

Windows Me Hardware Resources

OBJECTIVES

1. Change the virtual memory settings.
2. View IRQ settings for specific hardware.
3. View I/O addresses for specific hardware.

RESOURCES

1. Marcraft 8000 Trainer with Windows Millennium installed



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DISCUSSION

The Windows Me Control Panel is the user's primary interface for configuring system components. The Control Panel can be accessed through the My Computer icon on the desktop, or through the Settings entry in the Start menu. The most important uses of the Control Panel are:

- Adding new hardware and drivers
- Adding or removing programs
- Modifying system device settings
- Configuring network settings

The Add/Remove Programs icon leads to the Install/Uninstall screen illustrated in Figure 14-1. This page can be used to install new programs from floppies or CDs by clicking the Install button. Programs can be uninstalled from the system simply by double-clicking them in this window.

The Windows Setup tab is used to add or remove selected Windows Me components, such as communications packages or additional system tools.

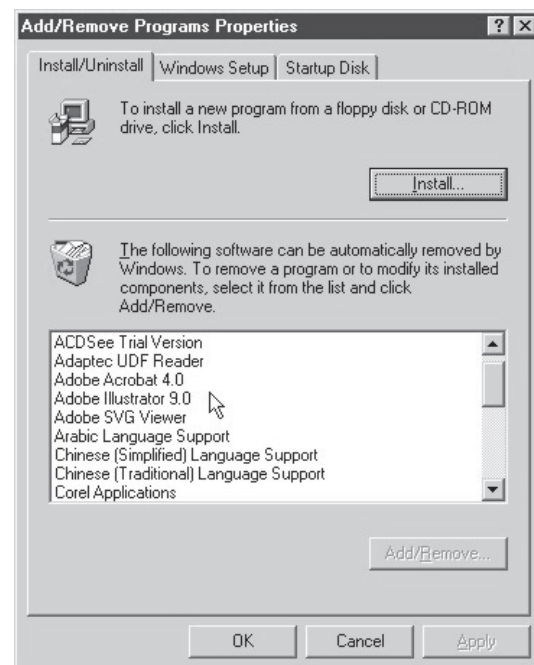


Figure 14-1: Add/Remove Programs Properties Page

System Configuration Settings

The System Properties window is accessed by clicking on the System icon in the Control Panel. Three sections allow for changing configuration settings of the system. The General tab shows what version of operating system you are running, the registered owner, the processor, and the type of computer you are running. The Device Manager is where most of the configuration settings are kept and this is where you'll go if you want to see if there are any hardware conflicts in the system if something's not working quite right.



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PROCEDURE

Performance Options

Under the Performance tab in the System properties near the Device Manager, you have several settings for controlling how Windows Me handles the virtual memory, the hardware acceleration, and the file system.

Virtual Memory

From the Windows 95 Resource kit:

Windows 9x and Windows Me use a special file on your hard disk called a virtual memory swap file (or paging file). With virtual memory under Windows 9x and Windows Me, some of the program code and other information are kept in random access memory (RAM), while other information is swapped temporarily to virtual memory. When that information is required again, Windows 9x and Windows Me pull it back into RAM and, if necessary, swap other information to virtual memory. This activity is invisible, although you might notice that your hard disk is working. The resulting benefit is that you can run more programs at one time than the computer's RAM would usually allow.

The Windows 9x and Windows Me swap file is dynamic, so it can shrink or grow based on the operations performed on the system and based on available disk space. A dynamic swap file is usually the most efficient use of resources. It can also occupy a fragmented region of the hard disk with no substantial performance penalty.

An example could be a computer having 64 MB of RAM. After Windows Me loads you probably have 44 MB of RAM (or less) free. As you start (load) programs, more RAM is used. It's quite possible to have only 3 or 4 programs running and run out of available memory. This means no more programs could start until you close the open programs. Some programs use more memory as you use them. In this case, running out of free memory could cause a system crash, or worse, lost data! Some programs when closed don't give back all the memory they used right away, and some not at all. If you find this happening, you should reboot the computer at a convenient time to free up the memory. When the system memory starts to fill up, Windows pulls programs and parts of the operating system that aren't in use at the time out of the physical memory and holds them in a file in a virtual memory swap file called Win386.swp. Doing this frees up the physical memory for the working applications and code. Windows will continue to swap the data back and forth as it's being used until it is shut down, or rebooted.

1. Boot the computer to Windows Millennium

- ___ a. Turn the computer on and select Windows Millennium from the OS selection menu.

2. Installing the System Monitor utility

- ___ a. Use the path Start/Settings/Control Panel and double-click the Add/Remove Programs icon.
- ___ b. Click the Windows Setup tab and wait for the system to check its configuration.
- ___ c. Scroll down to System Tools, and then click on it in order to highlight it.
- ___ d. Click the Details button to open the *System Tools* window.
- ___ e. Scroll down to System Monitor, and then click the check box to select it.
- ___ f. Click the OK button and then the Apply button, to add the utility to the operating system.
- ___ g. Click the OK button to close the *Add/Remove Programs Properties* window.
- ___ h. Press the ALT and the F4 keys to close the *Control Panel* window.

