

# How to implement a healthy ALM process for Power Platform

Labs are here:

<https://aka.ms/PPCC24-ALM>

<https://github.com/microsoft/PPCC24-ALM>



Casey Burke  
Principal Product  
Manager



Derek Kwan  
Principal Product  
Manager



Ken Auguillard  
Principal Program  
Manager



Marc Schweigert  
Principal Product  
Manager



Marcel Ferreira  
Senior Program  
Manager



Shan McArthur  
Principal Product  
Manager



Brian Gregor  
Power Platform  
Global Black Belt



Rasika Chaudhary  
Power CAT  
Microsoft



Olivier Conort  
Power CAT  
Microsoft



Yuichi Masuda  
Power CAT  
Microsoft



Praveen Mantha  
Principal Program Manager



Mik Ferland  
Principal Program Manager

# What is ALM?

**A**pplication **L**ifecycle **M**anagement

Similar industry terms: DevOps, CI/CD, SDLC, other variations

*ALM in Power Platform **abstracts** these methodologies + involves environment strategy, governance, security, and citizen **empowerment**.*

# Goals for the Workshop

1. ALM is for **everyone**, and this workshop is for makers, software engineers, admins, and others regardless of experience.
2. **Build** in healthy scalable ways, using Copilot, Catalog, solutions, developer tools, and the pre-released native source code integration feature!
3. **Deploy** with ALM best practices, including using Pipelines.
4. **Scale** your environment strategy and ALM process org-wide.

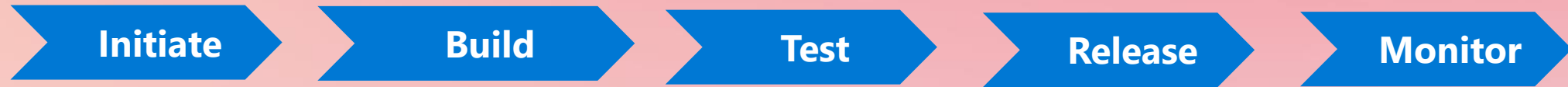
Time	Activity
09:00 – 09:15	Introduction
09:15 – 09:45	Lab 1 : Setup and Configuration
09:45 – 10:00	Coffee Break
10:00 – 11:30	Lab 2 : Develop (+ optional 2.1)
11:30 – 11:45	Q&A
11:45 – 12:45	Lunch
12:45 – 14:00	Lab 3: Deploy (task 3 & 4 optional)
14:00 – 15:00	Lab 4: Catalog
15:00 – 15:45	Q & A

What's your experience level with ALM in Power Platform??

Fun fact:

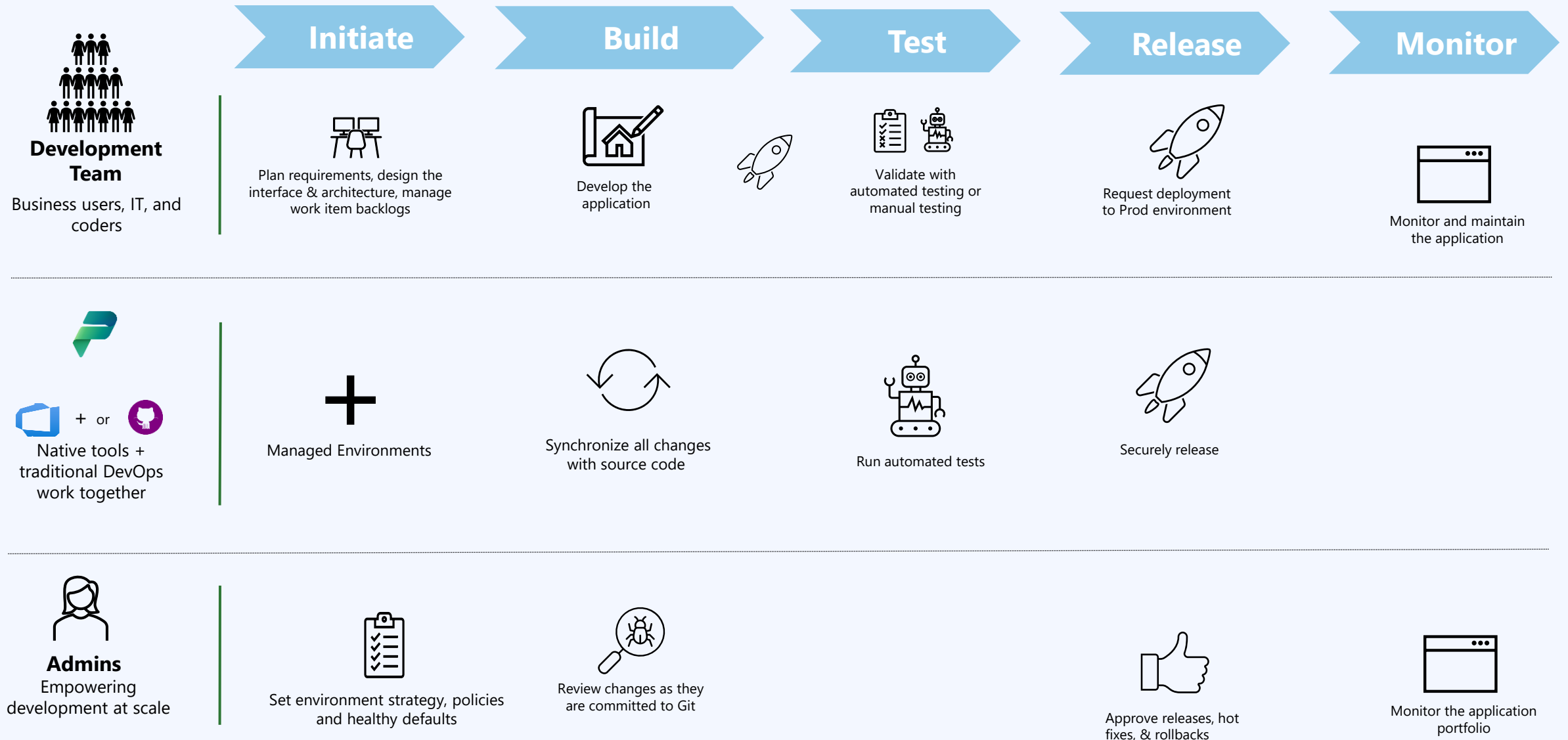
Applications with ALM see 2 to 3x more usage on average than those that don't.





The Strategy: Healthy ALM for your entire organization

# The Power Platform ALM process



1.0

2.0

3.0

## Manual ALM

**Citizen devs** & small projects

Simple and useful, but lacks visibility, security, governance, and quality control

Lacks maker guardrails

**Inefficient** and error prone

## Tools & accelerators

**Split by persona** – for citizens or professionals. Not both.

Enterprise-grade CI/CD with extremely **high complexity**

Drives velocity only for **certain projects** while alienating others

High setup costs per project

# Native

**Democratized** for **all personas**

Enterprise-grade CI/CD with **low complexity**

Drives velocity for **all projects**

**Best practices** baked in

**Lower TCO** at **scale**



# Native ALM empowers **every** developer

Citizen developers

IT professionals

Pro developers

= DevOps++

# The Basics: Environments and Solutions

# Environments

## Definition:

Container to store, manage, and share your organization's business data, apps, flows, chatbots and other Power Platform resources.

