



SQL Server 2005/2008



SMILING AND PROFILING

A POTPOURRI OF PROFILER UTILITY



What We Will Cover


- What is Profiler
- Typical uses:
 - Developer
 - DBA
- Simple application debugging
 - Capture submitted parameters
 - View executed queries
- ORM/Code Generators
 - Lazy? Or not...
 - Nhibernate, Subsonic, Linq
- Execution plans
- Performance Monitoring

What is Profiler

- It is the GUI for the server Trace utility: Database Engine, Analysis Services, Integration Services
- Capture and save data about each (selected) event for analysis
- Can use Profiler to generate scripts to start Traces manually or with SQL Agent
- Save to .trc, XML, database
- Replay traces (same server/instance or different)
- Use the traces as input to Database Engine Tuning Advisor



Events

- TSQL statements (SELECT, INSERT, UPDATE, DELETE, etc.)
 - login/out
 - Start/complete execute of SP's
 - opened cursors
 - lock acquired/released on a db object
 - Start/complete of a SQL batch
 - Many others...
- 

Typical uses - DBA

- Performance optimization/tuning
 - Long running queries
 - Most used queries
 - Resource utilization
 - Before/after tuning comparisons
- Baselining/Benchmarking
- Locating cause of locks/blocks
- Root cause of slowdowns (by application, user, query, etc.)

Deadlock graph

SQL Server Profiler

File Edit View Replay Tools Window Help

Untitled - 1 (KESTREL\SQLSERVER2005)

EventClass	TextData	ApplicationName	SPID	DatabaseName	NTUserName	LoginName	CPU	Reads	Writes	Duration	ClientProcessID	StartTime
SQL:BatchCompleted	USE TEMPDB CREATE TABLE dbo.foo...	Microsoft SQ...	52	tempdb	dean	kestre...	0	135	0	191		2844 2009-05-
SQL:BatchStarting	USE TEMPDB	Microsoft SQ...	55	master	dean	kestre...						2844 2009-05-
SQL:BatchCompleted	USE TEMPDB	Microsoft SQ...	55	tempdb	dean	kestre...	0	0	0	14		2844 2009-05-
SQL:BatchStarting	-- 3) Run in second connection BEG...	Microsoft SQ...	55	tempdb	dean	kestre...						2844 2009-05-
Audit Logout		Report Server	51	ReportServer	sa	sa	0	53	1	10140		2692 2009-05-
RPC:Completed	exec sp_reset_connection	Report Server	51	ReportServer	sa	sa	0	0	0	0		2692 2009-05-
Audit Login	-- network protocol: LPC set quote...	Report Server	51	ReportServer	sa	sa						2692 2009-05-
SQL:BatchStarting	...	Report Server	51	ReportServer	sa	sa						2692 2009-05-
SQL:BatchCompleted	...	Report Server	51	ReportServer	sa	sa	0	0	0	0		2692 2009-05-
SQL:BatchStarting	...	Report Server	51	ReportServer	sa	sa						2692 2009-05-
SQL:BatchCompleted	...	Report Server	51	ReportServer	sa	sa	0	0	0	0		2692 2009-05-
SQL:BatchStarting	UPDATE tempdb.dbo.bar SET col1 = 1	Microsoft SQ...	52	tempdb	dean	kestre...						2844 2009-05-
Lock:Deadlock Chain	Deadlock Chain SPID = 55 1:158:0 ...		4	tempdb								2009-05-
Lock:Deadlock Chain	Deadlock Chain SPID = 52 1:168:0 ...		4	tempdb								2009-05-
Lock:Deadlock	11168:0	Microsoft SQ...	52	tempdb	dean	kestre...				4805		2844 2009-05-
SQL:BatchCompleted	UPDATE tempdb.dbo.bar SET col1 = 1	Microsoft SQ...	52	tempdb	dean	kestre...	0	3	0	5271		2844 2009-05-
SQL:BatchCompleted	-- 3) Run in second connection BEG...	Microsoft SQ...	55	tempdb	dean	kestre...	16	10	0	11114		2844 2009-05-
Deadlock graph	<deadlock-list> <deadlock victim>...		16			sa						2009-05-
Audit Logout		Report Server	51	ReportServer	sa	sa	0	53	1	10140		2692 2009-05-
RPC:Completed	exec sp_reset_connection	Report Server	51	ReportServer	sa	sa	0	0	0	0		2692 2009-05-
Audit Login	-- network protocol: LPC set quote...	Report Server	51	ReportServer	sa	sa						2692 2009-05-
SQL:BatchStarting		Report Server	51	ReportServer	sa	sa						2692 2009-05-


```


graph TD
    P52((Server process Id: 52  
Server batch Id: 0  
Execution context Id: 0  
Deadlock priority: 0  
Log Used: 116  
Owner Id: 21248  
Transaction descriptor: 0x5b018d0))
    P55((Server process Id: 55  
Server batch Id: 0  
Execution context Id: 0  
Deadlock priority: 0  
Log Used: 116  
Owner Id: 21253  
Transaction descriptor: 0x66a2250))
    
    L168[RID Lock  
DB ID: 2  
File ID: 1  
Page ID 168  
associated objid: 72057594039238656]
    L158[RID Lock  
DB ID: 2  
File ID: 1  
Page ID 158  
associated objid: 72057594039173120]
    
    P52 -- "Request Mode: U" --> L158
    P55 -- "Request Mode: U" --> L168
    L168 -- "Owner Mode: X" --> P55
    L158 -- "Owner Mode: X" --> P52
  
