

2
things



What happened to Jeff Iannucci?



A fluffy, light-colored kitten with large green eyes is sitting on a couch, looking up.

What is
your
story?

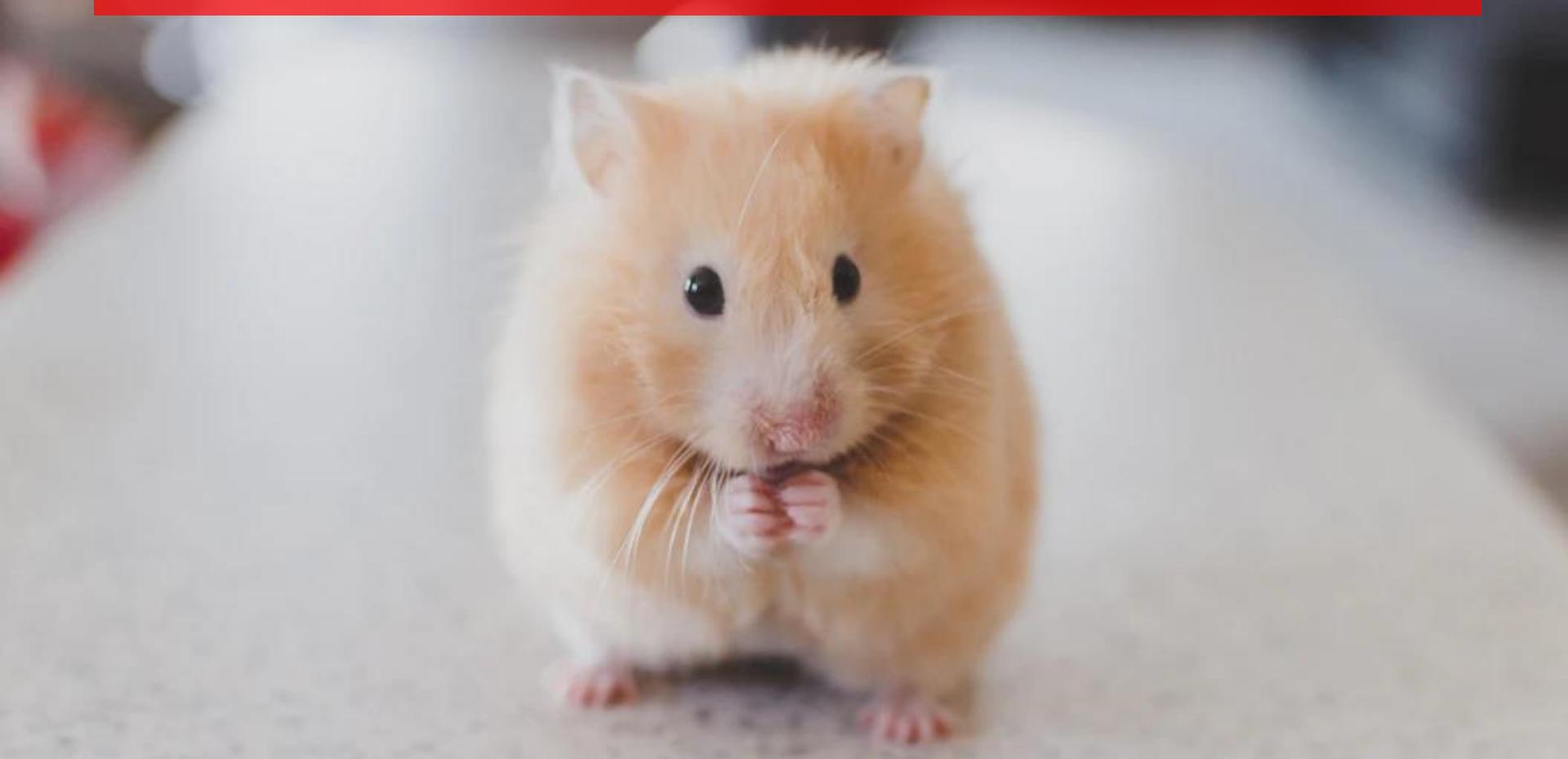
<https://www.speakingmentors.com/>

Surviving SQL Server

Guidance for new or accidental DBAs

Jeff Iannucci

Congratulations! You're the DBA.



