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*Exploration of the Control Panel*



As you may be familiar with the control panel in Windows 9x operating systems, this is where all the hardware/software configuration is performed and maintained. More so like Windows 9x than Windows NT, many of the features have been enhanced to simplify user configuration and ease of understanding. Things added to Windows 2000 that were previously not in Windows NT are:

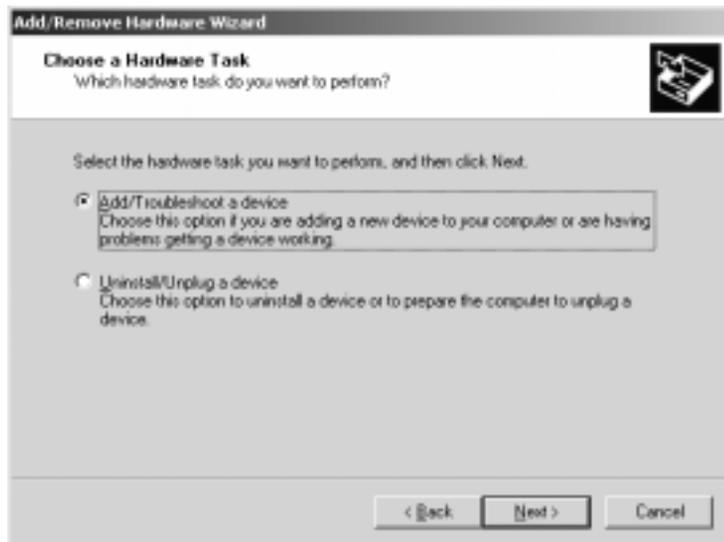
- Add/Remove Hardware
- Administrative Tools (consolidates many control panel items previously in the control panel folder)
- Scheduled Tasks
- Scanner and Multimedia (previously Multimedia)
- Power Option (previously UPS)
- Folder Options
- Sounds and Multimedia (previously Sounds)

As you will see, Windows 2000 has taken from both platforms (Windows 9x and NT) to create a more versatile and robust desktop environment. As stated earlier, Windows 2000 incorporated Plug and Play technology from Windows 9x while maintaining an NT kernel as the core of the operating system. Many of the benefits are clearly defined in the Control Panel. We will not have the time to look at all of the icons in the Control Panel, but we will look at all of the more important ones.

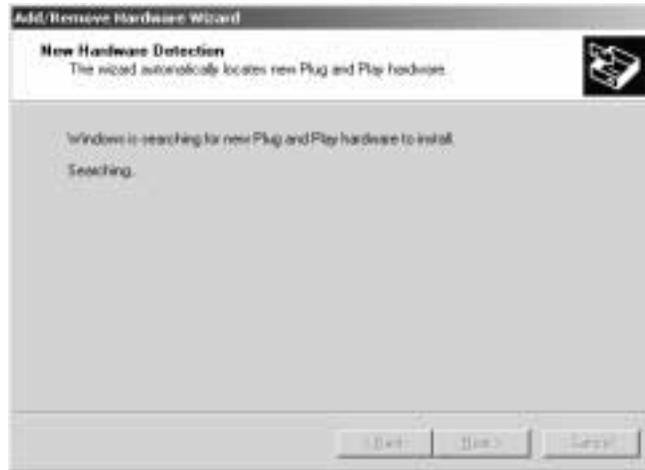
## Add/Remove Hardware



As with Windows 9x, Windows 2000 uses a software wizard to help you with the hardware modifications...



Your options are clearly defined (either Add/Troubleshoot or Uninstall/Unplug hardware). The Unplug/Uninstall option should not be confused with laptop PCM-CIA components.



The hardware wizard will search for any and all new plug and play hardware components. If the Wizard finds new hardware it will guide you through the install process.



If the wizard can not recognize the hardware you will be given the above screen with a list of possible hardware items to install. Find the type of hardware (i.e., mouse) and select that option. At this point you will be given a list of manufactures that are available on the Windows 2000 CD for installation.

If your manufacturer is not listed locate the installation disk that may have come with your new hardware and insert the disk into your computer and select “Have Disk” and point the installation to that diskette or CD. Locate the file (usually OEM\*.INF) and run the installer with that option. If you are prompted for the Windows 2000 CD point the installer to the C:\WINNT\OPTIONS folder. Once done you should receive the following screen:



If everything goes right you should see the message “This device is working properly”.

## Administrative Tools



Some of the most important icons on your computer live in the Administrative Tools folder. Prior to changing or modifying anything in this folder, be very sure you understand what your doing in here. Wrong settings could result in your system failing to boot or running poorly.

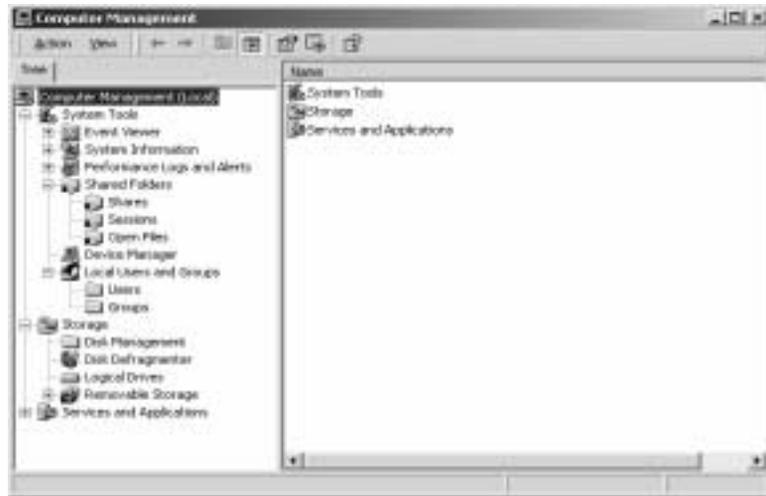
## Component Services...



