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Performance Monitor Processing

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Agenda

- Perfmon Overview
- What we should monitor
- Gui vs. Log Mode
- Automating the process
- Parsing and Analyzing the results
- Demo's

Perfmon / System Monitor

- It's a Windows tool not a SQL Server one
- Allows us to monitor and capture both OS and Application specific counters
- It is fairly lightweight when used properly
- Simple to set up
- Integrates with SQL Server 2005 + 2008 Profiler
- Gives us the ability to see what is going on with a wide range of counters...

What should we monitor?

- Depends on what your goal is
- SQL Server alone has almost 1200 counters
 - `sys.dm_os_performance_counters`
- Trouble shooting Best Practices
 - Choose the counters relevant to the issue
 - You might have to over do it some
- Generic monitoring Best Practices
 - Don't over do it
 - Collect just the essentials

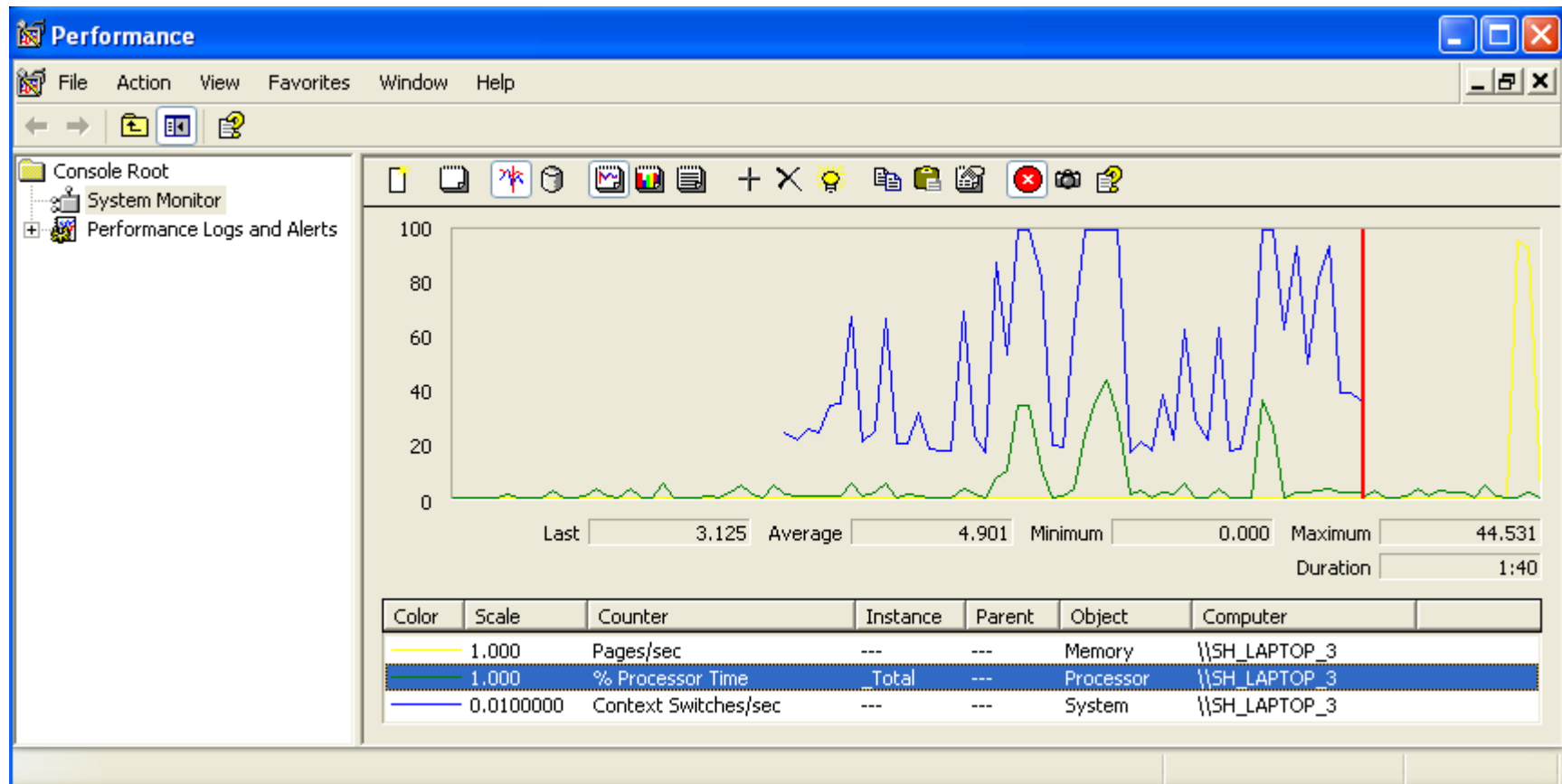
Standard Counters (SQL Server)

