



**SQL Player**  
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# SQL Server database SSDT & CI/CD



**DataPlatformGeeks**  
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# Kamil Nowiński



Microsoft Data Platform **MVP**

Speaker, blogger, data enthusiast

Group Manager at Avanade UK&I ([www.avanade.com](http://www.avanade.com))

Almost 20 yrs experience as DEV/BI/(DBA)

Member of the Data Community PL

Project member of „SCD Merge Wizard”

Founder of blog SQLPlayer ([www.SQLplayer.net](http://www.SQLplayer.net))

SQL Server Certificates:

MCITP, MCP, MCTS, MCSA, MCSE Data Platform,

MCSE Data Management & Analytics

Moreover: Bicycle, Running, Digital photography

@NowinskiK, @SQLPlayer

# Blog

- Technical posts
- Various skill level
- Cheat sheets
- Recommended books
- Many useful other links
- Interviews (Podcast)
- YouTube Channel



# SQL Player

Play with data & have fun!

[www.SQLPlayer.net](http://www.SQLPlayer.net)



Scan me



# "Ask SQL Family" #podcast



Scan me



SQL Family



# YouTube



[www.SQLPlayer.net/YouTube](http://www.SQLPlayer.net/YouTube)



# Slides available



github.com  
/NowinskiK/CommunityEvents



# DevOps – definition (Wikipedia)

**DevOps** (a clipped compound of "**development**" and "**operations**") is a software engineering **culture and practice** that aims at unifying software development (Dev) and software operation (Ops). The main characteristic of the DevOps movement is to strongly advocate **automation and monitoring** at **all steps** of software construction, from integration, testing, releasing to deployment and infrastructure management.

DevOps aims at shorter development cycles, increased deployment frequency, and more dependable releases, in close alignment with business objectives.

## What is DevOps?



Developers & Testers



IT Operations



# DevOps – how to start?

- Database in source control
- Build CI process
- Deploy (CD) empty database
- Then add the rests:
  - data,
  - security,
  - Unit tests
  - Integration-test (if required)





# What is the SSDT?

- SQL Server Data Tools
- Now, it's a part of Visual Studio
- Free!
- Database project, including:
  - Schema, Stored Procedures, Functions,
  - Tables, Views, Security, CLR
  - ... and much more!



# SSDT: How to install?


Workloads

Individual components

Language packs


Installation locations

Web & Cloud (7)




**ASP.NET and web development**  
Build web applications using ASP.NET, ASP.NET Core, HTML, JavaScript, and container development tools.

☒




**Python development**  
Editing, debugging, interactive development and source control for Python.

☐




**Data storage and processing**  
Connect, develop and test data solutions using SQL Server, Azure Data Lake, Hadoop or Azure ML.

☒




**Office/SharePoint development**  
Create Office and SharePoint add-ins, SharePoint solutions, and VSTO add-ins using C#, VB, and JavaScript.

☒




**Azure development**  
Azure SDK, tools, and projects for developing cloud apps and creating resources.

☒



**Node.js development**  
Build scalable network applications using Node.js, an asynchronous event-driven JavaScript runtime.

☐

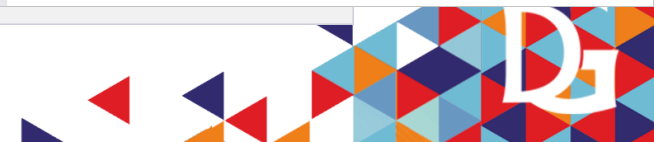


**Data science and analytical applications**  
Languages and tooling for creating data science applications, including Python, R and F#.

☐

## Summary

- > Visual Studio core editor
- > Universal Windows Platform development
- > .NET desktop development
- > Mobile development with .NET
- > Office/SharePoint development \*
- > Azure development
- > ASP.NET and web development
- > Game development with Unity
- ✓ **Data storage and processing**
  - Optional
    - ✓ SQL Server Data Tools
    - ✓ Azure Data Lake and Stream Analytics Tools
    - ✓ .NET Framework 4 – 4.6 development tools
    - ✓ Redgate ReadyRoll Core
    - ✓ Redgate SQL Prompt Core
    - ✓ Redgate SQL Search
    - ✓ F# language support



# DEMO – part 1

- Create GIT repo in Azure DevOps
- Create empty database project
- Import database from server



# Tips for 8 weeks

- 1 email / week
- Useful things attached:
  - Cheat sheet
  - Tips
  - Step by step manual
- Visit:
  - <https://learn.sqlplayer.net/database-projects-with-ssdt-dacpac>



SCAN ME





# Tips for 8 weeks



Learn with  
**SQL Player**



## Database projects with SQL Server Data Tools (SSDT)

Start your database project like any other component or application. Build, rename, detect bugs, test and publish automatically successfully.