With Component Services, administrators can deploy and administer COM+ applications through a graphical user interface, or automate administrative tasks using a scripting or programming language. Software developers can use Component Services to visually configure routine component and application behavior, such as security and participation in transactions, and to integrate components into COM+ applications.

Above is a partially exploded view of the component services GUI.

## Computer Management



One of the most useful utilities on the administrative tools section, Computer Management provides a unique understanding of how your computer is put together. Computer Management is broken down into three main areas:

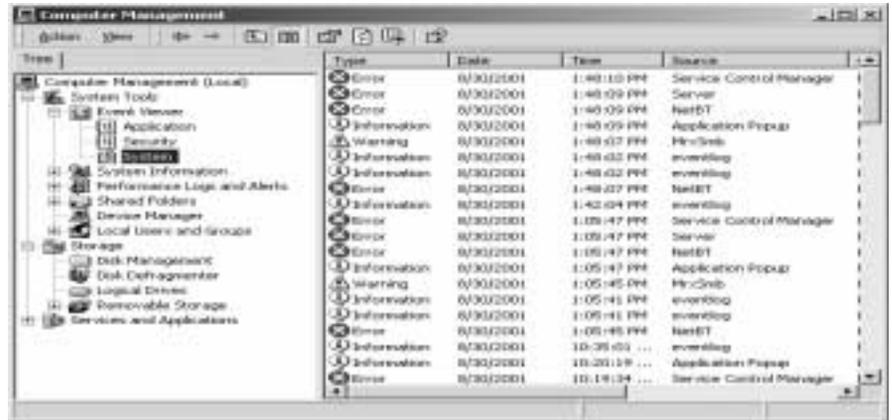
- System Tools
- Storage
- Services and Applications

### System Tools...

Within System tools you will find the following:

- Event Viewer
- System Information
- Performance Logs and Alerts
- Shared Folders
- Device Manager

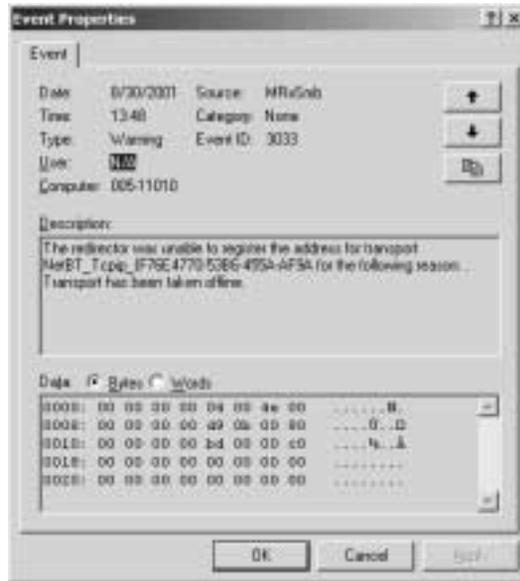
## Event Viewer...



One of the most useful tools for troubleshooting is the Event Viewer. The event viewer records errors that occur in applications, security, and the system. The event viewer can be accessed either here (in the computer management) or directly in the Administrative Tools folder. There are three basic types of errors reported:

1. Error - (Red circle with an X) -- critical error type
2. Warning - (yellow pyramid with an exclamation point) -- problem has occurred.
3. Information -- (white circle with blue exclamation point) -- notification.

By double-clicking on one of the recorded events you will get a lightly detailed explanation of that event (as in the example below). This information will prove valuable in submitting Remedy tickets for technical service.

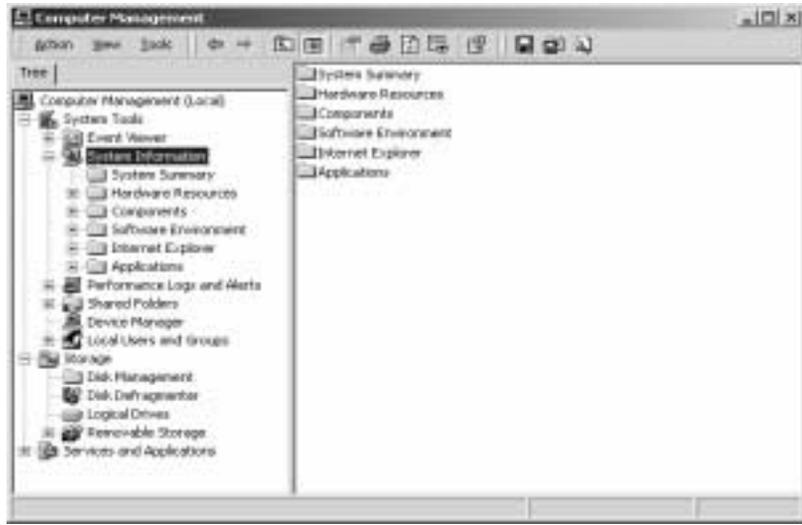


You will want to record the following information and supply it to the Help Desk:

- Source
- Event ID
- Description

It should be noted that some of the errors you receive may not be important. Since we do not use Active Directory services on our campus you will get errors that refer to networking errors or system management errors -- these may not be part of the problems that you are trying to diagnose. Always reference any error you see to the Help Desk but understand that many of the errors may not apply to your current problem. This should also make you think that constantly referencing the Event Viewer and finding problems when the system is running well may not be proactive to solving an unseen problem.

