

# BC117s1: 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.



# Forrester Mainframe Application Developers Study



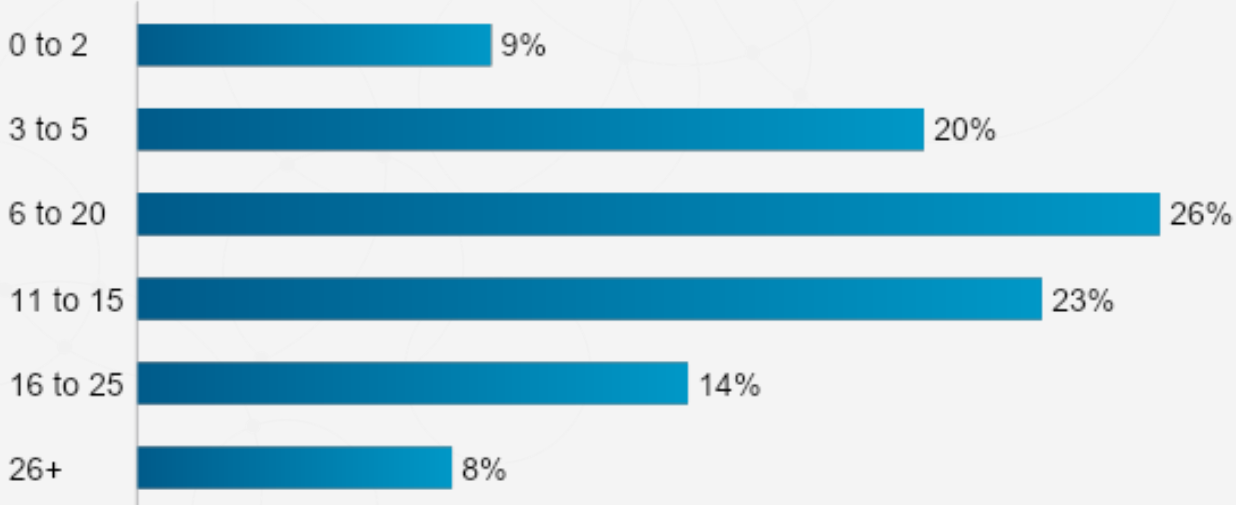
Download Report: [mainframe.broadcom.com/devops/devsurvey](https://mainframe.broadcom.com/devops/devsurvey)



# 838

z/OS application developers participated in the survey

## Mainframe Experience (years)



# Findings

## Experience Tipping Point

**56%**  
have professional experience on other platforms



**#1**  
productivity barrier:  
Outdated tools & frameworks

## Limited Time Spent Coding

More time spent  
**coding**  
than any other activity



It's only  
**16%**  
of their time.

Benchmarks in 25% range

## Comprehension is Difficult

1 in 3 say their  
**average**  
app is > 5M LoC



**3+ days**  
to understand where to make code changes



# Study Recommendations



Prioritize the **z Developer Experience**



Adopt **hybrid development** tools and practices



**Automate** while staying connected to key **AI** initiatives





## Michelle

### New z Developer

To be successful working on COBOL  
I need to be able to **analyze and  
understand** the code base.

I also need to be able to  
**test new and changed** COBOL code.  
Specific test recommendations are  
valuable to me.



# Code4z

## Code with Confidence

Market-leading DevX built on VS Code, the IDE developers know and love

**Reduces friction** and keeps developers in the flow state, driving velocity, quality and agility

**Streamlines** critical developer workflows:

- Extensive Z language support with integrations to Endeavor and Git
- Improved quality with seamless debugging, unit testing, and abend analysis
- Rapid development of hybrid integrations to meet business demands

**Fosters collaboration** across mainframe and distributed teams

**Breadth and depth of extensions** spanning roles and functions



**"The adoption of Code4z is growing naturally. Developers are coding much faster with Code4z than with 3270 or plain CLI. They are not only developing in VS Code, but also building automation there."**

~ Development Manager



# The Experience Developers LOVE: Code4z

Git Ready

Endevor & Zowe Explorers

Extension Library

Script Libraries (e.g., NPM)

