#### [Why is This Course Important?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=0&mode=live" \t "psplayer)

Hi. This is Paul Randal with SQLskill. com, and I'm recording this course for Pluralsight. This is the SQL Server: Advanced Corruption Recovery Techniques course, and you're watching Module 1, the Introduction. Why is this course important? Well, as I said in the basic course corruption does happen many, many times a day all the way around the world, and you can prove it to yourself by just looking at some of the various corruption forums that are out there on sites like sqlservercentral. com. Many people out there don't realize that they have corruption because they're not checking for corruption by enabling page checksums or running regular consistency checks, and then they've got corruption, and it starts to spread. And these same people, they don't know what to do when they have corruption. We covered all of that kind of more basic stuff in the SQL Server: Detecting and Correcting Database Corruption course. What we're going to cover in this course are some of the more advanced topics and techniques, some of the kinds of things you don't see every day, things that you might find are actually outside your comfort zone, you've never tried these things before, and some of the real last resorts like going in and manually fixing things using DBCC WritePage or even just a hex editor. The information in this course is really going to take you to the next level in terms of being able to recover from corruptions.

#### What Can Happen When Corruption Recovery Does Not Work?

[What sometimes happens when corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=2) [recovery doesn't work? Well, even if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=3.875) [you're the most well prepared DBA and you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=5.75) [know you've got corruption, you know how](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=7.75) [to recover from corruption, your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=9.5) [corruption recovery might not work for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=10.81818181818182) [some reason. And I've seen all kinds of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=12.45454545454546)[different reactions from people ranging](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=15.117647058823533) [from despair to disbelief, but one of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=16.88235294117647) [ones that I see quite a lot is panic. You](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=19.46153846153846) [know if you run repair and it doesn't work](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=21.76923076923076) [or you try to recover from your backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=23.84615384615383) [and your backups are corrupt, that doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=25.631578947368418) [mean that you have to hit the panic](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=27.105263157894726) [button. Whenever you're dealing with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=28.789473684210506) [database corruption, the key thing to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=30.17647058823529) [remember is always to stay calm because if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=31.941176470588225) [you don't stay calm you might make a wrong](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=34.23529411764706) [choice, and you might make things worse.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=36.35294117647058) [And the last thing you want to do is to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=38) [make anything worse than it already is.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=39.76470588235297) [That just gives you more work to do and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=41) [more mess to clean up. So, things we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=42.87500000000002) [going to be doing in this course are some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=44.54166666666671) [of the more unusual situations you might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=46.58823529411765) [find yourself in, detached corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=48.647058823529434) [databases for instance or selecting from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=50.117647058823565) [critical tables to get data back and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=51.94736842105264) [coming across corrupt pages that you can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=54.157894736842124) [work around. Having seen and tried out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=56.36842105263161) [these different techniques is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=58.38888888888889) [mean that when you're in that situation you're not going to panic.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=1&mode=live&start=60.055555555555564)

[Real-World Example](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live)

[Here's a real-world example where a DBA](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=1.5) [did actually panic. The story comes from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=3.4444444444444438) [my time at Microsoft, and it's one of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=5.3888888888888875) [these scenarios where I was called in to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=7.59090909090909) [try and help things as the corruption was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=9.772727272727275) [being recovered from, and the database and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=11.954545454545462) [the application that used the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=14.078947368421053)[ended up being down for three days after](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=15.973684210526317) [they had corruption. It was a very high](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=18.5) [profile case because the database in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=21.02631578947367) [question was storing all of the online](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=22.921052631578924) [stock trades for the UK customers of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=25.269230769230766) [large American bank. So, why were they](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=28.346153846153832) [down for three days? Well, somebody called](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=30.5) [up their DBA and told them that they'd](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=32.25) [just seen a kind of corruption message,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=34.25) [and the DBA panicked and took the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=36.61764705882352) [offline essentially taking down the online](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=39.44117647058822) [stock trading system for these UK](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=41.50000000000001) [customers. This was on SQL Server 2000 on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=43.50000000000002) [a 1. 7 terabyte database, and they knew](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=46.16666666666671) [that CHECKDB took about 6 or 7 hours to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=48.91176470588235) [run on that database. So, after it had](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=52.08823529411763) [been running for 10 hours they figured](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=54.388888888888886) [okay CHECKDB is running along rather](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=55.944444444444436) [normal. It must have found some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=57.277777777777764) [corruption, so we'll stop it. And it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=58.75) [always a big mistake to stop CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=60.5) [because CHECKDB is the only thing that can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=62.25) [tell you how pervasive the corruption is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=64.97058823529413) [on your database. Now, they then started](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=67.44117647058829) [to restore their backups. Luckily they](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=69.5) [didn't overwrite the actual database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=71) [because 13 hours into restoring their](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=72.25) [backups they found that their backups were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=73.67647058823529) [corrupt and they were actually useless.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=75.3235294117647) [So, by this time I was involved and made](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=76.83333333333333) [them restart CHECKDB and let it finish,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=79.83333333333329) [and it took over 30 hours to complete.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=82.16666666666659) [It's one of the longest CHECKDBs I've ever](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=85.05555555555554) [seen run on SQL Server 2000. Now, what do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=88.16666666666663) [you think the output from CHECKDB said](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=91.4375) [when it finished after 30 hours? It was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=93.625) [incredible. It said they had a single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=96.02631578947367) [missing nonclustered index record, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=97.86842105263152) [that was what had caused the corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=99.1842105263157) [message that the original person had seen](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=101.42307692307693) [and called the DBA. So, that database was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=104.6538461538462) [down for three days, and they could've had](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=107.76315789473682) [the system online the entire time while we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=110.28947368421046) [were running CHECKDB, and they could](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=112.8529411764706) [actually have fixed that index corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=114.97058823529416) [with an index rebuild. Now, the cost to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=117.08823529411772) [the company for having the DBA panic and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=119.45238095238096) [take their system offline was they were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=121.35714285714289) [fined by the government for having their](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=123.02380952380958) [system offline, and of course they had a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=124.81578947368418) [whole bunch of really annoyed customers.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=126.92105263157886) [Now, there are some lessons that we can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=128.5) [learn from this. First of all, always let](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=130.6052631578948) [DBCC CHECKDB complete because it's the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=132.7105263157896) [only thing that's going to tell you what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=134.20588235294122) [the corruptions are in your database. That](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=136.0882352941178) [is its job. The second lesson is to always](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=137.77272727272728) [make sure that you've got valid backups as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=140.2272727272728) [far as you possibly can, so validate the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=142.40909090909105) [backups after you've got them. These are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=144.83333333333337) [all things that we talked about in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=147.16666666666677) [basic course. And then of course there's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=149.8333333333335) [the most important rule whenever you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=151.75) [dealing with corruption, don't panic! If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=153.25) [you panic, you're likely to do something wrong or make things worse.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=2&mode=live&start=155.5)

[Practice Makes Perfect](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live)

[For every activity you do in your life](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=1) [practice makes perfect, and this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=3.2222222222222214) [especially applies if you're recovering](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=4.61111111111111) [from some kind of disaster or you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=6)[helping somebody recover from a disaster.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=8.153846153846153) [This means that you've got to know how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=10) [do restores. You've got to know how to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=11.42105263157894) [repairs. You've got to have practiced to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=12.84210526315788) [anticipate some of the things that can go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=15.000000000000004) [wrong. You have to be able to work around](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=17.666666666666664) [problems. You have to be able to know not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=20.10526315789474) [to panic. You absolutely cannot make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=22.473684210526322) [things worse. The more you practice doing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=24.25) [disaster recoveries, the more you're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=26.4375) [to get better at it. The more different](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=28.210526315789473) [scenarios you're going to see, the more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=29.894736842105253) [things you're going to see go wrong and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=31.36842105263156) [figure out how to work around them. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=33.42857142857142) [if you've watched the basic course or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=35.7142857142857) [you've got a bit of experience doing this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=37.714285714285694) [then you've probably restored some backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=39.647058823529406) [and you've run CHECKDB, but there are a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=41.058823529411754) [few things that many people have not done](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=43.68421052631578) [ever, things like restoring master, things](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=47.05263157894734) [like repairing corruption using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=49.57894736842101) [WritePage or playing around with a hex](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=51.66666666666666" \t "psplayer) [editor. These kinds of more advanced](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=54.58333333333331) [things are what's going to set you apart](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=56.000000000000014) [from the rest of your colleagues or other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=57.60000000000004) [people in the business. And if you get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=59.31578947368421) [called in on a corruption scenario where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=61.84210526315791) [things aren't working, restore is not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=64.0526315789474) [working, repair is not working and you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=65.63157894736844) [able to actually save them from a disaster](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=67.1052631578948) [while minimizing downtime and data loss,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=68.78947368421063) [and you're probably looking at a little](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=70.31578947368418) [bit of data loss if repair or restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=72.15789473684202) [aren't working, you're going to be loved](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=74.21428571428571) [by your clients and your colleagues.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=75.71428571428567) [You're going to be the hero of the hour knowing these advanced techniques.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=3&mode=live&start=77)

[Root Cause Analysis](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live)

[Root Cause Analysis. Now, rather than](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=1) [repeat myself over and over through the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=3) [course, I'm going to say this once here in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=5.333333333333332) [the introduction module. It doesn't matter](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=8.11111111111111) [what method you use to recover from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=9.777777777777782) [corruption. Once you've recovered from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=11.722222222222232) [corruption, you want to find out why the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=13.111111111111114)[corruption happened in the first place so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=15.333333333333343) [that you can take some steps to avoid the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=17.266666666666666) [problem happening in the future. Now, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=19.666666666666657) [could be that you know what happened. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=21.307692307692307) [was really obvious. It could be for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=22.538461538461533) [instance that the SAN crashed or there was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=24.090909090909093) [a power failure at a certain time and when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=26.27272727272728)[everything came back up there was some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=28.72727272727274) [corruption. It could be that you have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=30.66666666666667) [absolutely no idea what happened. So, then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=32.61111111111112) [what are you going to do? Well, some of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=34.421052631578945) [the things you can do are as follows: Use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=36.3157894736842) [your favorite search engine and look for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=38.214285714285715) [the corruption message that you saw. There](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=39.71428571428572)[could be a SQL Server bug. It could be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=41.3) [something that other people have hit and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=43.99999999999997) [they've posted explanations for, and that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=46.09999999999995) [could give you some idea of what to go and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=47.78260869565217) [do. You could try running your I/O](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=50.39130434782608) [subsystem and server memory diagnostics to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=52.217391304347814) [see if some problem pops up from there.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=54.0909090909091)[Have a look in the SQL Server error log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=57) [and the Windows even log for any kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=59.16000000000002) [clues as to what could've gone wrong.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=61.320000000000036) [There might have been raid controller](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=63) [errors that were being flagged in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=63.999999999999986) [Windows event log that you didn't know](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=65.16666666666669) [about. There could've been I/O errors](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=66.63157894736841) [being flagged in the SQL Server error log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=68.52631578947364) [that you didn't realize, and that would](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=71.05263157894728) [point you towards the I/O subsystem as the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=73.53846153846155) [culprit. Look across your entire server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=76.61538461538464) [including the memory, including any boards](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=79.00000000000003) [that you've installed, including the I/O](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=81.40000000000006) [subsystem and check that the firmware is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=83.54545454545453) [all up-to-date. That doesn't mean that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=85.4545454545454) [yourself are going to go and start](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=87.33333333333333) [installing firmware updates. You need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=89.19999999999999) [involve the people responsible for those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=90.99999999999999)[pieces of hardware. Especially, for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=92.99999999999996) [instance, if you go and install a SAN](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=94.52631578947367) [firmware update that flushes out and zeros](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=96.63157894736835) [all of the SAN settings, you're not going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=98.4736842105262) [to be very popular with your SAN](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=101.57142857142858) [administrator. Have a look and see whether](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=104.5714285714286) [there are any NTFS filter drivers for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=106.89473684210523) [instance from antivirus software or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=109.10526315789467) [encryption software and see whether any of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=110.6842105263157) [those has caused a problem. And then you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=112.57894736842101) [could always call up Microsoft Customer](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=114.6842105263157) [Support and ask them for help. But](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=116.3) [whatever you do, try to make sure that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=118.39999999999998) [understand why the corruption happened in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=121.09999999999995) [the first place because otherwise it might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=123.05882352941178) [just happen again and again and again, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=125.52941176470594) [the next time you have that corruption you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=128.22727272727272) [might not be able to recover quite so well with a minimum of downtime and data loss.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=4&mode=live&start=130.04545454545448)

[Why Can I Teach This Course?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live)

[Why can I teach this course? Well, to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=1) [start with I spent nine years on the SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=2.8181818181818175) [Server team, the Storage Engine team](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=4.863636363636362) [specifically, at Microsoft from 1999](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=6.388888888888889) [through 2007 when I was a developer before](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=8.333333333333336) [taking on some management roles. Actually,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=11.44444444444445) [before that I worked for December, Digital](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=13.533333333333335)[Equipment Corporation, where I was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=15.400000000000007) [responsible for the equivalent of NTFS's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=16.73333333333334) [check disk functionality for the open VMS](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=19.857142857142865) [file system. Now, back at Microsoft from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=23.857142857142875) [2000 to 2003 I was actually responsible, I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=26.66666666666666) [was the developer responsible for all of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=29.333333333333318) [DBCC including DBCC CHECKDB and the other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=31.909090909090907)[check commands. As part of that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=35.09090909090908) [responsibility, for SQL Server 2005 I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=37.41176470588235) [actually rewrote most of the consistency](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=39.52941176470587) [checking and repair code, and I added all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=41.64705882352939) [of the consistency checking capabilities](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=44.21052631578949) [for all the SQL Server 2005 new features](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=45.78947368421055) [and data structures. During that time, I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=48.44444444444444) [also fixed many hundreds of repair bugs](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=51.55555555555554) [and vastly improved the capabilities of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=54.66666666666664) [repair. I also have a huge experience in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=57.38461538461538) [corruption cases. I've been involved in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=61.07692307692306) [well over 1000 different cases of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=62.888888888888886) [corruption over the years at Microsoft and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=64.22222222222221) [since leaving, and I'm constantly advising](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=65.77777777777781) [people about corruption problems over](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=68.27272727272727) [email. People send me random questions](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=70.54545454545453) [over email about corruption and on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=72.47058823529413) [internet forums like on SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=74.23529411764709) [Central, on Twitter, and of course I deal](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=76) [with corruptions that our consulting](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=78.66666666666663) [clients have. So, overall I have a huge](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=80.33333333333327) [amount of experience in consistency](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=83.11764705882356) [checking technologies in SQL Server, how](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=84.88235294117653) [they work and how to use them, and about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=87) [all the different corruptions that people](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=89.14285714285717) [can see and do see around the world, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=90.57142857142861) [this knowledge that I've got I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=92.75) [use to help you guys watching these two corruption courses on Pluralsight.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=5&mode=live&start=94.75)

[Course Structure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live)

[Course Structure. Now, first off](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=1.5) [everything that we're going to talk about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=2.75) [in this course applies to all versions of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=4.5) [SQL Server from SQL Server 2005 onward,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=6.5) [and if there's anything that only applies](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=8.25) [to certain versions or editions I'll point](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=10) [that out for you. I'm going to assume that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=11.815789473684212) [you've already watched the more basic](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=14.184210526315795) [course, SQL Server: Detecting and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=15.833333333333334) [Correcting Database Corruption, and you do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=17.499999999999996) [have some experience with SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=19.49999999999999)[administration. This is not a beginner](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=21.166666666666664) [course, and I'm not going to explain every](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=22.499999999999993) [term that I use like IM pages or PFS pages](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=24.277777777777764) [or something like that. So, what are we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=27.96153846153845) [going to cover? This is obviously Module](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=30.388888888888886) [1, the introduction, a very short intro.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=31.944444444444436) [The next module we're going to talk a bit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=33.5) [more in depth about CHECKDB, its](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=35.64285714285717) [internals, and some of the ways that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=37.07142857142861) [can make it perform better. In Module 3](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=39.131578947368425) [we're going to talk about undocumented](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=41.657894736842124) [DBCC commands including the very cool, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=43.5526315789474) [very dangerous DBCC WritePage. In Module 4](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=45.76315789473685) [we're going to talk about things that can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=47.973684210526336) [go wrong with the transaction log. We're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=50.5) [also going to talk about emergency mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=52.44444444444445) [and emergency mode repair. And then in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=54.3888888888889) [Modules 5 and 6 we're going to talk about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=56.550000000000004) [more advanced techniques around restores](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=59.70000000000002) [and around repairs. So, there's lots of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=61.450000000000024) [cool stuff for you to watch, and I really hope you enjoy it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m1-intro&clip=6&mode=live&start=66.5)

[DBCC CHECKDB Internals and Performance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live)

[Hi. This is Paul Randal from SQLskills.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=2) [com, and I'm recording this course for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=3.8666666666666663) [Pluralsight. This is the SQL Server:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=5.7333333333333325" \t "psplayer) [Advanced Corruption Recovery Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=7.666666666666665) [course, and you're watching Module 2: DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=9) [CHECKDB Internals and Performance.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=11.8) [Introduction. In the basic course I talked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=15) [a bit about DBCC CHECKDB and the various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=17.722222222222225) [other check commands, and I gave a little](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=20.83333333333334) [bit of information about what they do, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=22.83333333333334) [in this course I want to dive a little bit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=24.166666666666682) [deeper into the internals of CHECKDB and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=25.83333333333336) [talk about some of the performance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=27.66666666666667) [enhancements that you can make to make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=29.333333333333343) [your consistency checks run a lot faster,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=31.333333333333332) [very important if you're doing any kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=33.66666666666667) [disaster recovery. So, in this module](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=36.33333333333336) [we're going to cover some of the internals](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=37.95238095238096) [of CHECKDB, some of the trace flags that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=39.85714285714289) [you can use to make CHECKDB perform](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=41.761904761904816) [faster, and also some of the things you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=43.894736842105274) [can do around parallelism, constraining](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=46.42105263157897) [parallelism, and constraining memory](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=48) [settings that are going to make CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=49) [run faster as well, kind of non-intuitive](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=50.75) [things that you need a little bit more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=54) [advanced knowledge to be able to figure out.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=0&mode=live&start=62)

[What Exactly Does DBCC CHECKDB Do?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live)

[What exactly does DBCC CHECKDB do? Well,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=2) [the first thing it's going to do is what I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=3.666666666666667) [call the primitive checks of critical](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=6.047619047619048) [system tables. In SQL Server 2012 there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=7.777777777777779) [are three critical system tables, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=10.500000000000004) [these are storage engine metadata tables.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=12.83333333333334) [And they are sys. sysallocunits, sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=15.4) [sysrowsets, and sys. sysrscols, and these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=18.199999999999992" \t "psplayer) [critical storage engine system tables have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=21) [changed over time from SQL Server 2005 up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=22.999999999999993) [to the present day. Now, the primitive](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=25.66666666666665) [checks themselves are wanting to make sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=27.999999999999996) [that if CHECKDB calls down into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=30.33333333333332) [metadata layer and asks for the metadata](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=32.66666666666665) [layer to give it some metadata based on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=34.894736842105274) [information that CHECKDB has found from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=37.42105263157897) [reading a page header, the metadata layer](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=39.285714285714285) [is not going to have to crash and cause](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=41.28571428571428) [problems in some way. The primitive checks](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=43.85714285714284) [then are making sure that the leaf-level](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=45.88235294117648) [clustered index pages of these three](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=47.94117647058826) [system tables can be read into memory](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=49.70588235294122) [properly and a latch taken out on their](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=51.71428571428571) [buffers, and also it checks to make sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=53.999999999999986) [there are no loops in the linkages and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=56.333333333333336)[pages at the leaf level. If any problems](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=59.33333333333336) [are found in the critical system tables,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=61.857142857142854) [then it's game over. CHECKDB has to stop](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=63.85714285714285) [immediately because it can't continue](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=66.33333333333331) [processing the rest of the database. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=67.99999999999996) [next thing it's going to do is the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=70.23076923076923) [equivalent of DBCC CHECKALLOC. It's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=72.07692307692304) [to do allocation checks, so looking at the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=73.80000000000001) [GAM pages, SGAM pages, the PFS pages, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=77.00000000000006) [IAM pages making sure that the various bit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=80.2000000000001) [settings for each extent are correct. For](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=83.50000000000003) [instance, for any particular GAM interval](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=86.35) [making sure that no two IAM pages have the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=88.44999999999996) [same bit set because then there would be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=91.59999999999991) [two allocation units thinking that they](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=94.05263157894734) [own the same extent, and that would be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=95.63157894736835) [corruption. It then goes back and does](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=97.73684210526304) [what I call logical checks of those three](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=99.76470588235296) [critical system tables. It's making sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=102.11764705882356) [that page linkages are correct, making](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=103.88235294117648) [sure that the b-trees are correct, making](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=105.64705882352943) [sure that any data records that point to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=107.70588235294122) [off-row LOB columns for instance that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=110.09999999999998) [LOB column exists in the page that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=112.19999999999996) [linkage says it exists, all those kinds of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=114.6) [things. As long as the critical system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=116.99999999999997) [tables look okay, it then moves on and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=119.09999999999995) [does logical checks of all the tables in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=121.66666666666664) [the database. One of the most expensive](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=124.33333333333327) [things it does in terms of the amount of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=126.08695652173914) [CPU that CHECKDB uses is it makes sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=128.0434782608696) [that every data record has exactly one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=129.7826086956521) [matching nonclustered index record in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=132.40000000000003) [every nonclustered index taking into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=134.40000000000006) [account filtered indexes of course. Once](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=136.27777777777777) [it's done that, it them moves on and does](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=137.9444444444444) [the equivalent of DBCC CHECKCATALOG. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=140.44444444444434) [it's making sure that the metadata, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=142.75) [relational metadata for tables and indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=145.8125) [and columns look okay. For instance, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=148.3684210526316) [there's a table definition that says it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=150.94736842105272) [has a variety of columns, all the column](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=153.52631578947384) [metadata for those columns must exist. On](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=156.60000000000002) [the other hand, if a column says that it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=159.33333333333334) [exists and it's part of a particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=162.33333333333343) [table, that table's definition must list](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=164.66666666666683) [that column as one of the columns in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=166.5217391304348) [table. And we'll see an example later on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=168.86956521739145) [in the course of corruption in these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=170.9565217391307) [metadata tables and how the only way](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=172.71428571428572)[you're going to be able to fix it is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=174.3809523809524) [manually actually changing the system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=176.52380952380958) [tables themselves. It then does Service](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=178.20000000000002) [Broker data validation making sure that if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=180.60000000000005) [you are using Service Broker the various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=183.3846153846154) [relationships between conversations,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=186.0769230769231) [queues, messages, and so on all look okay.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=187.23076923076925) [Then there's another set of cross-table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=190.09999999999997) [checks that run, and these only run from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=192.19999999999993) [SQL Server 2008 onwards with using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=195) [EXTENDED\_LOGICAL\_CHECKS option. Now, I put](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=198.1111111111112) [in in 2005, I put in a way of being able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=200.03846153846152) [to validate the contents of an indexed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=203.84615384615375) [view or an XML index, and what that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=206.26923076923063) [mechanism does is it actually recreates](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=209.04999999999998) [the indexed view or the XML index in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=211.14999999999995) [tempdb and does a left anti-semijoin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=213.9499999999999" \t "psplayer) [between the original indexed view or XML](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=216.16666666666666)[index and the one that CHECKDB created and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=218.88888888888886) [then vice-versa basically saying is there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=222) [anything missing in the view or index, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=224.00000000000006) [is there anything extra. Now, in the three](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=226.6666666666668) [years between SQL Server 2005 when I put](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=229.1428571428571) [those checks in and SQL Server 2008, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=231.42857142857133) [didn't actually find any problems, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=233.71428571428555)[those checks account for a lot of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=235.4285714285714) [runtime of CHECKDB, and so it was decided](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=237.7142857142856) [to move them off by default, and so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=240) [they're only going to run from 2008](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=241.90476190476193) [onwards when you use that WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=243.5714285714286) [EXTENDED\_LOGICAL\_CHECKS option. And to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=245) [honest, there's no need to put that on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=246.47058823529406) [unless you suspect a problem in one of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=248.82352941176455) [those structures. Now, if you're running](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=251.1111111111111) [repair for any reason, repairs are going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=252.77777777777771) [to be done at each stage, obviously not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=254.72222222222211) [the primitive system table checks, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=257.4705882352942) [allocation checks is going to repair any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=259.58823529411785) [allocation problems before it moves on to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=261.75) [logical checks. It's going to repair any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=263.5) [problems from logical checks before it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=265.3157894736841) [moves on to things like metadata and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=266.89473684210503) [Service Broker and so on. CHECKDB makes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=268.7368421052628) [really extensive use of the Query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=270.9999999999999) [Processor as we're going to see. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=272.9999999999998) [actually has two portions. It has the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=275.27777777777777) [Query Processor portion, and it has the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=277.2222222222222) [storage engine portion. And the storage](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=279.1666666666666) [engine portion is the bigger portion, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=280.85714285714283) [it uses the Query Processor to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=282.8571428571428) [do efficient sorting and aggregation of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=285.4285714285713) [all the bits of information that it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=286.79999999999995) [found, and we're going to have a look at that over the next few slides.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=1&mode=live&start=288.1999999999999)

[Fact Processing (1)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live)

[Fact Processing, Part 1. Now, the way that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=1.5) [CHECKDB reads all the pages that are in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=3.899999999999999) [the database is actually very, very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=6.299999999999998) [efficient. It doesn't do what you think it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=7.954545454545455) [might do, which is as soon as it comes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=9.772727272727268) [across a link between one page and another](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=11.818181818181808) [page it follows that link. That would be a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=13.815789473684212) [recursive algorithm, and it would be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=16.184210526315795) [extremely expensive. In fact, a recursive](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=17.852941176470587) [algorithm like that would tend to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=19.97058823529411) [what's called Order n2 in terms of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=22.441176470588218)[algorithmic complexity, and squared means](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=25.000000000000004) [where N is the number of things that is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=26.500000000000007) [being processed the runtime tends to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=29.200000000000014) [proportional to the square of the number](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=31.89999999999999) [of things. And if you think of N as the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=34.69999999999998) [number of pages in the database, n2 would](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=37.404761904761926) [be a very large number. What it does](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=39.30952380952385)[instead to be a lot more efficient is it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=41.39999999999999) [actually reads all the pages in allocation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=44.099999999999966) [order. In other words, it's reading them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=46.199999999999946) [in the physical order that they appear in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=48) [the data files rather than following](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=50) [linkages as they appear in the pages. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=51.5) [drives its own read ahead using the buffer](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=53.78571428571428) [pool, and as it's processing pages it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=56.071428571428555) [generating little bits of information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=58) [about what it's seen, and these bits of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=59.25) [information are called facts. Now, by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=61.25) [doing this, the algorithmic complexity](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=64.16666666666666) [overall of CHECKDB is O(n\*log(n)), which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=66.83333333333331) [is an awful lot more efficient than n2.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=69.88095238095238) [Now, some example facts would be about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=72.92857142857142) [pages like a page exists, a page points to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=75.59523809523807) [another page, this row on this page points](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=78.59090909090907) [to an off-row LOB value on this other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=80.7727272727272) [page, and we'll see some more examples of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=82.95454545454533) [facts on the next slide. The read ahead is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=85.29999999999998) [driven by an internal structure called the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=87.99999999999996) [MultiObjectScanner. If you're running in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=90.35714285714286) [parallel in Enterprise Edition, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=92.50000000000001) [various threads call into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=94.64285714285717) [MultiObjectScanner to figure out which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=96.25) [page they're supposed to read next, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=97.5) [the MultiObjectScanner figures out which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=99.25) [pages to read ahead into the buffer pool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=100.83333333333331) [to make sure that the CPU keeps busy](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=103.49999999999994) [without having to wait for pages to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=106) [read in. Every one of these little bits of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=108) [information, these facts if you will, has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=110.25) [a multi-part key. Now, apart from saying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=112.29999999999998)[what kind of information it is, for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=114.39999999999996) [instance is it something to do with a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=116.5) [b-tree or a text linkage or a nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=119.16666666666663) [index linkage, it has information that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=121.83333333333326) [uniquely identifies where that fact came](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=123.875) [from including the object ID, index ID,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=126.125) [allocation unit ID, and page ID of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=128.75) [page where that particular piece of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=131.75) [information was generated from. These](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=134) [facts are generated by the various threads](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=135.7941176470588) [running inside CHECKDB, and they're passed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=137.8529411764705)[to the Query Processor. And inside the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=139.61764705882337) [Query Processor the facts are sorted by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=141.83333333333337) [their key, they're hashed by their key,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=144.16666666666677) [and then they're given back to the CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=146.5) [threads for aggregation, and we'll look at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=148.6052631578948) [how that works graphically in a few more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=150.44736842105274) [slides. The aggregation means that some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=152.75)[facts can cancel each other out. As long](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=154.625) [as all the facts that need to exist for a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=157.19565217391306) [particular type of key are found, then all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=160.67391304347836) [the facts disappear, and we know there's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=163.4565217391306) [no problem. When there are extra facts or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=165.29999999999995) [there are missing facts for a particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=166.89999999999986) [type of key that's when a corruption is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=168.29999999999978) [detected, and CHECKDB can figure out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=170.8333333333334) [exactly what the corruption is. So, let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=172.83333333333346) [have a look at this graphically on the next recording.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=2&mode=live&start=176.5)

[Fact Processing (2)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live)

[Fact Processing, Part 2. In this slide I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=2) [want to give you a graphical example of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=4.399999999999999) [what CHECKDB's facts are and how they're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=6.799999999999997) [processed. I'm going to use the example of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=8.714285714285712) [a very simple b-tree, and we can see that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=10.61904761904761) [there's a root page, page P, and three](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=12.761904761904745) [leaf-level pages, pages A, B, and C. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=15.500000000000004)[CHECKDB is going to read those pages in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=18.272727272727273) [allocation order. So, maybe it's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=20.45454545454546) [read page B first, and it's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=22.315789473684212) [generate some information about page B.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=24.421052631578952) [And I'm obviously over simplifying this,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=26) [but you get the general idea of what I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=27.411764705882348) [talking about. So, it's going to generate](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=29.52941176470587) [an actual fact saying page B has actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=31.66666666666666) [been seen. It's going to generate a piece](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=34.33333333333334) [of information saying page B is a Sibling](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=36.565217391304344) [of page A, and page B is a Sibling of page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=38.65217391304347) [C, in other words, making sure that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=41.875) [leaf-level doubly-linked list is accounted](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=45.375) [for. The next allocated page might be page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=47.5625) [A, so it's going to read that page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=49.55555555555555) [generate some facts. For instance, it will](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=51.33333333333332) [generate the A-Actual, and the A is a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=53.33333333333334) [Sibling of B. Then it might read page P.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=56.00000000000003)[So, it's going to generate the P-Actual](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=59.000000000000014) [fact and also Parent fact because P points](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=61.333333333333364) [down to A, so it generates a P-Parent-A](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=64) [fact, P-Parent-B fact, and a P-Parent-C](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=67.20000000000005) [fact. Then it's going to read page C and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=69.60000000000008) [so on and so on. Now, all these facts are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=71.66666666666663) [given to the Query Processor, which sorts](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=73.74999999999991) [them, hashes them, and gives them back to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=75.45454545454545) [CHECKDB again. The facts will all get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=79.09090909090908) [given back sorted by the key value. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=81.36363636363633) [what I've done on the left hand side there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=83.54545454545446) [is I've made the key the page as in B, A,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=86) [or P. So, for instance, for page B the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=88.96153846153851) [facts that we're going to get given back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=91.38461538461547) [after they've been sorted in the Query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=93.6) [Processor are an Actual fact for page B,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=95.69999999999997) [the Sibling facts for page B for the other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=98.09999999999995) [pages that point to page B, and then a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=100.79999999999998)[Parent fact for page B. So, as long as all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=103.49999999999996) [those facts are generated and seen by the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=106.42857142857146) [aggregation part of CHECKDB, we know there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=108.7142857142858) [are no problems with the linkages](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=110.71428571428584) [surrounding page B. Now, for example,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=112.94444444444443) [let's say that there was another page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=115.27777777777774) [page Q, that also thought that it linked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=118) [to page B from the b-tree, which is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=120.52631578947364) [obviously a corruption. There would be an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=123.05263157894728) [extra Q-Actual and Q-Parent-B generated](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=125.64705882352939) [for the fact generation portion of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=127.70588235294113) [process, and then in the aggregation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=130.58823529411757) [portion of the process we'd see an extra](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=132.875) [Parent fact, Q-Parent-B. CHECKDB can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=135.875) [figure out which of these facts is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=137.66666666666669) [erroneous, decide that the Q-Parent-B fact](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=140.00000000000009) [is wrong, and that the linkage is bogus](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=142.00000000000014) [from page Q. So, you can see how this is a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=144.5789473684211) [pretty cool algorithm. It makes CHECKDB an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=148.0526315789475) [awful lot more efficient because it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=149.76190476190482) [doesn't have to follow all the links as it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=150.90476190476204) [sees them. Now, this kind of fact](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=152.61904761904788)[processing algorithm is used for all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=154.5789473684211) [various different kinds of facts, not just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=156.78947368421063) [for the b-tree facts, which I've used in this example.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=3&mode=live&start=159)

[Fact Processing (3)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live)

[Fact Processing, Part 3. So, there are two](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=2) [major portions to the internals of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=4.666666666666667) [CHECKDB. There's the portion that's in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=6.666666666666665) [storage engine, and there's the Query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=9.30769230769231) [Processor. Every one of the threads that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=11.61538461538462) [running inside CHECKDB has some per-thread](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=13.764705882352946) [storage where it's able to store facts. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=15.529411764705891)[generates those facts, and once it has a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=17.71428571428571) [certain number of facts, it gives them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=19.61904761904761) [back to the Query Processor. This is done](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=21.28571428571427) [using an OLE DB rowset. So, the rowset](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=24.1875) [gets the facts. The Query Processor is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=27.6875) [pulling the facts from the rowset inside](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=30.411764705882348) [the storage engine portion of CHECKDB. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=32.88235294117646) [takes those facts, and it sorts them,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=35.27777777777778) [hashes them, and stores them until the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=37.22222222222223) [aggregation portion of CHECKDB is ready.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=39.16666666666668) [The aggregation portion is not done until](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=41.00000000000001) [all the threads in the storage engine](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=43.33333333333336) [portion have finished reading and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=45.66666666666671) [processing the pages in their current](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=47.176470588235304) [batch, and I'll talk about batches in a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=48.94117647058826) [few more slides. Once it's time to do the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=51.36842105263158) [aggregation portion, the Query Processor](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=54.68421052631582) [calls a custom aggregation routine inside](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=56.526315789473735) [the storage engine portion of CHECKDB,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=58.705882352941174) [which actually does the fact aggregation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=60.823529411764696) [as I illustrated on the previous slide. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=62.94117647058822) [any problems are found, then we get some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=65.25) [results back saying that there are some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=67.25) [corruptions. So, that's how the data flow](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=69) [runs from the main portion of CHECKDB in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=71.57894736842103) [the storage engine into the Query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=74.52631578947363) [Processor and back out into the storage engine portion of CHECKDB again.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=4&mode=live&start=78)

[Batch Processing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live)

