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PRIMAVERA

Primavera Portfolio Management 8.0
Configuring VMware

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General

The purpose of this document is to outline the configuration of a VMware Virtual Machine to make it suitable for hosting Primavera® Portfolio Management.

Supported Configurations

The following configurations are supported:

1. Primavera® Portfolio Management residing on the same VMware Virtual Machine with a database server.
   Remarks:
   a. This configuration is suitable only for the smallest implementations with very modest performance requirements.
   b. For the best possible performance of this configuration, it is necessary to configure a VMware datastore for the guest OS and the .NET Framework, a separate disk for the applications (Primavera® Portfolio Management and the database server software) and another separate disk, if possible on a separate disk group or a pass through LUN, for the database itself. This document does not describe the necessary configurations for the database server in detail. Please refer to the relevant VMware documentation.
   c. Only one NIC needs to be configured.

2. Primavera® Portfolio Management residing on one VMware Virtual Machine and a database server residing on a *different* VMware Virtual Machine on the same physical host.
   Remarks:
   a. This configuration is suitable only for small implementations with modest performance requirements.
   b. For the best possible performance of this configuration, it is necessary to configure the Virtual Machine to be hosting Primavera® Portfolio Management with one VMware datastore for the guest OS and the .NET Framework, and a separate disk for Primavera® Portfolio Management and the database client; the Virtual Machine to be hosting the database server should be configured with one VMware datastore for the guest OS, and a separate disk for the database server software, and another separate disk, if possible on a separate disk group or a pass through LUN, for the database itself. This document does not describe the necessary configurations for the database server in detail. Please refer to the relevant VMware documentation.
   c. If using 100 Mbit networks, a VMware Private VLAN should be configured before configuring the two Virtual Machines, and each of the Virtual Machines will need to be configured with two NIC's: one dedicated to communications between the two Virtual Machines via the VMWare Private VLAN, and the other for communications with the client network. This will force the two Virtual Machines to always reside on the same host, which will make it difficult to use Vmotion.
   d. If using Gigabit networks, only one NIC needs to be configured for each Virtual Machine, and no Private VLAN is needed.

3. Primavera® Portfolio Management residing on one VMware Virtual Machine and a database server residing on a *different* VMware Virtual Machine on a *different* physical host.
   Remarks:
   a. This configuration is suitable for larger implementations.
   b. For the best possible performance of this configuration, it is necessary to configure the Virtual Machine to be hosting Primavera® Portfolio Management with one

VMware datastore for the guest OS and the .NET Framework, and a separate disk for Primavera® Portfolio Management and the database client; the Virtual Machine to be hosting the database server should be configured with one VMware datastore for the guest OS, and a separate disk for the database server software, and another separate disk, if possible on a separate disk group or a pass through LUN, for the database itself. This document does not describe the necessary configurations for the database server in detail. Please refer to the relevant VMware documentation.

c. If using 100 Mbit networks, a VLAN should be set up using networking hardware or a crossover cable. Do NOT use VMware's Private VLAN feature, as that would force the two Virtual Machines to always reside on the same physical host. Each of the Virtual Machines would then need to be configured with two NIC's: one dedicated to communications between the two Virtual Machines via the VLAN, and the other for communications with the client network.
d. If using Gigabit networks, only one NIC needs to be configured for each Virtual Machine, and a VLAN is not necessary.

4. Primavera® Portfolio Management residing on one or more VMware Virtual Machines and a database server residing on a *different* physical host without VMware.
   Remarks:
   a. This configuration is suitable for large to very large implementations.
   b. For the best possible performance of this configuration, it is necessary to configure each Virtual Machine to be hosting Primavera® Portfolio Management with one VMware datastore for the guest OS and the .NET Framework, and a separate disk for Primavera® Portfolio Management and the database client.
   c. If using 100 Mbit networks, a VLAN should be set up using networking hardware to facilitate dedicated communications between all Virtual Machines hosting Primavera® Portfolio Management and the database server. Each of the Virtual Machines would then need to be configured with two NIC's: one dedicated to communications between the Virtual Machine and the database server, and the other for communications with the client network.
   d. If using Gigabit networks, only one NIC needs to be configured for each Virtual Machine, and a VLAN is not necessary.