## System Information...

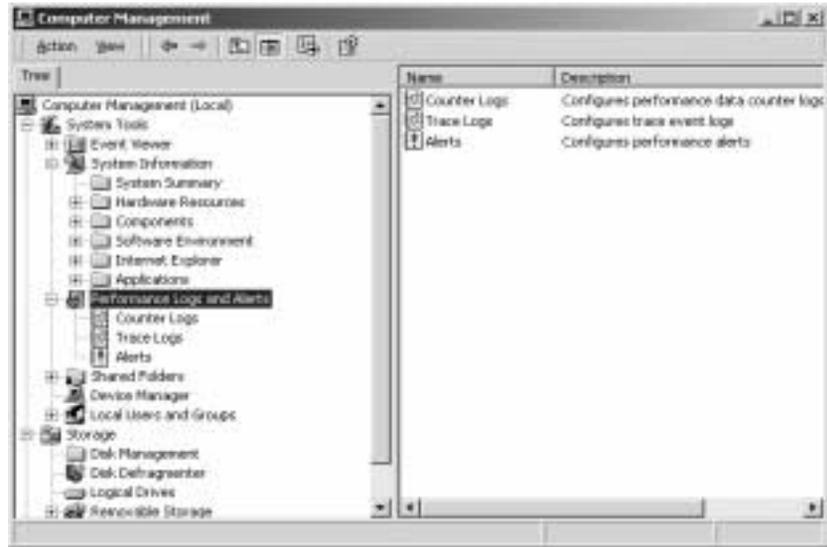


If your interested in finding out hardware and software information on your computer (say someone asks you what version of OS your running), you can get that information here.

- *System summary* - detects and displays current OS, base hardware, and memory information.
- *Hardware Resources* - reports hardware conflicts, DMA information, Forced Hardware, I/O, IRQs, and extensive memory information.
- *Components* - Gives detailed information about all hardware components in your computer.
- *Software Environment* - Provides a list of drivers, environment variables, active print jobs, network connections, running tasks, loaded modules, services, program groups, startup programs, OLE registration.
- *Internet Explorer* - All variable information (summary, file versions, connectivity, cache, content, and security).
- *Applications* - All installed application installation information is located here.

Whenever you are asked detailed information regarding your system, this is the definitive place to go. You will always get up-to-date information regarding everything about your hardware, software and configuration.

### Performance Logs and Alerts...

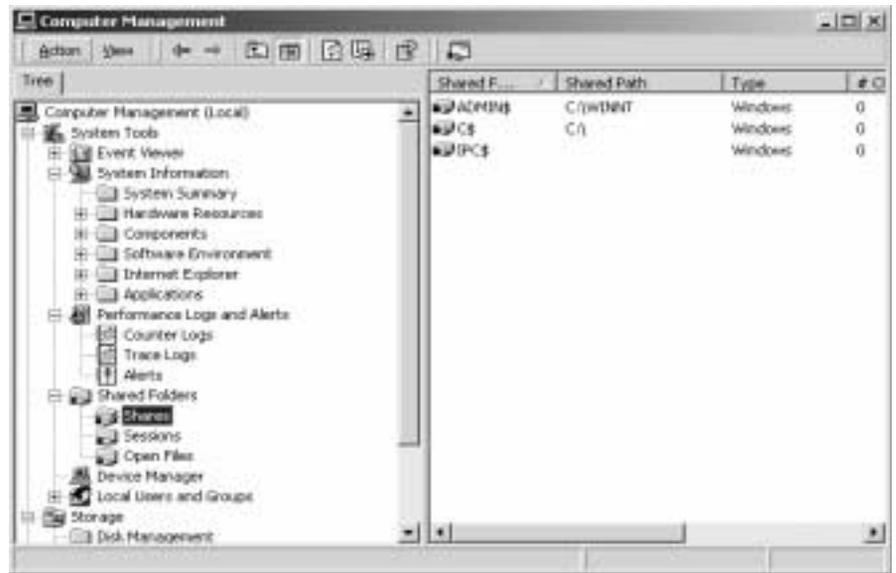


This section allows you to evaluate the performance of your system. It would be recommended that you learn more about this section prior to experimenting with it. If you go to the Microsoft web site ([www.microsoft.com/windows](http://www.microsoft.com/windows)) do a search on Performance logs to learn more...

Logs located herein are:

- Counter logs
- Trace logs
- Alerts

## Shared Folders...



In the Shared Folders section you can find out information regarding what folders are being shared across the network and who is accessing them as well as what files have been opened by outside users.

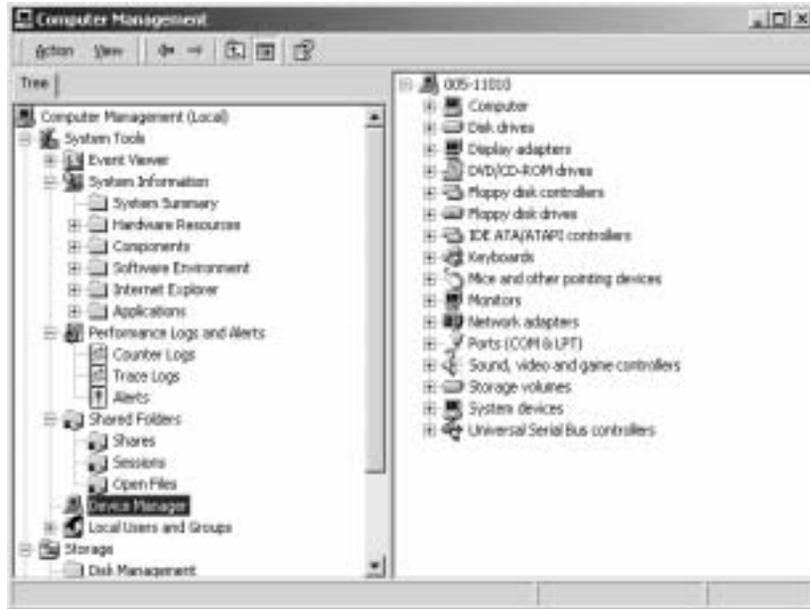
In the example above, you can see the three default shares (ADMIN\$, C\$, and IPC\$) created by the operating system during the install process. The \$ means that these shares are hidden and can only be accessed if you know they exist and have the administrative password for that workstation.