3. Configure System Monitor for monitoring system resources.

- ___ a. Use the path Start/Programs/Accessories/System Tools and select *System Monitor*.
- ___ b. In the menu bar, click the Edit menu and then select Remove Item.
- ___ c. Highlight Kernel Processor Usage and then click the OK button to remove it.
- ___ d. In the menu bar, click the Edit menu and then select Add Item.
- ___ e. In the *Add Item* window, click on Memory Manager and press and hold down the CTRL key, and then click on Unused physical memory and then Swappable memory to highlight all three of them.
- ___ f. Click the OK button to confirm your selections. Your window should now look similar to Figure 14-2.

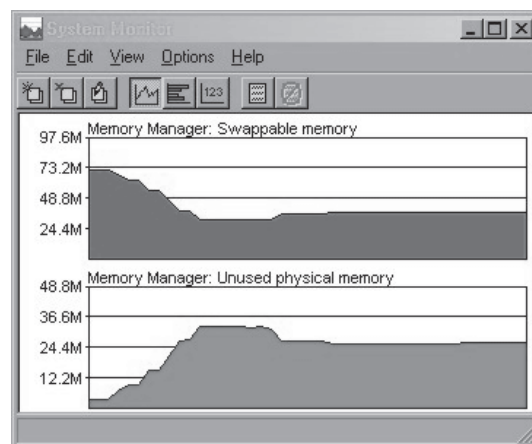


Figure 14-2: System Monitor

4. Configuring Virtual Memory

- ___ a. Double-click the My Computer icon on the desktop.
- ___ b. Double-click the Control Panel icon and then double-click the System icon to open the *System Properties* window, as shown in Figure 14-3.
- ___ c. Click the Performance tab to bring it to the front, and then in Table 14-1, list the amount of memory and how much system resources are free.
- ___ d. Click the Virtual Memory button, and then click the radio button next to "Let me specify my own virtual memory settings" to select it.
- ___ e. In the Minimum text box, type **50**, and then type **80** in the Maximum text box.
- ___ f. Click the OK button and then the Yes button to confirm your changes.
- ___ g. Click the OK button to close the *System Properties* window, and then click Yes to restart your computer.
- ___ h. If Windows does not ask you to shut down automatically, click the Start button and choose Shut Down, and reboot your computer.

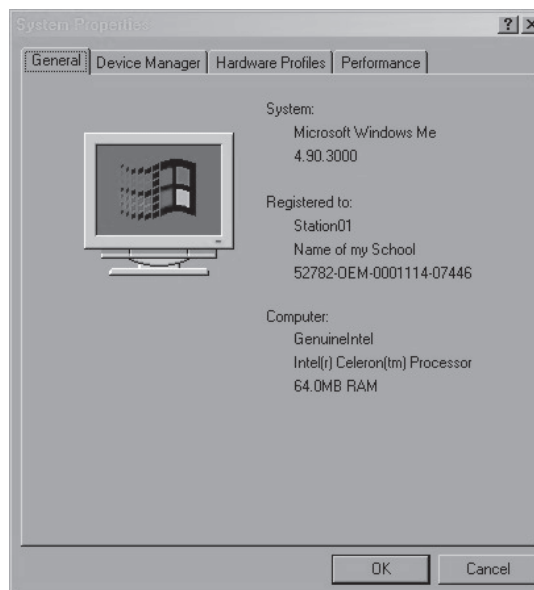


Figure 14-3: System Properties

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5. Viewing System Properties within System Monitor

- ___ a. Use the path Start/Programs/Accessories/System Tools and then select the System Monitor.
- ___ b. In the menu bar, click the View menu and select Numeric Charts.
- ___ c. In Table 14-2, list the size of the Swappable memory and the Unused physical memory.
- ___ d. From the quick launch toolbar, click the Internet Explorer icon.
- ___ e. Repeat Step 5d four times so that you will have five IE windows open at the same time.
- ___ f. In Table 14-3, list the size of the Swappable memory and the Unused physical memory.
- ___ g. Close the IE windows one at a time, paying close attention to the *System Monitor* window.
- ___ h. Close the *System Monitor* window.

6. Returning virtual memory to its original settings

- ___ a. The Control Panel should be open. Open it if it isn't.
- ___ b. Double-click the System icon.
- ___ c. Select the Performance tab.
- ___ d. Click the Virtual Memory button.
- ___ e. Click next to the "Let Windows manage my virtual memory settings" radio button.
- ___ f. Click OK.
- ___ g. Click Close and Yes to reboot the computer

Device Manager

The Device Manager utility, depicted in Figure 14-4, is located under the Control Panel's System icon. It provides a graphical representation of the devices configured in the system. In many cases, it must be used to make manual adjustments to the system's hardware options. To use the Device Manager, simply select a device from the list and click on it.