- Access Methods\Page Splits/sec
- Buffer Manager\Buffer cache hit ratio
- Buffer Manager\Checkpoint pages/sec
- Buffer Manager\Page life expectancy
- Databases(*)\Transactions/sec
- Databases(tempdb)\Transactions/sec ← Don't forget
- General Statistics\Logins/sec
- General Statistics\User Connections
- Locks(_Total)\Lock Requests/sec
- Locks(_Total)\Lock Waits/sec
- Memory Manager\Target Server Memory (KB)
- Memory Manager\Total Server Memory (KB)
- Memory Manager\Memory Grants Pending
- SQL Statistics\Batch Requests/sec
- SQL Statistics\SQL Compilations/sec
- SQL Statistics\SQL Re-Compilations/sec
- Wait Statistics(Cumulative wait time (ms) per second)\Lock waits
- Wait Statistics(Cumulative wait time (ms) per second)\Network IO waits

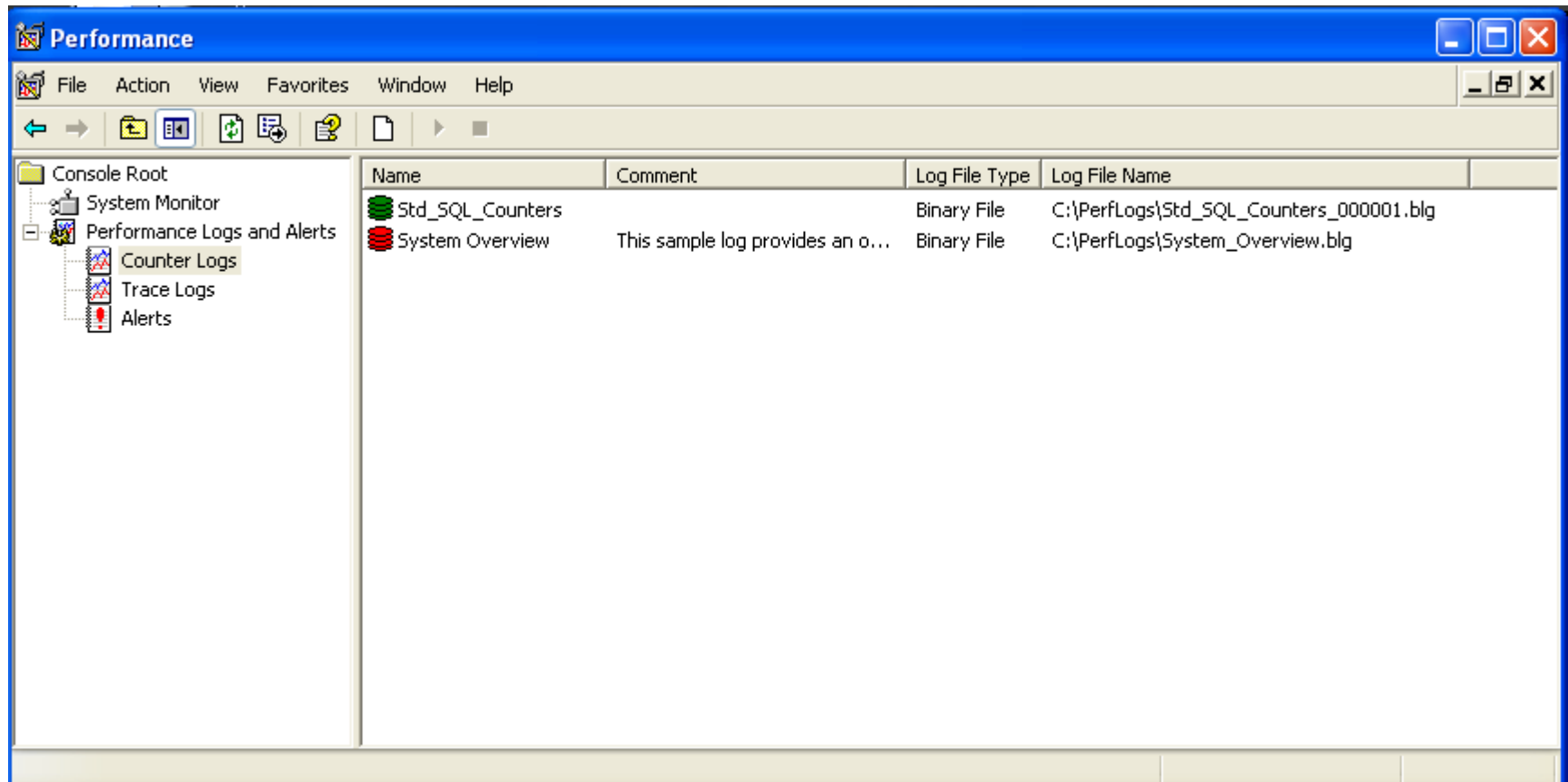
Standard Counters (OS)

