



# PASS 24

## Data Community Summit

### ROUND 4

# **State-based Deployment Automation**

# Overview

## Deployment Automation?

- Why?
- How?
- Build / Deploy
- Publishing Profiles
- Advanced Configuration

Lab: Automatically Deploy your changes

# Why?

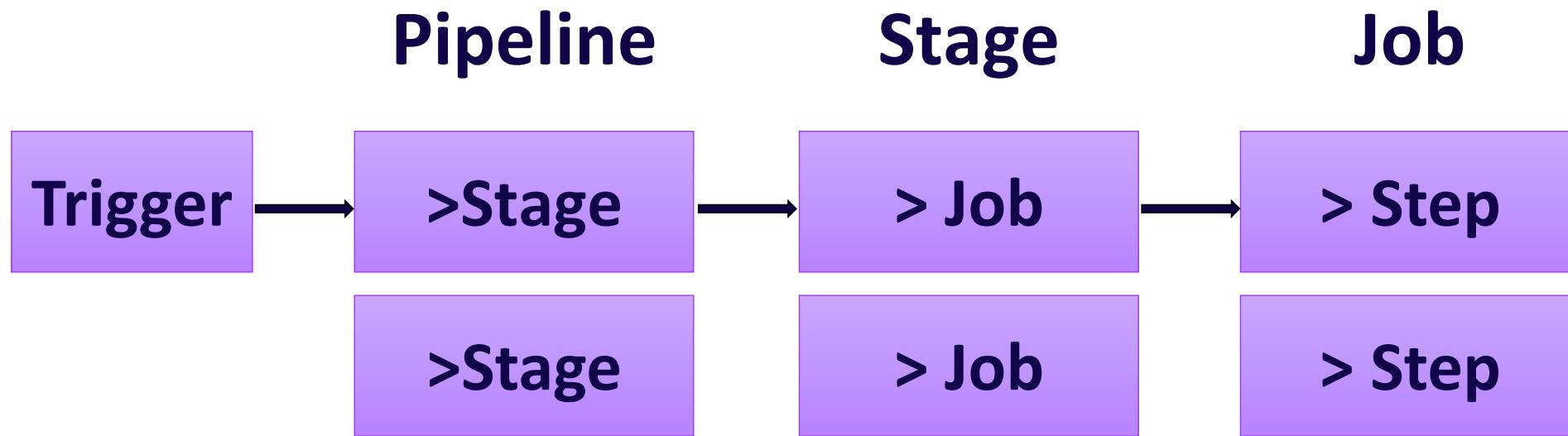
- Less manual work
- Time-saving
- Less room for mistakes/misconfiguration

# Mistakes?

- Wrong Target Database
  - Deploy to PRD by accident
- Publish Settings
  - Dropped all indexes

→ Publishing Profiles!

# Azure DevOps Pipelines – Key Concepts



# Azure DevOps Pipelines Creation

- GUI
- YAML

# Azure DevOps Pipelines Creation

- GUI
- YAML
  - Set of instructions
  - Manage pipelines as code
  - Indent Sensitive

# Azure DevOps Agent

- On-Premise
  - Self-Hosted Agent
- Cloud
  - Hosted Agent

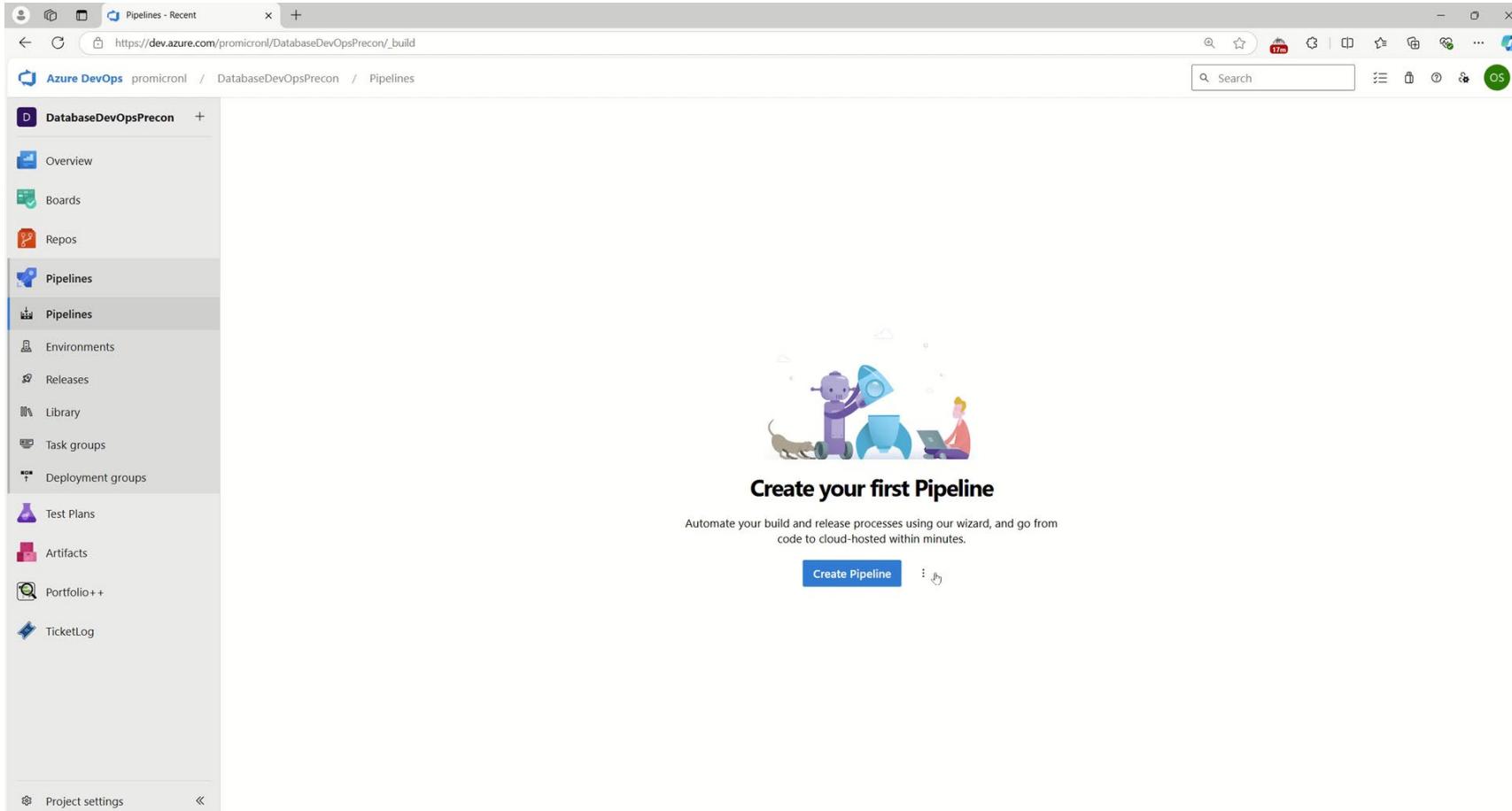
# Azure DevOps Agent – On-Prem

The screenshot shows the Azure DevOps Project Overview page for the project 'DatabaseDevOpsPrecon'. The left sidebar contains navigation links for Overview, Summary, Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, Artifacts, Portfolio++, and TicketLog. The main content area includes sections for 'About this project' (The Database DevOps (CI/CD) Showdown, Languages: SQL), 'Project stats' (Period: Last 7 days), and 'Members' (TH, OS). The 'Project stats' section provides metrics for Boards (0 work items created, 0 completed), Repos (2 pull requests opened, 11 commits by 3 authors), and Pipelines (75% builds succeeded).