The sessions section displays the computers that are attached to your computer.

The open files files section will show which files they are accessing.

This section is particularly useful in determining if someone is breaking into you computer and what they are doing at that time. You have the ability to terminate their connection through this utility. If you encounter a breach of security, take down the name of the computer and user as well as when they broke in and which files they tampered with. Contact the Help Desk immediately and change your administrator password quickly.

## Device Manager...



As you may have noticed, the Device Manager in Windows 2000 is exactly the same as that found in Windows 9x systems. Its' purpose is to help you verify hardware is correctly installed and aid you in the correction of any hardware that may be incorrectly installed.

If something is wrong you will see the yellow triangle with an "i" noting the device that has failed. When you double-click on that device an extended explanation for the failure is presented with the ability to correct this problem. Usually, you will be required to have an updated driver to fix the problem.

## Local Users and Groups...



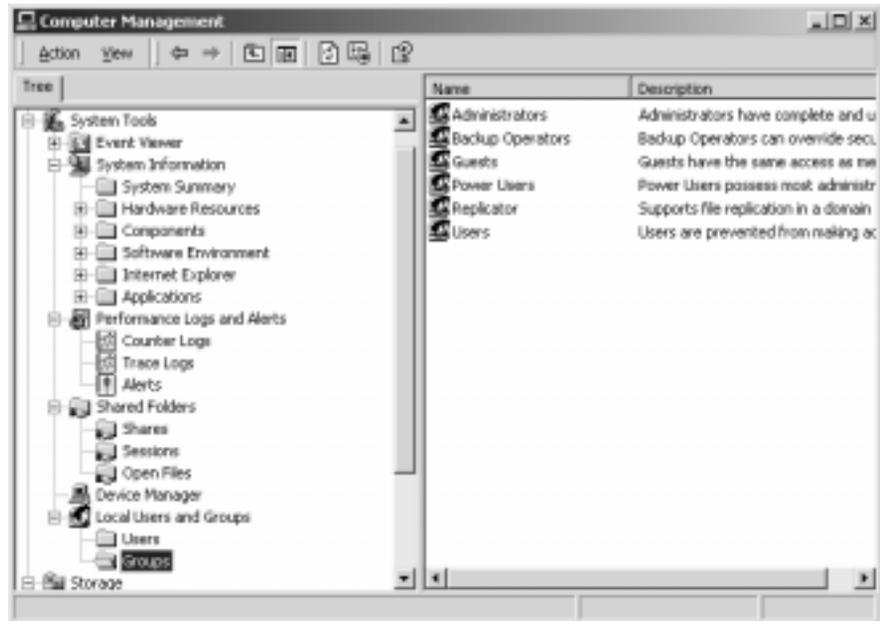
The Local Users and Groups section allows you the ability to add new local users and create groups for those users. The default user accounts are Administrator and Guest (guest is disabled for security reasons). Be very careful giving access to others (DO NOT give other people administrative access to your machine unless guided by the system administrator or PC/LAN representative).

By clicking the right mouse button in the open white field of the users section, you will get a menu. From this menu you can:

- Add a new user
- Refresh the view
- Export the list of users
- Change the view settings
- Arrange icons
- Line up icons
- Get help

If you click the right mouse button while your arrow is pointing at a specific user you will get a menu to do the following:

- Set Password (change a password)
- Delete
- Rename
- Properties
- Help



In the Groups section you will see several pre-defined policy<sup>10</sup> groups.

- **Administrators** is the highest level (your account is most likely included in this group)

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<sup>10</sup>.Policies are used to define access levels and set security.

- **Backup Operators** allow a user to backup all files on the system no matter how secure it may be
- **Guests** have the lowest security level
- **Power Users** have the second highest user security level
- **Replicators** is a service group used for applications
- **Users** is the basic access user group

### Storage...



### Using Disk Management

Disk Management is a graphical tool for managing disks and volumes. It supports partitions, logical drives, new dynamic volumes, and remote disk management.

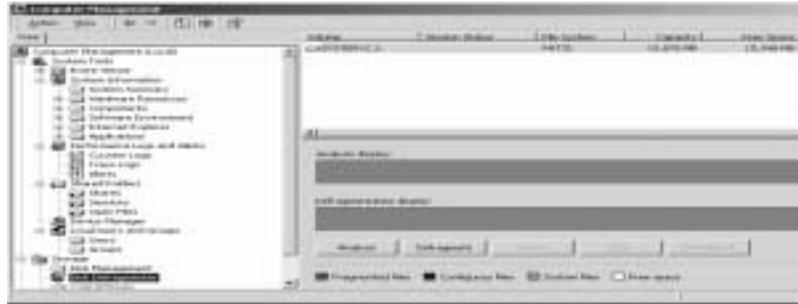
#### Notes

- You must be logged on as an administrator or a member of the Administrators group in order to complete this procedure. If your computer is connected to a network, network policy settings may also prevent you from completing this procedure.
- To open Disk Management, click **Start**, point to **Settings**, click **Control Panel**, double-click **Administrative Tools**, and then double-click **Computer Management**. In the console tree under **Storage**, click **Disk Management**.

Taking the time to learn more about this great tool will help you to better understand how your drives are set up and give you the ability to extend your system's

usefulness. Using Dynamic drives (for instance) will allow you to add drives to your system and extend your C: drive volume instead of requiring you to add more drive letters to your computer.