```

Trace is stopped. Ln 168, Col 2 Rows: 195

Connections: 0



Deadlock events

- Deadlock graph
 - Lock: Deadlock
 - Lock: Deadlock Chain
 - RPC:Completed
 - SP:StmtCompleted
 - SQL:BatchCompleted
 - SQL:BatchStarting
- 

Typical uses? - Developer

- Finding Caching opportunities
- Debugging Data access layer issues
- Approximate performance measurement
- Benchmarking query performance before/after query or index changes
- Finding redundant/unnecessary hits to the database (Handles Mybase.Load, Me.Load).

Application debugging

- Replicate query w/ params in Query Analyzer
- Difficult to debug AJAX applications
- Reporting Services queries
- Sharepoint Services
- *Linq* queries
- *Nhibernate, Subsonic, Entity Framework* calls
- Access front-end/MSSQL backend
- Linked servers



Nhibernate Lazy-loading Demo

- DEMO
- 

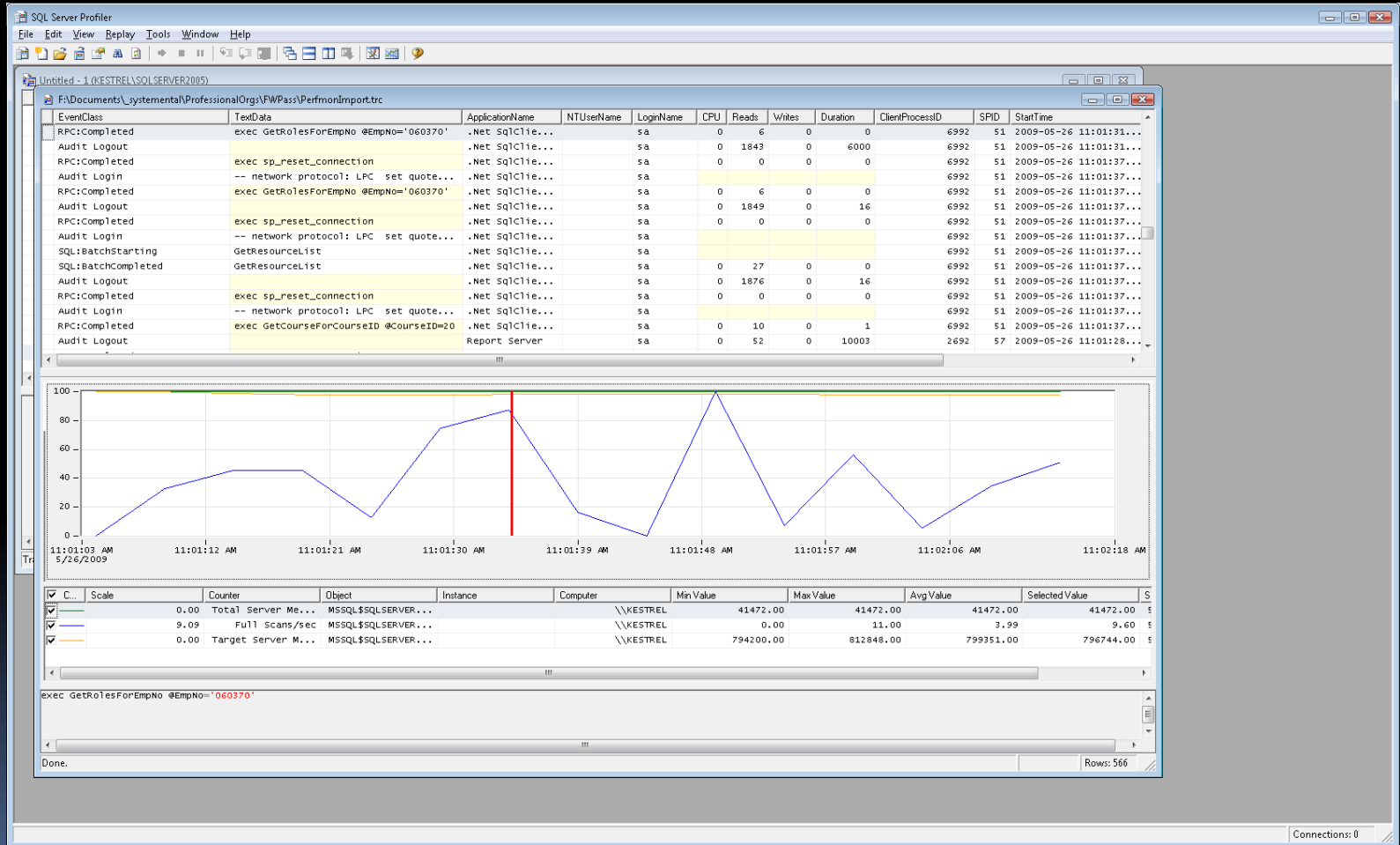
A vertical bar on the left side of the slide, consisting of several colored segments: a white top section, a black section, a yellow section, a red section, and a blue bottom section.

SP Parameter sniffing demo



Execution plan demo

Correlation to Perfmon





Database debugging

- Multi-query Transactions
- 

References

<http://geertverhoeven.blogspot.com/2007/01/combining-sql-server-profiler-and.html>

<http://www.simple-talk.com/sql/learn-sql-server/how-to-track-down-deadlocks-using-sql-server-2005-profiler/>

http://sqlserverpedia.com/wiki/Profiler_Trace_Templates

<http://wardyit.com/blog/blog/archive/2005/12/12/65.aspx>

How to become a Profiler Master – [Brad McGehee](#) Red-gate software. Download from IndyTechFest.org 2008 session

Thank you!

- Websites
 - <http://www.Systemental.com>
- Blog
 - <http://dean-o.blogspot.com/>
- Email
 - dean@systemental.com



About Me

- Dean Willson
- Work for Systemental, Inc as a Consultant and Software Developer (not a DBA)
- President, Professional Association for SQL Server - Fort Wayne Chapter fwpass.org
- Six Sigma Black Belt, Certified
- Software development to support business process improvement since 1999
- Mfg. Eng. Technology degrees from Ball State University