

(May 18th, 2021)

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!

This newsletter is coming to you from Redmond as usual, where Kimberly's currently teaching her IEVLT course, the last of our spring 2021 classes.

Take care and stay safe out there!

SQLskills News

Exciting details are coming in our next newsletter! We'll just give you the teaser now. Starting on **Monday, June 14, 2021**, we will be featuring our **LOWEST PRICES EVER!** These prices are part of our SQLskills Summer School Savings Special and are better than the best Black Friday specials anywhere and will offer these benefits:

- Our lowest prices EVER
- Our most recent recordings of our most popular courses
- 15+ months of access for LESS than our normal 12-month access (you get the summer for FREE)
- Bundles with pricing that's up to **76% off regular pricing**

These are AMAZING prices and will ONLY be offered for the start of summer, from 12am on June 14, 2021 PT through July 10, 2021 at 12am PT (so through Friday night). These prices will NOT be extended. Now is the time to invest in yourself, get your SQLskills BlackBelt, and/or ADVANCE YOUR CAREER with deep knowledge and insight of SQL Server.

Kandio job candidate assessments: we've teamed up with Kandio to produce technical assessments to help companies screen candidates for job recruitment. If you want to make sure someone really knows what they say they know, check out the assessments [here](#).

Book Review

The latest book I've read is Louis de Bernieres' [Corelli's Mandolin](#). This has been on my list for a very long time, and last year, after seeing it repeatedly in the final scene of the movie Notting Hill, I bought it and a couple of de Bernieres' other novels. What a fabulous book! I can't put it any better than the Amazon précis: "Extravagant, inventive, emotionally sweeping, Corelli's

Mandolin is the story of a timeless place that one day wakes up to find itself in the jaws of history. The place is the Greek island of Cephallonia, where gods once dabbled in the affairs of men and the local saint periodically rises from his sarcophagus to cure the mad. Then the tide of World War II rolls onto the island's shores in the form of the conquering Italian army. Caught in the occupation are Pelagia, a willful, beautiful young woman, and the two suitors vying for her love: Mandras, a gentle fisherman turned ruthless guerilla, and the charming, mandolin-playing Captain Corelli, a reluctant officer of the Italian garrison on the island. Rich with loyalties and betrayals, and set against a landscape where the factual blends seamlessly with the fantastic, Corelli's Mandolin is a passionate novel as rich in ideas as it is genuinely moving." Highly, highly recommended!

The Curious Case of...

This section of the newsletter explains recent problems we've helped with on client systems or been asked about over email or #sqlhelp; they might be something you're experiencing too.

I had an email question last week asking if it mattered whether INCLUDED columns in a nonclustered index were simply added as trailing columns in the index key – i.e. would it cause a problem if the index key was much longer. The answer is yes! You can read about it in my blog post [here](#)...

Ponderings...

(From me again this time – enjoy!)

Over the last couple of weeks I've been swapping email with someone helping them get a working database together from a corrupt database and a backup that's several months old, using the freeware HxD hex editor to copy pages from the restored old backup into the corrupt database. It's almost exactly the scenario from the editorial below from 2017, but with hundreds more corrupt pages. The idea is that in a worst-case scenario, you can try radical things on a copy of a corrupt database, because you've got nothing to lose.

Aside: I have an old Acorn Electron 8-bit computer (that I bought in 1987) that I'm going to get working again to relive my halcyon days from the late 1980s when I learned BASIC and 6502 assembler. I'm sure I'm going to run into some problems with old 3.5" disks not working. In one of the Acorn groups I'm a member of on Facebook, someone posted a link to a [blog post](#) about how some guys in the UK performed waveform analysis of the signals coming from a dented 5.25" floppy and were able to recover seemingly garbled data – that's pretty extreme and wonderfully cool! Btw – if you used to have a BBC Micro or equivalent, check out the archive of thousands of games you can play in your browser over at bbcmicro.co.uk.

Back to SQL Server and the original editorial from 2017, still absolutely relevant and useful today.

Last week I was helping someone try to recover data from a corrupt database, from an online forum question. They did not have any up-to-date backups without the corruption in, so fixing their backup strategy was a piece of advice they were given by a few people.