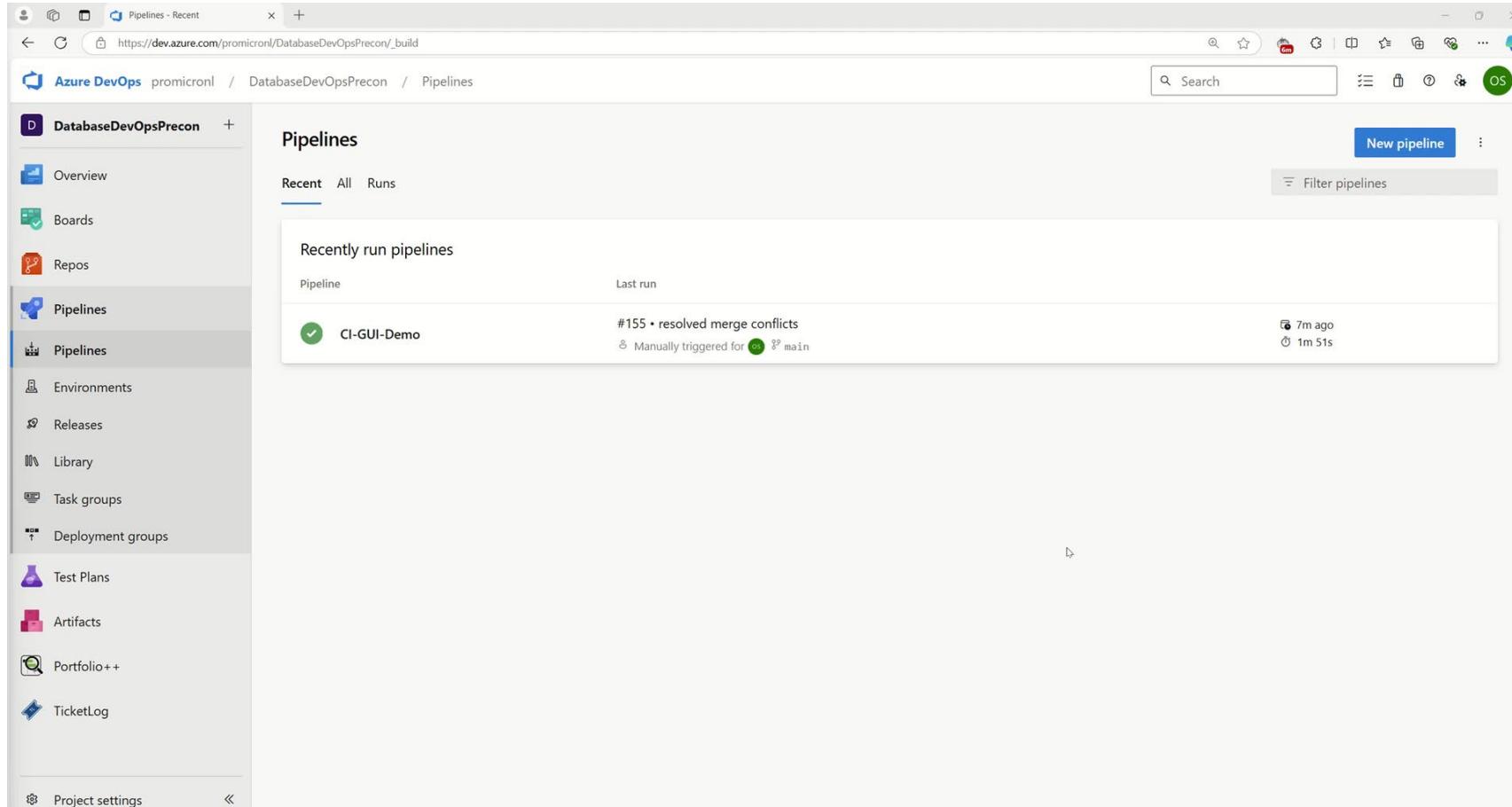
# Azure DevOps Agent – On-Prem

The screenshot shows the Azure DevOps interface for managing an On-Prem agent pool. The left sidebar lists project settings like General, Boards, and Pipelines. The main area is titled 'On-Prem' and shows tabs for Jobs, Agents, Details, Security, Approvals and checks, and Analytics. A prominent message states 'No jobs have run on this agent pool' with a call to action 'Run a pipeline on this agent pool to see more details'. There's also a 'Update all agents' button and a 'New agent' button.

# Classic Build Pipeline



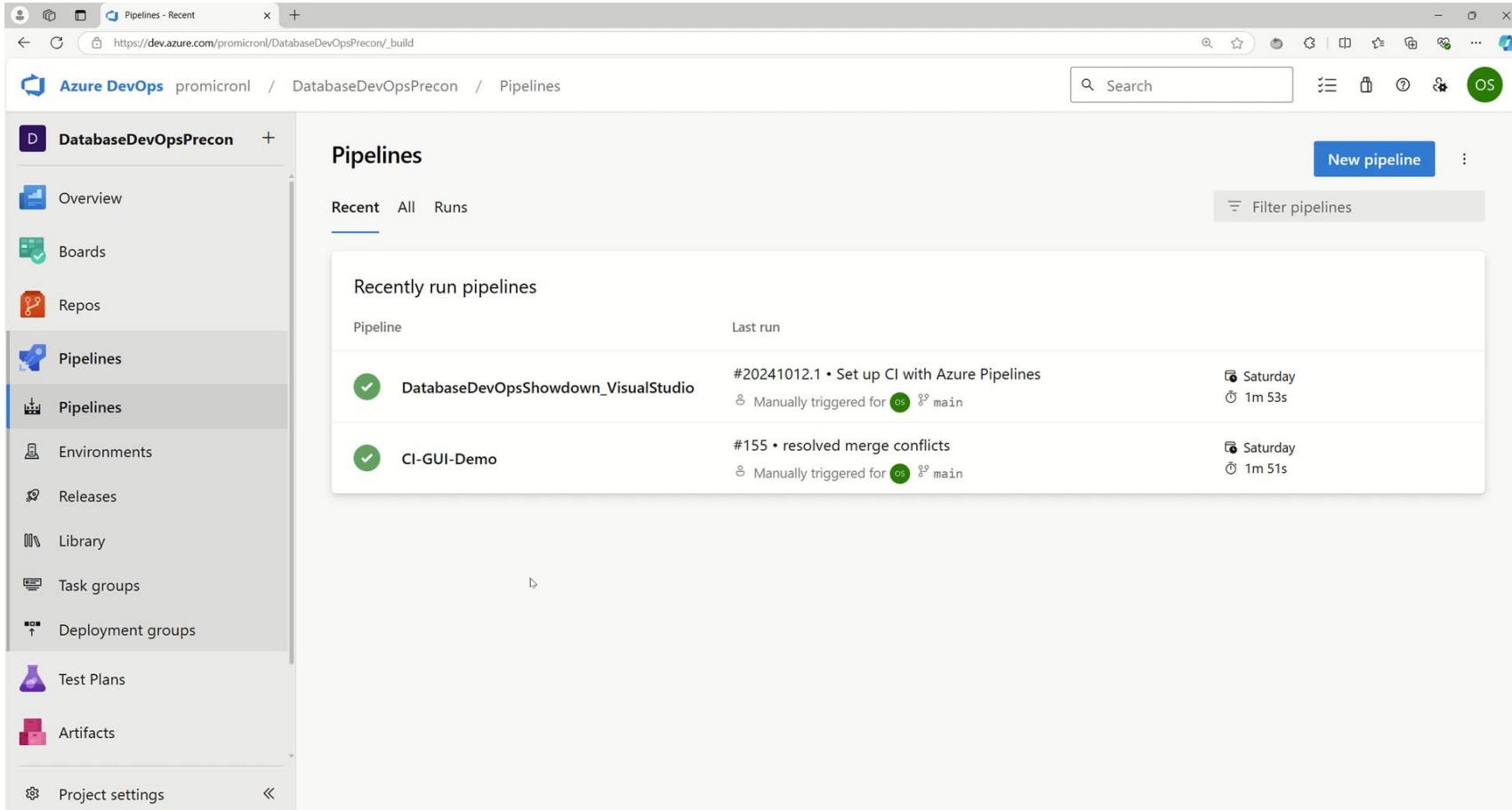
# YAML Build Pipeline



The screenshot shows the Azure DevOps Pipelines interface. On the left, a sidebar menu is open under the project 'DatabaseDevOpsPrecon'. The 'Pipelines' item is selected and highlighted in grey. The main content area is titled 'Pipelines' and shows a table for 'Recently run pipelines'. The table has columns for 'Pipeline' and 'Last run'. One row is visible for the pipeline 'CI-GUI-Demo', which was triggered manually for the branch 'main'. The last run was 7 minutes ago, and it took 1 minute and 51 seconds. The pipeline ID is #155, and it resolved merge conflicts.

