

(December 17th, 2018)

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,

As we're winding down for the year, we'd like to wish you all a very happy holiday season, whatever and however much you celebrate it!

All of our 2019 in-person classes have discounts (ranging from \$100-200) for [registering in 2018](#) – you've got two weeks left to save money; do you have budget to **[use](#) or [lose](#)**? See below for details!

We also have a **[new two-day class on Power BI, Power BI Report Server, and SSRS, with a registration discount available until 1/15/19](#)** – see [here](#) for details!

Note: the next newsletter will be on the 14th or 15th of January.

SQLskills News

Live, ONLINE classes: we've announced six online classes running in the first quarter of 2019! It's the perfect way to keep learning, keep your systems moving forward, and stay motivated! And our format is receiving rave reviews: each class is held over three, *slightly-longer-than-half* days with a combination of lecture/demo and open Q&A. It's where you can really get your questions answered! Our online course line-up is as follows and now includes a **[new class on columnstore indexes](#)** taught by Jonathan:

- **IEQS:** Solving Common Performance Problems with Query Store
 - January 15-17
- **IEPUM2017:** Planning and Implementing an Upgrade/Migration to SQL Server 2017
 - January 29-31
- **IEQUERY:** Fixing Slow Queries, Inefficient Code, and Caching/Statistics Problems
 - February 12-14
- **IETLB:** Transactions, Locking, Blocking, Isolation, and Versioning
 - February 26-28
- **IEVLT:** Very Large Tables: Optimizing Performance and Availability through Partitioning
 - March 12-14

- **IECS: Columnstore Indexes**
 - March 26-28 **** NEW ****

These classes will be delivered live from 10am-3pm PST, Tuesday-Thursday for three consecutive days. In total you'll receive roughly 12-13 hours of content including open Q&As, which is similar to two, full, workshop days without leaving the comfort of your home/office! And by dedicating only 3 half-days of your time you still have time to be productive to your company by getting regular work done. Finally, you'll also receive **lifetime** access to the recordings – for reviews and refreshers, you get amazing ROI!

The classes are priced at US\$699 each (US\$599 for past attendees) and we're offering a combo package of any three for US\$1,749 or all six for US\$3,249. You can find all the logistical, registration, and curriculum details by drilling down from the class schedule page [here](#).

Last, but not least – we've announced our LIVE, IN-PERSON classes: we're back in Chicago in April/May 2019 and our classes are open for registration, including a **new class on Power BI** taught by Tim:

- IEPTO1: Performance Tuning and Optimization – Part 1
- IEPTO2: Performance Tuning and Optimization – Part 2
- IECAG: Clustering and Availability Groups
- IEPowerBI: Power BI, Power BI Report Server, and SSRS **** NEW ****
- IE0: Junior/Accidental DBA
- IEUpgrade: Upgrading and New Features
- IEPML: Practical Machine Learning
- IEAzure: Azure SQL Database, Azure VMs, and Azure Managed Instance

All of the in-person classes have discounts (ranging from \$100-200) for registering in 2018, and you can find all the logistical, registration, and curriculum details by drilling down from the class schedule page [here](#).

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 done more than 75 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 John McCain's [*The Restless Wave: Good Times, Just Causes, Great Fights, and Other Appreciations*](#).

As I mentioned in my Facebook post after he passed away, McCain was a true American patriot, a many-times decorated war hero, served our country for 60 years, and was also the son and

grandson of 4-star U.S. Navy admirals. I bought this book the day before his death, as I wanted to read what he had to say about his political life in what was probably his final opportunity.

It's a very well-written (in part no doubt due to his partnership with his long-time friend, speech writer, and ghost writer Mark Salter) and frank memoir. Given his vociferous opposition to Trump, I was expecting an excoriating attack but when he did criticize, it was subtle and classy. He actually had about as much criticism for Obama (around foreign policy weakness and mistakes) and Bush (on the war in Iraq). McCain's outright vitriol was all directed at Vladimir Putin, who he calls an "evil man".

No matter whether you agreed with McCain's politics or not, I think his book is worth reading, especially as a plea for America to champion human rights and democracy across the world, and for an end to the gridlocked U.S. political system. I *highly* recommend it.

The Amazon précis says everything I would, so here it is:

"Written while confronting a mortal illness, McCain looks back with appreciation on his years in the Senate, his historic 2008 campaign for the presidency against Barack Obama, and his crusades on behalf of democracy and human rights in Eastern Europe and the Middle East.

Always the fighter, McCain attacks the "spurious nationalism" and political polarization afflicting American policy. He makes an impassioned case for democratic internationalism and bi-partisanship. He tells stories of his most satisfying moments of public service, including his work with another giant of the Senate, Edward M. Kennedy. Senator McCain recalls his disagreements with several presidents, and minces no words in his objections to some of President Trump's statements and policies. At the same time, he offers a positive vision of America that looks beyond the Trump presidency."