Serves as an isolation barrier to separate apps and data that might have different roles, security requirements, or target audiences.

## Key facts:

- Tied to a geographic location
- Different types of environments exist
- Can have either **zero** or **one** Dataverse database
- Every tenant has a Default environment where all licensed Power Apps and Power Automate users can create apps & flows.

## Security tips:

- Non-default environments offer more permission controls.
- Non-default environment creation can be restricted to specific users.
- Test and production environments should use least privileged access

Settings

These settings are applicable across your organization. [Learn more](#)

Governance

Enable features across environments.

Who can create production environments

☐ Everyone

☒ Only specific admins ⓘ

Who can create trial environments

☒ Everyone

☐ Only specific admins ⓘ

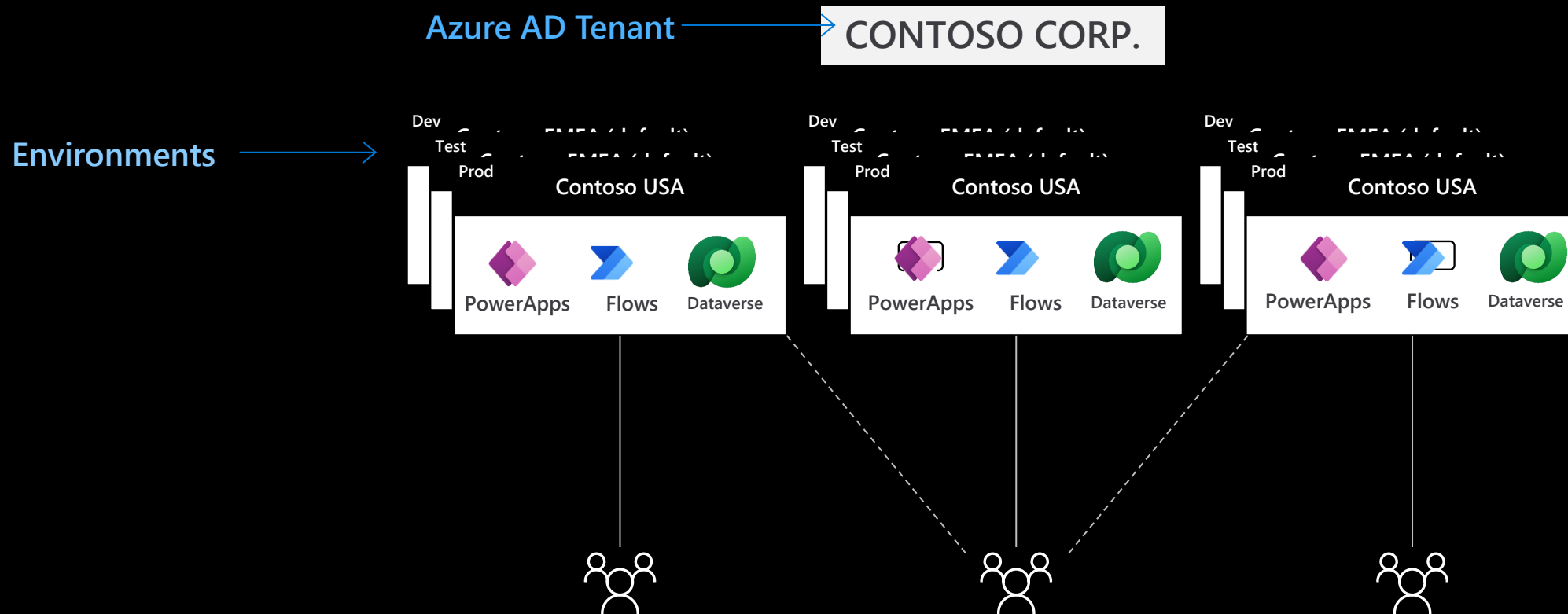
Save

Cancel

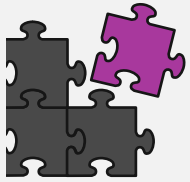
Power Platform		Admin center	
		+ New Refresh	
		Environments	
		Environment	Type
		CRM (Default)	Production
		CRM (Default)	Sandbox

# Develop Your Environment Strategy

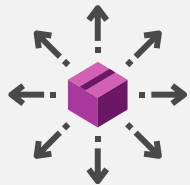
Environments are containers that administrators can use to manage apps, flows, connections, and other assets; along with permissions to allow organization users to use the resources



# What is a solution?



***Solutions*** are ***authored, packaged,*** and ***maintained*** by a ***publisher*** allowing customizations to components that extend your Power Platform organization



***Solutions*** allow ***distribution*** of business functionality across environments



# What goes into a solution?

Schema	User Interface	Analytics	Process / Code	AI	Security	System Settings
<ul style="list-style-type: none"><li>• Entities</li><li>• Attributes</li><li>• Relationships</li><li>• Global Options Sets</li></ul>	<ul style="list-style-type: none"><li>• Application Ribbon</li><li>• SiteMap</li><li>• Forms</li><li>• Table Ribbons</li><li>• Web Resources</li></ul>	<ul style="list-style-type: none"><li>• Dashboards</li><li>• Reports</li><li>• Visualizations</li></ul>	<ul style="list-style-type: none"><li>• Processes<ul style="list-style-type: none"><li>• Dialogs &amp; Workflows</li></ul></li><li>• Plugins<ul style="list-style-type: none"><li>• Assemblies</li><li>• Processing Steps</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Copilots</li><li>• Copilot skills</li><li>• AI Builder models</li></ul>	<ul style="list-style-type: none"><li>• Security Roles</li><li>• Column Level Security Profiles</li></ul>	<ul style="list-style-type: none"><li>• Formatting Options</li><li>• Other System Settings</li></ul>



**Power Apps**  
Low-code application  
development



**Power Automate**  
Intelligent process  
automation

**Solutions do not contain data**

# What are unmanaged and managed solutions?



## Unmanaged Solution

Only for **development** of the solution

Collection of references to components  
No restrictions on what can be added, removed,  
or modified