Pipeline	Last run
CI-GUI-Demo	#155 • resolved merge conflicts Manually triggered for main 7m ago 1m 51s

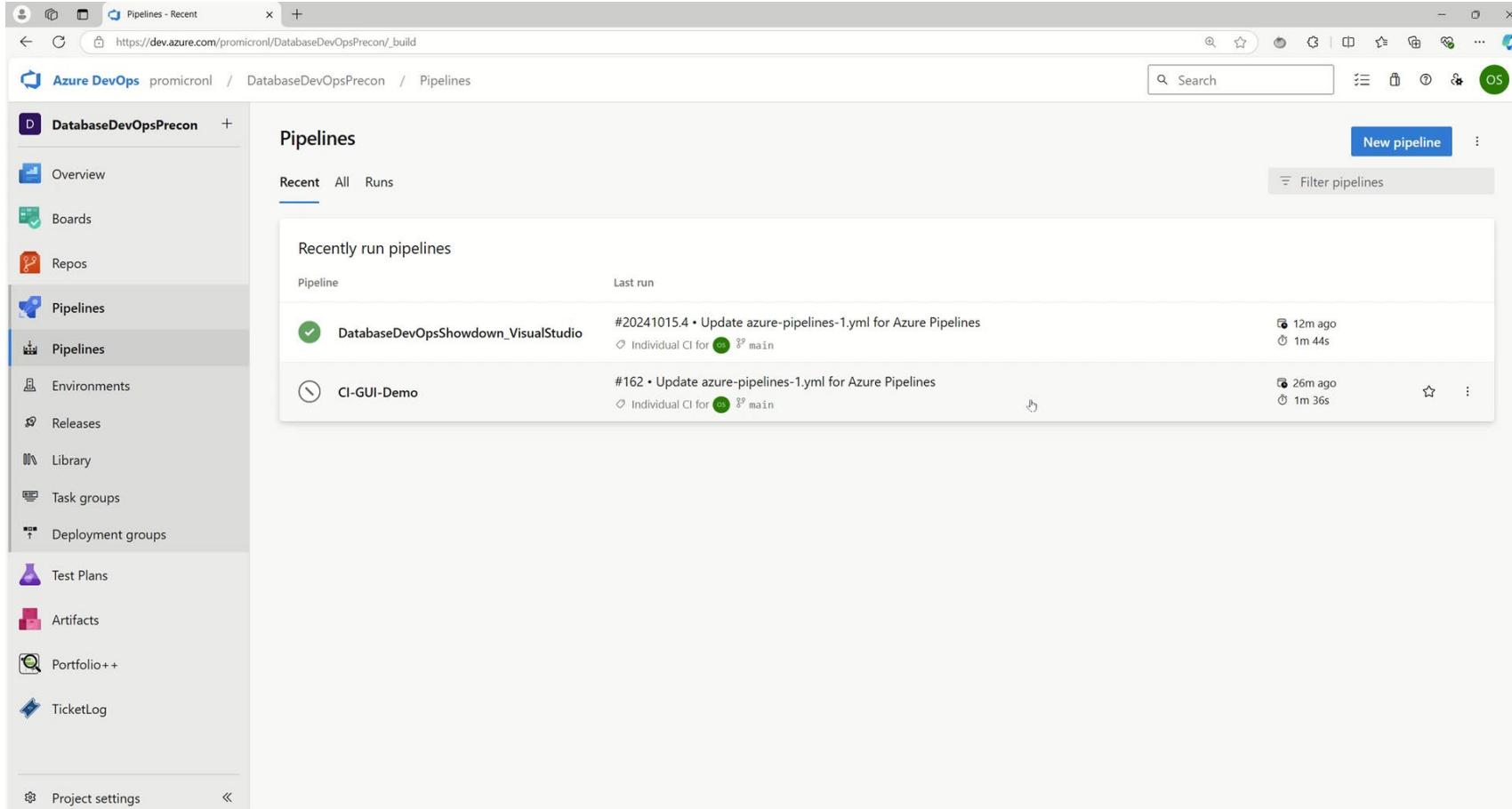
# Classic Deploy Pipeline



The screenshot shows the Azure DevOps Pipelines interface. The left sidebar navigation bar includes links for Overview, Boards, Repos, Pipelines (which is selected), Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main content area displays a table titled "Recently run pipelines". The table has columns for Pipeline, Last run, and a small icon. Two recent runs are listed:

Pipeline	Last run
DatabaseDevOpsShowdown_VisualStudio	#20241012.1 • Set up CI with Azure Pipelines Manually triggered for  main Saturday 1m 53s
CI-GUI-Demo	#155 • resolved merge conflicts Manually triggered for  main Saturday 1m 51s

# YAML Deploy Pipeline



The screenshot shows the Azure DevOps Pipelines interface. The left sidebar navigation bar is visible, with the 'Pipelines' item currently selected. The main content area displays a table titled 'Recently run pipelines'. The table has two columns: 'Pipeline' and 'Last run'. Two recent pipeline runs are listed:

Pipeline	Last run
DatabaseDevOpsShowdown_VisualStudio	#20241015.4 • Update azure-pipelines-1.yml for Azure Pipelines ⌚ Individual CI for 🌐 main 12m ago ⌚ 1m 44s
CI-GUI-Demo	#162 • Update azure-pipelines-1.yml for Azure Pipelines ⌚ Individual CI for 🌐 main 26m ago ⌚ 1m 36s