Mistakes were made

Three keys for any DBA

- 🔑 Discovery

- 🔑 Recovery

- 🔑 Security





What

about

performance

?

Default Blame Acceptor





Database's

Best

Advocate

Too much?



Discovery



These databases
are all your
responsibility



Find all the SQL Server instances



<https://dbatools.io/>

```
PS C:\> Find-DbaInstance -DiscoveryType All
```

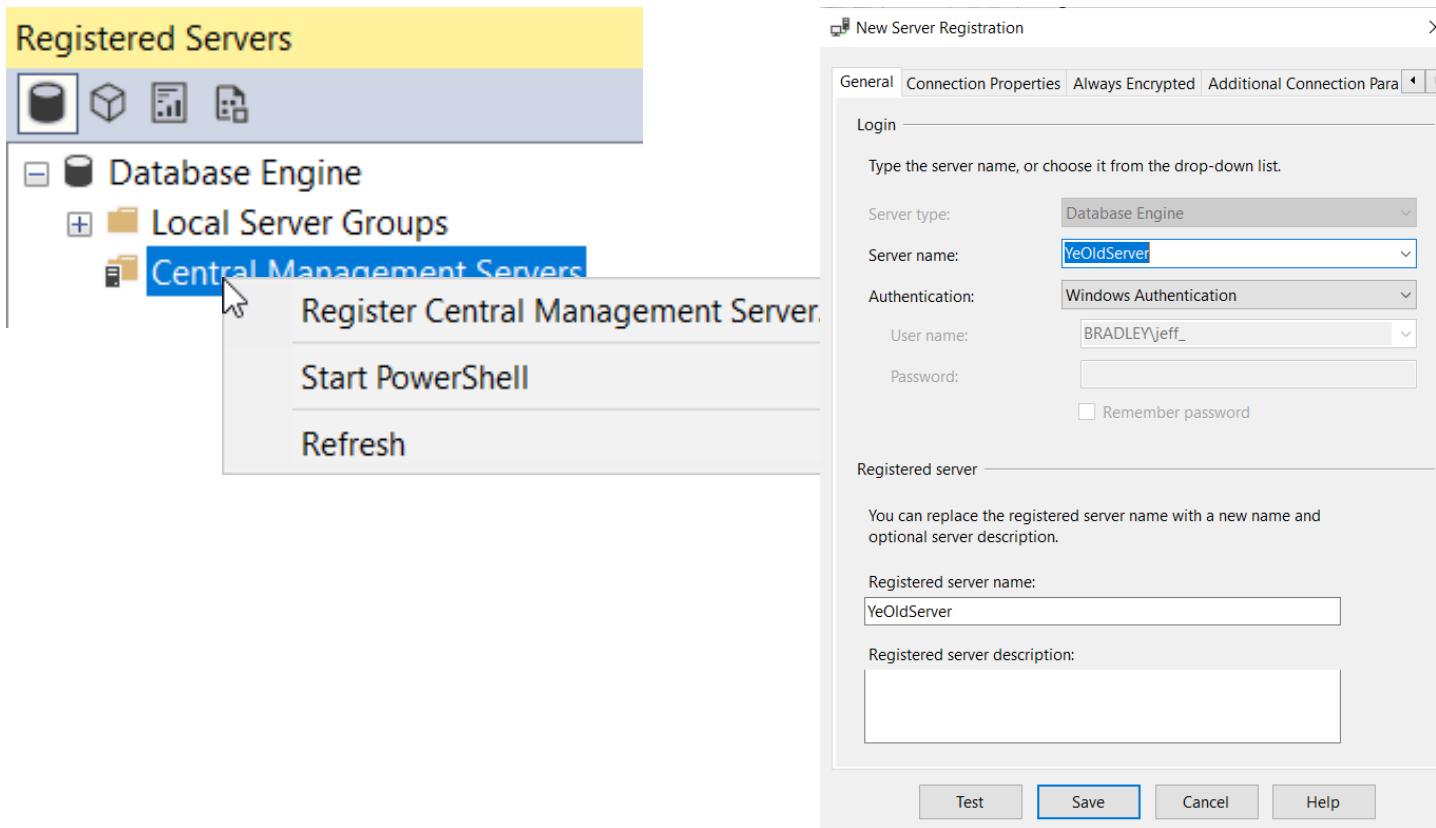
PowerShell...?



