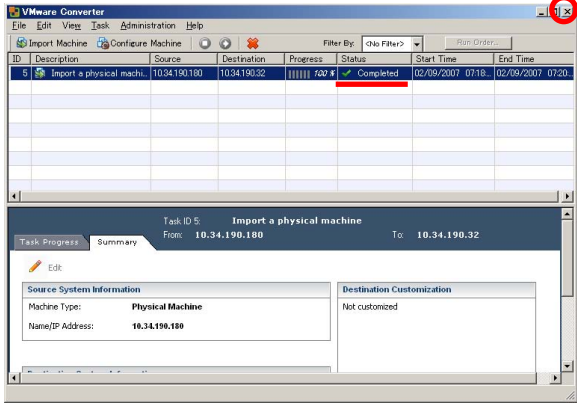



27 The **Virtual Machine Name** page will appear.

Type in the name of your destination virtual machine, and click **Next**.

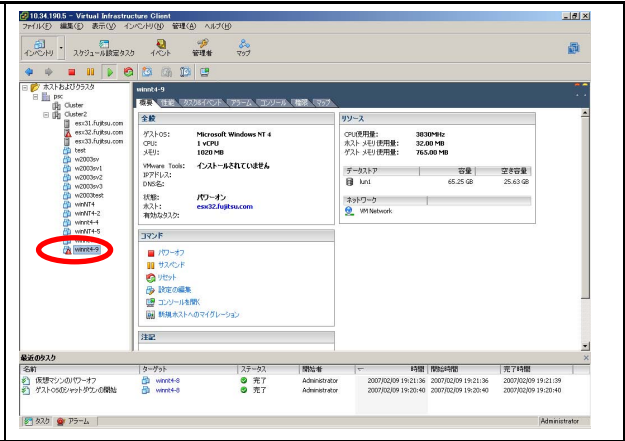


28	<p>The Host page will be displayed.</p> <p>Choose your destination host, and click Next.</p>	
29	<p>The Datastore page will appear.</p> <p>Specify the datastore that stores the virtual machine's images, and click Next.</p>	
30	<p>The Network page will appear.</p> <p>Specify the number of NICs that the virtual machine will use. Click the Next button.</p>	
31	<p>The Customization page will be displayed.</p> <p>*You are required to manually install VMware Tools separately.</p> <p>Click Next.</p>	

32	<p>The Ready to Complete page will be displayed. Make sure the settings of your virtual machine are correct.</p> <p>*If you need to boot the virtual machine after the migration, select Power on the new Virtual Machine after creation.</p> <p>Click Finish to close the wizard.</p>	
Starting the migration		
33	<p>The migration job will start.</p> <p>(The progress status can be shown by percentage.)</p>	
34	<p>Make sure that the task status is indicating Completed.</p> <p>Click the x button in the upper right part of the page to close the window.</p>	
Performing verification		
35	<p>Boot Virtual Infrastructure Client from a terminal that is accessible to VirtualCenter, and login to VirtualCenter.</p>	

36	<p>Make sure the guest operating system migrated by the Converter Boot CD has been created.</p> <p>Open the console of the guest operating system to verify proper operations.</p>
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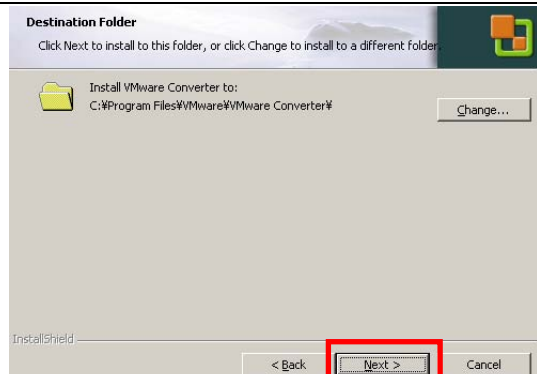
36	<p>Make sure the guest operating system migrated by the Converter Boot CD has been created.</p> <p>Open the console of the guest operating system to verify proper operations.</p>
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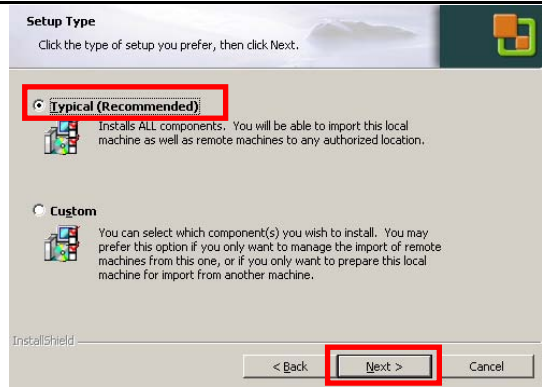
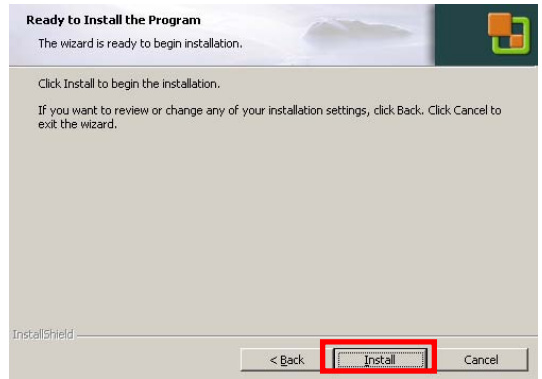
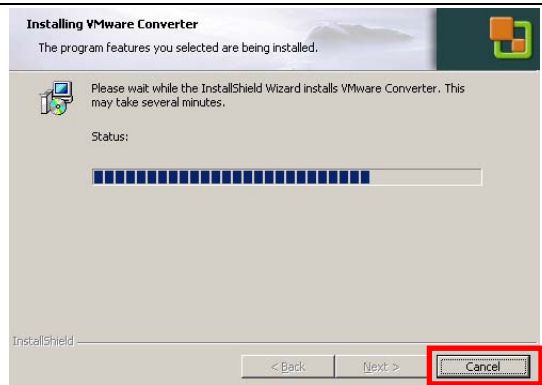
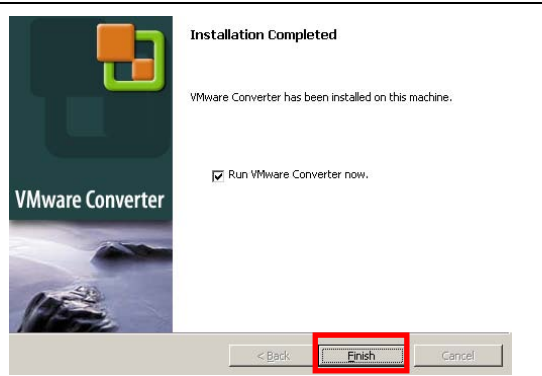
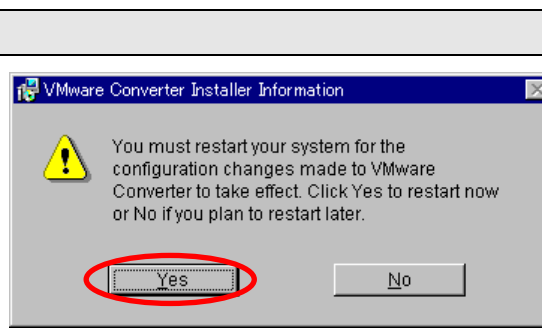



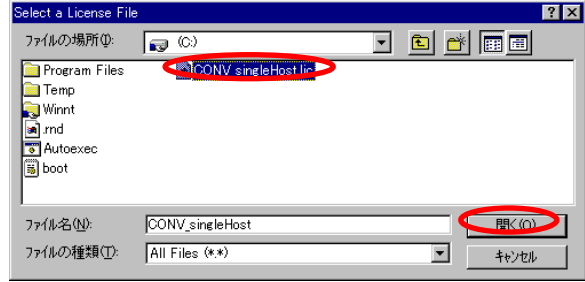
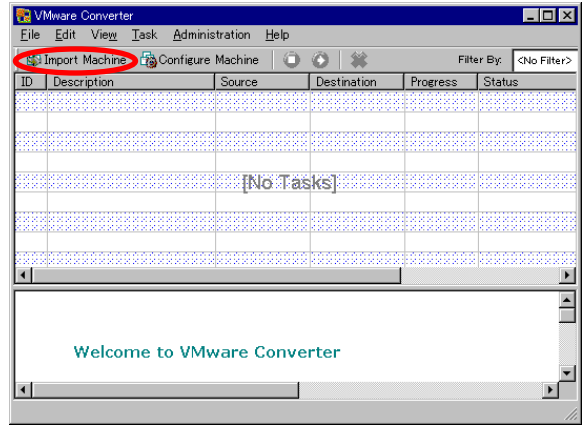

The remote hot migration procedures are completed.

2.2.2 Local hot migration

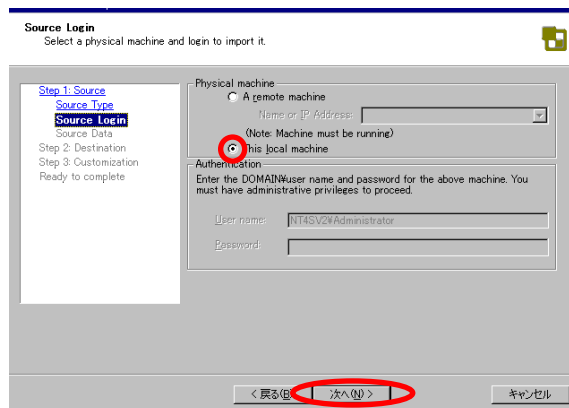
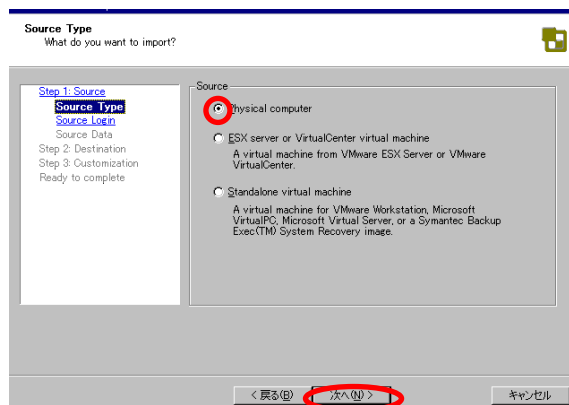
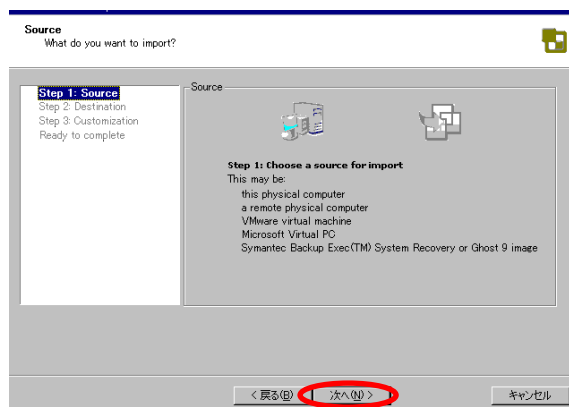
Fujitsu highly recommends that you back up your source machine before installing the VMware Converter Agent. (For more details, refer to **Summary** on page 63.)