Monolith Navigation

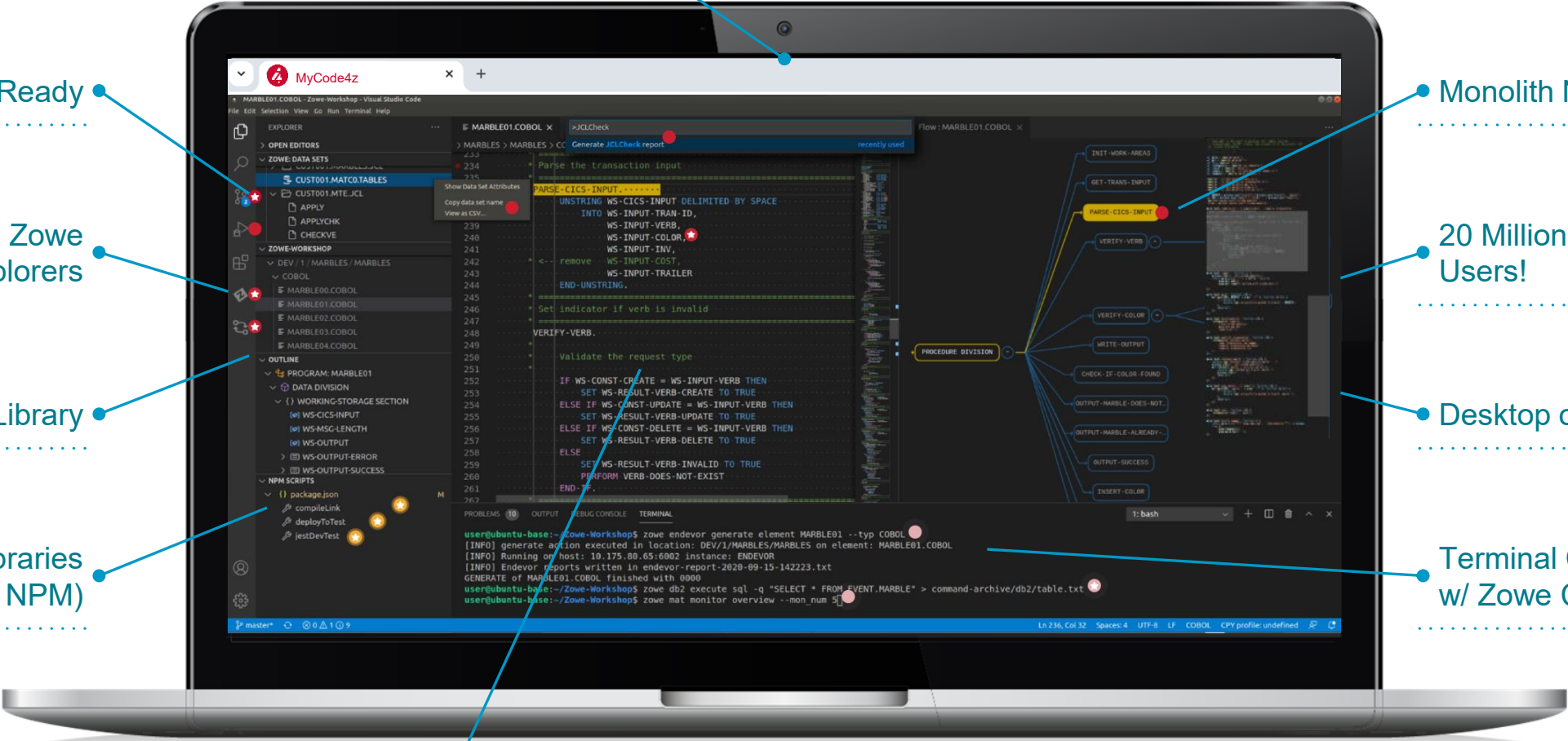
20 Million VS Code Users!