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.

Over the weekend an interesting concern came up on a distribution list, and I thought it would be useful to some of you to include here as a quick Google search showed similar questions in a few online forums.

The issue is error log messages from a database that has In-Memory tables, like the following:

2018-12-09 02:46:40.71 spid108s [INFO] Database ID: [28]. Deleting unrecoverable checkpoint table row (id: 2214).

2018-12-09 02:56:11.42 spid108s [INFO] Database ID: [28]. Deleting unrecoverable checkpoint table row (id: 2115).

2018-12-09 03:02:11.85 spid108s [INFO] Database ID: [28]. Deleting unrecoverable checkpoint table row (id: 2116).

At first glance, this looks concerning, as the word ‘unrecoverable’ is usually not a good thing to see when describing something in your database.

In reality, these messages are completely benign. The In-Memory OLTP engine essentially keeps a list of checkpoints that have occurred, and when the log is cleared/truncated past the LSN (Log Sequence Number) of an older checkpoint, that checkpoint is no longer recoverable and so the table row describing that checkpoint is removed – simple!

This is just one example of benign SQL Server error log messages that look like something concerning. I’ll cover a few more of these in the newsletter next year.

Bottom line: As the old saying goes, the more you know, the further you’ll go ☺

Paul's Ponderings

As 2018 draws to a close, I’m really looking forward to 2019 from a SQL Server perspective. There are some pretty cool features in SQL Server 2019 that I’m going to be playing with and blogging about, such as:

- The new *sys.dm_db_page_info* DMV that can vastly simplify scenarios that used to call for using *DBCC PAGE*, especially around wait statistics diagnosis
- Expansion of resumable online index rebuild to allow pausing and resuming online index *build* as well
- Hybrid buffer pool and more support for NVDIMMs (persistent memory)

Kimberly and I have both been burned in the past by spending lots of time investigating, documenting, and testing new pre-release features only to have them pulled from the product before RTM but it seems like the SQL Server team’s (relatively) new release cycle and feature cross-overs from Azure have reduced that tendency to zero, so we’re comfortable getting stuck into SQL Server 2019 before it RTMs.

You’ll have noticed that SQLskills has done a lot of work with Microsoft around Azure over the past year, especially with Azure Managed Instance. We’ll be continuing that work with Microsoft in 2019, and also getting heavily involved in training and learning materials for SQL Server on Linux. In my college days I built and ran a SunOS cluster that served the student body at Edinburgh University (called Tardis, after the original GE-series mainframe on which it ran, which I was able to take apart and salvage for electronics parts when it finally failed), so I’m really looking forward to getting heavily into Unix again. Expect lots of blog posts!

So, exciting times ahead! It's going to be a very busy year for all of us on the team, with more classes than ever before and more technology to explore and blog about. We hope you'll be there with us through the year!

I'm curious to hear your thoughts on what you're looking forward to in 2019, from a SQL Server perspective or otherwise, so please feel free to [drop me a line](#), always treated confidentially, of course.

Glenn's Tech Insights

This section of the newsletter highlights recent news and views from the hardware and Windows worlds that we think will be interesting to SQL Server community members.

DRAM Prices Could Fall 10 Percent in Q1 of 2019

Both PC and Server DRAM memory prices could slide up to 10% in Q1 2019 according to [DRAMeXchange.com](#). This is good news for both the desktop DIY builder and in the server space.

In case you hadn't noticed, DDR4 DRAM prices have been quite high over the past couple of years. Currently DDR4-2666 RDIMMs are about \$12- \$13 per GB. Back in early 2016, DDR4-2666 RDIMMs were about \$7-\$8 per GB.

There are several reasons for this price increase. One is the limited number of manufacturers that produce nearly all DRAM, which are Samsung, SK Hynix, and Micron Group. A second reason is alleged price-fixing among the DRAM manufacturers. Finally, increased demand for DRAM from smart phones is another reason for the increased prices.

Intel 2018 Architecture Day

On December 11, 2018, Intel held an event called Intel 2018 Architecture Day, where they made five hours of presentations to journalists and bloggers.

During the event, Intel introduced the upcoming Sunny Cove, Willow Cove, and Golden Cove microarchitectures. The 10nm Sunny Cove is due to be released sometime in 2019 (for client-side processors), and will feature improved single-threaded performance, new instructions, and improved scalability. This will be followed by Willow Cove in 2020, and Golden Cove in 2021.

Intel is stressing two main areas where they plan to improve performance, namely "General Purpose Performance" and "Special Purpose Performance". General Purpose Performance is broken down into three methods, which are "Deeper", "Wider", and "Smarter". This basically means better performance for unoptimized, single-threaded code.