### Disk Defragmentor...



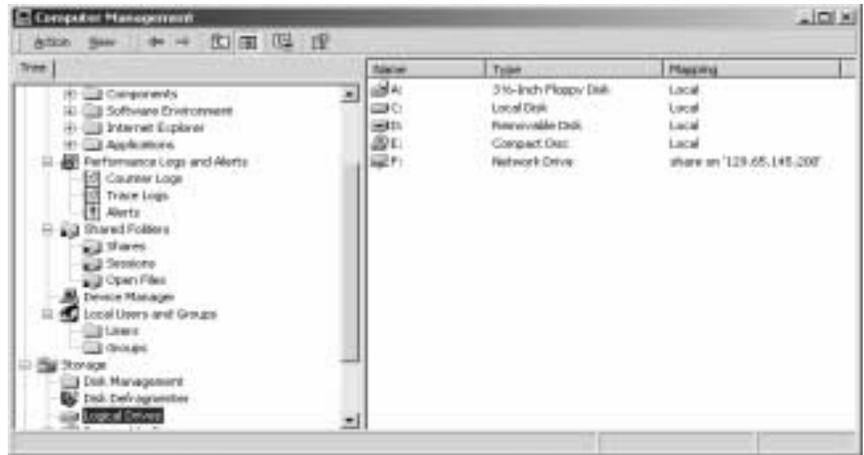
The Disk Defragmentor tool allows you the ability to defragment your hard drive. You will also find this tool in **Start > Programs > Accessories > System Tools > Disk Defragmenter**.

Using this tool on a scheduled basis will keep your system running smoothly and minimize the possibility of lost files caused by extensive file fragmentation. It is suggested that you run this program once a month to keep your files in proper order.

Some of the benefits of running this tool are:

- Faster running hard drive
- Greater OS stability
- Quicker search results
- Less chance of data loss

## Logical Drives...



This utility offers you the ability to view the properties of each logical drive assigned to your computer (note the network attached storage in this particular example).

## Removable Storage...



Removable Storage is provided by High Ground Systems, Inc., a Microsoft partner. For more information about Removable Storage and other storage resource solutions from High Ground Systems for Windows, refer to the [HighGround Systems Web site](http://www.highground.com). (<http://www.highground.com>).

## Services & Applications...



**Services and Applications** is the third node in the Computer Management console tree. Through this node you can view and manage the properties of any server service or application that is installed on the computer such as DNS and DHCP.

This node includes the following default set of services and applications. The actual set of services and applications you see may vary.

- DNS
- DHCP
- Services for Macintosh
- Fax Service
- RAS Server
- Routing Server
- WINS

### Indexing Service...



Indexing Service extracts the information from a set of documents and organizes it in a way that makes it quick and easy to access that information through the Windows 2000 **Search** function, the Indexing Service query form, or a Web browser. This information can include text from within a document (its contents), and the characteristics and parameters of the document (its properties), such as the author's name. Once the index is created you can query the index for documents that contain key words, phrases, or properties. For example, you can query all documents containing the word "product," or you can query for all Microsoft Office documents written by a specific author. Indexing Service returns a list of all documents that meet your search criteria.

Through a process called indexing, Indexing Service uses a document filter to read through a document and extract the text and properties to pass to the indexer. For more information about indexing, see [Indexing](#).

Indexing Service automatically stores all the index information in the System or the Web [catalogs](#).

Indexing Service indexes the following types of documents:

- HTML

- Text
- Microsoft Office 95 and later
- Internet mail and news (with Internet Information Services installed)
- Any other document for which a document filter is available

Indexing Service is designed to run continuously and requires little maintenance. After it is set up, all operations are automatic, including index creation, index updating, and crash recovery if there is a power failure.

### ODBC Data Source Administrator

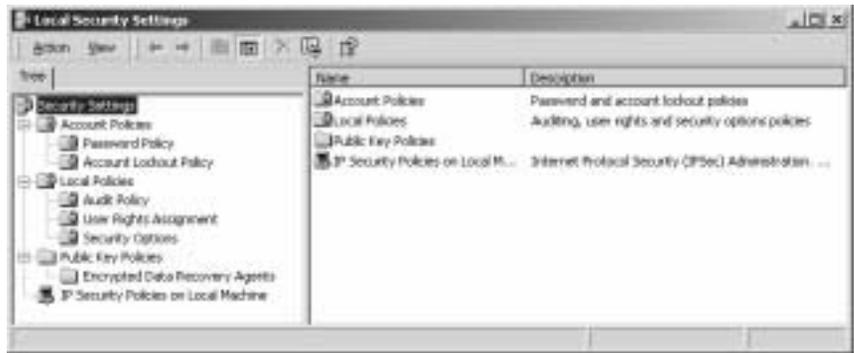


### Using Data Sources (ODBC)

You can use Data Sources Open Database Connectivity (ODBC) to access data from a variety of database management systems. For example, if you have a program that accesses data in a SQL database, Data Sources (ODBC) will let you use the same program to access data in a Visual FoxPro database. To do this, you must

add software components called drivers to your system. Data Sources (ODBC) helps you add and configure these drivers.

### Local Security Policies



Within the Local Security Policies toolset, you will find the settings for user accounts, general policy settings and VPN policy settings. Currently we do not provide VPN services on campus, but all other policies would apply for your workstation.