Prerequisites

Primavera® Portfolio Management 8.0 has been certified for use on VMware ESXi version 3.5 update 5 for 32-bit servers and VMware ESXi version 4.0 for 64-bit servers. Only these particular versions of VMware have been tested. Use of any other version is not recommended. If performance issues are reported to Customer Support and it is determined that a different version of VMware is being used, you may be required to modify your environment such that it complies with this requirement.

1. Installing VMware

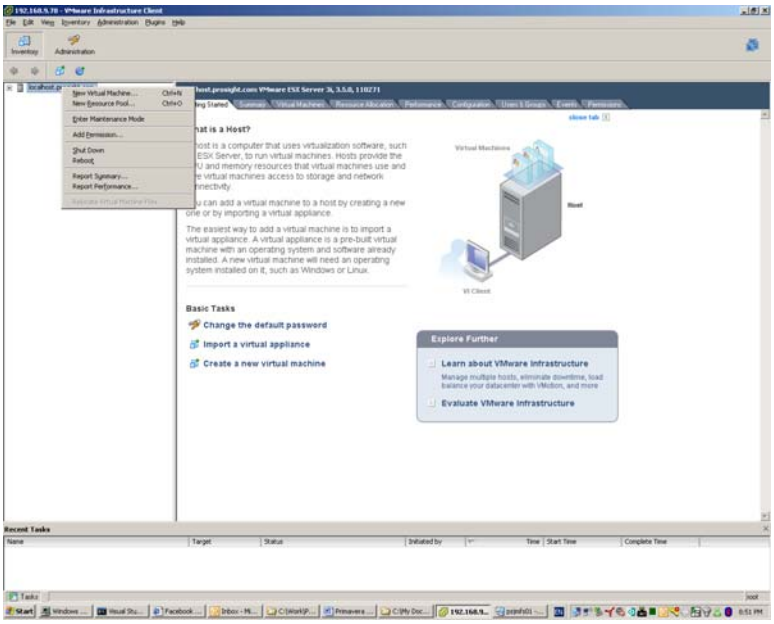
VMware should be installed according to the instructions delivered by VMware, on hardware that is at least as powerful as the hardware that would be needed to run Primavera® Portfolio Management with the same configuration and the same number of users in a non-virtual environment. As the use of VMware incurs a performance penalty of 10%-15% over the use of a non-virtual environment, it is highly recommended to use more powerful hardware.

2. Creating a new Virtual Machine

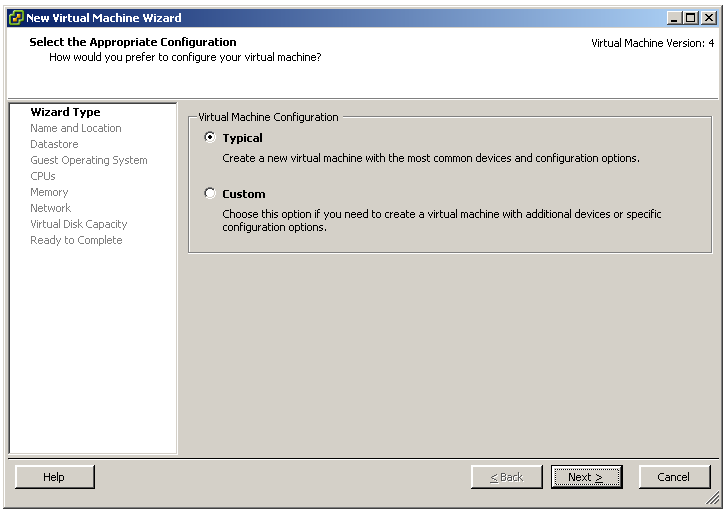
To create a new Virtual Machine, follow these steps:

2.1 Connect to your VMware server using the VMware Infrastructure Client or VirtualCenter Server.

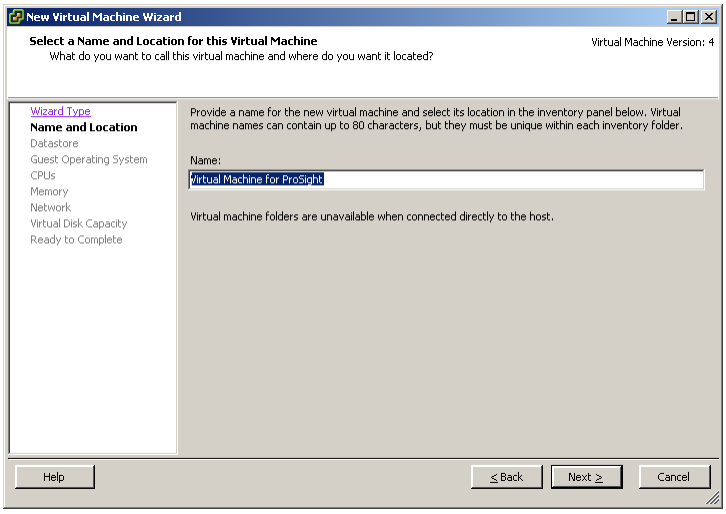
2.2 Right-click the VMware server on which you wish to create the new Virtual Machine, and select “New Virtual Machine...”.



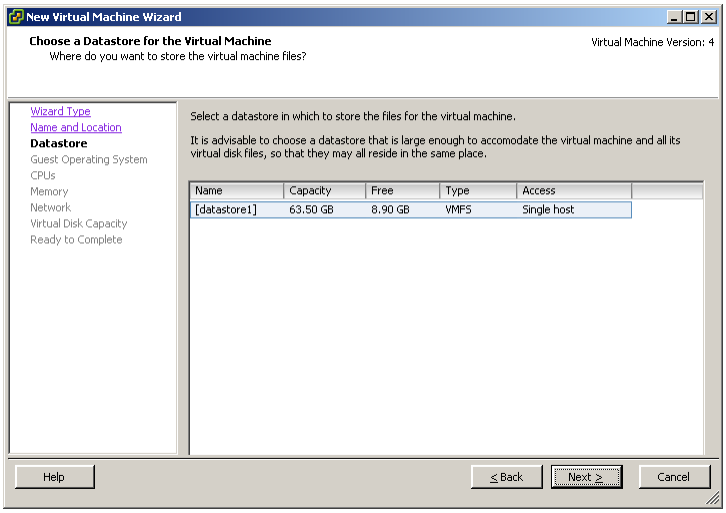
2.3 Select “Typical” and click **Next**.



2.4 Type a name for the Virtual Machine and click **Next**.



2.5 Select a datastore for the Virtual Machine. At a minimum, the datastore should have sufficient space for the Windows 2003 operating system files and the .NET Framework 2.0 (which installs onto the same drive as the OS).

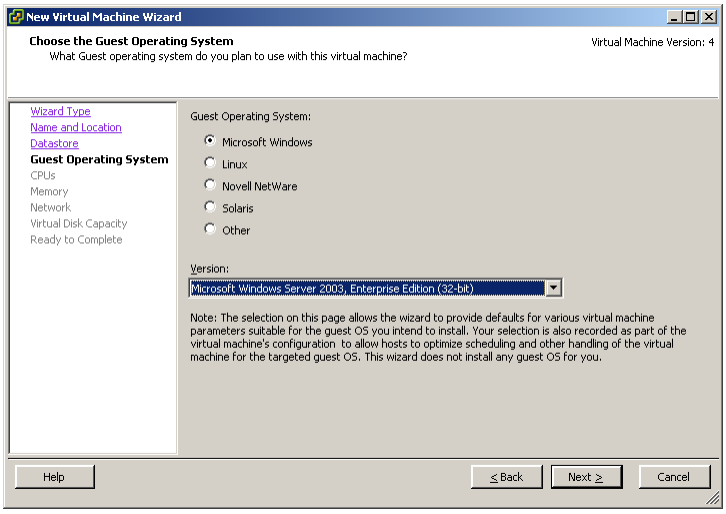


You will later add disks for the database client software of your choice and the Primavera® Portfolio Management application software. You will need to add yet another disk, if possible on a separate disk group or a pass through LUN, for the database itself if the database server will reside on the same Virtual Machine.

Click **Next**.