- Memory\Available MBytes
- Memory\Pages/sec
- PhysicalDisk(0 C:)\Avg. Disk Queue Length
- PhysicalDisk(0 C:)\Current Disk Queue Length
- PhysicalDisk(0 D:)\Avg. Disk Queue Length
- PhysicalDisk(0 D:)\Current Disk Queue Length
- PhysicalDisk(0 XXX:)\Avg. Disk Queue Length
- PhysicalDisk(0 XXX:)\Current Disk Queue Length
- PhysicalDisk(X)\Avg. Disk sec/Read
- PhysicalDisk(X)\Avg. Disk sec/Write
- Processor(X)\% Processor Time
- System\Context Switches/sec

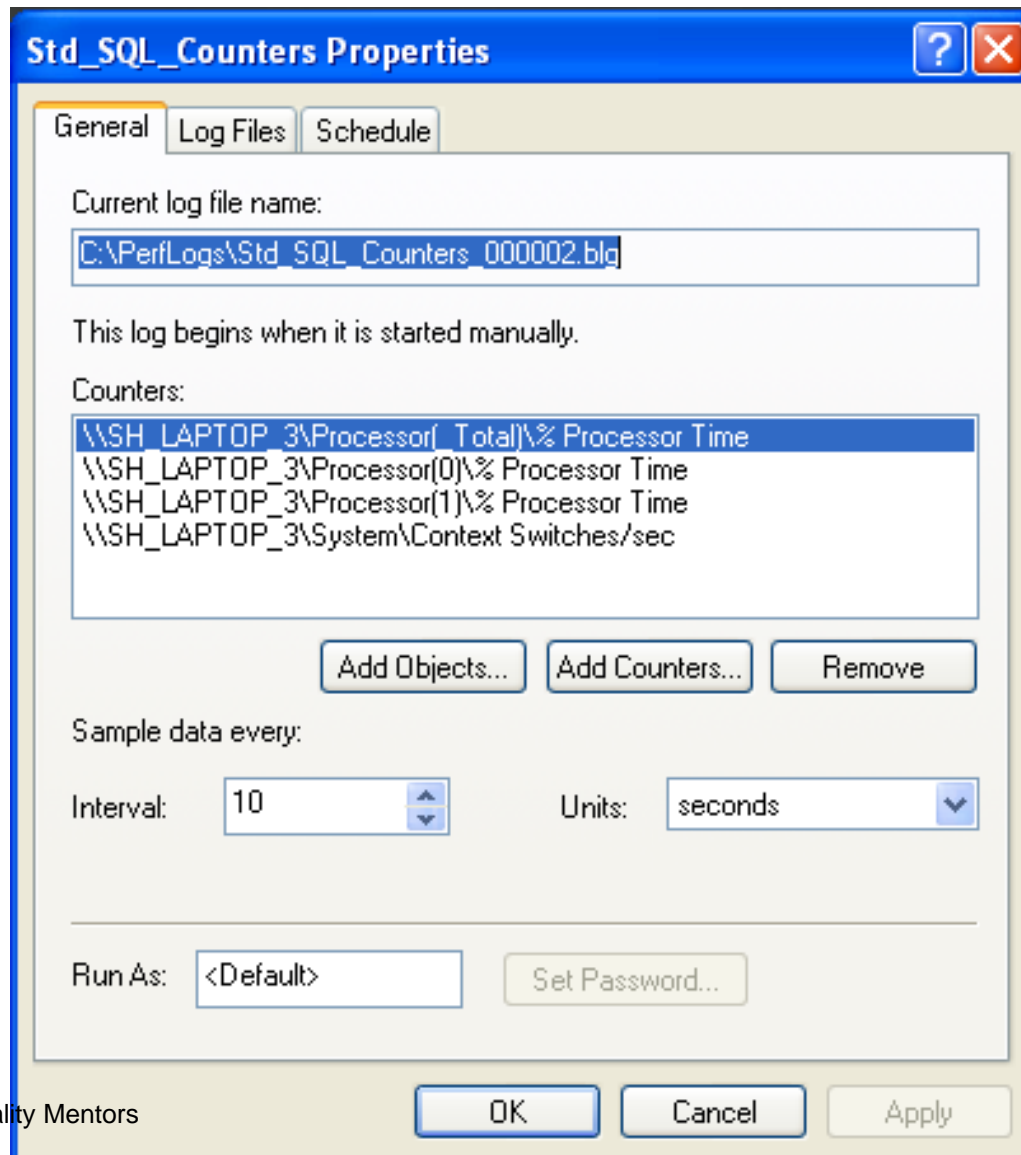
System Monitor (Real Time Mode)