[Batch Processing. Now, all the facts that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=2) [I've been talking about over the last few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=4.099999999999999) [slides have to be stored in memory, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=6.499999999999997) [they're stored actually in a worktable.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=9.125) [The worktable usually requires more memory](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=11.375) [than you have available, and so it's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=13.625) [to spill out into tempdb. CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=16.333333333333336) [processes tables in batches, and the batch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=18.36842105263158) [size is limited to try to prevent the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=20.94736842105263) [amount of memory that spills out to tempdb](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=23.89473684210526) [being really excessive. The batch size, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=26.750000000000007) [you will, is the number of tables and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=29.200000000000017) [associated indexes that are being checked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=32) [all at one time, and multiple batches will](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=33.894736842105274) [run as part of running CHECKDB on a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=36.42105263157897) [database. The minimum size of a batch is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=38.95454545454546) [going to be one table and all of its](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=41.50000000000002) [associated nonclustered indexes, and this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=44.3636363636364) [is because everything about a particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=45.94736842105264) [table has to be checked all at the same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=47.84210526315791) [time. Otherwise, the various facts that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=50.68421052631582) [are generated wouldn't be able to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=52.31578947368421) [resolved as part of the fact aggregation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=54.15789473684211) [process. As CHECKDB is building up its](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=56) [batches, it carries on adding tables to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=58.45000000000001) [the batch until one of the following](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=60.90000000000002) [things occurs: Either the total number of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=63.3125) [nonclustered indexes in the batch becomes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=65.5) [more than 512 or the estimate for the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=67.375)[amount of space necessary to store all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=70.09999999999997) [facts for that batch becomes more than 32](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=72.89999999999992) [MB. Or if a repair option is specified,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=75.63636363636363) [the batch size is always going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=78.18181818181813) [limited to one table. Now, saying that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=80.72727272727263) [size of a batch is limited to 32 MB of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=83.33333333333331) [fact storage space, if we have a very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=86.6666666666666) [large table, which is common nowadays,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=89.33333333333323) [that's going to have an awful lot more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=91.14285714285717) [than 32 MB of space necessary to store all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=93.4285714285715) [its facts, which is why it's common to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=96)[the worktable spilling out into tempdb.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=98.99999999999996) [Now, because tempdb is used so extensively](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=101) [by CHECKDB, the read and write performance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=103.3333333333333) [of tempdb can greatly affect how long it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=105.6666666666666) [takes consistency checks to run. If we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=108.26315789473682) [have a very poorly performing tempdb with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=110.47368421052626) [hundreds or even thousands of milliseconds](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=112.6842105263157) [of average read and write latency, that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=114.47058823529413) [going to greatly affect the time it takes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=116.52941176470591) [for memory spills to occur out to tempdb](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=118.85714285714288) [and for the Query Processor to read those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=121.14285714285721) [facts back out of the worktable from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=123.42857142857154) [tempdb. But overall the whole batch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=126.05882352941174) [process makes sure that CHECKDB doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=128.52941176470583) [blow out your tempdb with tens or even](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=131) [hundreds of gigabytes of disk space. At](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=133.8571428571429) [least that's the plan. If you have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=136.26666666666668) [multi-terabyte tables, which I've seen](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=138.13333333333344) [some people. In fact, just today before I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=139.46666666666684) [started recording somebody sent me an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=141.5789473684211) [email about a 13 terabyte single table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=143.1578947368422) [that they had. That's going to be checked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=145) [in a single batch, and that's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=146.63636363636374) [require an awful lot of tempdb space](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=148.27272727272748) [depending on how many nonclustered indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=149.77777777777777) [there are and how many other linkages have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=151.4444444444444) [to be taken into account like off-row text linkages for instance.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=5&mode=live&start=153.66666666666657)

[Parallelism (1)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live)

[Parallelism, Part 1. Now, as I've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=2) [mentioned already several times, CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=3.7647058823529402) [is going to run in parallel on Enterprise](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=5.235294117647057) [Edition. Parallelism also applies to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=7.800000000000001) [CHECKTABLE and also its CHECKFILEGROUP,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=9.800000000000002) [but it doesn't apply to CHECKALLOC or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=11.800000000000004) [CHECKCATALOG. These are always going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=14.666666666666664) [single-threaded. Every time a new batch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=17.583333333333332) [starts it runs CHECKDB's internal query,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=19.470588235294112) [which drives using the Query Processor,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=21.235294117647047) [and the Query Processor is going to decide](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=23) [how far to parallelize for that particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=25.52631578947367) [batch based on the amount of resources](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=27.736842105263133) [there are in the system and also whatever](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=29.789473684210527) [limits there are imposed by a MAXDOP](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=31.894736842105267) [setting on the server or if you're running](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=33.736842105263165) [inside of Resource Governor the workload](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=36.625) [group's MAX\_DOP setting. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=38.875) [unfortunately there's now way to actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=40.375) [set CHECKDB's degree of parallelism for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=42.625) [the actual CHECKDB statement itself like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=44.875) [you can for instance with an alter index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=47.24999999999999) [rebuild. Each of the parallel threads](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=50.58333333333331) [that's created is given a page to go and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=51.95238095238095) [generate all the facts for, which get put](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=53.66666666666666)[into the thread local storage and then up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=55.23809523809524) [into the OLE DB rowset and passed over to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=57.14285714285717) [the Query Processor. And then once the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=59.285714285714334) [thread has finished generating the facts](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=61.111111111111114) [for a particular page, it calls into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=62.777777777777786) [MultiObjectScanner to get the next page or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=65) [set of pages to process. Once all the fact](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=67.9166666666667)[generation has finished, the same threads](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=71) [then participate in the fact aggregation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=72.5) [process I described earlier. If you want](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=74) [to, you can actually disable parallelism](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=77.0625) [completely for CHECKDB and the CHECKTABLE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=79.6875) [and CHECKFILEGROUP commands using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=81.99999999999999) [documented trace flag 2528, and some ISVs,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=83.66666666666663) [for instance SAP, do recommend that you do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=86) [that. Now, if you're going to do that,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=88.39999999999998) [that's going to greatly increase the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=90.79999999999995) [runtime of your consistency checks because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=92.47058823529412) [you've only got one thread working on it,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=93.88235294117646) [but it's going to greatly decrease the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=95.76470588235293) [amount of resources that are required](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=97.66666666666663) [because you've only got one thread using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=99.33333333333326) [memory, you've only got one thread driving](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=101.3529411764706) [I/O. For the best performance of your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=103.82352941176475) [consistency checks, I don't recommend that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=106.29411764705891) [you use that trace flag unless your ISV](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=108) [requires it, but you might want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=110) [constrain the degree of parallelism that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=111.75)[CHECKDB uses, especially on high core](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=113.47058823529413) [systems as we're going to see in a few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=115.23529411764709) [more slides when we talk about making CHECKDB run faster.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=6&mode=live&start=120)

[Parallelism (2)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live)

[Parallelism, Part 2. Here's a graphical](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=2) [example of parallelism inside CHECKDB for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=4.470588235294118) [a degree of parallelism 3. So, first off](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=6.941176470588237) [there's the storage engine portion of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=9.947368421052632) [CHECKDB with each of the threads having](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=11.842105263157896) [its own OLE DB rowset that it's using to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=14.05263157894737) [communicate with the Query Processor.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=16.63636363636364) [There's the Query Processor where each of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=18) [the rowsets is being read from. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=20.153846153846146) [various facts are being hashed using their](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=22.352941176470587) [keys. They go through an exchange operator](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=24.823529411764696) [into storage where they've been sorted.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=27.294117647058805) [Then they're going to be aggregated by the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=29.230769230769226) [keys. The aggregated stream of facts is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=31.69230769230768) [passed back into the storage engine](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=34.000000000000014) [portion of CHECKDB where each thread](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=36.00000000000003) [participates in fact aggregation using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=38) [custom aggregation routine called](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=41.27272727272728)[CheckIndex. And in each of those threads,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=43.45454545454547) [once it's finished aggregating, if it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=45.578947368421055) [finds any problems, it puts them into a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=47.15789473684211) [central result set, and that's the result](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=50) [set that you're given back when CHECKDB finishes.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=7&mode=live&start=57)

[Nonclustered Index Checks](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live)

[Nonclustered Index Checks, Parts 1 and 2.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=1.5) [I mentioned earlier on in this module that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=3.599999999999999) [one of the most expensive algorithms](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=5.999999999999998) [that's inside CHECKDB are the nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=7.794117647058823) [index checks, and it's also one of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=9.558823529411768) [most interesting to discuss. What CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=11.911764705882362) [is making sure of is that every table row,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=13.642857142857146)[every data row in a clustered index or a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=16.214285714285722) [heap has exactly one matching row in every](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=18.91176470588235) [nonclustered index and vice-versa, of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=22.205882352941163) [course taking into account any filtered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=24.26470588235292) [indexes that exist because they by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=26.382352941176467) [definition don't have one row for every](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=28.147058823529402) [table row necessarily. Now, the easiest](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=30.20588235294116) [way to check this is the kind of brain](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=31.928571428571423) [dead way, which is every time you see a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=34.499999999999986) [data record, go and actually look up the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=37.131578947368425) [matching nonclustered index record, do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=39.657894736842124) [search into that nonclustered index, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=41.5526315789474) [make sure that index record exists and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=43.5909090909091) [vice-versa. Every time a nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=46.13636363636367) [index record is found, go and look up the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=47.26190476190476) [matching data record in the heap or the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=48.97619047619047) [clustered index. This would be incredibly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=50.5) [inefficient to actually do, and that's not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=53.5) [how it's done. This is how the algorithm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=57) [actually works. What it does is it creates](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=59.55263157894736) [two checksums for each partition of each](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=61.23684210526314) [index. There's a checksum that's generated](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=62.85294117647059) [from the records in the index partition](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=64.97058823529413) [itself, and there's a checksum that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=67.44117647058829) [generated from other records, records that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=69.49999999999999)[are generated from the data records. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=71.49999999999996) [what does that mean? For every data record](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=73.75) [that's found, so every record in a heap or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=75.75) [clustered index leaf level, CHECKDB knows](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=78) [what nonclustered indexes exist. So, for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=79.91176470588238) [every one of those indexes, it generates](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=82.02941176470594) [the index record that should exist. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=84.5)[takes that index record and it hashes the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=86.94999999999996) [complete set of bytes for that index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=89.74999999999991) [record, and it adds that hash value to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=92.27777777777777) [index partition's other checksum, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=95.77777777777774) [checksum that comes from other records.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=97.72222222222217) [Every time an index record is found on an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=99.76315789473682) [index page from a nonclustered index, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=102.60526315789467) [takes the index record, hashes it, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=104.85) [adds it to the hash value for the index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=107.29999999999995) [partitions own checksum. The idea is that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=110.4499999999999) [at the end of each batch every index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=112.76315789473682) [partition's own and other checksums should](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=115.28947368421046) [match. If they match, then there are no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=117.1842105263157) [missing or extra records. If they don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=119.40909090909086) [match, then what I call a deep dive](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=121.31818181818173) [process has to happen for that index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=123.5) [partition. When the deep dive process was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=125.97058823529416) [originally written, it was written to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=128.4411764705883) [and individually look up the records to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=130.4411764705883) [make sure that they all existed. Nowadays](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=132.0882352941178) [what it does is it takes the index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=133.78571428571428) [partition and the table it's based off and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=136.0714285714285) [does two left anti- semijoins between them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=138.35714285714272) [to find the any missing or extra records](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=140.38235294117644) [on either side of the joins. This is done](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=142.73529411764693) [by the Query Processor, and it uses query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=145.33333333333331) [syntax that's only available to DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=147.5555555555555) [CHECKDB. There are actually quite a few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=149.22222222222211) [bits of query syntax that only CHECKDB can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=151.10000000000008) [use. You can see how this algorithm is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=153.23333333333352) [much more efficient than individually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=155.71052631578954) [going and looking up all the records that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=157.28947368421063) [are described in the previous slide, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=159.75) [because of all the hashing that's going on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=161.5) [of all the records it uses quite a lot of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=163.5) [CPU, and this is what makes this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=170.5)[particular algorithm the largest CPU user inside CHECKDB.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=8&mode=live&start=177.5)

[Making DBCC CHECKDB Go Faster (1)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live)

[Making DBCC CHECKDB Go Faster, Part 1.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=1.5) [There was some work done recently by the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=3.833333333333334) [SQL Server Dev team to improve the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=6.499999999999998) [performance of DBCC CHECKDB in a number of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=8.772727272727273) [different ways: First of all by allowing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=10.95454545454546) [it to enter a trace flag to check all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=12.58695652173913) [tables in the database as a single batch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=14.760869565217392) [if you've got plenty of tempdb space and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=16.5) [you don't mind it being taken up by the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=18.404761904761898) [worktable spilling out to tempdb, slightly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=20.547619047619033) [changing the I/O pattern it generates if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=22.055555555555557) [it's able to determine that each of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=24.000000000000007) [data files is on its own physical drive or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=26.222222222222236) [under a drive letter amount point, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=29.02631578947367) [then reducing the contention on the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=31.236842105263133) [DBCC\_MULTIOBJECT\_SCANNER latch. And I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=33.25) [mentioned earlier on that when a thread](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=34.75) [has finished processing a page it calls](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=37.375)[into the DBCC\_MULTIOBJECT\_SCANNER object](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=40.14705882352942) [inside CHECKDB to get the next page to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=41.79411764705884) [process. If there are lots of threads](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=45.08823529411768) [running, this can cause contention on the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=46.83333333333333) [exclusive latch necessary to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=48.38888888888888) [give a page back to that thread. So, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=50.08333333333333) [change is that when a thread requires the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=52.70833333333331)[latch to get a particular page. Instead of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=55.04166666666662) [being given back one page ID, it's given](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=57.39999999999999) [back 100 page IDs, and that vastly reduces](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=59.79999999999997) [that contention. You can read a KB article](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=62.199999999999946) [that describes those changes at that link](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=64.44444444444444) [there, and the changes have been ported](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=66.38888888888884) [back to SQL Server 2008, 2008 R2, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=68.70000000000002)[they're also in 2012. You need to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=71.90000000000006) [documented trace flags 2549 and 2562](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=74.9736842105263) [depending on which release you're on, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=77.18421052631575) [you'll need to check the KB article to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=79.76315789473678) [which trace flags are required in which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=81.90000000000002) [versions. There's no point in me parenting](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=83.30000000000004) [that information for you here. Now, be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=85.1363636363636) [careful because with these changes you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=87.02631578947367) [might end up pushing your I/O subsystem an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=88.60526315789468) [awful lot harder, but on the other side,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=90.71052631578937) [depending on the database you're using and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=93.09090909090907) [what kind of tables and so on it has, you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=95.31818181818176) [might not see any changes at all, so it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=98.5) [might not make CHECKDB go any faster. You](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=101.3125) [can read a discussion of what led to these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=103.72727272727273) [changes being made in my friend Bob Ward's blog post at that bit. ly link there.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=9&mode=live&start=105.77272727272734)

[Making DBCC CHECKDB Go Faster (2)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live)

[Making DBCC CHECKDB Go Faster, Part 2.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=1.5) [Here's a graph from a blog post that I did](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=3.886363636363636) [where I did some performance testing on a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=7.295454545454544) [system that has 16 physical cores, and I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=9.913043478260871) [had happy threading on so I was running](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=12.347826086956527) [DOP 32 all the way down to DOP 4. And you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=14.782608695652183) [can see the effect of the DOP I was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=18.240000000000002)[running and the Physical Only option and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=21.120000000000005) [the various trace flags that I mentioned](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=23.360000000000007) [on the previous slide. What this basically](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=25.388888888888893) [shows is if you're using PHYSICAL\_ONLY you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=27.333333333333343) [really want to consider reducing the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=29.333333333333332) [degree of parallelism as that's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=31.333333333333325) [really lower your runtime. There's further](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=33.666666666666664)[research that I've done and customers that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=35.526315789473685) [I've talked to that when you have a large](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=37.36842105263158) [number of physical cores, so 32 or more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=39.736842105263165) [physical cores, usually 40 or 64,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=42.578947368421076) [something like that, you're going to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=44.78947368421057) [an awful lot of contention on the various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=47.3) [latches and so on inside CHECKDB, and you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=49.699999999999974) [can vastly reduce your runtime by reducing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=52.09999999999995) [your degree of parallelism to 4 or 8 even](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=54.47368421052633) [when you're not using with PHYSICAL\_ONLY,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=57.78947368421057) [and that's just for high physical core](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=60) [servers. If you want to reduce the degree](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=62.33333333333335) [of parallelism without having to use the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=65.00000000000001) [sp\_configure MAXDOP option, you can use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=67.41176470588238)[the Resource Governor feature to do that.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=69.52941176470594) [Now, Resource Governor is enterprise only,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=72) [but then again so is CHECKDB's parallelism](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=74.14285714285717) [feature. So, if you're already running in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=76.6428571428572) [parallel with CHECKDB, you've got access](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=78.76470588235296) [to Resource Governor, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=80.52941176470591) [configure a workload group MAX\_DOP to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=82.42105263157895) [able to constrain CHECKDB whenever it runs](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=85.36842105263156) [to a certain number of parallel threads. I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=88.31578947368418) [recommend that you experiment to figure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=91.26315789473682) [out which DOP works best for you on your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=93.15789473684205) [particular system as these are just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=96) [generalized numbers that I'm giving you.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=98.50000000000003) [You might be amazed at the results you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=101) [get. I was speaking to a customer where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=103.4545454545454) [they were running DOP 64 on a 64-core](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=105.63636363636353) [system, and they had CHECKDB's that were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=107.99999999999999) [taking days. And they turned the DOP down](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=110.33333333333329) [to 4 using Resource Governor, and they](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=112.6363636363636) [managed to get the runtime down to 7](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=114.54545454545446) [hours, so you might be able to get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=116.72727272727259)[significantly better results from constraining your DOP as well.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=10&mode=live&start=124)

[Making DBCC CHECKDB Go Faster (3)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live)

[Making DBCC CHECKDB Go Faster, Part 3.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=1.5) [Another thing you can do to make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=3.7105263157894743) [consistency checks go faster is actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=5.921052631578949) [reduce the amount of query execution](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=7.961538461538462) [memory grant that's available for CHECKDB.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=10.730769230769232) [Now, by default the Query Processor is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=13.5) [going to give CHECKDB a very large query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=15.05555555555555)[execution memory grant, and that's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=16.83333333333332) [to cause that memory to be taken from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=18.25) [buffer pool and make the buffer pool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=20.5) [shrink. Now, if the buffer pool shrinks,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=22.25) [you've got less space available in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=24.078947368421055) [buffer pool for pages, so first of all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=25.921052631578952) [you're going to have a performance drop](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=27.954545454545453) [from forcing a bunch of pages to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=29.54545454545454) [written out to disk potentially if they're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=31.363636363636353) [dirty and then waiting for the memory to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=33) [be stolen from the buffer pool. So, while](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=35)[CHECKDB is running you've got a smaller](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=37.227272727272734) [buffer pool. Now, what's annoying is that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=39.7727272727273) [CHECKDB is not actually going to use all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=42.07894736842106) [of that query execution memory grant. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=44.60526315789476) [grant request is going to be in terabytes,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=46.76315789473684) [and that's because there's no way for the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=48.86842105263158) [Query Processor to figure out what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=50.97368421052632) [cardinality estimation is for the query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=53.558823529411775) [that CHECKDB is going to run. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=56.029411764705905) [execution memory grant that CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=58.75) [actually gets is not going to be terabytes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=60) [of course, but on a system with say 100 GB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=62) [of memory the grant may be as high as 10](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=64.46) [GB. That's an awful lot of space that gets](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=66.85999999999994) [stolen out of the buffer pool and is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=69.0199999999999) [unavailable for buffer pool use while](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=71.49999999999997) [CHECKDB is running. Jonathan on our team](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=73.49999999999994) [did a bunch of performance testing and has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=75.55263157894734) [shown that limiting the amount of memory](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=77.65789473684202) [for CHECKDB to maybe around a gigabyte can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=79.5) [actually lead to a performance increase](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=81.60526315789468) [and removes a lot of the buffer pool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=83.1842105263157) [pressure from that large memory grant.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=85.44736842105262) [Now, if you want to constrain that amount](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=87.34210526315785) [of memory, again you can use Resource](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=89.86842105263149) [Governor to do this. Jonathan's blog post](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=91.6904761904762) [is there at that bit. ly link, and we've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=93.35714285714289) [done this on several clients with large](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=95.5) [amounts of memory on their service and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=97.4444444444444) [seen a significant increase in performance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=99.3888888888888) [for the consistency checks and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=101.375) [consequent no drop in workload performance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=104) [while CHECKDB was running. So, this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=106.625) [something else that I encourage you to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=108.63636363636367) [and try out on some of your larger systems](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=110.45454545454554) [to make sure that you're not getting an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=112.5) [inadvertent workload hit from this unknown](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=115.5) [cardinality estimation causing a very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=117.75) [large query execution memory grant for CHECKDB.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=11&mode=live&start=121.5)

[Making DBCC CHECKDB Go Faster (4)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live)

[Making DBCC CHECKDB Go Faster, Part 4.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=2) [There's one more thing that can make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=4.210526315789474) [CHECKDB go slow, and that's if you've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=6.421052631578949) [indexes on computed columns. It causes a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=9.153846153846155) [really drastic slowdown. This also applies](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=11.84615384615385) [to CHECKTABLE and CHECKFILEGROUP as well.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=13.882352941176473) [As I was doing the benchmarking tests for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=15.647058823529418) [the degree of parallelism data that I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=18) [showed you a couple of slides back, I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=19.473684210526308) [found this problem actually by accident,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=21.15789473684209) [and it's been there since SQL Server 2005.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=22.799999999999997) [The problem is as follows: Any time that a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=25.999999999999986) [table has an index on a computed column,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=29.090909090909093) [all the threads inside CHECKDB are going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=31.27272727272728) [to end up bottlenecking on a latch called](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=33.181818181818194) [DBCC\_OBJECT\_METADATA. This latch controls](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=36.5) [access to a structure inside the Query](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=38.5) [Processor called the Expression Evaluator,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=41.66666666666667) [and the Expression Evaluator is what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=43.33333333333335) [CHECKDB has to use to evaluate computed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=45.333333333333364) [column expressions to be able to check](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=47.94444444444443) [that their persisted values are correct.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=50.66666666666663) [Now, all the threads are going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=53) [hitting this particular latch because when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=54.52380952380952) [a table has an index on a computed column](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=55.66666666666666) [all the threads are going to be processing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=57.57142857142857) [pages from that index. The only problem is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=59.85714285714285) [that this latch can only be acquired in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=62.26315789473685) [exclusive mode, and exclusive means only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=64.78947368421053) [one thread at a time can hold that latch,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=66.68421052631577) [and that's what causes the bottleneck. All](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=69.28571428571433) [the threads are waiting for that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=71.27777777777777) [particular latch, and so it ends up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=72.9444444444444) [becoming a massive bottleneck. In fact, in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=74.8888888888888) [my testing I saw it lead up to a 20x](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=77.09090909090908) [decrease in performance having those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=80.72727272727268) [indexes on computed columns. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=82.54545454545448) [unfortunately this problem is not going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=84.27777777777777) [be fixed. The only solution is while](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=86.22222222222217)[CHECKDB is running disable the indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=88.16666666666657) [that have computed columns in them. That's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=90.41176470588235) [not hugely palatable, but taking a CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=93.70588235294116) [that runs days down to something that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=97) [takes only a few hours by disabling a few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=99.21052631578944) [nonclustered indexes and rebuilding them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=102.05263157894728) [afterwards might be a solution that works](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=103.5) [for your particular environment, and you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=105.25) [can read my blog post on this at that bit. ly link there.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=12&mode=live&start=106.75)

[Summary](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live)

[Summary. So, in this module we talked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=1.5) [about how CHECKDB works internally, things](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=4.125) [like how parallelism works, how it makes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=6.375) [use of the Query Processor, how algorithms](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=8.676470588235295) [like the nonclustered index checks works,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=10.735294117647065) [and that gives us an idea of some of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=12.5) [performance characteristics of CHECKDB. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=14.642857142857135) [gives us the background to understand why](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=15.81578947368421) [some of the tweaks you can make can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=18.026315789473674) [increase CHECKDB performance such as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=20.552631578947345)[constraining the query execution memory](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=22.42307692307692) [grant, constraining degree of parallelism,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=24.73076923076922) [potentially disabling indexes on computed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=27.03846153846152) [columns, and which options and trace flags](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=28.64285714285714) [you can use. So, there are a bunch of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=30.64285714285713) [different things you can do to make your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=33) [CHECKDB's run faster in your particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=35)[environment. I recommend as I said several](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=36.5) [times that you try these things out to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=38.49999999999999) [if you can make drastic increases in your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=41.071428571428555) [CHECKDB performance because especially in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=43.78571428571429) [a disaster recovery situation you're not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=45.928571428571445) [going to start recovering from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=48.5) [disaster until you've run CHECKDB to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=50.394736842105274)[figure out exactly what the problems are.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=52.28947368421055) [In the next module we're going to switch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=54.5) [gears a bit, and we're going to talk about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=55.95454545454544) [some of the useful undocumented DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=57.59090909090906) [commands, things like DBCC PAGE, DBCC IND, and DBCC WRITEPAGE.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m2-checkdb&clip=13&mode=live&start=59.5)

[Useful Undocumented DBCC Commands](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live)

[Hi. This is Paul Randal from SQLskills.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=2) [com, and I'm recording this course for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=3.8666666666666663) [Pluralsight. This is the SQL Server:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=5.7333333333333325) [Advanced Corruption Recovery Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=7.666666666666665) [course, and you're watching Module 3:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=9) [Useful Undocumented DBCC Commands.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=11) [Introduction. Apart from the 30 or so DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=15)[commands that are documented in Books](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=17.66666666666666) [Online, there are well over 100](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=19.666666666666654) [undocumented DBCC commands as well. Most](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=21.75) [of the undocumented DBCC commands are only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=24) [actually useful for the test teams in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=26.625) [SQL Server Product Group at Microsoft, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=28.75) [some of them are really, really valuable](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=30.5) [when we're dealing with database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=32.25) [corruption and we want to look at database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=33.5) [structures, pages, and so on. In this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=35.5) [module we're going to talk about DBCC IND,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=38.38095238095237) [DBCC PAGE, DBCC DBINFO, DBCC DBTABLE, and DBCC WRITEPAGE.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=0&mode=live&start=42.19047619047617)

[DBCC IND](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live)

[DBCC IND. DBCC IND is what you can use to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=2) [get a tabular list of all the pages of all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=5.2) [page types that are allocated to a table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=8.400000000000002) [and all its indexes. There is a syntax](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=10.81818181818182) [diagram. You can see that you have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=13.000000000000007) [specify a database name or ID, an object](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=15.181818181818194) [name or ID, a third parameter which tells](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=17.363636363636367) [DBCC in what pages to dump, and then a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=19.545454545454554) [partition\_number if you've got a partition](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=22) [table or index. The options for the third](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=23.999999999999993) [parameter are as follows: If you specify a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=26.66666666666665) [nonclustered index ID, in other words a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=29.14285714285714) [number higher than 1, it's just going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=31.14285714285713) [give you the pages for that nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=33.42857142857141) [index. If you specify a 0, it's just going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=35.25) [to dump the base table, whether that's a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=37.5) [heap or a clustered index. Specifying a 1](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=39.66666666666667) [just means the clustered index. If you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=42.33333333333336)[specify -1, that's going to dump all pages](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=44.631578947368425) [for the base table and all nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=47.157894736842124) [indexes including all the allocation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=49.36842105263161) [units. And if you specify -2 that's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=51.00000000000001) [to dump just the IAM pages for all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=53.66666666666669) [indexes and allocation units, so only the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=56.666666666666714) [pages of type 10. This command works in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=59.210526315789494) [all versions of SQL Server. Now, in SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=62.15789473684215) [Server 2012 they did add a new DMV, sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=65.3125) [dm\_db\_database\_page\_allocations, which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=69.25) [gives kind of the same output, but in a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=70.125) [slightly different format, but I like to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=72.66666666666669) [use DBCC IND because it works across all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=74.33333333333337) [versions of SQL Server, so that's what we're going to use in this course.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=1&mode=live&start=77)

[DBCC PAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live)

[DBCC PAGE. This command dumps out the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=2) [contents of an individual data file page.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=5) [There is a syntax diagram there. You have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=8) [to specify a database ID, the file ID, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=9.904761904761898) [page number within the file, and then what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=12.047619047619033) [kind of print option you want. You can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=14) [also use WITH TABLERESULTS, and that will](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=16) [give you a tabular output. Now, to be able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=17.75) [to get any output from this command you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=20.545454545454533) [have to use trace flag 3604; otherwise,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=23.090909090909065) [it's not going to print any results at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=25.25) [all. There are four parts to the output of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=27.25) [this command. The first part is the BUF](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=29.5) [structure, basically how the page image is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=31.894736842105253)[mapped into the buffer pool itself; then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=34.10526315789474) [there's the page header, the allocation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=36.333333333333336) [status of the page and the allocation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=38.33333333333335) [status of the extent that the page is part](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=40.6666666666667) [of; and then a dump of the page contents.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=43.42857142857142) [Now, you can alter what gets dumped out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=46) [using the print options, and the print](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=48) [option values are as follows: If you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=49.75) [specify 0, it prints out everything except](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=51.61538461538461) [the page contents itself. If you use 1,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=53.76923076923076) [it's going to give you a hex dump of all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=55.923076923076934)[the records on the page plus the offset](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=58.23076923076927) [table at the end of the page. If you use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=60.07692307692314) [2, it gives you a hex dump of the whole](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=62.71428571428571) [page plus the offset table. And if you use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=65.5714285714286) [3, it's going to give you a hex dump of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=67.61538461538464) [each record, and then it's going to go in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=69.15384615384625) [and crack open each record and give you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=70.53846153846169) [the column names and the column values of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=72.73913043478258) [each of the columns in the records on the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=75.52173913043471) [page. From my perspective, this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=78.65217391304336) [probably the most useful of all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=80.11111111111114) [undocumented DBCC commands as it's the one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=81.66666666666674) [that allows you to look at the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=83.4090909090909) [structures themselves. DBCC PAGE is able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=86.68181818181816) [to interpret the contents of every single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=88.31818181818181) [page type, and we're going to have a look at DBCC IND and DBCC PAGE now in a demo.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=2&mode=live&start=89.74999999999999)

[Demo: DBCC IND and DBCC PAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live)

[In this demo I'm going to show you two of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=2) [the DBCC commands that I've been talking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=4.608695652173912) [about, DBCC IND and DBCC PAGE. They are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=6.434782608695653) [both undocumented, but they're both](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=8.666666666666668) [incredibly useful. So first off I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=10.333333333333337) [to create a database to use, and then I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=13.5) [going to create a table with some various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=18) [column values, and I'm going to insert](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=22) [some rows and then create a clustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=26.05263157894736) [index and a nonclustered index just so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=30.10526315789472) [we've got a few structures to use. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=33.58333333333333) [DBCC IND is what enables us to look at the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=35.91666666666664) [list of pages that are allocated to a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=38.833333333333286) [table in various ways. So, DBCC IND takes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=41.45454545454547) [a database name or a database ID, a table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=44.3636363636364) [name or ID, and it also takes a dump](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=47.636363636363704) [style. So, let's look at dump style 0.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=51.5) [Dump style 0 is going to dump out either](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=55) [our heap or our clustered index. So, there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=58.00000000000002) [are all the pages that are allocated to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=60.5) [our heap or our clustered index. In this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=62.5) [case we have a clustered index. We have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=64.76923076923077) [the pages themselves. We have the IAM page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=67.84615384615387) [that tracks the individual pages. So, this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=70.42857142857146) [one is an IAM page because it doesn't have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=72.4285714285715) [an IAM page tracking it. We have the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=75) [ObjectID, the IndexID, PartitionNumber.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=79) [So, we didn't create any partitioning, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=81) [the storage engine considers everything to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=82.86666666666666) [be partitioned, and unpartitioned tables](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=84.46666666666665) [are just a special case with only one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=86.5) [partition. And then there's the allocation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=90.5) [unit type; the PageType, PageType 10 is an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=92.57894736842103) [IAM page; and then the level on the index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=95.10526315789467) [and some page linkages like so. So, that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=98.5) [dump style 0. Dump style 1 is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=102.5) [dump all of the allocations units for the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=107.75) [clustered index. Dump style 0 only gives](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=112.75) [us the in-row data. So, for our clustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=115.74999999999997) [index now we've got the row-overflow data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=118.54999999999993) [allocation unit and the LOB data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=121) [allocation unit. And if we go back to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=123.09999999999997) [schema definition, we can see that I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=126.24999999999991) [created two VARCHAR 5000's where the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=128.57142857142856) [default values are 5000 bytes each, so one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=130.28571428571422) [of them is going to get pushed off-row](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=132.57142857142844)[immediately, and a VARCHAR (MAX) with a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=134.83333333333331) [default value of 5000 bytes, so that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=136.77777777777771) [going to get pushed off-row immediately,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=138.72222222222211) [and that's why we've got our LOB and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=142.2352941176471) [row-overflow allocation units there. Dump](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=147.41176470588246) [style 2 is going to give us the pages just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=150.625) [for IndexID 2 like so. Dump style -1 gives](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=156.875) [us all the pages for everything, so all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=161.27272727272725) [the pages for IndexID 1 and then all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=163.81818181818176) [pages for IndexID 2 as well, all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=166.68181818181807) [allocation units. Dump style -2 gives us](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=169.34782608695656) [all of the IAM pages for all of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=172.0869565217392) [allocation units. So, that's the various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=175.60869565217405) [modes that you can use for DBCC IND. Now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=178.69230769230774) [let have a quick look at DBCC PAGE. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=183.2173913043478) [I'm going to turn on this trace flag 3604,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=185.17391304347814) [and this just allows the output of DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=187.13043478260846) [PAGE to come to our current connection. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=189.1428571428571) [you don't turn on this trace flag, you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=191.42857142857133) [don't get any output from DBCC PAGE, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=193.71428571428555) [that's all that trace flag does. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=196.6923076923077) [let's have a look at the pages in our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=199.57142857142856)[clustered index again, and we'll pick a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=202.14285714285705) [random one, 319. I want to make sure it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=204.142857142857) [a data page though. Yep, type 1 data page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=207.11764705882348) [so 319. So, we'll do 319 there, and we'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=210.2941176470587) [also cut and paste that there, there, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=215.8125) [there. And we notice that 360 there was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=221.3125) [our type 2 index page, so I want to cut](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=224.3333333333334) [and paste that 360 because we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=227.66666666666683) [look at the index page as well. So, dump](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=230.56521739130434) [style 0 gives us just the BUF structure,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=235.65217391304344) [how the buffer pool has this page mapped](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=240.1739130434782) [into memory. And also it has the PAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=244.00000000000003) [HEADER. It breaks out the PAGE HEADER.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=246.66666666666677) [Fields like the type of the page, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=248.90909090909088) [level of the index, the object ID, and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=251.45454545454538) [indexId, and DBCC page does all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=254.35) [lookups to find what the actual object ID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=256.8) [and indexId are because the objId and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=259.6000000000002) [indexId on the page are no longer the real](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=262.34999999999997) [object IDs and index IDs since 2005](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=266.39999999999986) [onward. Then things like the number of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=269.5499999999998) [records on the page, number of ghost](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=271.80000000000007) [records on the page, the log sequence](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=273.90000000000015) [number of the last log record whose change](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=276) [is reflected on the page, and so on. Then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=279) [it gives us the allocation status of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=282.2105263157895) [page and the extent that the page is part](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=283.8947368421053) [of. These are derived from these various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=285.78947368421063) [allocation bitmaps, and that's all we get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=287.41176470588243)[for dump style 0. So, dump style number 1](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=289.05882352941194) [is going to give us the same stuff, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=291.39999999999986) [it's also going to give us a hex dump of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=293.9199999999996) [each of the various records. So, we only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=296.71999999999935) [have one record on that page. Dump style 2](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=302.3846153846154) [gives us a hex dump of the entire page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=308.0588235294118) [after interpreting the page header. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=311.2352941176473)[there's a hex dump for the whole page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=313.5) [where the slots are right down at the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=317.5) [bottom. And then dump style 3 is the most](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=321.5) [comprehensive. It is the one that I use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=324.2222222222222) [the most. And that gives us all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=326.44444444444434) [information including a hex dump of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=328.5) [records, but then it actually cracks the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=330.25) [records open for us and gives us the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=332) [column names, the column values, any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=335.3684210526317) [off-row linkages that there are. This is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=337.89473684210543) [really useful. And that's that. So, that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=340.7368421052631) [the type of page dump that I use the most.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=343.31578947368405) [If I can't use that kind of page dump](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=347) [because the page is corrupt, I usually use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=348.7307692307691) [a dump style 2 to look at a hex dump of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=350.26923076923055) [the whole page. So, we already know what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=352.7619047619048) [our index page number is, 360, so we'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=355.8095238095241) [look at that. And if we do a dump style 3,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=358.85714285714334) [then we can see this is dumping the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=362.6666666666665) [contents of the index page. So, this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=365.33333333333303) [the page that we're dumping, and it's got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=367.78260869565213) [the linkages to all of the pages at the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=369.86956521739114) [level below plus the clustered index key;](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=372.21739130434753) [the UNIQUIFIER that gets added in to make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=374.33333333333326) [the clustered index key actually unique if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=376.9999999999998) [necessary; the Row Size, this was newly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=379.5) [added to 2012; and then for nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=383) [indexes there's going to be KeyHashValue](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=386.5) [that's calculated, which is what the lock](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=388.90000000000003) [on the row is actually on rather than the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=391.0000000000001) [index keys themselves. Now, if we look at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=393.7000000000002) [dump style 1 we're going to get the hex](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=396.2272727272727) [dump of those index records, and we can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=399.090909090909) [see the index records are an awful lot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=401.42857142857144) [smaller than data records. We're not going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=403.1428571428572) [to go into many details of this. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=404.7142857142857) [isn't really a data structures course, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=406.61904761904765) [as an advanced corruption course I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=408.28571428571433) [expecting that you know a bunch of this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=409.92307692307696) [stuff already. And then at the bottom we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=412.38461538461553) [get the slot array. Remember the slot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=414.42857142857144) [array grows backwards from the end of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=416.09523809523813) [page 2 bytes per record on the page. Now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=418) [let's have a look at an IAM page, type 10.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=422.2631578947367) [So, let's just pick this one up here, page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=427) [317, and DBCC PAGE is going to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=431.12499999999983) [crack open all page types for us. So, for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=435.708333333333) [an IAM page it give us the IAM page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=439.4000000000001) [Header. Interesting things here are the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=442.5500000000003) [sequenceNumber starting at 0, and the IAM](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=444.65000000000043) [pages are added basically in random order.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=446.8461538461539) [It's the GAM intervals that require IAM](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=449) [pages. As soon as they're required, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=450.75) [IAM page is added onto the end of the IAM](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=452.5) [chain. The start page here tells us which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=455.41176470588243) [GAM interval and which file. So, this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=458.2352941176473) [starting at page 0 and file 1, so this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=460.78260869565213) [the very first GAM interval and the very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=463.3913043478259) [first file. The first IAM page in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=465.4782608695649) [chain has the single page slot array,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=467.42857142857144) [those first eight mixed pages that are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=469.09523809523813) [allocated to the allocation unit. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=470.7619047619048) [it has the extent bitmap, same size as a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=474.6666666666665) [regular GAM page. So, this is saying the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=480.1666666666663) [extent starting at page 384 to the extent](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=483.6666666666666) [starting at page 512 is NOT ALLOCATED to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=486.3333333333331) [this particular allocation unit. So, just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=489) [to show you that it can dump all kinds of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=490.8947368421053) [different page types, let's look at a PFS](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=494.0526315789475) [page. So, the very PFS page is always page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=496.59999999999997) [1, and we can see that DBCC PAGE will](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=499.4799999999999) [quite happily dump out the various](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=502.35999999999984) [interpretations of the bits on the PFS](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=505) [bytes. So, this is saying the byte for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=508.5) [page 6 to the byte for page 7 has these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=511.5789473684209) [bits set. So, you can see the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=515.2631578947365) [interpretation of these bits here. There's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=516.9523809523807) [one that has a ghost record done and so on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=518.0952380952376) [and so on. So, that's just a very quick](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=520) [introduction to DBCC IND and DBCC PAGE,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=522.4545454545453) [and we're going to use these in some of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=524.363636363636) [the more advanced demos that we do through the rest of the course.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=3&mode=live&start=529)

