Choosing the Right Tool for the Job

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- Worked with MS Data Platform for over 20 years
- Speaker Idol Winner 2019
- Microsoft MVP Data Platform
- Friend of Redgate
- Alter Ego = Amateur Musician

Why talk about tools?

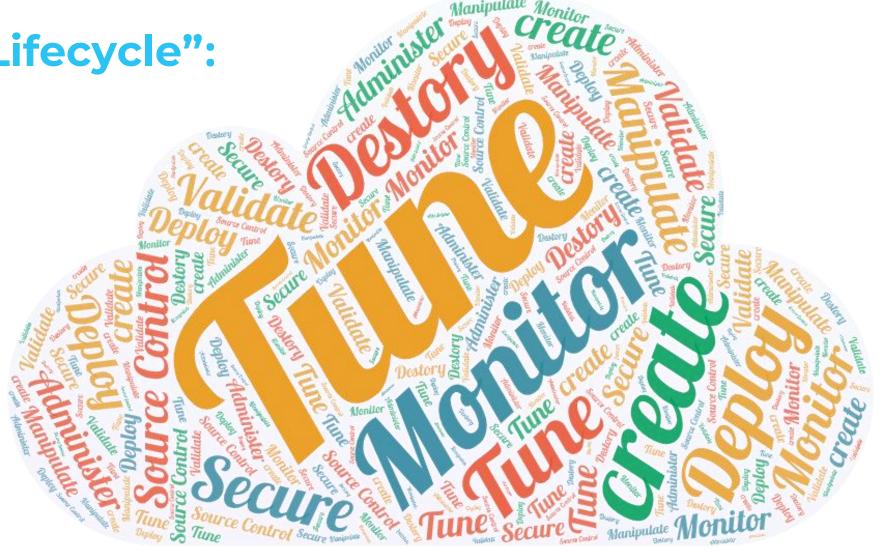
- Many options are available.
- We don't always get a chance to explore what's available in the middle of trying to get work done.
- They can help us be more productive.

What are we trying to do?

a.k.a. Job functions

The "Data Lifecycle":

- Create
- Tune
- Monitor
- Deploy
- Secure
- Source Control
- Manipulate
- Administer
- Destroy
- Validate



Let's break it down differently...

Administer Develop Repeat Repeat/Automate

Develop

- Create objects
 - Tables
 - Views
 - Stored Procs
- Performance Tune
 - Execution Plans
- ETL Loads
- Reports

```
INTEGER
                                                                                                                              Gadget ID (FK)
                                                                                                      INTEGER (AK1:1
INTEGER (AK1:2
                                                                                           Alter Ego ID (EK)
                                                                                                                              Price_Per_Item
                                                                                                                                         MONEY(19.4)
                                                                                           Sys_Start_Time
Sys_End_Time
                                                                                                                                         MONEY(19,4)
CREATE TRIGGER TR_Alter_Ego_Insert ON Alter_Ego INSTEAD OF UPDATE
AS BEGIN
DECLARE @corp id int
                                                               -- Forget Batman, use Iron Man's company
SELECT @corp_id = Corporation_ID FROM Corporation WHERE Corporation_Name = 'Stark Industries'
INSERT INTO Employment (Person_ID, Corporation_ID, Corporate_Position_ID, From_Date)
SELECT ins.Person_ID, @corp_id, cp.Corporate_Position_ID, getdate()
FROM Corporate_Position cp
    JOIN inserted as ins ON cp.Corporate Position Name = ins.Alter Ego Name
                                                      0.0%
                                                                            0.0%
                                                                                                      0.0%
                                                                                                                                 0.0%
                                                     UPDATE
                                                                                                                                                     Clustered Index Update
                                                                          Sequence
                                                                                                   Table Spool
                                                                                                   (Eager Spool)
                                                                                                                                                    [dbo].[Alter_Ego_Gadget]
                                                                                                                                                     [PK Alter Ego Gadget]
                                                                                                                                                      2 non-clustered indexe
                                                                                              Clustered Index Update
                                                                                              [dbo].[Order_Line_Item]
                                                                                               [PK_Order_Line_Item]
                                              OLE DB Source SQL
Server
              OLE DB Source DB2 source
                                                                                               +1 non-clustered inde
                                                0.0%
                                                                                                      0.0%
                                                    Sort 1
                                                                                                      Assert
                                                                                                                              Nested Loops
                                                                                                                                                          Table Spool
                                                                                                                            (Left Semi Join)
                                                                                                                                                         (Eager Spool)
                             Merge Join
                               OLE DB
Destination
```

♦ Alter_Ego_Name VARCHAR
 ♦ Comic_Universe_ID INTEGER

Alter_Ego_Person

Alter_Ego_Person_ID INTEGER

Cornoration ID

Gadget_Order_Form

→ Order_ID

→ Order_Date
→ Person_ID (FK)

Person ID INTEGER

First Name VARCHAR(50)

Last_Name VARCHAR(50)

Corporation Name VARCHAR(50) (AK1

DATETIME

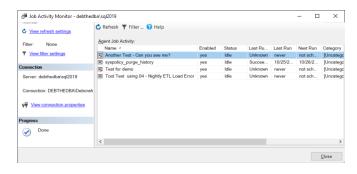
INTEGER

→ Gadget_Name VARCHAR(50) (AK1:1)

Gadget_Desc VARCHAR(254)

Administer

- Configure
- Backup and Restore
- High Availability \Disaster Recovery
- Security
 - Logins & Users
- Jobs
- Monitor