Desktop or Browser

Terminal Commands w/ Zowe CLI Plug-ins

Intellisense, etc. w/ z languages

Eliminates slow paging; jump anywhere



## DevX for Z

### Access and Learn



Zowe Explorer



Explorer for Endeavor



Data Editor



Bridge for Git

### Analyze



App Discovery



App Activity



COBOL Control Flow



Assist

### Testing and Diagnostics



Debugger



Abend Analyzer



JCL Check

### Language Support



PL/I



COBOL



HLASM



JCL



GEN



Easytrieve



Rexx



OPS/REXX



COBOL for IDMS

### Databases



DBM-Db2 Schema Mgmt



Database API Generator

### Integrations



Hostbridge

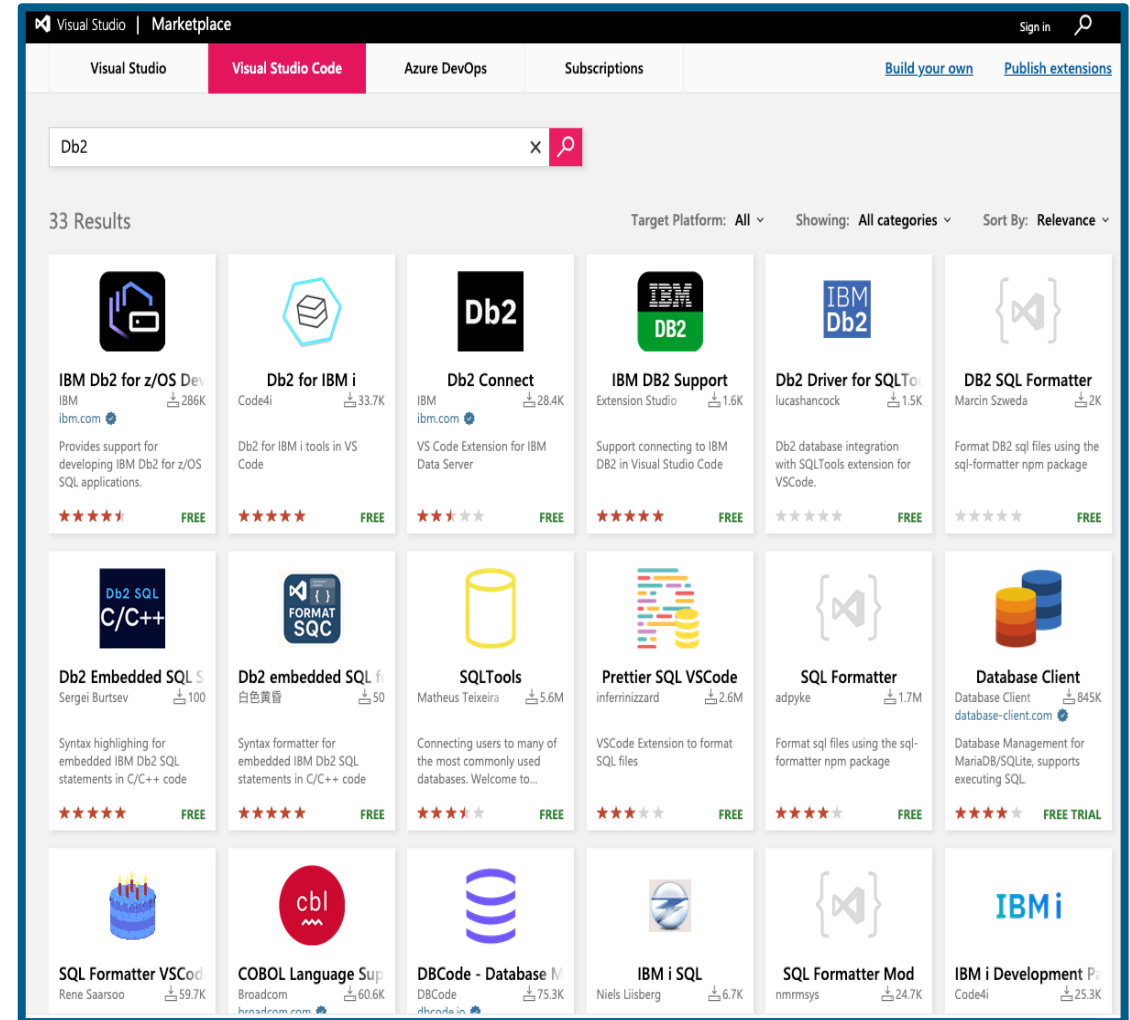
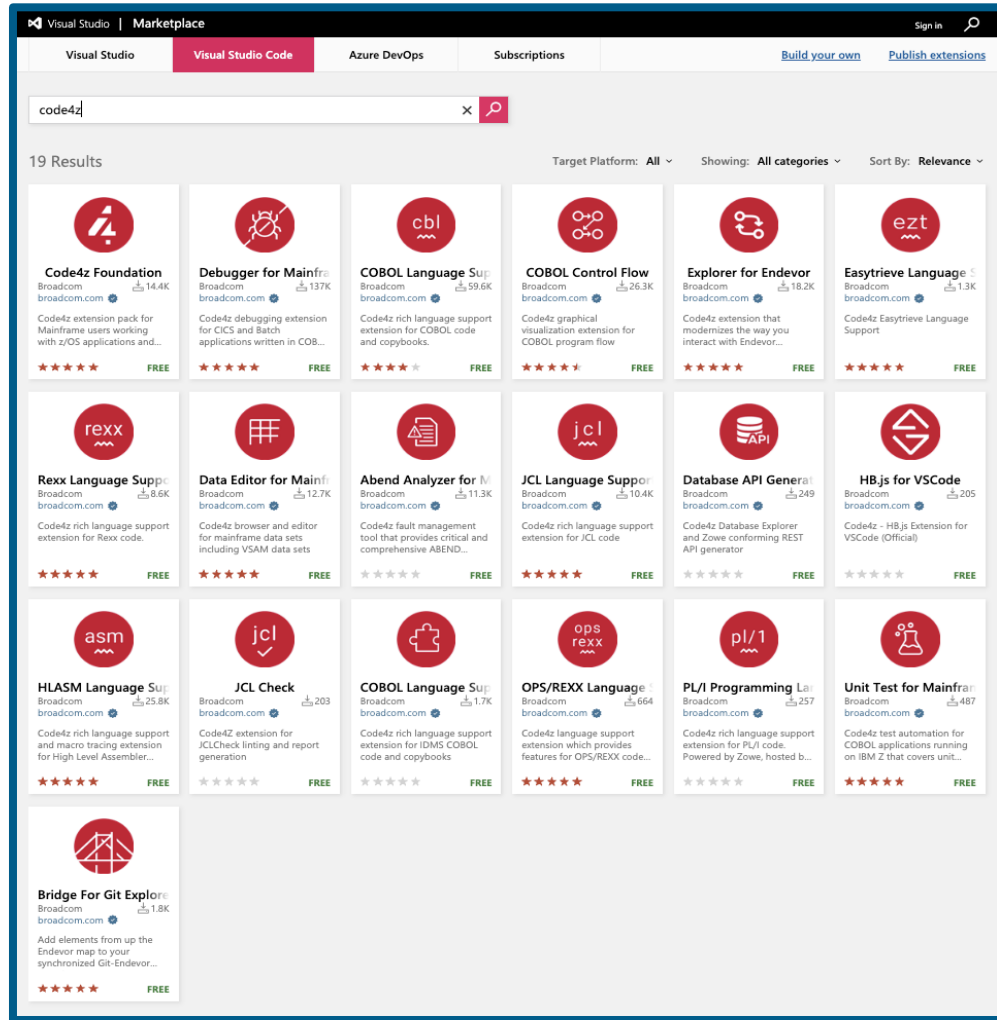


