



Streamline Db2 Schema Management with Code4z

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Abstract

Explore Broadcom's Code4z and its breakthrough integration with Db2 for z/OS. In this session, discover how developers can self-provision Db2 objects, apply schema changes, and seamlessly deploy to test environments all within Code4z on the VS Code IDE. Learn to manage Db2 changes like any SW code, enhancing efficiency within existing CI/CD processes and empowering teams to innovate faster.



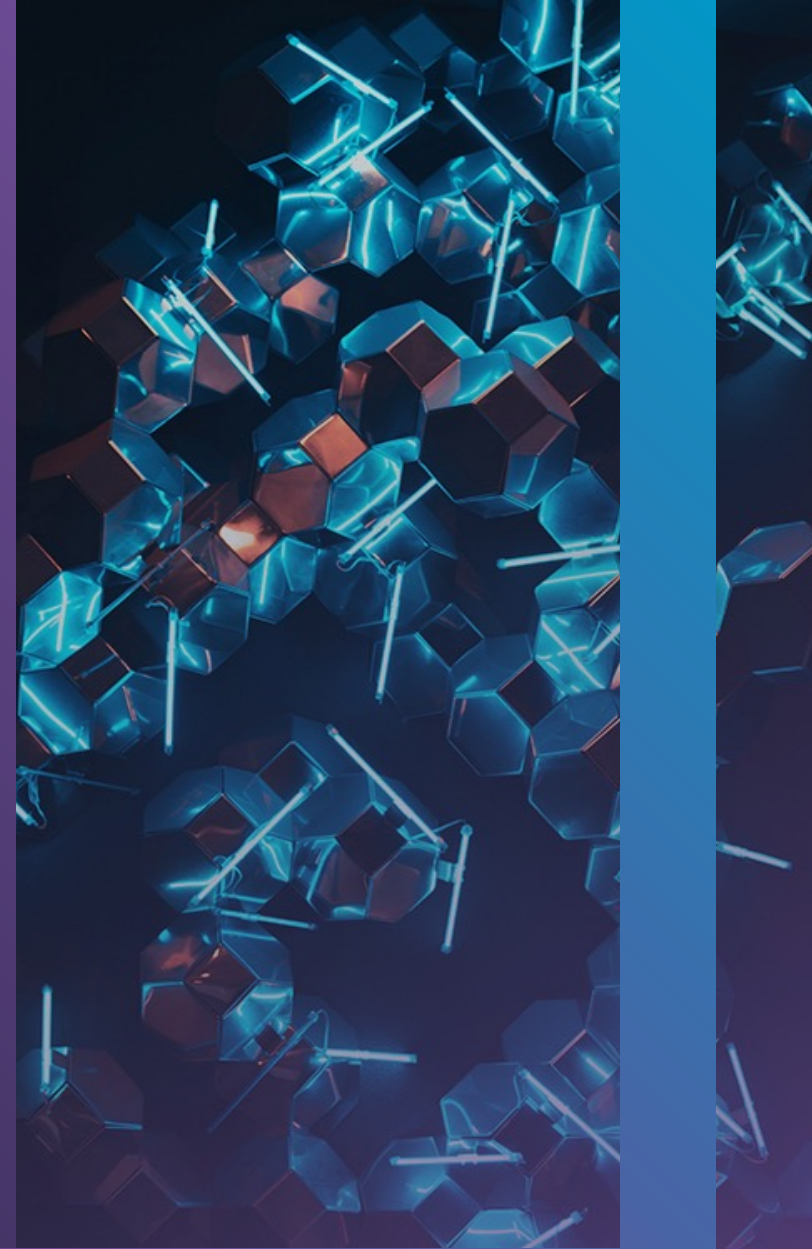
Business Introduction

- Business Opportunity: *Accelerate pace of deploying database changes to drive business agility.*
- Primary Use Case: *Empower developers to self-provision Db2 objects and deploy schema changes directly from their IDE.*
- Problem Solved: *Eliminate manual and time-intensive processes and service tickets that cause 1–3 day delays in provisioning.*