For example, Deeper means things like a 50% increase in the size of the L1 data cache, a larger L2 cache, and a larger 2nd level translation lookaside buffer (TLB). This is likely to give a much larger general performance improvement than we have seen from recent generations of Intel processors.

Special Purpose Performance is architecture extensions and algorithms that build on the microarchitecture to enable better performance for specific use cases such as AI, encryption, and compression.

The Sunny Cove microarchitecture is due to hit the market in 2020 in the server space, used in the 10nm Ice Lake-SP Xeon processors. Here are a few posts that talk about this in more detail:

- [Intel Sunny Cove Microarchitecture Details](#)
- [Intel 2018 Architecture Day – Leaders Leading](#)
- [Intel's Architecture Day 2018: The Future of Core, Intel GPUs, 10nm, and Hybrid x86](#)

AMD Radeon Adrenaline 2019 Edition Driver Update

On December 13, 2018, AMD released a [new set of drivers for AMD Radeon video cards](#) that include many new features and improvements, such as [Radeon Settings Advisor](#), [Radeon Wattman](#), and [Radeon Relive](#). These features make it much easier to make sure your video card is set up correctly, easier to overclock the card, and easier to capture gameplay.

Whether you have an AMD, Nvidia, or Intel-based video card, it is a very good idea to stay up to date with your video card drivers for the best performance and reliability.

Here are a couple of videos that have a lot more detail about this new release:

- [AMD Driver Overhaul & GPU Memory Timing Control \(Sort Of\)](#)
- [The Bring Up: Episode 4: AMD Radeon™ Software Adrenalin 2019 Edition](#)

#TBT

(Turn Back Time...) This section highlights some older resources we've referred to recently that you may find useful, plus blog posts we've published since the previous newsletter.

One of my favorite sessions at SQLintersection a couple of weeks back was my Mythbusters talk, so that's the theme for #TBT this time. Here are some myths resources for you:

- The very first Pluralsight course we (I) recorded: [SQL Server: Myths and Misconceptions](#) that has almost four hours covering a plethora of SQL Server myths.
- My blog post series from April 2010 – *A SQL Server DBA Myth A Day* – and [this blog post](#) has links to all 30. Some of the later ones had 20+ myths busted in one post, as I got a bit carried away 😊

- The same blog post series, but organized as a [handy PDF file](#).

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

- Paul: [New class: Immersion Event on Power BI, Power BI Report Server, and SSRS](#)
- Erin: [Finding the Slowest Query in a Stored Procedure](#)
- Glenn: [SQL Server Diagnostic Information Queries for December 2018](#)
- Glenn: [Security Features in SQL Server 2017](#)

I hope you find these useful and interesting!

Video Demo

In this Insider video, Tim shows how Azure SQL Database provides additional insights into query performance by leveraging Query Store, which is on by default, and through a dashboard called Query Performance Insight. In addition to showing you Query Performance Insight, Tim will demonstrate how Auto Tuning can make recommendations to help tune your workload.

The video is about 10 minutes long and you can get it in WMV format [here](#).

Enjoy!

Upcoming SQLskills Events

Our first set of 2019 live, in-person events has been announced for Chicago in April/May and we've also just added our full 2019 Q1 lineup of live, online classes.

Each and 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, ONLINE Immersion Events:

- **IEQS:** Immersion Event on Solving Common Performance Problems with Query Store
 - January 15-17
- **IEPUM2017:** Immersion Event on Planning and Implementing an Upgrade/Migration to SQL Server 2017
 - January 29-31
- **IEQUERY:** Immersion Event on Fixing Slow Queries, Inefficient Code, and Caching/Statistics Problems
 - February 12-14
- **IETLB:** Immersion Event on Transactions, Locking, Blocking, Isolation, and Versioning
 - February 26-28
- **IEVLT:** Immersion Event on Very Large Tables: Optimizing Performance and Availability through Partitioning
 - March 12-14
- **IECS:** Immersion Event on Columnstore Indexes
 - March 26-28 **** NEW ****

LIVE, IN-PERSON Immersion Events:

Chicago, IL, April/May 2019

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
 - April 29-May 3
- **IECAG:** Immersion Event on Clustering and Availability Groups
 - April 29-30
- **IEPowerBI:** Immersion Event on Power BI, Power BI Report Server, and SSRS
 - April 29-30 **** NEW ****
- **IE0:** Immersion Event for the Junior/Accidental DBA
 - May 1-3
- **IEUpgrade:** Immersion Event on Upgrading SQL Server
 - May 1-3
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
 - May 6-10
- **IEPML:** Immersion Event on Practical Machine Learning
 - May 6-10
- **IEAzure:** Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance
 - May 6-9

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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