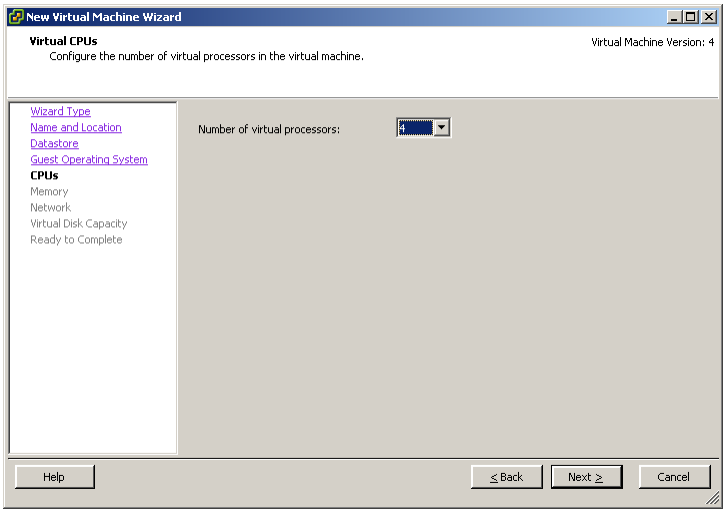
2.6 Under “Guest Operating System”, select “Microsoft Windows”, and under “Version”, select the exact version of Windows 2003 you will be using.

Click **Next**.



2.7 Next to “Number of virtual processors”, select 4.

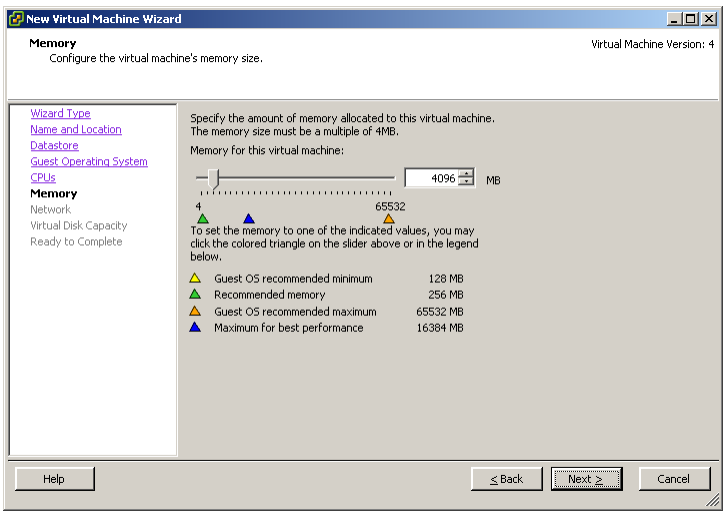
Click **Next**.



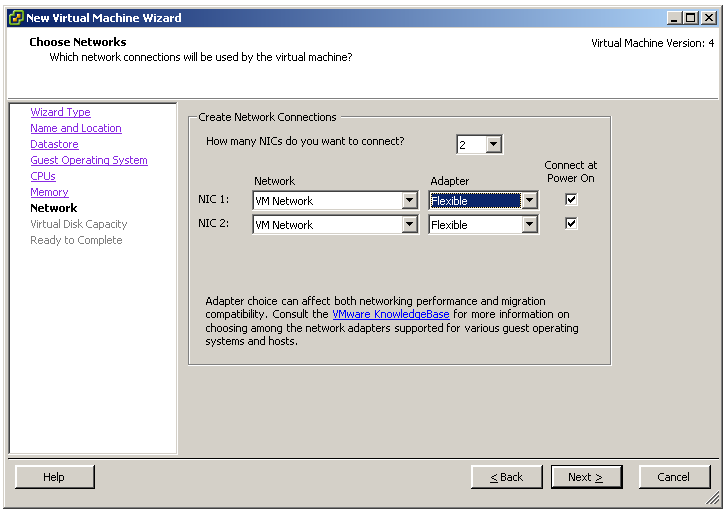
2.8 Specify the amount of memory that will be allocated to this Virtual Machine.

For 32-bit Windows 2003, we recommend 4096 MB (4 GB). For 64-bit Windows 2003, we recommend 16 or 32 GB.

Click **Next**.



2.9 When using 100 Mbit networks, you should define 2 NIC's as shown here for all Virtual Machines in configurations 2, 3 and 4 described above. One of these NIC's should be dedicated to communication with the database server by via a VMware Private VLAN or by using separate networking hardware, as described above.