Context, Challenges and Solutions



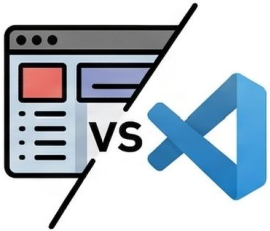
Meet Michelle – Our New Z Developer



Michele's Challenges



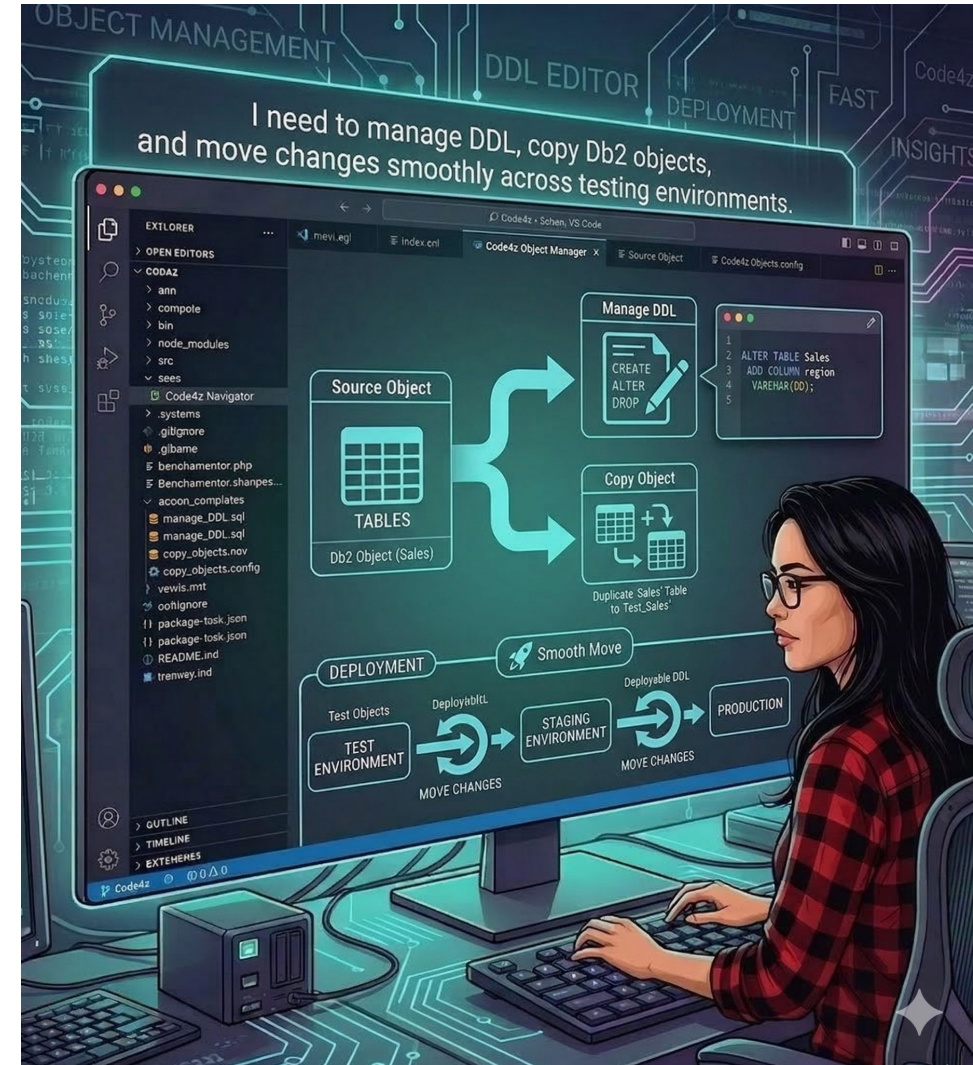
New developers are **unfamiliar** and uncomfortable with traditional mainframe UIs