# YAML Deploy Pipeline

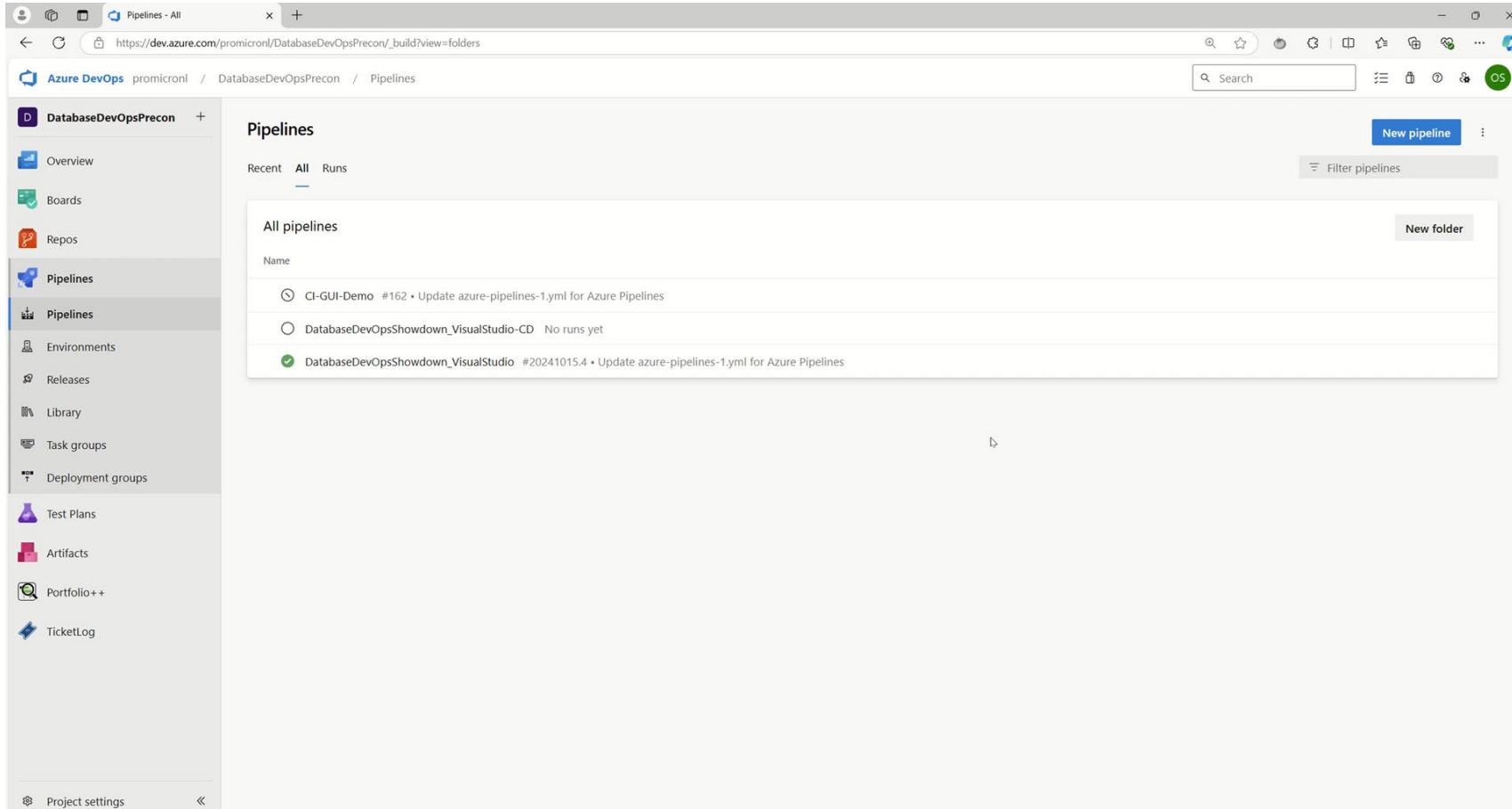
The screenshot shows the Azure DevOps Pipelines interface for creating a new pipeline. The left sidebar is titled 'DatabaseDevOpsPrecon' and includes sections for Overview, Boards, Repos, Pipelines (selected), Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, Portfolio++, and TicketLog. The main area is titled 'Review your pipeline YAML' and displays the following YAML code:

```
1 pool:
2   name: On-Prem
3
4 stages:
5   - stage: PublishToSQLServer
6     jobs:
7       - job: PublishToSQLServer
8         steps:
9           - checkout: none
10          Settings
11          - task: DownloadPipelineArtifact@2
12            inputs:
13              buildType: 'specific'
14              project: '67cc0d45-d30b-4bac-8f1d-7fd9abf93d04'
15              definition: '10'
16              specificBuildWithTriggering: true
17              buildVersionToDownload: 'latest'
18              artifactName: 'build-yaml-art'
19              itemPattern: '**/*.dacpac'
20              targetPath: '$(Pipeline.Workspace)/artifact'
```

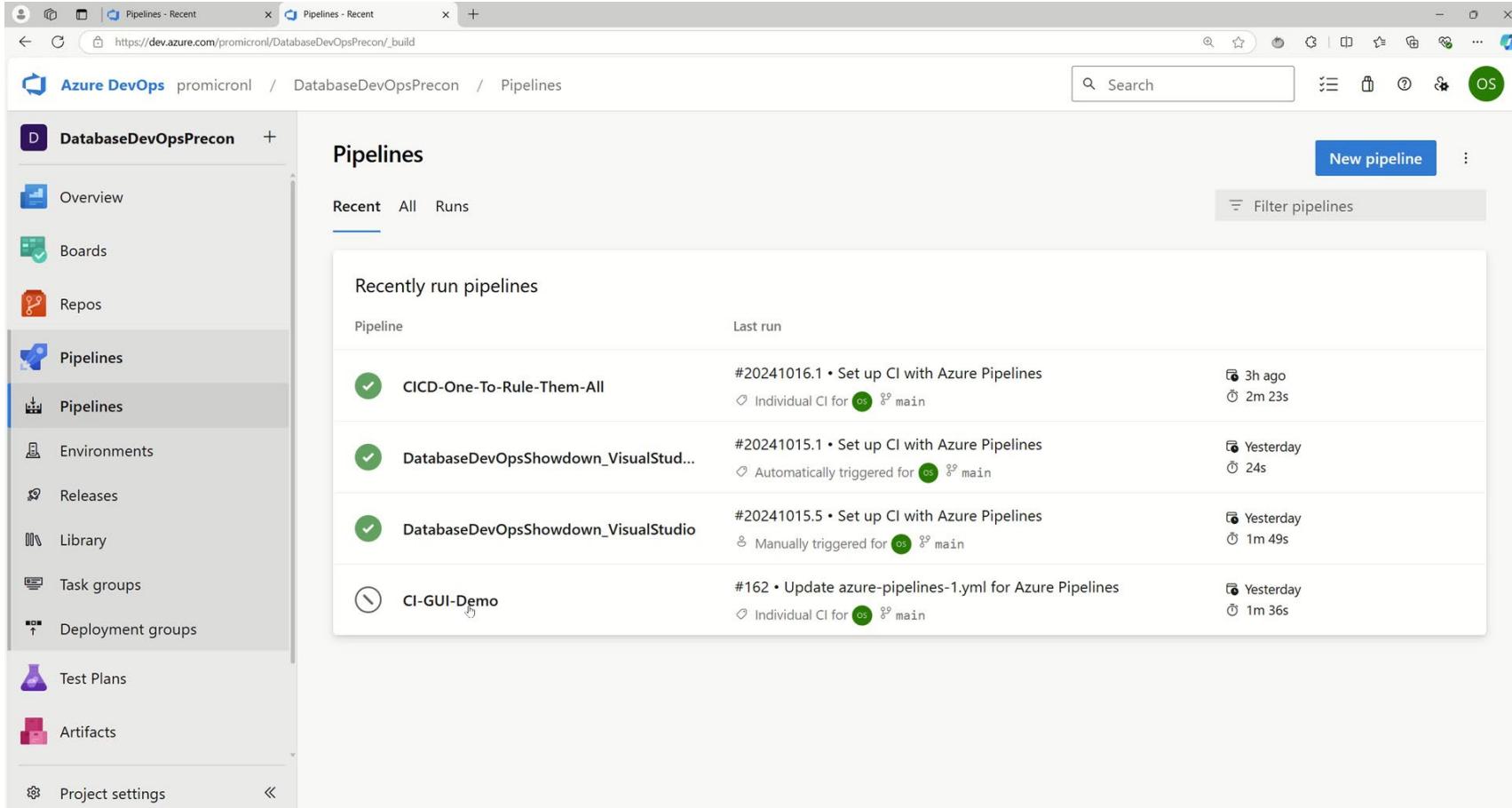
To the right of the YAML code is a 'Tasks' pane containing a list of available tasks:

- .NET Core
- Android signing
- Ant
- App Center distribute
- App Center test
- Archive files
- ARM Outputs
- ARM template deployment
- Azure App Configuration Export
- Azure App Configuration Import

# YAML Deploy Pipeline



# CICD Pipeline – One to rule them all



The screenshot shows the Azure DevOps Pipelines interface for the project "DatabaseDevOpsPrecon". The left sidebar navigation bar is visible, with "Pipelines" selected. The main content area displays a table titled "Recently run pipelines" with the following data:

Pipeline	Last run
CICD-One-To-Rule-Them-All	#20241016.1 • Set up CI with Azure Pipelines ⌚ Individual CI for os 89 main 🕒 3h ago ⌚ 2m 23s
DatabaseDevOpsShowdown_VisualStud...	#20241015.1 • Set up CI with Azure Pipelines ⌚ Automatically triggered for os 89 main 🕒 Yesterday ⌚ 24s
DatabaseDevOpsShowdown_VisualStudio	#20241015.5 • Set up CI with Azure Pipelines ⌚ Manually triggered for os 89 main 🕒 Yesterday ⌚ 1m 49s
CI-GUI-Demo	#162 • Update azure-pipelines-1.yml for Azure Pipelines ⌚ Individual CI for os 89 main 🕒 Yesterday ⌚ 1m 36s