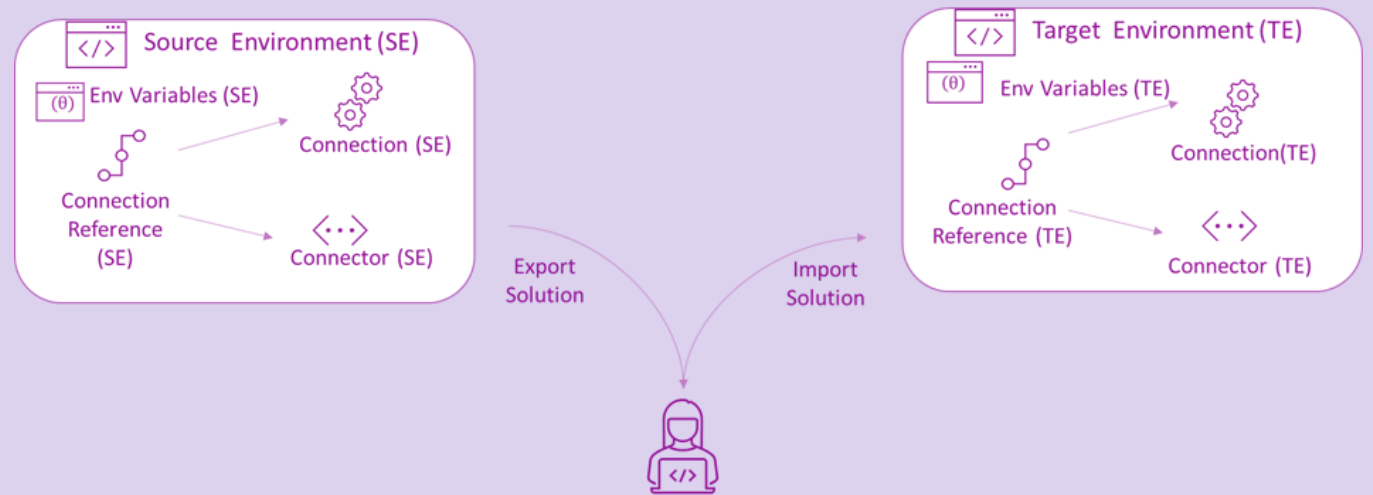
## Managed Solution

Only for **deployment** of a solution

Sealed "binary"  
Components can't be added or removed  
Cannot be exported

# Environment variables and connection references

- Environment variables allow you to transport application configuration data with solutions and optionally manipulate the values in your Application Lifecycle Management (ALM) pipeline.
- Connection references ensure that connections can participate in ALM by removing hard-coded identifiers within components and allowing new connections to be associated as you migrate solutions across environments.



# Lab 1: Setup and Configure

Labs are here:

<https://aka.ms/PPCC24-ALM>

<https://github.com/microsoft/PPCC24-ALM>

# Lab 2: Develop



Labs are here:



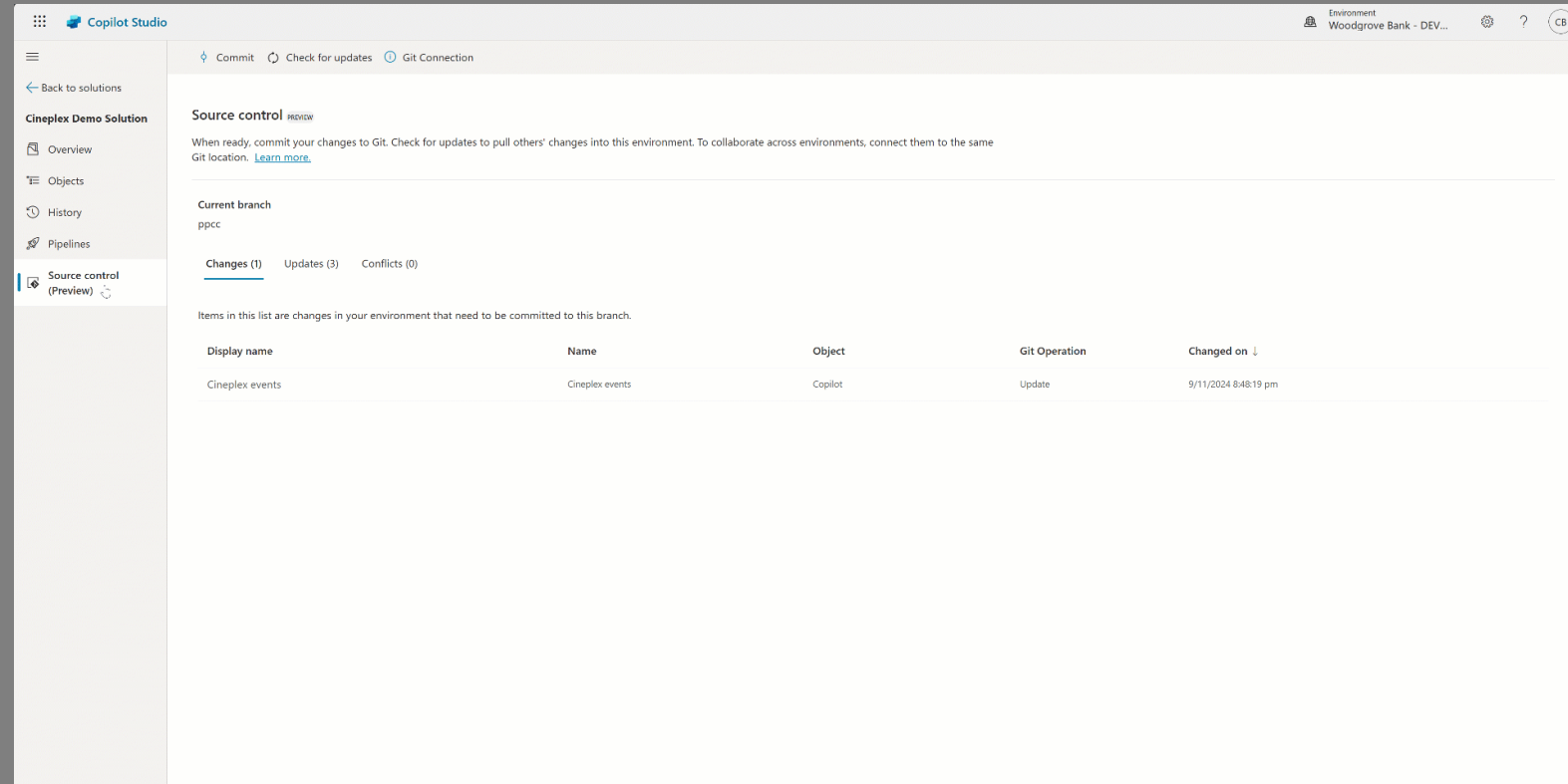
<https://aka.ms/PPCC24-ALM>

<https://github.com/microsoft/PPCC24-ALM>

# Native source code integration

Limited Preview

- > **Connect in seconds**  
No tools to setup
- > **Fusion development** across N environments and source control
- > **Simple, powerful Git version control** for all of Power Platform
- > **Work safely** in isolation, code reviews, and backups in **Azure DevOps** repositories



# Lab 2: Develop with Native Source Code Integration

Limited Preview

Labs are here:

<https://aka.ms/PPCC24-ALM>

<https://github.com/microsoft/PPCC24-ALM>

## Q & A

<https://aka.ms/ppcc24-ALM-QA>



# Lab 2.1: Code first development

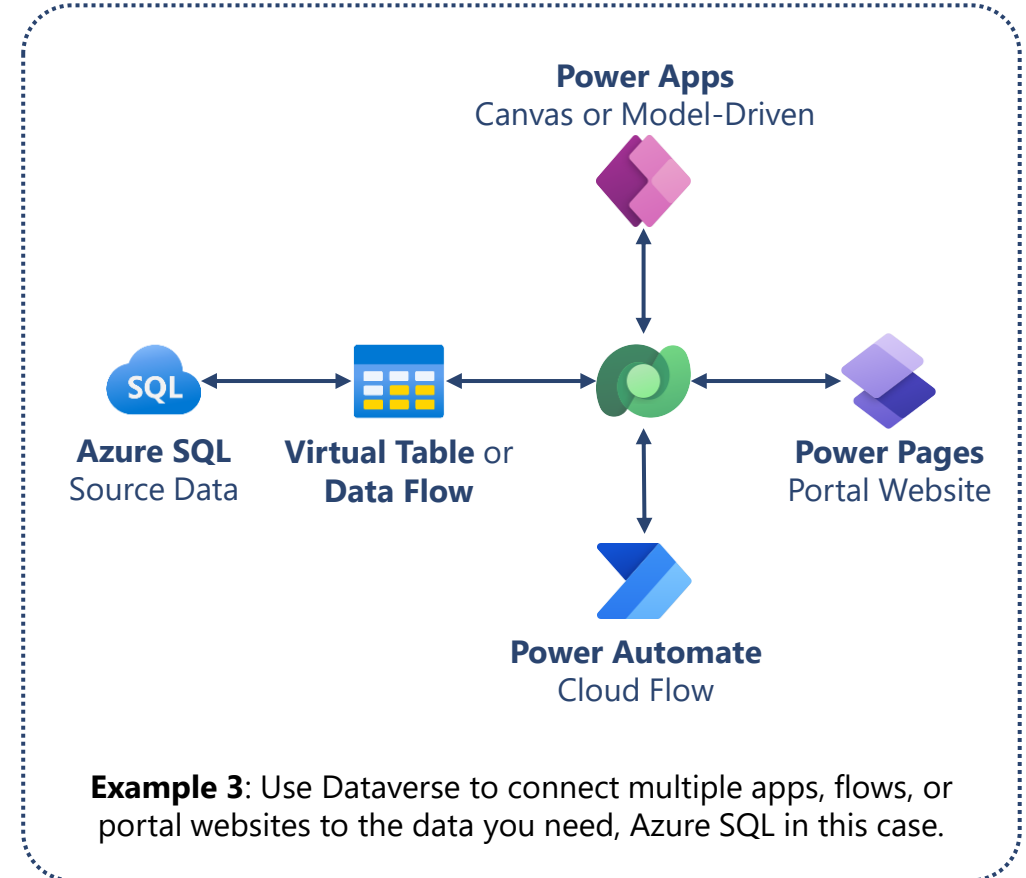
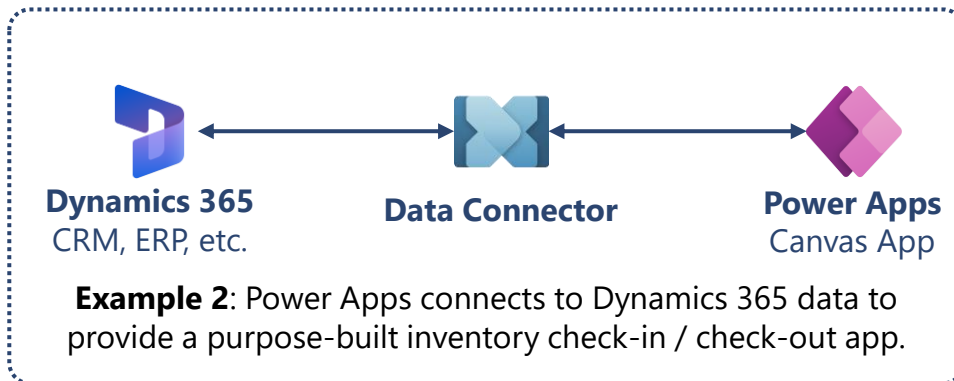
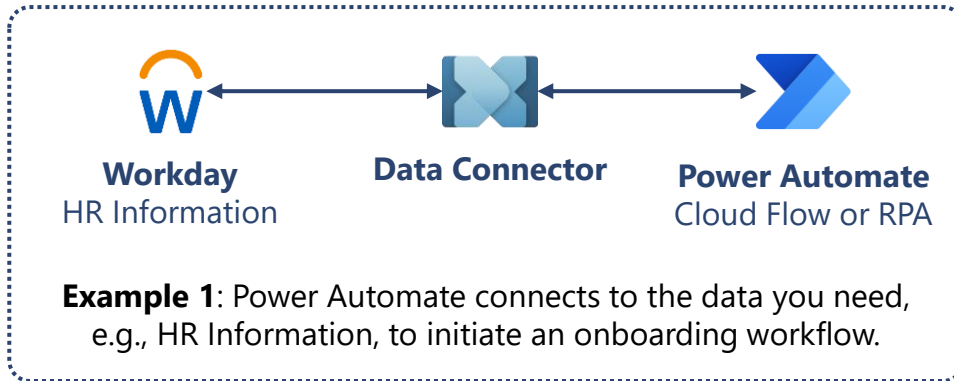
Labs are here:

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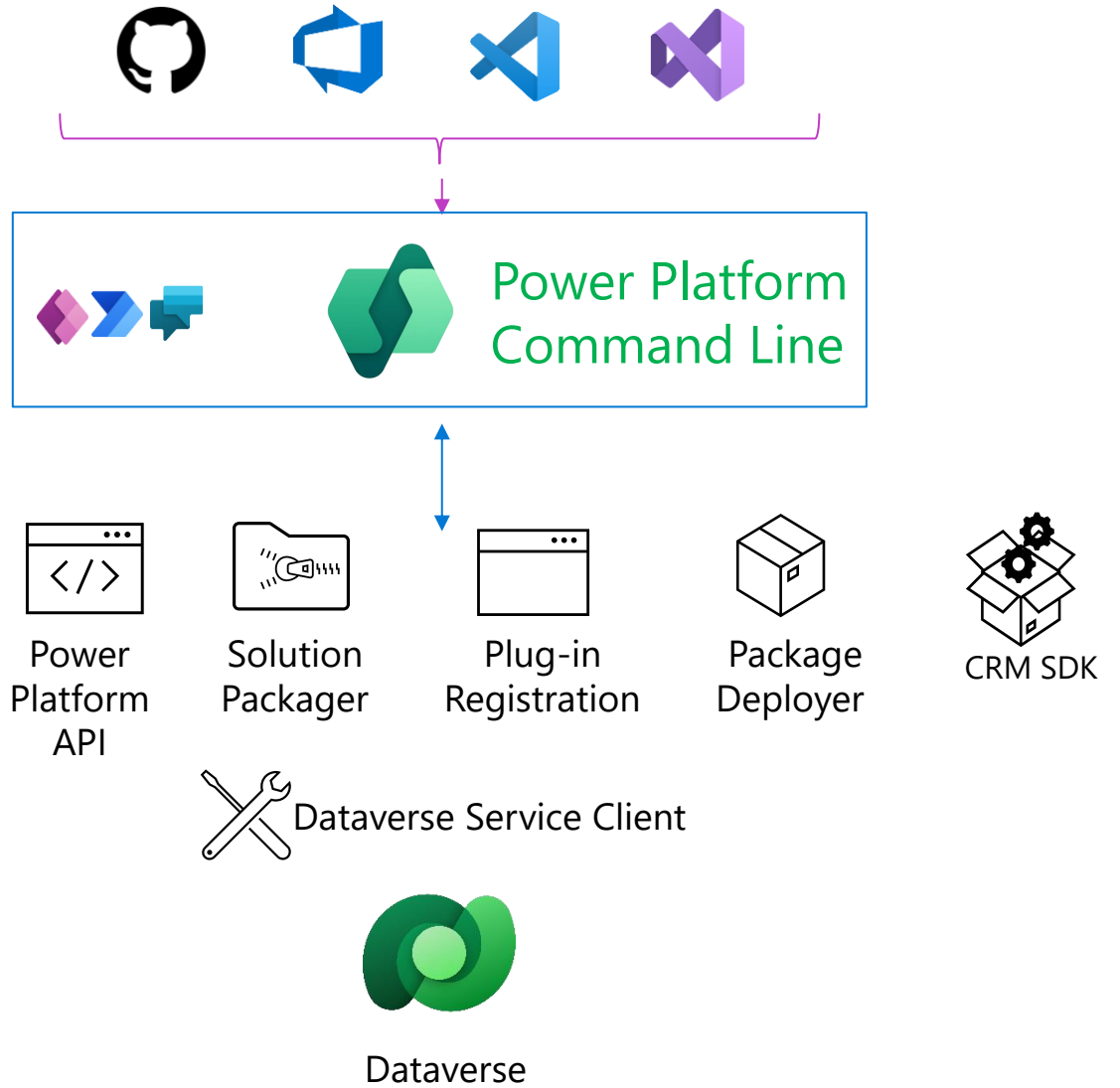
<https://github.com/microsoft/PPCC24-ALM>

# Pro Developers provide guidance

...to make sure platform patterns are architecturally sound



# developer tools for Power Platform



# Is there a Source Code for Canvas Apps?



**Power Apps**  
Canvas

## Use Git version control to edit canvas apps (experimental)

Article • 09/03/2024 • 7 contributors

[Feedback](#)

### In this article

- [Enable Git version control](#)
- [Connect an app to Git](#)
- [Authenticate with Git](#)
- [Make changes to the app](#)
- [Show 5 more](#)

[This article is pre-release documentation and is subject to change.]

### Important

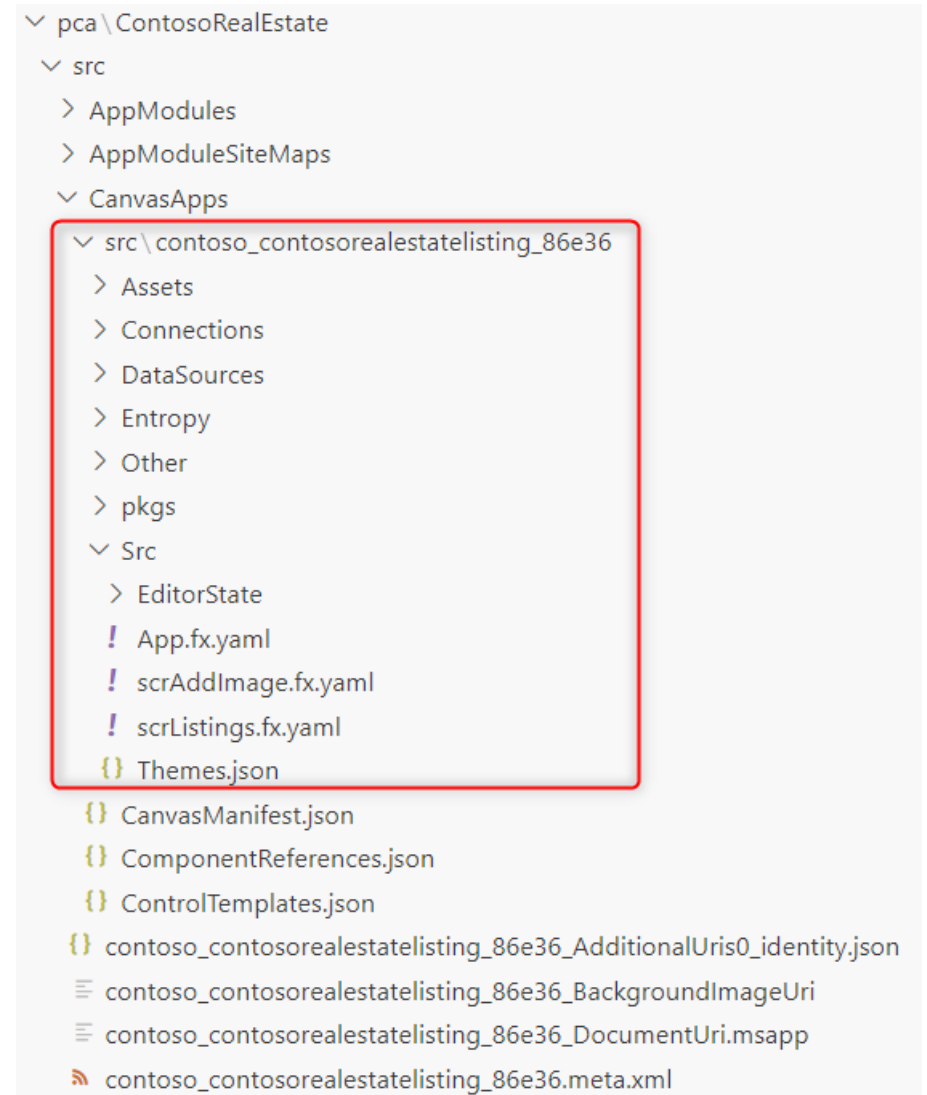
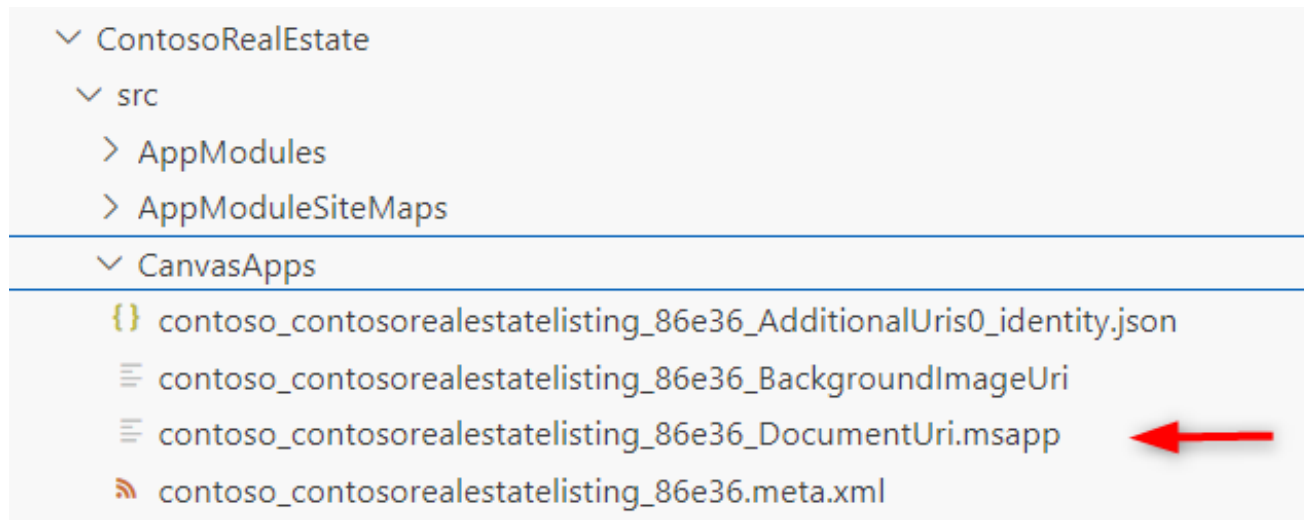
- This experimental feature is discontinued and will be replaced with the source control integration feature. More information: [Source code integration](#)