Preference for **modern**, intuitive environments, like **VS Code**



Database management processes are often **manual**, slow, and error-prone

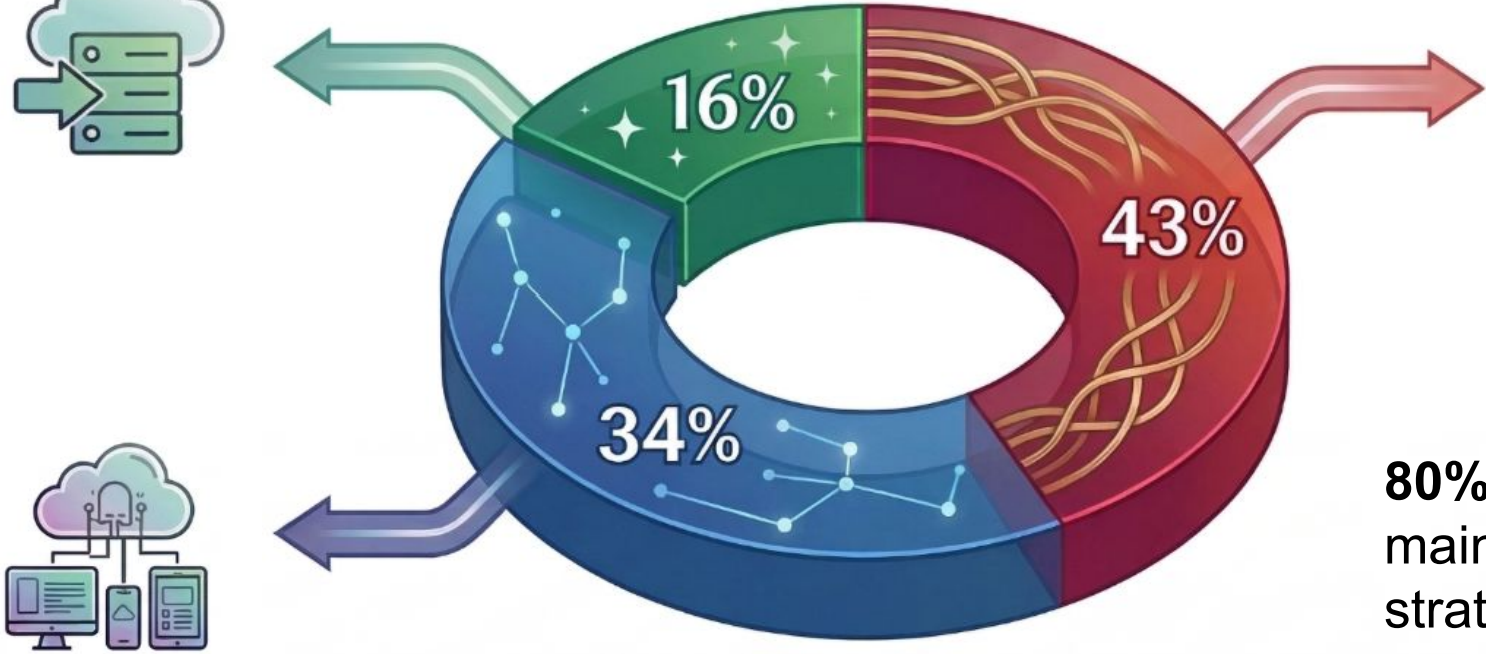


Modernization as an Approach

Moving more applications off the mainframe



Modernizing on the mainframe more



80% have shifted their mainframe modernization strategy in the past year

Integrating more with the cloud

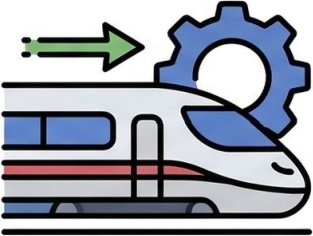
<https://www.kyndryl.com/content/dam/kyndrylprogram/doc/en/2025/mainframe-modernization-report.pdf>



Modernization Objectives



Enable **modern development experience** when working with mainframe databases



Improve **speed, accuracy, and automation** of deploying database application changes



Increase developer **productivity** and onboarding **efficiency**



Code4z: Market-leading DevX for z/OS applications



The Developers LOVE: Code4z

The image shows a laptop displaying the Visual Studio Code IDE interface. The interface is annotated with several callouts pointing to specific features:

- Git Ready**: Points to the Explorer sidebar showing a project structure.
- Endeavor & Zowe Explorers**: Points to the Explorer sidebar showing project folders like 'ZOWE DATA SETS' and 'ZOWE WORKSHOP'.
- Extension Library**: Points to the Explorer sidebar showing installed extensions like 'package.json', 'compileLink', 'deployToTest', and 'jestDevTest'.
- Script Libraries (e.g., NPM)**: Points to the Explorer sidebar showing installed extensions.
- Monolith Navigation**: Points to a navigation pane on the right side of the editor showing a tree view of code elements.
- 20 Million VS Code Users!**: Points to the main editor area.
- Desktop or Browser**: Points to the main editor area.
- Terminal Commands w/ Zowe CLI Plug-ins**: Points to the terminal window at the bottom of the IDE.
- Intellisense, etc. w/ z languages**: Points to the code editor showing COBOL code with syntax highlighting and suggestions.
- Eliminates slow paging; jump anywhere**: Points to the main editor area.



Code4z Ecosystem



Future

Access and Learn

- Zowe Explorer
- Explorer for Endeavor
- Data Editor
- Bridge for Git

Analyze

- App Discovery
- App Activity
- COBOL Control Flow
- Assist

Databases

- DBM-Db2 Schema Mgmt
- Database API Generator

Language Support

- PL/I
- COBOL
- HLASM
- JCL
- GEN
- Easytrieve
- Rexx
- OPS/REXX
- COBOL for IDMS