In Brief, Policy settings cover such things as:

- Password Policies
  - Enforce Password History
  - Maximum Password Age
  - Minimum Password Age
  - Minimum Password Length
  - Password Complexity
  - Store reversible password
- Account Lockout Policies
  - Account lockout duration
  - Account lockout threshold
  - Reset account lockout counter
- Audit Policies

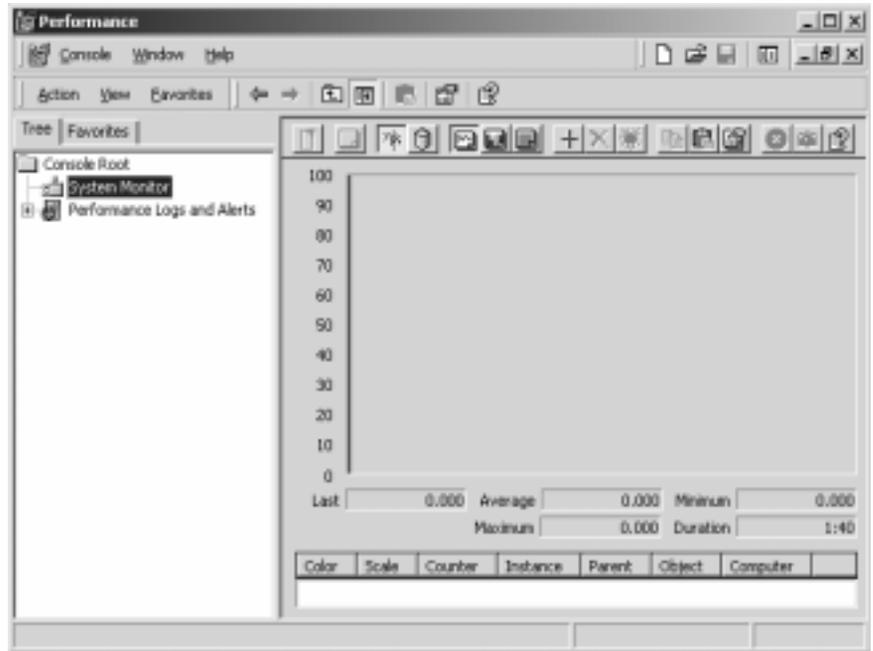
- Audit account login events
- Audit account management
- Audit account directory service access
- Audit login events
- Audit object access
- Audit policy change
- Audit privilege use
- Audit process tracking
- Audit system events
- User Rights Assignment
  - Too many to display
- Security Options
  - Too many to display
- Public Key Access
  - Encrypted Password Recovery Agents
- IP Security Policies on Local Machine
  - Client
  - Secure Server
  - Server

There are two basic philosophies System Administrators use in viewing setting security:

1. Secure everything and only grant access when users complain.
2. Secure nothing and when necessary increase security.

As a user of a workstation neither of these philosophies need apply. Generally speaking, the default settings for your workstation security is well balanced and need not be changed unless problems crop up. Then, and only then, should you modify any of these settings. Each security object you tighten up on slows down your system and takes away needed resources for other programs that you use.

## Performance



### Performance objects and counters

Windows 2000 obtains performance data from components in your computer. As a system component performs work on your system, it generates performance data. That data is described as a performance object and is typically named for the component generating the data. For example, the Processor object is a collection of performance data about processors on your system.

A range of performance objects are built into the operating system, typically corresponding to the major hardware components such as memory, processors, and so on; other programs may install their own performance objects. For example, services such as WINS or server programs such as Microsoft Exchange provide performance objects, and performance graphs and logs can monitor these objects.

Each performance object provides counters that represent data on specific aspects of a system or service. For example, the Pages/sec. counter provided by the Mem-

ory object tracks the rate of memory paging.

Although your system may typically make available many more objects, the default objects you'll use most frequently to monitor system components are:

- Cache
- Memory
- Objects
- Paging File
- PhysicalDisk
- Process
- Processor
- Server
- System
- Thread

The following services or features of Windows 2000 that you may be using in your configuration provide performance objects.

Although some objects (such as Memory and Server) have only a single instance, some performance objects can have multiple instances. If an object has multiple instances, you can add counters to track statistics for each instance, or for all instances at once.

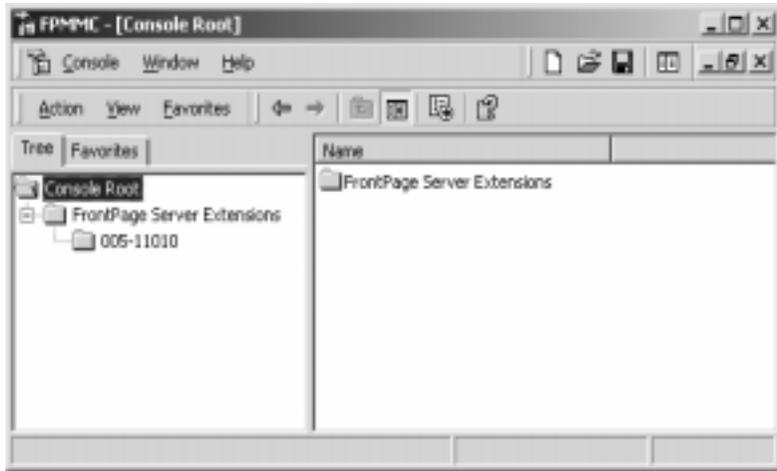
Depending on how the counter was defined, its value may be:

- The most recent measurement of an aspect of resource utilization. These are also called instantaneous counters.

An example is Process\ Thread Count, which shows the number of threads for a particular process as of the last time this was measured.