Installing VMware Converter		
1	<p>Boot your operation machine to install the VMware Converter application.</p> <p>*The VMware Converter application is a module of the following file name.</p> <p>VMware-p2v-3.x.x-<xxxxx>.exe (<xxxxx> is the name of the build.)</p> <p>*You can also install VMware Converter from the VMware Converter Boot CD.</p>	
2	<p>The installer will start with the Welcome to the installation Wizard for VMware Converter page.</p> <p>Click the Next button.</p>	
3	<p>In the End-User License Agreement page, select the I accept the terms in the License Agreement radio button, and click Next.</p>	
4	<p>The Destination Folder page will appear. If you want to change the installation folder, choose Change..., and specify your preferred folder to install VMware Converter.</p> <p>Click Next.</p>	

5	<p>The Setup Type page will be displayed.</p> <p>Select the Typical (Recommended) radio button, and click Next.</p>	
6	<p>Click Install on the Ready to Install the Program page.</p>	
7	<p>The installation job will start.</p>	
8	<p>The Installation Completed page will appear.</p> <p>Click Finish to close the installation wizard.</p> <p>*If your machine is running Windows NT4.0 Server or Windows 2000, rebooting the machine is required.</p>	
Rebooting your system		
9	<p>A warning message will appear, asking you to reboot the system.</p> <p>Click the Yes button to reboot your system.</p>	

Adding a license file	
10	<p>After the rebooting process, start up VMware Converter.</p> <p>Click the Add License... button on the License Information page.</p>
	
11	<p>On the Select a License File page, specify your license file, and click Open.</p> <p>*If your directory name is too long or written in Japanese, that will result in errors.</p>
	
Starting the import wizard	
12	<p>The VMware Converter application will boot.</p> <p>Click the Import Machine button.</p>
	
13	<p>The VMware Converter Import Wizard will open.</p> <p>Click the Next button.</p>
	

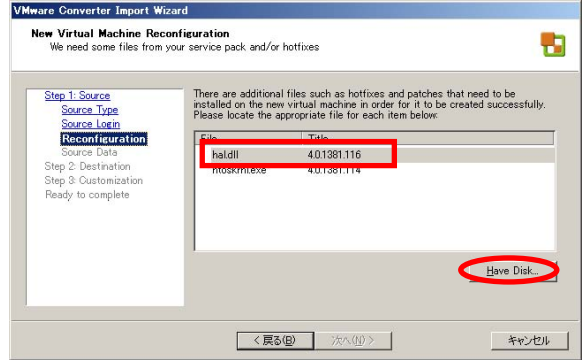
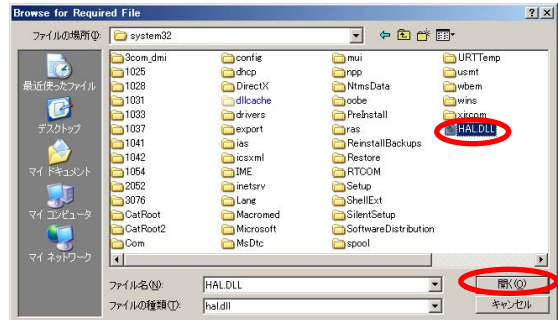

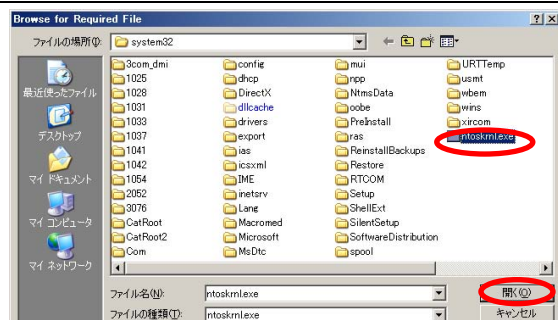
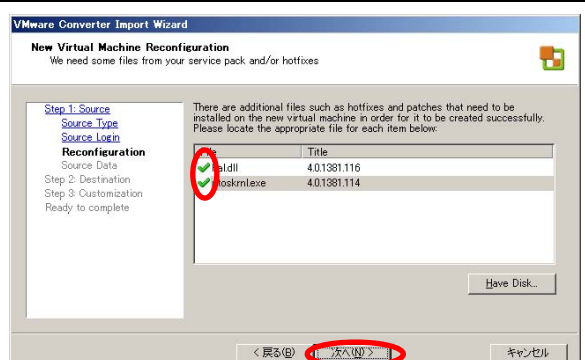
Selecting your source machine	
14	Click Next on the Source page.
15	The Source Type page will appear. Select Physical computer , and click Next .
16	Choose This local machine on the Source Login page. Click Next .



Multiple processors on a source physical machine

*The following steps (Steps 14 to 18) will be required only when your source physical server is running Windows NT with a multiple CPU configuration. A guest operating system on NT will be automatically changed to a single-CPU configuration, asking you to replace the kernel and HAL upon reconfiguration. You are required to newly create a single-CPU Windows NT-based virtual machine, and prepare Hal.dll and Ntoskrnl.exe files in advance.

(A CD-ROM installation media is required in the case that your machine is running Windows NT).

17	<p>The Reconfiguration page will appear.</p> <p>Choose Hal.dll, and click the Have Disk button.</p>	
18	<p>Select the HAL.DLL file that you have prepared, and click the Open button.</p> <p>*An actual screen may differ from the one shown in the right.</p>	
19	<p>Make sure that Hal.dll is being selected.</p> <p>Choose Ntoskrnl.exe, and click the Have Disk button.</p>	
20	<p>Select the Ntoskrnl.exe file that you have prepared, and click the Open button.</p> <p>*An actual screen may differ from the one shown in the right.</p>	
21	<p>Make sure that both hal.dll and ntoskrnl.exe are being selected.</p> <p>Click Next.</p>	

Selecting disks

22 The **Source Data** page will be displayed.

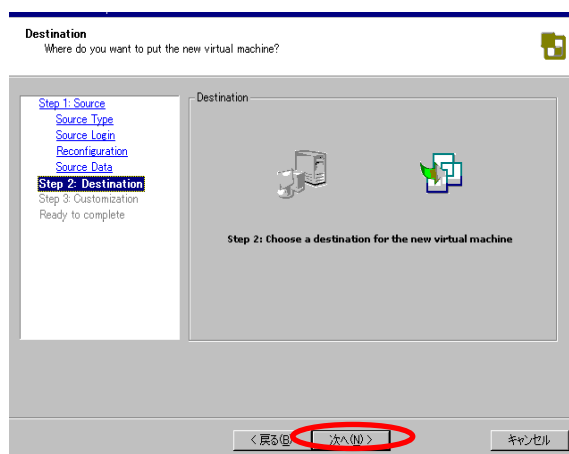
Select drives on the machine that will be migrated. (By default, all drives have been selected, and the **Ignore page file and hibernation file** check box has been selected.)

Specify the volume size, and click **Next**.



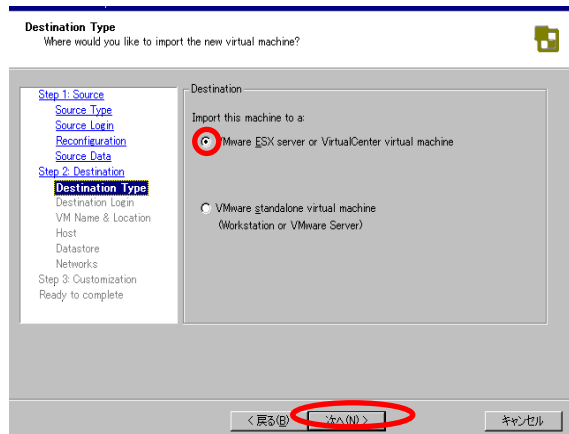
Choosing and setting up your destination machine

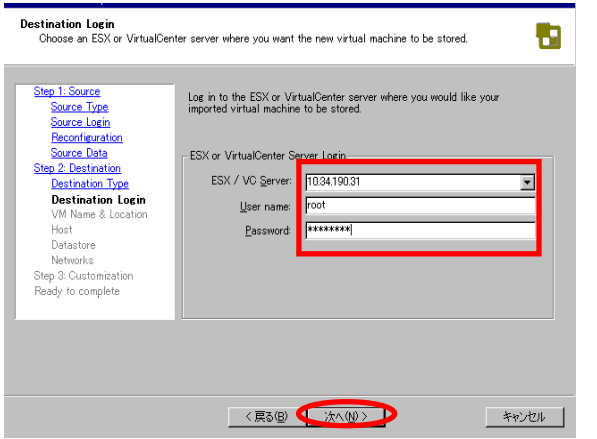
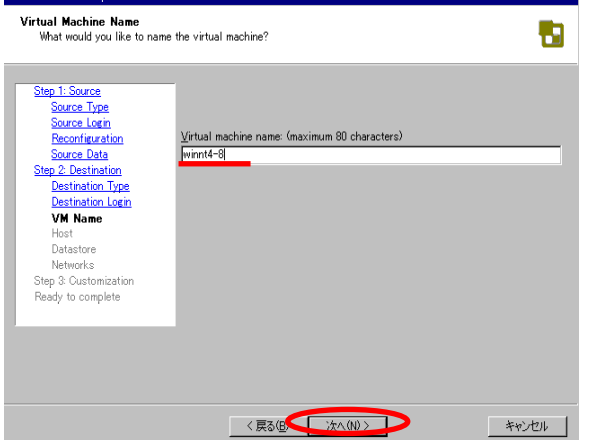
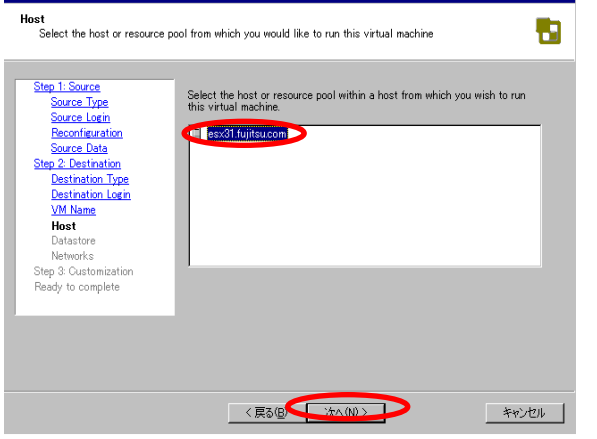
23 On the **Destination** page, click the **Next** button.