Make a
spreadsheet
**...or even a
database!**



Make a Central Management Server (CMS)



The screenshot shows the 'Registered Servers' pane in SQL Server Management Studio. The 'Central Management Servers' node is selected and has a context menu open. The menu items are:

- Register Central Management Server
- Start PowerShell
- Refresh

A separate window titled 'New Server Registration' is open, showing the configuration for registering a new server. The 'Server name:' field is set to 'YeOldServer'. The 'Authentication:' dropdown is set to 'Windows Authentication', and the 'User name:' dropdown shows 'BRADLEY\jeff_'. The 'Remember password' checkbox is unchecked.

New Server Registration

General Connection Properties Always Encrypted Additional Connection Para X

Login

Type the server name, or choose it from the drop-down list.

Server type: Database Engine

Server name: **YeOldServer**

Authentication: Windows Authentication

User name: BRADLEY\jeff_

Password:

Remember password

Registered server

You can replace the registered server name with a new name and optional server description.

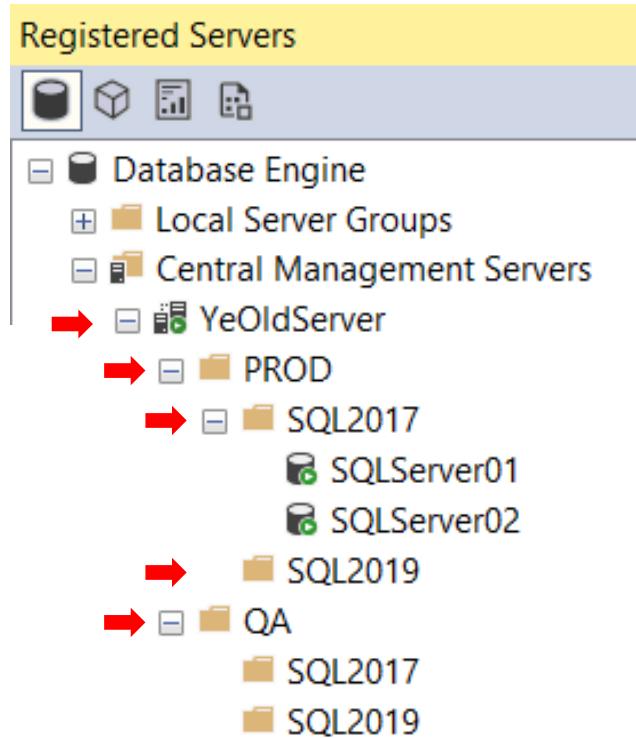
Registered server name: YeOldServer

Registered server description:

Buttons

Test Save Cancel Help

Make a Central Management Server



Register the CMS

Organize by environment

Organize by version

SELECT @@VERSION

What is the version? (2019, 2017,...2000?)

What is the edition? (Enterprise, Standard, etc)

Are these virtual? (...HYPERVERISOR...)

What is the current patch level?

<https://sqlserverupdates.com/>

Find out about your SQL Server instances

What are the CPU and memory?

What about the data and log files?

Do you have availability groups?

Are there any recent problems in the error log?

Are there failing jobs?