System Monitor (Log Mode)



Selecting Counters



File Type & Behavior

The screenshot shows the 'Std_SQL_Counters Properties' dialog box with the 'Log Files' tab selected. The 'Log file type and name' section is expanded, showing a 'Log file type' dropdown set to 'Binary File' with a 'Configure...' button next to it. Below this, the 'End file names with:' checkbox is checked, with a dropdown set to 'nnnnnn'. The 'Start numbering at:' field is set to '2'. An 'Example:' text box shows the path 'C:\PerfLogs\Std_SQL_Counters_000002.blg'. At the bottom, there is a 'Comment:' text box and an 'Overwrite existing log file' checkbox which is unchecked. The dialog has 'OK', 'Cancel', and 'Apply' buttons at the bottom right.

Std_SQL_Counters Properties

General Log Files Schedule

Log file type and name

Log file type:

Binary File

☒ End file names with: nnnnnn

Start numbering at: 2

Example:

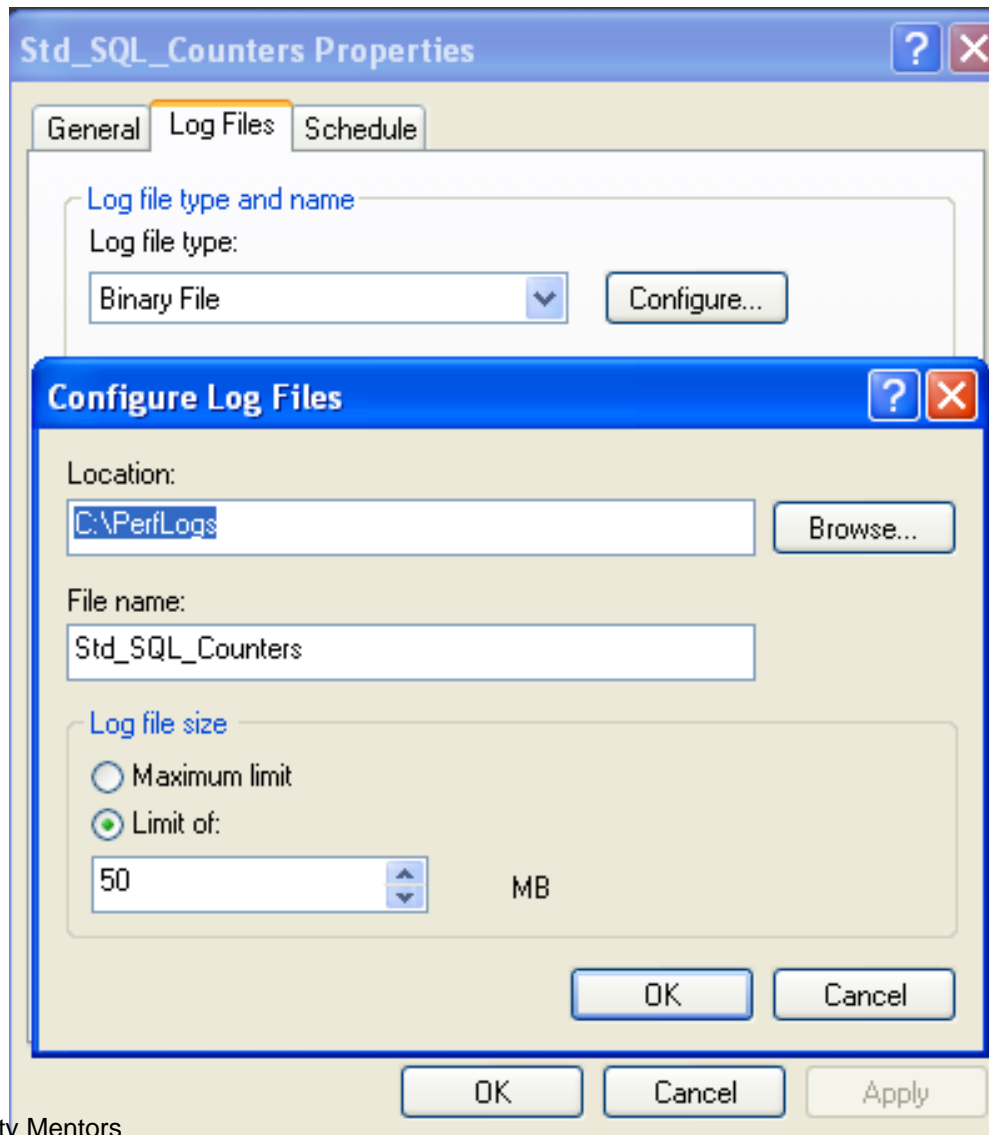
C:\PerfLogs\Std_SQL_Counters_000002.blg

Comment:

☐ Overwrite existing log file

OK Cancel Apply

File Properties



Schedule & Rollover

The screenshot shows the 'Std_SQL_Counters Properties' dialog box with the 'Schedule' tab selected. The dialog has three tabs: 'General', 'Log Files', and 'Schedule'. The 'Start log' section has two options: 'Manually (using the shortcut menu)' and 'At: 1:18:35 PM on 8/20/2006'. The 'Stop log' section has three options: 'Manually (using the shortcut menu)', 'After: 1 Units: days', and 'At: 1:18:35 PM on 8/21/2006'. The 'When the 50-MB log file is full' option is selected. Below this, there are two checkboxes: 'Start a new log file' (checked) and 'Run this command:' (unchecked). A text box and a 'Browse...' button are located below the 'Run this command:' checkbox. At the bottom of the dialog are 'OK', 'Cancel', and 'Apply' buttons.

Std_SQL_Counters Properties

General Log Files **Schedule**

Start log

☐ Manually (using the shortcut menu)

☒ At: 1:18:35 PM on 8/20/2006

Stop log

☐ Manually (using the shortcut menu)

☐ After: 1 Units: days

☐ At: 1:18:35 PM on 8/21/2006

☒ When the 50-MB log file is full.