# Lab 4

Automate your deployments

# **Migration-based Deployment Automation**

# Overview

## Deployment Automation?

- Why? How?
- Build / Deploy
- Standardize
  - YAML Templates
  - Automation repo

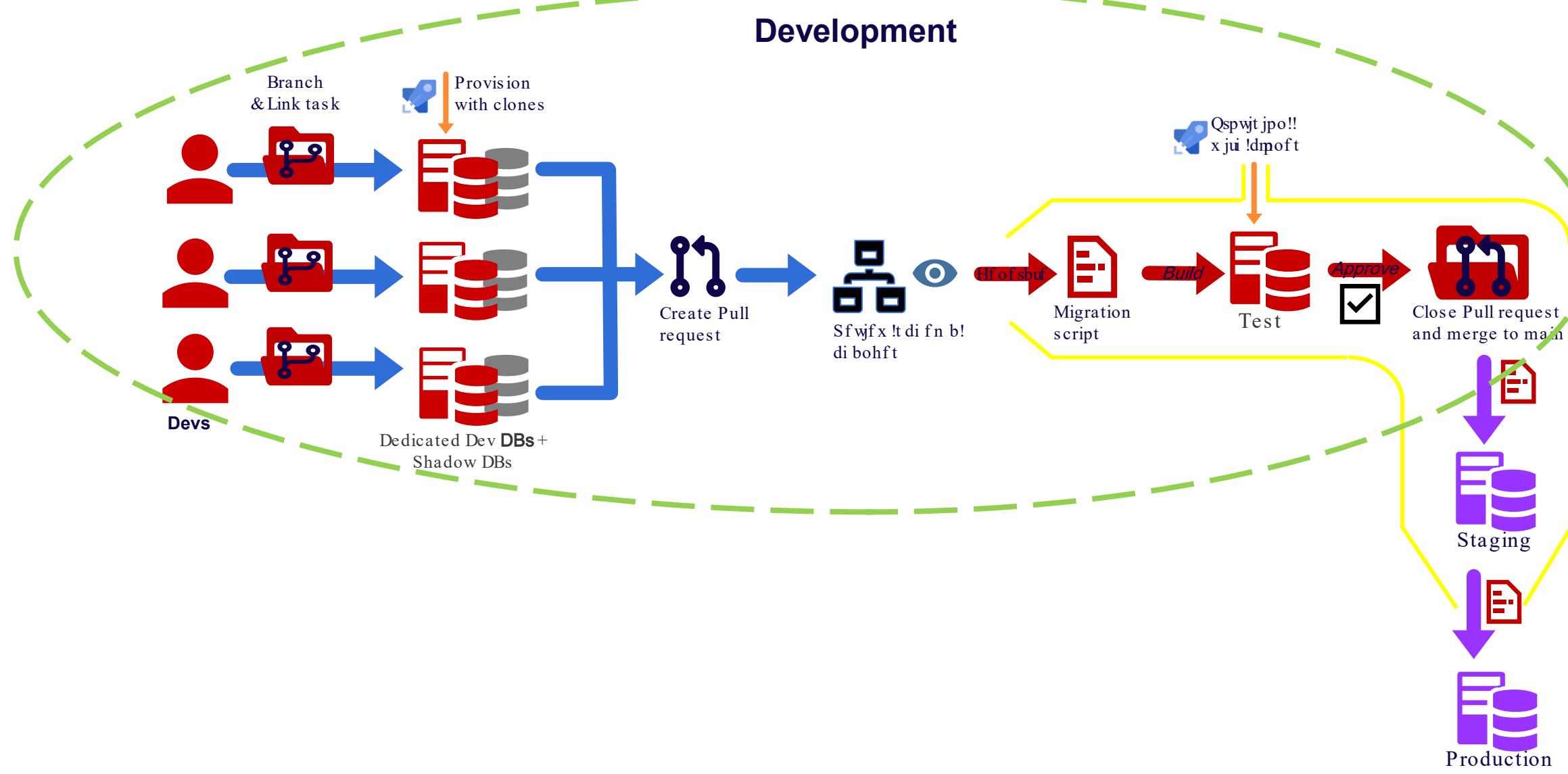
Lab: Standardize your deployments

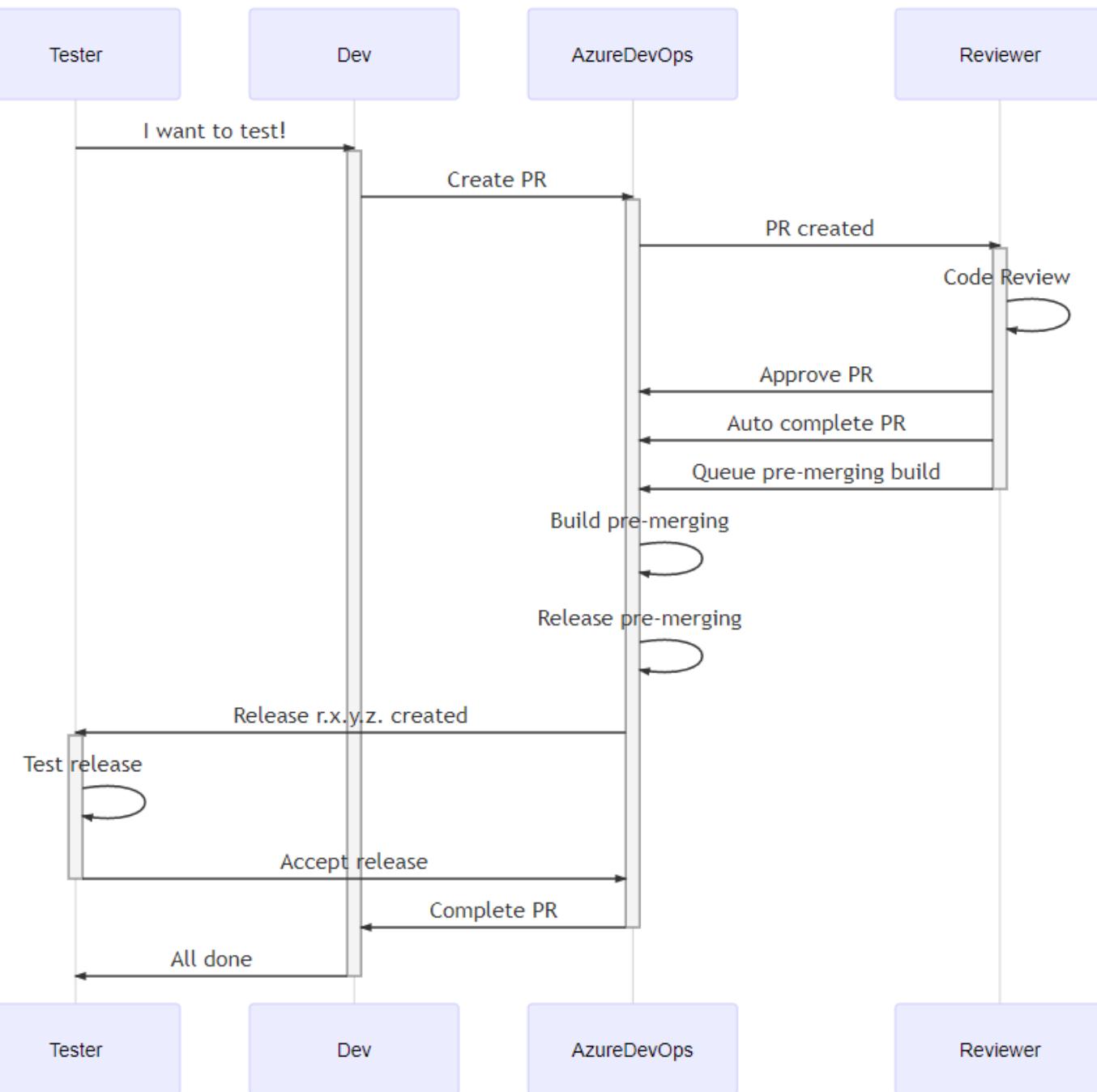
# Why?