SQL Server Diagnostic Queries



<https://glenncsqldiagnosticqueries.com/resources/>

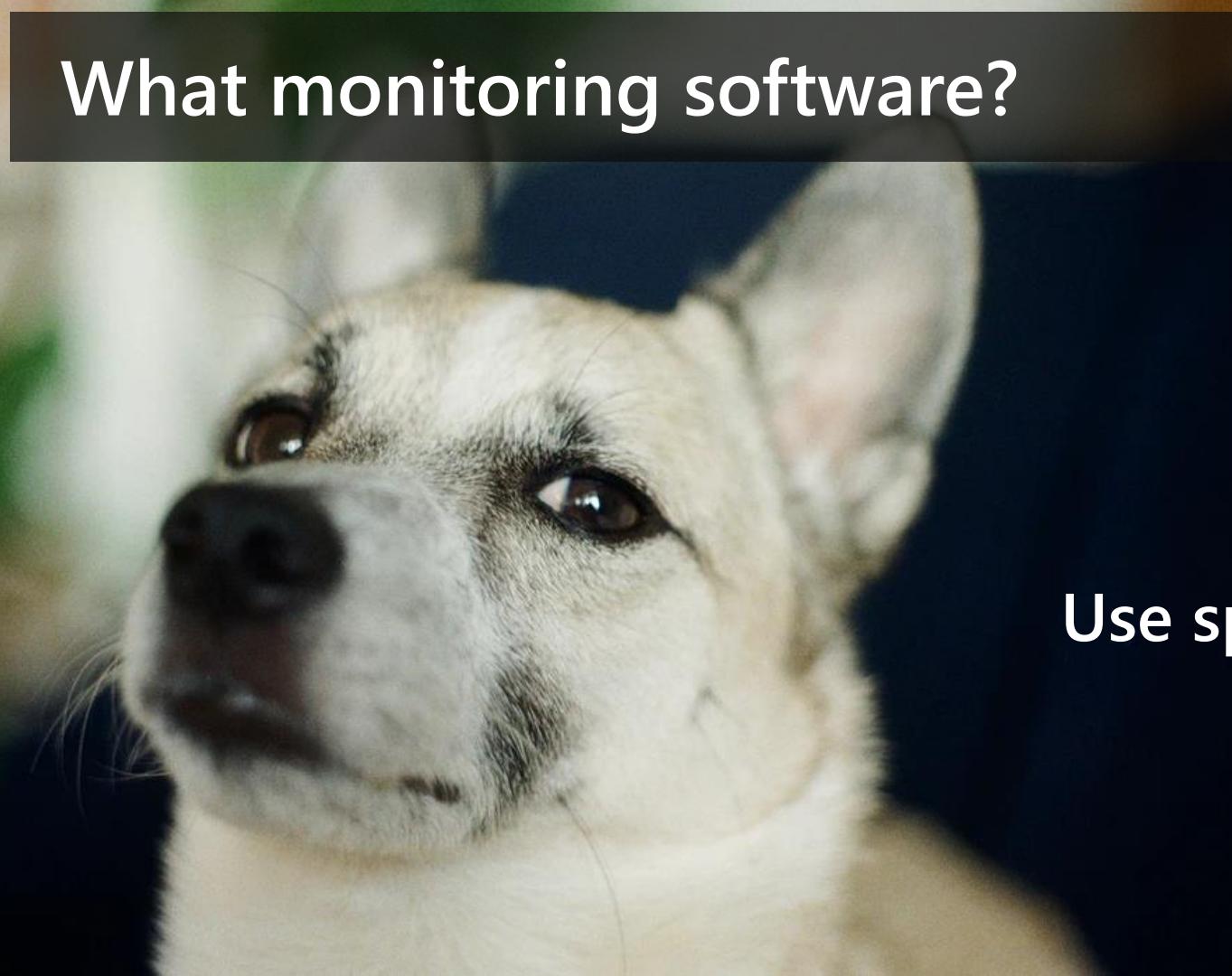
What you
find may
shock you



Start monitoring



What monitoring software?

A close-up photograph of a white dog's face, looking slightly to the left. The dog has dark eyes and a black nose. The background is dark.