Testing and Diagnostics

- Unit Test
- Debugger
- Abend Analyzer
- JCL Check

Integrations

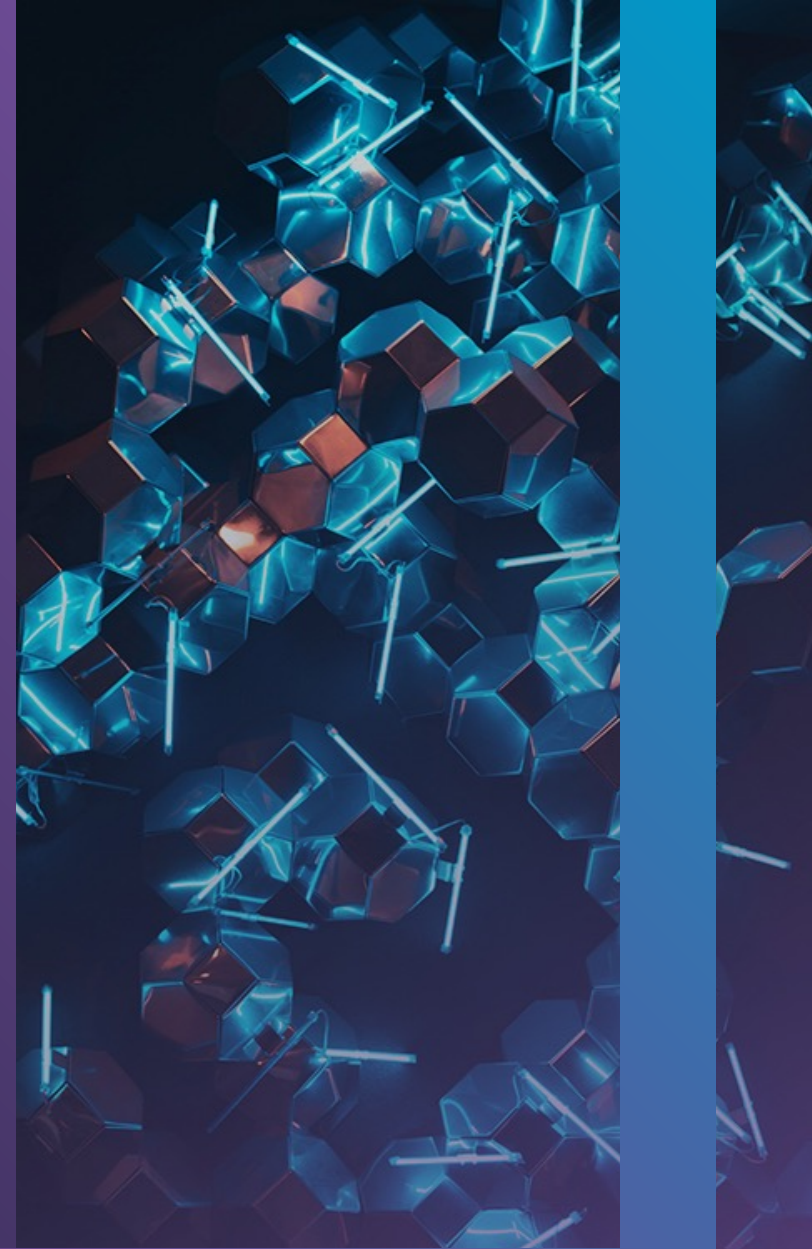
- Hostbridge

Note: Some extensions require Broadcom products running on the Z systems to fully function. Support for the extension is provided via the mainframe product entitlement.





Db2 Schema Management in Code4z



Code4z DBM-Db2 Schema Management



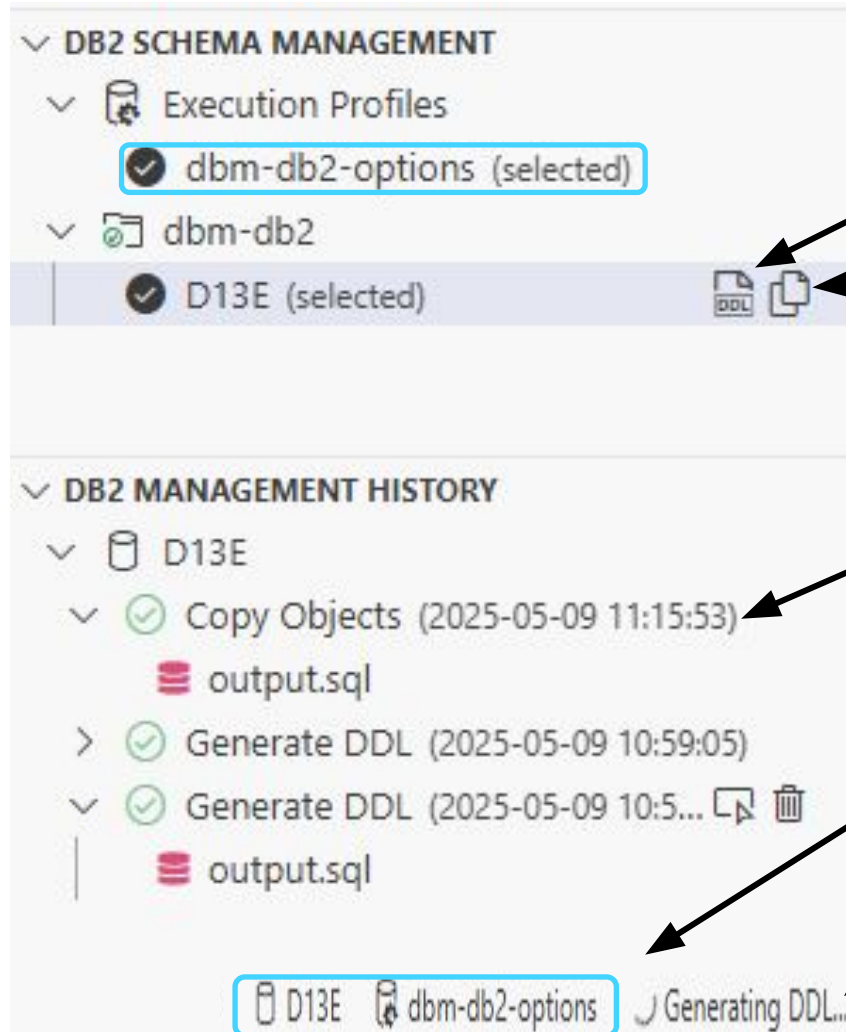
- *Database Management for Db2 z/OS (DBM-Db2) VS Code extension empowers developers and DBAs to self-provision Db2 objects, make and deploy schema changes directly from VS Code, driving the entire development process without switching tools.*
- *Prerequisites*
 - *Before you install the DBM-Db2 extension, ensure that the following components are configured and running on the mainframe:*
 - *RC/Migrator and RC/Compare Version 20.0 that is current on maintenance*
 - *DBM Data Service (REST API service)*
 - *Supports Zowe Explore v3 and above*

Additional Notes:

- Zowe Explorer not required – VS Code Explore would be used if not installed
- Zowe CLI or DBM CLI not required in client environment
- Will create .zowe directory if zowe not installed on client



Code4z DBM-Db2 extension features



- **Db2 Schema Management View**

- **Generate DDL** - Guides you through the process of generating DDL statements for a selected Db2 object and its dependencies.
- **Copy Objects** - Guides you through the process of copying objects and their data using easy-to-follow menus.
 - **Note:** Behavior of the Generate DDL and Copy Objects operations can be customized using Execution Profiles.
- **Db2 Management History View** - Shows completed DBM-Db2 operations, including execution details, input files, and output files.
 - To save a file to a custom location, right-click it and select Save As.
- **Status Bar** - Shows the selected Db2 subsystem, active execution profile, and any operation in progress.
 - Click a subsystem name or profile to navigate to the related profile selection in the Db2 Schema Management view.