This course will contain 64 videos, quiz on each module and many code examples. Sign up below to receive a few emails (8 weeks, one a week) with free, useful materials.



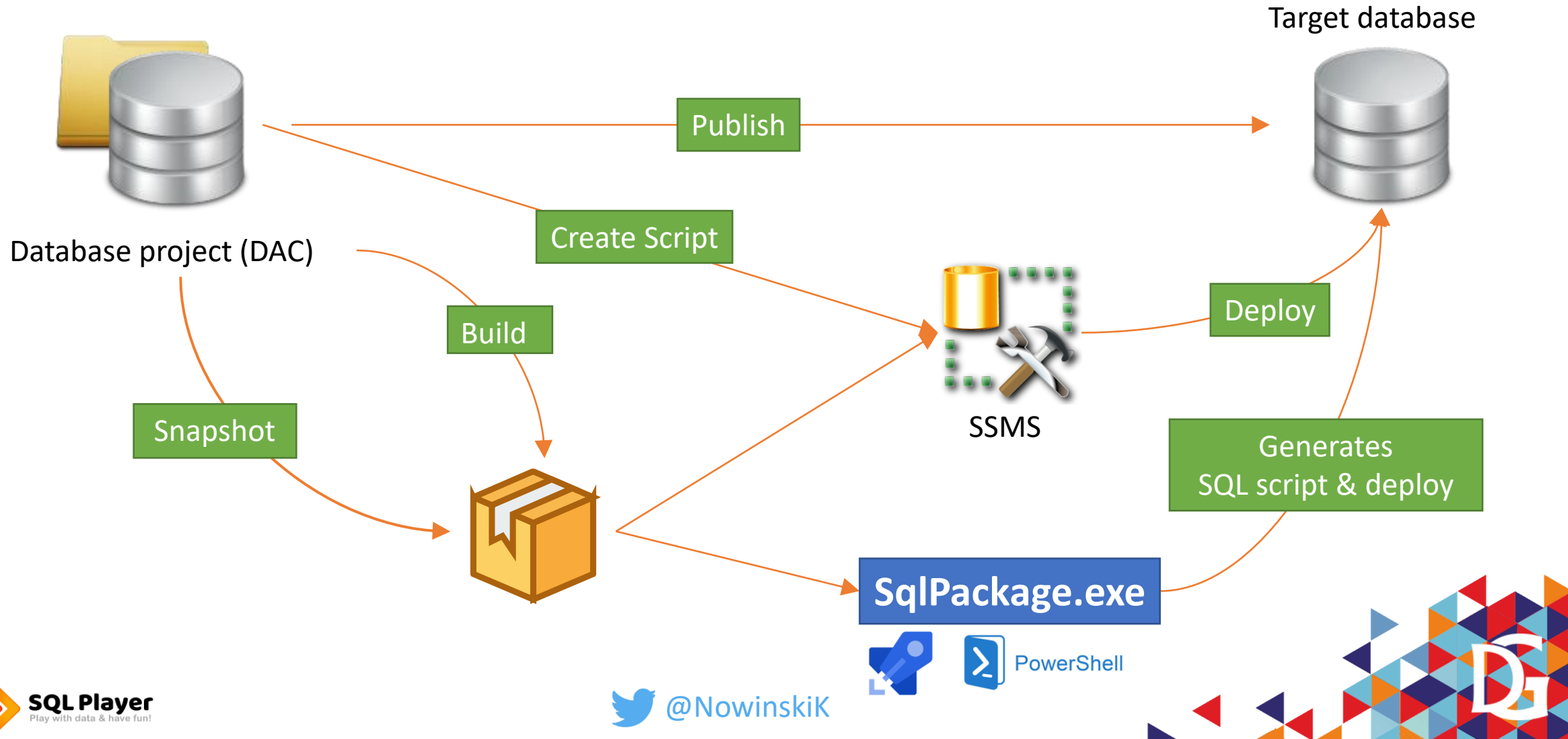
**SCAN ME**

You're signing up to receive emails from Learn with SQLPlayer

<https://learn.sqlplayer.net/database-projects-with-ssdt-dacpac>

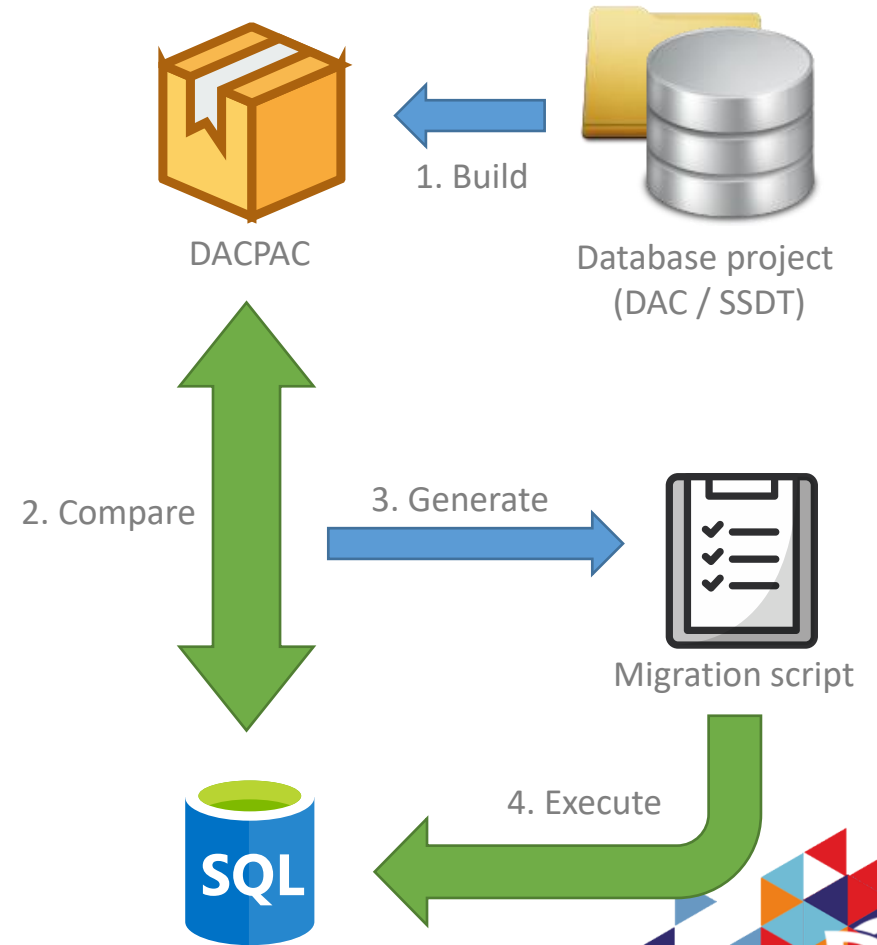


# DACPAC file usage scenarios



# SSDT Deployment Pipeline

- Build database project
  - Generates DACPAC
- SQLPackage compares
  - DACPAC to target database
- SQLPackage generates
  - Migration script
  - Execute script against target server



# Azure DevOps

- Build database project
  - Generates DACPAC
- SQLPackage compares
  - DACPAC to target database
- SQLPackage generates
  - Migration script
  - Execute script against target server





# DEMO – part 2

- Build (Visual Studio)
- Build Pipeline (Azure DevOps)
- Publish (Visual Studio)
- Release Pipeline (Azure DevOps)



# SSDT offers much more...

- Database references
- Variables
- Publish Profiles