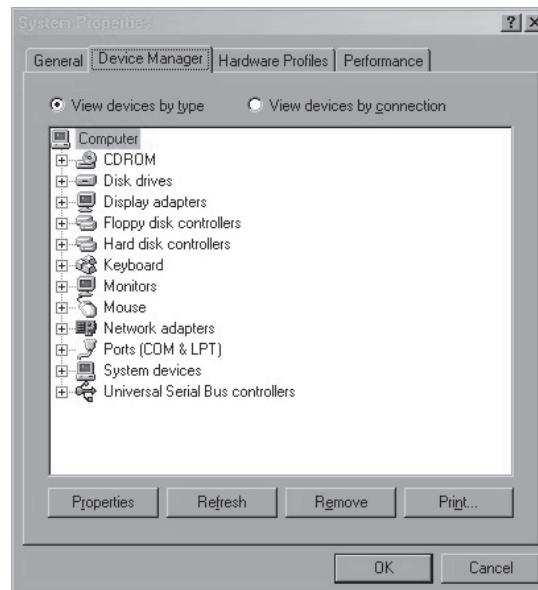





Figure 14-4: Device Manager Window

Typical Device Manager tabs include General, Settings, Drivers, and Resources. Each device may have some or all of these tabs. The information under these tabs can be used to change the properties associated with the selected device. This often becomes necessary when resource conflicts occur in a system that has legacy devices installed. The Device Manager can be used to identify possible causes of these conflicts.

If there is a problem with one of your devices, Windows will list the device with one of the following symbols in the Device Manager:

-  The exclamation point in a yellow circle indicates the device is in a problem state. Such a device may still partially function. This error normally represents a device conflict error with the device drives, memory allocation, I/O settings, or an IRQ conflict. A problem code explaining the problem is displayed for the device in its properties page.
-  The red X indicates a disabled device. A disabled device is physically present in the system and consuming resources, but does not have a protected-mode driver loaded.
-  A question mark next to a device's icon indicates that the status of the device cannot be determined. It does not necessarily indicate a problem or a disabled state.

1. Open the Device Manager tool

- ☐ a. Open the Control Panel's System applet by clicking Start/Settings/Control Panel and double-clicking on System.
- ☐ b. Click the Device Manager tab.
- ☐ c. Make sure that the View Devices by Type radio button is selected.
- ☐ d. Record the total number of devices by type in Table 14-4.
- ☐ e. Click the radio button next to "View devices by connection".
- ☐ f. Record the number of devices by connection in Table 14-5.



2. Check the current IRQ assignments

- ☐ a. Double-click the Computer icon.
- ☐ b. Make sure that the "Interrupt request (IRQ)" option is selected.
- ☐ c. Scroll down and record the IRQ setting and the hardware using the setting in Table 14-6.

3. Check the current I/O Resources assignments

- ☐ a. Select Input/Output (I/O).
- ☐ b. Scroll down until I/O Resource address 0060 is visible.
- ☐ c. Record the hardware listing for I/O Resource addresses 0060 through 0071 in Table 14-7.
- ☐ d. Click Cancel to close the Computer Properties window.

4. Examine the properties of various devices in the system

- ☐ a. Under the Device Manager tab, double-click on Keyboard.
- ☐ b. In Table 14-8, list the name and model of your keyboard.
- ☐ c. Double-click on your keyboard.
- ☐ d. Click the Resources tab.
- ☐ e. In Table 14-9, list each Resource type and its setting, then close the Keyboard Properties window.
- ☐ f. Double-click Hard Disk Controllers.
- ☐ g. Double-click the PCI Bus Master IDE Controller.
- ☐ h. Click the Resources tab, and list each Resource type and its Setting in Table 14-10.
- ☐ i. Close the IDE Controller Properties window.
- ☐ j. Close the System Properties window and the Control Panel.
- ☐ k. Close all open windows and exit Windows Me.
- ☐ l. Turn off the computer.



TABLES

Table 14-1

Performance Tab	
Memory:	
System Resources:	

Table 14-2

Swappable Memory/Unused Physical Memory	
Swappable memory:	
Unused physical memory:	

Table 14-3

Swappable Memory/Unused Physical Memory	
Swappable memory:	
Unused physical memory:	

Table 14-4

View Devices by Type:	
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Table 14-5

View Devices by Connection:	
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Table 14-6

IRQ Assignment	
IRQ Setting	Hardware Using Setting

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Table 14-7

Current I/O Resource 0060 - 0071 Assignments	
I/O Setting	Hardware Assignment

Table 14-8

Your Keyboard:	
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Table 14-9

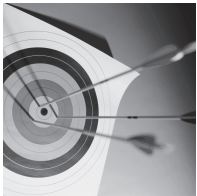
Resources Used by Keyboard	
Resources Type	Setting

Table 14-10

Resources Used by Master IDE Controller	
Resources Type	Setting

LAB QUESTIONS

- 1. What is the name of the file that Windows Me uses as virtual memory?
- 2. Where would you go to check and see if there was a hardware conflict in the system?
- 3. If you need to free up the memory manually, what should you do?
- 4. What is the maximum size allowable for the swap file?
- 5. What symbol does Windows use to mark a device that is in a problem state?



Feedback