DBM-Db2 extension features

The screenshot displays the Zowe Explorer interface with the DB2 Schema Management section expanded. The 'dbm-db2-prd' subsystem is selected, and a context menu is open over a SQL file. The menu includes the following options:

- Submit as JCL
- Add File to Chat
- Explain
- Generate Code
- Share
- Analyze DDL
- Check DDL Syntax
- Check DDL Execution
- Deploy DDL
- Copy (Ctrl+C)
- Command Palette... (Ctrl+Shift+P)

The background code editor shows the following SQL DDL:

```

1
2  -- RMA238W T
3  -- REF
4
5  -- RMA448W T
6  -- TAB
7
8  -- *****
9  -- *
10 -- * TABLE C
11 -- *
12 -- *****
13
14 -- PROD006.ORDERLINES WILL BE CREATED VIA THESE NATIVE DB2 COMMANDS.
15
16
17 CREATE TABLE PROD006.ORDERLINES
18 (
19   ("ORDER" INTEGER NOT NULL
20   WITH DEFAULT
21   , ORDER_LINE SMALLINT NOT NULL
22   WITH DEFAULT
23   , AMOUNT INTEGER NOT NULL
24   WITH DEFAULT
25   , ORDER_STATUS CHAR (2) NOT NULL
26   WITH DEFAULT
27   )
28 IN DBDEV06.TS01EX4
29 CCSID EBCDIC
30 ;
31
  
```






The 'DB2 MANAGEMENT HISTORY' section shows a list of actions, with 'output.sql' selected and an arrow pointing to it.

Context commands are available for execution against an SQL file listed in Explorer or opened in the Editor:

- **Analyze DDL** - Analyzes the SQL DDL file and displays an analysis view that groups DROP, CREATE, and ALTER statements by Db2 object type.
 - **Check DDL Syntax** - Checks if the DDL syntax is valid.
 - **Check DDL Execution** - Verifies that the primary objects to be created do not exist on the target Db2 and that all required related objects exist on the target Db2 or in the DDL.
 - **Deploy DDL** - Applies DDL schema changes from the input file to objects on a target Db2.
- **Note:** Behavior of the Deploy DDL can be customized using Execution Profiles.



...Empower Developers and Free Up DBA Time

	Traditional	Modern		
Personas & Skills	<p>Roger Traditional DBA</p> 	<p>Rob Traditional MF Developer</p> 	<p>Dave New Z DBA</p> 	<p>Michelle New Z MF developer</p> 
Business Agility	<p>Slow pace of code and database changes</p>	<p>CI/CD</p> 	<p>On-demand changes</p>	
Technology	<p>MF traditional tools & service tickets: Manual time-intensive process</p>	<p>DevOps tools (IDE, Zowe CLI plug-in, Jenkins): Automated expedited process</p>		
Provisioning Time	<p>1 – 3 days</p>	<p>5 mins</p>		

...for faster time to value



A very common use case

- Developer needs to implement a new function
 - Requires a program change
 - Adding a new column to an existing table
 - Test code against new version of the table
- Using Code4z DBM-Db2 Schema Mgmt. from your Zowe Explorer session.
 - Provision an object with data from the integration environment to development environment.
 - **Copy Objects**
 - Add a column to table in development environment
 - **Generate DDL | Check DDL Syntax**
 - Deploy object change
 - **Deploy DDL**

