

(June 26th, 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 London, our 10th hotel in 8 countries in 23 days, where we've just finished our first Immersion Event in the UK for quite a while. 36 attendees had a lot of fun with us and drank from the proverbial fire-hose for a week – now they've gone home for a rest. We're heading home finally tomorrow for 10 weeks to enjoy the Seattle summer – has to be a record!

In between the conference we did in Germany a couple of weeks ago and arriving in London, we took a vacation and toured around five countries in north-western Europe by car. It was very relaxing and we managed to immerse ourselves in some excellent historical settings. Probably my favorite place to visit was the [Chateau de Bouillon](#) in Belgium. It belonged to [Godfrey of Bouillon](#) who sold it in 1095 to finance his part as a leader of the First Crusade, of which I've read a huge amount.

The most recent book I've read that I want to tell you about is Arturo Perez-Reverte's *The Club Dumas*. It's a story set amongst antiquarian booksellers and is about a book mercenary, Corso, who finds and investigates rare books, and is the basis for the movie The Ninth Gate (one of my favorites). In the story Corso investigates the satanic volume The Nine Doors of the Kingdom of Shadows and delves deeply into the world of Alexander Dumas while traveling around Europe. It's a fabulous book and I highly recommend it to all bibliophiles.

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

Paul's Ponderings

I was going to write a rant about the increasing lack of civility I'm seeing but I want to keep it technical this time, so I blogged about civility instead – see [here](#) please. Thanks. ☺

Instead in this newsletter I'd like to discuss the removal of log records from the transaction log.

It doesn't happen. Thanks – see you next time!

Seriously, many people are under the impression that log records are removed from the log under some circumstances, and it came up this week during the Immersion Event. Here I'll discuss three of these circumstances.

Firstly, are log records removed when the log clears? No.

Log clearing is a horrible misnomer because nothing gets cleared. Log records don't get removed or overwritten with zeros. All that log clearing does is mark zero or more VLFs (virtual log files) as inactive and able to be reused. Log truncation is the other term for this process and it's also a horrible misnomer because the log doesn't get smaller—only the active portion of it *potentially* does.

Secondly, are log records removed when a transaction rollback occurs? No.

Log records describe individual changes made to a database. To undo the effects of a transaction, all the changes made to the database must be compensated for by reversing the changes—essentially taking the log records in reverse order and performing the anti-operation for each. Each anti-operation is *another* change to the database and so must be described by a log record. (Such log records are called *compensation* log records.) So rolling back a transaction actually generates *more* log records.

Thirdly, are log records removed when a crash occurs and a transaction was not committed? No.

This is the one that really confuses people. If a transaction is started and then, say, a couple of inserts performed and then the system is shutdown forcibly, there may be nothing in the transaction log for that transaction *at all* after the system restarts. Surely this is removal of log records from the log? No.

What happened was that the log records were not flushed to disk because the log block (a sub-structure of a virtual log file) holding the log records for that transaction was not *ended*, either by hitting its maximum size of 60KB or because a transaction committed. So after the crash it's as if those log records never existed – which is fine, because the transaction didn't commit, and none of the data file pages changed by the transaction were flushed to disk. If they had been, those log records *must* have been forcibly flushed to disk first.

You can see why this is confusing, but once you know more about how the log works, it makes sense.

Call to action this time: the transaction log and how logging and recovery work are some of the most misunderstood portions of the SQL Server operations, but some of the most important to understand, for any data professional working with SQL Server. If you're not familiar with them, go read the article I wrote for TechNet Magazine back in February 2009: [Understanding Logging and Recovery in SQL Server](#).

I'm really interested to know your views or questions on logging and recovery—feel free to [drop me a line](#), confidentially as always.

Video Demo

I've discussed wait statistics quite a bit on my blog and several times here in the newsletter. I've got a blog post I'm going to do in a few weeks about how to track the waits that occur for a

single statement using extended events. I thought it would make a good topic for the demo video this time around so I've recorded (7 mins) it for you to watch.

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 (IE2 is sold-out) and a few hardy souls are even taking all four classes in a row – wow! See [here](#) for more details.

We're going to be opening two more classes for registration next week – Performance Tuning (IE2) in Chicago from October 24-28, and Internals and Performance (IE1) in Atlanta from December 5-9. Links and details will be in the next newsletter.

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. We're fast, efficient, and provide serious ROI on your consulting investment. [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