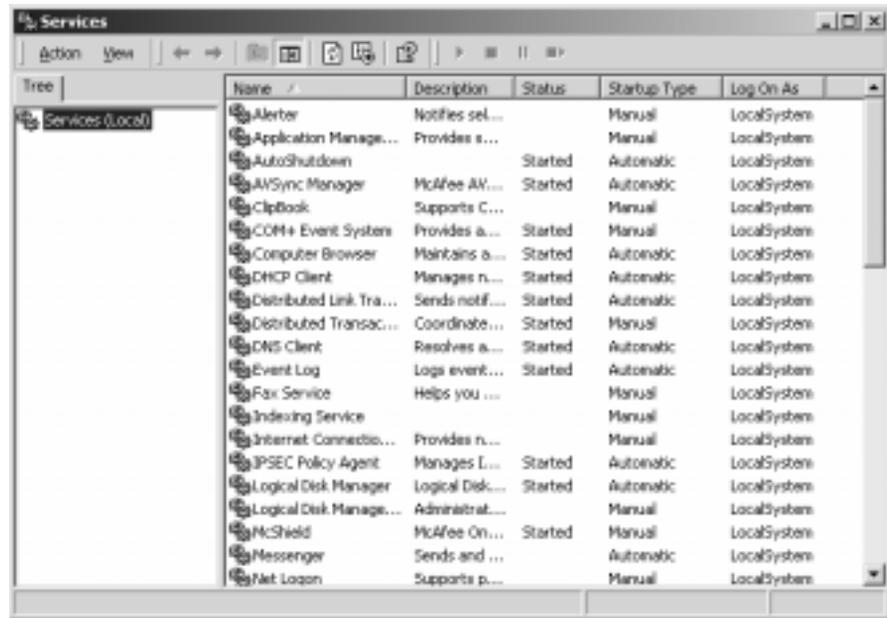
The average of the last two measurements over the period between samples. (Because counters are never cleared, this is actually an average of the difference between the measurements.)

## Server Extensions Administrator



To find out what Server extensions are installed on your machine, you can look in this tool set. Currently FrontPage Server Extensions are the only installed options.

## Services

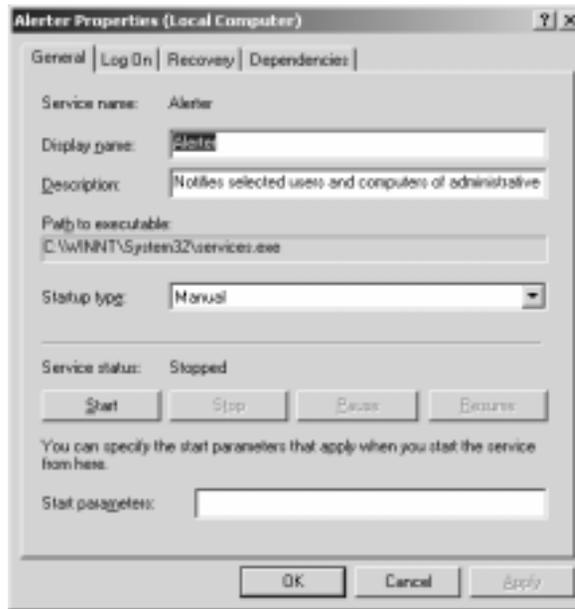


The Services management console presents a unique view into how Windows 2000 works (or why some things are not working). This alone is worth a day's worth of examination to begin to understand how things function and why. As an analogy; in UNIX everything is a file -- in Windows 2000 everything is a service. The whole operating system is a stream of multitasking and multithreaded services that unify kernel operations with the hardware abstraction layer and user shell.

The Service management console is broken down into five columns:

1. Name
2. Description
3. Status
4. Startup Type
5. Logon As

In locating a troubled service (a function of the operating system that is not working properly), you would look for the name of the service, then to its status. Many services fail to start because they are dependant on other services for their functionality. By double-clicking on the name of the service in question you will get the following screen:



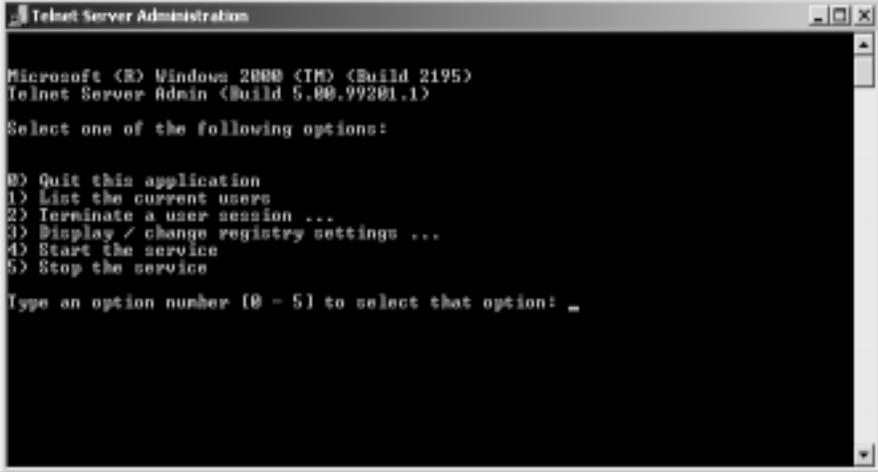
Within this screen you can view and/or change any variable in the service. You can also test a broken service by applying the start button to see what errors occur (you may need to go to the Event Viewer to examine the error code more closely). What is most important here is finding out what account logs on to permit the functioning of this service, what recovery options are in place, and most importantly what dependencies are required to run this service.

Most often you can get information through Microsofts on-line knowledgebase at:

<http://search.support.microsoft.com/kb/c.asp>

Using the information you retrieve from the Event Viewer you can post queries that will help you to correct the service properties. It should be noted that improper configuration of services may result in a dysfunctional operating system -- always get assistance from the Help Desk when you are not sure of what your doing...