When a log file closes:

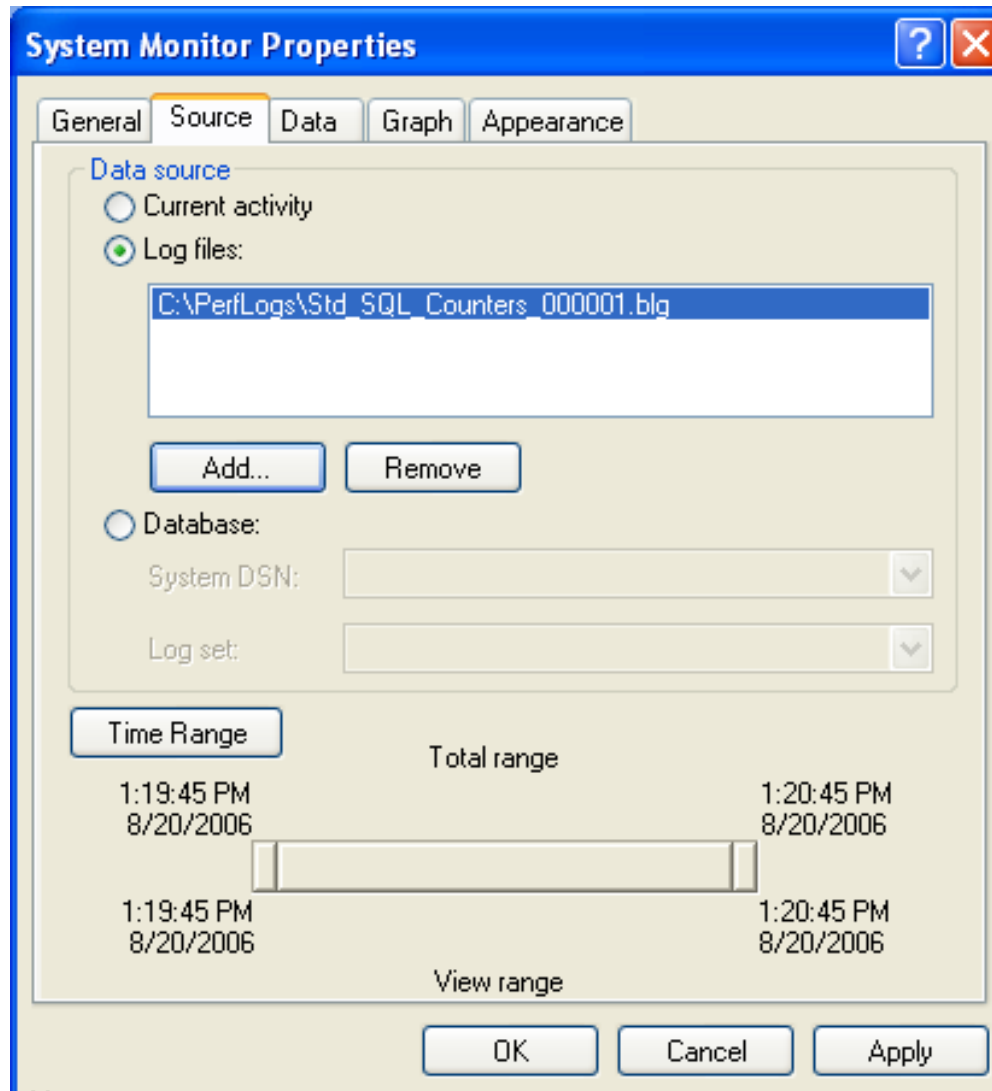
☒ Start a new log file

☐ Run this command:

Browse...

OK Cancel Apply

Load the Log File



Demonstration



Manually Creating Perfmon Logs



Logman.exe

- Creates, starts, stops & updates perfmon logs
- Examples:

```
logman create counter perf_log -c "\Processor(_Total)\% Processor Time"
```

```
logman start perf_log
```

```
logman update perf_log -si 10 -f csv -v mmddhhmm
```

Relog.exe

- Extracts data from log files and creates new ones
- Examples:

```
Relog logfile.csv -c "\Processor(_Total)\% Processor Time" -o logfile.blg  
relog logfile.blg -cf counters.txt -f blg  
relog logfile.blg -f csv -o logfile.csv -t 2  
relog logfile.blg -q -o counters.txt
```