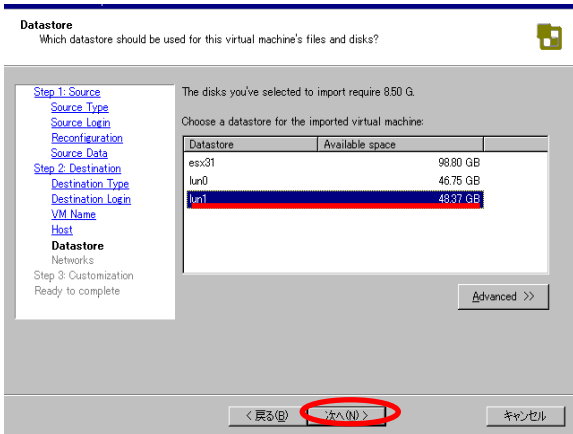
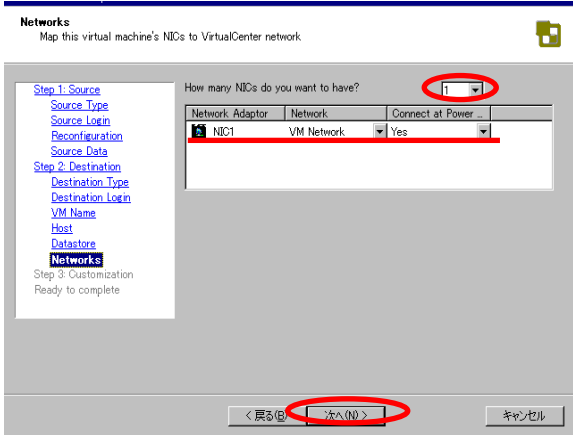
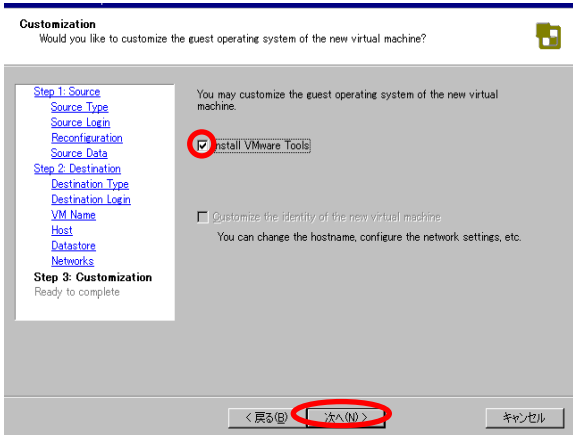


24 The **Destination Type** page will appear.

Select the **VMware ESX Server or VirtualCenter virtual machine** radio button, and click **Next**.



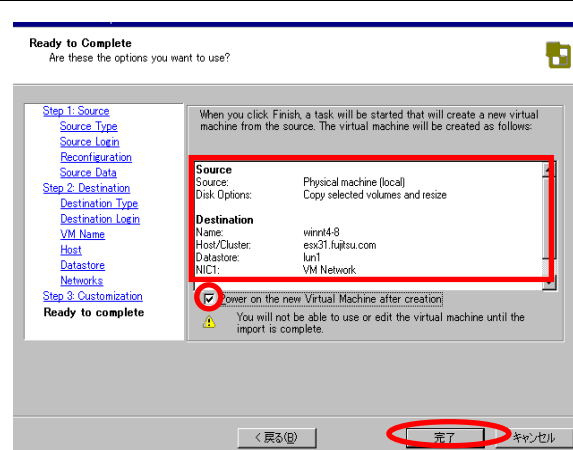
25	<p>The Destination Login page will be displayed.</p> <p>Enter the IP address of your destination machine (ESX server or VirtualCenter), your user name and the password.</p> <p>Click Next.</p>	
26	<p>The Virtual Machine Name page will appear.</p> <p>Type in the name of your destination virtual machine, and click Next.</p>	
27	<p>The Host page will be displayed.</p> <p>Choose your destination host, and click Next.</p>	

28	<p>The Datastore page will appear.</p> <p>Specify the datastore that stores the virtual machine's images.</p> <p>Click Next.</p>	
29	<p>The Network page will appear.</p> <p>Specify the number of NICs that the virtual machine will use.</p> <p>Click the Next button.</p>	
30	<p>The Customization page will be displayed.</p> <p>*You are required to manually install VMware Tools separately.</p> <p>Click Next.</p>	

- 31 The **Ready to Complete** page will be displayed. Make sure the settings of your virtual machine are correct.

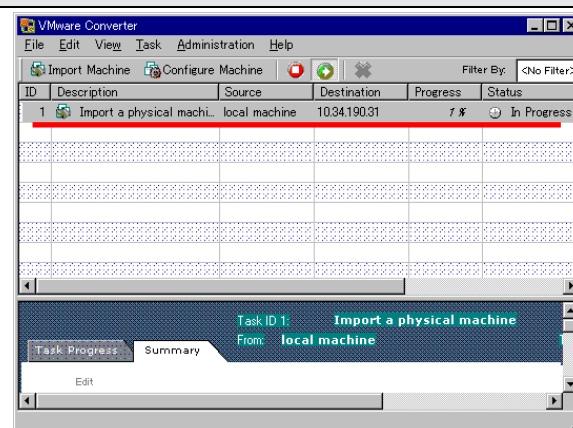
*If you need to boot the virtual machine after the migration, select **Power on the new Virtual Machine after creation**.

Click **Finish** to close the wizard.



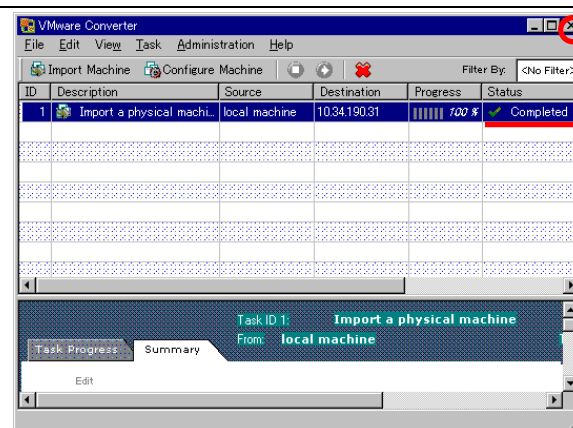
Starting the importation

- 32 The importation job will start.
(The progress status can be shown in percentage.)



- 33 Make sure that the task status is indicating **Completed**.

Click the **x** button in the upper right part of the page to close the window.



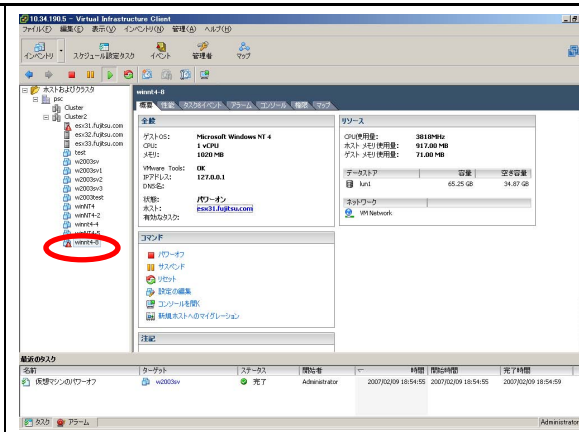
Performing verification

- 34 Boot **Virtual Infrastructure Client** from a terminal that is accessible to VirtualCenter, and login to VirtualCenter.



35 Make sure the migrated guest operating system has been created.

Open the console of the guest operating system to verify proper operation.




