Virtual Machine Components

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Virtual machines typically have an operating system, VMware Tools, and virtual resources and hardware. You manage these components like you manage the components of a physical computer.

Operating System

You install a guest operating system on a virtual machine the same way you install an operating system on a physical computer. You must have a CD/DVD-ROM or ISO image containing the installation files from an operating system vendor.

After installation, you are responsible for securing and patching the operating system.

VMware Tools

VMware Tools is a suite of utilities that enhances the performance of the virtual machine guest operating system and improves management of the virtual machine. It includes device drivers and other software that is essential for your VM. With VMware Tools, you have more control over the virtual machine interface.

Compatibility Setting

In the vSphere Client, you assign each virtual machine to a compatible ESXi host version, cluster, or data center by applying a compatibility setting. The compatibility setting determines which ESXi host versions the virtual machine can run on and the hardware features available to the virtual machine.

Hardware Devices

Each virtual hardware device performs the same function for the virtual machine as hardware on a physical computer does. Every virtual machine has CPU, memory, and disk resources. CPU virtualization emphasizes performance and runs directly on the processor whenever possible. The underlying physical resources are used whenever possible. The virtualization layer runs instructions only as needed to make virtual machines operate as if they were running directly on a physical machine.

All recent operating systems provide support for virtual memory, allowing software to use more memory than the machine physically has. Similarly, the ESXi hypervisor provides support for overcommitting virtual machine memory, where the amount of guest memory configured for all virtual machines might be larger than the amount of the host's physical memory.

You access the hardware devices in the **Edit Settings** dialog box. Not all devices are configurable. Some hardware devices are part of the virtual motherboard and appear in the expanded device list of the **Edit Settings** dialog box, but you cannot modify or remove them. For a list of hardware devices and their functions, see Virtual Machine Hardware Available to vSphere Virtual Machines.

In the **Edit Settings** dialog box you can also add virtual hardware devices to the virtual machine. You can use the memory or CPU hotplug options to add memory or CPU resources to a virtual machine while the virtual machine is running. You can deactivate Memory or CPU hotplug to avoid adding memory or CPUs while the virtual machine is

running. Memory hotplug is supported on all 64 bit operating systems, but to use the added memory, the guest operating system must also support this feature. See the *VMware Compatibility Guide* at http://www.vmware.com/resources/compatibility

A vSphere administrator or other privileged user can determine who can access or modify a virtual machine by setting permissions on the virtual machine. See the *vSphere Security* documentation.

Parent topic: Introduction to VMware vSphere Virtual Machines

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