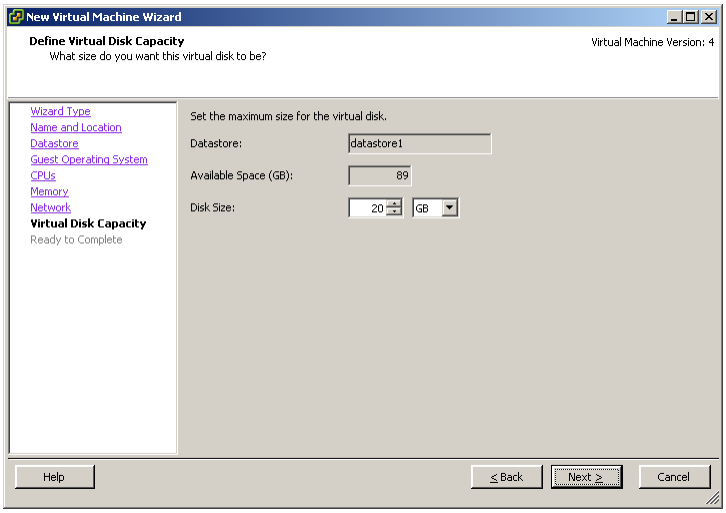
When using Gigabit networks, as well as for a Virtual Machine that will host Primavera® Portfolio Management as well as its database server and database on one Virtual Machine (configuration 1 described above), you can suffice with one NIC.

Configure each NIC as shown.

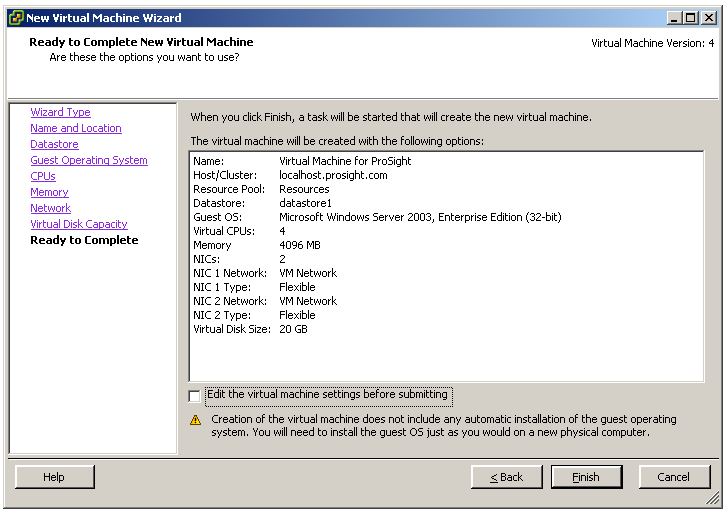
Click **Next**.

2.10 Set the maximum size for the virtual disk.

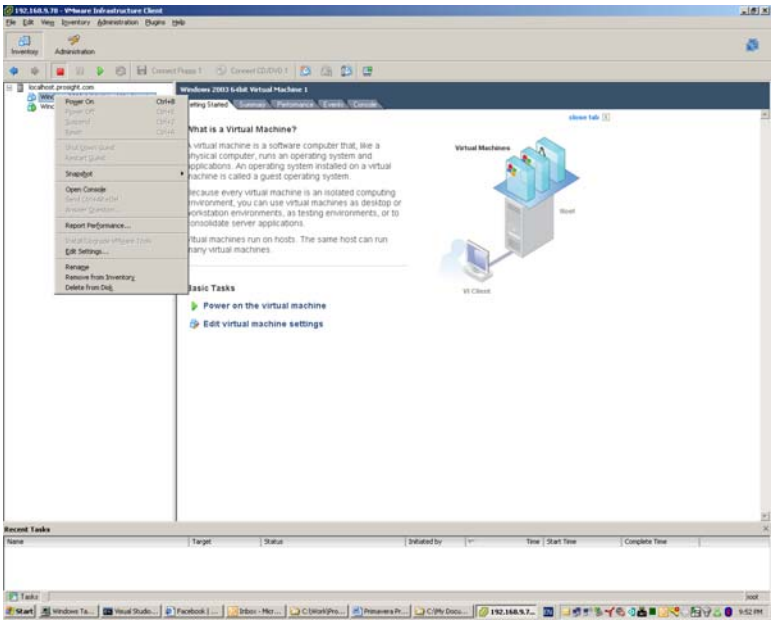
Click **Next**.