Use sp_WhoIsActive

Monitoring using WhoisActive



https://github.com/amachanic/sp_whoisactive

http://whoisactive.com/docs/25_capturing/

Monitoring using WholsActive



<https://app.pluralsight.com/library/courses/troubleshooting-sql-server-performance-spwholsactive/>

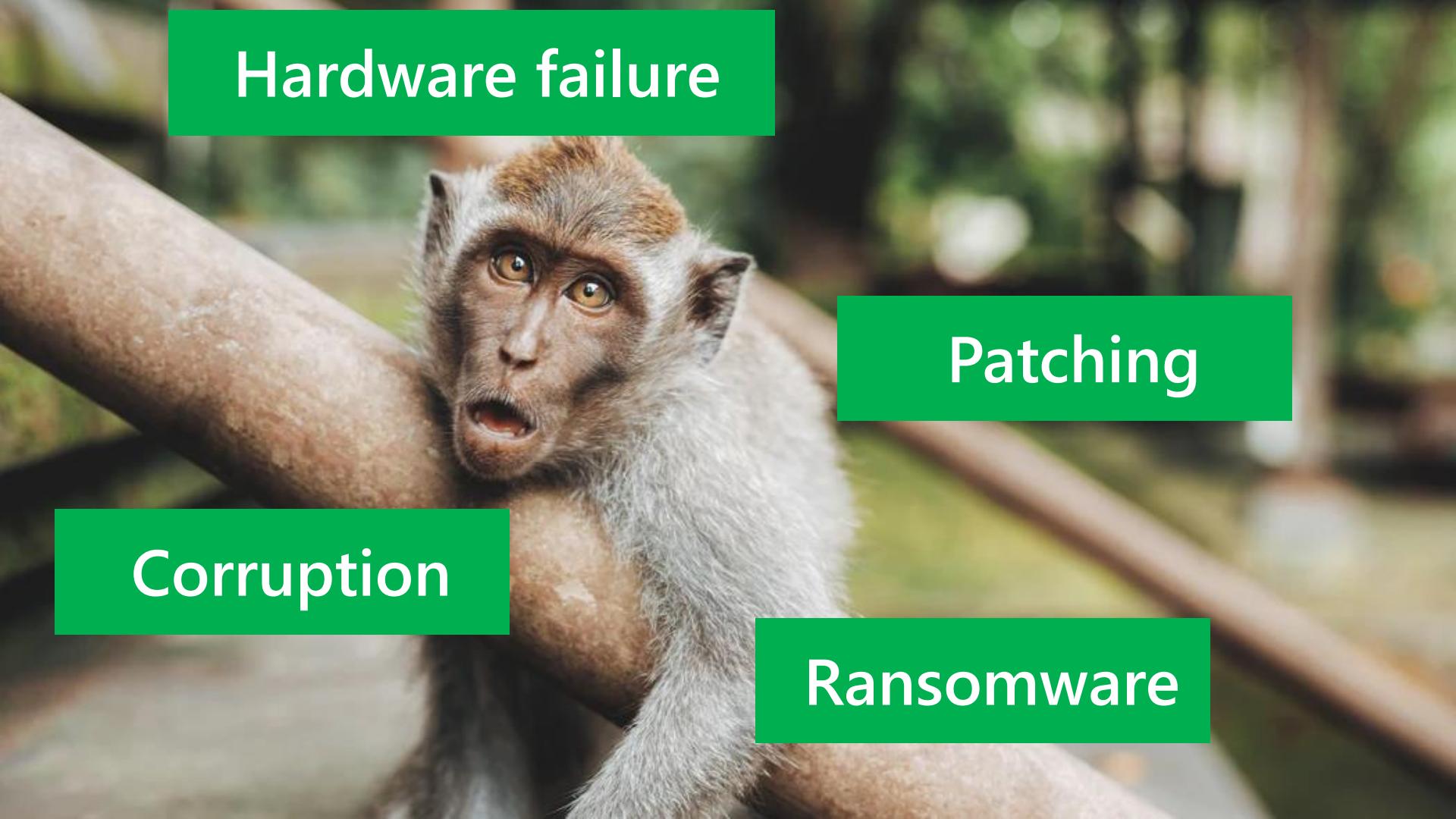
Recovery



Gratuitous quote from my employer



“If you are not planning for failure, you aren’t planning for success.” – Mike Walsh



Hardware failure

Corruption

Patching

Ransomware



Oops...?