**Power Platform CLI**  
Canvas

```
PS C:\repo\sandbox> pac canvas unpack --msapp .\MyCanvasApp.msapp --sources  
.\sources  
Warning: canvas unpack is in preview, and functionality is not guaranteed.  
Use extreme caution if using in a production environment. For more informat  
ion see https://aka.ms/paccanvas  
Unpack from C:\repo\sandbox\MyCanvasApp.msapp --> C:\repo\sandbox\sources  
source format version: 0.24
```

```
--processCanvasApps (Preview) Pack/unpack any  
Canvas apps (.msapp) while processing the solution. The  
default value is 'false'. (alias: -pca)
```



## Lab 3: Deploy with Pipelines

Labs are here:

<https://aka.ms/PPCC24-ALM>

<https://github.com/microsoft/PPCC24-ALM>

# Q & A

<https://aka.ms/ppcc24-ALM-QA>

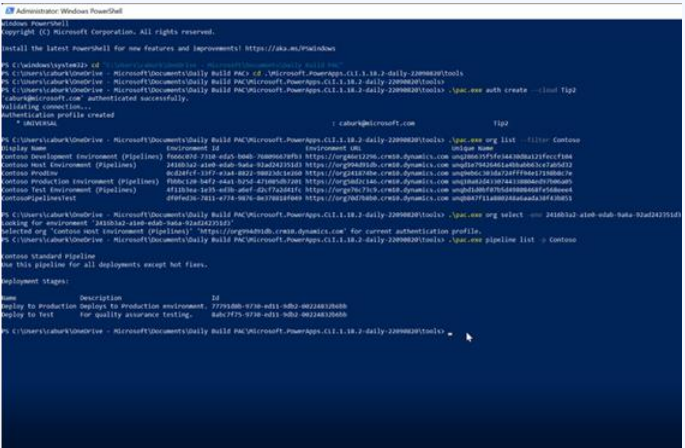
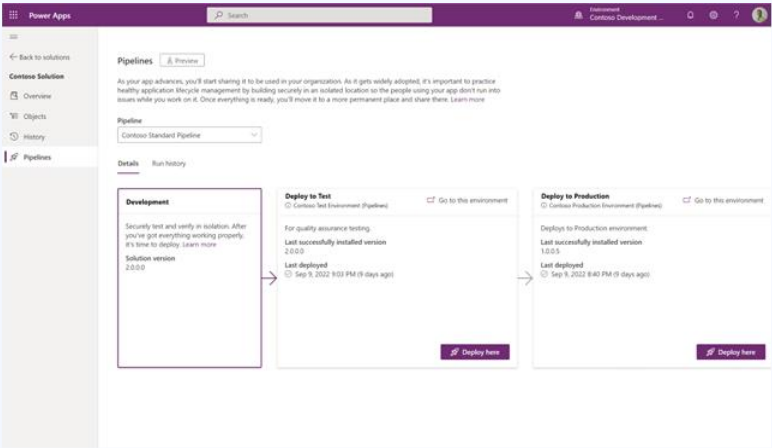
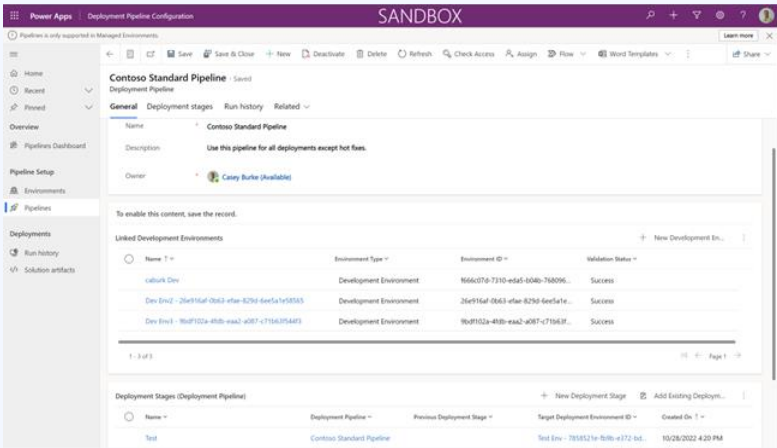
# Pipelines kickstarted native ALM