[DBCC DBINFO](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live)

[DBCC DBINFO. This command dumps out the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=3) [boot page information for the database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=5.692307692307694) [The boot page is always stored on page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=8) [number 9 and file number 1, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=10.181818181818187) [contains a bunch of metadata about the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=12.363636363636374) [database. The syntax is as follows: dbcc](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=14.26086956521739) [dbinfo. And you give it a name or you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=16.086956521739125) [don't give it a name, and it dumps out the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=18.43478260869564) [boot page for the database whose context](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=21.230769230769226) [you're in. And just like other commands](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=23.384615384615373) [you can use WITH TABLERESULTS to get some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=25.25) [tabular output, and you need to use trace](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=27.25) [flag 3604 to get results. Now, some of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=29.3) [interesting fields in the boot page that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=32.00000000000001) [this command dumps out are the count or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=34.09999999999999) [the number of times the transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=36.84210526315791) [has been rebuilt for any reason;](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=39.42105263157899) [dbccFlags, which is what controls whether](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=41.63157894736848) [the data purity checks are run by default](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=43.13636363636363) [or not, a value of 0 means that they're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=44.954545454545446) [not, a value of 2 means that they are; the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=47)[last time that any of the hidden system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=50.63636363636367) [tables were manually updated, and we'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=53.545454545454604) [talk about that in Module 6; and then the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=55.66666666666667) [time that DBCC CHECKDB last completed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=58.66666666666669) [successfully without finding any corruptions for this database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=4&mode=live&start=60.66666666666671)

[DBCC DBTABLE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live)

[DBCC DBTABLE. This command dumps out a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=2) [bunch of internal information about the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=4.625) [database, basically the DBTABLE structure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=6.875) [that's materialized in memory encompassing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=9) [all of the storage engine metadata about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=11.5) [the database, data files, log files, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=15) [the various parts of the log manager. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=17.999999999999993) [syntax is as follows: You basically have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=21.227272727272727) [to give the database a name or ID or you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=22.818181818181813) [can just use DBTABLE, and it will dump out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=25.09090909090908) [the information for the database whose](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=27.78571428571429) [context you're in. Just like some of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=29.928571428571434) [other undocumented DBCC commands there's a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=32.17647058823529) [WITH TABLERESULTS option to get tabular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=33.58823529411764) [output, and you've got to turn on trace](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=35) [flag 3604 to be able to get any results at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=37.5263157894737) [all. Now, as far as the sections of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=40.68421052631582) [output, this has some database metadata.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=43.153846153846146) [It has the file control block or the FCB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=45) [for each file in the database, and then a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=47.45454545454546) [bunch of information about the transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=49.90909090909092) [log. So, it has information about the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=51.55555555555556) [manager itself, it has the various log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=53.777777777777786) [cache entries, it has the information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=55.722222222222236) [about each VLF, each virtual log file in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=57.66666666666668) [the transaction log, and then it has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=60.333333333333364) [information about what's called the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=62.8) [truncation manager. One of the most useful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=65.2) [things it has is it has all of the timing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=67.13636363636367) [information from when the database was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=69.409090909091) [last started up. This is really](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=70.77272727272741) [interesting to be able to see how long](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=72.13636363636367) [each phase took, and it's one of the ways](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=73.95454545454554) [you can identify whether your disaster](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=76) [recovery or your crash recovery is being](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=78.11764705882356) [affected by having too many VLFs in your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=80.58823529411772) [transaction log. Now we'll look at both DBCC DBINFO and DBCC DBTABLE in a demo.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=5&mode=live&start=86)

[Demo: DBCC DBINFO and DBCC DBTABLE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live)

[In this demo I'm going to quickly show you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=2) [DBCC DBTABLE and DBCC DBINFO, two more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=5.315789473684209) [undocumented DBCC commands. Now, I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=7.89473684210526) [to use the SalesDB database, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=9.85714285714286) [get that from that bit. ly link there,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=12.142857142857151) [download that, and I've got an example of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=14.428571428571443) [restoring it just here. So, let's go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=17.8235294117647) [and restore that. It takes a few seconds.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=21.588235294117627) [You can see it running the upgrade steps](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=25.608695652173907) [there up to 2012, and I'm also going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=29.782608695652158) [create a little tiny database to play](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=34.47826086956519) [with. Now, both of these commands, just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=37.10000000000001) [like DBCC PAGE, need the trace flag 3604,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=39.55000000000002) [so I'm going to go ahead and turn that on.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=42.625) [Now first off, DBCC DBINFO. Now, this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=48.875) [basically dumping the boot page, page 9](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=52.57142857142857) [and file number 1, and it has a few little](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=53.9047619047619) [interesting bits of information. For](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=55.809523809523796) [instance, what version is this database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=57.09090909090909) [at? What version was it created at? When](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=58.727272727272734) [was the database created? Now, what's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=61.7222222222222)[interesting for the when the database was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=64.05555555555551) [created is that it's the creation date](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=66.73684210526315) [when you did the create database or more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=69.31578947368418) [recently if you did a restore database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=72.26315789473678) [because this SalesDB database was actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=74.17647058823529) [created three or four years ago, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=75.58823529411764) [because I just restored it that's the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=77.3076923076923) [creation date that you get. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=79.46153846153845) [there's how many times have you caused a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=81.66666666666666) [transaction log to be rebuilt. That's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=84.33333333333329) [going to get bumped up if you're using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=86.3)[emergency mode repair as we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=88.69999999999997) [talk about later on. Dbccflags. If this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=90.79999999999995) [set to 2, that means data purity checks](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=93.33333333333331) [that I talked about in the earlier course](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=95.99999999999994) [are going to be run by default. If that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=98.66666666666657) [set to 0, there's something wrong. You may](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=101.28571428571433) [have hit the bug. And if you're looking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=103.34782608695653) [for instance at master you may have hit a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=104.73913043478265) [bug that's been there since day one in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=106.30434782608704) [2005 where the boot page for master is not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=108.5) [set up with that dbccFlags set to 2, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=111.875) [so data purity checks are not being run on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=115.25) [master. I blogged about that recently, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=118.09999999999998) [you should go and check this. And if your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=120.19999999999996) [dbccFlags for master or model is set to 0](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=123.04347826086955) [then you should run a DBCC CHECKDB and use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=126.1739130434782) [with data\_purity to force that flag to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=129.30434782608688) [set to 2. So, then we've also got another](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=132.84210526315798) [couple of interesting things. This here is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=137.10526315789494) [actually the first page in hex, so this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=141.05263157894734) [actually page 20 of sysallocunits system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=147.21052631578937) [table; And then there's the time that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=151.31578947368405) [system tables were last manually updated,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=153.84210526315795) [and I'll talk about that later on in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=155.42105263157904) [course; the time that CHECKDB last](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=158.5) [completed without finding any errors. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=161.5) [if it's set to 1900-01-01 that means](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=164.3) [CHECKDB has never been run at all or has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=166.4000000000001) [never run successfully. And this here is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=169.1000000000002) [more like the time that database was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=171.71428571428567) [created, the modDate. Now, there's a whole](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=174.71428571428558) [bunch of other stuff there that you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=176.57142857142856) [see obviously, but to be honest I don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=177.71428571428567) [find most of it really useful in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=178.85714285714278) [majority of cases, so I'm not going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=180.5555555555556) [talk about them. Let's have a look now at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=182.33333333333343) [DBCC DBTABLE, first off for our small](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=186) [database that we just created. So, it has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=189.5) [a bunch of the same kind of stuff as in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=193.125) [DBINFO, but it also has some information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=196.875) [about how the database is seen as far as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=199.5) [SQL Server is concerned, for instance, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=203.63157894736835) [StartupPhase, the CurrentState of it, a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=207.31578947368405) [bunch of flags to do with how the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=210.47368421052607) [is being used. Then we've got what are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=213.28571428571422) [called FCBs, file control blocks. So, this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=215.57142857142844) [is the information that's really the file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=217.70588235294116) [header information, so the information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=220.17647058823522) [from page 0 of each file. So, here's our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=221.94117647058812) [MDF, and it has things like the size and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=226.1764705882353) [so on. And there's our log file, fileid 2.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=230.94117647058826) [Then we have some information about the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=235.9375) [log manager. We have some information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=239.875) [about each of the in-memory blocks in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=242.26315789473688) [log cache that log blocks are copied into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=244.78947368421063) [before they're flushed out to disk, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=247.25) [we're going to have a few of them. There](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=249) [will be more for our larger database. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=251.33333333333334) [then we have the actual VLFs. So, these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=254.00000000000009) [LFCBs are the VLF control blocks, and we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=256.7058823529412) [should have four of them like so. And we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=259.5294117647061) [can see that there's only of them that has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=262.7368421052631) [the status of 2, which means it's active.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=266.05263157894717) [The rest of them are inactive. The first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=269) [one starts at 8192 bytes into the file.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=271.5) [That's because there's a file header page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=274) [at the start of the log file. I go into a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=275.99999999999994) [lot more detail about all of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=279.47368421052624) [information here in the log and recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=282.05263157894717) [course. Some information about the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=284.6315789473681) [truncation manager. And then this stuff I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=286.5625) [find pretty interesting, which is when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=288.75)[startup, when crash recovery basically was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=290.7777777777778) [last run. How long did each of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=293.1111111111113) [different phases take in number of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=296.2222222222226) [milliseconds? And you can use this if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=298) [you've got a database that's taking an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=299.75) [awful long time to start up. You can use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=301.5) [this information to see which of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=303.99999999999994) [phases is actually taking a long time.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=305.9999999999999) [It's also a good way to be able to tell](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=308) [whether you've got rid of VLF](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=310.7272727272725) [fragmentation and you've made a difference](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=312.36363636363603) [to how long it takes to start up your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=314) [database. So, let's have a look at that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=316.04545454545473) [for the same information for the SalesDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=317.8636363636367) [database that I just restored, which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=320.16666666666663) [would've run some recovery. And you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=323.6666666666665) [see there's an awful lot more information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=326.75) [here. There's a lot more in-memory log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=328.5) [blocks in the log cache. There are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=330.25)[probably going to be 128 of those because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=332.25) [that's the maximum number. So, we'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=334.75) [scroll all the way down. There's our FCBs,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=337.0769230769231) [sorry our VLFs. And now we have the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=341.3846153846155) [startup information, and we can see that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=345.3684210526315) [it took quite a few more milliseconds. I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=348.6842105263156) [mean there's not a huge difference here,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=352.2142857142857) [but you can see the difference. There was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=353.7142857142858) [some more time taken to have to startup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=355.5) [this database. Now, you might have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=357.5) [database that takes seconds or hundreds or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=359.3157894736841) [thousands of seconds based on having huge](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=361.15789473684185) [numbers of VLFs, and this is the way that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=363) [you can tell which part of the recovery is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=365.8636363636363)[suffering because of that. So, that's just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=368.72727272727263) [a very quick introduction to DBCC DBTABLE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=371.1538461538461) [and DBCC DBINFO. So, now we've looked at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=373.8461538461536) [all four of the undocumented DBCC commands](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=376.25) [that I use to get some information about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=378) [what's going on inside databases when I'm doing some kind of corruption recovery.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=6&mode=live&start=380)

[DBCC WRITEPAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live)

[DBCC WRITEPAGE. Apart from DBCC PAGE, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=2) [next most useful command as far as I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=4.94736842105263) [concerned is DBCC WRITEPAGE, and this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=8.315789473684205) [command is used to directly update the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=10.615384615384617) [contents of a page. There is a syntax](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=12.769230769230775) [diagram there. You have to specify the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=15) [database name or ID, the fileid, the page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=16.75)[within the file, the offset within the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=18.75) [page starting at 0, the length from 1 to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=20.999999999999993) [8, and then a hexadecimal string starting](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=23.999999999999982) [with 0x and two characters for every byte](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=26.4) [of length that you want to change, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=29.599999999999987) [then this option directORbufferpool. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=32.799999999999976) [I can't stress this strongly enough. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=35.25)[undocumented command can really cause a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=39.26315789473684) [lot of problems if you use it in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=40.8421052631579) [production and you update the wrong thing.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=42.94736842105264) [It can take down a database. You can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=44.78947368421053) [actually use it to force a server crash.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=46.89473684210527) [You use this command entirely at your own](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=49) [risk. Now, saying that though, it is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=51.666666666666686) [extremely useful because it allows you to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=54.000000000000036) [create corrupt databases to do testing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=56.14285714285714) [with, and it also allows you in some cases](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=57.85714285714285) [to manually fix corruption, and I'll show](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=60.42857142857141) [you some examples of that in Module 6.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=62.53846153846153) [Now, you might be wondering what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=65) [directORbufferpool option is. I actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=67.09999999999998) [added this in SQL Server 2005 as a way to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=68.73684210526315) [allow page checksum failures to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=72.4210526315789) [simulated. Now, what it does under the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=74.63157894736835) [covers is it causes the buffer pool to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=76.14285714285714)[flushed for the database that you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=77.85714285714285) [operating on. The file that you're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=79) [to be operating on, its real file control](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=81.57894736842103) [block is unhooked temporarily and a new](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=84.52631578947363) [one is created. The page itself is read](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=86.7894736842105) [directly into memory and updated with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=88.89473684210519) [whatever update you want or whatever](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=90.4736842105262) [offset you want. And then the page is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=92.19999999999999) [written directly back to disk bypassing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=94.59999999999997) [the buffer pool meaning that the original](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=96.39999999999995) [page checksum on the page is now invalid](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=98.57894736842103)[because we've changed some of the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=101.10526315789467) [without a new page checksum being put on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=103.36363636363636) [the page. Once that's done, the real FCB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=106.27272727272724) [is then put back again. So, the buffer](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=109.18181818181812) [pool doesn't really know anything has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=111.63157894736844) [happened apart from the fact that all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=112.89473684210532) [data was flushed for that database from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=114.57894736842115) [the buffer pool. Now, as I mentioned, you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=116.31578947368418) [can use this command to actually fix](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=118.42105263157886) [database corruption as well. That's really](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=120.22222222222223) [pretty advanced, but I will show you a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=121.5555555555556) [couple of examples of that later on. For](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=123.33333333333343) [the longest time this command was actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=125.49999999999999) [a secret because it can be pretty](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=127.59999999999997) [dangerous, but some people started to blog](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=129.70000000000002) [and present about it so as the author I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=131.63636363636368) [felt compelled to write a blog post. And I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=134.0909090909092) [checked with Product Support and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=136.58823529411762) [Product Group itself inside Microsoft, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=138.3529411764705) [they agreed that it would be useful for me](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=140.11764705882337) [to have a detailed blog post that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=142.71428571428567) [explained about the command and the risks](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=144.7142857142856) [that come with using the command. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=146.71428571428555) [we'll see a bunch of examples of using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=148.60000000000008) [this. In fact, all of the corruption demos](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=150.73333333333352) [that I do and did in the basic course used](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=152.82608695652183) [DBCC WRITEPAGE to be able to easily create](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=155.43478260869588) [corruption, but I'll show you some simple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=157.5) [things you can do to create a whole bunch of different corrupt cases to test with.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=7&mode=live&start=159.25)

[Demo: Creating Corruption Using a Hex Editor](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live)

[In this demo I'm going to show you a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=1) [simple example of causing corruption using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=3.499999999999999) [a hex editor. So, first off I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=5.166666666666665) [create a database to use, and then I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=8.18181818181818) [going to make sure that page checksums are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=11.090909090909086) [turned on. They should be because my model](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=14) [has page checksums turned on, but just to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=16.10526315789474) [make doubly sure. I'm going to create a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=18.21052631578948) [table with some random data; insert 10](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=20.750000000000007) [records in there; make sure everything is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=23.200000000000017) [flush to disk; get a list of all the pages](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=25.650000000000027) [in my table using DBCC IND, and I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=29.11538461538462) [to pick a random one, so I picked 289; and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=32.23076923076924) [use SQL Server as a giant calculator to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=35.81818181818181)[figure out the offset of the start of that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=39.090909090909065) [page within the data file. So, I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=42.772727272727224) [to copy that, and then shut the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=46.5) [offline, which relinquishes the file logs](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=50.5) [that SQL Server has held meaning I can get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=53.3125) [in there with my hex editor. My favorite](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=56.125) [hex editor is XVI32. It's a free download.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=59) [Beware about using XVI32. It only handles](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=63) [files up to 2 GB. If you have a file more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=65.75) [than 2 GB it will truncate it at 2 GB. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=68.5) [you want to play around with a hex editor](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=71.33333333333333) [that won't do that, use one called HXD,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=74.33333333333329) [and that's a free download too. So, let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=76.99999999999991) [open up my file, and I'm going to go to an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=79.95652173913044) [address. So, down here I'm going to hit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=85.21739130434784) [Control+V that copies in my value, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=89.04347826086959) [there I am. So, here's my page header. I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=91.53846153846153) [going to just write a couple of bytes of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=94.31818181818181)[zeros in there, enough to mess up the page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=97.18181818181813) [checksum, hit Save, go back over to SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=100.04545454545445) [Server, bring the database back online,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=103.40000000000002) [and if I do a SELECT \* I'm going to hit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=106.28000000000004) [that corrupt page. The buffer pool when it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=111.56000000000009) [reads the page in is going to realize that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=115.15909090909093) [the page header or anywhere on the page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=119.04545454545462) [has been changed because the checksum is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=122.5) [invalid, and I talked about page checksums](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=125.0277777777778) [in the previous course. But there's just a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=127.5555555555556) [very quick example of how you can cause corruption very simply using a hex editor.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=8&mode=live&start=133)

[Demo: Introducing DBCC WRITEPAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live)

[In this demo I'm going to introduce you to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=1.5) [one of my favorite commands, DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=3.75) [WRITEPAGE. It's an extremely useful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=5.25) [command, but it's also pretty dangerous,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=6.7631578947368425) [so please be very careful how you use it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=8.657894736842106) [The first thing I'm going to do is I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=11.5) [going to create a database to use, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=14.124999999999995) [then I'm going to make sure page checksums](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=16.458333333333325) [are enabled, create a table with some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=19.147058823529413) [data, and then look at what pages there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=23.676470588235304) [are. So, I'm going to pick a random page.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=28.85294117647061) [We'll pick page 290, and I'm going to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=32.282608695652186) [DBCC WRITEPAGE to cause a corruption. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=35.413043478260896) [DBCC WRITEPAGE takes the database name or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=37.9) [ID, the file ID, the page within the file,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=40.69999999999999) [the offset within that page where you want](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=44.299999999999976) [to start the corruption, how many bytes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=46.92857142857142) [you want to corrupt, and a hex string with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=48.928571428571416) [the bytes you're going to use to overwrite](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=51.5) [what was in the page. Now, to use regular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=53.34615384615387) [DBCC WRITEPAGE you don't have to have the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=55.5)[database in single-user mode, so I go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=57.5) [ahead and cause corruption, and I'm trying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=59.25) [to cause a page checksum failure by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=61.500000000000014) [overriding the first two bytes like I did](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=63.833333333333364) [in the previous demo. Now, I'll go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=66.49999999999999) [and Execute, and it throws me some errors](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=69.16666666666661) [because DBCC WRITEPAGE is also going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=71.83333333333324)[a page audit when it's done. So, it tells](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=74.21428571428575) [me there's some stuff wrong, which is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=76.78571428571438) [cool. Now, if I go back and try doing a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=79.1) [SELECT FROM my table it doesn't cause a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=85.09999999999994) [problem. If I run CHECKDB, okay, it gives](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=89.89999999999989) [me a bunch of errors saying yeah there is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=93.23913043478265) [a problem with that page 290, but why](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=96.76086956521749) [didn't I get page checksum failure? Well,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=99.92105263157895) [the way that WRITEPAGE works by default is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=102.86842105263156) [it corrupts the page in memory. Then the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=106.23684210526312) [page is going to get written out to disk.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=108.57142857142854) [Now, as part of being written out to disk,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=110.5) [that writes the page checksum to it. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=112.75) [although this page is corrupt on disk,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=114.875) [it's corrupt, but with a valid page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=117.5) [checksum. Okay, so what we can do to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=120.125) [bypass the buffer pool is to use the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=122.5416666666667) [special parameter I told you about in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=124.87500000000007)[slide, which basically opens its own](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=127.20833333333344) [channel to the device and reads the page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=129.07894736842107) [corrupts it, and writes it straight back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=131.60526315789483) [out again, so the buffer pool doesn't get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=133.8125) [a chance to update the page checksum. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=136.3125) [let's go ahead and do that with page 290.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=139.5625) [Okay. Now, did it get corrupted? No. Why](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=149.125) [didn't it get corrupted? Well, it didn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=156.35714285714283) [get corrupted because I used the same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=159.35714285714275) [value that was there before. This is the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=162.35714285714266) [value I corrupted before at offset 0. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=165.40000000000003) [even though I corrupted it again, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=167.80000000000013) [didn't change the checksum calculation.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=169.9000000000002) [What I need to do is overwrite these bytes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=171.83333333333337) [with a different set of values. So, if I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=175.83333333333348) [do this and use a different two bytes and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=180.41999999999996) [then try doing my select, this time I got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=186.17999999999984) [my 824 because I overwrote the first two](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=191.9399999999997) [bytes from 0 and 1 for 2 bytes with a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=195.89130434782612) [different set of values, and I did it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=199.36956521739143) [without the buffer pool's knowledge using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=202.15217391304367) [the special parameter, so the page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=203.97058823529406)[checksum that was written to that page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=205.73529411764693) [originally was now broken. If I run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=208.14705882352942) [CHECKDB, it'll tell me what's wrong with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=212.67647058823536) [the page. Couldn't be processed. See other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=217.2058823529413) [errors for details. Now, the 824 doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=220.0789473684211) [appear when we do a CHECKDB because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=222.28947368421063) [CHECKDB's job is to essentially eat 823's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=224.5)[and 824's when it can and just try to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=226.49999999999994) [interpret the page for us. So, there's a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=229.07142857142844) [very simple example of how easy it is to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=231.40000000000003) [be able to cause corruptions using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=234.10000000000014) [WRITEPAGE. And the reason that I wrote the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=236.20000000000022) [code that has this special parameter in it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=238.63043478260877) [back in SQL Server 2005 was to enable](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=241.06521739130451) [people to do exactly what I just did,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=243.5) [create page checksum failures without](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=246.02631578947376) [having to shut down the database and use a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=247.60526315789485) [hex editor. Pretty cool stuff. But as I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=250.21428571428572) [said before, be very careful what you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=252.11904761904765) [doing with this. Use this at your own risk.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=9&mode=live&start=253.78571428571433)

[Demo: DBCC WRITEPAGE Examples](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live)

[In this demo I'm going to show you a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=1) [couple of examples of using DBCC WRITEPAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=3.6999999999999993) [to cause targeted corruptions. Now, I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=5.799999999999998) [going to use the SalesDB database, so you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=7.526315789473685) [can download that from that bit. ly link](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=9.631578947368425) [here. Then I'm going to go ahead and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=11.736842105263165) [restore it. This just takes 3 or 4](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=15.181818181818185) [seconds, upgrades it to 2012 like so. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=18.818181818181813) [then what I'm going to do is I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=22.25) [recreating. I'm going to show you how I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=24.25) [did the data purity demo from the end of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=26.25)[the last course. Now, what I did there was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=28.4) [I wanted to engineer a data purity demo so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=30.199999999999992) [I figured if I could get a column of type](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=31.999999999999986) [float and corrupt it to be all ones in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=34.739130434782616) [binary then that would create a data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=37.869565217391326) [purity error. So, I needed to have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=40.30434782608699) [column type that was (price) FLOAT, so I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=43.08695652173914) [changed my price column to be type FLOAT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=45.869565217391326) [in my products table. And what pages are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=48.65217391304351) [there? Now, we're needing to find for the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=51.45000000000001) [demo that I was creating, I mean you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=54.25000000000002) [do this for any random record, but the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=57.04347826086956) [demo I was creating I wanted to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=59.13043478260869) [product ID 306. So, I needed to pick the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=61.217391304347814) [page that was two up from the bottom in my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=63.68000000000001) [DBCC IND output, which is this one, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=66.48000000000002) [I'll copy that. And this is just showing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=68.72000000000003) [you what goes through my head and how I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=70.66666666666669) [create these various corruption demos. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=72.80952380952385) [I copy that and paste it in there, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=74.33333333333333) [let's just make sure that slot 23 is the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=77.33333333333329) [right one. So, we scroll down, slot 12,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=80.33333333333324) [slot 16, 19, 20, 21, 22, 23. Okay, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=83.47058823529409) [ProductID 306. That's what we want. Now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=87.17647058823522) [we're going to corrupt the Price column,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=89.66666666666664) [and this is where DBCC PAGE is really cool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=91.99999999999994) [because it tells us the names of our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=95) [various columns. Now, the Price column is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=97.5) [offset. It's fixed. It's at Offset 8](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=99.6875)[within the record, so we need to find the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=101.82608695652172) [offset of that record on the page, which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=104.5652173913043) [is here in hex and add eight to it. So, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=107) [Copy this, and we go back and we're using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=111.65384615384612) [SQL Server as a calculator again. We Paste](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=115.4615384615384) [that in there, and then we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=119) [convert that to decimal, and there's our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=123)[offset. Now, our floating point value is 8](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=126.5) [bytes long, so we're going to override 8](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=129.80000000000004) [bytes starting at this offset on this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=133.00000000000009) [page, Copy, and Paste. And we don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=135.95238095238096) [actually need to be in single-user mode,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=139.28571428571433) [so there's our 8 bytes of all ones in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=142.6190476190477) [binary, which is FF in hex. So, we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=147) [ahead and do that, and if we run our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=151.5) [CHECKDB what we should find is a 2570](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=156) [error. There we go. Just like that where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=160.11764705882354) [column Price has been corrupted. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=164.3529411764706) [that's how I did that, engineering a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=167.2) [particular corruption. Now, let's have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=168.5999999999999) [look at another one. So, now I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=170) [do something else. I'm going to go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=172.25) [and mess with the page ID and the page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=174.3636363636364) [header of another page in that same table.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=176.81818181818193) [So, let's do a DBCC IND again, and we'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=179) [pick this page, Copy it, and I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=182.74999999999991) [Paste it into my DBCC PAGE and also into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=186.49999999999983) [my DBCC WRITEPAGE. So, we're going to look](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=189.95454545454544) [at the page header and figure out what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=192.49999999999994) [page ID offset is, but we don't get the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=195.36363636363626) [offset from dump style 0. We're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=197.90909090909096) [have to do a dump style 2. And we're also](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=200.0909090909092) [going to need to know the hex of that page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=202.54545454545456) [ID because that's what we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=204.36363636363643) [match on. So, we go back, and let's do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=205.63636363636374) [dump style 2. And then before I do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=208.76923076923072)[I'm going to hit calc on my laptop, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=211.88461538461527) [we're going to Paste our page ID in here,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=215) [convert it hex. So, 5FDB is what we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=218.78947368421063) [looking for. So, let's do our dump style 2](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=222.1578947368423) [of that page, and here's our hex. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=225.99999999999991) [there's our 5FDB, and it's stored by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=229.35) [reversed. So, now we need to figure out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=231.79999999999995) [the offset of this. So, this is in hex, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=234.5999999999999) [this is offset 1-4 in hex, 1-4, 1-8, 1-C,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=238.625) [2-0. So, 2-0 hex is 32 in decimal. So, my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=242.5625) [offset I'm going to corrupt is 32, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=246.74999999999991) [let's just pick I don't know 1122 as the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=250.08333333333317) [two bytes that I'm going to use to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=253.63636363636363) [overwrite. So, I go ahead and hit DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=256.18181818181813) [WRITEPAGE, and that's corrupted that. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=258.72727272727263) [if I do a DBCC CHECKDB we're going to get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=260.75) [a bunch of errors including our 2570 up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=264.5) [there that we just engineered, but now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=267.5) [there are some new errors, and what we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=269.99999999999994) [should see is that it says that we can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=272.66666666666646) [process page 24539, and this error should](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=275.6666666666663) [say the page has the incorrect page ID in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=279.33333333333326) [its page header. We successfully overwrote](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=284.33333333333314) [the page ID and the page header, and we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=286.78947368421046) [caused that page to be unreadable, so we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=289.15789473684185) [get a bunch of other errors as well.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=291.36842105263156) [Pretty cool. So, there's another example](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=294.31578947368405) [of a targeted corruption and how to do it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=296.5263157894734) [using DBCC WRITEPAGE just by simply](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=299.08695652173907) [figuring out the offset of what it is that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=300.39130434782595) [you want to be able to corrupt. And now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=302.3478260869563) [I'll show you something nasty just to show](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=305.39999999999986) [you how dangerous WRITEPAGE can be. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=308.5999999999997) [I'm going to corrupt the boot page and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=311.53333333333336) [first PFS page in tempdb. And I do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=316.3333333333336) [once, and I create some errors. I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=319.909090909091) [to do it again because that's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=321.727272727273) [create even more errors, more corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=323.54545454545496) [in there. Now I'm going to force those out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=325.5999999999999) [of memory and then cause them to be read](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=329.1999999999997) [back in again. I'm going to create a table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=332.66666666666663) [in tempdb, and it throws an error. An](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=335.66666666666646) [inconsistency was detected during an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=338.5833333333333)[internal operation. Please contact](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=341.4999999999999) [technical support. Now, if I do this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=343.83333333333314) [again, it crashed the server. So, the SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=348.23529411764696) [Server actually shut down. And if we look](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=353.4117647058821) [at Configuration Manager it says it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=357.4545454545455) [running. If I do a Refresh it's actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=359.63636363636374) [shut down. So, let's start that back up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=365.99999999999983) [again, go into Object Explorer, make sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=372.8571428571425) [I'm connected, go to Management, SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=379.0769230769231) [Server Logs, the last error log. Check it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=385.53846153846166) [out. There's our inconsistency was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=392.5882352941177) [detected, and here during undoing of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=394.0588235294119) [logged operation in tempdb an error](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=396.11764705882376) [occurred at log record. SQL Server must](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=398.33333333333337) [shut down in order to recover database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=401.44444444444457) [tempdb. It is either a user database that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=404.55555555555577) [could not be shut down or a system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=406.3125) [database. Restart SQL Server. Blah, blah,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=407.8125) [blah, blah, blah, blah. So, using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=409.6666666666666) [WRITEPAGE there very simply I actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=411.9999999999998) [caused SQL Server to crash. So, DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=414) [WRITEPAGE is really cool. It's also pretty](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=417.1818181818181)[dangerous, so you have to know what you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=419.54545454545456) [doing, and I would not use this on a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=421.00000000000006) [production system. Use it entirely at your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=422.63636363636374) [own risk, but you can have an awful lot of fun with it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=10&mode=live&start=428)

[Summary](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live)

[Summary. In this module we talked about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=1.5) [some of the undocumented DBCC commands and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=3.4444444444444438) [how useful they can be when you're trying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=5.3888888888888875) [to deal with database corruption and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=7.833333333333332) [investigate database file structures, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=9.833333333333336) [out of those, DBCC PAGE is the most useful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=11.5) [because that's the one that lets you look](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=13.75) [at page contents. We also discussed DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=15.75) [WRITEPAGE, which is very useful, but it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=17.611111111111114) [also very dangerous because you can cause](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=19.555555555555564)[corruption, you can cause databases to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=21.5) [unusable, you can actually cause the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=23.833333333333325) [server to crash as well, so please use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=25.833333333333318) [this command with care. And again, use it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=28.4375) [entirely at your own risk. In the next](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=30.9375) [module, we're going to talk about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=33.205882352941174) [transaction log problems including dealing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=34.61764705882352) [with a damaged or missing transaction log,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=35.79411764705881) [using the EMERGENCY mode to access a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=37.676470588235304) [database that hasn't properly gone through](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=39.735294117647086) [recovery, using EMERGENCY-mode repair as a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=41.5) [kind of last resort, and how to reattach a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=43.97058823529413) [detached database that's SUSPECT and can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=47.676470588235325) [be properly attached using regular methods.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m3-undocumented&clip=11&mode=live&start=52.5)

[Dealing With Transaction Log Problems](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live)

[Hi. This is Paul Randal from SQLskills.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=2) [com, and I'm recording this course for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=3.8666666666666663) [Pluralsight. This is the SQL Server:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=5.7333333333333325) [Advanced Corruption Recovery Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=7.666666666666665) [course, and you're watching Module 4:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=9) [Dealing with Transaction Log Problems.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=11) [Introduction. One of the modules in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=16) [more basic class talks about the causes of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=18.058823529411757) [database corruption, and the most common](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=20.411764705882337) [cause of database corruption is the I/O](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=21.941176470588232) [subsystem going wrong in some way. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=23.588235294117638) [transaction logs are files just like data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=25.27777777777778) [files, and so I/O subsystem caused](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=27.22222222222223) [corruption can hit a transaction log just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=28.8888888888889) [like it can hit data files. There are a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=30.75) [variety of different things that could be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=33) [wrong with transaction logs, and so the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=34.75) [way you recover from a damaged transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=36.578947368421055) [log depends on a few things like the state](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=38.42105263157895) [of the database and whether it's attached](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=41.00000000000001) [or not. In this module then we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=43.33333333333336) [talk about transaction log problems, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=45.10526315789472) [we're going to cover how you can recover](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=46.052631578947334) [from a damaged or missing transaction log,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=47.631578947368425) [how to use the EMERGENCY mode to access a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=49.84210526315791) [database where recovery couldn't run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=52.68421052631582) [properly, how to use EMERGENCY-mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=54.5) [repair, and how to reattach a detached](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=56.375) [database that's in the SUSPECT mode and fails a regular attach.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=0&mode=live&start=59)

[Database States (1)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live)