You need
backups



Backup your databases



<https://ola.hallengren.com/>

Native backups

Full – all data pages

Diff – changed data pages

Log – transaction log

Can use multiple files

Can use backup compression



Backup compression

Includes Full, Differential, and Log backups

-  FULL.bak
-  DIFF.bak
-  TLOG.trn

233,600 KB

23,680 KB

246,076 KB

-  FULL_COMPRESS.bak
-  DIFF_COMPRESS.bak
-  TLOG_COMPRESS.trn

53,156 KB

3,732 KB

84,384 KB

```
EXEC sp_configure 'backup compression default', 1 ;  
RECONFIGURE;  
GO
```

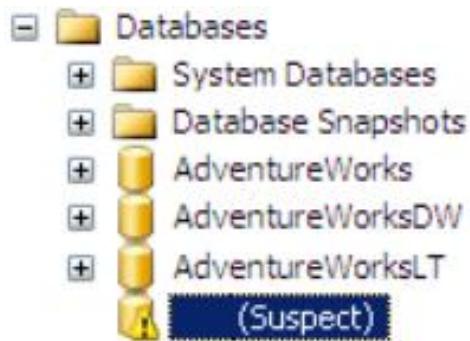
Do you trust your
systems
administrators...

...as DBAs?



Out of sync

If database and log files are backed up even a split second apart...



Other backup software

How frequent are backups?

Log backups?

System database backups?

Who does the restore?

Have you tested restoring?





Have you
tested
restoring?

**RANSOMWARE
IS IN YOUR
FUTURE**





**Copy backups
offsite!**

A photograph of a young monkey with dark brown fur, sitting on a dark wooden railing. It is looking directly at the camera with a contemplative expression, its hand resting near its chin. The background is a blurred green forest.

Corruption

What objects are corrupted?

How much data is corrupted?

How to check for corruption?