# Self-Service Schema Provisioning and Automation...

The screenshot displays a database management tool interface with a dark theme. On the left, a 'ZOWE EXPLORER' sidebar shows a tree view under 'DB2 SCHEMA MANAGEMENT' with 'DEV-Instance' expanded to show 'DBN1 (selected)', 'DBN2', and 'DBN3'. Below this is 'DB2 MANAGEMENT HISTORY' with 'DBN1' expanded to show 'Check DDL Syntax (2025-...)'. A red callout box labeled 'Db2 subsystems and Execution profiles' points to the DBN1 entry. The main editor shows a SQL script in 'SCHEMA.sql' with a 'CREATE TABLE BIZAPP.ACCOUNTSTATS' statement. A red callout box labeled 'Generate DDL and Copy Objects' points to the script. A context menu is open over the script, listing actions like 'Submit as JCL', 'Add Selection to Chat', 'Copilot', 'Change All Occurrences', 'Refactor...', 'Analyze DDL', 'Check DDL Syntax', 'Check DDL Execution', 'Deploy DDL', 'Cut', 'Copy', 'Paste', and 'Command Palette...'. A red callout box labeled 'Analyze DDL, Check DDL, and Deploy DDL' points to the 'Deploy DDL' option. At the bottom, a status bar shows 'Ln 27, Col 29 Spaces: 2 UTF-8 LF {} MS SQL'. A red callout box labeled 'History of operations' points to the 'Check DDL Syntax' entry in the history.