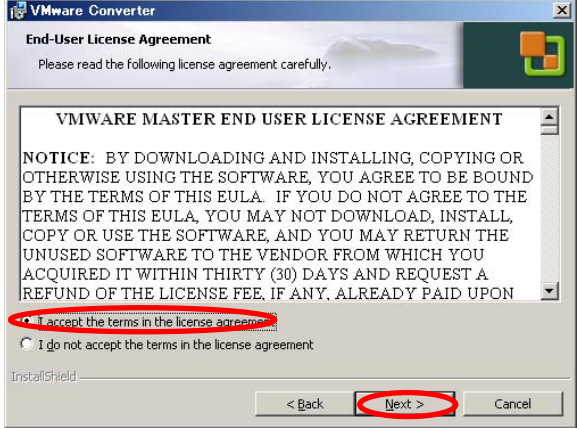
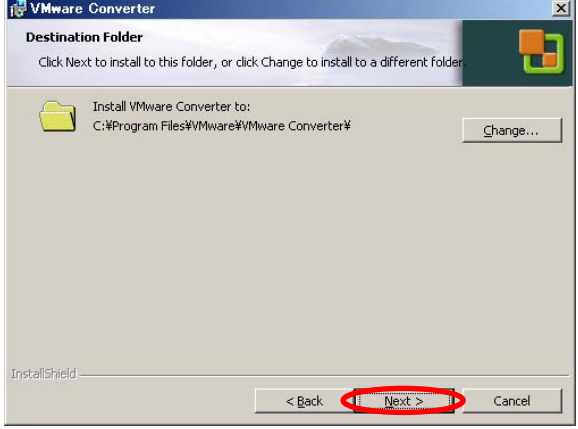
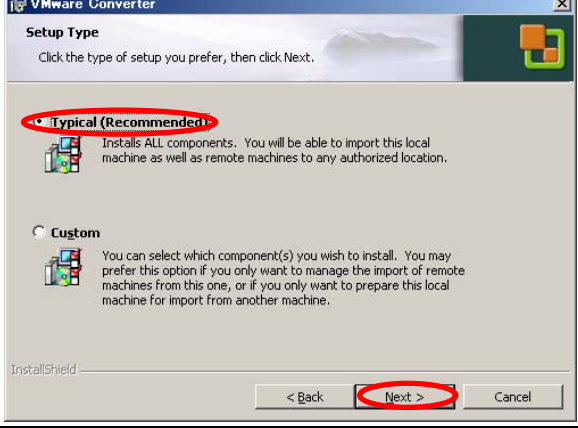
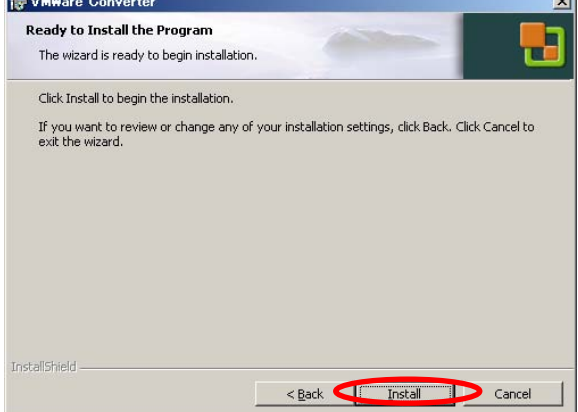
The local hot migration procedures are completed.

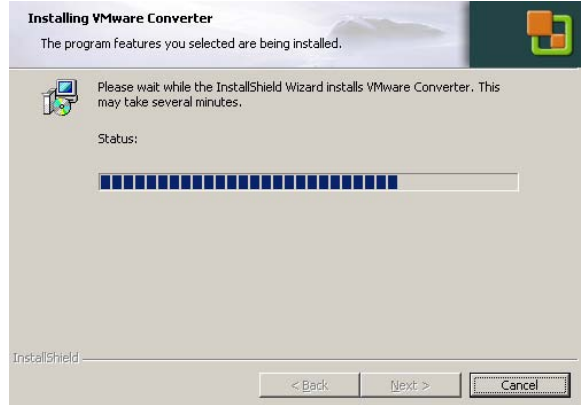
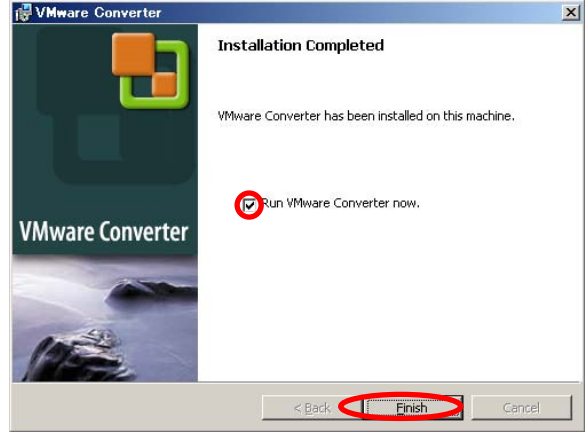
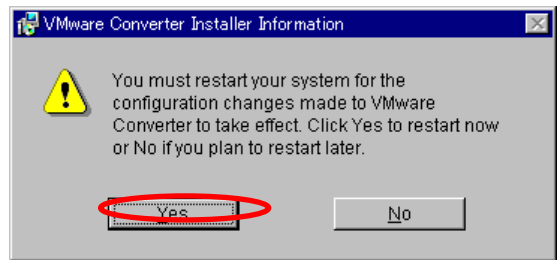

2.3 Migration with third-party image formats

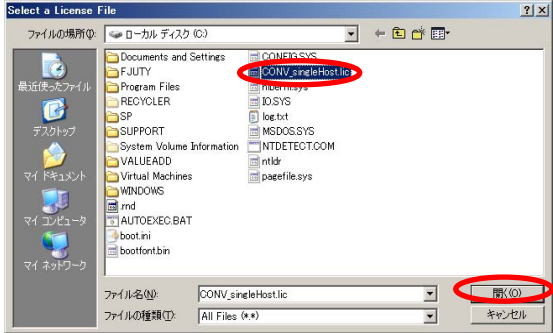
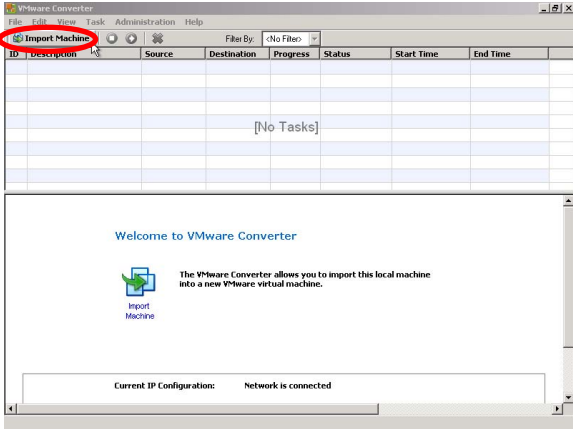

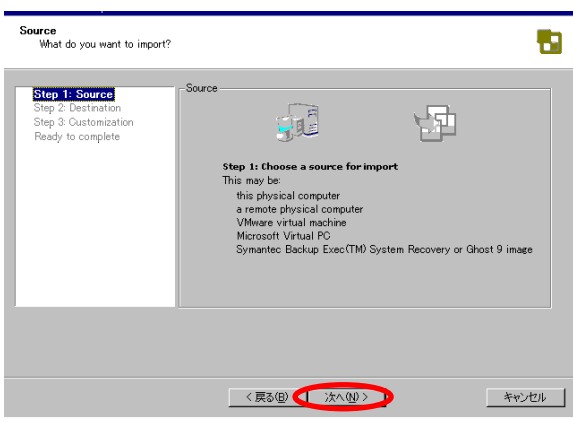
Refer to “1.6.3 Migration with third-party images” in Chapter 1.

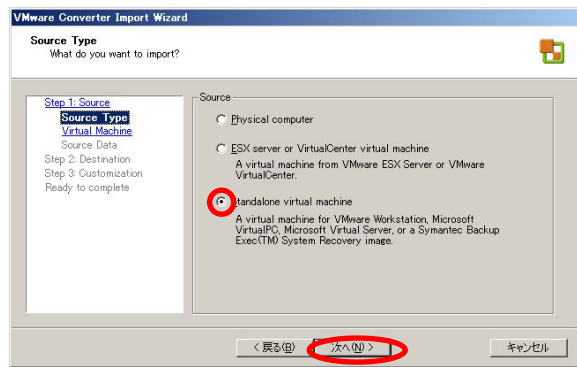
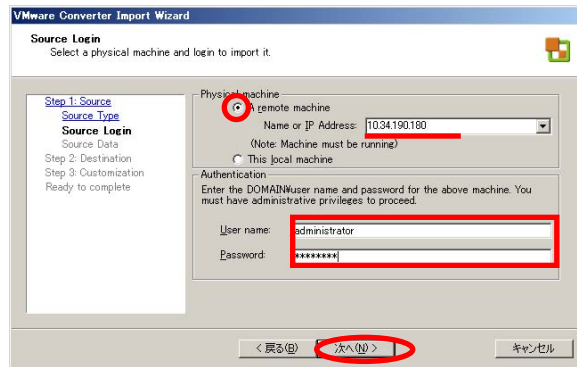
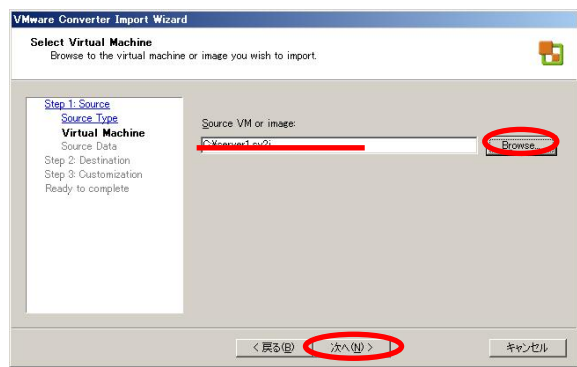
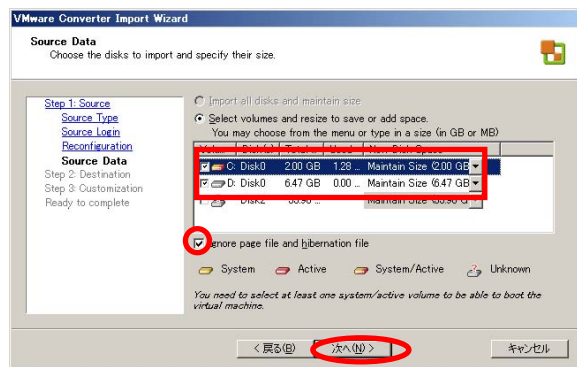
2.3.1 Remote migration with third-party images

Preparation requirements		
	<p>You are required to create an image of your source machine using the supported third-party images.</p> <p>*Refer to Chapter 1, “1.4 System requirements” to obtain information on supported third-party images.</p>	
Installing VMware Converter		
1	<p>Boot your operation machine to install the VMware Converter application.</p> <p>*The VMware Converter application is a module of the following file name. VMware-p2v-3.x.x-<xxxxx>.exe (<xxxxx> is the name of the build.)</p> <p>*You can also install VMware Converter from the VMware Converter Boot CD.</p> <p>The VMware Converter installation wizard will open.</p>	
2	<p>The installer will start with the Welcome to the installation Wizard for VMware Converter page.</p> <p>Click the Next button.</p>	