Integrity checks



<https://ola.hallengren.com/>

Look for corruption/consistency problems

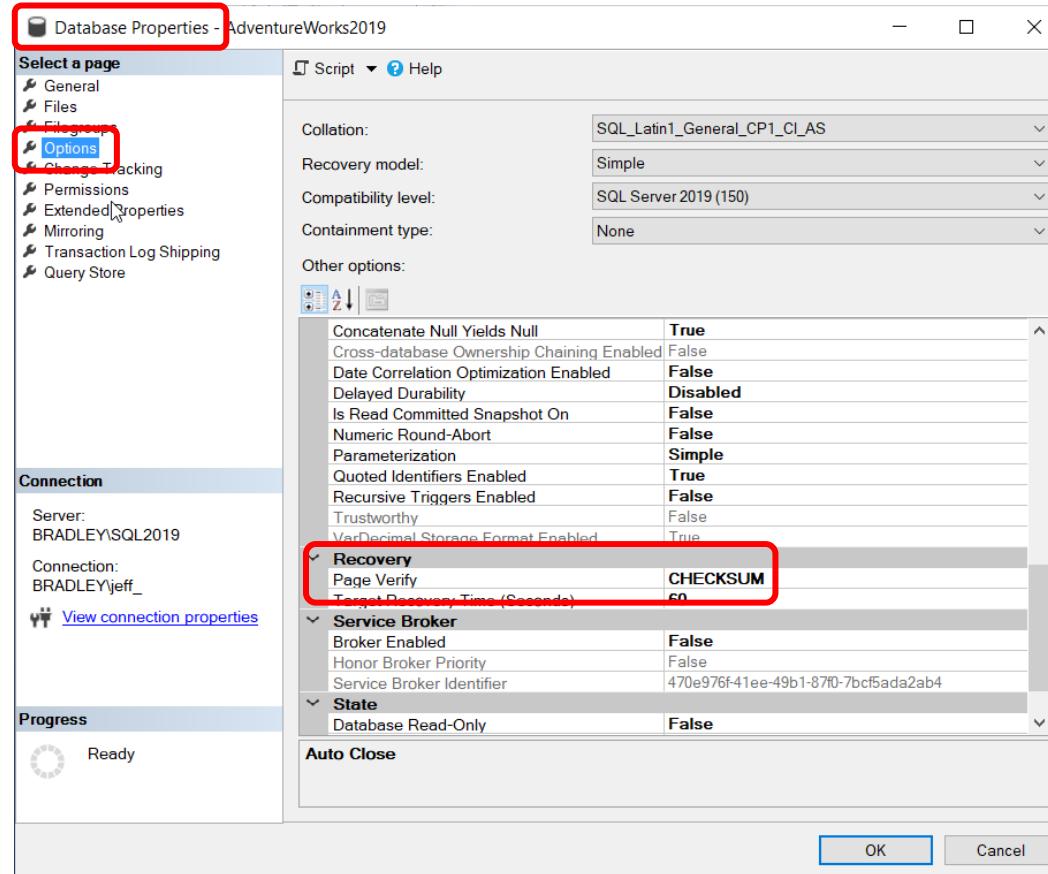
Daily for system databases

Weekly for user databases

Make sure tempdb is big enough

Set Page Verify to CHECKSUM

Set Page Verify to CHECKSUM



Look for corruption/consistency problems

Daily for system databases

Weekly for user databases

Make sure tempdb is big enough

Set Page Verify to CHECKSUM

Enable alerts for 823, 824, 825 errors

Enable alerts for corruption (and more)



<https://www.brentozar.com/blitz/configure-sql-server-alerts/>

A close-up photograph of a male lion's head and upper body. He has a large, full, light brown mane. His gaze is directed slightly to the left of the camera. The background is a soft-focus view of a dry, grassy savanna landscape under a clear sky. A solid black rectangular box is positioned in the upper right area of the image, containing the word "Security" in a bold, white, sans-serif font.

Security



Villains



...and Clowns

Check permissions

Who is in sysadmin?

Who is in securityadmin?

Who is in serveradmin?

Who owns databases?

Who owns jobs?



EXEC sp_Blitz



<https://www.brentozar.com/first-aid/>

Disable 'sa'

'sa' can still own databases

'sa' can still own jobs

Prevents connections



Enable the remote “DAC”

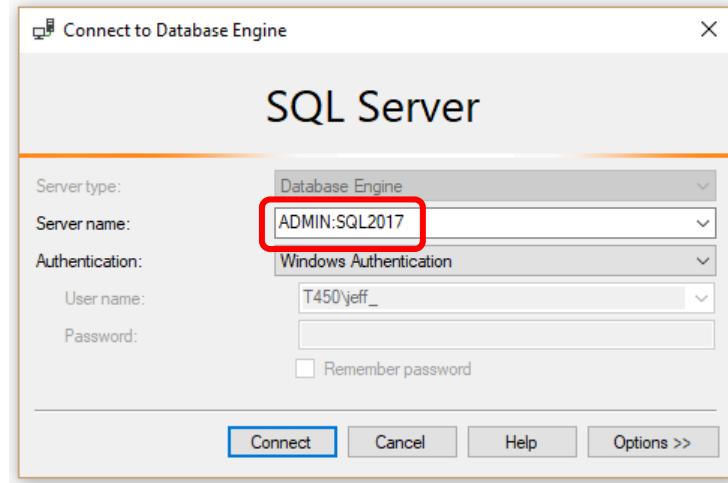
How to check

```
SELECT value_in_use  
FROM sys.configurations  
WHERE [name] = 'remote admin connections';
```

How to enable

```
sp_configure 'remote admin connections', 1;  
RECONFIGURE  
GO
```

How to use it



Enable the remote “DAC”

Important: DAC is like the Highlander...



...so don't use DAC for routine tasks

Review SQL Server Services



```
PS C:\> Get-DbaService -ComputerName sqlserver2014a
```