### Telnet Server Administration

A screenshot of a Windows console window titled "Telnet Server Administration". The window has a black background with white text. The text reads: "Microsoft (C) Windows 2000 (TM) (Build 2195)", "Telnet Server Admin (Build 5.00.99201.1)", "Select one of the following options:", a list of options from 0 to 5, and a prompt "Type an option number [0 - 5] to select that option: \_".

```
Telnet Server Administration
Microsoft (C) Windows 2000 (TM) (Build 2195)
Telnet Server Admin (Build 5.00.99201.1)
Select one of the following options:
0) Quit this application
1) List the current users
2) Terminate a user session ...
3) Display / change registry settings ...
4) Start the service
5) Stop the service
Type an option number [0 - 5] to select that option: _
```

Telnet is the way you can access someone else's computer, assuming they have given you permission. (Such a computer is frequently called a host computer.) More technically, Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer. The Telnet Server Administrator allows you to manage remote users on your machine.

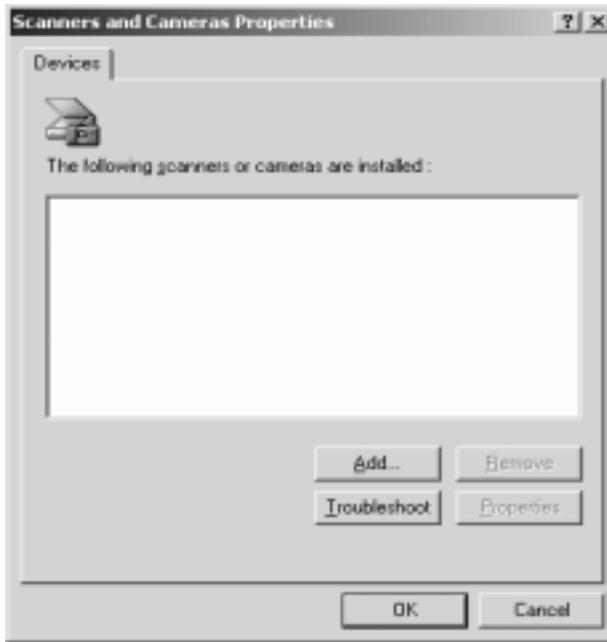
It should be noted that we do not support the use of telnet for workstation operating systems.

## Scheduled Tasks



The Scheduled Tasks manager allows you the ability to schedule your computer to do things without your having to manually run the task. This GUI has a wizard that walks you through selecting the task and assigning a time to have that task performed. This is a great resource for scheduling large print job for after working hours, running maintenance routines (such as Disk Defragmentor) or turning off you computer each night.

## Scanners and Cameras



The Scanners and Cameras resource allows you to add scanners and cameras to your operating system -- making these peripherals available to any application that may use their functionality (such as MS Word, Adobe products, etc.).



Many of the latest devices are listed in the driver catalog. If yours is not then use the Have Disk option to add it to the list.

## Power Option



Microsoft has expanded the Power Option management console to provide greater control over how you manage your power resources. Previous to this NT provided UPS settings and none of the other configuration capabilities.

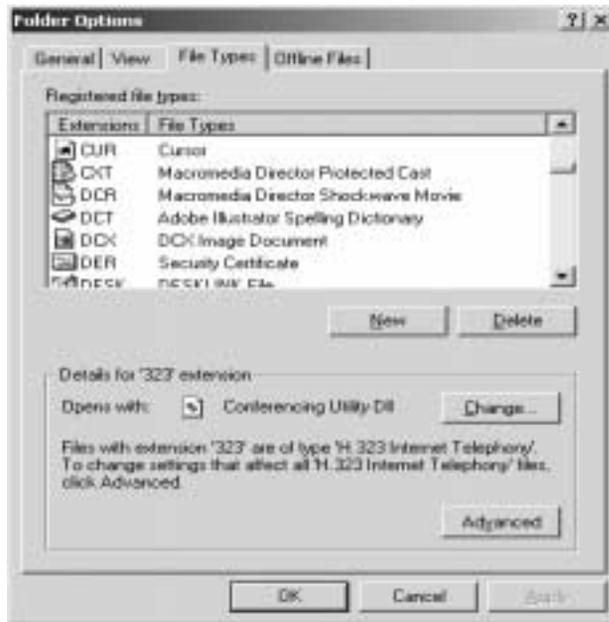
## Folder Options



Folder options have been added to the control panel so that global folder options could be set. This is an important resource since it allows you the ability to hide files, modify their properties, add new file extensions and synchronize local folders with server based folders.



Above are some of the view settings that can be set for all files on your system. Note the "Do not show hidden files and folders" is set for your system files protection.

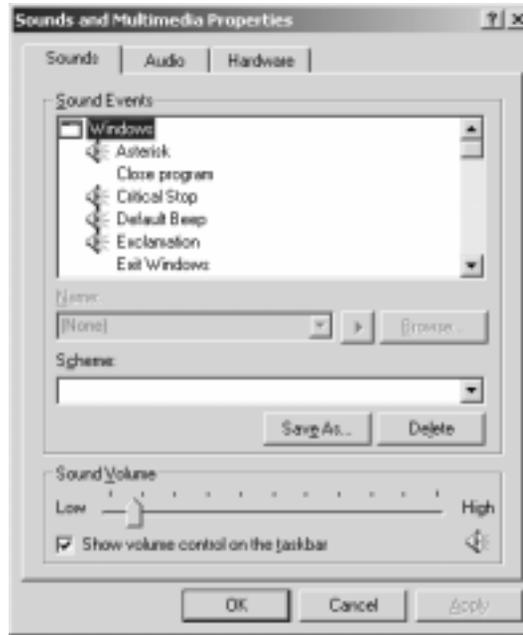


Your system loads applications and/or runs resources based on the file extension of the file that you click on. Here is where these file extensions are set and maintained.



The above example displays the tab settings for file synchronization (offline folders). This is most useful for laptops or users with server storage data.

### 3.1 Sounds and Multimedia



Formerly Sounds, Sounds and Multimedia provides that same function as it previously did. You have the ability to set Schemes (different sounds based on a package of sounds) so that when your computer makes a sound it does so based on a specific scheme.