Michelle
New z developer



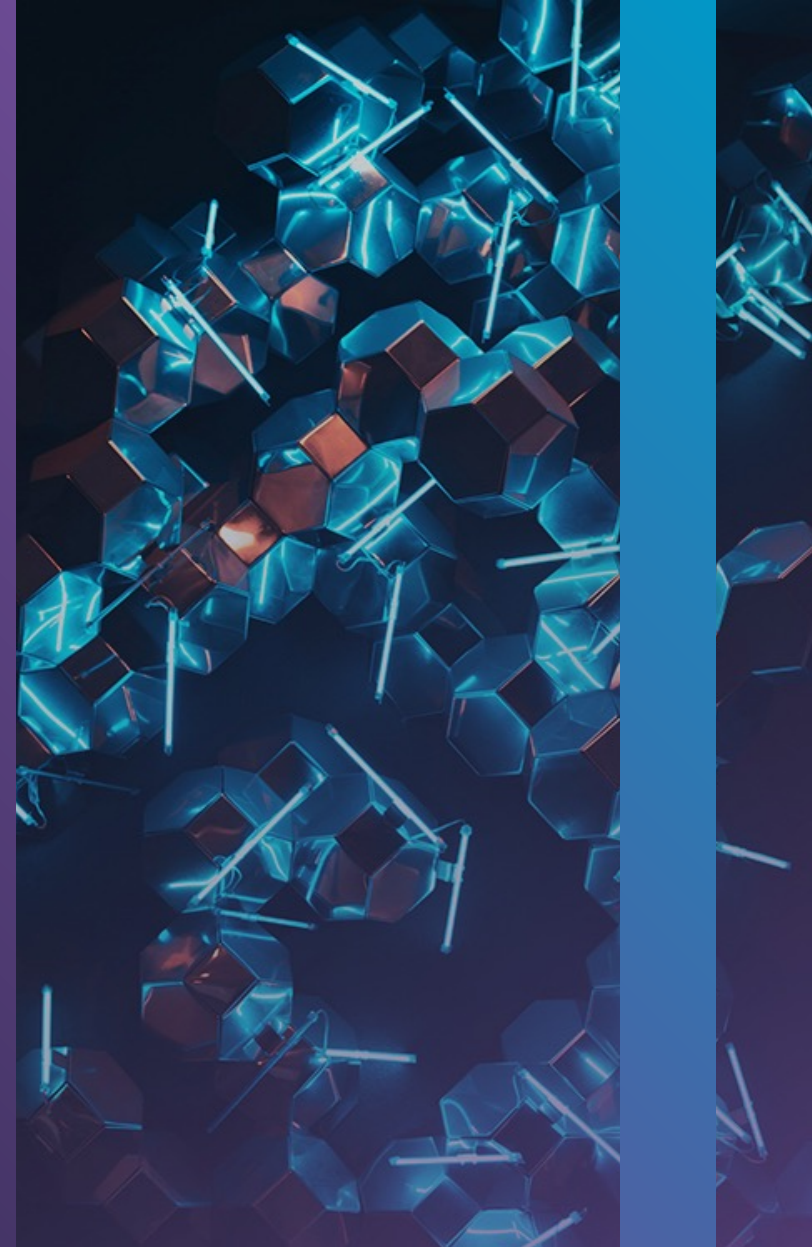
Roger
Traditional DBA



Demonstration




Supercharging Your Pipelines with Zowe DBM-Db2 CLI Plugin



Zowe DBM-Db2 CLI plugin

Orchestrate Db2 schema management from anywhere

@broadcom/dbm-db2-for-zowe-cli 

3.0.0 • Public • Published a month ago

 [Readme](#)

 [Code](#) Beta

DBM for Db2 Plug-in for Zowe CLI

```
Z/OS CONSOLE  DBM-DB2  TERMINAL  OUTPUT  PORTS  PROBLEMS  DEBUG CONSOLE
● PS C:\Projects\zowe_dbm> zowe dbm-db2 --help

DESCRIPTION
-----

DBM-Db2 plug-in to interact with Db2 using the Broadcom Database Management
Solutions for Db2 for z/OS.

For details about command usage for automation, see DBM-Db2 samples at
https://github.com/BroadcomMFD/dbm-db2-for-zowe-cli

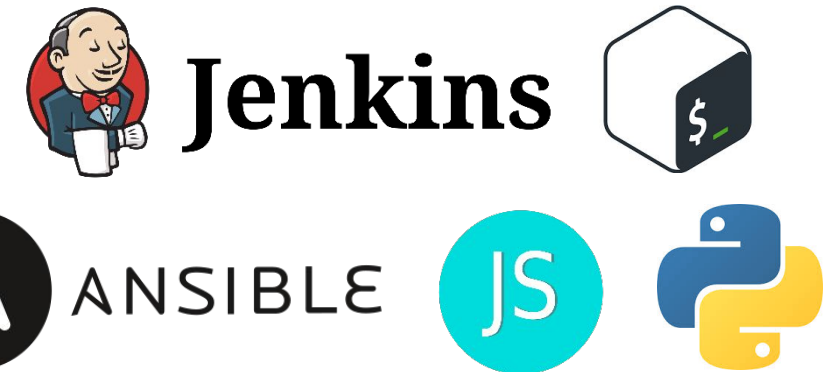
USAGE
-----

zowe dbm-db2 <group>

Where <group> is one of the following:

GROUPS
-----

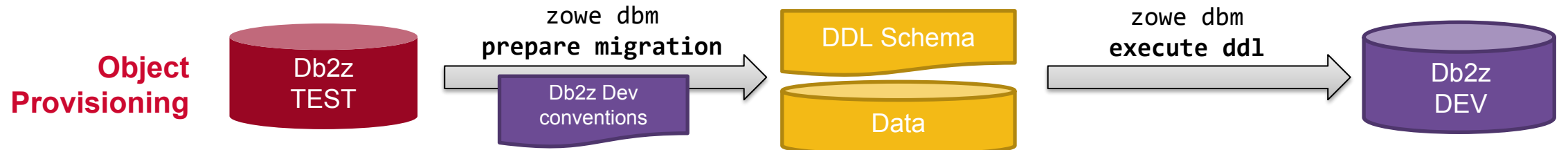
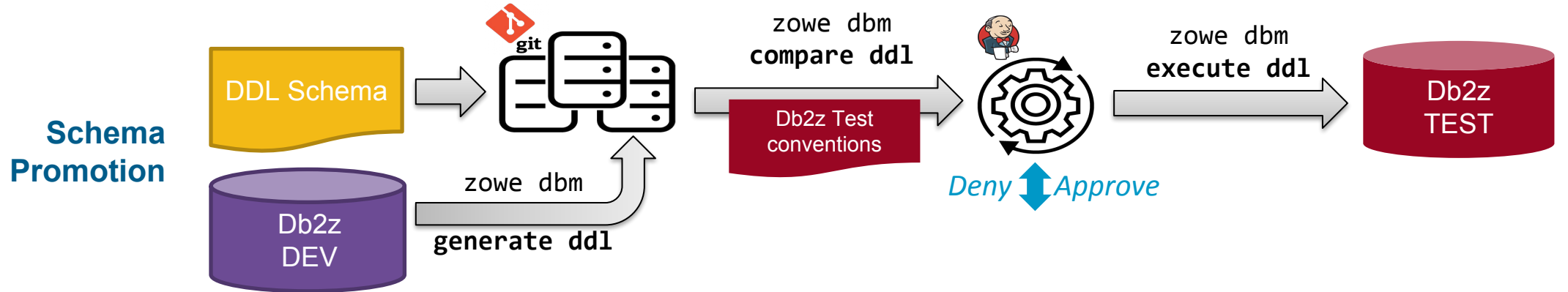
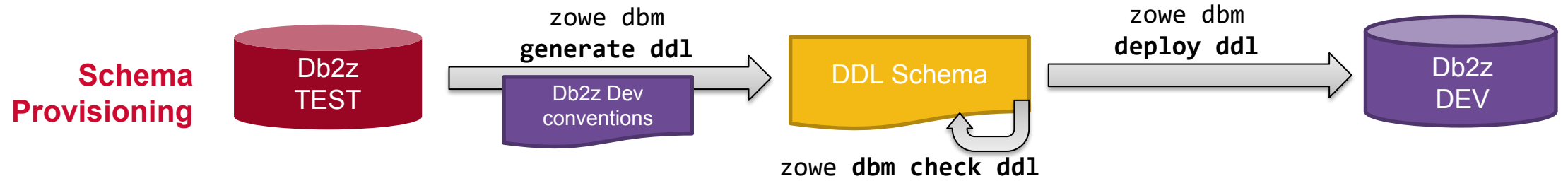
check      Perform DDL syntax checking.
compare    Compare DDL with a Db2 subsystem and produce an update script to
           implement changes.
deploy     Deploy DDL statements to a Db2 subsystem.
execute    Execute a script to implement Db2 object changes.
generate   Generate DDL statements for Db2 objects.
prepare    Prepare DDL statements and a script to migrate Db2 objects.
```