# Code4z & Db2 in VS Code Marketplace





*Our HR loves it. We could hire from university people with VS Code knowledge.*

**Dev Tools Modernization Leader  
European Financial Services Institution**



# Code4z DBM-Db2 Schema Management



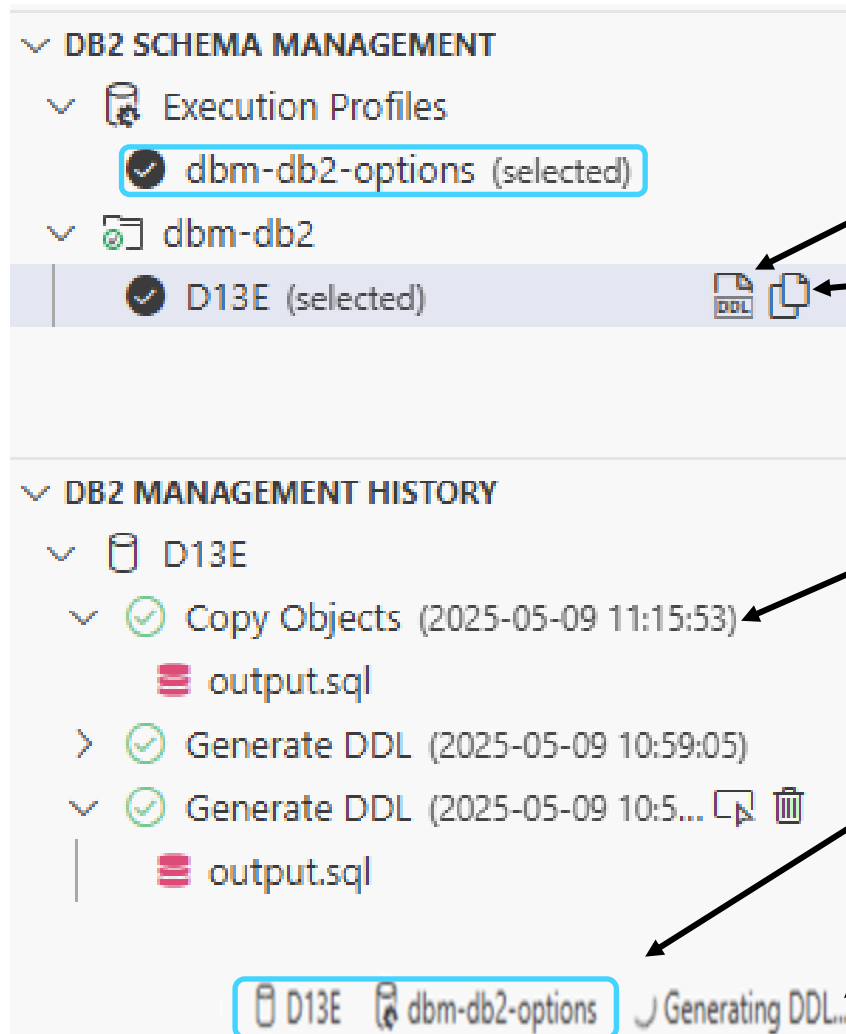
- *Database Management for Db2 z/OS (DBM-Db2) VS Code extension empowers developers and DBAs to self-provision Db2 objects, make and deploy schema changes directly from VS Code, driving the entire development process without switching tools.*
- *Prerequisites*
  - *Before you install the DBM-Db2 extension, 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 named 'ddl.sql'. The menu options include 'Analyze DDL', 'Check DDL Syntax', 'Check DDL Execution', and 'Deploy DDL'. The background shows a code editor with SQL DDL statements for creating a table named 'ORDERLINES'.






```
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
```

**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<br/>Traditional DBA</p>  | <p>Rob<br/>Traditional MF Developer</p>  | <p>Dave<br/>New Z DBA</p>  | <p>Michelle<br/>New Z MF developer</p>  |
| Business Agility  | <p>Slow pace of code and database changes</p>  |   |                            | <p>On-demand changes</p>   |
| Technology        | <p>MF traditional tools &amp; service tickets:<br/>Manual time-intensive process</p>                               |   | <p>DevOps tools (IDE, Zowe CLI plug-in, Jenkins):<br/>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