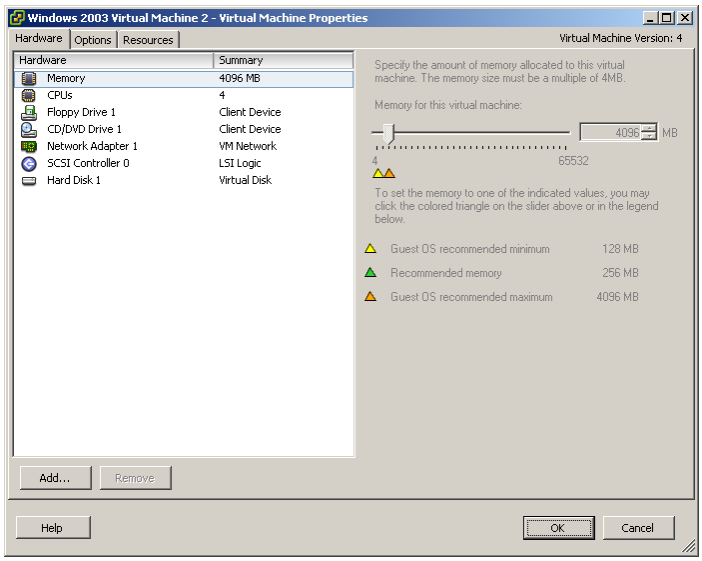
2.11 Review the summary, and click **Finish** to start creating the Virtual Machine.



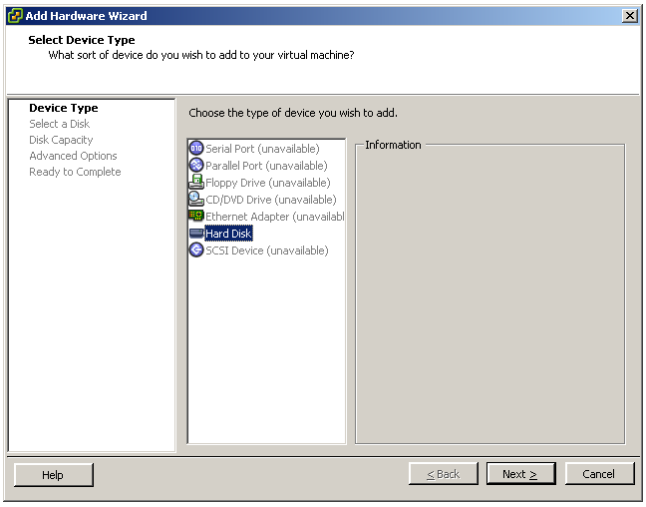
2.12 When the Virtual Machine has been created, before installing the guest operating system, find the new Virtual Machine in the tree, right-click it, and select “Edit Settings…”.