- What Olivier said
- Follow Microsoft's DevOps practices
  - Automate repetitive tasks
  - Turn code into immutable artifacts
  - Automate delivery processes
  - Use release pipelines with approvals

# Build and Deploy

- Build: YAML
- Deploy: GUI (Classic release pipelines)
  - Why? Pull Request Workflow





# YAML Templates

- What?
- Why?
  - The benefits
- ... the challenges!

# **State-based Deployment Automation**

# YAML Templates

The screenshot shows the Azure DevOps interface for a repository named 'DatabaseDevOpsPrecon'. The left sidebar navigation bar includes options like Overview, Boards, Repos, Files, Commits, Pushes, Branches, Tags, Pull requests, Advanced Security, Pipelines, Test Plans, Artifacts, Portfolio++, TicketLog, and Project settings. The 'Pipelines' option is currently selected. The main content area displays the file structure of the repository, specifically the 'main' branch. The file 'azure-pipelines-3.yml' is selected and shown in the editor. The code content is as follows:

```
1 # Starter pipeline
2 # Start with a minimal pipeline that you can customize to build and deploy your code.
3 # Add steps that build, run tests, deploy, and more:
4 # https://aka.ms/yaml
5
6 trigger:
7   branches:
8     | include:
9     |   - main
10
11 stages:
12   - stage: Build
13     pool:
14       | vmImage: windows-latest
15     jobs:
16       - job: BuildDatabaseProject
17         displayName: Build Database Project
18         steps:
19           - task: MSBuild@1
20             inputs:
21               | solution: '**/*.sln'
22             - task: CopyFiles@2
23               inputs:
24                 SourceFolder: '$(agent.builddirectory)'
25                 Contents: '**/*.dacpac'
26                 TargetFolder: '$(build.artifactstagingdirectory)'
27                 CleanTargetFolder: true
28                 OverWrite: true
29             - task: PublishPipelineArtifact@1
30               inputs:
31                 targetPath: '$(build.artifactstagingdirectory)'
32                 artifact: 'main-artifact'
33                 publishLocation: 'pipeline'
34   - stage: Deploy
35     pool:
36       | name: On-Prem
37     jobs:
38       - job: DeployToOnPremDatabase
```

# YAML Templates - debugging

The screenshot shows the Azure DevOps Pipelines interface. On the left, the sidebar has 'Pipelines' selected. The main area shows a pipeline named 'DatabaseDevOpsPrecon' with a single step labeled 'CICD-One-To-Rule-Them-All'. A red arrow points from the pipeline name to the 'Pipelines' section in the sidebar. The pipeline details page shows a YAML configuration file:

```
1 # Starter pipeline
2 # Start with a minimal pipeline that you can customize to build and deploy your code
3 # Add steps that build, run tests, deploy, and more:
4 # https://aka.ms/yaml
5
6 trigger:
7   branches:
8     include:
9       - main
10
11 variables:
12   DatabaseName: 'DatabaseDevOpsShowdown_VS'
13
14 resources:
15   repositories:
16     repository: templates
17     type: git
18     name: DatabaseDevOpsShowdown\YAML-Templates
19
20 stages:
21   - template: stage-build-dacpac.yml@templates
22   - template: stage-deploy-dacpac.yml@templates
```

# YAML Templates – let's fix and run!

The screenshot shows the Azure DevOps Pipelines interface. On the left, the navigation bar includes 'DatabaseDevOpsPrecon' under 'Azure DevOps', 'Overview', 'Boards', 'Repos', 'Pipelines' (selected), 'Pipelines', 'Environments', 'Releases', 'Library', 'Task groups', 'Deployment groups', 'Test Plans', 'Artifacts', 'Portfolio++', and 'TicketLog'. Below this is 'Project settings'. The main area displays a YAML configuration file named 'azure-pipelines-3.yml' for a pipeline named 'CICD-One-To-Rule-Them-All'. The code defines a pipeline with a trigger for 'main' branch, variables for 'DatabaseName', resources from a 'DatabaseDevOpsShowdown\YAML-Templates' repository, and stages for building and deploying dacpac files. To the right, a 'Tasks' pane lists various build and deployment tasks such as '.NET Core', 'Android signing', 'Ant', 'App Center distribute', 'App Center test', 'Archive files', 'ARM Outputs', 'ARM template deployment', and 'Azure App Configuration Export'. A search bar at the top right allows for searching the pipeline and tasks.

```
1 # Starter pipeline
2 # Start with a minimal pipeline that you can customize to build and deploy your code
3 # Add steps that build, run tests, deploy, and more:
4 # https://aka.ms/yaml
5
6 trigger:
7   branches:
8     include:
9       - main
10
11 variables:
12   DatabaseName: 'DatabaseDevOpsShowdown_VS'
13
14 resources:
15   repositories:
16     repository: templates
17     type: git
18     name: DatabaseDevOpsShowdown\YAML-Templates
19
20 stages:
21   - stage: Validate
22     template: stage-build-dacpac.yml@templates
23   - stage: Deploy
24     template: stage-deploy-dacpac.yml@templates
```

D	DatabaseDevOpsPrecon	+
	Overview	
	Boards	
	Repos	
	Pipelines	
	Pipelines	
	Environments	
	Releases	
	Library	
	Task groups	
	Deployment groups	
	Test Plans	
	Artifacts	
	Portfolio++	
	TicketLog	
	Project settings	«

Summary Code Coverage Associated pipelines

Manually run by Tonie Huizer

View 19 changes

Repositories 2

DatabaseDevOpsShowdown\_VisualStudio , +1

See Sources card for details

Time started and elapsed

Today at 19:23

8m 29s

Related

0 work items

1 published; 1 consumed

Tests and coverage

Get started

Stages Jobs

Build

1 job completed

1m 49s

Deploy

1 job completed

4m 13s

1 artifact

Sources

Repository

Branch / tag

Version

Related

DatabaseDevOpsShowdown\_VisualStudio

Azure Repos

cicd/UseTemplates

283702a8

None

YAML-Templates

Azure Repos

main

cc1c7fc4

# YAML Template – viewing the end result YML

The screenshot shows the Azure DevOps Pipelines interface. On the left, there's a sidebar with various project management and development tools like Overview, Boards, Repos, Pipelines, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, Portfolio++, and TicketLog. Below that is a 'Project settings' section. The main area is titled 'CICD-One-To-Rule-Them-All'. It displays a YAML configuration file named 'azure-pipelines-3.yml' under the 'cicd/UseTemplates' dropdown. The code is as follows:

```
1 # Starter pipeline
2 # Start with a minimal pipeline that you can customize to build and deploy your code
3 # Add steps that build, run tests, deploy, and more:
4 # https://aka.ms/yaml
5
6 trigger:
7   - branches:
8     - include:
9       - main
10
11 variables:
12   DatabaseName: 'DatabaseDevOpsShowdown_VS'
13
14 resources:
15   repositories:
16     - repository: templates
17       type: git
18       name: DatabaseDevOpsPrecon/YAML-Templates
19
20 stages:
21   - template: stage-build-dacpac.yml@templates
22   - template: stage-deploy-dacpac.yml@templates
```

To the right of the code editor is a 'Tasks' pane containing a list of available build and deployment tasks:

- .NET Core
- Android signing
- Ant
- App Center distribute
- App Center test
- Archive files
- ARM Outputs
- ARM template deployment
- Azure App Configuration Export