# 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

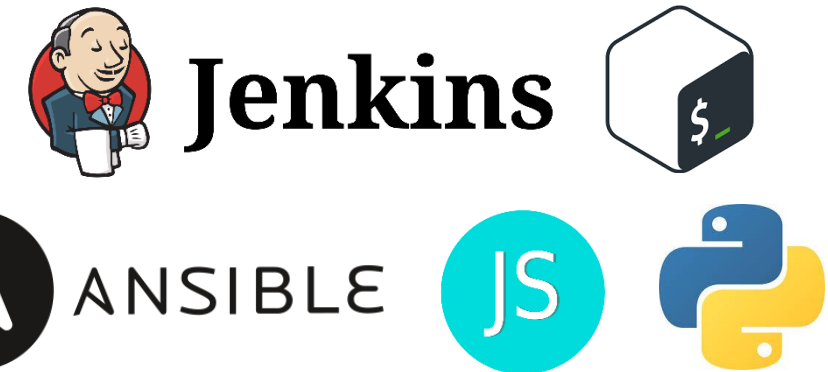
USAGE
-----

zowe dbm-db2 <group>

Where <group> is one of the following:

GROUPS
-----

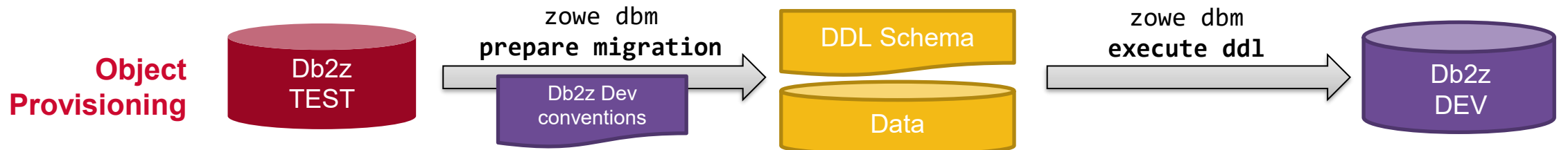
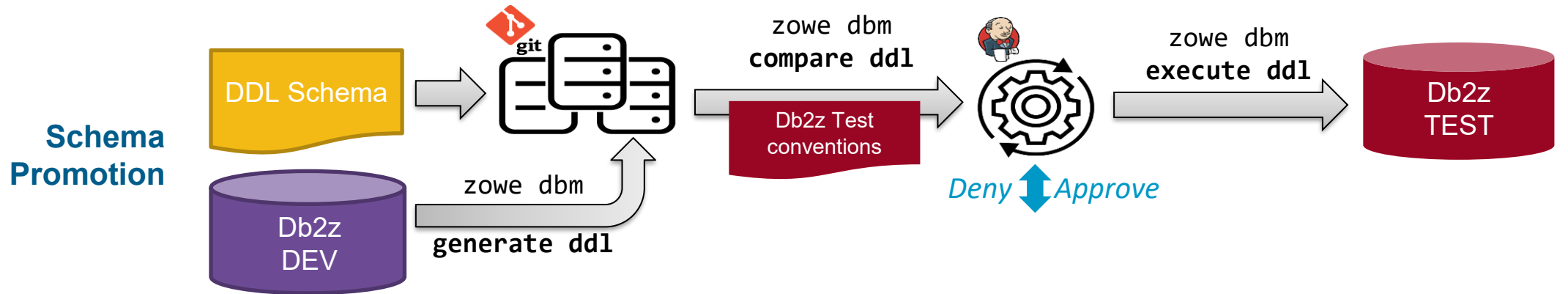
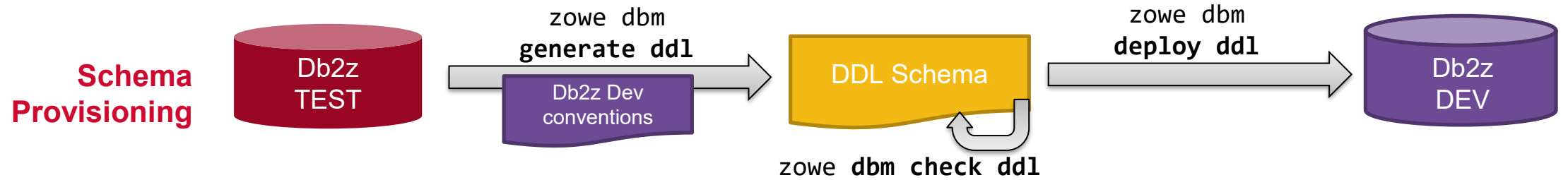
check    Perform DDL syntax checking.
compare  Compare DDL with a Db2 subsystem and produce an update script to
         implement changes.
deploy   Deploy DDL statements to a Db2 subsystem.
execute  Execute a script to implement Db2 object changes.
generate Generate DDL statements for Db2 objects.
prepare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