[Database States, Part 1. Before we start](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=2) [talking about things like SUSPECT mode,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=4.058823529411764) [it's worth going through a list of what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=5.823529411764704) [the various database states are and what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=8.23076923076923) [they mean. Now, I'm going to do a brief](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=10.384615384615389) [listing here, but you can get a lot more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=11.954545454545457) [information in the Books Online section](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=13.181818181818187) [that talks at database states at that bit.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=14) [ly link there. The ONLINE state. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=17.428571428571423) [database as far as SQL Server is concerned](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=20.263157894736842) [is online and available, so this is not a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=22.368421052631582) [problem. That doesn't mean that there's no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=24.736842105263165) [corruption in the database. That just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=26.800000000000004) [means that there's nothing stopping the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=28.799999999999997) [database being brought online by SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=31.19999999999999) [Server. The opposite of ONLINE is OFFLINE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=33.59999999999998) [of course. This means the database is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=35.41176470588235) [offline and it's unavailable. You're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=37.058823529411754)[to have to bring it online or attempt to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=38.400000000000006) [bring it online to be able to use it. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=40.20000000000003) [the way you do that is you use ALTER](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=42.23809523809524) [DATABASE, the database name, SET ONLINE,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=44.38095238095241) [and that's going to try to run recovery if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=45.80952380952385) [necessary and bring the database online.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=48.33333333333334) [If anything goes wrong that prevents the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=50.33333333333336)[database being brought online, you'll see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=52.66666666666671) [an error message, and you'll be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=54.05263157894736) [take further action based on what that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=55.73684210526314) [error message says. The RESTORING state is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=57.27272727272727) [kind of obvious. The database is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=59.18181818181819) [unavailable because it's in the middle of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=61.00000000000001) [being restored. A common cause of seeing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=63.33333333333336) [this state is somebody has been using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=65.25) [WITH NORECOVERY option in a restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=67.25) [sequence, and then has forgotten to bring](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=68.75) [the database online at the end of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=70.5) [restore sequence. The way that you do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=72.5) [is to use the RESTORE DATABASE, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=74.5) [database name, WITH RECOVERY, and that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=76.25) [just forces the restore system to kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=77.75) [kick recovery and make it do the last undo](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=80.00000000000004) [portion of recovery at the end of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=82.57142857142867) [restore sequence. And then the RECOVERING](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=84.89999999999999) [state is that the database is in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=86.69999999999997) [middle of crash recovery and so is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=89.09999999999995) [unavailable. There's nothing you can do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=91) [here but just wait for recovery to try and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=92.5) [complete. If recovery completes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=94.75) [successfully, the state is going to change](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=95.99999999999999) [to ONLINE. If recovery can't complete](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=98.33333333333329) [successfully, the state is going to change to SUSPECT.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=1&mode=live&start=103)

[Database States (2)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live)

[Database States, Part 2. EMERGENCY mode.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=2) [This is something that you set yourself to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=3.8947368421052637) [allow you to get into a database where a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=6.421052631578949) [crash recovery either couldn't start or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=9.333333333333336) [couldn't complete. Using EMERGENCY mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=11.33333333333334) [allows you to export data out to another](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=12.833333333333336) [database or to use what's called](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=15.055555555555564)[EMERGENCY- mode repair, and we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=16.722222222222236) [talk more EMERGENCY mode and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=18.999999999999993) [EMERGENCY-mode repair later on in this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=20.666666666666654) [module. RECOVERY PENDING is the state the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=22.666666666666647) [database ends up in if crash recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=24.999999999999993) [couldn't start. If the database knows that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=27.333333333333318) [crash recovery has to run because of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=29.136363636363633)[flag in the boot page of the database that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=30.954545454545446) [says that the database wasn't clearly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=33) [shutdown but recovery couldn't run for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=34.875) [some reason, usually because of a missing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=36.75) [or damaged transaction log, the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=38.88235294117648) [would be put into the RECOVERY PENDING](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=40.647058823529434) [state. This is different from the SUSPECT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=42.70588235294122) [state, and that means that recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=44.66666666666667) [started, but wasn't able to finish for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=46.33333333333334) [some reason. And this could be because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=48.22222222222222) [there's damage to the transaction log or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=49.77777777777777) [maybe there's some corruption in one of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=51.33333333333332) [the data files, and as a transaction was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=53) [being rolled forward or rolled back it hit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=55) [the corruption and so recovery couldn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=57) [complete. Now, if your database is in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=59.000000000000014) [either the SUSPECT or RECOVERY PENDING](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=61.333333333333364) [state, there's one thing you could try,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=63.23529411764706) [which is setting the database OFFLINE and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=64.88235294117646) [then trying to bring it ONLINE again, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=66.52941176470587) [that's likely not to work. I've seen it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=68.3636363636364) [work in a few cases, but it's likely not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=70.18181818181827) [to work, but it's worth giving it a try.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=72.18181818181819) [It's more likely that you're going to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=73.81818181818187) [to restore from your backups or go into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=75.27272727272737)[EMERGENCY mode and either use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=80) [EMERGENCY-mode repair or export data out to another database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=2&mode=live&start=85)

[Damaged/Missing Log With Clean Shutdown](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live)

[Damaged or Missing Log with a Clean](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=2) [Shutdown. If crash recovery needs to run,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=4.210526315789474) [it's essential that the transaction log is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=6.421052631578949) [there; otherwise, crash recovery doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=8.666666666666668) [know what to do in terms of replaying or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=10.333333333333337) [undoing transactions. SQL Server decides](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=13.333333333333343) [whether to run crash recovery based on a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=15.000000000000002)[flag in the boot page that says whether](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=17.666666666666664) [the database was cleanly shutdown or not.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=20.33333333333332) [If the database was cleanly shutdown, then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=22.66666666666666) [it doesn't matter if there's something](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=24.999999999999986) [wrong with the transaction log or the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=27) [transaction log is missing because there's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=28.94444444444445) [no crash recovery to run. If the log is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=30.61111111111112) [damaged, you can just remove it, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=32.95238095238096) [it's as if you've got a missing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=34.85714285714289) [transaction log. Now, for a missing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=36.523809523809575) [transaction log, what you need to do is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=37.95238095238096) [tell SQL Server to create a new](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=39.85714285714289) [transaction log for you. The easiest way](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=41.523809523809575) [to do that is to reattach the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=43.99999999999999) [using CREATEDATABASE and one of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=47.19999999999998)[FORATTACH or FORATTACH\_REBUILD\_LOG](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=49.59999999999997) [options. If you had a single log file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=50.75) [before the shutdown occurred, then you use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=53.75) [the FORATTACH option, and that's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=56.3) [create a single 0. 5 MB transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=58.39999999999998) [file with two VLFs. If you had more than](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=60.799999999999955) [one log file, you're going to have to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=63.25)[the FORATTACH\_REBUILD\_LOG. That just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=65.5) [creates another single 0. 5 MB file with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=66.6) [two VLFs. It doesn't create however many](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=68.99999999999997) [log files you had before. If you have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=71.09999999999995) [use either of these two options, remember](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=73.5) [that they're both going to create a single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=75.25) [0. 5 MB log file, and that's not going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=77.21739130434783)[be the right size for your workload, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=79.39130434782611) [make sure that you provision the correct](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=81.13043478260873) [size and configure auto-growth properly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=83.66666666666667) [afterwards. You can get a whole bunch of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=86.44444444444446) [information about how to correctly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=88.1666666666667) [provision the correct size and auto-growth](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=89.00000000000006) [from my Pluralsight course SQL Server:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=90)[Understanding Logging, Recovery, and the Transaction Log.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=3&mode=live&start=96)

[Demo: Recreating the Log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live)

[In this demo I'm going to show you how you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=2) [can recreate a transaction log file or log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=4.272727272727272) [files if the database was cleanly shutdown](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=6.090909090909092) [and the log files are missing. So, first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=7.999999999999999) [off I'm going to create a database to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=10.66666666666667) [with just one log file like so, and I'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=13.666666666666675) [show you the VLFs using this undocumented](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=17.78947368421052)[command DBCC LOGINFO, but it's the only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=21.105263157894726) [way to look at the VLFs. So, we should](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=23.999999999999996) [have four VLFs, each one roughly 1. 25 MB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=26.999999999999986) [because I created a 5 MB transaction log.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=29.999999999999975) [Now I'm going to detach my database, go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=33.272727272727266) [out into the file system, and delete the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=36.90909090909089) [log file like so, go back into SQL Server,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=40.54545454545452)[and because the database was cleanly shut](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=45.571428571428555) [down I can attach the database again using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=49.57142857142854) [CREATE DATABASE FOR ATTACH, and SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=53.94117647058823) [will automatically create a log file for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=57.235294117647044) [me. So, it says file activation failure.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=60.529411764705856) [The physical file blah, blah. ldf may be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=63.80000000000001) [incorrect. New log file was created. But](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=67.53333333333336) [the log file that it created, if I look at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=70.30769230769232) [DBCC LOGINFO, only has two VLFs 0. 25 MB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=74.15384615384619) [each. So, it creates basically a minimally](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=77.61538461538467) [sized transaction log of 0. 50 MB. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=81.2307692307692) [what about with a database with two log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=85.63636363636364) [files? Recreate my database this time with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=90.72727272727276) [two log files 5 MB each. So, using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=95.18181818181824)[LOGINFO we'll see that there are eight](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=100.5) [VLFs altogether, four in each log file,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=104) [and each of them are roughly 1. 25 MB.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=107.5) [Now, let's do the same thing. Detach my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=111.57142857142858) [database, go out into the file system, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=115.00000000000003) [delete both of those log files this time.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=118.69565217391305) [Go back into SQL Server, and try to do the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=124.26086956521742) [CREATE DATABASE FOR ATTACH. And it's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=131.2173913043478) [to say no it can't because the log was not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=134.68181818181816) [rebuilt because there is more than one log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=136.95454545454535) [file. We have to use the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=138.7727272727271) [ATTACH\_REBUILD\_LOG syntax. So, if we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=141.22222222222229) [ahead and do that, it does it. We get the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=143.88888888888903) [same file activation failure messages, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=147.75) [for both log files this time, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=149.25) [creates one new log file, and it's done](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=151.25) [two 0. 25 MB VLFs again. So, no matter how](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=154.2916666666667) [many log files you have, and you should](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=158.87500000000014)[generally only have one, anytime you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=162.54166666666688) [going to have another one is temporarily](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=164.50000000000006) [to allow you to not have to switch to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=166.60000000000014) [simple recovery model if you're log file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=169.54545454545456) [fails up, but no matter how log files you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=171.45454545454552) [have, as long as your database was cleanly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=173.90909090909105) [shut down you can reattach the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=176.41176470588232) [using CREATE DATABASE FOR ATTACH or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=178.88235294117638) [ATTACH\_REBUILD\_LOG, and SQL Server will](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=181) [build you a new log file, albeit only 0. 5](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=182.6666666666667) [MB in size with two VLFs. So, after you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=186.00000000000014) [done that you should resize the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=188.90000000000003) [transaction log carefully up to the size](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=190.7000000000001) [that it was before you detached the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=192.80000000000018) [database so you don't have a whole bunch of auto-growth happening.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=4&mode=live&start=197)

[Damaged/Missing Log Without Clean Shutdown](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live)

[Damaged or Missing Transaction Log Without](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=2) [a Clean Shutdown. If the boot page says](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=3.666666666666666) [that the database was not cleanly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=5.8888888888888875) [shutdown, crash recovery must be run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=7.666666666666666) [before the database can be brought online.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=9.666666666666668) [There's absolutely no way to stop that.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=12) [Now, if the transaction log is missing or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=13.94444444444445)[damaged, the database is going to be in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=16.16666666666668) [one of the two states that we talked about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=17.999999999999996) [earlier in this module, either](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=19.79999999999999) [RECOVERY\_PENDING because crash recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=20.799999999999986) [knows it has to run, but it couldn't start](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=21.789473684210527) [because the log was damaged or there's no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=24.15789473684211) [log, or the SUSPECT mode where a crash](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=26.318181818181817)[recovery did start, but something caused](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=28.86363636363635) [it to not be able to complete, for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=30.77272727272725) [instance corruption in the transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=33.285714285714285) [or corruption in a data file page. Either](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=34.99999999999999) [of those two situations is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=37.25) [require that you either restore from your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=39) [backups or if you don't have any backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=40.75) [using the EMERGENCY mode to access the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=42.89999999999999) [database to allow you to do an EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=44.99999999999997) [mode repair or to export data out to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=47.39999999999995) [another database, and we're going to talk about EMERGENCY mode next.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=5&mode=live&start=54)

[EMERGENCY Mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live)

[EMERGENCY Mode. In all releases of SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=1.5) [Server before SQL Server 2005 there was a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=3.9500000000000006) [way to put the database into the same kind](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=6.749999999999998) [of mode as EMERGENCY mode, and it involved](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=9.676470588235297) [hacking the system table sysdatabases. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=12.029411764705891) [it put the database into what's known as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=13.884615384615385) [the bypass recovery mode. This mode was so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=16.96153846153846) [named because it caused the storage engine](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=19.388888888888886) [to bypass trying to do crash recovery. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=20.944444444444436) [problem with this early bypass recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=22.875) [mode is that it was never documented or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=25.125) [supported. In SQL Server 2005, the SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=28.125) [Server team decided to make the bypass](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=30.833333333333336) [recovery mode documented and supported and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=33.55555555555554) [named it EMERGENCY mode. This was an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=35.72222222222222) [acknowledgement to the fact that people do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=37.27777777777777) [get themselves into the state where they](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=38.83333333333332) [don't have a transaction log or they're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=40.5) [not able to run crash recovery for some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=42.25) [reason, and they need to get access to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=44.25) [that database. From SQL Server 2005](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=46.83333333333335) [onwards EMERGENCY mode is documented, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=48.833333333333364) [you can put the database into EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=50.72222222222222) [mode just by doing ALTER DATABASE, your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=52.27777777777777) [database names, SET EMERGENCY. Now, one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=53.83333333333332) [thing to bear in mind is that although](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=55.39999999999999) [this does give you access to the database,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=57.79999999999997) [the data is transactionally inconsistent](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=60.199999999999946) [because crash recovery has not been able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=62.03846153846155) [to run. Furthermore, if there are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=64.73076923076925) [transactions in flight in the transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=66.44117647058823) [log that haven't been able to roll back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=67.85294117647058) [that were making changes to database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=69.92857142857143) [structures, the database may be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=72.50000000000001) [structurally inconsistent, as well as your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=74.64285714285717) [data being transactionally inconsistent,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=76.44117647058823) [so that's something you have to bear in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=77.38235294117646) [mind if you're going to use EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=79.26470588235293) [mode. Now, if you're using EMERGENCY mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=81.16666666666663) [it's probably because you don't have any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=83.11111111111103) [backups, and using EMERGENCY mode you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=85) [export data out into a new database if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=86.75) [you're able to get past any corruptions](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=88.75) [that exist in the database. If you don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=90.45238095238096) [want to export data out or you're not able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=92.35714285714289) [to because of corruptions that exist or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=94.5) [you just want to get the database back up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=96.09090909090914) [and running as fast as possible, then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=98.13636363636374)[without backups the only thing you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=99.76315789473684) [going to be able to do is use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=101.34210526315785) [EMERGENCY-mode repair, and we're going to talk about that next.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=6&mode=live&start=103.44736842105253)

[EMERGENCY-Mode Repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live)

[EMERGENCY-Mode Repair. Now, just like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=2) [EMERGENCY mode kind of used to exist](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=3.7647058823529416) [before SQL Server 2005, you could almost](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=6.235294117647057) [do an EMERGENCY-mode repair before 2005 as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=8.823529411764707) [well. EMERGENCY-mode repair was added as a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=11.70588235294118) [documented and supported way of being able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=14.588235294117652) [to try to recover from a damaged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=16.999999999999996) [transaction log. Before SQL Server 2005,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=19.33333333333332) [all you could do was use the old](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=21.33333333333333) [undocumented DBCC REBUILD\_LOG command and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=23.999999999999986) [then trying doing a CHECKDB with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=25.666666666666647) [REPAIR\_ALLOW\_DATA\_LOSS. If you want to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=27.999999999999993) [EMERGENCY-mode repair, the database has to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=30.399999999999984) [be in EMERGENCY mode obviously, but it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=32.526315789473685) [also has to be in SINGLE\_USER mode because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=34.36842105263158) [SINGLE\_USER mode is required for any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=36.47368421052632) [repair options. The way that you access](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=38.33333333333334) [the EMERGENCY-mode repair functionality is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=40.66666666666669) [to go into EMERGENCY mode and SINGLE\_USER](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=42.4) [mode and then run CHECKDB with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=45.19999999999999) [REPAIR\_ALLOW\_DATA\_LOSS. In EMERGENCY mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=47.59999999999998) [it does the following things: It's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=48.47368421052631) [to run as much crash recovery as it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=49.57894736842103)[possibly can on the damaged transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=50.84210526315785) [log. You can kind of think of it as crash](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=52.75000000000001) [recovery with continue after error, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=56.25000000000002) [it's the only way to get the storage](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=58.22222222222222) [engine to do that is to run EMERGENCY-mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=59.99999999999999) [repair. Then it's going to build you a new](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=61.777777777777764) [transaction log. It's going to delete the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=63.45454545454544) [old one and create a new transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=64.72727272727272) [for you. Now remember, this transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=66.2) [log is going to be small, so you're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=67.40000000000002) [to have to provision it and set](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=69.20000000000005)[auto-growth appropriately. And then once](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=70.83333333333331) [it's done that, it's going to run a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=72.22222222222217) [CHECKDB with REPAIR\_ALLOW\_DATA\_LOSS fixing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=74.44444444444434) [up whatever inconsistencies there are in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=75.9090909090909) [the database hopefully. If that succeeds,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=78.63636363636363) [it's going to bring the database online.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=80.94736842105262) [Now, I said if that succeeds because it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=83.15789473684205)[absolutely not guaranteed that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=85.6842105263157) [EMERGENCY-mode repair is going to work in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=86.92307692307692) [every single scenario. It is a last-ditch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=89.07692307692307) [effort to fix the database, but there are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=90.90909090909093) [some things that are going to stop it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=92.7272727272728) [being able to run properly. For instance,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=94.54545454545467) [if the data files are very severely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=96.66666666666664) [damaged, that may prevent the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=98.99999999999994) [being brought online or it may prevent](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=101) [CHECKDB from being able to run at all. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=103.3333333333333) [if you have damage to your file system,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=106.26315789473684)[that may prevent the transaction log file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=108.36842105263152) [from being recreated. So, just because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=110.21052631578937) [this exists, you don't want to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=111.64285714285712) [rely on it. It's way, way better to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=113.35714285714279) [backups that you can restore from than](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=116.8235294117647) [relying on EMERGENCY-mode repair. But it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=120.11764705882351) [is there, and you should give it whirl if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=122.38095238095238) [you're in the situation where you've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=124.09523809523809) [the corrupt database and no backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=125.42857142857142) [because getting some data back could be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=129) [better than getting absolutely no data back at all.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=7&mode=live&start=136)

[Demo: EMERGENCY-Mode Repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live)

[In this demo I'm going to show you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=2) [EMERGENCY-mode repair. So, first off I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=4) [going to create a database to use, very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=5.5) [simple contrived demo, and then I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=7.888888888888889) [to create a kind of HR table, FirstName,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=11.000000000000002) [LastName, YearlyBonus and some made up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=14.555555555555559) [employees, Jane Doe, John Doe. Now, I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=18.421052631578952)[going to start a transaction, an explicit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=23.21052631578949) [transaction, and I'm going to accidently](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=28) [set Jane Doe's bonus to 0. A CHECKPOINT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=32.00000000000001) [happens, so the change is on disk, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=37) [then a hardware failure is going to occur.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=41) [The system is going to shutdown like so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=45) [without a chance for the transaction to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=50) [rollback. While the system is shutdown,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=54.375) [the transaction log is going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=56.57894736842106) [damaged, and I'm going to simulate that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=58.78947368421055) [using XVI32 that I showed you previously.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=61) [So, we open our log file, write in a few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=63.863636363636346) [zeros, Save the log file again, go back to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=67.95454545454541) [SQL Server, and View Object Explorer. My](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=72.39999999999998) [SQL Server is shutdown as you can see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=76.59999999999994) [there. I'll right-click and say Start.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=81.39999999999989) [It'll take a couple of seconds and come up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=83.95652173913047) [and say do you really want to start up?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=87.4782608695653) [Yes I do. So, it starts up SQL Server.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=91) [We're going to get back into the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=93.99999999999996) [again and see what state it's in. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=96.66666666666659) [after our simulated hardware failure, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=99.41176470588235) [try to use the database, and we'll get our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=101.88235294117644) [disconnection message, so we try again. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=105.58823529411757) [cannot be opened due to inaccessible files](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=107.89473684210523) [or insufficient memory or disk space. See](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=110.10526315789467) [the SQL Server errorlog for details. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=112.375) [we know that the log file is damaged. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=115) [status of the database is SUSPECT, so we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=118.46153846153847) [couldn't finish crash recovery. So, what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=122.1538461538462) [can we do? Now, in this case we've got no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=124.47058823529412) [backups again to contrived example. We've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=126.8235294117647) [got no backups, so our only way of getting](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=128.25) [things back to normal or at least as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=130.5) [normal as we can get is to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=132.5) [EMERGENCY-mode repair. So, we go into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=134.8)[EMERGENCY mode first of all, and in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=137.20000000000005) [EMERGENCY mode we get access to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=140.00000000000009) [database even though crash recovery wasn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=142.54545454545456) [able to finish. So, we could have a poke](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=144.18181818181824) [around and see what the state of the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=146.5) [is. Now, on a very busy OLTP system who](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=148.75) [knows what the heck is going on, but I can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=151.08695652173924)[look at my particular table and see that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=153.6956521739133) [yes that transaction where I accidentally](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=156.5) [zeroed out Jane's bonus hasn't rolled](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=159.5) [back. Now, what about doing an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=162.5) [EMERGENCY-mode repair? So, using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=164.7857142857143) [REPAIR\_ALLOW\_DATA\_LOSS option in EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=166.5714285714286) [mode, and it says no you have to be in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=168)[single user mode as well because EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=171.33333333333343) [mode and SINGLE\_USER mode are different](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=173.66666666666683) [settings. So, let's go back and set](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=175.8888888888889) [SINGLE\_USER mode as well and rerun that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=179.0000000000001) [CHECKDB, and this time it works, so we get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=182.1111111111113) [messages. The header for file da, da, da](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=184.5217391304347) [log file ldf is not a valid database file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=186.2608695652172) [header. The PageAudit property is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=188.45454545454547) [incorrect. Okay. File activation failure.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=190.7272727272728) [Physical file name blah, blah, blah may be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=193) [incorrect. The log cannot be rebuilt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=195.22222222222217) [because there were open transactions/users](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=196.8888888888888) [when the database was shutdown, no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=198.33333333333334) [checkpoint occurred to the database, or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=200.3333333333334) [the database was read-only. This error](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=202.33333333333346) [could occur if the transaction log file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=203.84210526315792) [was manually deleted or lost due to a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=205.31578947368428) [hardware or environment failure or poll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=207)[corrupted it using XVI32. Okay, joking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=210.59999999999997) [aside. Warning: The log for database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=213.5) ['Company' has been rebuilt. Transactional](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=215) [consistency has been lost. The RESTORE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=216.26666666666668) [chain is broken, blah, blah, blah, blah,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=217.86666666666676) [blah, blah, blah, blah, blah. Okay. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=219.73333333333352) [basically this is saying CHECKDB went in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=222.69999999999993) [and was able to rebuild the log. Now, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=225.84999999999985) [there were other corruptions in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=229.57142857142856) [database, then we'd see it doing the kind](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=231.28571428571422) [of errors that we get from repair. I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=233.57142857142844)[removing this page, I'm rebuilding this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=235.78947368421055) [index, and so on and so on and so on. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=237.36842105263165) [rather than just our little contrived demo](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=240.25) [we'd see all kinds of stuff happening, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=242) [in this case it's managed to do it. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=244) [it should've set the database to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=247.30769230769226) [online. Cool. We can get in. The status is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=250.53846153846143) [online, but what about the data? Poor Jane](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=256.1428571428571) [there loses her bonus. The transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=260.55555555555554) [didn't get a chance to roll back because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=262.2222222222222) [what happened was CHECKDB tried to do as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=264.44444444444434) [much crash recovery as it could, but it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=266.5) [couldn't even open the transaction log in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=268.5) [this case. It deleted the log file, built](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=270.3333333333333) [a new log basically throwing away all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=272.99999999999983) [forward part of the transaction that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=275.66666666666634) [removed that yearly bonus, so that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=277.625) [transaction didn't get a chance to roll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=279.5) [back. So, we're left with our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=281.6875) [transactionally inconsistent data, but at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=283.11111111111114) [least we're back up and running in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=284.2222222222223) [case of there's no backups at all. You](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=286) [really don't want to have to use EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=288.10526315789457) [mode and EMERGENCY-mode repair, but they are there as a last-ditch resort for you.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=8&mode=live&start=290.21052631578914)

[Demo: Unrepairable Corruption in EMERGENCY-Mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live)

[In this demo I want to show you an example](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=1) [where you can use EMERGENCY mode, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=3.5) [EMERGENCY-mode repair is not actually able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=5.25) [to repair all the problems in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=7.09090909090909) [database. So, I'm going to create a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=9.636363636363633) [database to use, and then same example as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=12.45454545454545) [I had before, a database with an employees](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=15.727272727272716)[table, an HR table with a couple of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=19) [employees and bonuses. Now, this time what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=22.636363636363626) [I'm going to do also is I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=25.8181818181818) [engineer a corruption. So, I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=29.700000000000003) [corrupt the PFS page, the first PFS page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=32.15000000000001) [of this database, and then I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=34.950000000000024) [try doing my explicit transaction and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=39.00000000000001) [make an update. And everything goes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=43.20000000000002) [horribly wrong, so that extra corruption.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=46.00000000000001) [So, the log has been thrown offline. We](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=48) [find that we've got a problem trying to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=50.909090909090935) [undo a log record, and that's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=53.81818181818187) [have make the database suspect. So, we get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=56.76190476190476) [this error a couple of times saying we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=59.809523809523796) [have big problems, and now it disconnected](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=62.85714285714283) [us. So, we're likely in SUSPECT mode.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=65.81818181818181) [Let's check. Yes. Our transaction couldn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=69) [roll back, so the database is thrown](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=72.47368421052633)[offline and it's in SUSPECT mode. What](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=76.52631578947371) [about the data itself? I can't get into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=80.5) [the database, but if we use EMERGENCY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=84.5) [mode---first of all let's see what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=88) [state of the database is, now we can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=90.8) [even get there either. So, let's use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=92.93333333333332) [EMERGENCY mode, and that'll let us in. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=96.00000000000001) [wow! Lots of corruptions. And these were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=101.33333333333339) [all caused we know because I trashed that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=105.28571428571429) [PFS page, and in fact there's an error](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=108.71428571428574) [here saying that we couldn't do anything](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=112.14285714285718) [with pages 1:0 to 1:8087, which is an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=115.5) [exact PFS interval. So, that's what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=119.5) [happened when I corrupted that PFS page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=121.88235294117648) [but remember this is a contrived demo.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=123.94117647058826) [We're interested in our data. So, let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=126) [say we don't have any backups. To be able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=128.15384615384616) [to repair everything, we're going to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=130.78947368421055) [use EMERGENCY mode, and we're going to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=132.6315789473685) [EMERGENCY- mode repair, which means we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=134.7368421052633) [have to use SINGLE\_USER mode, as well as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=136.3333333333334)[EMERGENCY mode. So, we go in, and we do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=138.46666666666684) [that. Now we get a bunch of errors. In](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=141.73913043478265) [fact, it says that the check terminated.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=145.2608695652175) [And if we scroll down, was it able to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=148) [anything else? No. It doesn't say it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=151.18181818181813) [able to do anything else. However, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=153.40909090909082) [very first phase of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=155.94736842105266) [REPAIR\_ALLOW\_DATA\_LOSS in EMERGENCY mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=158.3157894736843) [is to try to do as much crash recovery as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=160.21052631578962) [possible, crash recovery with continue](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=165.1111111111111) [after error. So, it managed to do the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=167.8888888888888) [crash recovery because it brought the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=170.71428571428567) [database online. We didn't see any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=172.42857142857133) [messages about it rebuilding the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=174.09090909090912) [transaction log. It didn't have to because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=175.45454545454552) [the transaction log in this case wasn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=177.3636363636364) [corrupt, but it was able to do a crash](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=179.27272727272737) [recovery with continue after error, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=181.7272727272729) [actually recovered the transaction. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=185) [managed to roll that transaction back,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=187.25) [which is great for Jane because she didn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=188.75) [lose her bonus this time. But was it able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=190.75) [to actually repair? No. It wasn't able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=193.75) [repair all the corruptions. So, although](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=197.25) [it was able to recover some of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=199.60000000000002) [transactions that were in flight, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=202.0000000000001) [wasn't able to repair all the corruption.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=203.80000000000018) [Just illustrating the point that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=206.28571428571425) [EMERGENCY-mode repair is a last-ditch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=208.42857142857133) [effort. It is not guaranteed to work in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=210.5714285714284) [all circumstances. Now, although this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=213.7222222222222) [database is corrupt, we might be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=215.66666666666663) [extract her information out to a new](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=218.3809523809524) [database. We're certainly not going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=219.71428571428584) [able to carry on using this database as is.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=9&mode=live&start=221.04761904761926)

[Detached SUSPECT Database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live)

[Detached SUSPECT Database. The first thing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=2) [to say about any detached database is that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=4.11764705882353) [during the attach process if the boot page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=6.941176470588233) [says that the database was not cleanly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=9.052631578947372) [shutdown, crash recovery is going to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=10.526315789473692) [to run, and crash recovery has to finish](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=12) [successfully before the attach process](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=14.352941176470594)[will all the database to be attached. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=15.823529411764715) [the detached database requires crash](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=18.5) [recovery and there's something wrong with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=20.375) [the transaction log that stops crash](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=22.625) [recovery starting or completing, then of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=24.25) [course the attach is going to fail, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=25.75) [this is going to be the case with a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=27.857142857142854) [SUSPECT database. Now, prior to SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=30.428571428571416) [2008 it was actually possible using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=32.842105263157904) [sp\_detach\_db stored proc to detach a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=35.42105263157898) [SUSPECT database. From SQL Server 2008](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=37.631578947368475) [onwards if you try to detach a SUSPECT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=39.31578947368421) [database it will actually fail and give](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=41.42105263157895) [you an error, which is a really cool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=43.23809523809524) [thing. You can forcibly detach a SUSPECT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=45.14285714285717) [database if you want to by setting the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=46.80952380952385) [database offline, copying the files, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=48.9375) [then dropping the database, but whatever](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=50.8125)[method you use it's not a good thing to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=52.6875) [because trying to attach the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=55.04545454545454) [again is going to fail because crash](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=56.4090909090909) [recovery is not going to be able to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=58) [run. Some people though will try this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=60.57142857142856) [thinking that the detach plus attach](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=62.571428571428555) [process is going to fix up what corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=64.26315789473684) [there is in the database, but of course](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=66.36842105263152) [it's not. If you have a detached SUSPECT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=68.4736842105262) [database, then you're going to reattach it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=70.79999999999998) [using what I call a hack-attach process.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=72.89999999999996)[The way you do this is you create a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=75) [database with the same name and the same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=77.62500000000004) [file IDs as the database that's detached.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=79.95833333333341) [It's very important that the file IDs](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=82) [match; otherwise, the attach process is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=84.1875) [going to fail. So, for instance, if you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=86.0625) [created some data files and then dropped a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=88.57894736842103) [date file and added another one, there's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=91.10526315789467) [going to be a gap in your file IDs for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=93.13333333333334) [that dropped data file. You're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=94.46666666666674) [have to do exactly the same thing when you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=95.9375) [create your dummy database. You then take](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=98.75) [that dummy database and set it offline,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=100.75) [delete all the files that you created,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=102.5) [drop in the files from the detached](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=104.25) [database, and then try to bring the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=106.14285714285717) [database online again. Now, it's not going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=108.14285714285721) [to bring the database to the ONLINE state,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=109.86956521739131) [but it is going to bring it back into SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=111.60869565217394) [Server, and it will have the SUSPECT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=113.78260869565221) [state. So, now you're back to square one.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=115.71428571428575) [And once you've attached that database,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=118) [you can then go onto EMERGENCY mode and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=119.5) [EMERGENCY-mode repair that we talked about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=121.5) [in the last couple of slides. I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=122.86956521739131)[show you a couple of demos of attaching a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=124.82608695652176) [SUSPECT database, one where the file IDs](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=126.78260869565221) [match and one where you have to mess around a bit to get the file IDs to match.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=10&mode=live&start=133)

[Demo: Detached SUSPECT Database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live)

[In this demo I'm going to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=1.5) [deal with a detached SUSPECT database. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=4) [I'm going to set up the same environment](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=5.852941176470588) [that I had the last couple of demos. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=8.676470588235292) [we have our database to use, we have HR](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=11.880952380952381) [table, we have our employees with their](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=15.309523809523814) [bonuses, and we're going to start a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=17.976190476190474)[transaction. We're going to accidentally](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=20.911764705882348) [remove Jane's bonus, we're going to do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=23.264705882352928) [CHECKPOINT, and then the system is going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=27.029411764705856) [to shut down like so. While the server is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=32.07142857142858) [shutdown the log file gets trashed, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=38.92857142857141) [then we're going to restart SQL Server.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=44.026315789473685) [Now, what's going to happen is when SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=47.71052631578948)[Server restarts, we're going to force the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=51.92105263157896) [SUSPECT database to be detached. Now, up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=55.39473684210526) [until SQL Server 2008 you could just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=58.710526315789465) [detach a SUSPECT database, but from 2008](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=62.02631578947367) [onwards you can't. You're going to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=64.07894736842105) [force it to be detached. So, let's get rid](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=66.18421052631574) [of that and go back over here. So, we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=69.10000000000002) [into our database, and we get our 945](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=73.10000000000008) [error, and the status is SUSPECT. Okay, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=76.30000000000013) [let's set the database OFFLINE, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=80.49999999999997) [over here we're going to make a copy of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=84.69999999999993) [these by doing Copy and then Paste. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=90) [now I've got a copy of our database files.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=94) [Go back into SQL Server, and we drop the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=98.5) [database like so. Now, the files are still](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=102.4130434782609) [going to be there, so we've forced this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=105.89130434782615) [SUSPECT database to be detached. Now, some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=109.08823529411765) [people do this thinking that when they](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=111.14705882352943) [reattach the database it's going to try to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=113.20588235294122) [fix the corruption, but that's not the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=115.8333333333333) [case. Let's try reattaching. And it says](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=118.1666666666666) [the log file header is damaged. Okay, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=122.50000000000003) [how about doing ATTACH\_REBUILD\_LOG? Okay,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=127.73076923076923) [it says we couldn't do that. Maybe if we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=130.8076923076923) [delete the log file. So, let's delete our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=135.88461538461536) [log file. And remember we've still got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=139.57692307692298) [these copies. So, I'm going to delete my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=142.6052631578948) [log file, and then let's try](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=145.97368421052647)[ATTACH\_REBUILD\_LOG. And it still can't do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=148.5) [it because it says you know we can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=151.5) [rebuild the log because there were open](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=155.5) [transactions. So, what we're going to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=158.50000000000003) [to do is what I call a hack-attach. We're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=160.83333333333343) [going to create a dummy database. We're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=163.75) [going to shut down that database and swap](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=165.5) [in the corrupt files. So, first of all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=167.5) [let's go out and remove the old mdf as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=170.81578947368416) [well. I've still got my copies. And I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=176.02631578947353) [removing those files because I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=180.7) [created my dummy database like so. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=184.89999999999995) [let's check those files are there. Yes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=188.83333333333334) [they are. There are my new files. So, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=191.16666666666674) [go back over here to SQL Server, and we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=194.3235294117647) [shut that database offline like so. Now we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=198.02941176470583) [go back to the file system, we take the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=201.2) [files that were just created, and we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=204.34999999999994)[Delete them. That's our dummy database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=206.7999999999999) [files. And then we Rename the copies we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=210.54761904761904) [have of the corrupt files like so, go back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=216.6428571428571) [over to SQL Server, we bring our database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=223.5) [ONLINE, SQL Server tries to start it up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=227.13636363636374) [again, and you get all these failure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=230.77272727272748) [messages, but the database is actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=234.1) [there. If we look it's back to SUSPECT.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=237.69999999999996) [Cool. Now we've hacked that database back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=242.5) [into the server. Now we can do what we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=244.25) [really should do, which is EMERGENCY-mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=246.5) [repair assuming we don't have any backups,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=248.44117647058823) [and that goes ahead and recreates the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=251.73529411764704) [transaction log. Now, look at this though.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=255.02941176470586)[We now have a message. The Service Broker](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=257.30000000000007) [in database "Company" will be disabled](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=259.70000000000016) [because the Service Broker GUID doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=261.5) [match the one in sys. databases master.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=264.2692307692307) [When we created our dummy database, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=267.5) [created a new Service Broker GUID. When we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=269.1153846153846) [dropped in our corrupt database, now the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=271.20000000000005) [GUIDs don't match, but we can reset that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=273.6500000000002) [with a Service Broker SP. But our database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=276.4500000000004) [should now be ONLINE like so; however,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=281.4473684210526) [Jane still loses her bonus because there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=286.97368421052624) [was an active transaction, and it wasn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=292.5) [able to roll back because the log was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=294.34210526315775) [corrupt, but our detached SUSPECT database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=296.4473684210523) [we managed to get back into SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=298.21428571428567) [using the hack-attach method. Pretty simple to do.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=11&mode=live&start=301.0714285714283)

[Demo: Detached SUSPECT Database with Non-Standard File IDs](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live)