Announced at MPPC 2022



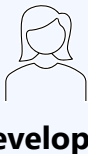
Pipelines simplify ALM for all makers



Setup Pipeline in < 2 min



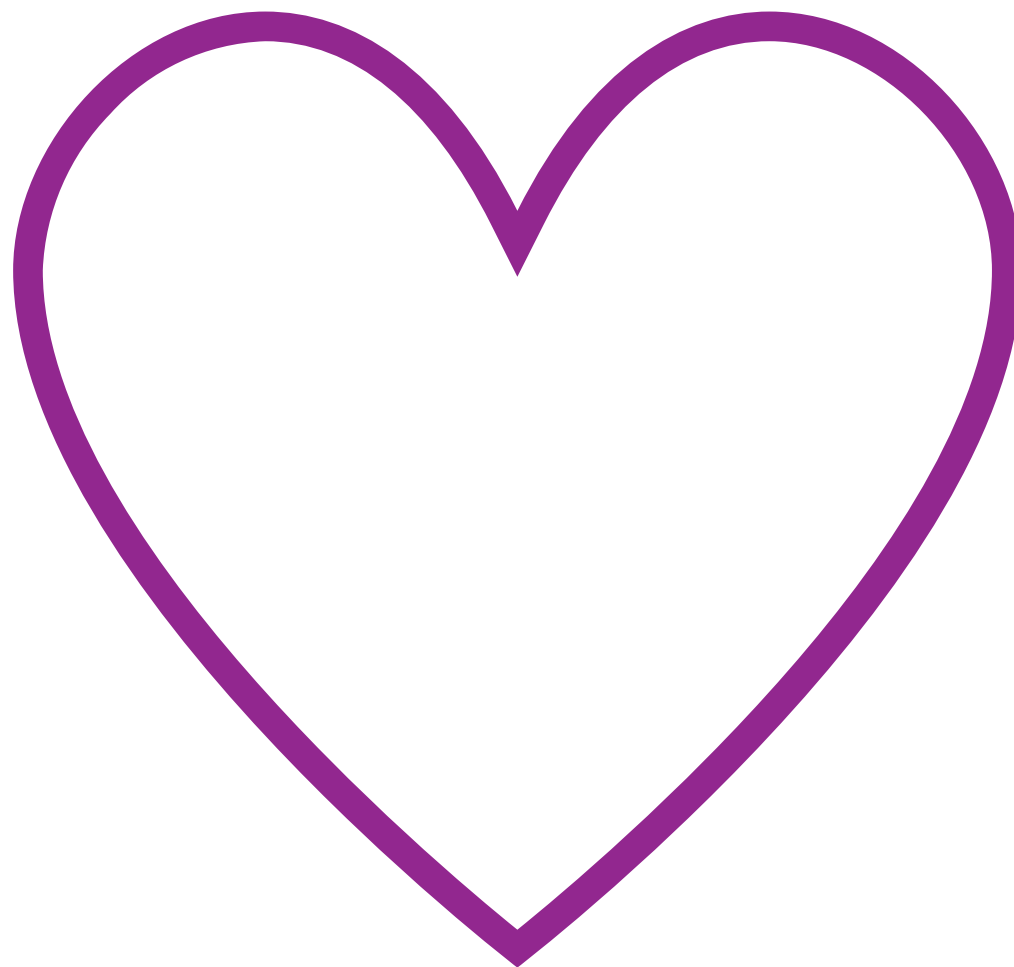
Initiate automated deployments



Simplified tasks



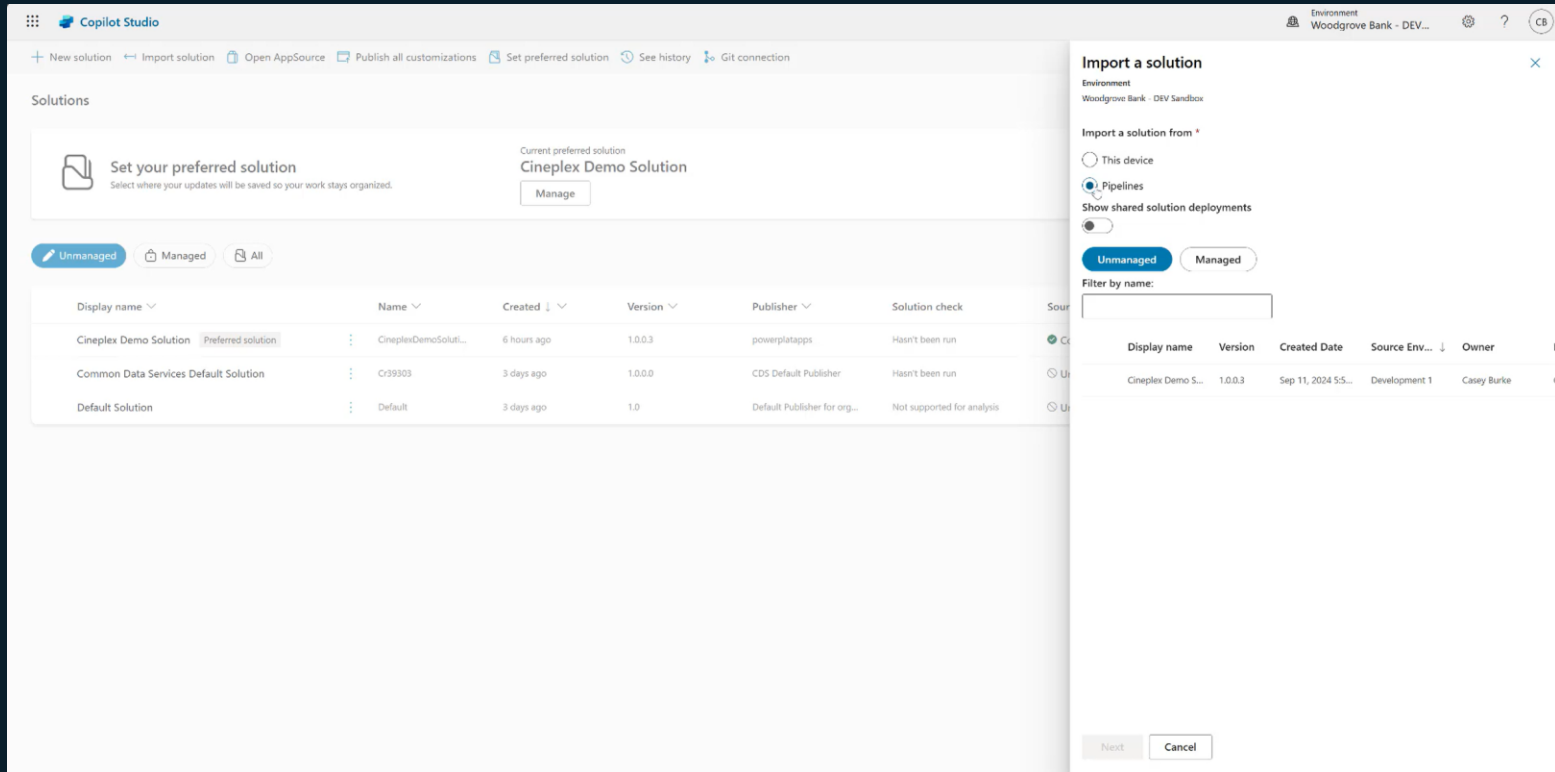
**Thank You!**



# Import from Pipelines

Coming Soon!

- Pipelines stores backups of every solution deployed
- Makers can now pickup right where they left off
- Never lose your solution again!



# Delegated Deployments (SPN)

Generally Available

- **Makers** deploy to production without needing elevated permissions
- AI generated deployment notes make it easy to **approve** or reject deployments.
- **Admins** keep production data and applications protected with least privileged access

The screenshot displays the 'Power Apps | Deployment Pipeline Configuration' interface. The left sidebar shows navigation options: Home, Recent, Pinned, Overview, Pipelines Dashboard, Pipeline Setup (Environments, Pipelines), Deployments (Run history, Solution artifacts), and Solution artifacts. The main content area is titled 'Contoso delegated pipeline - Saved' and shows the 'General' tab. It includes a message 'To enable this content, save the record.' and a table for 'Linked Development Environments'. Below this is a section for 'Deployment Stages (Deployment Pipeline)' with a table showing a single stage named 'Contoso Production'.

