(May 5th, 2011)

If you know someone who you think would benefit from being an Insider, feel free to forward this PDF to them so they can sign up here.

Quick tips for our Insider friends!

Hey Insiders!

This bi-weekly Quick Tips is coming to you from our current Immersion Event in Chicago – Kimberly's teaching today so I'm sitting at the back catching up with a few things and occasionally heckling ☺

We arrived a day early and headed out to the Illinois Railway Museum about an hour west of Chicago. What a fabulous museum! They've got a huge collection of rolling stock, electric, diesel, and steam locomotives in varying states of repair. I've loved trains since I was a kid and used to take the train 22 miles each way into Glasgow while at high school, so this was a real treat for me. I'll post some photos and I recommend going if you get the chance.

If you're on twitter you'll have noticed that the last couple of weeks I've been doing a 10-question Q&A game about SQL Server trivia. I've really enjoyed it so I'm going to make it a weekly event on Wednesdays at noon Pacific Time. Follow me on twitter to join in (and to see all the other stuff I tweet about – lots!).

I have a soft spot for India (been there twice) and novels about India. The most recent book I finished is by Jhumpa Lahiri called ***Unaccustomed Earth***, short stories about expatriate Bengalis, their children, and their relationship with India. Well worth checking out.

Please let us know if you liked what you read/saw here and/or have any suggestions for future Quick Tips.

Paul's Ponderings

Yesterday I saw someone say (paraphrasing) "I don't really trust SQL Server to manage the log properly in the SIMPLE recovery model" and describing how he sometimes manages the transaction log using regular "BACKUP LOG dbname TO DISK = 'nul'" instead.

Wow.

As you can imagine, a protracted discussion ensued. Now - there was a bug in SQL Server 2000 SP4 that could prevent a checkpoint from clearing the log in the SIMPLE recovery model (see KB 909369), but there's nothing in SQL Server 2005 onwards (that I know of) that would cause the log to fill up in the SIMPLE recovery model because of a bug in the log management system.

As with any problem to do with SQL Server, addressing the symptom rather than the cause is always the wrong approach. Just like when I discussed 'knee-jerk performance tuning' back in March, my name for this is 'head-in-the-sand log management', and it's the wrong approach.

(And btw, ostriches don't stick their heads in the sand. When threatened on the nest, a female ostrich will lay her neck and head on the ground to blend into the environment, so head-in-the-sand is a myth.)

If the log is growing out of control you need to figure out why, not just repeatedly get rid of the space using something like DBCC SHRINKFILE (2) – which is a horrible thing to do repeatedly because the log will just have to grow again, making your workload pause while the newly grown portion of the log is zero initialized (because the log cannot use instant file initialization).

There's always *something* that's causing the log to grow, and you shouldn't ignore it, otherwise you could end up running out of log space entirely. If the log can't clear then you can ask SQL Server why by querying the log_reuse_wait_desc field of sys.databases and it will tell you. Of course, the #1 cause of logs growing out of control is someone putting a database into the FULL recovery model, taking a database backup, and then not taking log backups.

If you get into a database and discover the log is huge, but nothing's preventing the log from clearing *now*, it's hard to figure out what happened without analyzing the log. But don't just address the symptom! Instead, put in some monitoring to figure out what's going on in future.

Use an alert on the Databases\Log Growths perfmon counter increasing (or some code that monitors that counter through sys.dm_os_performance_counters) and when the counter increments, capture details of what is using log space in the database at that time, using code similar to that in this blog post. Then you can analyze what's running when each growth occurs and look for patterns, and then take action. Badly written code, poor transaction management, enormous batches – I see all of these over and over.

One thing to be aware of is that online index operations changed from 2005 to 2008 and now they are fully logged in all recovery models – see KB 2407439.

So the call to action this time: don't stick your head in the sand when the log grows, figure out why and address the cause of the problem.

I'm really interested to know your views on transaction log management—feel free to drop me a line, confidentially as always.

Video Demo

Continuing with the transaction log theme, one of the myths-and-misconceptions that can lead to unexpected transaction log growth is the use of nested transactions. But they don't really exist, even though the T-SQL syntax leads us to believe they do. Use of nested transactions, especially through nested stored-proc calls, can lead to all kinds of problems so I thought I'd do a demo for

you. The short video (11 minutes) proves they don't do what you think by looking in the transaction log and shows you how to use save points to roll back a portion of a transaction..

I produced the video in WMV and MOV formats so everyone can watch. You can get the videos:

- For WMV: here
- For MOV: here

I recommend downloading before watching. And you can get the demo code here.

SQLskills Offerings

Our four Immersion Events in Bellevue, Washington in August are filling up and a few hardy souls are even taking all four classes in a row – wow! See here for more details.

We have a new combined SQL Server and failover clustering health check available – give us 8 hours and we'll show you what's going wrong with your system, without needing access to your system. Fast, efficient and serious ROI. Let me know if you're interested – special rates for Insiders.

Summary

I hope you've enjoyed this issue - I really enjoy putting these together.

If there is anything else you're interested in, we'd love to hear from you - drop us a line.

Thanks - Paul and Kimberly