[In this demo I'm going to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=2) [hack-attach a detached SUSPECT database,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=4.380952380952381) [but in this case I'm going to have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=5.571428571428572) [different file IDs, so it's going to be a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=7.666666666666666) [little bit more complicated. So, the first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=10.66666666666667) [thing I'm going to do is get rid of any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=12.68181818181818) [old database and then create a database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=14.954545454545446) [with multiple data files, so one mdf and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=16.545454545454533) [two ndf's. Then go ahead and create my HR](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=20) [table just like we've been using before,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=24.5) [and then this time I'm going to remove one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=28) [of the data files. Okay, so now let's do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=32.84615384615386) [that same in-flight transaction where Jane](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=37.5) [loses her bonus. CHECKPOINT. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=40.5) [system shuts down. While the system is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=44.64705882352941) [shut down unfortunately the log gets](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=50.82352941176471) [trashed just like we've seen a few times](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=56.117647058823536) [before. Save that, go back over to SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=61.66666666666665) [Server, restart SQL Server, and then we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=67) [going to go through the same motions that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=71.2) [we did in the previous demo of forcing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=72.80000000000003) [this SUSPECT database to detach. Okay. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=74.40000000000005) [back over here let me try using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=79.61538461538464) [database. Of course it can't be opened.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=88.84615384615392) [The status is SUSPECT. So, let's do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=93)[same set the database OFFLINE, go over](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=97) [here, take a copy of those files, Copy and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=100.76190476190476) [Paste, back over to SQL Server, drop the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=107.61904761904759) [database so that's gone, try to attach it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=113.71428571428567) [again, and the header of the log file is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=118.33333333333334) [damaged. Now, I know we're not going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=122.53333333333336) [able to mess around and get things](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=124.81818181818187)[reattached using any of the proper syntax,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=126.409090909091) [so we're going to have to do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=128) [hack-attach. So, we've got a mdf and a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=129.77777777777783) [single ndf. So, let's go ahead and do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=131.55555555555566) [that. So, we go back out to the file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=135.24999999999994) [system, and we take our original files,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=140.12499999999986) [and we Delete them. We've got a copy of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=143.91666666666646) [them remember. Back over to SQL Server. We](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=147.99999999999991) [create our dummy database with those same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=151.55555555555554) [filenames, Company. mdf, Company3. ndf](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=155.44444444444434) [like so, and we set the database OFFLINE.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=158.22222222222206) [Go back out to the file system, get rid of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=162.82608695652172) [the new files, and I'm going to use a copy](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=168.9130434782608) [of these guys this time. And I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=175) [rename these to be the original names that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=182.77272727272737) [I just created with the idea that we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=189.68181818181836) [going to be able to do a hack-attach like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=195.61538461538464) [so. So, I just replaced my corrupt files](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=200.46153846153857) [into where the original dummy database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=203.80000000000004) [was, and we try to bring the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=206.20000000000007) [ONLINE, and it says no. Okay, it says](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=209.57894736842104) [basically we're saying that Company3. ndf](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=214.21052631578937) [has file ID 3, but we're expecting file ID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=217.6842105263156) [4. So, when you're doing a hack-attach not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=221.3636363636364) [only do you have to have the same number](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=223.54545454545465) [of files with the same names, you actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=226) [have to have the same file IDs as well;](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=228.28571428571422) [otherwise, it will not attach properly.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=230.85714285714272) [So, now we're going to have to go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=232.58823529411762) [and go through the motions again. So, set](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=235.23529411764693) [the database OFFLINE, go out to the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=238.3) [directory, get rid of my three files,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=243.50000000000006)[remember I've got copies of them, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=248.0500000000001) [back to SQL Server, DROP my DATABASE,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=254.24999999999997) [recreate it again with my extra data file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=260.20000000000005) [Company2 taking up file ID 3, so Company 3](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=267) [becomes file ID 4. Then I get rid of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=271.67999999999984) [Company2, and now I go out to set the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=276.3599999999997) [database OFFLINE, and I can do that same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=280.625)[dropping in the files trick again. So, I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=283.125) [Delete the database that I just created, I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=287.66666666666663) [Rename my corrupt files like so, back to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=298.33333333333314) [SQL Server, put the database ONLINE, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=308.99999999999966) [this time it works. Now, I get some errors](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=314.4545454545455) [so it looks like it didn't work, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=317.72727272727286) [remember you do get errors when you do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=320.63636363636385) [this because we're basically](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=322.9444444444444) [hack-attaching a SUSPECT database, but we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=324.0555555555555) [didn't get the problem of having the wrong](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=325.7222222222221) [file IDs. And we can prove that by looking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=328.9473684210527) [here, and SUSPECT. Cool. We've got our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=332.73684210526335) [SUSPECT database back into SQL Server. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=335.8823529411766) [now we go through EMERGENCY-mode repair.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=339.1764705882356)[We get that same Service Broker message](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=342) [remember, but we can reset that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=343.99999999999994) [afterwards. Our database is ONLINE, we've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=345.7142857142856) [removed the SUSPECT status, but what about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=349.5714285714286) [the data? Once again EMERGENCY-mode repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=354.57142857142867) [wasn't able to salvage anything from that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=357.42857142857133) [broken transaction log, so Jane loses her](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=359.92857142857116) [bonus. Now, there's an example then of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=362.55555555555566) [hack-attach working, but with different](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=365.66666666666697) [file IDs, and you have to make sure that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=367.61111111111154) [the file IDs match exactly; otherwise,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=369.52380952380963) [you're not going to be able to do that hack-attach.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=12&mode=live&start=370.66666666666686)

[Damaged Log of Attached Database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live)

[Damaged Log of an Attached Database. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=2) [you could get into a situation where the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=3.8421052631578942) [Storage Engine has a problem trying to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=5.947368421052634) [roll back an transaction and encounters](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=7.9375) [either corruption in the transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=9.8125) [in a log record that needs to be processed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=11.6875) [or maybe corruption in a data file page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=13.818181818181813) [that needs to be changed as part of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=15.636363636363626) [rolling back a transaction. In either](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=17.53333333333333) [case, the rollback is going to fail. That](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=19.133333333333326) [means the database is transactionally](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=21.294117647058822) [inconsistent, and so the database is going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=22.764705882352935) [to be put offline, and the status of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=24.823529411764692) [database will be made SUSPECT. How do you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=27.25)[recover from this? You've got two choices.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=29.25) [You can either recover using your backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=31) [up to the point in time just before the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=32.75) [corruption occurred, or you can go into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=35) [EMERGENCY mode and maybe export data to a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=37.09999999999998) [new database or use EMERGENCY- mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=39.49999999999996) [repair. There's another interesting case](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=41.375) [where there could be no active](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=43.25) [transactions at all, so there's no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=45.5) [potential for rollback and going to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=47.58823529411765) [SUSPECT mode, but operations like CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=49.647058823529434) [or transaction log backup may fail. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=51.41176470588239) [obviously a log backup is going to read](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=53.36363636363637) [the log, but CHECKDB uses the log as part](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=55.545454545454554) [of creating a hidden database snapshot on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=58) [which to check the database. Even if there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=60.91666666666665) [are no active transactions, the creation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=63.63157894736842) [of the hidden snapshot is still going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=64.89473684210529) [read the transaction log from the most](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=66.57894736842113) [recent checkpoint forwards, and that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=68.25) [what could cause CHECKDB to trip over](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=69.5) [transaction log corruption. Usually it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=71.33333333333333) [going to be possible to recover from this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=72.99999999999997) [by doing the following: Switch the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=75.6666666666666) [database into the SIMPLE recovery model,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=77.55555555555554) [and then run a CHECKPOINT, and that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=79.22222222222217) [going to force the transaction log to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=81.16666666666657) [clear. After doing that, you're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=83.1764705882353) [switch back to whatever recovery model you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=85.23529411764709) [were using before, full or bulk logged,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=87.27272727272727) [most likely full. You have to be careful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=89.18181818181813) [though because although this is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=91.00000000000001) [clear out the damaged log records, it is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=92.40000000000003) [going to break the log backup chain, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=94) [so you'll have to reestablish your log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=96) [backup chain using a full or a differential backup.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=13&mode=live&start=97.75)

[Summary](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live)

[Summary. In this module we've discussed a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=2) [variety of different transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=3.75) [problems that you can encounter, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=5) [recovering from transaction log corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=6.7142857142857135) [is usually going to require restoring from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=8.499999999999998) [your backups or using EMERGENCY mode to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=11) [get into a transactionally inconsistent](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=13.05882352941177)[database to be able to extract out to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=14.529411764705891) [another database or use EMERGENCY-mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=17.66666666666667) [repair. We talked about how it's possible](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=20.444444444444457) [to detach a SUSPECT database, but then you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=21.947368421052637) [have problems trying to get it attached](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=23.210526315789487) [again because if a database cannot run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=24.823529411764703) [crash recovery during the attach process](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=27.705882352941163)[the attach process fails, but I showed you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=30.176470588235272) [how to use a hack-attach technique to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=32.71428571428571) [able to get that database back into SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=34.999999999999986) [Server so you can then run EMERGENCY mode](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=37.42857142857143) [and extract or use repair. In the next](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=40.857142857142875) [module we're going to talk about more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=44.00000000000001) [advanced restore techniques including](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=46.33333333333336)[tail-of-the-log backups when the original](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=47.6666666666667) [server is not available, page restores,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=49.71428571428572) [partial restores, piecemeal restores,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=52.285714285714306) [examining log and log backup contents and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=54) [being able to restore to a particular LSN,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=55.75) [and what you can do about system databases including restoring the master database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m4-log&clip=14&mode=live&start=57.75)

[Advanced Restore Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live)

[Hi. This is Paul Randal from SQLskills.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=2) [com, and I'm recording this course for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=3.8666666666666663) [Pluralsight. This is the SQL Server:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=5.7333333333333325) [Advanced Corruption Recovery Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=7.666666666666665) [course, and you're watching Module 5:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=9) [Advanced Restore Techniques. Introduction.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=11) [I'm sure that most of you out there that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=14.277777777777779) [are watching this course have done simple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=16.777777777777786) [things using database restores restoring a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=18.722222222222236) [database to a particular point in time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=20.5625) [using WITH NORECOVERY, maybe using WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=22.75) [STANDBY, but there are a bunch of extra](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=24.700000000000003) [things you can do, more advanced options](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=27.500000000000014) [to restore particular parts of a database,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=29.950000000000024) [to be able to restore to a particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=32.111111111111114) [transaction point, and also restoring](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=34.33333333333334) [system databases. Now, before we get into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=35.722222222222236) [these, remember that to be able to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=37.894736842105274) [you have to actually have backups, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=40.42105263157897) [those backups need to be valid to avoid](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=42.61538461538461) [having data loss. So, you have to make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=45.076923076923066) [sure that you have a good backup strategy,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=46.625) [and you also have to make sure you have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=47.625) [good backup testing strategy, things that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=48.875) [I talked about in the restore module in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=50.764705882352935) [the more basic course. In this module](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=53.58823529411763) [we're going to cover doing tail-of-the-log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=55.88235294117648) [backups when the original server is not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=57.647058823529434) [available using a hack-attach method,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=59.70588235294122) [doing page restores, partial restores, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=61.84615384615384) [piecemeal restores, examining log and log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=64.61538461538461) [backup contents and being able to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=66.99999999999999) [to a particular log sequence number, and restoring system databases.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=0&mode=live&start=69.33333333333329)

[What If SQL Server is Unavailable?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live)

[What if SQL Server is Unavailable? One of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=2) [the first things that you should always](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=4.105263157894736) [check for when you're doing some kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=5.947368421052634) [disaster recovery is do you need to take a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=8.066666666666666) [tail-of-the-log backup? That's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=10.466666666666674) [allow you to get right back up to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=11.85714285714286) [nearest point in time to when the disaster](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=14.428571428571438)[occurred. What happens if the SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=16.714285714285726) [instance where the original database was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=18.599999999999994) [hosted is unavailable? How are you going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=20.19999999999999) [to be able to back up that transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=22) [to get that last set of transactions? The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=24.25) [answer is that you're going to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=26.238095238095237) [hack-attach the log file into another](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=28.142857142857135) [instance to be able to perform that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=29.57142857142856) [tail-of-the-log backup in much the same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=31.27777777777778) [way as we talked about in the previous](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=32.94444444444445) [module for hack-attaching a detached](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=35.16666666666668)[SUSPECT database. So, here's what you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=36.46153846153847) [going to have to do: Create the dummy](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=37.84615384615387) [database with the same name and the same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=39.78947368421053) [file IDs, set the dummy database offline,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=41.89473684210527) [get rid of all the data and log files that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=43.736842105263165) [you've just created, drop in the salvaged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=46.04545454545454) [log file that you want to backup, then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=47.636363636363626)[bring the database back online. It won't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=49.526315789473685) [come online, but it'll allow you to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=51.36842105263158) [perform a tail- of-the-log backup using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=53.21052631578948) [the WITH NOTRUNCATE option. You can then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=55.199999999999996) [take that tail-of-the-log backup and use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=57.999999999999986) [it as the last log backup in your restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=60.27777777777778) [sequence, and you won't have lost any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=62.777777777777786) [work. Now, there's one very important](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=64.72222222222221) [point, which is the server that you use to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=66.25) [do the hack-attach of that salvaged log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=68.5) [file must be the same SQL Server version](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=70.33333333333333) [as the server where the original database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=72.99999999999996) [existed; otherwise, the backup that is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=75.33333333333326) [taken of that tail-of-the-log is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=77.55555555555554) [have a more recent physical database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=80.27777777777774) [version number than the other backup files](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=82.61111111111106) [that you're going to use in your restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=84.5) [sequence, and so it won't let you use that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=86.5)[tail-of-the-log backup as the final backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=88.92307692307692) [in your restore sequence. So, let's have a look at an example of that.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=1&mode=live&start=90.76923076923076)

[Demo: Hack-Attach Tail-of-the-Log Backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live)

[In this demo I want to show you how you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=2) [can hack-attach a log file to a different](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=4.083333333333335) [instance to be able to take that last](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=5.749999999999999) [crucial tail-of-the-log backup even if the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=7.857142857142858) [original instance has been completely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=10.42857142857143) [destroyed. So, you'll notice I'm running](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=12.571428571428575) [this on 2008 R2, and what I'm going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=15.045454545454541) [is create a database use, very simple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=19.136363636363637) [contrived example obviously, and a table.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=22) [And that's just going to store some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=24.25) [transactions in it. So, I'm going to take](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=26.875) [a full backup and a couple of transactions](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=30.391304347826093) [and a log backup, and then I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=34.21739130434784) [add two more transactions, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=38.52173913043481) [disaster is going to strike. So, I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=41.222222222222214) [to set the database OFFLINE, I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=44.77777777777776) [go out to the data directory, and I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=48.5) [going to create a copy of the log file,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=52.5) [and then the database is going to get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=57) [destroyed. So, what we're simulating here](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=60.68421052631578) [is the instance is completely gone, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=63.21052631578945) [the database has been completely destroyed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=66.15789473684207) [as well, but we do have a copy of the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=67.72727272727275) [file, and that's going to allow us to do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=69.7272727272728) [tail-of-the-log backup by attaching that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=72.79999999999998) [log file to another instance. Pretty cool.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=75.79999999999995) [So, back over in our main instance we drop](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=80) [that database completely, so it's gone.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=83.60000000000005) [Now, imagine we had a total server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=86) [meltdown. We go over to another instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=88.73913043478265) [of 2008 R2, and it has to be an instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=91.4782608695653) [running the same version of SQL Server. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=95.28571428571429) [you try to run this on an instance of SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=97.57142857142863) [Server that's a higher version than the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=100.42857142857154) [database was that got destroyed, this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=103.30769230769234) [won't work. So, I'm going to go ahead and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=106.07692307692314)[make sure that this instance doesn't have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=108.66666666666669) [a copy of that database, and let's just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=110.33333333333337) [try restoring the backups that we have.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=112.33333333333333) [So, we start off with our full backup and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=114.66666666666663) [then you know pretend for purposes of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=117.66666666666659) [demo that we have lots of other log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=120.45454545454544) [backups, and then the final log backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=123.36363636363632) [that we took, bring the database online,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=125.90909090909084) [and what's there? Only transactions 1 and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=129) [2. Now, if we can back up the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=132.5) [tail-of-the-log, we're going to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=135.57894736842113)[get transactions 3 and 4. So, first off](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=138.15789473684225) [let's get rid of that database that we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=141.34999999999997) [restored, create a dummy database, and SET](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=144.94999999999987) [it OFFLINE. We go out to our data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=148.0999999999998) [directory. We get rid of that dummy](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=152.5294117647059) [database we just created. We drop in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=156.64705882352948) [log file we managed to salvage from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=161) [other instance, and then we're going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=165) [a hack-attach. So, the whole hack-attach](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=169) [process that I demonstrated in the last](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=171.1111111111111) [module actually works with just a log file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=173.0555555555555) [as well. So, we start up the database. We](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=175.375) [get a whole bunch of errors. We can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=178.75) [access the mdf, but the database is there.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=181.95652173913044) [If we try to take a log backup, it doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=185.7826086956522) [work, but tail- of-the-log backups we have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=190.56521739130437) [this special syntax available. So, we try](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=193.5) [the special syntax with NO\_TRUNCATE, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=196.125) [it works perfectly. So, now let's try our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=198.36363636363637) [restore sequence. We restore our full](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=201.27272727272737) [backup and then the first log backup that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=203) [we took pretending that there were a whole](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=205) [bunch of other log backups as well, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=207) [then the tail-of-the-log backup that we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=209.94736842105272) [just performed on a different instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=212.15789473684225) [than the other log backups were taken,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=214.4375) [bring our database online, and watch the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=217.5) [data. We managed to salvage transactions 3](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=220.5625) [and 4. So, that's pretty cool that you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=222.5) [do a hack-attach of just a log file to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=224.75) [allow you to do that final tail-of-the-log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=227.20000000000005) [backup to recover your database right up to the point of a disaster.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=2&mode=live&start=229.30000000000013)

[Page Restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live)

[Page Restore. Page restore allows you to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=2) [restore one or more pages from a database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=4.333333333333334) [It's really, really valuable if you don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=7) [have your database setup to be able to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=8.842105263157897) [partial database availability and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=11.21052631578948) [piecemeal restores or partial restore, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=12.294117647058824) [you don't want to have to restore the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=14.05882352941177) [entire database. You must have backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=16.411764705882362) [though to make sure that you can get that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=18) [page or pages up to the same point in time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=20.25) [as the primary filegroup. In other words,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=22.75) [you've got to have transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=24.411764705882348) [backups, and then you're going to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=25.823529411764696) [back up and restore the tail-of-the-log to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=27.652173913043473) [make sure that page is at the same point](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=29.173913043478244) [in time as the rest of the database. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=31.130434782608663) [works for nearly every kind of page, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=33.190476190476204) [there are some page types that cannot be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=35.09523809523813) [page restored, and these include the boot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=37) [page, page 9 in file 1; fileheader pages,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=39.79999999999999) [page 0 in every file; allocation bitmaps,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=42.99999999999998) [so per database allocation bitmaps, GAM](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=46.2) [pages, SGAM pages, DIFMAP pages, PFS](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=49.80000000000001) [pages, but that doesn't include the per](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=53.40000000000002) [table and index IAM pages, those can be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=55.894736842105274) [single page restored; and also some pages](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=58.42105263157897) [from the critical system tables that I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=60.421052631578945) [discussed back in Module 2 when we were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=61.89473684210525) [talking about the primitive system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=63.578947368421034) [checks that CHECKDB does. So, this is not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=65.75) [an infallible restore mechanism, but it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=69.25) [can be extremely useful for reducing the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=71.66666666666666) [downtime that's required to recover from a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=73.99999999999996) [disaster, one where the page restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=76.33333333333326) [works, and one where the page restore doesn't work.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=3&mode=live&start=81)

[Demo: Simple Page Restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live)

[In this demo I want to show you how simple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=2) [page restore is to use. So, first off I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=4.666666666666666) [going to create a database to use, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=8.18181818181818) [then we're going to have a table with some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=12.54545454545454) [random information in it. We create a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=17.45454545454545) [backup, a full backup. You must have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=20.857142857142847) [full backup to start any restore sequence](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=24.666666666666643) [including a page restore, and then we take](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=28) [a log backup, and imagine we've got lots](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=30.10526315789474) [of log backups. Obviously this is a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=32.21052631578948) [contrived example. So, we pick a page in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=35.47619047619048) [our table using DBCC IND, and let's pick](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=40.428571428571445) [288. And we're going to corrupt that page.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=45.38095238095241) [So, that's going to go out there. I'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=49.000000000000014) [just show you all the way across there.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=52.333333333333336) [There's the code. That's going to go out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=55.00000000000002) [there and fill that page up with zeros,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=58.222222222222214) [and let's do some cleanup. Now, the demo](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=61.77777777777776)[itself. So, pretend that we don't know](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=65.04999999999998) [anything about what we've just done in our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=67.49999999999994) [setup script, and an innocent user comes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=70.2999999999999) [along and runs a query and gets an 824.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=74.2142857142857) [So, we see that the page has an incorrect](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=80) [page ID in its header. Okay, so as a DBA](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=83.21428571428575) [we might go and investigate. Let's run a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=87.89473684210527)[CHECKDB and see what that says. Table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=92.52631578947371) [error. It's all zeros. Page 288 contains](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=96.33333333333333) [an incorrect page ID in its header and so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=98.66666666666663) [on and so on. Alright, so let's have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=101.66666666666659) [look with DBCC PAGE first of all trying to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=105.3913043478261) [do a dump style 3, and we see everything](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=109.69565217391306) [is 0. And we can't do a dump style 3.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=114) [Okay, let's try a dump style 2, and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=119.83333333333329) [page is full of zeros. So, this looks like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=125.08333333333324) [it's an I/O subsystem error. Very common](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=129.0526315789474) [to see pages completely full of zeros,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=130.89473684210535)[completely full of ones, or completely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=132.7368421052633) [full of some repeating byte pattern, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=134.9047619047619) [that would be a signature of an I/O error.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=137.57142857142856) [Now, we of course know that it's us, it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=141) [a contrived example, but that's what it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=142.89473684210532) [would look like. So, first off we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=144.36842105263167) [to set the database into RESTRICTED\_USER](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=146.0526315789474) [mode, and we're going to do a single page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=147.31578947368428) [restore. Let's get out of the context of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=149.69230769230768) [the database over here. There we go. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=155.2307692307691) [that completes. I didn't have a rollback](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=159.8461538461538) [immediate there. Now, let's see if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=163.07692307692298) [anything else has been flagged as suspect](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=165.25) [in our suspect pages table. Notice that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=167.4375) [one page, so we're just going to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=169.76923076923077) [that one page. So, the syntax, the page ID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=172.84615384615387) [that you give in the restore is exactly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=176.60869565217394) [the page ID that's given to you from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=180.08695652173918)[CHECKDB. It's the same format. So, we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=183.56521739130443) [doing a restore database, and we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=187.30000000000007) [restoring PAGE = '1:288' from our full](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=190.60000000000014) [backup. Of course it would help if we went](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=194.45000000000022) [into master first. That's better. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=198.69230769230762) [look at this. There is a bug. Any time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=201.35) [that you're doing any kind of piecemeal](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=204.49999999999994) [restore you're going to get this message:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=206.9499999999999) [RESTORE DATABASE … FILE =<name>. That's a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=209.66666666666663) [bug. It's been there forever. It's still](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=212.58333333333323) [there. It's because at the point that this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=214.5789473684211) [message is printed the restore system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=216.6842105263159) [doesn't know what it is that it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=218.2) [restoring. It's a bit daft that it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=219.5999999999999) [there, but that's just the way it is. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=220.99999999999983)[we've restored our page, and now we have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=224) [to roll forward some transaction log. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=228) [we restore our first log backup and so on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=231.3125) [and so on and so on. And then to be able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=234.125) [to complete the restore, we have to back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=237.1363636363636) [up and restore the tabular log making sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=238.95454545454535) [that in this particular restore sequence](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=240.7727272727271)[we've restored all possible LSNs that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=243.1875) [could apply to that page. So, we back up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=245.8125) [our tail-of-the-log like so, and then we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=249.86666666666667) [restore it like so. And then it says okay](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=253.13333333333335) [the online restore is complete, but WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=256.33333333333337) [NORECOVERY was specified. Use RESTORE WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=258.19999999999993) [RECOVERY to bring affected data online.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=259.8823529411765)[So, of course we've been using WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=261.64705882352956) [NORECOVERY on everyone of the restores](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=263.70588235294144) [that we've done just so we don't make a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=265.17647058823536) [mistake by accident. So, we do our RESTORE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=267.294117647059) [DATABASE WITH RECOVERY like so, and we do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=270.1428571428572) [a CHECKDB to make sure everything is okay.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=273.5714285714288) [No problem. Put the database back into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=277) [MULTI\_USER mode, and now the users can go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=279.79999999999984) [in and run their queries, and they got all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=282.99999999999966) [their information back. So, single page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=286.25) [restore is actually really, really simple.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=288.125) [And if you have multiple pages that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=290) [need to restore, up here you give a comma](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=292.5454545454545) [separated list of page IDs. And the cool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=295.4090909090908) [thing about being able to restore single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=297.68181818181824) [pages is if you have a very large database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=299.2727272727275) [and you only have a single file or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=301.3181818181822) [filegroup where you can't do any other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=302.952380952381) [kind of piecemeal restore, as long as you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=304.28571428571445) [have log backups you can restore single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=305.8095238095241) [pages and vastly reduce your downtime when recovering from some kind of corruption.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=4&mode=live&start=307.76470588235304)

[Demo: Failed Page Restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live)

[In this demo I want to show you an example](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=2) [of where page restore isn't able to help](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=4.1052631578947345) [you. So, first off I'll go ahead and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=5.789473684210522) [create a database to use. And same thing,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=9.149999999999999) [table with some random information in it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=12.749999999999993) [I create my full back up and my first log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=16) [backup, and then I'm going to corrupt the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=21) [PFS page, the very first PFS page. So, I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=25) [going to whack the PFS's page header by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=28.190476190476186) [overwriting the first four bytes of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=30.095238095238084) [header with zeros like so and then some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=31.761904761904745) [cleanup. Now, over to our demo script.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=37.49999999999999) [First off, somebody reports there's some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=43) [kind of error they've seen, so the DBA, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=45.39999999999999) [run a CHECKDB, and we see all kinds of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=48.99999999999998) [errors, lots of allocation errors. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=53.28571428571428) [one gives us a hint where the range that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=56.714285714285694) [we can't process looks exactly like a PFS](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=61.85714285714282) [interval, so it's likely that the very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=64.99999999999999) [first PFS page is damaged. We could do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=67.33333333333329) [DBCC CHECKALLOC and see if that gives us](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=70.06666666666666) [any more information. Nope. Same things.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=72.19999999999999) [So, let's see if we can restore that first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=74.71428571428571) [PFS page. Let's look at it first though.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=79.85714285714283) [DBCC PAGE. And DBCC PAGE can't do a dump](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=84.39130434782606) [style 3, but we see that the headerVersion](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=89.47826086956516) [field is 0, and that should be 1. The type](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=94) [field is 0. That should be type 11. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=96.22222222222229) [some other stuff has been trashed as well.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=98.42857142857143) [The object ID is 99. That's a special ID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=101.85714285714288) [that says this page is part of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=105.14285714285717) [allocation system. That's not a corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=107.4285714285715)[there. Anyway, going back. Let's do a hex](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=109.81818181818181) [dump of the page, and we see the first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=113.45454545454544) [part of our page has been overwritten with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=117.54545454545452) [zeros, so that's not good. So, let's see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=120.9166666666667) [if we can do a single page restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=124.5) [starting with the full backup, our PAGE ID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=128.5) [1:1. We execute that, and we see this.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=132.5) [Page (1:1) is a control page which cannot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=135.57894736842113) [be restored in isolation. So, PFS pages,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=138.52631578947384) [GAM pages, SGAM pages, the boot page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=141.16666666666666) [things like that cannot be single page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=143.88888888888886)[restored. The entire file must be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=146.61111111111106) [restored. So, there's a case, and there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=148.25) [are several cases, and you might be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=150) [unlucky to hit one of them where a single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=151.75) [page restore doesn't help you if you have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=154.43478260869574) [a giant database and the only thing you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=156.86956521739148) [can restore is that single giant data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=159.2608695652174) [file. Now, one thing I would say is make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=161.08695652173924) [sure you go over and drop that database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=163.43478260869588) [with the trashed PFS page; otherwise,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=166.1764705882353) [you'll get a whole bunch of crash dumps](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=169.70588235294122)[happening. Now, you're going to have to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=174.41176470588243) [and do it by, let's go back over here,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=177.73913043478265) [using master and getting rid of it. So, do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=181.2608695652175) [make sure that you drop that database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=184.63157894736844) [after you've trashed the PFS page;](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=186.84210526315798) [otherwise, your log directory where the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=188.7368421052633) [error logs live might fill up with crash dumps.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=5&mode=live&start=192)

[Piecemeal and Partial Restores](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live)

[Piecemeal and Partial Restores. Both of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=2) [these features use the partial database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=4.571428571428571) [availability feature, which means that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=7.142857142857144) [can have portions of your database online](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=9.333333333333336) [while other files and filegroups are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=11.666666666666673) [offline. Now, obviously this means that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=13.666666666666677) [you've architected your database to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=15.470588235294121) [able to use partial database availability](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=17.235294117647058) [with multiple filegroups. The in's and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=19) [outs of doing that are beyond the scope of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=20.578947368421055) [this course, but basically you could use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=22.947368421052637) [partitioning where you put different](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=24.882352941176467) [partitions of a table or index on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=26.35294117647058) [different filegroups, or you could have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=28.411764705882337) [different tables where each of the tables](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=30) [is on a separate filegroup. Here's an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=31.75) [example of where you'd use a partial](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=33.421052631578945) [restore. For instance, if you want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=34.89473684210525) [recover some deleted data from a table,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=36.36842105263156) [but you don't want to restore the entire](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=38) [database, what you're going to do is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=40) [restore a subset of the filegroups to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=41.75) [create a new smaller database. First off,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=43.79999999999998) [you're going to use a restore of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=45.89999999999996) [primary filegroup using the partial](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=48.3125) [option, restore your other filegroups, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=49.875) [then bring the database forward to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=51.75) [desired point in time using your log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=53.75) [backups. Once you've done that, you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=55.5) [going to be able to extract out whatever](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=57) [the deleted or damaged data was from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=59.111111111111114) [restored copy of the database, albeit just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=61.33333333333334) [those filegroups that you restored, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=63.294117647058826) [then merge or insert it back into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=65.05882352941178) [production database. Now, depending on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=67.41176470588239) [what kind of data it is that you're trying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=68.57142857142857) [to merge in, this could be pretty time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=70.28571428571428)[consuming, and it might be error prone, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=71.8095238095238) [you're going to have to be careful when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=73.5555555555556) [you're doing that. An example of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=75.33333333333343) [piecemeal restore is where you've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=77.05263157894734) [maybe just one filegroup that's corrupt in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=78.63157894736835) [the database and you'd like to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=80.4736842105262) [just that one filegroup rather than](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=82.25) [restoring the entire database itself. In](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=83.75) [Enterprise Edition you can actually do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=85.26315789473684) [this online as well, but it's kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=86.84210526315785) [almost online because to make the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=88.94736842105253) [filegroup offline you have to set one of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=90.5) [the files in the filegroup offline, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=92.5) [setting a file offline in a database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=94.25) [requires momentary exclusive database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=96.77777777777777) [access. It basically takes an exclusive](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=98.55555555555554) [database log, which causes all your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=100.25) [current connections to that database to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=101.75) [drop out. As soon as the file has been set](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=103.23809523809524) [offline though, connections can be made](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=105.61904761904765) [back to that database again, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=107.0476190476191) [restore while there are operations](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=109.84615384615387) [occurring in that database. A couple of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=112.1538461538462) [other examples of where you might want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=114.60000000000001) [use a partial restore for instance would](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=116.20000000000003) [be taking a very large database and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=117.60000000000005) [restoring a portion of it to a test system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=119.49999999999999) [or development system or maybe just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=122.19999999999996) [restoring a portion of an older backup for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=124) [comparison with your current production](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=126.85714285714289) [data. So, now let's have an example of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=128.6428571428572) [both of those, partial restores and piecemeal restores.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=6&mode=live&start=136)

[Demo: Partial Restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live)

[In this demo I'm going to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=2) [do a partial restore, so I'm using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=4.272727272727272) [SalesDB database, and you can download it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=6.090909090909092) [from that bit. ly link there. I've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=7.6000000000000005) [actually already run the script because as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=8.999999999999996) [you can see down in the right hand corner](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=10.399999999999991) [it takes over 2 minutes to run. So, what I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=12.826086956521742) [did was I created a sales database by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=15.869565217391312) [restoring from that backup, I added four](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=18.38095238095238) [new filegroups to it, I added a FILE to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=21.047619047619037) [each of those filegroups as so, then I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=24.476190476190453)[created a partition function where I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=28.352941176470594) [partitioning the sales into four separate](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=31.882352941176485) [partitions, and then I create a partition](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=35.411764705882355) [scheme based on that partition function,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=38.210526315789494) [and then I'm going to rebuild the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=40.42105263157899) [clustered index on the sales table onto](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=43) [the partition scheme based on the SalesID.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=47.50000000000002) [So, we did an sp\_help on Sales, and we can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=52) [see the results there,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=58.875) [Data\_located\_on\_filegroup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=61.625) [Sales4Partitions. And we can see that it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=62.3125) [went through and did everything, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=66.66666666666669) [upgrade and so on, no problem. And then I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=70.33333333333337) [created a full backup of the partitioned](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=75.125) [database and a first log backup. So, let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=77.75) [get rid of this connection and move onto](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=80.66666666666666) [the demo. Now, disaster is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=83.33333333333329) [strike. The database gets dropped](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=85.8181818181818) [unfortunately. Imagine this is a very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=87.6363636363636) [large database. We don't want to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=89.00000000000001) [the entire thing, so what we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=90.40000000000003) [do is just restore the OLTP portion as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=92) [fast as we possibly can. Anytime we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=95.0769230769231) [doing a partial restore we start with the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=97.5) [primary filegroup, so we're restoring](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=99.5) [FILEGROUP PRIMARY from our full backup,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=100.75) [and we're saying WITH PARTIAL. We're not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=102.84210526315788) [going to restore all the parts of this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=105.4210526315789) [database. So, we restore the PRIMARY](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=109.4) [filegroup. That takes a little bit of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=117.80000000000004) [time. Then we can restore the 2010](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=127.60000000000008) [filegroup pretending that that's our most](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=132.30000000000007) [recent data, and we can see the statistics](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=135.60000000000014) [there as it's going through doing it. A](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=140)[very useful thing to do is to use WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=141.4545454545455) [STATS when you're doing any kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=143.09090909090918) [restore that might take some time so you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=144.60869565217394) [can see what kind of progress is being](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=147.04347826086968) [made, and 10% is the default amount of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=149.47826086956542) [statistics that it prints out. Then I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=152.16666666666666) [restore my log backups pretending that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=154.88888888888886) [I've got lots of log backups. So, I bring](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=157.22222222222217) [those two filegroups up to the right point](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=160.80000000000004) [in time, and the transaction log has a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=164.00000000000009) [bunch of stuff that needs to be restored,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=166.5714285714286)[so that's going to take a little bit of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=168.09523809523824) [time. You can see it's going through](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=169.80952380952408) [there. Once I've done that, once that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=171.5) [completes, I'm going to bring the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=173.25) [online, and we'll be able to see that only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=175) [the two filegroups that were restored are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=182.578947368421) [actually there. (Typing) Now, if we look](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=188.47368421052624) [at the (sys). (database\_files) in our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=192.89473684210532) [database we can see that the primary](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=195.7368421052633) [filegroup is ONLINE, our mdf; our 2012](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=199.0526315789476) [filegroup is ONLINE pretending that that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=202.1875) [our most recent OLTP filegroup; and our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=204.8125) [log is ONLINE. The other filegroups are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=207.8) [RECOVERY\_PENDING. Now, you need to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=210.60000000000005) [careful of queries that go across all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=213.85714285714292) [filegroups. So, if we execute that, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=218.4285714285716) [don't have a partitioned index on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=220.71428571428567) [CustomerID, so it's going to have to scan](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=222.42857142857133) [across all those filegroups, but they're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=224.71428571428555) [not all online so we get an error saying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=227.00000000000003) [that our query can't run, but queries that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=230.60000000000008) [don't need access to all the filegroups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=233.39999999999998) [are going to have no problem. So, if we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=234.7999999999999) [over to our workload script here, I've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=237.04347826086962) [this little query that's just going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=239.13043478260886) [a COUNT of all the sales that are in our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=241.2173913043481) [online filegroup, set that running so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=245.1111111111112) [that's not having a problem. And while](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=247.77777777777794) [that's running I can actually do some more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=250.90909090909093) [restores. Now, in Enterprise Edition I can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=254.54545454545467) [do online restores of other filegroups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=256.8947368421053) [while there is activity in the database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=258.78947368421063) [So, here I'm restoring one of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=261)[filegroups that's not already online, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=263.9473684210527) [we see that pulling out the backup; then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=266.47368421052647) [restore the transaction log backup, and we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=270.33333333333337) [see it's just pulling out the transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=275.00000000000017) [log that's necessary for that particular](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=279.66666666666697) [filegroup; and then finish off the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=283.66666666666674) [recovery sequence. And now we can see that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=287.66666666666686) [we've pulled in the 2009 filegroup as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=291.4545454545456) [well, and we've managed to do that restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=294.31818181818215) [with nothing going on with our workload.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=297.59090909090963) [Pretty cool. So, partial restore and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=300.625)[online piecemeal restore are really cool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=303.25) [things to be able to minimize your downtime.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=7&mode=live&start=307)