Check for encryption



```
PS C:\> Get-DbaDbEncryption -SqlInstance DEV01
```



**Copy certificates
offsite!**

Check for cumulative updates

<https://sqlserverupdates.com>

Cumulative Update	Release Date	Build	Support Ends
CU18	2019/12/09	14.0.3257.3	2027/10/12
CU17	2019/10/08	14.0.3238.1	2027/10/12
CU16	2019/08/01	14.0.3223.3	2027/10/12
Security update	2019/07/09	14.0.3192.2	2027/10/12
Hotfix	2019/06/21	14.0.3164.1	2027/10/12
CU15	2019/05/24	14.0.3162.1	2027/10/12
SSAS GDR	2019/05/14		2027/10/12
CU14	2019/03/25	14.0.3076.1	2027/10/12
Hotfix	2019/01/07	14.0.3049.1	2027/10/12
CU13	2018/12/18	14.0.3048.4	2027/10/12
CU12	2018/10/24	14.0.3045.24	2027/10/12
CU11	2018/09/20	14.0.3038.14	2027/10/12
CU10	2018/08/27	14.0.3037.1	2027/10/12
GDR2 (security patch to CU9)	2018/08/14	14.0.3035.2	2027/10/12
CU9	2018/07/18	14.0.3030.27	2027/10/12

Summary



Download and install

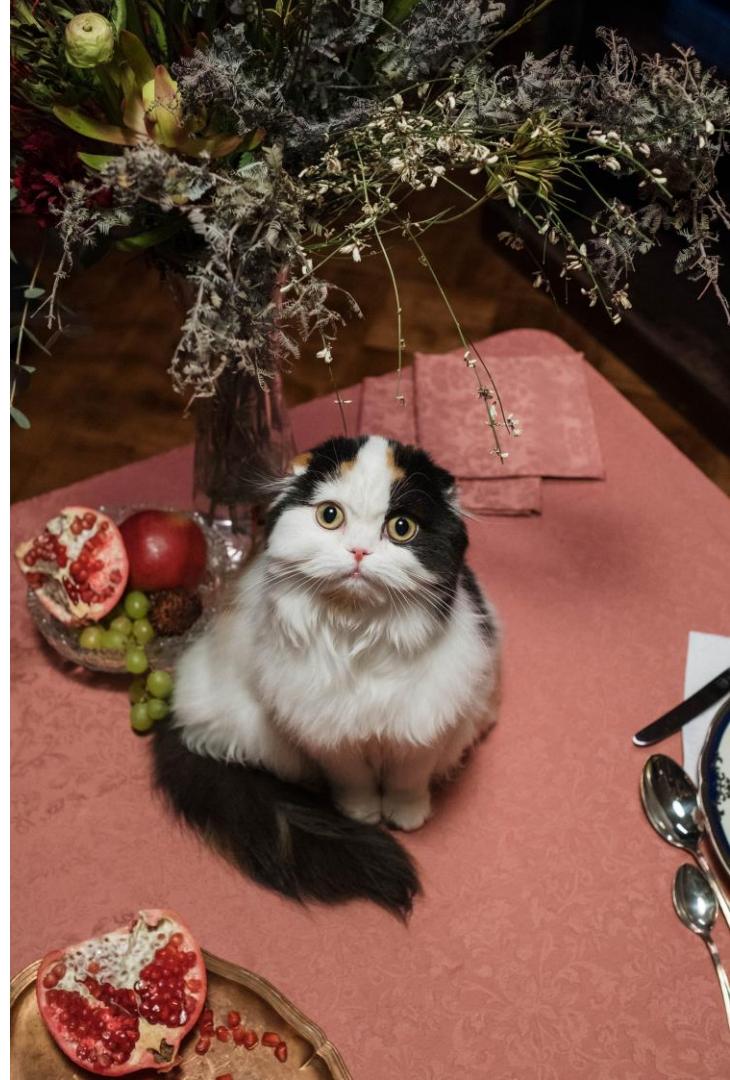
dbatools module

First Responder's Kit

Who Is Active

Ola Hallengren's scripts

Glenn Berry's diagnostic queries



Learn all you can
about all your
puppies!



Get help

<https://sqlcommunity.slack.com>

#SQLHelp

Twitter...?

LinkedIn

<https://dba.stackexchange.com>





**Copy backups
offsite!**



...and test
restoring
backups!

Performance?



A fluffy, light-colored kitten with large green eyes is sitting on a couch, looking up. The couch has a light-colored fabric backrest and a dark blue denim-style seat.

What is
your
story?

<https://www.speakingmentors.com/>

Thank you!



github.com/desertdba



desertdba.com



jeff@desertdba.com



[@desertdba](https://twitter.com/desertdba)



www.linkedin.com/in/jeff-iannucci

