

How to setup Performance Counters to assist with CPU / Memory related issues

INTRODUCTION

Setting up performance monitors can be helpful in diagnosing resource related problems with a server and/or client machine.

The thought process was that we are mostly thinking about Processor, Memory, Disk I/O and Networking. Sometimes we want to look at the system as a whole and other times we want to look at a particular application.

Setting the performance counters up is one thing, however, more importantly, it is learning to interpret the numbers properly and figure out what they are trying to tell us.

Setting up a performance counter:

- 1.) Go to the Control Panel
- 2.) Click on Administrative Tools
- 3.) Click on Performance
- 4.) Right click on Counter Logs.
- 5.) Select New Log Settings.
- 6.) Enter a name for the log and click OK.
- 7.) Click on Add Objects.
- 8.) Select what type of performance object you want and click Add.
- 9.) Click Close.
- 10.) Change the Log File type to "Text File (Tab Delimited)".
- 11.) Click Apply and OK.

Which Performance Counters to use:

Processor

To measure processor utilization and context switching, you can use the following counters:

	Threshold	Si
	The general figure for the threshold limit for processors is 85 percent.	Th inc Hi be pr inc Pr Q ut in
	A figure that is consistently over 75 percent indicates a bottleneck.	Th pe in

		ap fu file m fu pr
	As a general rule, context switching rates of less than 5,000 per second per processor are not worth worrying about. If context switching rates exceed 15,000 per second per processor, then there is a constraint.	Co hi lo cu pr of wh sa inc th pr do ut lev inc

Memory

To measure memory utilization and the impact of paging, you can use the following counters:

	Threshold	Si
	A consistent value of less than 20 to 25 percent of installed RAM is an indication of insufficient memory.	Th ph pr co dis on
	Sustained values of more than five indicate a large number of page faults for read requests.	Th we lar th th wi pa Hi bo re hi Di Di a qu

		by ra
	Sustained values higher than five indicate a bottleneck.	Th wh wh pa th se M pr 0. pe inc R
	Watch the value of Memory\Pool Nonpaged Bytes for an increase of 10 percent or more from its value at system startup.	If pe sta po
	Regular nonzero values indicate a bottleneck.	Th of no inc ph no fro sp ou as Th po pr su W no du pr us ac
	No specific value.	Th of pa co co pa

Disk I/O

To measure disk I/O activity, you can use the following counters:

	Threshold	Significance
	No specific value.	The time from...
Transfer	Should not be more than 18 milliseconds.	The sequence of transactions and disconnections. Disconnections may be prevented by...

Network I/O

To measure network I/O, you can use the following counters:

	Threshold	Significance
Percent	Sustained values of more than 80 percent of network bandwidth.	The workload on the network is high and may be causing performance issues.
Bytes/sec	No specific value.	The amount of data being transferred over the network is high.
Counters	No specific value.	The network is busy.

		ne ca as wi to to an th
	Value should not be more than 50 percent of network capacity.	Th of th inc bo To ec ra ne

Threading and Contention

To measure threading and contention, use the following counters:

	Threshold	Si
Contention Rate / sec	No specific value.	Th wh ac wi no co de pi co co
Current Queue Length	No specific value.	Th re cu m Yo te to le Th sy
	No specific value.	Th to th yo th

		wa ta an te inf an
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SQL Counters

	Threshold	Si
n Requests/Sec	No specific value.	Ov an bu as an it r
Compilations/Sec counter	No specific value.	Us un nu of
	No specific value.	It inf th ge
ect: Full Scans/sec	No specific value.	In (s ch wa wa th pe an

KEYWORDS

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