# YAML Template – Extend

The screenshot shows the Azure DevOps interface for managing YAML templates. The left sidebar is the project navigation bar with options like Overview, Boards, Repos, Files, Commits, Pushes, Branches, Tags, Pull requests, Advanced Security, Pipelines, Test Plans, Artifacts, Portfolio++, TicketLog, and Project settings. The 'Files' option is selected. The main area shows a folder structure under 'YAML-Templates/main': README.md, stage-build-dacpac.yml, stage-build-flyway.yml (selected), and stage-deploy-dacpac.yml. A 'More options' menu is open next to stage-build-flyway.yml. The right pane displays the content of stage-build-flyway.yml:

```
1 stages:
2   - stage: Build
3     pool:
4       vmImage: windows-latest
5     jobs:
6       - job: Copy
7         displayName: Get migration files and config in the build
8         steps:
9           - checkout: self
10          - task: CopyFiles@2
11            inputs:
12              SourceFolder: '$(agent.builddirectory)\s\$(Build.Repository.Name)'
13              Contents: |
14                **\migrations\**
15                **\flyway.conf**
16                **\flyway.toml**
17            TargetFolder: '$(Build.ArtifactStagingDirectory)'
18            CleanTargetFolder: true
19            OverWrite: true
20          - checkout: automation
21          - task: CopyFiles@2
22            inputs:
23              SourceFolder: '$(agent.builddirectory)\s\Automation'
24              Contents: |
25                **\automation\**
26            TargetFolder: '$(Build.ArtifactStagingDirectory)'
27            OverWrite: true
28
29        - task: PublishBuildArtifacts@1
30          displayName: 'Publish Artifact: $(Build.BuildNumber)'
31          inputs:
32            ArtifactName: '$(Build.BuildNumber)'
```

# YAML Build artifact + extras

The screenshot shows the Azure DevOps Pipelines interface for a project named "DatabaseDevOpsPrecon". The pipeline run is titled "#24.10.2.master • Set up CI with Azure Pipelines" and is associated with the repository "DatabaseDevOpsShowdown\_FlywayEnterprise". The run was manually triggered by Tonie Huizer. The summary indicates that the build was retained as one of three recent runs by master (Branch). The pipeline details show it was triggered by a push to the master branch, took 22 seconds, and involved 3 repositories. The "Jobs" section lists a single job named "Get migration files and config in the build" which completed successfully in 15 seconds. The "Sources" section shows the repository "DatabaseDevOpsShowdown\_FlywayEnterprise" with the master branch checked out, and a YAML-Templates source with the main branch checked out.

Azure DevOps promicronl / DatabaseDevOpsPrecon / Pipelines / DatabaseDevOpsShowdow... / 24.10.2.master

#24.10.2.master • Set up CI with Azure Pipelines

DatabaseDevOpsShowdown\_FlywayEnterprise

This run is being retained as one of 3 recent runs by master (Branch).

Run new

View retention leases

Summary Code Coverage

Manually run by Tonie Huizer

View change

Repositories 3

DatabaseDevOpsShowdown\_FlywayEnterprise , +2

See Sources card for details

Time started and elapsed

Today at 20:50

22s

Related

0 work items

1 published; 2 consumed

Tests and coverage

Get started

Jobs

Name	Status	Duration
Get migration files and config in the build	Success	15s

Sources

Repository	Branch / tag	Version	Related
DatabaseDevOpsShowdown_FlywayEnterprise...	master	92e8d4f5	None
YAML-Templates	main	34dbbe74	

# Automation repo

- Standardize the process > Automate repetitive tasks
- Use pipelines, but first...
  - Start local to automate
  - Use PowerShell but not inline
  - Use verbose logging

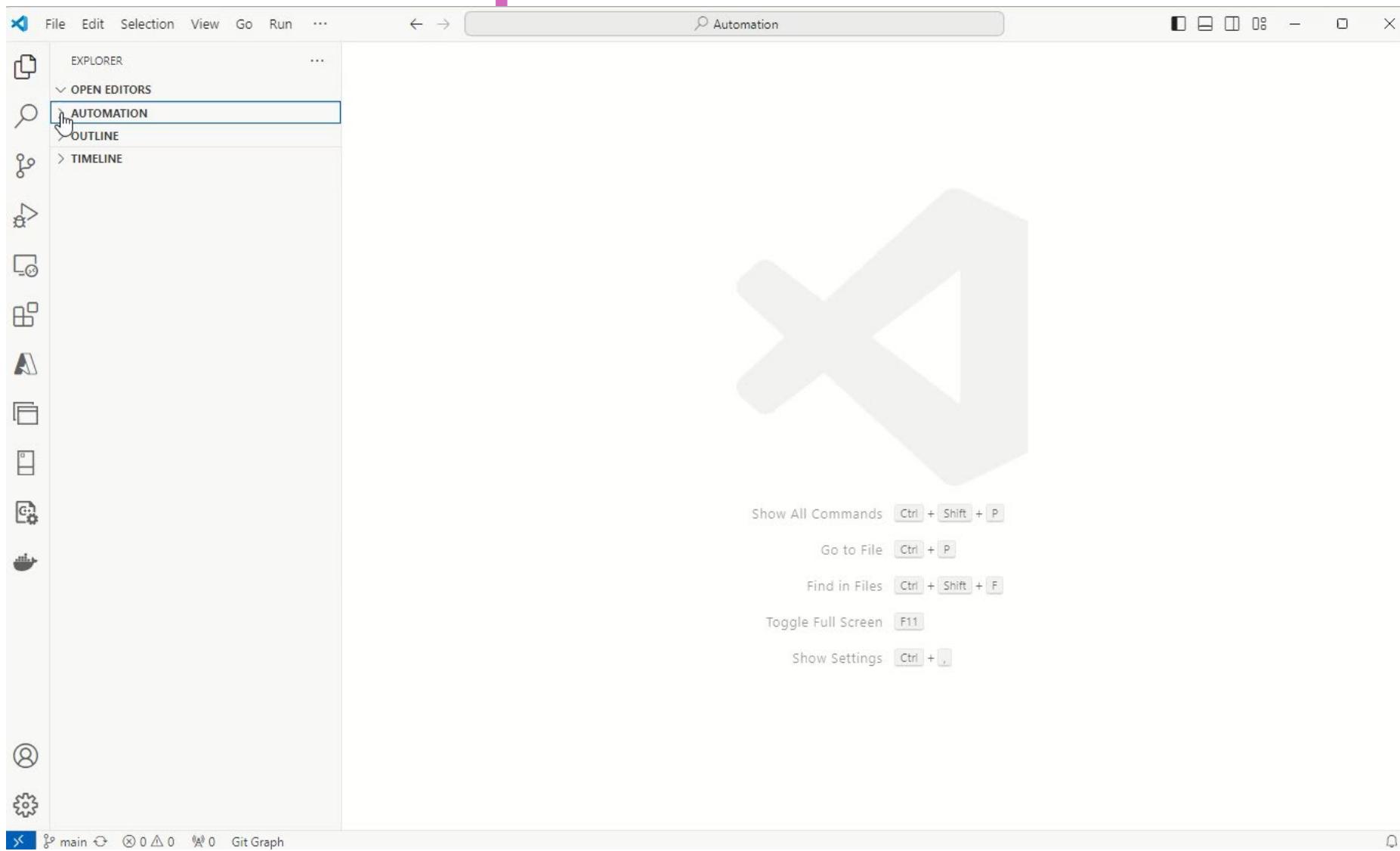
# Automation – Preparation for multiple database

The screenshot shows the Azure DevOps interface for a repository named 'DatabaseDevOpsShowdown\_FlywayEnterprise'. The left sidebar is the navigation menu for the project 'DatabaseDevOpsPrecon'. The 'Files' section is currently selected. The main content area displays the 'migrations' folder under the 'DatabaseDevOpsShowdown\_FlywayEnterprise' topic. The 'migrations' folder contains several SQL files representing database schema changes:

Name	Last change	Commits
B001_20241006171030_baseline.sql	6 Oct	35e5ea9f Initial commit To...
U002_20241006161137_UNDO-AddReferee.sql	6 Oct	cec8a421 Added new table...
U003_20241006191313_UNDO-AddRefereeToGar...	6 Oct	cec8a421 Added new table...
U004_20241006201052_UNDO-RemoveTimeFrom...	6 Oct	73664874 Remove time fro...
V002_20241006161137_AddReferee.sql	6 Oct	cec8a421 Added new table...
V003_20241006191313_AddRefereeToGames.sql	6 Oct	cec8a421 Added new table...
V004_20241006201052_RemoveTimeFromResults...	6 Oct	73664874 Remove time fro...