[Demo: Piecemeal Restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live)

[In this demo I'm going to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=1.5) [do a piecemeal restore where for instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=3.404761904761906) [you've got a workload that's running in a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=4.738095238095241) [database and one of the files or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=6.5) [filegroups becomes damaged and you only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=8.25) [want to restore that particular filegroup.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=9.75) [So, I've got the same setup script as I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=11.605263157894736) [had for the partial restore demo](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=14.921052631578945) [previously, and it's using the SalesDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=17.131578947368418) [database that you can get from that bit.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=18.4375) [ly link there. So, I'll very quickly go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=19.9375) [through what it's done. It's already run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=21.690476190476186) [as you can see down at the bottom here. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=23.357142857142847) [restores the database, adds four](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=25.88888888888889) [filegroups, adds a file to each of those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=27.833333333333336)[filegroups, creates a partitioning](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=30.94444444444445) [function, creates a partitioning scheme on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=32.5) [that partitioning function, rebuilds the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=36.19230769230768) [clustered index onto the partitioning](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=39.269230769230745) [scheme, and then takes a full backup and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=41.42307692307692) [log backup. So, same as we did before, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=43.88461538461537) [I'm not going to spend a bunch of time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=46.147058823529406) [here. So, let's go over to our demo and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=48.26470588235293) [kick that off. And what this is doing is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=50.586956521739125) [it's just continually doing a SELECT COUNT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=52.93478260869564) [(\*) of the Sales in our most recent](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=54.8125)[filegroup. So, over to our demo script. In](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=57.3125) [our demo script disaster is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=59.8) [strike, and we're going to have to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=61.89999999999998) [our 2009 filegroup, so we have to set it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=64.29999999999995) [OFFLINE before we can do that. Now, when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=66.75) [we set it OFFLINE, look at what happens to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=68.75) [our Demo- Workload. Our Demo-Workload](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=71)[basically is killed because to set a file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=72.66666666666666) [OFFLINE or to set a filegroup OFFLINE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=75.77777777777774) [there has to be an exclusive database log.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=78.5) [SQL Server doesn't have a concept of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=80.78571428571433) [file or filegroup log to make sure that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=83.07142857142867) [nobody is doing anything in the file or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=85.33333333333331) [filegroup that's being set OFFLINE, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=87.55555555555549) [basically it tosses everybody out of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=89.22222222222211) [database. But as soon as it's done that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=91.95454545454544) [and set the file OFFLINE as you can see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=95.22727272727269) [there, you can get back in, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=98.7) [start your workload up again. So, let's go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=100.50000000000003) [ahead and Execute my workload, and that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=102.65384615384616) [running perfectly happily. So, I'll go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=105.34615384615387) [ahead, and once I've set the file OFFLINE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=107.21428571428572) [I start my restore sequence by backing up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=109.11904761904765) [the tail- of-the-log like so, then I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=111.02380952380958) [restore just the filegroup I'm interested](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=114.73529411764703) [in while my workload is running, restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=118.61764705882347) [the transaction log again while my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=123.16666666666667) [workload is running, and then I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=127.1666666666667) [restore the tail- of-the-log backup I took](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=132.49999999999997)[and bring the database ONLINE like so. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=137.0454545454545) [there we can see I've managed to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=141.81578947368422) [that filegroup and bring it ONLINE while](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=144.34210526315798) [my workload didn't have any problems. I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=146.5526315789475) [just stopped it there. So, piecemeal](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=148.91176470588232) [restore into an existing database is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=151.0294117647058) [another really cool thing you can do, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=153.14705882352928) [you can do it online in Enterprise Edition.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=8&mode=live&start=160.5)

[Restoring Corrupt Backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live)

[Restoring Corrupt Backups. It's possible](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=1.5) [that at some point you might come across a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=2.9705882352941173) [corrupt backup and you're forced to use it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=5.617647058823528) [because it's the only backup that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=7.653846153846154) [have. In that case, you can actually force](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=9.269230769230765) [the corrupt backup to restore using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=11.970588235294121) [restore WITH CONTINUE\_AFTER\_ERROR option.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=14.441176470588243) [What that will do is tell the restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=15.727272727272727) [system to skip any errors that it finds](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=17.54545454545454) [and just carry on restoring from that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=19.363636363636353) [backup whether it's a data backup or a log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=20.976190476190474) [backup. You've got to be careful about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=23.11904761904761) [doing this though because if you have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=24.78571428571427) [corrupt log backup it is absolutely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=26.552631578947363) [guaranteed that it's going to create a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=27.815789473684198) [corrupt database for you. Now, if this is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=29.289473684210506) [a backup in the middle of a restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=31.499999999999993) [sequence, I would probably prefer to end](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=33.78571428571427) [the restore sequence with the previous](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=35.85294117647059) [backup rather than having to restore the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=37.97058823529411) [corrupt backup and then deal with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=40.44117647058822) [corruption afterwards. Your tradeoff then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=42.3) [is there's no corruption, but you're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=43.633333333333326) [to be further back in time. Now, it could](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=45.5) [be that there is something absolutely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=47.39473684210525) [critical in that corrupt backup that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=48.65789473684209) [have to restore, so maybe I would restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=50.25) [a complete copy of the database with the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=52.25) [corrupt backup, and then restore another](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=54.25) [copy of the database without the corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=56.264705882352935) [backup, salvage the data from the corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=58.735294117647044) [database, and pull it back over to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=61.08823529411765) [non-corrupt, but further back in time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=63.44117647058826) [database. Now, you also have to be careful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=65.20588235294122) [of tail-of-the-log backups that contain a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=67.8333333333333) [minimally-logged operation where the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=69.83333333333327) [file wasn't present. You would think that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=71.33333333333331) [SQL Server wouldn't let you do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=73.27777777777771) [tail-of-the-log backup because a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=75.22222222222211) [tail-of-the-log backup after a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=76.57142857142858)[minimally-logged operation must contain](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=78.00000000000003) [all of the data extents that were changed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=79.42857142857147) [by that minimally-logged operation as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=81.86363636363633) [well. But since SQL Server 2008 R2, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=83.22727272727266) [actually lets you take that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=85.4444444444444) [tail-of-the-log backup and doesn't tell](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=86.83333333333326) [you that there's something wrong with it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=88.22222222222211) [If you restore it, it is absolutely 100%](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=90.16666666666663) [guaranteed to corrupt your database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=92.3888888888888) [because it's going to restore a bunch of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=93.8529411764706) [allocate page, allocate page, allocate](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=96.67647058823535) [page log records, but not the actual pages](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=98.44117647058832) [themselves. So, let's have a look at that scenario in a demo.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=9&mode=live&start=104.5)

[Demo: Restoring Corrupt Backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live)

[In this demo I want to show you the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=1.5) [dangers of using corrupt backups if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=4.07142857142857) [they're the only backups you have. So, I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=5.785714285714284) [going to create a database to use, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=8.416666666666666) [then a table in there with 100 rows of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=12.083333333333337) [data, and then take another log backup, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=16.208333333333343) [a full backup and a log backup. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=19.928571428571423) [I'm going to add in a piece of data. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=24.214285714285694) [is a very important piece of data, and I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=28.727272727272727) [don't want to lose it, so Execute that,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=30.772727272727266) [and then another 100 rows of data. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=32.59090909090908)[this all happens after my Log1 backup. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=34.900000000000006) [now I'm going to do a minimally-logged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=37.70000000000002) [operation. So, I'm going to create a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=40.15000000000003) [clustered index on that table, I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=42.078947368421055) [to into the BULK\_LOGGED recovery model,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=43.92105263157895) [and I'm going to rebuild the clustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=45.5) [index. Now, diaster is going to strike.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=49) [Database goes OFFLINE. While the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=52.5) [is OFFLINE, the data file gets deleted.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=56.65384615384616) [So, the I/O subsystem causes some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=61.5) [corruption. Back over in SQL we bring the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=64.5) [database ONLINE and there's a problem. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=68.5) [we're going to want to restore, but before](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=71.39999999999999) [we restore we want to take a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=73.79999999999997) [tail-of-the-log backup. So, we do our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=75.89999999999995) [tail-of-the-log backup, and it says look](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=78.21428571428572) [BACKUP WITH CONTINUE\_AFTER\_ERROR](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=80.7857142857143) [successfully generated a backup of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=82.0714285714286)[damaged database. Refer to the SQL error](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=84.375) [log blah, blah, blah. Now, this is on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=87) [2012. From 2008 R2 onwards, SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=90.18421052631578) [will allow you to create a tail-of-the-log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=93.1315789473684) [backup even if the data files were damaged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=96.07894736842101) [and a minimally-logged operation was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=98.65384615384615) [there. I think that's really broken. I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=100.19230769230768) [think it should error out until you can't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=102.16666666666663) [take that log backup. But let's go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=104.3888888888888) [and use that log backup and see what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=107.03846153846155) [happens. So, we do our restore from our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=110.11538461538464)[full backup and our Log1 backup. Then we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=113.19230769230771) [restore our tail-of-the-log backup, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=116.19999999999999) [says no it's damaged, so we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=118.29999999999995) [have to use WITH CONTINUE\_AFTER\_ERROR. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=121.09999999999991) [we do the restore WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=123.56666666666666) [CONTINUE\_AFTER\_ERROR, and that works, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=126.23333333333332) [we get message saying this backup was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=128.89999999999998) [created WITH CONTINUE\_AFTER\_ERROR, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=132.68181818181813) [was damaged. Then it says inconsistencies](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=135.4090909090908) [are possible in the database. That's the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=138.10000000000002) [only warning we get. So, we go to restore,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=140.90000000000006) [finish our restore sequence, and it says](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=145.55555555555557) [now you have to continue using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=149.83333333333337) [CONTINUE\_AFTER\_ERROR on all further](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=153.5) [restores okay? So, we go ahead and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=155.36666666666667) [complete our restore sequence using WITH](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=158.63333333333335) [CONTINUE\_AFTER\_ERROR, and again we get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=161.56666666666666) [that same message saying the database was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=164.23333333333332) [damaged. The database isn't marked damaged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=167.96666666666664) [in any way. Now, what happens if we try to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=171) [CHECKDB? Oh, a lot of problems because all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=176) [those pages that were changed by our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=178.97058823529406) [minimally-logged clustered index rebuild](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=181.44117647058812) [are allocated, but there's nothing in them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=182.96666666666667)[because the tail-of-the-log backup after](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=186.23333333333335) [our minimally- logged operation, because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=188.5666666666667) [the data file was damaged, the log backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=190.55882352941174) [wasn't able to read those extents that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=193.38235294117638) [were changed by the minimally-logged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=196.02941176470588) [operation. So, let's go back and not use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=198.6764705882353) [that damaged backup. So, I'm replacing my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=202.91176470588238)[database, restore my Log1 backup, and so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=206.02380952380952) [on and so on pretending we've got lots of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=208.69047619047618) [backups, but not the damaged one. So, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=212.1190476190476) [RESTORE WITH RECOVERY and finish that off,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=215.30000000000004) [and there shouldn't be any corruption, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=218.10000000000008) [we've lost all the information back to the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=220.92857142857142) [end of the Log1 backup. So, if I SELECT \*](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=224.35714285714275) [FROM my table, I have 100 rows, but I do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=229.75000000000003) [not have my important data. Now, depending](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=236.25000000000009) [on what data is backed up by that corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=240.19565217391306)[backup, you may be forced to use it, but I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=243.32608695652183) [would far rather go back to the previous](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=246.80434782608714) [backup in the restore sequence and end](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=249.21428571428567) [there. I don't like having a backup that gets restored that causes corruption.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=10&mode=live&start=251.2142857142856)

[Looking Into Log Backups](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live)

[Looking Into Log Backups. There are two](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=3) [table-valued functions that exist that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=5.470588235294116) [allow you to look into the transaction log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=7.235294117647055) [whether that's in the log itself or in a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=9.85714285714286) [log backup. Both of these are undocumented](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=12.428571428571438) [and unsupported though. First of all,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=14.5625) [there's fn\_dblog for looking into the log,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=16.4375) [and there's a syntax for it. You give a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=18.5) [startLSN and an ending LSN. Most people](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=20.75) [just use null for both of those. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=22.666666666666664) [there's fn\_dump\_dblog for looking into log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=25.666666666666654) [backups, and there is a syntax for that.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=27.666666666666647) [So, you give a starting and ending LSN,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=29.52173913043477) [what kind of device it is, the device](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=31.260869565217366) [number, and the backuppath or multiple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=33) [backuppaths if you have a striped backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=35.571428571428584) [set. And you have to give a whole bunch of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=38.5714285714286) [default parameters as well, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=40.95652173913045) [see the syntax and how many default](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=42.47826086956525) [parameters in the demo in the next](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=44) [recording. Now, why are these useful? Why](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=46.69230769230771) [am I telling you about these? Well, if you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=49.208333333333336) [have to try and find an exact time to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=51.08333333333336) [restore to in a backup, for instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=52.95833333333338) [you're trying to find the point just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=54.625) [before somebody dropped a table,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=56.8125) [fn\_dump\_dblog can be incredibly useful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=58.375) [because it can be used to find the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=59.94736842105264) [sequence number by searching through the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=62.78947368421055) [transaction log looking for particular log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=64.68421052631581) [records or transaction names, finding when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=67.00000000000003) [somebody did something that you want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=69.40000000000006)[restore to just before that point. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=71.85714285714288) [alternative to that is you restore with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=73.85714285714292) [stop at a particular time. Has the thing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=75.85714285714296) [happened yet? No, restore a little bit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=78) [further. Has the thing happened yet, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=79.75) [so on and so on. We call it inching](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=81.00000000000003) [through the log. It's very, very tedious.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=82.50000000000007) [But by using fn\_dump\_dblog or even](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=84.19999999999999) [fn\_dblog if the log is still in the system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=85.99999999999997) [and hasn't yet been backed up, you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=88.69999999999995) [reduce the amount of time taken to find](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=91.00000000000004)[that specific exact point in time to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=93.28571428571438) [restore to by a huge amount and save](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=95.27777777777777) [yourself a lot of downtime if a disaster](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=97.49999999999994) [occurs. Now, I've also seen people using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=99.72222222222211) [it for off-production analysis of activity](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=102.11764705882356) [in their database, for instance, being](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=104.23529411764713) [able to find out what the churn rate is in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=106.23809523809524) [certain tables in a production database by](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=108.61904761904765) [taking log backups, restoring them on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=110.28571428571433) [another server, and then doing transaction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=111.88235294117648) [log analysis or even just doing the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=113.64705882352943)[analysis on the log backups themselves](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=115.70588235294122) [without doing the restore. Now, one thing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=117.25) [to beware of is that there's a bug in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=119) [fn\_dump\_dblog. Remember, it is an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=121.375) [undocumented unsupported command where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=123.25) [it's going to leak a thread and a hidden](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=124.75) [thread scheduler from SQL OS every time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=127.75) [it's used, so I would not use this in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=129.5) [production. I would go over and use this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=131.75) [on a test server to figure out what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=133.4583333333334) [Log Sequence Number is that you need, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=135.33333333333348) [then go back and do the restore in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=137) [production. That way you can bounce your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=138.81818181818176) [test instance and get rid of any leaked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=140.4090909090908) [thread and thread scheduler. You don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=143) [want to have to do that on your production instance.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=11&mode=live&start=149)

[Restoring to a Log Sequence Number](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live)

[Restoring to a Log Sequence Number. Once](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=2) [you've used fn\_dblog or fn\_dump\_dblog to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=4.470588235294118) [find the Log Sequence Number of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=6.588235294117645) [transaction that does some kind of drop or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=8.714285714285712) [delete that you don't want to have in your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=10.61904761904761) [restore sequence, you're usually going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=12.761904761904745) [want to restore everything up to, but not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=14.25) [including that point. You don't want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=16.25) [have that transaction run. The way that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=18.090909090909093) [you're going to do that is you do RESTORE,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=20.000000000000007) [and you say STOPBEFOREMARK='lsn: and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=22.454545454545467) [an <lsnstring>'. Now, unfortunately the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=25) [lsnstring that you have to provide is not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=27.5) [the hexadecimal LSN that you get from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=31.38461538461538) [fn\_dblog or fn\_dump\_dblog. You're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=34.6153846153846) [have to translate it into the form](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=36.6923076923077) [required by RESTORE. You have to take the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=38.307692307692335) [VLF portion, the log block portion, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=40.499999999999986) [the log record portion and convert them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=42.599999999999966) [into character strings. Now, I've got a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=44.699999999999946) [demo coming up in the next recording, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=46.428571428571445) [I'll show you how to do that translation.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=48.33333333333337) [I've also got some code and the formula to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=50.31818181818182) [do the translation on my blog at that bit.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=53.1818181818182) [ly link there. So, let's have a look at a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=56.04545454545458) [demo of finding the LSN using fn\_dblog and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=59.09999999999998) [fn\_dump\_dblog and doing that translation and doing the RESTORE with STOPBEFOREMARK.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=12&mode=live&start=61.49999999999996)

[Demo: Using fn\_dump\_dblog and LSN Restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live)

[In this demo I want to show you how you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=1.5) [how you can use fn\_dblog and fn\_dump\_dblog](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=3.6739130434782616) [to find the point at which to restore to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=5.195652173913045) [save you having to very tediously inch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=7.653846153846155) [through the log. So, first off I'm going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=10.34615384615385) [to create a database to use like so, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=13.79166666666667) [then a couple of tables just to put a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=17.916666666666668) [bunch of stuff into the transaction log,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=22.041666666666657) [stick 1000 rows into RandomData1 table,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=25.973684210526308) [create a full backup and a log backup, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=29.447368421052616) [then insert another 1000 rows into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=35.5) [RandomData2. Disaster strikes. Somebody](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=41.5) [drops RandomData1. More stuff carries on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=45.5) [happening. So, imagine a bunch of time](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=51.5) [goes by, and all kinds of things are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=53.928571428571445) [happening to this database and this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=55.83333333333337) [server, and we're not able to use the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=57.261904761904816) [default trace to figure out when the table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=59.409090909090914) [was dropped and who dropped the table.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=61.5909090909091) [Maybe we can have a look in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=63.5) [transaction log. So, what I'm going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=65.74000000000001) [is I'm going to look for all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=67.98000000000002)[transactions that have a transaction name](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=70.22000000000003) [like drop object because that's what SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=72.0625) [Server names those transactions, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=74.25) [for those transactions I'm going to pull](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=76.25) [out all the log records for them. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=78.875) [let's go ahead and run that. And that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=81.77777777777777) [just going to take a few seconds to run.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=83.99999999999994) [In fact, it's very, very fast. So, let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=86.5) [see. There's a DROPOBJ, so I'm guessing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=89.70000000000005) [that's our table being dropped. So, I want](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=92.50000000000009) [to grab the LSN, and I'm going to store](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=95.72222222222221) [that here. Now, what I can also do is I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=99.38888888888886) [can find out from this log record who did](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=103.4629629629629) [the drop because I pulled out the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=107.34615384615387) [Transaction SID. So, if I copy that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=110.57692307692314) [Transaction SID, pull it back over here,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=114.5952380952381) [and plug it into SUSER\_SNAME, I can then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=118.92857142857144) [find out exactly who it was that was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=123.88095238095241) [logged in and did that drop. And it was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=126.55882352941178) [me. So, if you have multiple people](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=129.20588235294116) [logging in as the same account, then you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=131) [can find out where they're actually logged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=133) [in from essentially. And now let's clear](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=135.05) [the log out so that information is no](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=138.9000000000001) [longer in the log. Now, to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=143.30000000000018) [restore right up to the point before the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=147.24999999999997) [drop transaction occurred, we need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=150.04999999999993) [convert the LSN, the Log Sequence Number,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=152.1499999999999) [that we pulled out of the log into a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=154.61764705882348) [special format. And the format is as I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=157.7941176470587) [described in the slide. So, I grab my LSN](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=161.74999999999994) [here, and I've got this code, and this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=166.62499999999986) [code is going to do the conversion. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=170.95833333333312) [it's going to convert into the format that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=173.55882352941168) [we need. Basically we're going to convert](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=175.91176470588218) [this into five digits, we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=179.13157894736835) [convert this into 10 digits of characters,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=182.81578947368405)[and then we're going to convert this into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=186.5) [whatever is left. So, we go ahead and run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=191.590909090909) [all that code like so, and there's our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=197.31818181818164) [Converted LSN. So, we can see that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=201.70000000000002) [four characters here got converted to five](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=204.90000000000006) [characters here. This hex number here got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=207.7000000000001) [converted to decimal and expanded out to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=210.50000000000003) [10 digits, and then this 24 got converted](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=213.30000000000007) [to decimal as well. So, 2 times 16 plus 4](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=216.5) [you can see is 36. So, we grab that LSN,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=219.83333333333343) [and we'll Save that. Now what we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=223.50000000000003) [to do is we're going to restore a copy of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=226.70000000000007) [the database. So, using that full backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=230.70000000000013) [we're going to restore a copy and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=233.64285714285708) [restore the log backup we took, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=237.0714285714284) [initial log backup. And then what we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=240.07142857142833) [going to do here is we're going to restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=242.40909090909088) [our second log backup, and we want it to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=245.2727272727272) [restore only up to but not including the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=248.16666666666669) [transaction that did that drop. So, we use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=250.83333333333343) [WITH STOPBEFOREMARK = 'lsn: our converted](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=254.9285714285714) [LSN. So, we go ahead and do that and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=259.78571428571416) [finish our restore sequence. And what we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=267.8809523809521) [see is we've got back our RandomData1](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=271.8529411764707) [table, which is really cool. So, we could](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=275.14705882352973) [go ahead and script out creating that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=278.2142857142857) [table, put it back into our real database,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=279.8809523809524) [copy the data over, and we've recovered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=281.78571428571433) [that. And we don't have to tediously](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=283.83333333333326) [restore our database to a particular point](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=286.16666666666646) [in time. Is the table there? Yes. And keep](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=288.5) [going forward a little bit, a little bit,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=290.1363636363637) [a little bit, a little bit until suddenly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=291.5909090909092) [the table is not there, and then we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=293.28260869565213) [back a little tiny bit and have to go and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=295.6304347826085) [restore the entire database again. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=298.2391304347823) [saves us a huge amount of time. Now, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=299.75) [the drop is no longer in the log, you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=302.5) [use fn\_dump\_dblog. And what fn\_dump\_dblog](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=307.5) [does is it's going to go and pull the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=309.49999999999994) [out of a log backup. So, for instance, how](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=312.8333333333331) [many log records are there in this log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=316.6538461538462) [backup? And this just takes a few seconds.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=320.96153846153857) [It's going to come back and tell us](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=322.50000000000017) [there's a few thousand log records in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=323.6428571428575) [there. And I'll scroll across and show you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=324.7631578947368) [the command. You have to specify all these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=326.8684210526314) [default parameters; otherwise, it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=328.97368421052596) [complains. Six thousand three hundred log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=330.83333333333337) [records. So, I can use fn\_dump\_dblog to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=334.8333333333335)[the exact same query that I had before.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=337.8333333333332) [So, I'm pulling all the information out of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=340.5) [the transactions that do drops using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=344) [fn\_dump\_dblog again, and then I've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=346.625) [this inner query that's looking for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=350.07142857142867) [transactions named drop object. And there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=353.9285714285717) [you can see all the code. So, I go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=357.16666666666663) [and run that. It's going to take a little](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=360.4999999999998) [bit more time because it's having to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=362.31818181818176) [out and read from disk rather than having](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=363.40909090909076) [to read the transaction log itself. Well,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=364.5) [log backups are often having to read the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=366.4444444444444) [transaction log itself. Now, one thing to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=368.6666666666666) [beware of, and I mentioned this in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=370.70000000000005) [slides, is that every time you run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=373.10000000000014) [fn\_dump\_dblog there's a bug right now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=375.2000000000002) [where it creates a hidden scheduler and a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=377.0789473684211) [hidden thread, and when it's finished it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=379.60526315789485) [leaves them lying around. So, you want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=381.7105263157895) [be careful and not do this on a production](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=383.3947368421053) [system. So, take your log backup somewhere](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=385.28947368421063) [else like a test system, and then run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=387.375) [fn\_dump\_dblog there. And there you can see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=389.875) [it came back. So, it took 23 seconds to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=391.8043478260869) [pull that information out of the log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=394.15217391304327) [backup rather than almost instantaneously](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=395.9782608695649) [from the transaction log, but that's a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=397.44736842105266) [really cool thing to be able to do is use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=399.6578947368422) [log backups themselves to find the point](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=402.8888888888889) [at which to restore the log backup using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=405.6111111111113) [fn\_dump\_dblog and then restore WITH STOPBEFOREMARK to the LSN.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=13&mode=live&start=408.7222222222226)

[Restoring System Databases (1)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live)

[Restoring System Databases, Part 1. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=2) [most important thing to remember about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=4.000000000000001) [restoring system databases is that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=5.999999999999999) [have to use a backup from the same service](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=7.6818181818181825) [pack level as the SQL Server instance that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=9.727272727272723) [you're restoring on. For instance, if you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=11.545454545454536) [have an RTM backup of master, that's not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=13.749999999999998)[going to restore on an SP1 server. As far](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=16.549999999999997) [as the various databases are concerned for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=19.421052631578945) [the model database, you can restore that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=20.894736842105253) [just the same way as a user database. For](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=22.36842105263156) [the msdb database, again, you can restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=24.565217391304344) [it in just the same way as a user](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=26.39130434782608) [database. However, you can't restore a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=28.739130434782595) [database if there are any users using that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=30.578947368421044) [database, so you should stop the SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=33.105263157894726) [Server Agent before restoring msdb. Make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=35.31578947368421) [sure that if you're using log backups for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=37.21052631578949) [msdb that you restore them as well to get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=39.736842105263186) [msdb right up to the same point in time as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=42.25) [the rest of the server. The resource](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=44.75) [database. This is not really a database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=46.5) [It's actually more like a DLL, so you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=48.25) [can't back it up and you can't restore it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=50.25) [You can use a file-system copy to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=52.894736842105274)[overwrite the existing maybe corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=55.10526315789476) [resource database, but be careful not to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=56.68421052631582) [overwrite it with an older version or you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=58.263157894736835) [could cause problems for your system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=59.947368421052616) [starting up. Now, as far as tempdb is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=61.26315789473684) [concerned, you don't have to worry about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=63.36842105263158) [it because tempdb cannot be backed up and cannot be restored.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=14&mode=live&start=65.21052631578945)

[Restoring System Databases (2)](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live)

[Restoring System Databases, Part 2. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=3) [one database we haven't talked about so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=4.999999999999999) [far is master, and everybody should](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=7.33333333333333) [practice restoring master because it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=9.363636363636363) [really pretty simple to restore. Here are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=11.18181818181818) [the steps that you go through: First of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=13.38095238095238) [all, you have to start SQL Server in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=14.904761904761898) [single-user mode, so you use the -m](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=16.428571428571416) [startup parameter in Configuration Manager](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=18.599999999999994) [and then just restart your instance. You](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=20.599999999999987) [restore your latest master backup using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=23.294117647058822) [WITH REPLACE. That's going to shut down](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=25.058823529411757) [SQL Server automatically once the restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=27.117647058823515) [finishes, so remove the -m start up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=29.125) [parameter and restart SQL Server again.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=31.75) [And then for any changes that you made](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=34) [after that master backup was taken you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=36) [going to have to reattach any new](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=37.75) [databases, recreate any new server-scoped](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=39.85714285714286) [objects like logins and stuff like that.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=42.000000000000014) [Now, to be able to do a restore of master,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=45) [you do have to be able to start SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=47.00000000000003) [Server. If master is really badly damaged,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=48.800000000000054) [then you're going to have to rebuild](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=50.5) [master, and this is also the case if you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=52.25) [just don't have any backups at all of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=54.47619047619048) [master. Now, if you rebuild master, you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=56.38095238095241) [going to lose absolutely everything on the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=58.047619047619094) [instance because it's almost like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=60.0909090909091) [reinstalling the instance. Now, hopefully](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=61.909090909090935) [you do have a backup of master, and your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=63.38095238095238) [master is just too badly damaged to allow](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=65.09523809523809) [the instance to start up. So, once you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=66.6190476190476) [rebuilt master, you go and restore master,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=68.57894736842101) [and then follow the steps above if you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=70.42105263157886) [have to go and reattach any other](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=72.85714285714286) [databases, recreate any server-scoped](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=75.85714285714288) [objects. Now, if you do have to rebuild](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=77.5714285714286) [master, it says there to reattach all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=79.40000000000002) [databases. Make sure that you restore the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=80.80000000000004) [latest copies of your system databases as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=82.76470588235296) [well because rebuilding master is also](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=84.82352941176474) [going to rebuild msdb for instance. I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=86.52631578947367) [going to show you a demo now of restoring](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=88.36842105263152) [master. I'm not going to do a demo of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=90.73684210526304) [rebuilding master, but there is a very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=92.90476190476193) [good Books Online topic called Rebuild](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=94.57142857142861) [System Databases that you can read there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=96) [at that bit. ly link that walks you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=97.5555555555556) [through step-by-step using the install media to rebuild the master database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=15&mode=live&start=99.33333333333343)

[Demo: Restoring master](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live)

[In this demo I'm going to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=2) [restore the master database. So, first off](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=4.142857142857144) [I'm going to make sure that my Company](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=5.857142857142857) [database doesn't exist, and I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=8.142857142857142) [take a backup of the master database like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=10.142857142857148) [so. Now, after creating that backup some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=13.352941176470589) [changes happen to the server. I create](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=16.64705882352941)[another database, create table, insert](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=19.823529411764703) [some data into it, and then let's imagine](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=21.88235294117646) [that master is corrupt in some way. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=25.176470588235272) [we're going to have to restore the master](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=27.999999999999993) [database. The first thing I'm going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=30.66666666666665) [though is try to salvage as much of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=32.75) [configuration information on the server as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=35) [I possibly can, so for instance stuff like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=36.631578947368425) [sys. configurations, and I would go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=39.157894736842124) [through and figure out all the values in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=41.0526315789474) [use to make sure that I can go and set](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=43.66666666666668) [them back again. More information on that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=47.000000000000036) [in the Books Online links that I gave you.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=49.230769230769226) [Now what I'm going to have to do to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=52) [able to restore the master database we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=53.73913043478258) [have to have booted the server single-user](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=54.95652173913039) [mode. So, I'm going to go into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=56.294117647058826) [Configuration Manager and restart the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=58.647058823529434) [server using that -m flag. So, over here](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=60.117647058823565) [in Config Manager I'll right-click on my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=63.777777777777786) [Service, go to Properties, Startup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=67.66666666666669) [Parameters, add in -m, OK, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=70.44444444444447)[Restart the service. It just takes a few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=80.19999999999999) [seconds. So, let's go back over to SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=92.46666666666664) [Server, and what we're going to do is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=96.09999999999998) [we're going to restore master. So, we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=98.49999999999996) [going to restore our backup, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=100.47619047619048) [do it through Management Studio or you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=102.38095238095241) [do it through SQL CMD. Now, you'll likely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=104.28571428571433) [get an error saying you couldn't connect,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=108.23529411764703) [but we are actually connected. Look down](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=112.76470588235287) [at the bottom. It says connected. If I run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=116.94117647058823) [that again, it worked just fine. Now look.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=121.17647058823528) [It says the master database has been](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=124.54545454545453) [successfully restored. Shutting down SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=126.4545454545454) [Server. So, it always shuts down SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=127.99999999999999) [Server after the master database has been](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=130.33333333333337) [restored. So, let's go back out to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=132.66666666666677) [Configuration Manager, go and remove the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=137.4210526315789) [-m from our Startup Parameters, OK, OK,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=141.8421052631578) [Start up SQL Server, and we're back online](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=147) [again. But what about things that were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=152.05263157894728) [created or were added to the instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=156.47368421052616) [after our backup of master? So, if I go to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=160.0434782608696) [try to use the Company database, it says](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=163.5217391304349) [doesn't exist. Make sure the name is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=166.30434782608714) [entered correctly because I added the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=168.25)[Company database after I took that backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=169.75) [of master. So, I'm going to go and have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=171.5) [reattach the Company database, recreate](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=174.66666666666674) [any logins or any server-scoped objects](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=176.33333333333346) [that I'd created. But there you can see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=178.23809523809524) [just how simple it is to restore the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=180.14285714285717) [master database as long as you are backing up all your system databases.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=16&mode=live&start=182.0476190476191)

[Summary](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live)

[Summary. In this module I've described and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=2) [demonstrated some of the more advanced](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=4.333333333333334) [restore techniques that you can use,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=6.333333333333332) [especially things you can do to reduce the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=8) [time it takes to affect your disaster](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=10) [recovery. For instance, using page restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=11.75) [as long as you've got the right log](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=13.25) [backups of course to roll that page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=15.25) [forward to the same point in time as the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=17) [rest of the database. You can also use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=18.38461538461538) [piecemeal restores to restore single files](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=20.111111111111114)[and filegroups as long as your database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=21.777777777777786) [has been architected for partial database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=23.722222222222236) [availability. Another thing you can do is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=26.1875) [use fn\_dblog and fn\_dump\_dblog to find a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=29.25) [particular transaction starting LSN. For](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=32.23529411764706) [instance, a transaction that dropped a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=34.29411764705883) [table or deleted some data, you can find](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=36.76470588235296)[that LSN, you can restore your backup to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=39.31578947368421) [the point just before that transaction is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=41.42105263157895) [about to start, and then you can recover](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=43.357142857142854) [the deleted or dropped data. In the last](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=46.21428571428569) [demo I showed you how to restore the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=48.60000000000001) [master database, and it's really pretty](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=50.20000000000003) [simple, so that's something that everybody](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=51.40000000000005) [should practice. It's not hard to do, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=53.00000000000001) [it's not really scary. In the next module](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=55.66666666666669) [we're going to talk about advanced repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=58.176470588235304) [techniques, for instance, dealing with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=60.235294117647086) [system table corruption, when not to run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=61.70588235294122) [repair on corrupt system tables, how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=63.764705882352956) [reconstruct deleted data using things like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=65.82352941176474) [non-clustered indexes, and manually editing data files.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m5-restore&clip=17&mode=live&start=69)

[Advanced Repair Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live)

[Hi. This is Paul Randal from SQLskills.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=2) [com, and I'm recording this course for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=4.099999999999999) [Pluralsight. This is the SQL Server:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=6.1999999999999975) [Advanced Corruption Recovery Techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=7.999999999999999) [course, and this is Module 6: Advanced](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=9.200000000000001) [Repair Techniques. Introduction. The most](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=12.333333333333334) [advanced techniques that you're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=15.9375) [use for affecting any kind of disaster](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=17.8125) [recovery involve manually editing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=20) [databases, either manually editing the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=22) [system tables themselves or manually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=24.5)[changing page structures themselves using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=27.333333333333336) [DBCC WRITEPAGE. All of these techniques](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=30.666666666666675) [that I'm going to show you are very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=32.76190476190476) [challenging, but as a last ditch effort it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=34.28571428571428) [could end up saving your business or your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=35.809523809523796) [job. So, in this module we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=38.21052631578949) [cover system table corruption and what you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=40.736842105263186) [can do about it, circumstances when you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=42.63157894736842) [definitely don't want to run repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=44.105263157894726) [because it's likely to make things worse,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=45.36842105263156) [how you can reconstruct deleted data using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=47.599999999999994) [nonclustered indexes, and manually editing data files.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=0&mode=live&start=50.399999999999984)

[Is Repair Guaranteed to Work?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live)