2.13 Click the “Add” button.

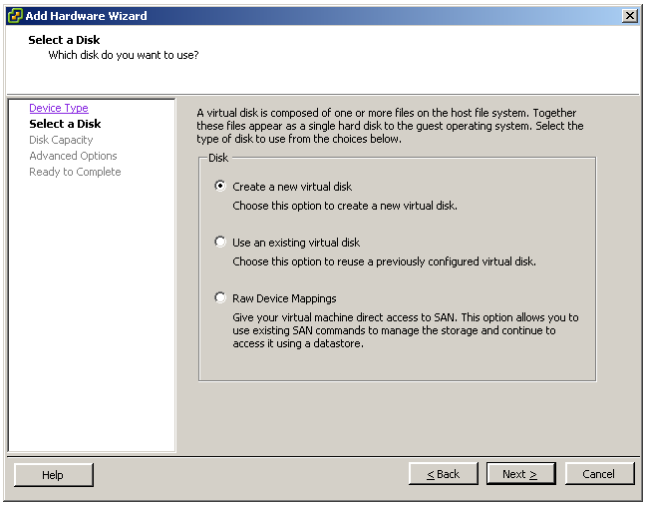


2.14 In the “Add Hardware Wizard”, select “Hard Disk” and click **Next**.



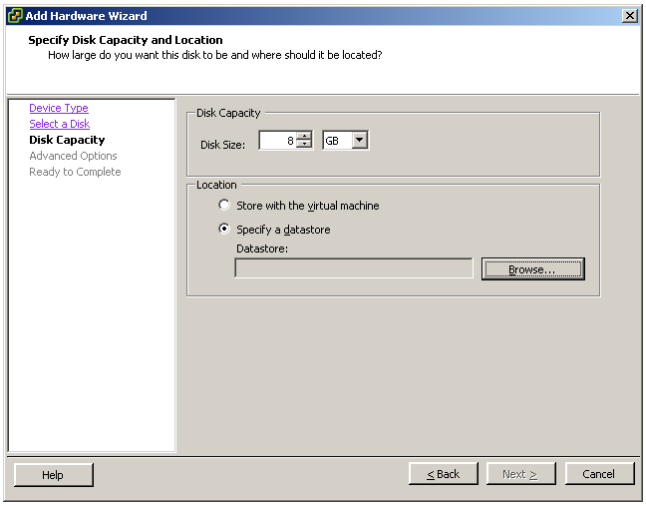
2.15 Keep the selection “Create a new virtual disk”.

Click **Next**.



2.16 Under “Disk Capacity”, define sufficient space for the Primavera® Portfolio Management application software and the database client software.

If the database server will reside on the same Virtual Machine, also include space for the database server software (but not for the database itself).

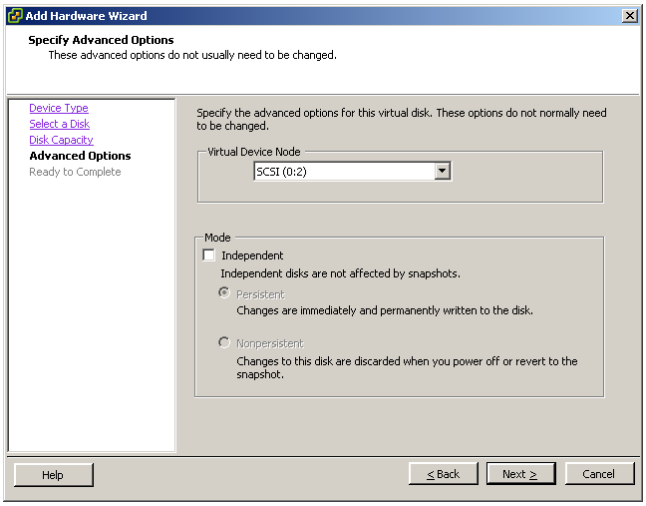


Under “Location”, select “Specify a datastore”, and then click the “Browse” button to select a different datastore.

Click **Next**.

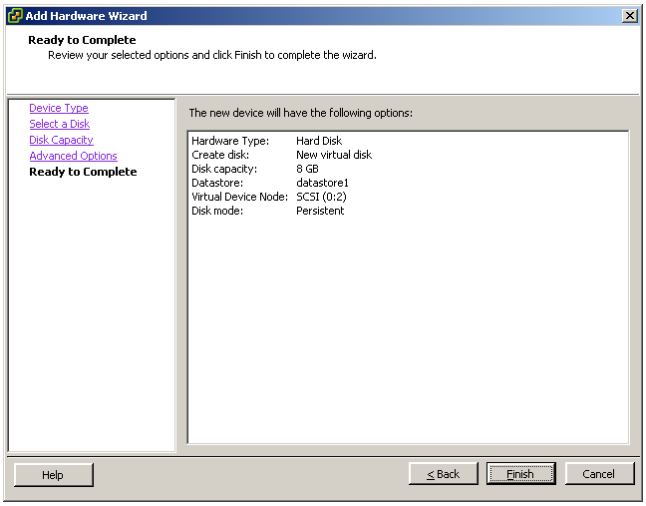
2.17 For the disk to be used for the Primavera® Portfolio Management application software and the database client or server software, do not change these options.

For the disk to be used for the database itself, use options as recommended by VMware and/or the database server vendor.



Click **Next**.

2.18 Review the summary, then click **Finish** to create the new disk.



For configuration 1 as described above, repeat this process from step 2.13 to create a third disk for the database itself.

