Performance Monitor Counters

Performance Monitor is a tool, built into Windows, for identifying hardware-related performance "bottlenecks" on workstations and servers. A bottleneck is a hardware resource that is overused to such an extent that it causes a degradation of overall system performance.

The following page lists specific performance counters which are often useful in identifying a hardware-related performance issue. Please ensure those counters are configured to run and collect data on your system(s). For best results, attempt to collect the data during a time just before, during, and just after a performance event occurs, noting the start time and duration of the event. This allows the performance issue to correlate to event viewer details and also provides context for the logged performance counter values.

Once complete, please provide the performance monitor file to the Customer Support Analyst who is assisting you with your case or attach it to the case you create on Case Central (http://casecentral.blackbaud.com).

If you already have a case number for this issue, please list it here: _____

Creating a Performance Monitor Log on Windows 2003:

1. Click Start and select Run…
2. Type *perfmon* and click OK.
3. Expand *Performance Logs and Alerts* and highlight *Counter Logs*.
4. Select *Action* > *New Log Settings* from the menu bar.
5. In the Name field, enter an appropriate log name and click OK.
6. On the General tab, click Add Counters and select the counters needed (see chart below). Also, note the path to the log file itself.
7. Click Add to add a counter. Click Close when finished.
8. Allow the log to run for at least one day or, for best results, run it during a time just before, during, and just after a performance event occurs.

Creating a Performance Monitor Log on Windows 2008 / 2008 R2:

1. Click Start and select Run…
2. Type *perfmon* and click OK.
3. Expand *Data Collector Sets* and highlight *User Defined*.
4. Select *Action* > *New* > *Data Collector Set* from the menu bar.
5. Name the Data Collector Set and select the option to *Create manually (Advanced)*. Click Next.
6. Choose the option to *Create data logs* and select *Performance counter*. Click Next.
7. Click Add… and choose to add the appropriate counters (see chart below). Click OK, then Finish.
8. Under User Defined, right-click on the newly created Data Collector Set and choose *Start*.
9. Allow the log to run for at least one day or, for best results, run it during a time just before, during, and just after a performance event occurs. To find the location of the log file, right-click on the Data Collector set, choose Properties, and select the Directory tab.

Note: For more information on Performance Monitor, please see Microsoft's TechNet article Using Performance Monitor.

Note: If you are unable to configure Performance Monitor to use the following counters, please engage the services of a qualified IT professional. Alternately, our trained technical consultants can help your resolve your performance issues, configure counters in this form, and/or ensure optimal system setup – to arrange for Blackbaud Technical Consulting services, please email solutions@blackbaud.com.

Counter values that exceed the following thresholds may indicate a performance problem.

Object	Counter	Threshold	Result/Resolution
LogicalDisk **	% Disk Time	<10%	May cause performance issues
	% Free Space	85%	
	% Idle Time		
Memory	Available bytes	<4 MB	Steals RAM from running apps. Less than 5 is a bottleneck
	Pages/Sec	>30	Need more RAM
Paging File	% Usage (2)	0.99	Increase Page File size
Server	Sessions Error Out	5	
PhysicalDisk **	% Disk Time	>70%	Above 85, upgrade the drive
	% Idle Time		
	Avg. Disk Read Queue Length		
	Avg. Disk sec/Read	11 ms -15 ms or lower	
	Avg. Disk sec/Write	12 ms or lower	
	Avg. Disk Write Queue Length		
	Current Disk Queue Length (4)	Number of spindles plus 2	
	Disk Reads/Sec		
	Disk Writes/Sec		
Processor **	% Processor Time	>85%	May need CPU upgrade
Redirector	Current Commands	Number of NICs installed plus 2	
	Network Errors/sec	5 per second	
	Reads Denied/sec	5 per second	
	Server Sessions Hung	5	
	Writes Denied/sec	5 per second	
Server	Pool Paged Peak	Amount of physical RAM	
	Sessions Error Out	5	
	Work Item Shortages	3	
Server Work Queues	Queue Length	4	
SQLServer: SQL Statistics	Batch Requests/sec		
	SQL Compilations/sec		
	SQL Recompilations/sec		
	Work Item Shortages	3	
	Pool Paged Peak	Amount of physical RAM	
System	Processor Queue Length	>2	Upgrade the processor

**** When multiple instances of these exist, use the counter option "all instances" instead of "total".**