[Is Repair Guaranteed to Work? The simple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=2) [answer to that question is no. Repair is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=4.153846153846152) [not infallible. There are quite a lot of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=6.625) [things that repair simply cannot repair.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=9.125) [And if you think about it, there's an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=11) [infinite number of combinations of all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=12.882352941176464) [possible corruptions that could occur, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=14.294117647058812) [it's simply not possible to test them all,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=15.631578947368423) [so there are some combinations that don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=17.315789473684205) [work. For instance, system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=18.789473684210513) [corruption, corruption in system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=20.17647058823529) [indexes is not tested very well at all.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=21.647058823529402) [And as I'll show you in a few more slides](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=24) [and demos, some of the time system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=26.173913043478244) [corruption, if you run repair, it actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=27.91304347826084) [makes things worse. Some repairs just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=29.625) [cannot be done like automatically](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=31.5) [rebuilding the boot page or a PFS page.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=33.0625) [There isn't enough redundant information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=35.75000000000001) [in the database to be able to affect a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=37.500000000000014) [100% correct repair all the time. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=40.65000000000003) [after I'd rewritten most of CHECKDB for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=43.210526315789494) [the 2005 release back in 2003, I became](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=45.78947368421057) [the development lead of the development](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=48.66666666666667) [team that I was working for and hired](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=50.666666666666686) [another engineer away from Product Support](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=53.33333333333337) [to take over DBCC, and that guy's name is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=55.33333333333334) [Ryan Stonesifer, a fabulous engineer. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=58.333333333333364) [he and I put together a system to allow](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=60.27777777777778)[much more automated testing of the repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=62.777777777777786) [code. We called it the Corruptor, capital](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=64.72222222222221) [C. And what that did was it had a few](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=66.90909090909088) [known database schemas, and it would](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=70.09090909090901) [create a schema, create some tables, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=72) [create a bunch of corruptions using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=74.3333333333333) [WRITEPAGE. It would then try to run REPAIR](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=76.6666666666666) [ALLOW DATA LOSS, and if REPAIR ALLOW DATA](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=78.59090909090914) [LOSS worked and fixed all the corruptions](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=80.409090909091) [everything was cool. If it didn't work,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=82) [the Corruptor system would automatically](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=84.3333333333333) [file a bug. It would be able to say](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=85.99999999999994) [exactly what the database was, what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=88.26315789473688) [schema was, what the WRITEPAGE commands](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=89.73684210526324) [that were used were, and I'd be able to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=91) [and figure out what was going wrong with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=93.38095238095241) [the repair code. And over the next year or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=95.28571428571433) [so from 2003 to 2004 I fixed about 200](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=97.5) [bugs in the repair code, all kinds of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=99.75) [interesting problems that repair wasn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=101.75) [able to fix in SQL Server 2000 and now can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=103.55555555555554) [fix from 2005 onwards. But still, as I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=107.4444444444444) [said, there's an infinity of combinations](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=110.05263157894734) [of repairs, so you might come across a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=111.63157894736835)[combination where repair just doesn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=113.73684210526304) [work. If you need to have absolutely zero](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=115.41176470588238) [data loss guaranteed, then you're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=118.23529411764713) [have to have backups or you're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=120.52631578947367) [have a synchronously replicated copy of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=122.63157894736835) [the database using a technology like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=124.21052631578937) [database mirroring, availability groups,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=126.20000000000002) [or some kind of I/O subsystem SAN](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=127.80000000000004) [replication. Now, usually you're not going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=130.60000000000008) [to want to use repair. You're usually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=132.1904761904762) [going to want to use restore if you have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=133.8571428571429)[available backups, but remember that there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=136) [might be a case where you want to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=137.5) [repair. Remember the whole restore versus](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=139.75) [repair debate from the more basic course.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=142.0833333333333) [It could be that the backups you have mean](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=145) [that your downtime is going to be very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=146.49999999999991) [long to be able to get everything back up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=147.83333333333317) [to the right point in time whereas a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=149.60000000000002) [repair maybe of single table using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=152.0000000000001) [CHECKTABLE with REPAIR ALLOW DATA LOSS](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=154.1000000000002) [might allow you to get the database fixed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=155.68181818181816) [back up to a state where you're able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=157.49999999999991) [run successfully much faster than using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=159.5454545454544) [your backups, but that's usually a pretty](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=161.53846153846155)[rare case. Most people are going to want](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=164.23076923076925) [to use restore and full back on repair as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=166.66666666666663) [a last-ditch resort. But if that's you,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=169.16666666666657) [you have to be prepared that repair might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=170.72727272727275) [not be able to fix the problems that you have in your database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=1&mode=live&start=172.18181818181824)

[Metadata Corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live)

[Metadata Corruption. Now, apart from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=1.5) [problems caused by I/O subsystem for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=3.375) [instance, most of the time when I see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=5.625) [metadata corruption is because somebody](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=8.166666666666666) [went in and manually changed a system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=9.277777777777773) [table back in SQL Server 2000 where it was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=10.833333333333323) [easy to set the sp\_configure option, allow](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=13.97058823529412) [updates, reconfigure with override, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=16.852941176470587) [then you could go in and mess around with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=18.666666666666668) [the system tables and do whatever you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=20.16666666666668) [wanted. Classic case is somebody going in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=21.333333333333353) [and dropping a table by removing a row](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=23.394736842105253) [from sys. objects without removing the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=25.921052631578924) [rows necessary from sys. columns and sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=27.81578947368421) [indexes. If you upgrade from SQL Server](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=30.02631578947367) [2000 and then you run CHECKDB, it's going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=32.236842105263136) [to find that corruption for you because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=34.676470588235304) [CHECKDB from 2005 onwards includes DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=36.735294117647086) [CHECKCATALOG. This might make you think](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=38.5) [that the upgrade has actually caused the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=40.264705882352956) [corruption, but it's not. It's somebody](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=42.32352941176474) [did it back on SQL Server 2000. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=44.07142857142857) [you've got a problem if you didn't run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=46.35714285714285) [DBCC CHECKDB after upgrading from SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=48.642857142857125) [Server 2000 because if you find that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=50.55882352941176) [you've got metadata corruption and you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=53.02941176470587) [already progressed a bunch, how are you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=55.14705882352939) [going to go back and fix the corruption on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=56.83333333333333) [SQL Server 2000? You're not. You're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=58.83333333333332) [to lose an awful lot of work. So, then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=60.5) [you're only alternative is to manually fix](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=62.75) [the corruption by manually editing the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=64.5) [system tables. Now, the system tables from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=66.97058823529409) [SQL Server 2005 onwards are only actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=69.85294117647052) [accessible when the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=72.4375) [Connection is used, and the Dedicated](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=74) [Admin Connection or the DAC for short was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=75.875) [added in SQL Server 2005 as a kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=78)[backdoor mechanism to be able to get into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=80.25) [SQL Server if the server is hung. It has a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=82.25) [thread scheduler. It has some memory. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=84.89999999999999) [allows you to run some DMVs so one can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=86.74) [figure out a SPID to kill to free up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=88.89999999999995) [resources, but it also has this side](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=91.0599999999999) [effect of making the hidden system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=92.86363636363636) [show up. To get into the DAC you use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=95.40909090909088) [sqlcmd -A or you prefix your Management](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=98.68181818181812) [Studio connection string with admin:. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=101.3235294117647) [in 2012 you might connect up to SSMS using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=103.79411764705878) [admin:, and you see that it worked, but](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=107.5) [you get a pop-up window saying that it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=109.27777777777783) [didn't work. You can just ignore that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=111.05555555555566) [error message. You might find though that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=112.81578947368418) [you just cannot connect to the Dedicated](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=114.65789473684202) [Admin Connection, and there's all kinds of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=116.5) [different things you might have to do to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=118.25) [make sure that the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=120.25) [Connection is allowed depending on what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=121.76666666666667) [kind of edition you're running, whether](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=123.36666666666666) [you're running a named instance, whether](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=124.96666666666665) [you've got SQL Browser running, and so on.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=126.83333333333331) [My good friend Aaron Bertrand has a blog](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=129.5) [post over on the SQL Performance blog at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=131.02380952380963) [that bit. ly link there that explains all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=132.54761904761926) [the different things you might have to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=134.60526315789477) [to get the Dedicated Admin Connection to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=137.55263157894748)[work. Now, using the DAC just allows you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=140.1315789473686) [to see the system tables. It doesn't allow](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=141.89999999999992) [you to actually change them. You can only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=143.49999999999983) [change the system tables if you boot the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=145.40000000000003) [server single-user mode with -m and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=147.80000000000013) [connect in using the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=149.9000000000002) [Connection. You need to be careful though](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=151.6111111111111)[because if you change the system tables](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=153.5555555555555) [directly from SQL Server 2008 onwards,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=155.5) [this is noted in the database's metadata.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=158.26923076923072) [And if you call into Product Support with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=161.5) [some kind of problem and they see that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=163.9000000000001) [you've made this modification, that means](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=166.30000000000018) [your database is technically unsupported,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=168.07142857142856) [and they could refuse to help you. But if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=169.49999999999994) [you're faced with the prospect of repeated](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=172) [CHECKDB failures, this might be the only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=173.75) [way to get the database to run the CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=175.5) [cleanly until you can then export out the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=178.00000000000006) [data into a new database where the system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=180.40000000000015) [table modification flag is not set in your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=182.86363636363637) [database metadata. To see if this flag has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=185.77272727272737) [been set, you can check the DBCC DBINFO.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=188.21428571428567) [It actually stores the last time that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=190.5)[system tables were changed. One thing to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=193.16666666666674) [note is this whole area is not very well](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=195.25) [tested at all, and there's a bug, which is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=197.5) [if you update the system catalog of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=199.75) [database using 3-part naming, then the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=202.85294117647058) [DBCC DBINFO field actually gets changed in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=205.67647058823528) [the database whose context you're in, not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=208.76666666666668) [in the database that you actually changed.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=210.63333333333344) [And this has bitten me several times](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=212.5) [before I realized what was going on when I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=214.09090909090904) [was in the context of master, which is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=216.1363636363635) [what you connect to when you connect in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=217.92105263157896) [using the Dedicated Admin Connection, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=219.6052631578948) [I used 3-part naming, and it actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=220.86842105263167) [updated the database metadata in master](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=222.67647058823525) [saying that I'd altered the master](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=224.44117647058812) [database when in fact I hadn't. Now I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=226.205882352941) [going to show you a couple of demos now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=228.16666666666669)[firstly on enabling the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=230.30952380952385) [Connection to start with, and secondly to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=231.83333333333334) [go and actually manually edit system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=234.16666666666674) [tables to fix some corruption on a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=236.1666666666668) [database that I upgraded from SQL Server 2000.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=2&mode=live&start=240.5)

[Demo: Enabling the Dedicated Admin Connection](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live)

[In this demo I'm going to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=2) [make sure that you can connect to SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=3.3636363636363624) [Server using the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=4.454545454545454) [Connection. If you want to be able to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=5.25) [the system tables, the hidden system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=7.5) [tables, you must connect using the DAC.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=9) [So, first off let's just try connecting to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=10.85714285714286) [one of the hidden system tables, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=13.142857142857151) [says no. The Query Processor will not let](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=15.428571428571443) [you bind to one of the hidden system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=17.578947368421055) [names unless you're connected using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=19.947368421052637) [Dedicated Admin Connection. So, we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=22.263157894736842) [ahead and change our connection, and we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=26.05263157894737) [put admin: or you can use sqlcmd -A, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=30.47368421052632) [we try to connect. And it's just going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=34.30434782608695) [sit there, and it's going to hang and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=36.65217391304347) [eventually time out. And that's because we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=38.739130434782595) [don't have the SQL Server Browser process](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=41.142857142857125) [running. So, let's Cancel that, go out to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=43.6428571428571) [Config Manager, and sure enough Browser is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=46.1875) [not running. So, we start the Browser up,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=48.375) [and there may be other reasons why you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=50.90909090909092) [can't connect using the DAC, and I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=53.45454545454548) [mentioned some of those in the slide, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=55.68181818181822) [I've got a link to Aaron Bertrand's post](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=57.99999999999999) [that lists all the different reasons. But](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=60.28571428571427) [back over in SQL Server we now should be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=62.5) [able to change our connection to the DAC.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=67) [Now, in SQL Server 2012 Management Studio](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=71) [gives us this bogus error message. You can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=74.23076923076927) [easily see there down at that bottom that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=77.6) [I am connected using admin:, so we just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=79.99999999999997) [ignore that. And now as if by magic the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=82.39999999999995) [hidden system tables appear, and we can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=85.57894736842103) [start playing around with those. Now, one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=88.15789473684205)[thing to make sure of is that when you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=90.42105263157896) [finished with the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=92.31578947368428) [Connection that you disconnect because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=93.36842105263167) [there's only one of them, and it can be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=94.69999999999999) [pretty hard from outside SQL Server to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=97.84999999999994) [who is using the Dedicated Admin](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=100.64999999999989) [Connection, so make sure you do drop it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=102.38888888888886) [once you've finished using it. So, once](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=104.61111111111103) [again, the most common reason that you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=106.5) [can't connect using the DAC is that your SQL Browser service is not running.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=3&mode=live&start=108.25)

[Demo: Upgraded Corrupt Metadata](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live)

[In this demo I want to show you how to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=1.5) [deal with corruptions that occur in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=3.8809523809523814) [metadata in databases that you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=5.30952380952381) [upgraded. Now, you've gone forward a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=6.5) [little bit in time, so you can't go back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=7.928571428571429) [in time and restore the original database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=10.071428571428564) [backup or you're going to lose a whole](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=11.75) [bunch of work. So, first off I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=13.75) [be using a database from SQL Server 2000](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=15.86363636363636) [that's corrupt, and you can get it from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=17.681818181818173) [that bit. ly link there, and I'll try](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=19.5) [restoring it. And I get this error. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=23.23333333333332) [remember I'm running on SQL Server 2012.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=26.8) [And it says basically this is a backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=28.900000000000006) [from SQL Server 2000, and there are too](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=31.30000000000001) [many versions in between SQL Server 2000](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=34.099999999999994) [and SQL Server 2012. So, let's change my](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=36.899999999999984) [Connection and run on the default instance](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=40.78571428571428) [of my server, which is 2008 R2 SP2, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=44.78571428571426) [let's try that restore again. And that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=49.92857142857139) [worked. We can see all the upgrade steps](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=52.95454545454544) [from version 539 up to the version 661.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=56.22727272727269) [So, let's have a look and see what's wrong](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=59.5) [with this database. Well, we've got a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=64) [couple of Check Catalog messages saying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=67.05555555555554) [we've basically got two rows in sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=69.38888888888886) [columns that don't have matching rows in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=72.11111111111106) [sys. objects, so this is likely that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=74) [somebody on SQL Server 2000 has gone into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=75.75) [the database and manually deleted a row in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=78.15) [sys. objects. So, let's take a copy of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=83.35000000000005) [that object ID. First of all, let's try](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=88.5500000000001) [and repair it, but as we know Check](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=92.24999999999997) [Catalog messages can't be repaired, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=95.04999999999993) [we're going to have to manually change](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=97.14999999999989) [this. So, first off let's go in and see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=100.22727272727272) [what tables we have in that database. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=104.3181818181818) [we're looking for system tables, and there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=107.7) [are quiet a lot of system tables, so let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=109.10000000000002) [narrow it down a bit to those that have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=110.90000000000005) [the word col in their names, and we've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=114.5) [three, sysrscols, syscolpars, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=119) [sysiscols. So, let's have a look and see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=121) [whether the column names in any of those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=123.0217391304348) [tables look like there's an ID and a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=124.76086956521742) [column ID. So, let's go for sysrscols](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=126.5) [first of all, and of course we have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=129.83333333333337) [connect using the DAC; otherwise, it's not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=134.1190476190477) [going to allow us to bind to that table.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=137.55263157894734) [So, we change our connection to admin:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=142.28947368421038) [dot. Of course we get our SQL Server 2012](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=145.97368421052607)[Management Studio bogus message, but we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=150) [are connected. So, we go back into that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=152.625) [database, and let's look at sysrscols and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=156.89130434782606) [see whether that has an ID on a column ID.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=160.84782608695647) [Well, kind of, an rsid and an rscolid.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=166.5) [Now, let's look at the next one, which was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=170.30952380952385) [syscolpars, and that has an ID and a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=174.5952380952382) [column ID. So, let's see if it has WHERE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=179.10869565217388) [(id)= the ID that we saw in the error](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=184.9782608695651) [message. Perfect. And low and behold there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=190.84782608695633) [are our two columns. So, what we need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=193.30000000000007) [do is delete them there. So, we do DELETE,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=196.00000000000017) [and it won't allow us to do it. The only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=199.16666666666663) [way you can manually edit system tables is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=203.3333333333332) [to boot the server single-user mode and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=206.66666666666646) [then connect using the DAC. So, let's go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=209.55882352941174) [out to Configuration Manager, down here](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=212.85294117647052) [my, oops, down here on my default](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=216.2)[instance, change the Startup Parameters to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=222.14999999999995) [have -m, OK, OK, Restart. So, we're taking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=227.24999999999991) [downtime on this instance to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=232.35714285714283) [fix this problem that somebody created on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=234.64285714285705) [SQL Server 2000. Now, of course a best](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=236.642857142857) [practice is after you upgrade from an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=238.49999999999994) [earlier version you run CHECKDB to see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=239.89999999999986)[whether there are any problems. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=241.29999999999978) [somebody had done that directly after](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=243.1666666666667) [upgrading from SQL Server 2000, we would](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=245.16666666666677) [have seen that issue, but of course we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=247.5) [pretending that we've gone further forward](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=250.16666666666674) [in time, and we're not able to go back and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=252.1666666666668) [restore. So, now let's connect up using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=256.3235294117647) [the dedicated admin connection. Oh, okay.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=259.6176470588237) [We can't connect in because we rebooted](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=262.1) [the server using -m, and we left SQL Agent](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=264.2000000000001) [running, and SQL Agent must have gone and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=266.9000000000002) [grabbed the connection. So, let's Cancel](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=269.71052631578937) [that and go over to Config Manager, Stop](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=271.92105263157873) [the Agent service, go back over to SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=275.2647058823529) [Server, Connect in using our dedicated](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=281.38235294117635) [admin connection. This time it works, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=285.9705882352939) [of course we get the bogus message. Go in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=289.09090909090907) [and use the correct database, and then we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=291.9545454545454) [should be able to delete like so. Now, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=294.5) [get this message that we've messed up our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=298.78571428571433) [system tables, and the cache in memory of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=302.5952380952382) [what's on disk might not be up to date, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=305.29999999999995) [we need to restart the server. Well, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=307.29999999999984) [have to restart the server anyway. Now, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=311.08333333333337) [we look in our, oops, boot page like so,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=321.41666666666686) [what we see is this. It's now been noted](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=333.041666666667) [in the boot page that we updated the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=340.6428571428571) [system catalog. Product Support is going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=342.92857142857133) [to have a look at that and see that there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=344.67647058823536) [is an issue. And if they see that you've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=347.61764705882376) [got an updated system catalog and you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=349.5909090909091) [trying to get them to help you out, then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=350.86363636363643) [they're not going to help you out, but now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=352.5) [we've been able to go in and fix our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=354.3947368421053) [problem. Let's go back and run a CHECKDB](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=356.28947368421063)[again. See, we've seen the problem has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=360) [gone away. Now, don't forget to go back,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=363.5) [and we're not going to do this part of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=365.7499999999999) [demo, don't forget to go back and drop the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=367.83333333333303) [DAC connection and reboot yourself out of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=369.77777777777777) [single-user mode after having to do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=371.7222222222222) [so that everybody else can connect into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=373.6666666666666) [the server, and I don't want to waste a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=375.22727272727275) [couple minutes of your time doing that as part of the demo.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=4&mode=live&start=376.86363636363643)

[Demo: Metadata Corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live)

[In this demo I want to show you fixing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=1.5) [some more metadata corruption. So, I've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=3.5769230769230775) [already run this demo script with the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=4.921052631578947) [server booted in single-user mode and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=6.394736842105261) [using the DAC, and then I ran the script](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=7.657894736842102) [and I booted the server back into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=9.928571428571432) [multi-user mode. So, what I did when I was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=11.928571428571438) [in single-user mode was I created a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=14.833333333333337) [database, put a table in it, added a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=17.166666666666668) [primary key, stuck in a bunch of values,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=19.833333333333325) [and then I basically deleted the table row](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=22.60000000000001) [from sysschobjs, which is what underpins](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=25.40000000000002) [sys. objects. So, now let's go and have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=27.5) [look at dealing with this. So, we go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=30.71428571428572) [and we run a CHECKDB, and it gives us a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=33.66666666666666) [whole bunch of errors, and it says go run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=36.5833333333333) [CHECKCATALOG. Well, it gives us](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=39.20833333333328) [CHECKCATALOG errors, but okay I'll go run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=40.83333333333334)[CHECKCATALOG. So, we run CHECKCATALOG, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=43.16666666666669) [CHECKCATALOG says first of all the system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=45.264705882352935) [catalog was updated directly in database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=47.735294117647044) [ID 5, so somebody went and manually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=49.911764705882355) [modified that database, but we've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=52.79411764705884) [these various errors. So, the first two](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=55.26470588235297) [are saying there's a row in sys. columns](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=57.64285714285714)[that doesn't have a matching row in sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=59.928571428571416) [objects, so columns without a table. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=62.214285714285694) [the next one is index without table, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=65.20000000000002) [the next one is constraints and another](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=68.80000000000004) [index without a table. So, we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=71.8157894736842) [have to go in and manually remove those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=74.34210526315785) [because there's no other way to fix these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=76.86842105263149) [errors. So, we're going to have to change](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=79.78571428571428) [our server to be booted single-user mode.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=82.83333333333331) [So, we go out to Config Manager, we add in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=85.5) [-m, hit OK, OK, Restart. Then we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=95.5) [to connect back in. We're going to use the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=101.00000000000001) [dedicated admin connection, and we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=102.50000000000006) [going to fix these problems up. There we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=103.33333333333341) [go. So, we connect back in again using the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=111.97368421052636) [dedicated admin connection, and of course](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=122.86842105263167) [we get our bogus message from Management](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=127.10000000000001)[Studio, but we are connected. So, now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=128.5) [let's run CHECKCATALOG because we need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=130.83333333333331) [grab this ID. So, we copy this, and we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=135.49999999999991) [going to go ahead and we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=139.30000000000007) [delete the rows and the tables. So, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=141.70000000000016) [sys. columns is really syscolpars, sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=144.3235294117647) [objects is really sysschobjs, and sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=146.79411764705878) [indexes is really sysidxstats, so we've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=149.26470588235287) [got these five errors to get rid of. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=151.8636363636364) [first off let's get rid of the two broken](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=155.9545454545456) [rows in syscolpars, make sure we're in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=160.04545454545482)[right database, run a CHECKCATALOG. We](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=165.1666666666666) [should see the first two errors have gone](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=169.1086956521739) [like so. So, now let's get rid of the sys.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=173.97826086956516) [indexes one, run a CHECKCATALOG. That's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=180.06521739130423) [gone. And now we get rid of the two from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=183.26190476190476) [sys. objects, and we're going to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=187.07142857142856) [delete these two manually so get rid of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=190.1190476190476) [this one, Copy, and let's run that one.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=196.10000000000008) [There should be one gone. We'll look in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=202.5) [CHECKCATALOG. We've only got row left, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=206.94444444444434) [we Copy that. We overwrite this like so,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=210.83333333333314) [and now we shouldn't have any more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=215.8333333333333) [messages from CHECKCATALOG. Cool. We fixed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=220.4999999999999) [up our database. And now a final CHECKDB.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=224.49999999999997) [Good. Everything is good. So, now we've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=229.83333333333323) [managed to fix up that database. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=232) [remember of course that database is marked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=233.83333333333334) [as having its system tables updated, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=236.16666666666674) [so it's going to be unsupported by Product](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=238.50000000000014) [Support if they choose to make that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=241.0384615384616) [assertion. I'm not going to do this in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=243.19230769230785) [video, but remember to drop the DAC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=245.02380952380963) [connection and then reboot the server without that -m.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=5&mode=live&start=246.35714285714306)

[Rebuilding System Table Indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live)

[Rebuilding System Table Indexes. I've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=2) [mentioned a few times now that repair is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=3.470588235294117) [not infallible, and system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=5.823529411764704) [corruption is one of those areas where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=7.3076923076923075) [repair doesn't do very well. For instance,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=9.461538461538463) [corrupt system table clustered indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=12.09090909090909) [cannot be repaired successfully. You'll](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=14.818181818181815) [likely find that repair will just refuse](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=17.307692307692307) [to operate on those corruptions. Sometimes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=19.461538461538453) [repair can fix nonclustered indexes on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=21.294117647058822) [system tables, but you might have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=23.058823529411757) [figure out exactly which table is corrupt.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=25.117647058823515) [You might see that CHECKDB fails, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=26.95238095238095) [you're going to go through and do a DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=28.857142857142847) [CHECKTABLE of the various hidden system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=31) [tables to figure out which one actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=33.11764705882352) [has the corruption in before you're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=35.58823529411763) [to be able to run DBCC CHECKTABLE with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=37.8)[REPAIR ALLOW DATA LOSS. Now, whatever](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=39.93333333333332) [you're doing when you're trying to repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=41.5) [a system table corruption, it's not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=43.25) [guaranteed to work as I've said, and you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=44.75) [have to be very careful as it actually may](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=46.8421052631579) [make things worse. So, to be honest, I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=49.21052631578948) [would always take a backup or physical](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=51.5909090909091) [copy of the files before you're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=53.81818181818184) [do anything that involves trying to repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=56.3636363636364) [corruptions on system tables. In fact,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=58.38888888888889) [I'll go one step further and say](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=60.055555555555564)[personally I would avoid running repair on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=62) [system tables completely if at all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=64.49999999999999) [possible. And if you're absolutely forced](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=66.64285714285715) [to, make sure you've got a copy of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=68.36363636363633) [data files, and I would even try copying](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=70.81818181818173) [the database and attaching it as a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=73) [separate database and seeing what the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=74.66666666666669) [repair is going to do on that copy of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=76.09523809523813) [database to see if it's actually going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=78.34782608695653) [make it worse or not because you don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=79.73913043478265) [want to run that on your only copy of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=81.13043478260877) [corrupt database and find out that it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=83.13636363636367) [makes it an awful lot worse, and now it's completely unrepairable.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=6&mode=live&start=84.7272727272728)

[Demo: Corrupt System Table Indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live)

[In this demo I want to show you a couple](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=2) [of examples where trying to run CHECKDB on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=4.272727272727272) [system table indexes actually makes things](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=6.090909090909092) [a huge amount worse. So, first off we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=7.9) [going to create a couple of databases play](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=11.499999999999995) [with, Company1 and Company2. And then what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=15.099999999999989) [we're going to do is I'm going to have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=17.875) [look at the first IAM page, the root page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=21.625) [and the first data page of various system](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=25) [tables, and I'm going to use a script](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=27.666666666666657) [called sp\_allocationMetadata, which you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=30.333333333333314) [can get from my blog at that bit. ly link](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=31.799999999999997) [there. So, first off in Company1, and I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=35.79999999999998) [want to get the root page of Index ID 1,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=38.99999999999997) [so that's page 160. So, I'm going to plug](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=43.749999999999986) [160 in here, corrupt that, okay. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=48.69999999999996) [in the second database I'm going to grab](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=53.42857142857143) [the root page of sysidxstats, which is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=59.14285714285715) [226, and corrupt that. Perfect. And then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=64.14285714285715) [let's go into master. Now, so we've got](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=67.99999999999999) [our two corrupt databases. So, over here](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=70.66666666666661) [let's have a look and see what's wrong](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=73.42857142857144) [with Company1, and we get a bunch of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=77.2380952380953) [messages saying that basically this page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=81.04761904761915) [that we corrupted is the parent of a whole](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=84.19999999999999) [bunch of pages, and that parent repeatedly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=89.14999999999996) [wasn't encountered. So, let's try](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=93) [repairing that going into single-user](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=95.00000000000003) [mode, running repair, go back into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=97.00000000000006) [multi-user mode, and okay. So, it says the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=99.47368421052632) [system table index can't be recreated, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=103.26315789473684) [now it's complaining that the database has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=106.57894736842104) [got inconsistent metadata, but what about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=109.60000000000002) [if we do a CHECKDB? What did it actually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=112.00000000000006) [do to the database? Now, there were](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=115.33333333333331) [probably 30 or 40 errors before, but after](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=117.66666666666661) [we try to repair look at all this, all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=120.33333333333324) [kinds of corruption messages. We've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=124.3157894736842) [basically now got 900 errors, and we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=126.68421052631578) [not going to be able to fix those because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=130) [they're CHECKCATALOG messages. So, there's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=132.25) [an example of CHECKDB making things worse.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=133.5) [Remember I said that system table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=135.25) [corruptions aren't tested very well. What](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=136.75) [about database ID database number 2? So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=140.6363636363636) [we've got a few problems here in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=145.5) [sysidxstats. Again, parent node not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=149) [encountered. So, let's try fixing it, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=151.5) [it says system table index cannot be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=156.28571428571433) [recreated. But look, there are an awful](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=161.2857142857144) [lot more errors now, so let's see if we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=164.69999999999993) [just run our regular CHECKDB. And now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=168.74999999999983) [instead of just the three or four errors](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=171.7) [we now have 81 CHECKCATALOG messages, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=174.49999999999994) [they're not going to be able to be fixed.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=176.9499999999999) [So, a couple of examples there showing you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=179.71428571428567) [that system table corruption I would](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=181.9999999999999) [really, really try to avoid running a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=183.71428571428555) [repair on because the odds are it's just going to make things worse.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=7&mode=live&start=190)

[Using Older Backups and Repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live)

[Using Older Backups and Repair. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=2) [imagine a situation where you've got some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=3.7647058823529402) [corruption, and you don't have any valid](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=5.823529411764704) [up-to-date backups. You might have some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=7.833333333333333) [older backups, but you don't want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=9.500000000000004) [restore the entire database to them. What](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=11.444444444444454) [you could do is run a repair, which might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=13.500000000000004)[delete some data in your database, restore](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=16.20000000000001) [the older backup, and see if you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=18.263157894736842) [salvage some of the deleted data from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=20.368421052631582) [older backup. The way you're going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=22.473684210526322) [this then is run the repair operation,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=24.5) [determine what data is missing or damaged](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=26.25) [if you're able to, restore that old backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=28) [using a different database name obviously,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=30.52631578947367) [and then see if any of the missing data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=32.42105263157893) [can be salvaged from the old database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=34.95238095238096) [Now, the one caveat is that any data you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=36.61904761904765) [salvage there's no guarantee that it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=38.761904761904816) [going to be completely up-to-date, but if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=40.17647058823529) [we're talking about stuff like customer](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=41.823529411764696) [contact information how likely is that to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=43.3) [have changed? You might be able to get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=45.39999999999998) [some valid information back. And even if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=47.578947368421055) [it's not quite up-to-date, getting some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=49.42105263157895) [data back may be better than nothing for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=51) [your particular environment. So, don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=53.909090909090935) [rule out the combination of using older](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=55.44444444444444) [backups, which at first glance might seem useless because they're old, and repair.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=8&mode=live&start=56.99999999999999)

[Demo: Using Older Backups and Repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live)

[In this demo I'm going to show you how you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=2) [can potentially salvage some data using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=4.5) [older backups when you're faced with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=6) [corruption. So, this is the setup script.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=7.947368421052632) [We're going to go ahead and create our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=11.263157894736837) [database and a table with a bunch of sales](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=15.052631578947357) [data on a clustered index and then stick](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=19.5) [5000 rows into our table. It won't take](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=23.5) [very long, just a few seconds. Then we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=26.68181818181818) [going to pick a page to corrupt, but we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=28.499999999999993) [going to take a full backup first, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=30.545454545454533) [we've got a full backup with all the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=33.625) [in. Pick a page to corrupt. Let's make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=37.5625) [sure we pick a data page. Let's try this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=42.052631578947384) [one, page 289. Come on Management Studio.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=47.26315789473688) [There we go. So, we're going to go into](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=50.89473684210526) [single-user mode, and we're going to whack](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=55.157894736842096) [this page. And there's all the code for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=58.476190476190474)[you there. If we run that, it'll take a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=62.28571428571427) [second or two. It's basically zeroing out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=66.57142857142858) [this page. There we go. And then tidy up.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=70.5) [So, our scenario. Imagine that we only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=76.125) [have that full backup, database is in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=78.60000000000002) [simple recovery mode so we're not going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=79.80000000000007) [be able to do any kind of single page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=81) [restore. We run a query, and boom we've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=85.5) [got a corruption. So, page 289. We've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=89.5) [already seen an 824 message, so page 289](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=92.42857142857144) [is corrupt. So, we have a look with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=95.28571428571433)[CHECKDB and see if there's anything else](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=98.57142857142858) [that's corrupt, and it looks like only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=101.5714285714286) [page 289 is corrupt. There's a message](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=104.57142857142861) [from 290, which is the next page, but 289](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=107.28571428571428) [is the one that's corrupt, and there's a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=110.7142857142857) [message saying that 288 is the root page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=113.75) [pointing down to it, so 289. Now, first of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=116.75) [all let's take a backup of the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=120.28571428571429) [just in case anything goes wrong, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=123.71428571428574) [we're going to run repair. And repair is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=127.14285714285718) [going to delete that page. So, it looks](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=131.71428571428572) [like it deallocated page 289, and then it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=136.66666666666669) [rebuilt the clustered index, so we've lost](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=141.44444444444446) [some data. Let's check that we fixed the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=144.55555555555566) [problem up. Yep, okay. Now, what did we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=148.1111111111113) [lose? We put 5000 row in there, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=150.71428571428567) [obviously this is a very contrived](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=152.9999999999999) [example. So, we lost 245 rows. We should](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=154.71428571428555) [be able to tell the range. Now, we know](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=157.54545454545462) [that the SalesID is a monotonically](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=160.81818181818198) [increasing identity column. So, if we say](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=163) [show me an ID where there isn't ID + 1 in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=168.17391304347817) [this table, 246, and show me where there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=176.3043478260867) [is an ID where there isn't an ID -1, 490.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=181.94117647058826) [So, 246 to 490. So, let's have a look at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=188.41176470588246) [this database by restoring a copy of it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=193.5714285714285) [So, first of all we need to do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=197) [FILELISTONLY to figure out the two files](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=198.56521739130426) [that we need to move because we've still](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=199.78260869565202) [got our Company database. We're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=201.2) [have to restore it and move the files](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=202.5999999999999) [somewhere else, so Company and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=204.19999999999982) [Company\_log. So, we do a RESTORE DATABASE,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=205.31578947368422) [and we move the files so they're not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=207.52631578947376) [trying to overwrite the original ones like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=210.0526315789475) [so, and then let's have a look at page 289](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=213.60000000000002) [in the copy of the database. So, it has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=220.10000000000008) [SalesID 246, and down at the bottom it has](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=225.94117647058826) [the very last row, 490. So, it has the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=231.76470588235304) [missing set of data. Now, we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=235.90909090909088)[be able to pull that missing set of data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=237.72727272727263) [back. There's no guarantee that the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=239.7727272727271) [we're going to get from this backup is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=242.33333333333331) [anywhere near up-to-date; however, being](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=245.4444444444444) [able to get some data back in this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=247.3684210526316) [circumstance is usually better than having](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=250.3157894736843) [no data at all. So, what we're going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=252.52631578947384) [is we're going to be looking for above 245](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=257.66666666666663) [and below 491. And what we're going to do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=263.1666666666664) [is we're going to turn IDENTITY\_INSERT on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=265.89999999999986) [because we're going to tell SQL Server the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=266.9499999999997) [identity value we want to use. We'll turn](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=268.45) [NOCOUNT OFF so we can see how many rows](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=272.0499999999999) [we've got. And what we're doing is an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=276.0999999999998)[insert select. We're inserting into our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=279.21052631578937) [real table, pulling data from our restored](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=281.42105263157873) [copy, and just pulling in rows 246 to 490,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=284) [and that's 245 rows. We turn off](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=290.2307692307691) [IDENTITY\_INSERT, and we check our row](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=296) [count is 5000. And now we've got all our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=302) [data back. Remembering of course that the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=306.6363636363635) [data we got back from the backup may not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=308.5454545454543) [be completely up-to-date, we can release](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=311) [our database back for use again. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=313.5000000000001) [there's an example of being able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=316.35714285714283) [salvage some data from older backups.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=318.85714285714266) [Again, the data might not be completely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=321) [up-to-date, but it could be better than nothing.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=9&mode=live&start=328)

[Reconstructing Data From Nonclustered Indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live)