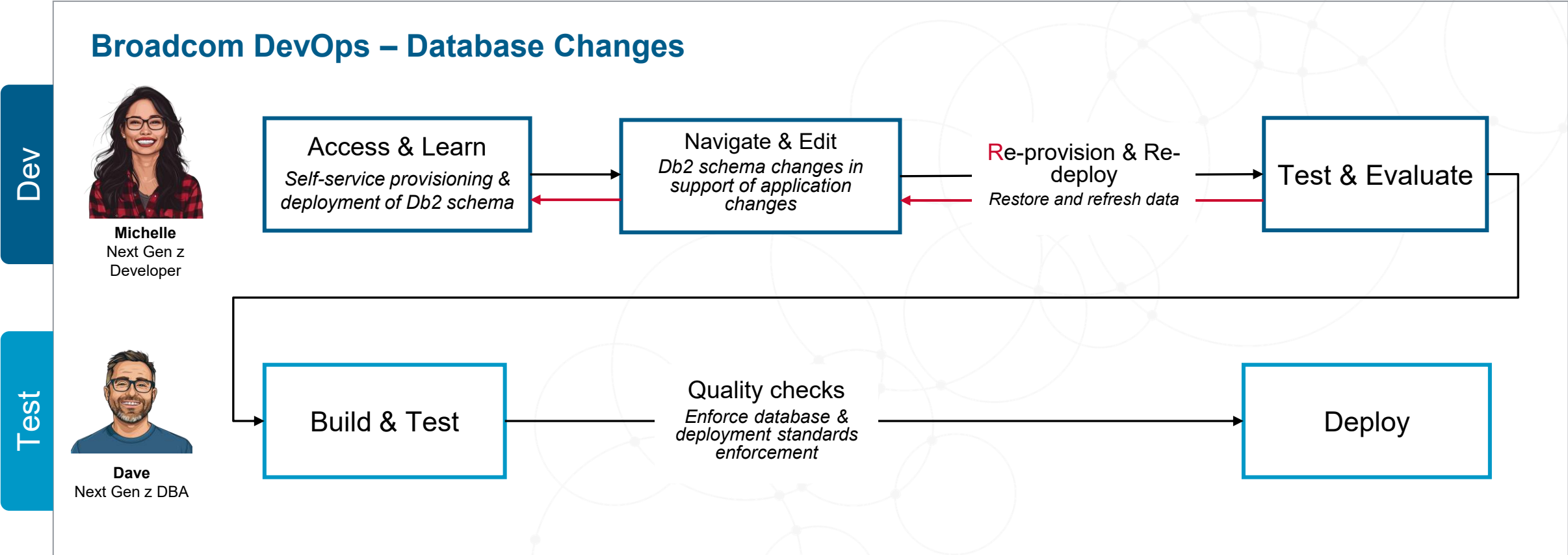
*“ An easy way to build Db2 for z/OS self-services for DBAs and developers at scale ”*



# Automation Scenarios with DBM-Db2 CLI



# Putting it Together in the DevOps Workflow



# Code4z Workshops

Go hands-on with the market-leading DevX

- Target attendees: application developers (all levels), team leads, architects, tooling experts
- Expert facilitation by Broadcom staff
- On-site and/or virtual
- Use VS Code or a compatible CDE (contact us for options)
- Tailored to your operating environment (languages, subsystems, toolchains, etc.)
- Choose individual workshops or combine as needed
- Visit **[code4z.broadcom.com](https://code4z.broadcom.com)**



# 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**



# Your feedback is important!

Submit a session evaluation for each session you attend:

[www.share.org/evaluation](http://www.share.org/evaluation)





# Thank You

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[jim.endler@broadcom.com](mailto:jim.endler@broadcom.com)