- Pre & Post-deployment scripts



# Resources: <https://sqlplayer.net/ssdt>

## SQL Server Data Tools (SSDT)

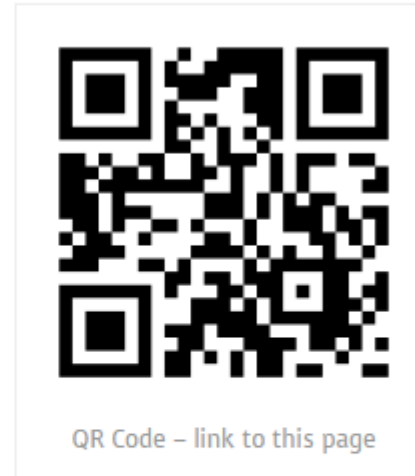
All the following posts are in **SSDT series** on the blog:

- New DB project with SSDT and import existing database
- How to create DACPAC file?
- #TSQL2sDay – How SQLPackage.exe can spoil your deployment
- Tokenization of database project in SSDT
- SSDT (SqlPackage) thread crashes with error when publishing
- Script and deploy the data for database from SSDT project
- 📺 Deployment of Microsoft SQL database with Azure DevOps (video)

### Microsoft resources:

- 🛠 SQL Server Data Tools (MSDN)
- 🛠 SQLPackage.exe (MSDN)
- 🛠 Data-tier Application Framework (DACFx)
- Microsoft SQL Server Data Tools Team Blog
- GIT – branch organization

### Other resources:



# Questions?



<https://github.com/NowinskiK/ssdt-training/discussions>







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<https://github.com/NowinskiK/CommunityEvents>



# Thank you!



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