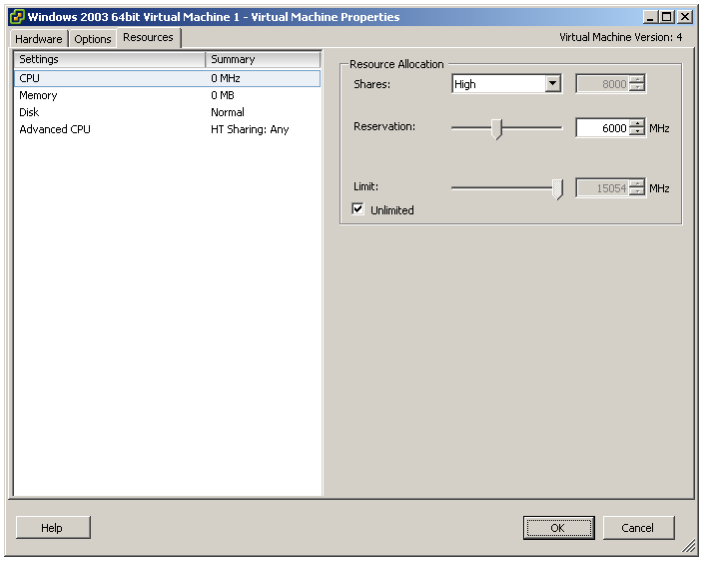
For other configurations requiring a third disk for the database itself on a pass through LUN, please refer to the VMware documentation.

2.19 Select the “Resources” tab.

On the left, select “CPU”.

On the right, set “Shares” to “High”, and put the “Reservation” slide roughly in the middle.

Put a checkmark next to “Unlimited”.



2.20 On the left, select “Memory”.

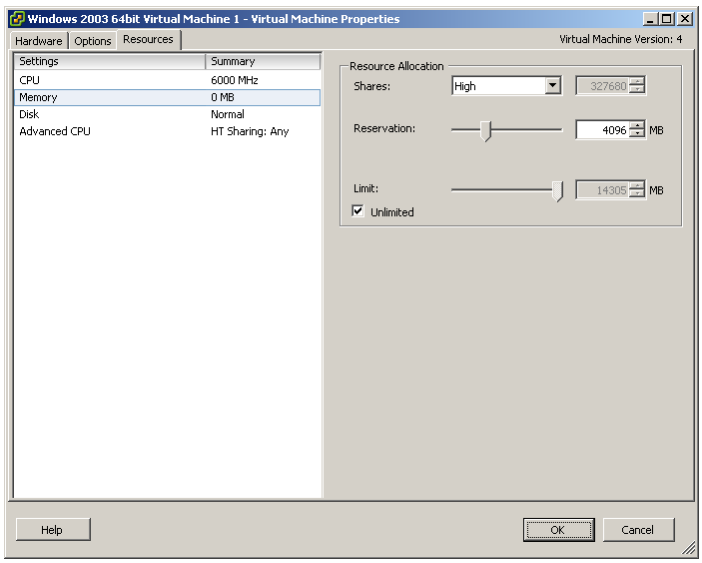
On the right, set “Shares” to “High”.

For a Virtual Machine hosting Windows 2003 32-bit, type in “4096” next to “Reservation”.

For a Virtual Machine hosting Windows 2003 64-bit, type in “16384” to reserve 16 GB or “32768” to reserve 32 GB.

Put a checkmark next to “Unlimited”.

Click **OK** to make these configuration adjustments.



3. Installing the Guest Operating System

You should now install a new copy of Windows 2003 or Windows 2008 32-bit or 64-bit from Microsoft distribution media onto the Virtual Machine.

Do not attempt to restore images (“Ghosts” or “Snapshots”) of other virtual or physical machines. Windows 2003 configures itself according to the (perceived) hardware it is being installed on. Restoring images from other Virtual Machines may cause these settings to be inappropriate for the Virtual Machine you are building (even if the Virtual Machine has the exact same configuration).

Remember to install the Service Pack with which the version of Primavera® Portfolio Management you are using was certified, and allow Microsoft Windows Update to install all necessary critical updates.

If you wish to be able to restore this particular Virtual Machine to the state it was in before you continued with installing the prerequisites for Primavera® Portfolio Management, you may now create a VMware “snapshot”, which you can then later revert to.

4. Installing the prerequisites for Primavera® Portfolio Management

Review the prerequisites for your installation of Primavera® Portfolio Management as detailed in the Primavera® Portfolio Management Install and Upgrade Guide, and install and/or configure these as described.

5. Installing Primavera® Portfolio Management

Install Primavera® Portfolio Management as described in the Primavera® Portfolio Management Install and Upgrade Guide.

Create a new Primavera® Portfolio Management database, or connect to an existing Primavera® Portfolio Management database, as appropriate for your situation.

Primavera® Portfolio Management should now be ready for operation.