“ An easy way to build Db2 for z/OS self-services for DBAs and developers at scale ”



Automation Scenarios with DBM-Db2 CLI



Putting it Together in the DevOps Workflow

Broadcom DevOps – Database Changes

Dev



Michelle
Next Gen z
Developer

Access & Learn
Self-service provisioning & deployment of Db2 schema

Navigate & Edit
Db2 schema changes in support of application changes

Re-provision & Re-deploy
Restore and refresh data

Test & Evaluate

Test



Dave
Next Gen z DBA

Build & Test

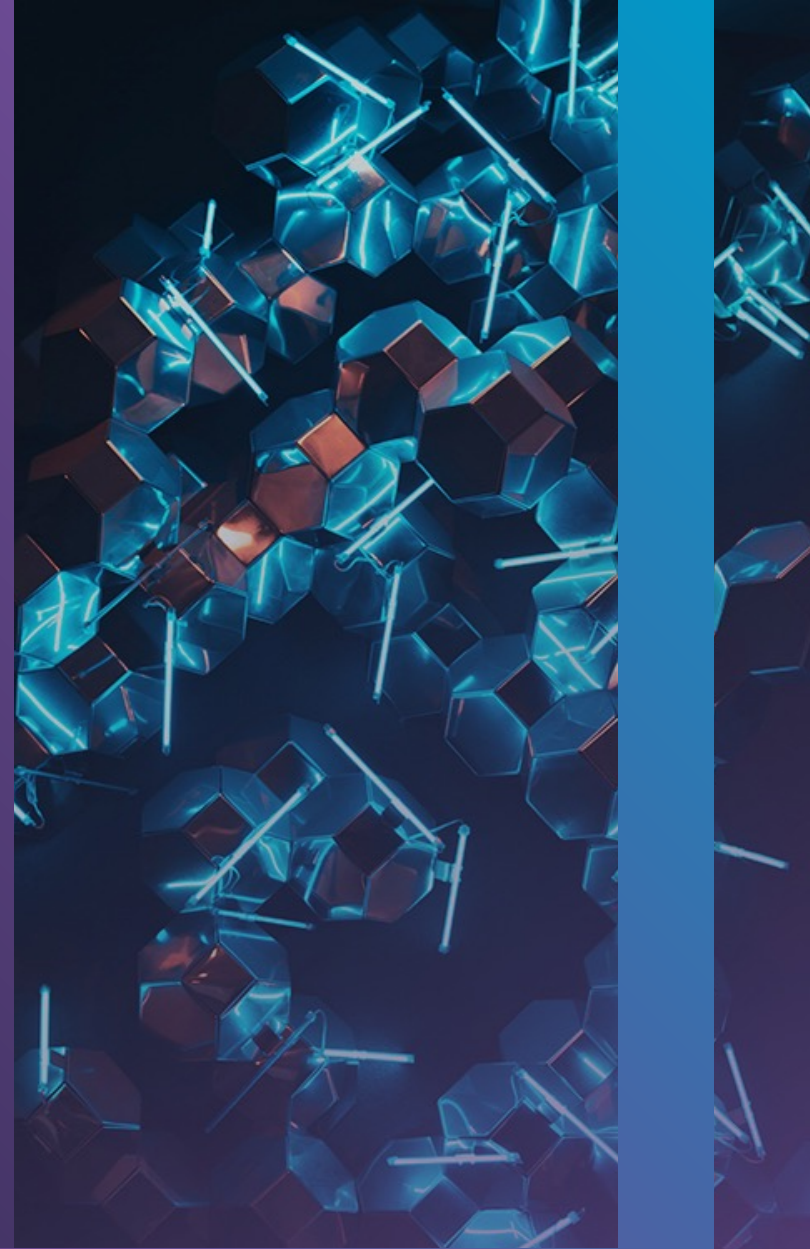
Quality checks
Enforce database & deployment standards enforcement