#PASSDataSummit

# Automation repo – Start local



#PASSDataSummit

# Automation – Use it in a Classic release pipeline

The screenshot shows the Azure DevOps Pipelines interface. The left sidebar has a 'Pipelines' section selected. The main area displays a list of 'All pipelines' under the 'Releases' category. There are two entries: 'Release-2' and 'Release-1'. Both entries show a green circular icon with 'os', a count of 158, and a 'main' branch indicator. The 'Release-2' entry was created on 15/10/2024, 18:47:58, and has a 'Deploy to...' button. The 'Release-1' entry was created on 14/10/2024, 19:48:28, and also has a 'Deploy to...' button.

Releases	Release pipeline	Created	Stages
Release-2	New release pipeline	15/10/2024, 18:47:58	<button>Deploy to...</button>
Release-1	New release pipeline	14/10/2024, 19:48:28	<button>Deploy to...</button>

# Automation – Debug and fix release pipeline

The screenshot shows the Azure DevOps Pipelines interface for a project named "DatabaseDevOpsPrecon". The pipeline is titled "Deploy Flyway > Release-2". The left sidebar lists various project navigation options like Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, Portfolio++, and TicketLog. The "Pipelines" option is currently selected. The main area displays a "Release" card and a "Stages" section. The "Release" card indicates it was "Manually triggered by Tonie Huizer on 27/10/2024, 21:49". The "Stages" section contains two stages: "Test" and "Production". Both stages show a green checkmark indicating "Succeeded" status, but each has a red error message: "1 error" on 27/10/2024, 21:49.

Stage	Status	Errors
Test	Succeeded	1 error
Production	Succeeded	1 error

# Deploy – Configure PR workflow (Build)

The screenshot shows the Azure DevOps interface for a repository named 'DatabaseDevOpsPrecon'. The left sidebar is a navigation menu with the following items:

- Azure DevOps
- promicron / DatabaseDevOpsPrecon
- Repos
- Files
- DatabaseDevOpsShowd... (highlighted)
- Overview
- Boards
- Repos
- Files
- Commits
- Pushes
- Branches
- Tags
- Pull requests
- Advanced Security
- Pipelines
- Test Plans
- Artifacts
- Portfolio++
- TicketLog
- Project settings

The main content area displays the repository structure for the 'DatabaseDevOpsShowd...' branch. The 'master' branch is selected. The 'Files' tab is active, showing the contents of the repository:

- database1
- .gitignore
- azure-pipelines.yml

The 'Contents' tab is selected in the file list. A table lists the files with their names, last change times, and commit details:

Name	Last change	Commits
database1	1h ago	<a href="#">fdbbf788</a> Introduced multi...
.gitignore	6 Oct	<a href="#">35e5ea9f</a> Initial commit To...
azure-pipelines.yml	1h ago	<a href="#">92e8d4f5</a> Set up CI with Az...

A progress indicator at the top right shows 'in progress'.

# Deploy – Configure PR workflow (Release)

The screenshot shows the Azure DevOps interface for configuring a Pull Request (PR) workflow. The top navigation bar includes 'Azure DevOps', 'DatabaseDevOpsPrecon', 'Repos', 'Pull requests', and 'DatabaseDevOpsShowdown\_FlywayEnterprise'. A search bar and various icons are also present.

The main area displays a pull request titled 'Add ref and static data' by 'Tonie Huizer' proposing to merge 'topic/StaticData-Arena' into 'master'. The status is 'Active' with 11 changes. The 'Overview' tab is selected, showing:

- 1 required check running now
- 1 optional check not yet run
- Build pipeline: Build pipeline in progress (with a hand cursor icon)
- No merge conflicts (Last checked Just now)

Below the checks is a 'Description' section containing a bulleted list:

- Added new table and extra column for the referee
- Remove time from result, this was not accurate and should no longer be kept
- demo of static data

At the bottom of the description section is a 'Show everything (1)' button. A comment input field at the bottom says 'Add a comment...'. The right side of the screen shows configuration sections for 'Reviewers' (Required: No required reviewers), 'Optional' (No optional reviewers), 'Tags' (No tags), and 'Work items' (No work items).

#PASSDataSummit

# Deploy – Configure PR (reactivated)

The screenshot shows the Azure DevOps interface for a pull request titled "Add ref and static data". The pull request has 11 active changes and is proposed by Tonie Huizer to merge "topic/StaticData-Arena" into "master". The "Checks" pane is open, displaying two required checks: "Build pipeline" (succeeded) and "Deploy Flyway" (succeeded). A "Re-queue" button is visible next to the build pipeline check. The "Description" section lists changes made: "Added new table and extra column for the referee", "Remove time from result, this was not accurate and should no longer be kept", and "demo of static data". A comment from Tonie Huizer is shown at the bottom, stating "reactivated the pull request".

Azure DevOps / DatabaseDevOpsPrecon / Repos / Pull requests / DatabaseDevOpsShowdown\_FlywayEnterprise

D DatabaseDevOpsPrecon +

Add ref and static data

Active !11 TH Tonie Huizer proposes to merge topic/StaticData-Arena into master

Overview Files Updates Commits Conflicts

All required checks succeeded

No merge conflicts

Last checked Just now

Description

- Added new table and extra column for the referee
- Remove time from result, this was not accurate and should no longer be kept
- demo of static data

Show everything

Add a comment...

TH Tonie Huizer reactivated the pull request

# Lab

Optimize your automated deployments

# End of this Round

Who's the winner?

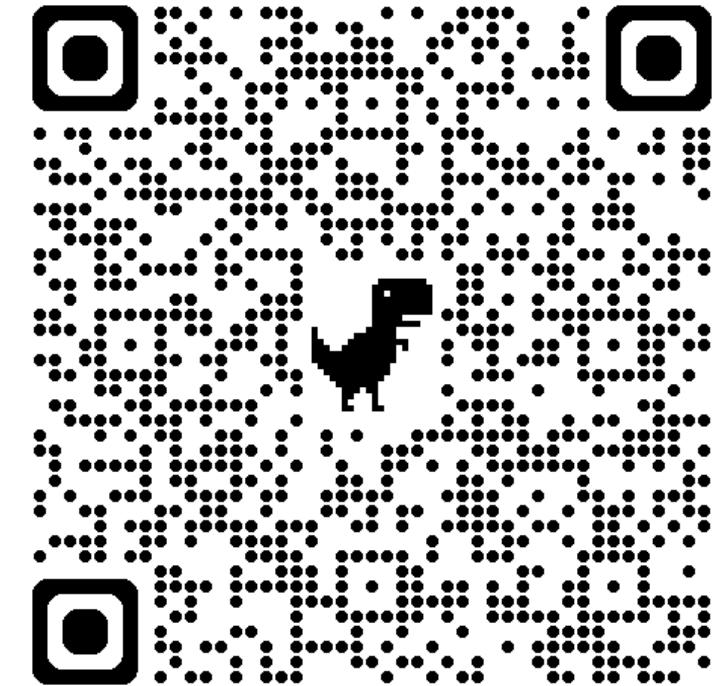
# Recap + Takeaways

- Have you accomplished your goals today?
- Questions?

# Your feedback is important to us

**Evaluate this session at:**

[www.PASSDataCommunitySummit.com/evaluation](http://www.PASSDataCommunitySummit.com/evaluation)



# Thank you

Don't forget:

"Every champion was once a contender who refused to give up." – Rocky Balboa



[@promicroNL](https://www.linkedin.com/in/toniehuizer)



[@Oli\\_VSteenlandt](https://www.linkedin.com/in/oliviervansteenlandt)