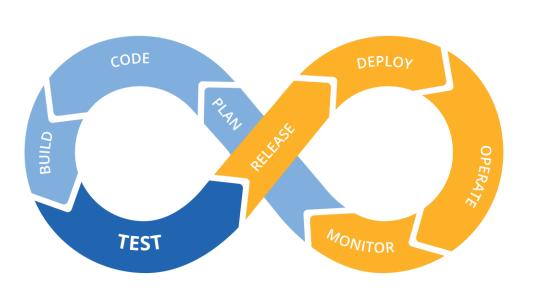




| ebthedba\sql201 | 9 - Superh | eroes_Repl_Trace: event | _file | | | | * D | |
|--|--------------|-------------------------|----------|----------|-----------|---|---|--|
| orting Events by " | batch_text* | | | | | | 24% Can | |
| name | | timestamp | duration | cpu time | row count | batch text | statement | |
| sql_batch_sta | | | | | | | | |
| sql_statemen | t_starting | 2020-12-05 09:11:55 | NULL | NULL | NULL | NULL | declare @event_type SMALLINT = 1, @distributor_major_version SMALLINT = | |
| sql_statement_compl 2020-12-05 09:11:55 | | . 5 | | 1 | NULL | declare @event_type SMALLINT = 1, @distributor_major_version SMALLINT = | | |
| sql_statement_starting 2020-12-05 09:11:55 | | NULL | NULL | NULL | NULL | if object_id(N'sys.sp_repl_generate_subscriber_event') is not null | | |
| sql_statement_compl 2020-12-05 09:11:55 | | . 15 | | 0 | NULL | if object_id(N'sys.sp_repl_generate_subscriber_event') is not null | | |
| sql_statemen | t_starting | 2020-12-05 09:11:55 | NULL | NULL | NULL | NULL | exec sys.sp_repl_generate_subscriber_event @event_state = @event_type,@ | |
| sql_statement_compl 2020-12- | | 2020-12-05 09:11:55 | . 47 | | 0 | NULL | exec sys.sp_repl_generate_subscriber_event @event_state = @event_type,@ | |
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| sql_batch_str | arting | 2020-12-05 09:12:00 | NULL | NULL | NULL | declare @event_type SMALLINT = | NULL | |
| sql_statement_starting | | 2020-12-05 09:12:00 | NULL | NULL | NULL | NULL | declare @event_type SMALLINT = 1, @distributor_major_version SMALLINT = | |
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| sql_statement_starting | | 2020-12-05 09:12:00 | NULL | NULL | NULL | NULL | if object_id(N'sys.sp_repl_generate_subscriber_event') is not null | |
| sql_statemen | t_compl | 2020-12-05 09:12:00 | . 50 | | 0 | NULL | if object_id(N'sys.sp_repl_generate_subscriber_event') is not null | |
| sql_statemen | t_starting | 2020-12-05 09:12:00 | NULL | NULL | NULL | NULL | exec sys.sp_repl_generate_subscriber_event @event_state = @event_type,@ | |
| sql_statement_compl | | 2020-12-05 09:12:00 | . 62 | | 0 | NULL | exec sys.sp_repl_generate_subscriber_event @event_state = @event_type, | |
| sql_batch_completed | | 2020-12-05 09:12:00 | 1696 | | 1 | declare @event_type SMALLINT = | NULL | |
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| sql_statement_starting | | 2020-12-05 09:12:05 | NULL | NULL | NULL | NULL | declare @event_type SMALLINT = 1, @distributor_major_version SMALLINT = | |
| sql_statemen | t_compl | 2020-12-05 09:12:05 | . 16 | | 1 | NULL | declare @event_type SMALLINT = 1, @distributor_major_version SMALLINT = | |
| sql_statemen | t_starting | 2020-12-05 09:12:05 | NULL | NULL | NULL | NULL | if object_id(N'sys.sp_repl_generate_subscriber_event') is not null | |
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| vent:sql_batch_s | tarting (202 | 0-12-05 09:11:55.83794 | 36) | | | | | |
| Field batch_text client_app_na | | | | | | | | |
| database_id 7 | | | | | | | | |
| server_principa DEBTHEDBA\Deborah | | | | | | | | |
| session_id | 88 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Automate

- Release Process
 - CI/CD (Continuous Integration/Continuous Deploy)
 - Migration vs State Based (dacpacs\bacpacs)
 - Source Control
- Runbooks







Let's take a look....



e which

Summary

Tools and the Functions They Do Best (or Worse)

| Tool | Develop | Administer | Automate |
|-------------------|---------|------------|----------|
| Management Studio | | | |
| Visual Studio | | | |
| Azure Data Studio | | ? | |
| VS Code | | | |
| Plan Explorer | | | |

Tools and the Functions They Do Best (or Worse) (cont'd)

| Tool | Develop | Administer | Automate |
|-----------|---------|------------|----------|
| dbatools | ? | | |
| Notebooks | 1 | | |

Takeaways

- If functionality is not there by default, check to see if there's an extension that needs to be installed.
- You may need more than I tool. That's OK.
- Keep an eye out for updates.
- Where do you spend most of your time during the "data lifecycle"?

Resources

- Azure Data Studio
- VS Code
 - https://vscode.dev/
- Visual Studio Data Tools
- Microsoft Documentation
 - Database Projects
 - Dacpacs

Resources Cont'd

- dbatools.io
- SSMS Tools Pack by Mladen Prajdić
- Andy Mallon's <u>SSMS & ADS Shortcuts cheat sheet</u>
- Widgets in ADS (Tracy Boggiano)

Any questions? Let me know!

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- https://tinyurl.com/4yf9cwxa