Deploy





Closing Notes



What's Planned for VSCode & CLI?

Run SQL in VSCode and CLI



Analyze DDL in CLI for Conformance Checking



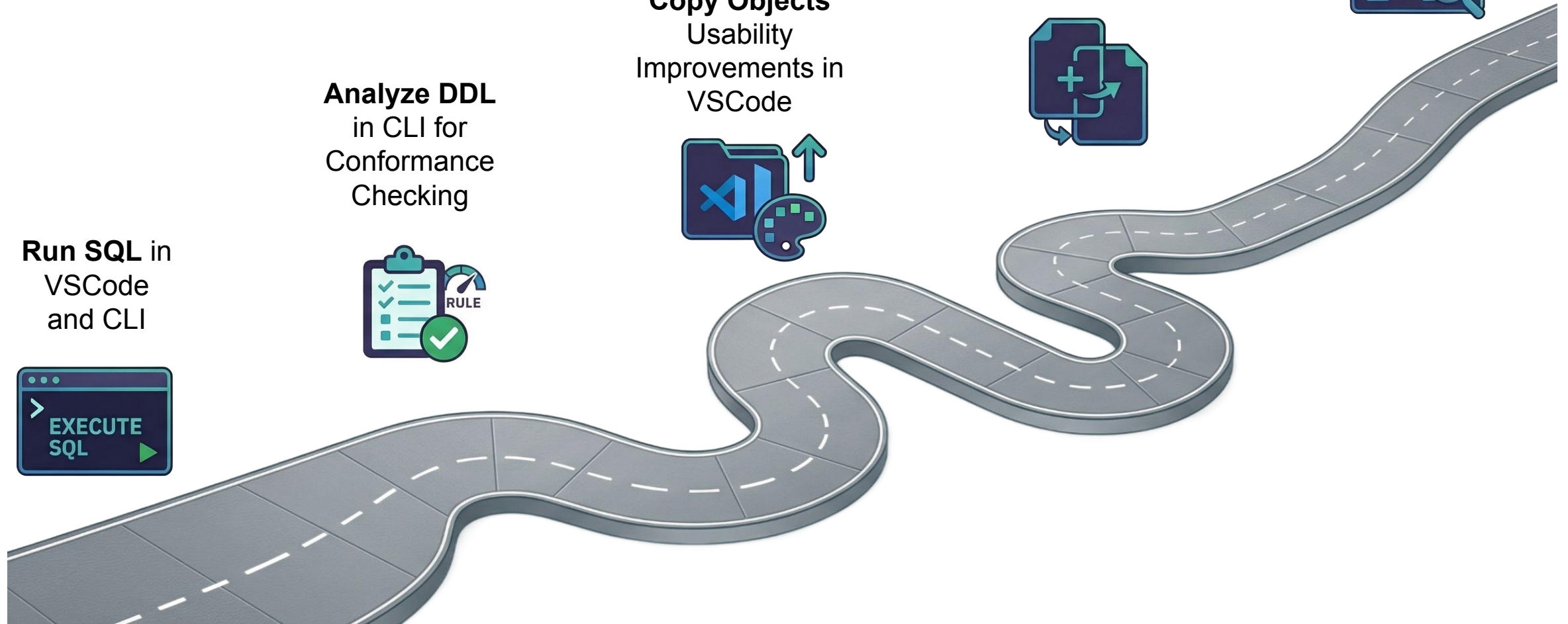
Styling and Copy Objects Usability Improvements in VSCode



Compare DDL in VSCode



Visual Explain in VSCode



Technical Education Direct from the Experts

In-Person

European MTE
Prague, Czech Republic
Apr. 21-23, 2026

Virtual

Virtual MTE
Held Virtually
June 23-25, 2026

In-Person

North American MTE
Plano, TX
Oct. 20-22, 2026

Join a Mainframe Technical Exchange

- Network with peers and Mainframe technical experts
- Participate in technical how-to sessions and hands-on workshops, hear product updates, provide feedback
- No registration fee!



"The event covered all the relevant topics, and the content was amazing. The hands-on experience was also a good way to get actual experience with the tools."

Senthil Mathur, Manager, Accenture



Thank You