The output from DBCC CHECKDB on the database was:

Msg 8921, Level 16, State 1, Line 1

Check terminated. A failure was detected while collecting facts. Possibly tempdb out of space or a system table is inconsistent. Check previous errors.

Msg 824, Level 24, State 2, Line 1

SQL Server detected a logical consistency-based I/O error: torn page (expected signature: 0x0; actual signature: 0x5555300). It occurred during a read of page (1:58) in database ID 10 at offset 0x00000000074000 in file 'D:\dbname.mdf:MSSQL_DBCC10'. Additional messages in the SQL Server error log or system event log may provide more detail. This is a severe error condition that threatens database integrity and must be corrected immediately. Complete a full database consistency check (DBCC CHECKDB). This error can be caused by many factors; for more information, see SQL Server Books Online.

They'd tried running repair, but of course if *DBCC CHECKDB* says that it has to stop (i.e. error message 8921), then it can't run repair.

I explained this, and how page 1:58 is a system table page and unrepairable, and so they'd have to script out as much of the database schema as possible, create a new database, and extract as much data as possible from the broken database.

I also explained that the page is part of the *sys.syscolpars* table, which is the equivalent of the old *syscolumns*, so that approach might not work.

Unfortunately my suspicions were correct, and the script/extract approach did indeed fail.

On a whim, I suggested trying something radical. A few years ago I blogged about a way to 'fix' broken boot pages using a hex editor to overwrite a broken boot page with one from an older copy of the database (see [here](#)). I'd never tried it on a system table page before, but I figured that the page ID was low enough that the page likely hadn't changed for a while.

What do I mean by that? Well, the *sys.syscolpars* clustered index is ordered by object ID, so the first few pages in the clustered index (of which page 1:58 is one), have the columns from the system tables, with very low object IDs. There's never going to be the case where a new user table gets created and causes an insert into one of these low tables.

This means that an older backup of the database would have the current state of page 1:58 in it. So I suggested using the boot page hack on page 1:58 from the person's older backup.

And it worked!

Luckily there wasn't any other corruption in the database, so all the person had to do was root-cause analysis and remediation, and fixing the backup strategy so the situation wouldn't arise in future.

Call to action: The moral of my story is that in a disaster situation, when up-to-date backups aren't available; don't be afraid to try something radical. As long as you try it on a copy of the database, it's not as if you can make the situation any worse. And if you're lucky, you'll be able to make the situation a lot better!

#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 #TBT this time is around stored procedures, so here are some resources for you:

- Kimberly's post: [SQLskills SQL101: Stored Procedures](#)
- Kimberly's course: [SQL Server: Optimizing Stored Procedure Performance](#)
- Kimberly's course: [SQL Server: Optimizing Stored Procedure Performance – Part 2](#)
- Kimberly's [Optimizing Procedural Code](#) blog post category

And some blog posts since the last newsletter:

- Paul: [Introduction to Latches](#) (start of a new series on SQLperformance.com)

I hope you find these useful and interesting!

Video Demo

In this Insider video, Tim continues his series of Azure-related videos by showing how to easily copy data from one Azure SQL Database to another without having cross-database query support. Tim does this by using linked servers from another SQL Server instance. Tim shows how to create a linked server to an Azure SQL Database (twice actually) and then performs an insert into the destination database with a select from the source. It's a simple, yet rock-solid solution to a very common problem that customers face.

The video is 4 minutes long and you can get it in MP4 format [here](#) and the demo code is [here](#).

Enjoy!

Upcoming SQLskills Events

Our spring 2021 classes are over – watch the next newsletter for amazing prices on course recordings!

With our new streaming system, you can now choose to attend a live, online event or purchase a recording to watch at your leisure, either individually or as part of a bundle. And all attendees of live events get lifetime access to the class recordings too!

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](#)
- [Community blog posts about our classes](#)
- [Immersion Event FAQ](#)

LIVE, Online Immersion Events:

Fall 2021

- Schedule coming soon...

You can get all the details on our [training options page](#) or just go directly to our [new shop](#).

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

Paul@SQLskills.com and Kimberly@SQLskills.com