

**HOW TO: Be Reminded When Your Computer Resources Are Running Low in Windows 2000 Server**

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The information in this article applies to:

- Microsoft Windows 2000 Server SP1
  - Microsoft Windows 2000 Server SP2
  - Microsoft Windows 2000 Advanced Server SP1
  - Microsoft Windows 2000 Advanced Server SP2
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**SUMMARY**

This step-by-step article describes how to configure your Windows 2000-based server to inform you when your computer resources are running low. Windows 2000 defines the performance data it collects in terms of objects, counters, and instances. A performance object is any resource, program, or service that can be measured. You can use System Monitor and performance logs and alerts to select performance objects, counters, and instances to collect and display data about the performance of system components or installed software.

You can set an alert on a counter so that a message is sent, a program starts, or a log starts when the selected counter's value exceeds or falls below a specified setting.

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**How to Add Counters to System Monitor**

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Performance**. If you select an object on a remote computer, you may experience a short delay as System Monitor refreshes the list to reflect objects that are present on that computer.
2. Right-click the System Monitor Details pane, and then click **Add Counters**.
3. To monitor any computer on which the monitoring console is run, click **Use local computer counters**. Or, to monitor a specific computer regardless of where the monitoring console is run, click **Select counters from computer**, and then specify a computer name. Note that by default, the name of the local computer is selected.
4. Under **Performance object**, click an object to monitor. By default, the Processor object is selected.
5. Click **Add**.

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**How to Define Counters and Thresholds for an Alert**

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Performance**.
2. Double-click **Performance Logs and Alerts**, and then click **Alerts**.
3. Right-click **Alerts**, click **New Alert Settings**, type a name for the alert, and then click **OK**.
4. On the **General** tab, type a descriptive comment for the alert, and then click **Add**.
5. For each counter or group of counters that you want to add to the log, use the following steps:
  - a. To monitor counters from the computer on which the Performance Logs and Alerts service will run, click **Use local computer counters**. Or, to monitor counters from a specific computer regardless of where the service is run, click **Select counters from computer**, and then specify the name of the computer you want to monitor.
  - b. Under **Performance object**, select an object to monitor.
  - c. Under **Performance counters**, select one or more counters to monitor.
  - d. To monitor all instances of the selected counters, click **All Instances**. Note that binary logs can include instances that are not available at log startup but that subsequently become available. Or, to monitor particular instances of the selected counters, click **Select Instances From List**, and then click one or more instances to monitor.
  - e. Click **Add**.
6. In the **Alert when the value is** box, specify **Under** or **Over**, and in the **Limit** box, specify the value that triggers the alert.
7. In the **Sample data every** box, specify the amount and the unit of measure for the update interval.
8. Click the **Action** tab to determine what actions occur when an alert is triggered.
9. To record the alert in the Event Viewer logs, click to select the **Log an entry in the application event log** check box.
10. To send an alert message to a computer, click to select the **Send a network message to** check box, and then type the NETBIOS name of the computer you want to receive the alert message.
11. Click to select the **Start performance data log** check box to start a log file.
12. Click **Run this program** if you want a program to start when the alert criteria is reached. You can type the path to the program directly or click **Browse** to manually select the program you want to use.

13. Click the **Schedule** tab, and then configure the appropriate settings to start and stop logging either manually or at a scheduled time.

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### How to Choose What Data to Monitor

Start by monitoring the activity of the following components in the following order:

1. Memory
2. Processors
3. Disks
4. Network

The following list shows the minimum counters that are recommended for server monitoring. Note that when you examine specific resources, you should include other counters for the associated performance object.

- Component: Disk  
Performance aspect that is being monitored: Usage  
Counters to monitor:
  - Physical Disk\ Disk Reads/sec
  - Physical Disk\ Disk Writes/sec
  - LogicalDisk\ % Free Space

You must interpret the % Disk Time counter carefully. Because the \_Total instance of this counter may not accurately reflect utilization on multiple-disk computers, it is important to use the % Idle Time counter as well. Note that these counters cannot display a value that exceeds 100 percent.
- Component: Disk  
Performance aspect that is being monitored: Bottlenecks  
Counters to monitor: Physical Disk\ Avg. Disk Queue Length (all instances)
- Component: Memory  
Performance aspect that is being monitored: Usage  
Counters to monitor:
  - Memory\ Available Bytes
  - Memory\ Cache Bytes
- Component: Memory  
Performance aspect that is being monitored: Bottlenecks or leaks  
Counters to monitor:
  - Memory\ Pages/sec
  - Memory\ Page Reads/sec
  - Memory\ Transition Faults/sec
  - Memory\ Pool Paged Bytes
  - Memory\ Pool Nonpaged Bytes

Although the following components are not specifically Memory object counters, they can be useful for memory analysis:

- Paging File\ % Usage object (all instances)
- Cache\ Data Map Hits %
- Server\ Pool Paged Bytes
- Server\Pool Nonpaged Bytes
- Component: Network  
Performance aspect that is being monitored: Throughput  
Counters to monitor:
  - Protocol transmission counters (varies with networking protocol); for TCP/IP:
  - Network Interface\ Bytes total/sec
  - Network Interface\ Packets/sec
  - Server\ Bytes Total/sec or Server\ Bytes Transmitted/sec
  - Server\ Bytes Received/sec

You may want to monitor other objects for network and server throughput as described in monitoring network activity.

- Component: Processor  
Performance aspect that is being monitored: Usage  
Counters to monitor: Processor\ % Processor Time (all instances)
- Component: Processor  
Performance aspect that is being monitored: Bottlenecks  
Counters to monitor:
  - System\ Processor Queue Length (all instances)
  - Processor\ Interrupts/sec
  - System\Context switches/sec

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### REFERENCES

For more related information, view the topics that are listed in the "Checklist: Monitoring Performance" topic in Windows 2000 Help.

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