3	<p>In the End-User License Agreement page, select the I accept the terms in the License Agreement radio button, and click Next.</p>	
4	<p>The Destination Folder page will appear. If you want to change the installation folder, choose Change... and specify your preferred folder to install VMware Converter.</p> <p>Click Next.</p>	
5	<p>The Setup Type page will be displayed.</p> <p>Select the Typical (Recommended) radio button, and click Next.</p>	
6	<p>Click Install on the Ready to Install the Program page.</p>	

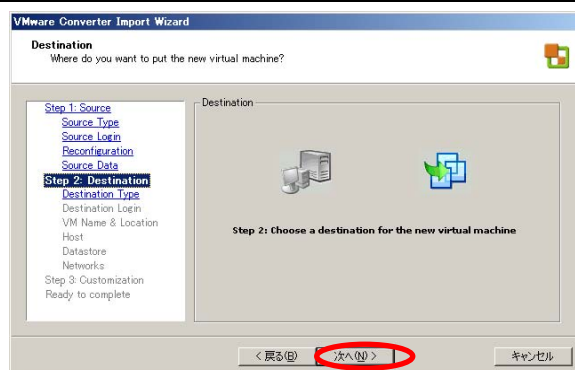
7	<p>The installation job will start.</p>	
8	<p>The Installation Completed page will appear.</p> <p>Click Finish.</p> <p>The installation wizard will close.</p> <p>*If your machine is running Windows NT4.0 Server or Windows 2000, rebooting the machine is required.</p>	
Rebooting your system		
9	<p>A warning message will appear, asking you to reboot the system.</p> <p>Click the Yes button to reboot your system.</p>	
Adding a license file		
10	<p>After the installation job is completed, boot VMware Converter.</p> <p>Click the Add License... button on the License Information page.</p>	

11	<p>Specify the license file, and click the Open button.</p> <p>* If your directory name is too long or written in Japanese, that will result in errors.</p>	
Starting the import wizard		
12	<p>Click Import Machine.</p>	
Starting the import wizard		
13	<p>The VMware Converter Import Wizard page will be displayed.</p> <p>Click Next.</p>	
Selecting the imaging files		
14	<p>Click Next on the Source page.</p>	

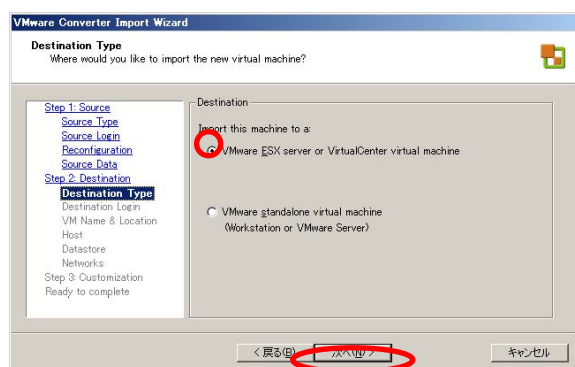
15	<p>The Source Type page will appear.</p> <p>Select Standalone virtual machine, and click Next.</p>	
16	<p>The Source Login page will appear.</p> <p>Select A remote machine.</p> <p>Type in the name (or IP address) of your source physical machine, your user name and the password.</p>	
17	<p>The Select Virtual Machine page will be displayed.</p> <p>Click the Browse... button to select your image file, and click Next.</p>	
Selecting disks		
18	<p>The Source Data page will be displayed.</p> <p>Select drives on your source machine (By default, all drives are selected, and the Ignore page file and hibernation file check box are selected.)</p> <p>Specify the volume size, and click Next.</p>	

Choosing and setting up your destination machine

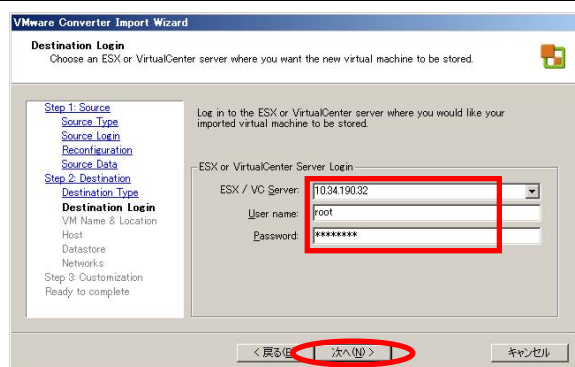
- 19 On the **Destination** page, click the **Next** button.



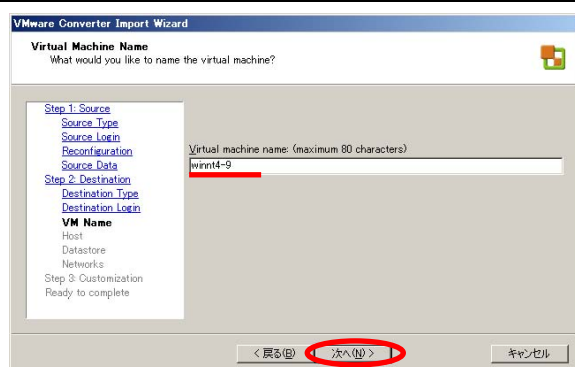
- 20 The **Destination Type** page will appear.
- Select the type of virtual machine (VMware ESX Server or VirtualCenter) for your destination.
- Click **Next**.

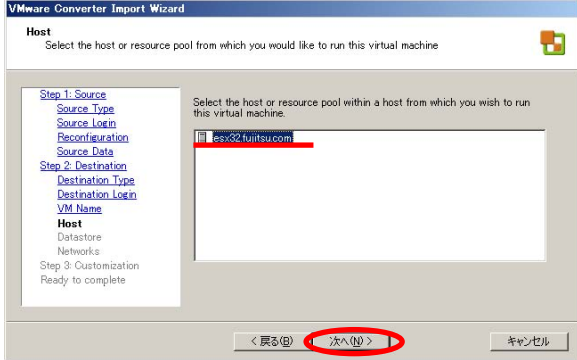
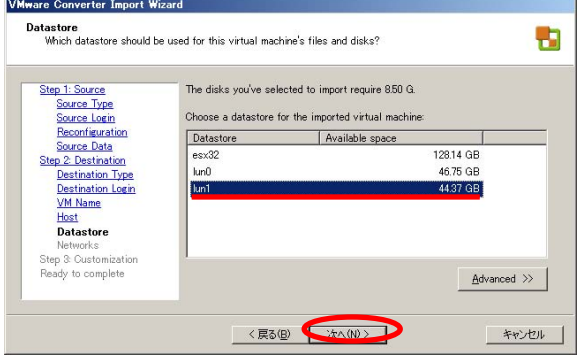
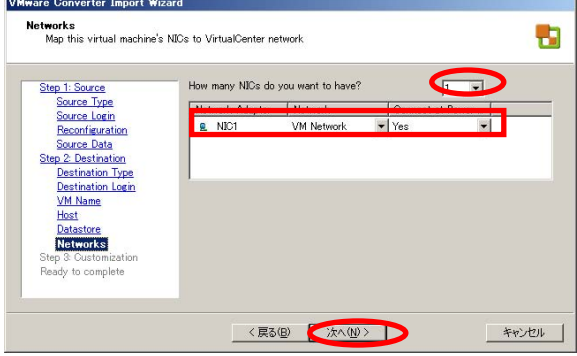
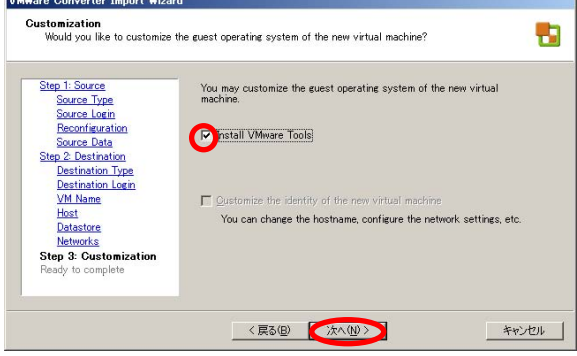


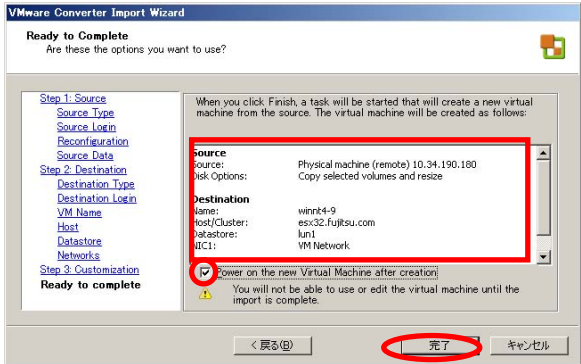
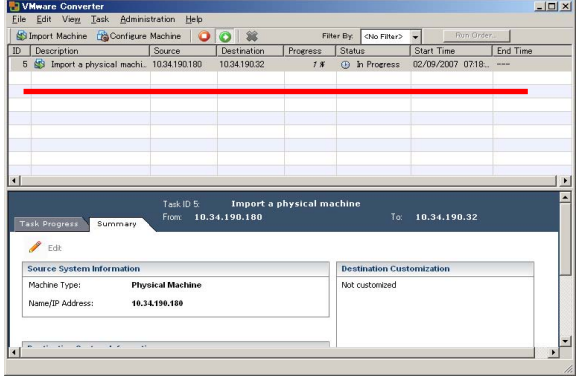
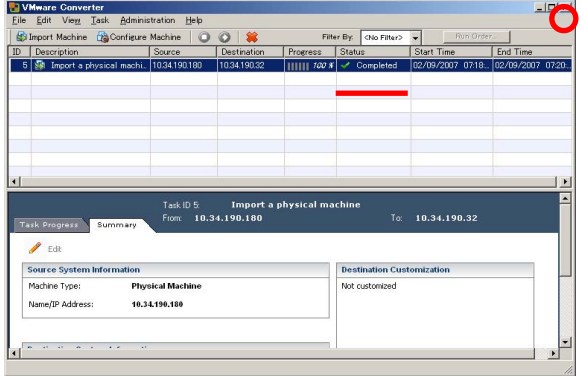

- 21 The **Destination Login** page will be displayed.
- Enter the IP address of your destination machine (ESX server or VirtualCenter), your user name and the password.
- Click **Next**.