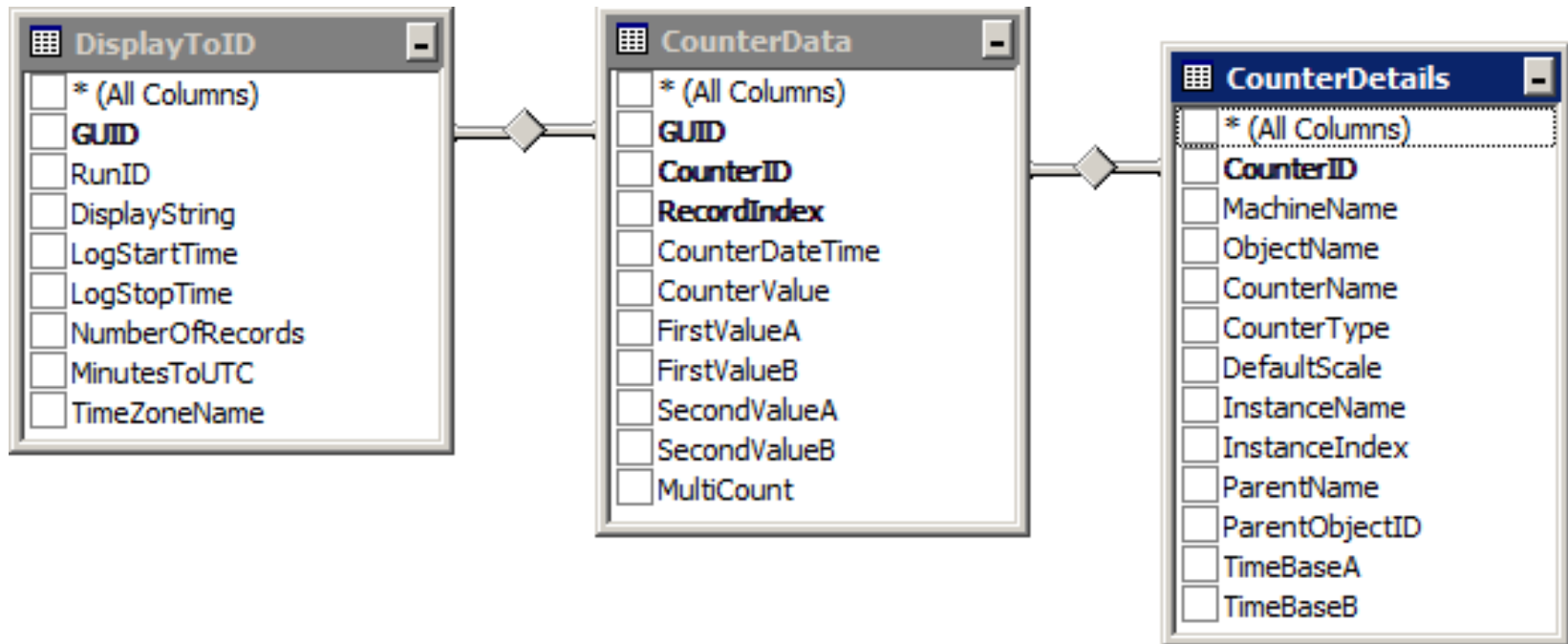

Relog.exe

- Extracts data from log files and imports the data to SQL Server
- If using 64 bit you need the 32 bit ODBC driver since Relog is a 32 bit app
- <http://msdn.microsoft.com/en-us/library/ms712362%28VS.85%29.aspx>

```
c:\windows\syswow64\odbcad32.exe
```

```
ReLog C:\PerfStuff\Traces\LogFile.blg -f SQL  
-o SQL:SQL2008OLEDB!PerfTest
```

Normalized Counter Data



Analysis of Log Data

- PAL
 - <http://pal.codeplex.com/releases/view/51623>
- Log Parser
 - <http://www.microsoft.com/downloads/details.aspx?FamilyID=890cd06b-abf8-4c25-91b2-f8d975cf8c07&DisplayLang=en>
- ReLog & Logman
 - <http://support.microsoft.com/kb/303133>
 - <http://technet2.microsoft.com/WindowsServer/en/library/96bdd30a-4323-4334-acaf-76af2b00c9f41033.mspx?mfr=true>
 - <http://technet2.microsoft.com/WindowsServer/en/library/25d92f21-ffad-45c7-824e-b8c291559ebd1033.mspx?mfr=true>

Demonstration



Automating Perfmon Collection



Questions

