(June 18th, 2019)

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

Note: As an Insider, you can read all prior Insider newsletters here.

Quick Tips for our Insider friends!

Hey Insiders,

This newsletter is coming to you from Redmond, where we're just back from a hugely successful SQLintersection conference and about to head off on a summer dive trip (@SQLPoolBoy, @tradney, @sqldiver, and @sqlgreen will all be diving too). It's a SQLsubmersion event! ☺

Note: the next newsletter will be in four weeks, on July 16th.

SQLskills News

Live, IN-PERSON classes: we have two more in-person classes this year, in Chicago in October:

- IEPTO1: Performance Tuning and Optimization – October 7-11
- IEAzure: Azure SQL Database, Azure VMs, Azure Managed Instance – October 7-10

These will be our only, in-person Immersion Events running this Fall and you can get all the details and registration information through the class schedule page here.

Live, ONLINE classes: we're planning to announce our Fall line-up of online courses in July.

Finally, even if you can't join us in person, I've put out a call for **2019 remote user group sessions** and we've got 43 scheduled this year already! If you'd like one of us to present for your user group, check out my blog post here.

Book Review

The most recent book I've read is the *Haynes U-Boat Owners' Workshop Manual*. Haynes is a British publishing house that started out in the 1960s creating in-depth manuals for do-it-yourself car maintenance and repairs for cars available in the U.K. (I used to use them in the 1990s and my Dad has always used them extensively for work on his cars) and has since branched out around the world. They also produce 'manuals' for things like spacecraft, Star Wars/Star Trek ships, and other interesting technical items, such as this one. I have a bunch of their non-car manuals and this is the fourth one I've read. I've been heavily interested in submarines since I was a child, as my Dad used to be in the Royal Navy submarine service, rising to be Chief of the

[Boat](#) on HMS Resolution, a Polaris-carrying nuclear submarine. The book covers the history of WWII U-boat development, technical information about their construction and operation, and their use during WWII. Fascinating book, full of photos and diagrams, and highly recommended!

The Curious Case of…

This section of the newsletter explains recent problems we've helped with on client systems; they might be something you're experiencing too.

What code can you use to figure out which database page a particular record/row is on?

Read about the answer in my blog post [here](#).

Ponderings…

(This time from Erin… Enjoy!)

Several of our customers have third-party monitoring tools for SQL Server, and they can definitely make problem identification and troubleshooting *much* easier. However, not every tool captures data *about* SQL Server in the same way. This means that when I'm looking at information in a monitoring tool, I don't *always* know the source of the information that's being presented.

For example, every tool shows memory use in some way or another, and at a minimum you can see used memory. Some tools break it down further to show what specific memory clerks are using memory and how much. But if it's just a general "memory in use" value, how do I know if that value is from the DMVs, or PerfMon? And what if it's a virtual machine?

Wait statistics are another example – when you look at wait information in a monitoring tool you see the waits listed as CPU, IO, Memory, CXPACKET, Other, and so on. This is done for display purposes, as there are over 900 different wait types in SQL Server. Most tools group "like" waits and display the information together, as it's a good way to quickly view and consume the information (Product Support does this as well, and waits are also grouped into categories in Query Store).

But when you see Other as the highest wait type, or you want to dig into Memory waits further, what do you do?

To be clear: I'm not picking on the tools or the vendors. My point is that third-party tools can make your life better, but you still need to know how SQL Server works under the covers. I regularly get emails from clients asking me what third-party monitoring tool we recommend for SQL Server. I tell them all the same thing: Every tool has a trial option; you should try them all *(not at the same time!)* and determine which one best fits your needs. I also state that we have a

partnership with SentryOne, to be transparent, and they have a monitoring tool, but every tool is different, so try them out. **Regardless of which tool you use, they are never a replacement for understanding what's happening behind the scenes.**

If a tool suggests that there is memory pressure, then I open up a query window and start looking at *sys.dm_os_memory_clerks*, and I open up PerfMon and grab some memory counters to see what's going on. It's great to know that IO waits are occurring, but then I want to know more…so I'll use Paul's [script to snapshot wait stats](#) and run Adam Machanic's *[sp_whoisactive](#)* to see what queries are running right now to see what type of waits they have. Can I find a pattern in the IO waits, or are they occurring across the board? I'll look at virtual file stats as well – do I see latency for specific files, databases, or drives? Tools can help us find where we're having a problem and sometimes even suggest solutions. They can definitely be a tremendous help but it's critical to do root cause analysis and further confirmation before making big changes!

Call to action: Third-party monitoring tools collect a plethora of data, provide direction to get you researching the issue, and sometimes have the answer. But in the case when you need to dig deeper, a fundamental understanding of troubleshooting performance goes a long way. Keep a cheat sheet (an admin guide) of what to do / where to look, when you have certain types of problems. And, it's always best to keep a small running "log" of what you've done (or what's been done by others) to your server. You should also know how to look to see if someone else has done something (e.g. in the default trace)!

Glenn's Tech Insights

Recent news and views from the hardware and Windows worlds that we think will be interesting to SQL Server community members.

In Glenn's regular roundup of tech news this time he talks about the following:

- Announcements from AMD at the E3 conference

Check it all out on his blog [here](#).

#TBT

(Turn Back Time…) Blog posts we've published since the previous newsletter plus some older resources we've referred to recently that you may find useful.

The transaction log is the theme for #TBT this time. Here are some transaction log resources for you:

- My 8-hour Pluralsight courses: *SQL Server: Logging, Recovery, and the Transaction Log*
- My *transaction log blog category*
- My *sqlperformance.com blog posts* on transaction log configuration and performance troubleshooting
- Kimberly's post on *VLF sizing*
- My TechNet Magazine article on *Understanding Logging and Recovery in SQL Server* (the formatting is messed up a bit on that web page)
- The *WRITELOG* page from my waits library

Here are the blog posts we've published since the last newsletter:

- Glenn: *How to Uninstall Microsoft SQL Server 2017 Reporting Services*

I hope you find these useful and interesting!

Video Demo

In this Insider video, Tim shows you a new preview pricing tier for singleton Azure SQL Databases. This new option will allow customers to set a minimum and maximum number of vCores for their database to be able to auto scale up and down depending on their workload. This has the capability of saving customers money and allowing them to dynamically scale up when customers need it the most. Until now, customers had to get creative with scaling; now they can do it in preview with a few mouse clicks, and Tim shows you where to configure it.

The video is about 6.5 minutes long and you can get it here.

Enjoy!

Upcoming SQLskills Events

Our set of 2019 live, in-person classes for Chicago in October are filling up fast and we're close to announcing our Fall line, online events too.

You have multiple learning opportunities as every event has a different focus as well as different benefits – from deep-technical training in our Immersion Events to wide-ranging topics at SQLintersection where you can learn more effectively how to keep moving forward in both your environment and your career! And, of course, one benefit you'll always get from in-person events is networking; we hope to meet/see you at an event soon!

To help your boss understand the importance of focused, technical training, we've also added a few items to help you justify spending your training dollars with us:

- Letter to your boss explaining why SQLskills training is worthwhile

- [So why do you want to come to our training? And the winners are…](#)
- [Community blog posts about our classes](#)
- [Immersion Event FAQ](#)

LIVE, IN-PERSON Immersion Events:

Chicago, IL, October 2019

- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - October 7-11
- **IEAzure**: Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance
  - October 7-10

LIVE, ONLINE Immersion Events:

- The Fall class lineup will be announced at the start of the summer.

Click [here](#) for the main Immersion Event Calendar page that allows you to drill through to each class for more details and registration links.

Summary

We hope you've enjoyed this issue - we 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

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