Tech Note 1047 Using Process Explorer to Solve High SQL Server CPU

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Introduction

This technote describes using Microsoft Process Explorer to troubleshoot high CPU usage by SQL Server. Wonderware products such as Application Server, Historian Server, Corporate Energy Management (CEM), Information Server, etc. reside on the same machine as SQL Server, and high CPU usage can result in performance issues.

Application Versions

- SQL Server 2008 or 2012
- Windows 7, 8.0, 8.1, 2008, and 2012
- System Platform 2012R2 P01
- Wonderware System Platform 2014 and later

Note: This technote assumes that you are familiar with Microsoft SQL Server and Process Explorer. If you have any questions regarding the corresponding Microsoft products, contact Microsoft Technical Support at www.microsoft.com for further assistance.

Procedure

- 1. Use Windows Task Manager to verify if SQL Server process called **sqlservr.exe** is the one using high CPU percentage.
- 2. If sqlservr.exe is in fact using high CPU, download the free Process Explorer utility from the following Microsoft link:

http://technet.microsoft.com/en-us/sysinternals/bb896653.aspx

3. Unzip the file (ProcessExplorer.zip) to a folder, then double-click on ProcExp.exe to start it up (Figure 1 below).

29 Proc	ess Exp	lorer - Sysint	ernals: www	.sysinternals.com [BWin\Arlene] 🛛 🚽 🗖 📄	٢
File Options View Process Fi	nd Use	s Help			
🛃 🛃 🖪 🖺 🦳 🚳 🖙	× M	٠			
Process	CPU	Private Bytes	Working Set	PID Description Company Name	^
sqlservr.exe	43.10	2,170,144 K	1,875,420 K	16480 SQL Server Windows NT - 6 Microsoft Corporation	
🖳 Ssms.exe	19.67	140,568 K	183,656 K	4660 SQL Server Management St Microsoft Corporation	
System Idle Process	16.94	0 K	4 K	0	
services.exe	6.66	4,656 K	5,364 K	688	
procexp64.exe	1.78	14,572 K	30,976 K	14396 Sysintemals Process Explorer Sysintemals - www.sysinter	
Interrupts	1.77	0 K	0 K	n/a Hardware Interrupts and DPCs	
aaTrend.exe	1.42	125,860 K	150,536 K	16524 HistClientTrend Invensys Systems, Inc.	
Taskmgr.exe	1.36	20,312 K	37,444 K	7080	
🔝 aaEngine.exe	1.28	140,892 K	38,424 K	5756	
WmiPrvSE.exe	1.16	6,756 K	12,088 K	4504	
Steam.exe	0.47	46,612 K	27,072 K	8912 Steam Client Bootstrapper Valve Corporation	
aaEngine.exe	0.38	55,820 K	11,816 K	3560	
dwm.exe	0.37	40,456 K	41,576 K	4376	
svchost.exe	0.35	41,388 K	36,252 K	304 Host Process for Windows S Microsoft Corporation	
aaEngine.exe	0.30	33,940 K	14,608 K	2676	
🖃 🔝 System	0.29	84,680 K	3,728 K	4	
□ axplorer.exe	0.25	76,376 K	95,704 K	280 Windows Explorer Microsoft Corporation	
svchost.exe	0.23	42,452 K	39,664 K	1380 Host Process for Windows S Microsoft Corporation	
Csrss.exe	0.21	3,104 K	22,976 K	5168	
aahStorage.exe	0.21	27,604 K	3,484 K	8004	
. mmc.exe	0.17	35,736 K	34,868 K	15320	
aahIDASSvc.exe	0.17	15,284 K	20,324 K	4012 ArchestrA Historian IDAS Dri Invensys Systems, Inc.	
aahDrvSvc.exe	0.15	8,464 K	14,420 K	15684 ArchestrA Historian System Invensys Systems, Inc.	
. mmc.exe	0.15	122,520 K	146,644 K	14584	
Chrome.exe	0.12	75,916 K	50,368 K	7836 Google Chrome Google Inc.	
aahCfgSvc.exe	0.08	19,820 K	11,532 K	5464 ArchestrA Historian Configur Invensys Systems, Inc.	
🗆 💽 chrome.exe	0.07	116,640 K	150,884 K	5188 Google Chrome Google Inc.	
aahlOSvrSvc.exe	0.06	7,320 K	14,628 K	16620 ArchestrA Historian I/O Serv Invensys Systems, Inc.	
aaCALWrapper.exe	0.06	3,368 K	1,892 K	15952	
Channel Canada and	0.05	C 224 K	1 704 1/	10540 Chart Canica Makes Company	*
CPU Usage: 83.06% Commit Charge	e: 79.64%	Processes: 129	Physical Usa	ge: 56.94%	

FIGURE 1: PROCESS EXPLORER UTILITY

- 4. Right-click on the sqlserver.exe process and click Properties.
- 5. In the sqlservr.exe **Properties** window, click **Threads**, then click the **CPU** column name to sort from high to low values.

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]	S	qlservr.exe	:16480 P	roperties			
Image	Perfe	Performance		ance Graph	GPU Graph		
Services	Threads	S TCP/IP	Security Environm		ent Strings		
Count: 9	95						
TID	ČPU	CSwitch D	Service	Start Address	^		
8792	41.85	2764		RtIUserThread	Start		
8808	0.78	399		!RtIUserThreadStart			
10404	< 0.01	177		!RtIUserThreadStart			
6212	< 0.01	56		!RtlUserThreadStart			
11636	< 0.01	54		!RtlUserThreadStart			
836	< 0.01	37		!RtIUserThreadStart			
5292	< 0.01	30		!RtIUserThreadStart			
15440	< 0.01	23		!RtIUserThreadStart			
8732	< 0.01	22		!RtlUserThread!	Start		
15048	< 0.01	21		!RtIUserThreadStart			
6224	< 0.01	15		!RtlUserThread!	Start 🗸		
<					>		
Thread ID	:	10788		Stack	Module		
Start Time	:	10:14:41 PM	6/6/2014				
State: W		Wait:UserRequest		ase Priority:	8		
Kernel Time: 0:00:00		0:00:00.093	D	ynamic Priority:	9		
User Time:	:	0:00:00.109	I/	O Priority:	n/a		
Context S	witches:	51,155	м	lemory Priority:	n/a		
Cydes:		n/a	Ic	deal Processor:	0		
		Perr	missions	Kill	Suspend		
				OK	Cancel		

FIGURE 2: THREADS TAB WITH CPU VALUES

- 6. Note the ID number of TID (Thread ID) that is consuming a high CPU percentage. In this example, the TID is 8792.
- 7. Start SQL Server Management Studio to query for the SQL Server Process ID (SPID.) Execute the following T-SQL query:

USE MASTER GO Select SPID from sysprocesses where kpid=8792 GO Using Process Explorer to Solve High SQL Server CPU



FIGURE 3: SQL SERVER PROCESS ID VALUE

8. Get the SPID details by executing the following query:

DBCC INPUTBUFFER (SPID)

Where SPID in this case is 81

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FIGURE 4: SPID DETAILS

The information under the **EventInfo** column shows the query causing issue with the high SQL server CPU.

- 9. Copy and paste it to the query area to find out why the query uses that much CPU.
- 10. If it is applicable and not causing any problem, you can execute the query below to end the SPID 81

KILL 81

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