- 22 The **Virtual Machine Name** page will appear.
- Type in the name of your destination virtual machine, and click **Next**.

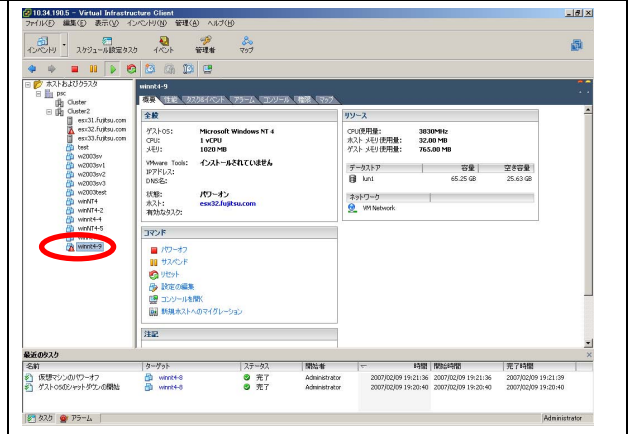


23	<p>The Host page will be displayed.</p> <p>Choose your destination host and click Next.</p>	
24	<p>The Datastore page will appear.</p> <p>Specify the datastore that stores the virtual machine's images, and click Next.</p>	
25	<p>The Network page will appear.</p> <p>Specify the number of NICs that the virtual machine will use. Click the Next button.</p>	
26	<p>The Customization page will be displayed.</p> <p>Click the Install VMware Tools check box, and click Next.</p>	

27	<p>The Ready to Complete page will be displayed. Make sure the settings of the new virtual machine are correct.</p> <p>Select Power on the new Virtual Machine after creation. (The check box is not selected by default.)</p> <p>Click Finish to close the wizard.</p>	
Starting the importation		
28	<p>The importation job will start.</p> <p>(The progress status can be shown by percentage.)</p>	
29	<p>Make sure that the task status is indicating Completed.</p> <p>Click the x button in the upper right part of the page to close the window.</p>	
Performing verification		
30	<p>Boot Virtual Infrastructure Client from a terminal that is accessible to VirtualCenter, and login to VirtualCenter.</p>	

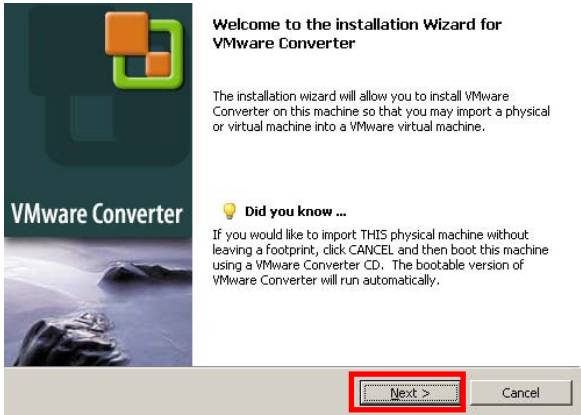
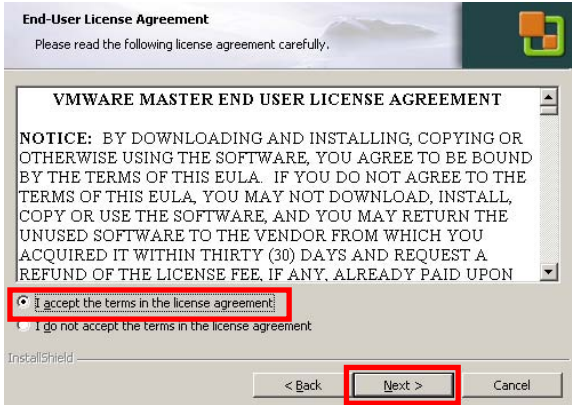
31 Make sure the migrated guest operating system has been created.

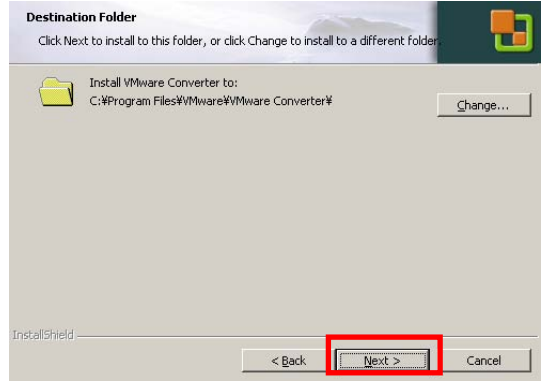
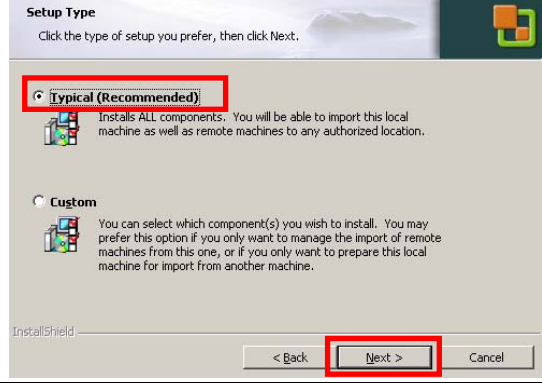
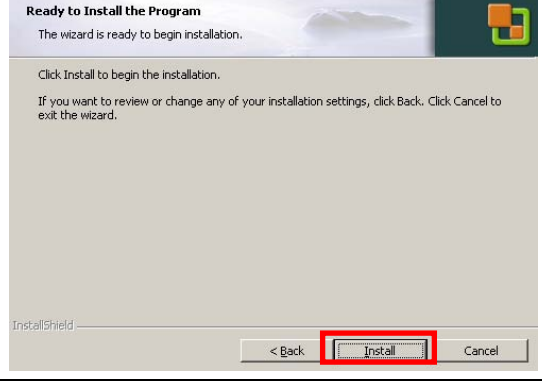
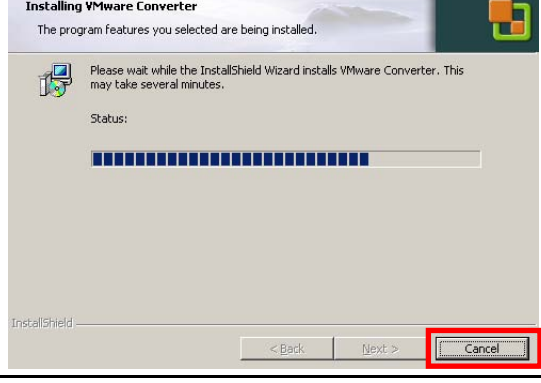
Open the console of the guest operating system to verify proper operations.

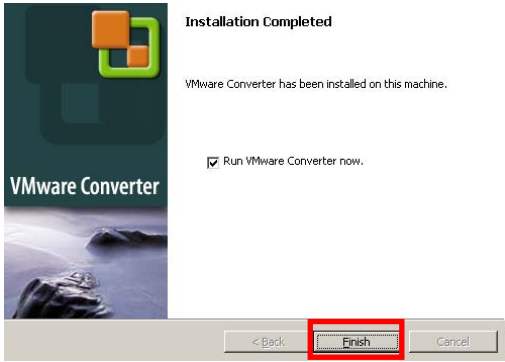
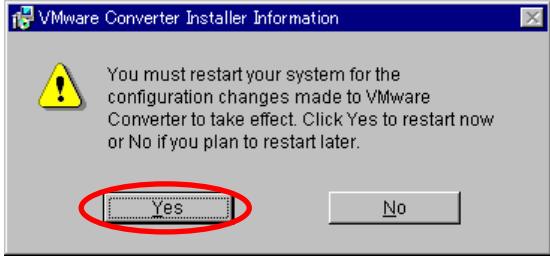

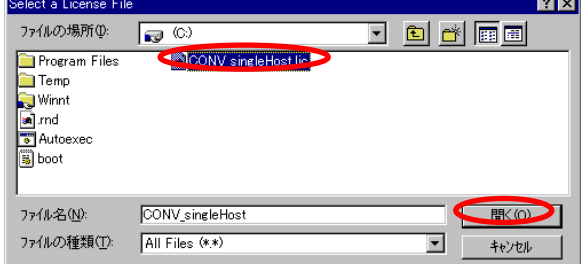
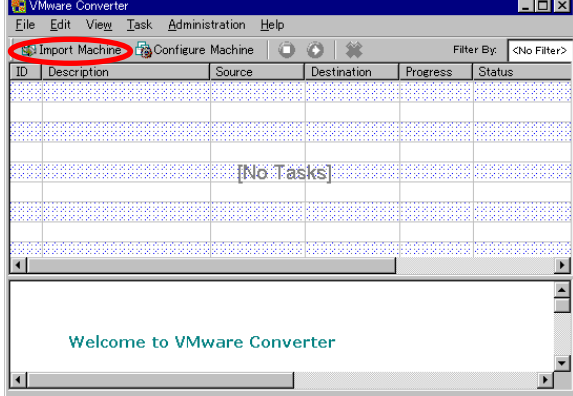


Remote migration procedures with third-party images are completed.