[Reconstructing Data from Nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=2) [Indexes. Now, you might run into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=3.5999999999999996) [situation where you've only got repair as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=6.400000000000001) [an option, and the clustered index or heap](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=8.631578947368423) [data structures are damaged in which case](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=10.315789473684218) [you're going to lose data records. In this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=11.789473684210538) [situation you might be able to recover](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=14.333333333333337)[data from nonclustered indexes. You could](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=16.66666666666667) [also have this case if repair is not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=18.4) [possible at all because of corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=19.999999999999993) [metadata, so you're not going to be able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=21.19999999999999) [to fix the database up, but you need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=22.869565217391298) [try and extract some of the data if you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=24.826086956521717) [can. The way to do this is as follows:](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=26.782608695652137) [Create SELECT statements to figure out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=28.904761904761898) [which table rows are going to be lost when](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=30.33333333333332) [repair runs. You're trying to figure out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=32.705882352941174) [where the SELECT actually fails because of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=35.17647058823528) [corruption. Once you know which rows](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=37.64705882352939) [you're going to lose, you then create](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=39.47058823529413) [SELECT statements forcing selection from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=41.52941176470591) [some of your non-damaged, nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=43) [indexes to salvage some of the column data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=44.17647058823529) [from the table rows that are going to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=46.058823529411754) [lost. Now, how successful this is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=48.30434782608695) [be is going to depend on what kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=50.39130434782608) [column coverage you have for your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=52.739130434782595) [nonclustered indexes. It could also be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=54.38888888888889) [that the heap or clustered index data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=56.055555555555564) [structures are badly damaged in which case](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=58) [you might need to try to walk through them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=59.75) [using DBCC PAGE as I'm going to talk about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=62) [later. Now, if you're going to do this,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=64.30434782608695) [make sure you do it before you run repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=66.39130434782608) [as any repair is going to rebuild those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=68.7391304347826) [nonclustered indexes based on the repaired](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=71.47058823529416) [heap or clustered index and so you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=73.58823529411772) [going to lose the data from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=75.7894736842105) [nonclustered indexes that you'd like to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=77.63157894736835) [try and recover. This is a pretty cool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=79.21052631578937) [thing to be able to do, and I'm going to show you a demo of how to do it right now.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=10&mode=live&start=85)

[Demo: Reconstructing Data From Nonclustered Indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live)

[In this demo I'm going to show you how you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=2) [can reconstruct data from nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=4.1052631578947345) [indexes when you're faced with corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=5.157894736842102) [and you don't have any backups. So, first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=6.857142857142858) [off I'm going to create a database to use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=10.285714285714288) [and a table with some sales information](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=14.142857142857148) [with a clustered index and 5000 rows, same](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=18.055555555555554) [basic setup as the previous demo, but this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=22.94444444444444) [time I'm going to create a couple of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=27.263157894736846) [non-clustered indexes, one on CustomerID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=30.631578947368435) [and one on SalesDate that's going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=32.73684210526317) [include SalesAmount, and then we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=36) [to pick a page to corrupt. We don't have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=39) [backup this time note, so let's pick 297.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=44.117647058823536) [That's a data page okay? So, page 297. We](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=48.35294117647061) [plug that in there, oops, and there's the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=54.14285714285714) [code okay? So, we go ahead and corrupt the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=60.428571428571416) [page. It just takes a couple of seconds](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=66.45454545454545) [like so, and then we tidy up. Okay, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=71.54545454545458) [over to our demo. Now, we don't have any](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=76.42857142857142) [backups this time. Somebody runs a query,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=78.35714285714279) [and it seems to run fine and fine and fine](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=80.25) [and boom! We end up getting a corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=83.375) [message. So, page 297 looks like it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=87.42857142857142) [invalid. So, we run a CHECKDB, and it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=91.4285714285714) [comes back and says essentially page 297](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=95.3157894736842) [couldn't be processed, similar kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=98.63157894736841) [messages from the previous demo. So, let's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=101.45454545454545) [go take a backup first of all, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=104.63636363636363) [this time we don't have any backups. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=108.7272727272727) [what about nonclustered indexes? We might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=112.23529411764704) [be able to reconstruct some data from the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=114.70588235294113) [nonclustered indexes, but first we need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=118) [figure out what range of data is missing.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=119.86666666666666) [So, let's do this. So, we're selecting](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=122) [increasing, and 297 is a broken page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=127.59999999999998) [right, but what about the data? So, 1961](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=133.20000000000005) [is the start of the missing range of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=139.1764705882353) [SalesIDs because we've got down to 1960.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=143.88235294117652) [1961. And what about going backwards? So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=148) [we're basically looking through the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=150.80000000000004) [clustered index forwards and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=152.80000000000007) [backwards. 5000 down. Okay, so we hit the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=155.66666666666669) [page again. 2206, so 2205. So, 2205.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=162.33333333333343) [That's our range, 1961 to 2205. Now, what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=168.6875) [indexes are there? We can run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=176.1875)[sp\_helpindex, and it tells us what indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=179.75) [there are, but it doesn't give us the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=181.5) [included columns. So, let's go and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=183.5) [actually script out the indexes that there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=185.1428571428571) [are on that table and see whether there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=187.14285714285705) [are any included columns. So, we go over](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=189.42857142857127) [to Object Explorer, and we go into the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=193.78947368421046) [Company database, Tables, dbo. Sales,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=198.84210526315775) [Indexes, and there are our two](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=202) [nonclustered indexes. So, we script those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=205.30000000000007) [out to a New Query Window so the first one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=208.60000000000014)[just has CustomerID on it okay, and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=214.41176470588238) [second one has SalesDate and includes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=220.05882352941188) [SalesAmount. Now, what's cool is that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=224.294117647059) [because these are both nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=226.6666666666667) [indexes and the table has a clustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=228.33333333333343) [index, the nonclustered indexes include](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=230.66666666666683) [under the covers the cluster key, which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=232.5) [means that we actually have all four of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=235.125) [our table columns. So, let's go ahead and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=238.578947368421) [pull that data back using our nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=242.78947368421038) [indexes. So, we're looking for 1961, 2205.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=246.47368421052607) [So, we want SalesID greater than 1960 and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=250.88235294117652) [less than 2206. So, what we're doing is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=256.0588235294119) [we're doing a select of the two columns](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=259.4285714285714) [that we can get from our nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=261.7142857142856) [index from the sales table forcing index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=263.71428571428555) [ID number 2. Perfect, 1961 to 2205. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=270.9230769230768) [let's do the same thing here. And for the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=280.1333333333333)[second index 1961 to 2205. Excellent. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=290.33333333333326) [we're going to be able to get all the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=296.44444444444446) [data. So, now let's preserve that data.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=298.4444444444445) [So, we're going to create a copy of our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=300) [sales table, and now we're going to pull](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=304.09090909090895) [the data into our Sales\_Copy table first](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=307.72727272727246) [of all from index ID 2, and we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=311.5) [1960 to 2206 like so. That pulls in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=318.25) [first two columns. And then we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=323.4545454545455) [go ahead and get the last two by updating](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=326.3636363636365) [what was already there, and we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=329.63636363636385) [do 1960 to 2206. So, we're updating our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=334.0526315789473) [Sales\_Copy table, and we're going to set](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=338.6842105263156) [these two columns based on selecting from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=342.58823529411757) [our real table nonclustered index ID 3.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=346.29411764705856) [This is pretty neat stuff. So, now we've](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=350) [got our 245 rows of data back. Let's go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=353.7333333333331) [ahead and run repair. Perfect. I managed](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=359) [to repair everything. It removed the page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=366) [rebuilt the clustered index, rebuilt the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=370.33333333333326) [nonclustered indexes. This is why it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=372.33333333333314) [important to salvage the data before you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=374) [do a repair because it disappears when the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=375.75) [nonclustered index is rebuilt as part of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=377.75) [the repair. And make sure we fix the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=380.39999999999986) [problem. Perfect. How many rows were lost?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=383.5999999999997) [Two hundred and forty five, exactly how](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=386.25) [many we saved. And then what we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=388.875) [to do is INDENTITY\_INSERT ON, row count](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=391.4285714285714) [OFF, NOCOUNT OFF so that we can see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=393.42857142857133) [exactly what the rows are that we copied](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=395.71428571428555) [over. We're going to INSERT INTO our real](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=398.79999999999984) [table selecting FROM our Sales\_Copy like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=401.99999999999966) [so. Make sure we fix everything up. Five](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=404.625) [thousand rows, and back into multi-user](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=409.625)[mode. So, there's an example of being able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=413.375) [to use nonclustered indexes to do a very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=416.1000000000001) [cool thing, which is reconstructing data.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=418.50000000000017) [Now, as long as you have all the columns,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=420.3181818181818) [that's obviously the best case, or a large](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=423.18181818181813) [number of the columns in your table,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=425.72727272727263) [you're going to be able to get some data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=427.52173913043475) [back, but you may not have every single](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=429.086956521739) [column in your table in a nonclustered](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=430.478260869565) [index. But again, in a situation where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=432.2631578947369) [there's no backup, being able to get some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=434.4736842105264) [data back is usually better than having no data at all.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=11&mode=live&start=437)

[Using DBCC PAGE to Navigate Table Structures](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live)

[Using DBCC PAGE To Walk Tables. Now, as I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=2) [mentioned on the previous slide if repair](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=4.454545454545452) [is going to be your only option and the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=6.36363636363636) [heap or clustered index structure is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=8.789473684210527) [holding the data records are damaged, you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=10.368421052631582) [may be able to recover data using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=12.21052631578948) [PAGE by directly looking at the pages.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=15.08333333333333) [Also, if repair is impossible because of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=18) [corrupt data, you're also going to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=19.473684210526308) [try and recover data in some other way.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=21.15789473684209) [Two different methods of using DBCC PAGE.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=23.454545454545453) [The first one is to help figure out what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=26) [key ranges are going to be lost. And what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=28.25) [you're doing here is using DBCC PAGE to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=30.842105263157897)[basically manually follow the next page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=34.210526315789465) [links from the page headers until you find](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=36.736842105263136) [out which pages are corrupt. Now, to get](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=39.25) [past the corrupt page you might have to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=41.25) [up into the level above the leaf level,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=43.480000000000004) [which has a list of all the page IDs and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=45.40000000000002) [key order, and use that information to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=47.80000000000004) [figure out which pages to look at down at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=49.57142857142857) [the leaf level. Pretty complicated stuff,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=52.14285714285713) [but in a life or death situation where you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=53.666666666666664) [absolutely have to get data back, this can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=55.66666666666666) [be done. Now, I know a bunch of you out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=57.599999999999994) [there are great programmers, so you could](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=60.599999999999966) [programatically write code to walk through](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=62.699999999999946) [the table structures using DBCC PAGE with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=64.76470588235296) [the WITH TABLERESULTS output, which means](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=67.23529411764711) [you can take the output from DBCC PAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=69.26315789473684) [into a temporary table and programatically](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=71.36842105263152) [use it, and I've actually known people](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=72.94736842105253) [that have done exactly that to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=74.6818181818182) [figure out what data is going to be lost](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=76.7272727272728)[and to salvage data from tables. You](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=78.77272727272741) [remember that DBCC PAGE with the print](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=81.21052631578945) [option 3 interprets all the columns and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=83.78947368421048) [give you the column values so that way you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=86.18181818181819) [can get some data back, especially if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=87.81818181818187) [repair is not able to run or you're not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=89.09090909090918) [able to run any SELECT at all. And that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=91.33333333333331) [Method 2 where you're actually using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=94.33333333333327) [PAGE'S print options to get data values](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=96.66666666666657) [back from them, especially if you're not](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=98.20000000000002) [able to get any data back from looking at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=99.60000000000004) [nonclustered indexes for instance. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=101.6) [you might do that as part of Method 1, or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=103.09999999999998) [you might have taken a copy of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=106.09999999999995) [database, run repair, and it tells you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=108.25) [which pages it actually deleted, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=110) [you go to your copy of the database and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=111.75) [try and run DBCC PAGE on them to get some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=114) [data back. You might even be able to use a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=116.5) [dump style of 2 and get a hex dump of a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=119.15384615384619) [corrupt page that can't be processed with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=122.1153846153847) [print option 3 of DBCC PAGE and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=124) [manually for yourself crack open the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=126.10526315789468) [records knowing what the various offsets](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=127.6842105263157) [are and figure out what some data values](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=129.3) [are. Again, in a life or death situation](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=131.7000000000001) [where you absolutely have to get some of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=134.1000000000002) [the data back, this can be better than](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=136.1904761904762) [nothing, but doing this is very, very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=138.09523809523813) [advanced because you have to know what all](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=139.76190476190482) [the various structures are, and you have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=141.33333333333343) [to be able to be confident that you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=142.66666666666686)[walking through the table in the right way](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=144.3846153846154) [following the right linkages. But now I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=147.46153846153848) [going to show you a demo of some of these different techniques using DBCC PAGE.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=12&mode=live&start=152)

[Demo: Using DBCC PAGE to Navigate Table Structures](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live)

[In this demo I want to show you how you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=2) [can use DBCC PAGE to navigate around a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=4.608695652173912) [broken index structure to figure out what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=6.695652173913045) [ranges you're going to have to try and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=8.777777777777779) [recreate from nonclustered indexes if you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=11.888888888888893) [have them. First off we're going to create](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=14.222222222222229) [a database to use like so, and then the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=17.727272727272723) [same table structure that I had in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=21.818181818181802) [last couple of demos, 5000 rows, and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=25.916666666666668) [two nonclustered indexes. So, we know we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=33.25000000000001) [have covering nonclustered indexes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=37.14285714285714) [essentially based on the previous demo.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=38.28571428571428) [Now, no backup, and I'm going to corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=40) [two pages in our clustered index this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=42.5) [time. I want two pages at the leaf level.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=44.6875) [So, we're going to take the first one,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=47.782608695652186) [page 230, and we're going to take the last](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=50.56521739130437) [one, page 309. So, 230 gets dropped in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=54.529411764705884)[here, and 309 gets dropped in here. So, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=60.64705882352942) [we look at the code there you can see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=66.53333333333333) [exactly what it's doing. So, let's go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=68.93333333333332) [ahead and run the first one, it just takes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=72.34782608695652) [a couple of seconds, and then the second](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=79.39130434782606) [one like so, and then we tidy up. Okay, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=85.65217391304344) [over to the demo. So, somebody runs a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=92.55000000000004) [query and gets an 824. Page 230. Okay. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=97.75000000000009) [let's run a CHECKDB, and this time we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=102.52380952380952) [going to see that there are actually two](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=105.57142857142856) [errors, two pages that are broken, 230 and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=108.61904761904759) [309, okay? So, we're going to have to try](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=110.59090909090914) [and figure out what the range is of pages.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=112.63636363636374) [So, let's do a back up first, and then now](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=115.35000000000001) [we know we don't have any backups. We know](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=119.85000000000004) [we're going to be able to get the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=123.28571428571428) [nonlustered index, so I'm assuming we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=124.42857142857139) [going to go through the same methodology](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=125.28571428571422) [that we went through last time in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=126.55555555555554) [previous demo to figure out what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=128.77777777777771) [nonclustered indexes there are. So, we go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=130.44444444444434) [into the Company database, and let's see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=132.7647058823529) [what our missing ranges are. So, let's do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=135.23529411764696) [a forward ascending SELECT \* FROM our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=138.3125) [clustered index, and it immediately fails.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=141.375) [It says that that the first page we didn't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=144) [get any results at all, and that says that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=145.95652173913032) [the first page is broken, so 230 must be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=147.91304347826065) [the first page. And then going backwards,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=154) [309. So, that means that the last page is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=162.75) [broken as well. Now, what pages are there?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=168.5) [And here we can see all the pages that are](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=173) [allocated to the table. Now, we're looking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=175.14285714285722) [for the one with the highest level 1, so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=177.5) [we're going to have a two-level index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=182) [here. Now, on a production system doing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=185.5) [this stuff for real you might have an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=187.25000000000006) [IndexLevel of 3 or 4 or 5 and you might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=188.9166666666668) [have to work your way down through the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=191)[various levels to get to the leaf level.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=193) [So, we're going to be looking at page 288](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=195) [as the one that's going to be the leaf](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=199.0909090909092) [level, the root page. Now, let's have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=203.18181818181841) [look at page 288, and that's just showing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=207.79999999999995) [us all the pages at the leaf level. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=213.39999999999986) [page 230 is corrupt, page 309 is corrupt,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=219.44) [so we need to go and look at page 289 as](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=222.95999999999998) [the next one after 230. So, if we look at](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=227.79999999999995) [page 289, this is going to give us an ID,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=232.36842105263165) [and ID is 246. So, on page 230 there must](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=237.10526315789494)[be 0 to 245, so we've figured out the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=241.7272727272728) [first portion of our range that's broken.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=245.818181818182) [So, let's have a look at everything above](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=249) [245, and it still goes and reads that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=256.55555555555566) [initial page. We're going to have to go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=264.1111111111113) [one row higher. So, we go for 246 because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=270.0000000000001) [we know that 246 is okay. So, we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=276.0000000000003) [to go higher than 246, and it's because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=281.4210526315789) [the storage engine doesn't know for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=285.2105263157893) [certain that 245, there aren't more 245's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=288.0526315789471) [on that previous page because we don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=291.1875) [have a unique index. So, if I run this,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=294.25) [this should be okay. Okay. So, okay boom!](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=297.9230769230768) [We hit the bad page. Oops, Results. So, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=301) [we scroll down, 4900. So, we got to 4900.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=306.5384615384618) [So, that says that 4901 onward is missing,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=312.61111111111114) [and from 0-245 is missing. So, by using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=318.38888888888897) [DBCC PAGE we were able to navigate around](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=322.99999999999994) [our b-tree of the damaged clustered index](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=325.66666666666646) [in a way that would be hard to do or very](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=327.99999999999966) [tedious to do using trial and error with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=331.82352941176487)[SELECTS. So, now that we've figured out](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=334.64705882352973) [what our missing ranges are, we'd use our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=336.2631578947369) [nonclustered indexes just as we did in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=337.9473684210527) [previous demo. Now, we can get more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=339.63157894736844) [complicated as it says down there at the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=341.1052631578948) [bottom. There could be lots of broken](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=342.78947368421063) [pages at the leaf level. There could be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=344.80000000000007)[broken pages in the levels above. So, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=347.20000000000016) [used DBCC IND and we used DBCC PAGE to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=349.57142857142856) [basically allow us to navigate around](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=352.14285714285705) [through the b-tree structure. Pretty cool](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=353.8571428571427) [stuff in combination with getting the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=355.57142857142856) [information back reconstructed from the nonclustered indexes.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=13&mode=live&start=357.2857142857142)

[The Ultimate Advanced Recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live)

[The Ultimate Advanced Recovery. Of course](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=2) [I couldn't do an advanced course on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=3.875) [recovering from database corruptions](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=6.0625) [without talking about manually editing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=7.375) [data files using either a hex editor or](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=9.25) [DBCC WRITEPAGE. Now, I'd always choose to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=12.25) [use DBCC WRITEPAGE if possible because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=14.388888888888893)[then the database is attached, and you can](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=16.055555555555564) [use DBCC PAGE to have a look and see what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=18.22222222222222) [the effects are of what you've done. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=20.444444444444436) [is of course the most advanced method of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=22.27777777777778) [recovering from corruptions, and usually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=24.500000000000007) [you've go to know an awful lot about](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=25.8888888888889) [what's going on with the database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=27.888888888888886)[structures to be able to do it properly.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=29.222222222222214) [Now, if you're going to try this, always](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=31) [make sure that you have a backup of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=32.45454545454546) [data file that you're editing before you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=34.09090909090908) [go ahead and try editing it because you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=35.57142857142857) [might make things worse. If something goes](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=37.85714285714285) [wrong, if you've got some kind of backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=39.54545454545454) [or even just a file copy, you can still](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=40.99999999999998) [get back to the starting point. Nothing is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=42.6363636363636) [worse than trying to do advanced recovery](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=45.000000000000014) [like this and actually making it worse so](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=47.333333333333364) [that now nothing is recoverable. I don't](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=49.705882352941174) [do this very often to be honest. I only do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=51.35294117647058) [it once or twice a year for clients that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=53.71428571428572) [call up with a desperate situation where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=55.85714285714289) [they absolutely have to get this database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=57.523809523809575) [back and there's no other way of doing it.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=59.42857142857142) [Here are a few examples of things that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=62) [I've done in the past: Firstly, on a SQL](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=63.84615384615387) [Server 2000 database fixing up the off-row](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=66.19999999999999) [LOB links, which hold the stats blobs for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=68.29999999999997) [sysindexes so that a CHECKDB can run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=70.69999999999995) [properly; recreating a file header page on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=73.28571428571428) [an mdf by restoring from an older backup](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=75.95238095238093) [and then byte-by-byte copying the contents](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=79) [using a hex editor into the corrupt mdf.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=81.57142857142858) [That was a case where the backup pretty](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=85) [old, and they didn't want to have to lose](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=87.18181818181813) [a whole bunch of work. And then one of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=89.63636363636353) [most recent cases, I went though and I was](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=92.25) [deallocating broken pages forcefully to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=94.5) [allow data exports to happen because](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=95.75) [CHECKDB couldn't run repair, and so it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=97.76470588235297) [wasn't able to deallocate those pages in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=100.23529411764713) [extremely large tables, and so it was more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=102.52631578947367) [efficient to go in and manually deallocate](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=104.63157894736835) [the broken pages in the leaf level of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=106.4736842105262) [index to allow the other pages to be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=109.80000000000004) [scanned and the data exported. Now,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=113.00000000000009)[anytime you do any kind of manual editing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=115.25) [of data files do make sure that you've run](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=117.25) [CHECKDB afterwards to make sure you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=119.5) [haven't made things worse and you have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=121.06666666666666) [fixed the original problem. This is really](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=122.93333333333332) [just the same thing that you're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=124.66666666666669) [do after any time you run repair. You](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=126.44444444444451) [always run CHECKDB afterwards to make sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=128.23076923076923) [it fixed all the problems. Just like I](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=129.8461538461538) [always say take a backup before manually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=131.75) [editing a database, if at all possible do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=133.5) [your manual editing on a copy of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=135.5) [corrupt database, not the actual database](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=137.84615384615392) [itself. And, again, if you can't use](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=139.69230769230785) [backup and restore, just do a manual file](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=141.09090909090912) [system copy and see if you can hack attach](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=142.54545454545462) [so you can use DBCC WRITEPAGE. And now I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=144.33333333333334) [going to show you an example of using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=147.33333333333343) [WRITEPAGE to manually fix corruptions in a database.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=14&mode=live&start=150.3333333333335)

[Demo: Manual Repair Using DBCC WRITEPAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live)

[In this demo I'm going to show you the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=2) [ultimate in recovering from corruptions,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=4.368421052631579) [which is using DBCC WRITEPAGE to fix](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=5.684210526315791) [things up. So, what I'm going to do is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=7.666666666666666) [create a database to use, and I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=10.66666666666667) [create a table with a few different column](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=13.666666666666675) [types. And we're only going to get one row](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=16.142857142857146) [per page because of this CHAR (8000), and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=18.714285714285708) [I'm going to make sure that this VARCHAR](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=21) [(MAX) is pushed off-page. So, we have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=23.666666666666657) [clustered index also on our identity](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=26.33333333333333) [column, and then here are the values I'm](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=28.33333333333332) [going to insert. So, the second one is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=30.99999999999998) [very important because that's the one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=33.57894736842106) [that's going to get corrupted, and we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=35.473684210526336) [going to want to try and save that data.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=37.68421052631582) [So, we go ahead and insert those rows, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=41.333333333333314) [then we're going to pick the second data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=45.08333333333329) [page here from DBCC IND to the second data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=49) [page is this one, page 294, and we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=58) [going to corrupt it like so. Okay. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=66) [then we tidy up. Now, over to our demo. We](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=73) [go and run a CHECKDB on that database, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=78) [we find that we've got a corrupt page,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=82.5) [page 294, and page 294 is pointing to an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=87.15789473684212) [off-row page, a page 289. So, page 289,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=92.84210526315795) [slot 1 with this text ID is not going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=97.4) [get referenced. What that means is when we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=102.06666666666669) [run our repair that text value is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=104.6363636363636) [get removed, that LOB value is going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=107.090909090909) [get deleted, and we don't want that. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=109.29411764705883) [let's take a note of all these numbers.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=111.64705882352943) [Here's our text timestamp, Copy. So, our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=114) [timestamp here, Paste, Slot number 1, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=121.73684210526318) [it was page 289 okay? Let's make sure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=129.47368421052636) [we're in the database. Now, to be able to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=135.95454545454544) [salvage this, what we're going to do is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=138.81818181818176) [we're going to create a dummy row in that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=141.36363636363626) [same table with an off-row LOB value, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=144.2272727272727) [then I'm going to basically take the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=146.7727272727272) [linkage of that dummy row and overwrite it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=149) [with the linkage to the row that I want to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=151.909090909091) [save from the corrupt data record that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=155.54545454545473) [going to get deleted. So, we're going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=157.81818181818184) [have to swap over the page ID, the Slot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=160.00000000000009) [ID, the length, and also the text](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=162.4545454545456)[timestamp. So, let's go have a look at the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=165.5) [text page first of all, and let's figure](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=170) [out how long our value is, so Slot number](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=174) [1. This is Slot 0, Slot 1. So, Slot 1 is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=178.5) [Length 94. Now, we need to take off 14](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=183.63636363636363) [bytes because all LOB values have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=187.31818181818178) [14-byte versioning tag added on them](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=190.18181818181813) [immediately, so the actual length is 80.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=192.09090909090912) [Now, you might say well why don't I just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=194.00000000000009) [copy the text here? Well, imagine if this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=196.4545454545456) [is a very large XML blob or some really,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=199.09999999999997) [really complex multi-page LOB value. This](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=202.24999999999991) [is how you're going to do it. It's much](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=204.1875) [easier to do it this way. So, 80 bytes.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=205.875) [So, now let's create our dummy record. And](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=208.17391304347828) [what I'm going to do is I'm going to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=211.30434782608702) [create the dummy record in the table, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=214.82608695652186) [I'm also going to use the output clause to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=217.59090909090907) [get the value of the identity column that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=220.45454545454538) [was inserted. Now, you might just say well](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=223) [why don't just look at the max value?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=225) [Well, somebody could have changed the max](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=227) [value, so we don't know exactly which one](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=229.10000000000008) [is going to be inserted. It's way, way](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=231.50000000000017) [easier to do it this way. There could be](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=233.90000000000003) [people using the table for instance still](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=236.60000000000014) [because we're not able to turn this table](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=238.70000000000022) [off depending on what the data is. It](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=240.99999999999994) [could be part of a hospital system for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=243.20833333333334) [instance, so we might not be able to just](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=244.87500000000009) [turn the data off and use DBCC CHECKIDENT](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=246.75000000000017) [to see what the max value is. So, let's go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=249) [ahead and do that. So, ID number 6. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=254) [now we need to find where ID number 6 is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=257.39999999999986) [so we can figure out what page ID it's on.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=260.1999999999996) [So, we can have a look. We can select](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=263) [basically from our table looking for ID](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=265.8636363636363) [number 6 and using this undocumented](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=268.090909090909) [%%PYSLOC%% and formatting it correctly](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=270) [using this undocumented function. And our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=273.88888888888886) [row is on page 298, slot 0. Isn't that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=278.6) [cool? So, let's see. Page 298. So, here's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=285.8000000000001) [our page. So, if we scroll all the way](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=291.18181818181824) [down, we're going to get to our LOB value.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=296.0909090909093) [Okay, so our LOB value is at 1:289 slot 5,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=301) [and the one we want to save is at slot 1,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=303.5) [so that's cool. We only have to change the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=306.25) [slot number. Our Size is 63, and that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=308.6363636363635) [our timestamp, so we're going to have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=310.81818181818153) [swap that over as well. So, let's go up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=313) [and look at our value. So, that's where](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=316.857142857143) [our text starts, so that must be the slot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=320.5) [number 05. So, that and this record is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=325) [offset 1F68, 69, 6a, 6b. Plus we have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=328.72727272727263) [add in the page header, so Calc. Let's do](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=332.8181818181816) [Hex 1F6B Decimal, and then we have to add](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=338.57142857142856) [96 = 8139. So, we go ahead and make this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=350.14285714285705) [8139, page 298, and we're going to stick](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=357.5) [the value 1 in there. So, let's go ahead](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=361.5) [and do that and then go look at our page](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=366.9333333333334) [again. If we scroll down, we should see](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=374.2666666666669)[excellent. We've replaced the 5 with the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=377.79999999999984) [1. Alright, so our length is 63, and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=380.5999999999997) [that's there because that's 3 times 16](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=385.6666666666668) [plus 15 is 63. So, this is offset 1F54,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=390.3333333333336)[58, 5c, 60, 61, so 1F61. Hex 1F61 Decimal](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=400.1875) [plus 96. That's our offset, 8129. 8129,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=413.125) [page 298, and we said that our length is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=421.3333333333333) [80. So, a length of 80 is 50 in hex. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=430.9333333333333) [let's do that, 50, Execute that, go and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=443.36363636363626) [look with DBCC PAGE. Cool. Let's swap that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=452.45454545454527) [over. So, now let's see what CHECKDB says.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=460.33333333333326) [So, CHECKDB says 295. Oh, look at this.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=467) [289, slot 1, text ID this does not match](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=473.2608695652175) [its reference from 298, slot 0. So, we](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=480.30434782608717) [need to fix up the text ID. So, let's go](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=487.2105263157895) [ahead and do a DBCC PAGE again. So, the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=498.2631578947369) [timestamp though we need is actually on](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=507.29999999999995) [this page. We need the timestamp this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=511.8499999999998) [number, so let's Copy that, bring up Calc,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=516.3999999999996) [Paste, convert to Hex, 4F54. So, we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=521.4000000000001) [going to be looking for 544F because it's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=525.6000000000003) [stored byte reversed. 544F. Perfect. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=530.4000000000004)[that's where our timestamp is. So, that's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=534.5000000000002) [an offset 54, 58, 5c, 5d, so 1F5D. 1F5D](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=542.9411764705883) [into Decimal plus 96 is 8125. So, 8125 is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=565.1764705882356) [the offset that we're going to need to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=581.5652173913043) [use, 8125, and we're changing page 298,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=585.7391304347823) [and we need to put in this timestamp up](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=589.3913043478256) [here, convert that to Hex. So, we're going](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=596.2222222222222) [to need to put in 9043. 9043 like that.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=604.6666666666665) [Execute that, run a CHECKDB, and see if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=612.6363636363635) [we've got rid of the message that says our](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=616.9999999999995) [text doesn't match. Yes we did. We got rid](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=621.9090909090901) [of that message completely. So, it looks](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=625.5454545454546) [like we've been able to do the swap. So,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=628.0909090909092) [now let's see if we can get the data WHERE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=631.7222222222222) [(C1) = 6. Ahh, look at that. There's the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=638.9444444444439) [text value, and we managed to get back](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=644.8181818181818) [that text value by linking it into that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=648.0909090909088) [Dummy row by swapping out the text linkage](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=651.3636363636358)[under the covers. How cool is that? That's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=654.7142857142858) [really neat. Now, you can only do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=658.1428571428573) [using DBCC WRITEPAGE. Well, to be honest](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=660.3636363636365) [you could to it using a hex editor, but it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=661.9545454545457) [would be an awful lot more difficult doing](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=664.2142857142857) [it using a hex editor. So, using DBCC](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=665.928571428571) [WRITEPAGE there we managed to save some](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=668.0000000000001)[cool data. Now, as it says, then we're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=670.3333333333337) [going to go ahead and run repair, which](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=672.5) [will get rid of the dummy row and so on.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=674.5) [This could be an awful lot more complex,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=677) [and usually it is an awful lot more](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=679.3529411764703) [complex. I've actually done this for real](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=681.7058823529405) [on a live client system several times](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=684.2105263157894) [where swapping over the LOB linkages of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=686.7894736842103) [sysindexstats blobs in SQL Server 2000](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=689.4666666666667) [managed to save a couple of client's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=692.2666666666669) [databases. So, that's the final demo for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=695.5333333333338) [this course. I left the best one for the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=697.0434782608695) [last, and I hope you realize how cool using DBCC WRITEPAGE can be.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=15&mode=live&start=698.6086956521738)

[Any Other Ways to Salvage Data?](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live)

[Any Other Ways to Salvage Data? When](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=1) [you're facing data loss because of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=3.0588235294117645) [corruption, don't discount some of the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=4.823529411764705) [other places you might be able to get data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=6.476190476190476) [back from. For instance, you might have a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=8.619047619047617) [data warehouse that does regular ETLs from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=10.523809523809515) [your OLTP system. You could extract a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=12.388888888888893) [whole bunch of data from there. You might](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=14.333333333333343) [have test and dev systems that have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=16.444444444444443) [regular backups restored on them for your](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=17.999999999999993) [developers and testers to use. There may](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=19.555555555555543) [be even third parties that host or consume](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=21.25) [some of your data through some kind of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=23.25) [replication. And talking about that, if](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=25.294117647058822) [you've got replication subscribers, you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=27.058823529411757) [might be able to get some data back from](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=28.52941176470587) [those. And although this seems a bit](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=31.5) [nonsensical, don't discount hard-copy](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=34.125) [printouts. Depending on what the data flow](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=35.625) [in your business is, you might have](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=37.66666666666667) [hard-copy printouts for instance of loan](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=39.61111111111112) [applications that then get scanned in,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=41.416666666666664) [OCR'd, and converted into data. If you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=43.91666666666665) [still have some of those lying around,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=46.434782608695656) [you'd be able to re-enter some of the data](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=47.95652173913045) [as tedious as that sounds. Remember,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=49.9130434782609) [getting some data back is often better](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=51.357142857142854) [than having no data at all. I've heard](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=53.85714285714283) [some pretty incredible stories of people](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=56.599999999999994) [doing wild things to get data back in the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=58.39999999999998) [face of corruption, and here's one I want](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=61.09999999999995) [to share with you. It's a story about a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=63.42857142857142) [developer who actually writes code to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=66.00000000000003) [reconstruct the data from a broken RAID 5](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=67.71428571428578) [array, and you can get it on my blog there](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=69.59090909090914) [from that bit. ly link. If you absolutely](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=71.86363636363647)[have to get data back, then thinking](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=73.7894736842105) [outside the box and using some ingenuity could save your business.](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=16&mode=live&start=75.63157894736835)

[Course Summary](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live)

[Course Summary. So, now you know a lot](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=1) [more about things like CHECKDB, how it](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=3.3636363636363633) [works, how it can be tuned to make the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=5.431818181818183) [performance an awful lot better; a bunch](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=8.147058823529411) [of different undocumented DBCC commands](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=10.411764705882357) [like DBCC PAGE, DBCC IND, DBCC WRITEPAGE](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=12.02941176470589) [and how they can help with corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=14.411764705882355) [recovery; some methods for dealing with](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=16.88235294117647) [transaction log problems, corrupt logs,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=19) [missing logs, being able to do a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=20.470588235294112) [hack-attach to get a detached suspect](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=22.52941176470587) [database back into your system; advanced](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=24.46153846153846) [restore techniques like piecemeal restore,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=27.23076923076922) [partial restore, page restores, being able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=29.53846153846152) [to look inside the transaction log using](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=31.999999999999993) [fn\_dblog and fn\_dump\_dblog to then be able](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=34.79999999999998) [to use an LSN to restore to; and then](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=37.19999999999999) [advanced repair techniques, things like](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=39.89999999999996) [manually changing system tables, using a](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=41.39999999999995) [hex editor, using DBCC WRITEPAGE. So, what](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=43.33333333333334) [do I want you to take away from this](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=45.66666666666669) [course? Three things. The basics are only](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=48.666666666666714) [going to get you so far. The variety of](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=50.79999999999998) [corruptions that you might see or be asked](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=53.49999999999996) [to help with is huge, and sometimes you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=55.833333333333336) [have to use more unconventional advanced](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=58.055555555555564) [techniques to be able to affect a proper](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=59.722222222222236) [recovery from corruption. With that in](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=61.666666666666686) [mind, that means that the more you](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=63.09523809523813) [practice these more unconventional](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=64.76190476190482) [techniques the more easier corruption](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=65.75) [recovery is going to be when you have to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=67) [rely on some of these more unconventional](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=69.4) [advanced techniques. One of the easiest](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=72.20000000000005) [ways to practice is to create corrupt](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=73.90909090909093) [databases, and the easiest way to do that](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=75.50000000000007) [is to use the DBCC WRITEPAGE command. It's](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=77.31818181818194) [very powerful, it's very useful, but it is](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=79.57894736842103) [very dangerous, so use it carefully. If](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=82.10526315789467) [you're going to use it to try to manually](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=84.25) [edit databases to recover from corruption,](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=86.5) [make sure that you have a copy of those](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=88) [databases first, and make sure you're](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=90.31578947368418) [doing it on a copy of the database. The](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=91.89473684210519) [last thing you want to do is make](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=94.29411764705883) [corruption worse using one of these](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=96.64705882352943) [advanced techniques. Now, I always like to](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=98.41176470588239) [hear interesting corruption stories and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=100.15384615384613) [how you recovered. Feel free to send me an](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=101.30769230769226) [email, Paul@SQLskills. com, and I'll reply](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=104.14285714285717) [to you. The last thing is thanks for](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=106.28571428571433) [watching. I really hope you enjoyed the](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=108.20000000000002) [course as much as I enjoyed writing and](https://app.pluralsight.com/player?course=sqlserver-advanced-corruption-recovery-techniques&author=paul-randal&name=sqlserver-advanced-corruption-recovery-techniques-m6-repair&clip=17&mode=live&start=109.60000000000004) [recording it. 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