2.3.2 Local migration with third-party images

Preparation requirements		
	<p>You are required to create an image of your source machine using the supported third-party images.</p> <p>*Refer to Chapter 1, “1.4 System requirements” to obtain information on the supported third-party images.</p>	
Installing VMware Converter		
1	<p>Boot your source machine to install the VMware Converter application.</p> <p>*The VMware Converter application is a module of the following file name. VMware-p2v-3.x.x-<xxxxx>.exe (<xxxxx> is the name of the build.)</p> <p>*You can also install VMware Converter from the VMware Converter Boot CD.</p>	
2	<p>The installer will start with the Welcome to the installation Wizard for VMware Converter page.</p> <p>Click the Next button.</p>	 <p>Welcome to the installation Wizard for VMware Converter</p> <p>The installation wizard will allow you to install VMware Converter on this machine so that you may import a physical or virtual machine into a VMware virtual machine.</p> <p>Did you know ... If you would like to import THIS physical machine without leaving a footprint, click CANCEL and then boot this machine using a VMware Converter CD. The bootable version of VMware Converter will run automatically.</p> <p>Next > Cancel</p>
3	<p>In the End-User License Agreement page, select the I accept the terms in the License Agreement radio button, and click Next.</p>	 <p>End-User License Agreement Please read the following license agreement carefully.</p> <p>VMWARE MASTER END USER LICENSE AGREEMENT</p> <p>NOTICE: BY DOWNLOADING AND INSTALLING, COPYING OR OTHERWISE USING THE SOFTWARE, YOU AGREE TO BE BOUND BY THE TERMS OF THIS EULA. IF YOU DO NOT AGREE TO THE TERMS OF THIS EULA, YOU MAY NOT DOWNLOAD, INSTALL, COPY OR USE THE SOFTWARE, AND YOU MAY RETURN THE UNUSED SOFTWARE TO THE VENDOR FROM WHICH YOU ACQUIRED IT WITHIN THIRTY (30) DAYS AND REQUEST A REFUND OF THE LICENSE FEE, IF ANY, ALREADY PAID UPON</p> <p><input checked="" type="radio"/> I accept the terms in the license agreement <input type="radio"/> I do not accept the terms in the license agreement</p> <p>InstallShield</p> <p>< Back Next > Cancel</p>

4	<p>The Destination Folder page will appear.</p> <p>If you want to change the installation folder, choose Change... and specify your preferred folder to install VMware Converter.</p> <p>Click Next.</p>	
5	<p>The Setup Type page will be displayed.</p> <p>Select the Typical (Recommended) radio button, and click Next.</p>	
6	<p>Click Install on the Ready to Install the Program page.</p>	
7	<p>The installation job will start.</p>	

8	<p>The Installation Completed page will appear. Click Finish, and the installation wizard will close.</p> <p>*If your machine is running Windows NT4.0 Server or Windows 2000, rebooting the machine is required.</p>	
Rebooting your system		
9	<p>A warning message will appear, asking you to reboot the system.</p> <p>Click the Yes button to reboot your system.</p>	
Adding a license file		
10	<p>After the installation job is completed, boot VMware Converter.</p> <p>Click the Add License... button on the License Information page.</p>	
11	<p>The Select a License File page will appear. Specify the license file, and click the Open button.</p> <p>*If your directory name is too long or written in Japanese, that will result in errors.</p>	
12	<p>Click Import Machine.</p>	

Starting the import wizard

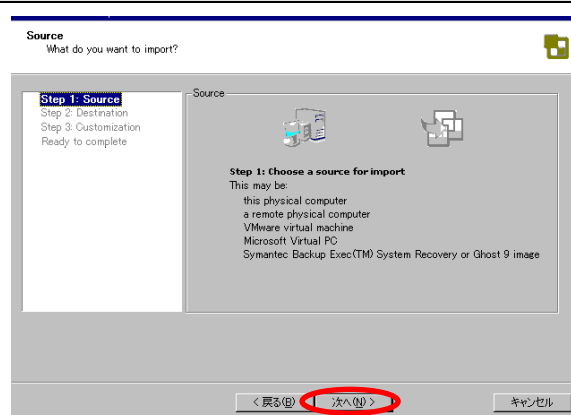
13 The **VMware Converter Import Wizard** page will open.

Click **Next**.



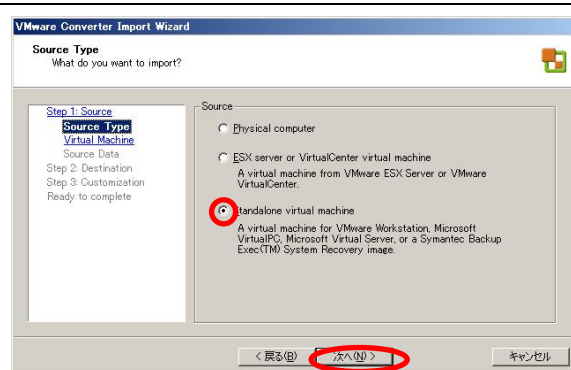
Selecting the image files

14 Click **Next** on the **Source** page.



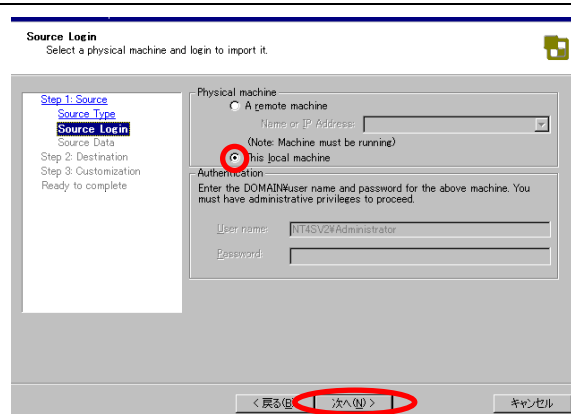
15 The **Source Type** page will appear.

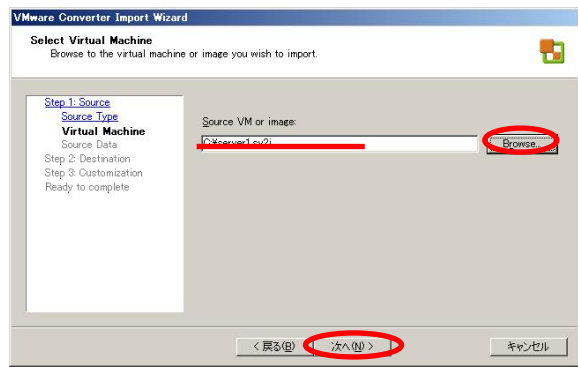
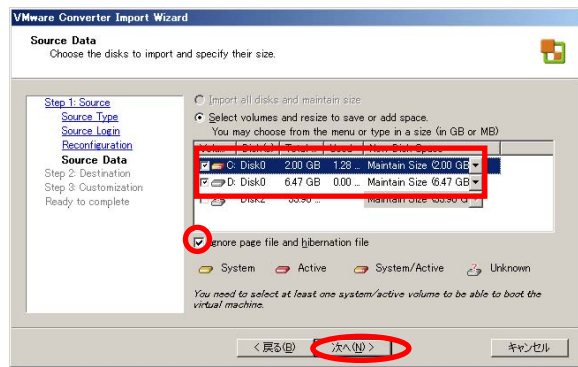
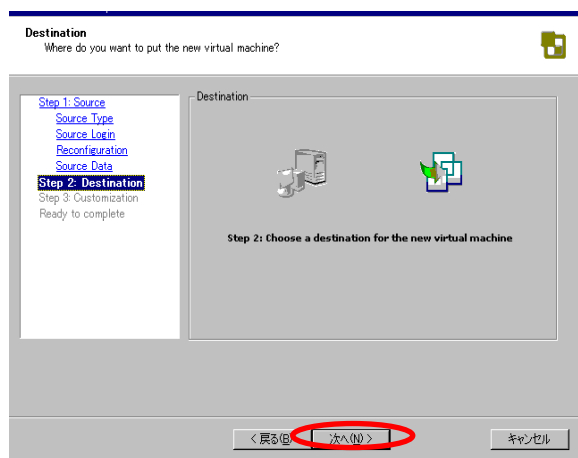
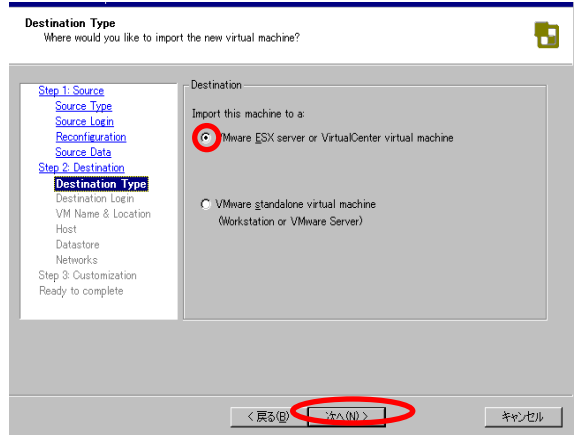
Select **Standalone virtual machine**, and click **Next**.

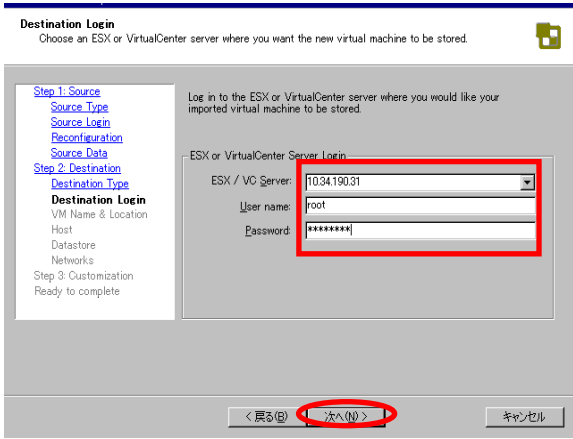
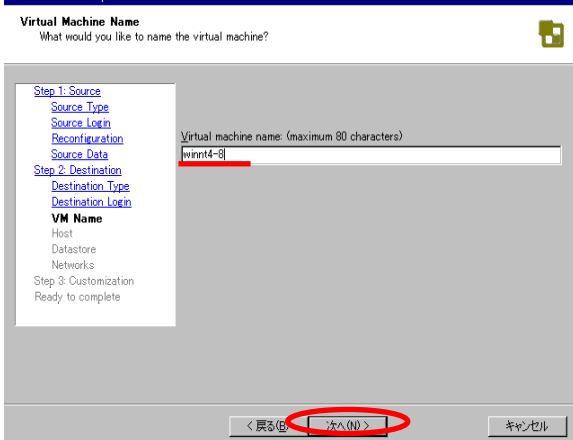
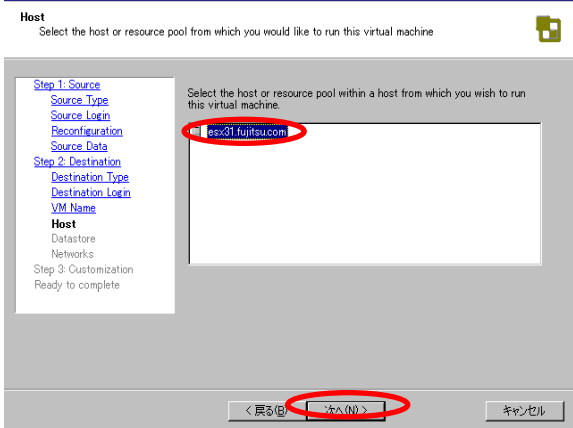


16 The **Source Login** page will appear.

Select **This local machine**, and click **Next**.



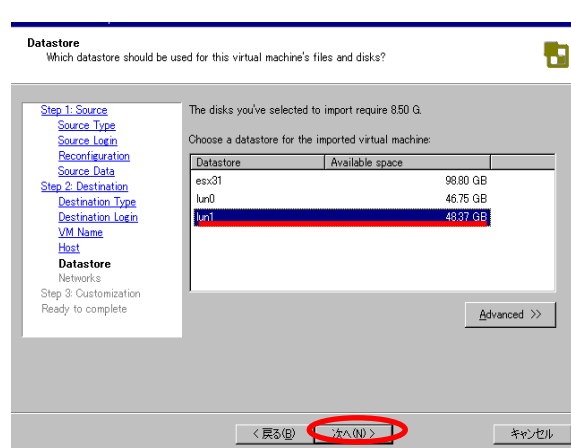
17	<p>The Select Virtual Machine page will be displayed.</p> <p>Click the Browse... button to select your image file, and click Next.</p>	
Selecting disks		
18	<p>The Source Data page will be displayed.</p> <p>Select drives on your source machine, and click Next.</p>	
Choosing and setting up your destination machine		
19	<p>On the Destination page, click the Next button.</p>	
20	<p>The Destination Type page will appear.</p> <p>Select a type of virtual machine (VMware ESX Server or VirtualCenter) for your destination.</p> <p>Click Next.</p>	

21	<p>The Destination Login page will be displayed.</p> <p>Enter the IP address of your destination machine (ESX server or VirtualCenter), your user name and the password.</p> <p>Click Next.</p>	
22	<p>The Virtual Machine Name page will appear.</p> <p>Type in the name of your destination virtual machine, and click Next.</p>	
23	<p>The Host page will be displayed.</p> <p>Choose your destination host and click Next.</p>	

24

The **Datastore** page will appear.

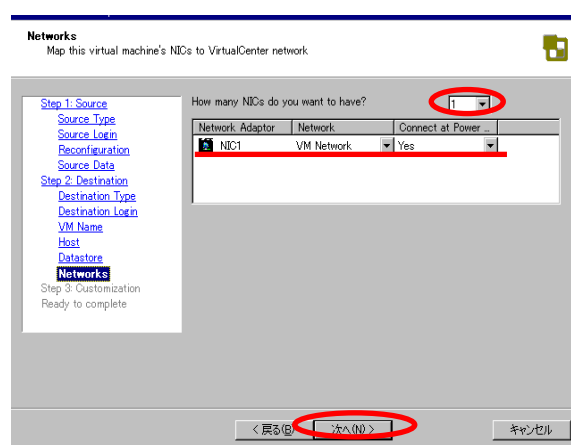
Specify the datastore that stores the virtual machine's images, and click **Next**.



25

The **Network** page will appear.

Specify the number of NICs that the virtual machine will use. Click the **Next** button.



26

The **Customization** page will be displayed.

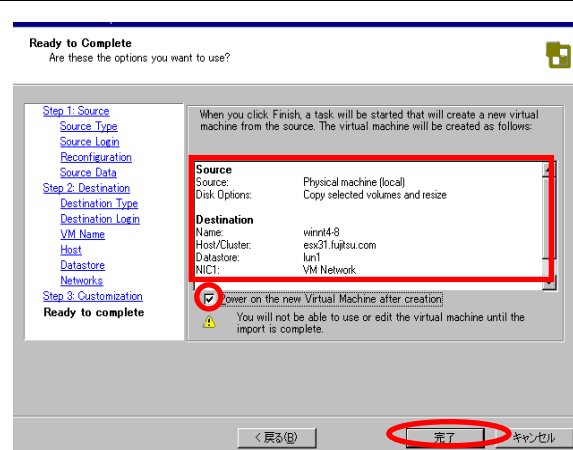
Click the **Install VMware Tools** check box, and click **Next**.



- 27 The **Ready to Complete** page will be displayed. Make sure the settings of the new virtual machine are correct.

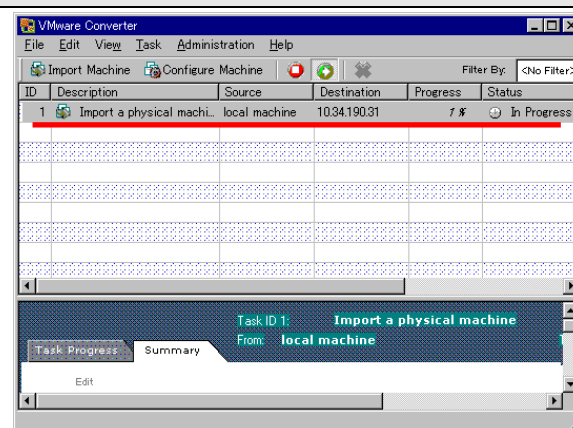
Select **Power on the new Virtual Machine after creation**. (The check box is not selected by default.)

Click **Finish** to close the wizard.



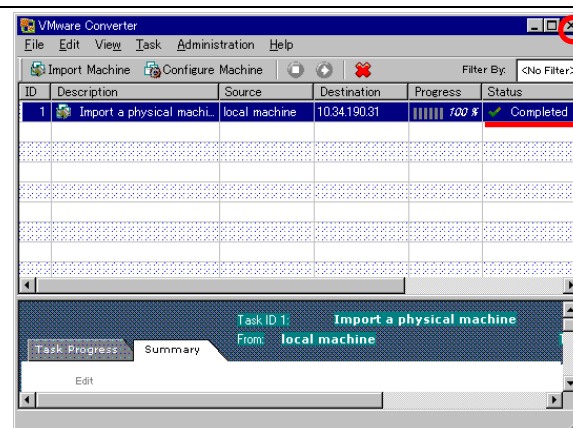
Starting the importation

- 28 The importation job will start.



- 29 Make sure that the task status is indicating **Completed**.

Click the **x** button in the upper right part of the page to close the window.

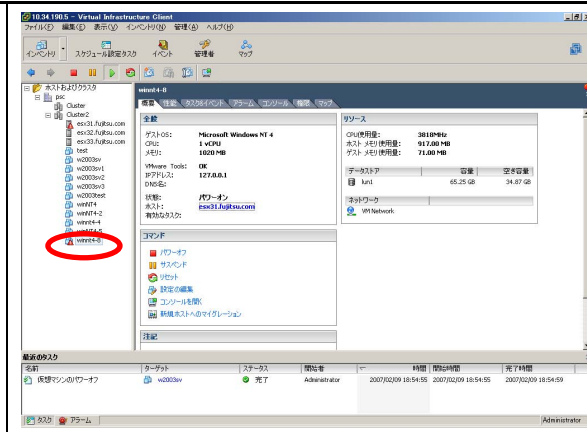


Performing verification

- 30 Boot **Virtual Infrastructure Client** from a terminal that is accessible to VirtualCenter, and login to VirtualCenter.



- 31 Make sure the migrated guest operating system has been created.
Open the console of the guest operating system to verify proper operations.



The local migration procedures with third-party images are completed.

3. Summary

This document has provided five different types of migration method for virtual environments using VMware Converter.

In order to perform the migrations in a secure manner and to minimize the risks in creating a virtual environment, it is highly advised that you review this document and read the following carefully.

(1) Backup your system before migration

The migration task (e.g. installing the agent) will affect your existing source machine. For example, the following events have been reported during migrations. Fujitsu highly recommends that you back up your source machine prior to migration, regardless of your selected migration pattern.

Reported cases

- Reboot process failed after installing the Converter Agent.
- Machine breakdown on reboot due to age of machine.
- Application stopped operating correctly after upgrading IE on the source machine. (IE5 or later is required to install VMware Converter or the Converter Agent on NT.)

(2) Select a migration mode

In order to minimize the risk of migration, Fujitsu recommends you choose one of the following migration methods, that have a less impact on your existing system environment.

- Local cold migration
- Remote migration with third-party images

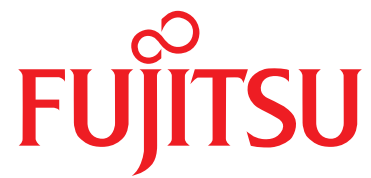
In addition to those above, the following are the examples of reported events.

Reported cases

- Migration to the virtual environment was unavailable due to source machine configuration.
- A customer's using a third-party server (as a source machine), and a unique server management space (located at the head of a disk) prevented the migration process from working correctly.

4. Important notes

- (1) You can obtain VMware Converter Enterprise installation media from the VMware website. In order to download the VMware Converter Enterprise edition, you need to purchase a license for Virtual Center Management Server. Separate license files are required for Virtual Center Management Server and VMware Converter Enterprise to use these products.
- (2) VMware provides a license-free VMware Converter Starter edition. The Starter edition does not come with any support services.
- (3) A reboot is required when you install VMware Converter on Windows NT4.0 or Windows 2000.
- (4) In cold migration, your source machine must have at least 296MB of memory.
- (5) Only supported operating systems on your destination platforms (e.g., ESX Server 3.01) can be migrated.
- (6) All applications and services on your source machine will stop during the migration process, if you choose remote hot migration, local hot migration or migration with third-party images.
- (7) As network traffic will increase during migration, Fujitsu highly recommends you use a local area network for the migration or perform the migration outside business hours to avoid any disruption to other applications.
- (8) In cold migration, if you migrate a disk on a partition basis, VMware Converter will upgrade the virtual machine's NTFS version to NTFS5.1. Therefore, CHKDSK on NTFS will fail to run correctly after the changes, if your operating systems are using old versions of NTFS (ex. Windows NT). Microsoft is providing information on how to resolve this problem.
See, <http://support.microsoft.com/kb/872952/jp>



THE POSSIBILITIES ARE INFINITE