Name	Environment Type	Environment ID	Validation Status
[Pipelines Master] Dev Env	Development Environment	73106688-5209-ee04-8ea7-61b5b93ad2f9	Success

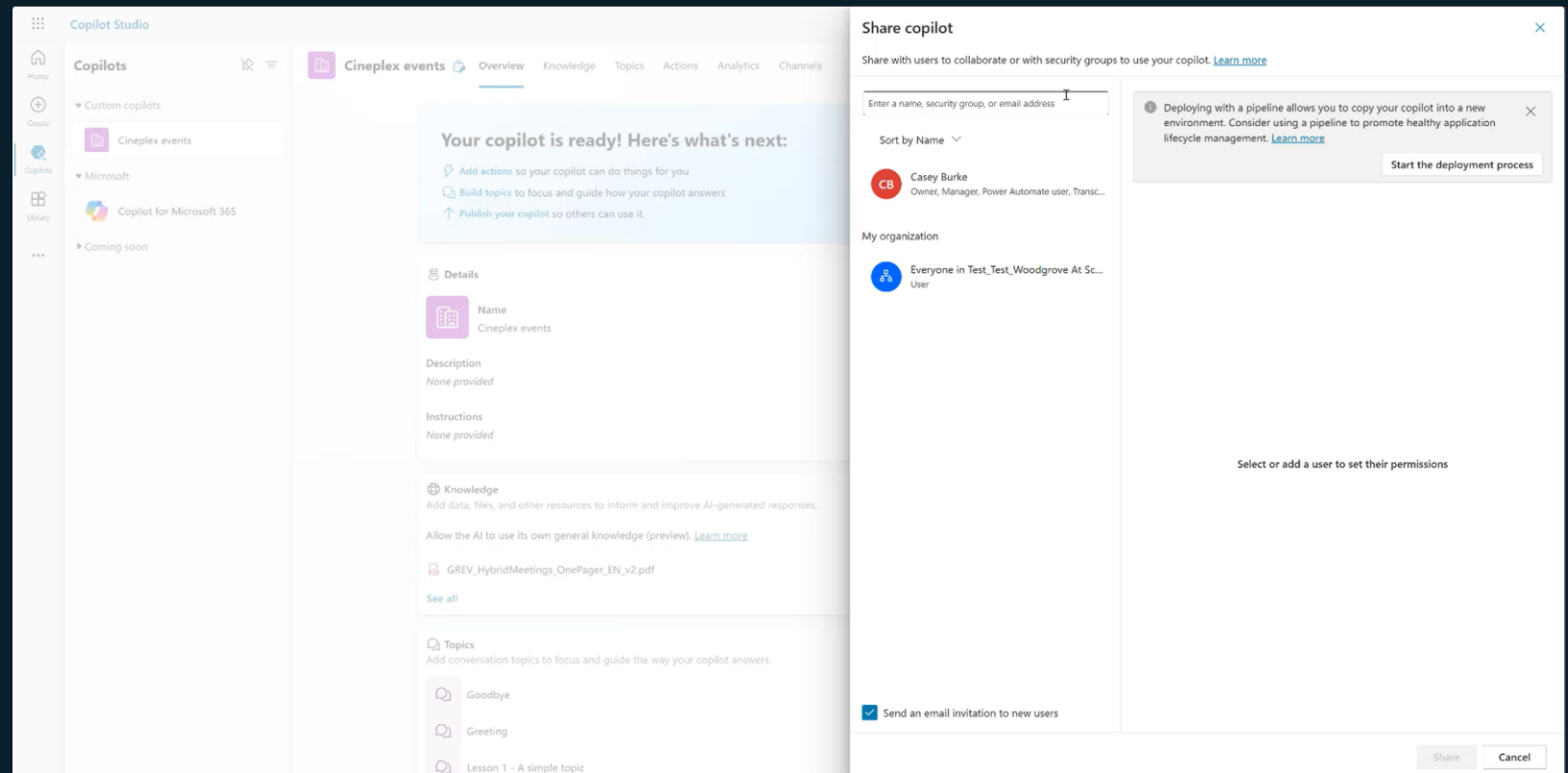
  

Name	Deployment Pipeline	Previous Deployme...	Target Deployment ...	Is Delegated ...	Pre-Deployme...	Created On
Contoso Production	Contoso delegated pi...		[Pipelines Master] Pro...	Yes	No	9/7/2023 5:44 PM

# Pipelines Onramps

Generally Available

- > Directs users to deploy to production environments
- > Traverses “sharing limits” cliff
- > Seamlessly connects the Maker ALM journey



# Sharing during deployment

Generally Available

- > Securely deploy with service principals
- > Makers “request” sharing
- > Approve or reject sharing with deployment

The screenshot displays the Copilot Studio interface during a deployment. The left sidebar shows the navigation menu with options like 'Back to solutions', 'Overview', 'Objects', 'History', 'Pipelines', and 'Source control (Preview)'. The main area is titled 'Pipelines' and shows a list of pipelines. The 'Default Pipeline - Deployments Require ...' is selected, and its details are shown. The 'Details' tab is active, showing the 'Development' environment. The 'UAT' environment is also shown, with a 'Deploy' button. The 'Deploying Solution' dialog is open, showing the 'Share' step. The 'Share Objects in your solution' section lists the objects to be shared, including 'Cineplex Event App', 'Cineplex events phone', 'Copilot event automation', and 'Cineplex events'. The 'New Groups' section shows a group named 'Woodgrove Copil...' with a 'WA' icon. The 'Type' column lists the object types: 'Canvas App', 'Canvas App', 'Cloud Flow', and 'Copilot'. The 'Deploy' button is visible at the bottom right of the main area.

**Pipelines**

As your app advances, you'll start sharing it to be used in your organization. As it gets widely adopted, it's important to practice by building securely in an isolated location so the people using your app don't run into issues while you work on it. Once everything is in a permanent place and share there. [Learn more](#)

Target Environments in pipelines must be enabled as Managed Environments. [Learn more](#)

Pipeline: Default Pipeline - Deployments Require ...

+ Create new pipeline

**Details** Run history

**Development**

Securely test and verify in isolation. After you've got everything working properly, it's time to deploy. [Learn more](#)

Solution version: 1.0.0.3

**UAT**

UAT (Pipelines, Shared)

Last successfully installed version: 1.0.0.3

Last deployed: Sep 11, 2024 5:59 PM (5 hours ago)

Deployments may be pending until an associated background process successfully completes. [Learn more](#)

**Deploying Solution**

Destination

Connections

Share

Summary

**Share Objects in your solution**

Add groups to share your solution objects

Enter a group name, email address, or Everyone: Woodgrove Copilot Access

This group will have access to the selected solution objects.

**New Groups**

WA Woodgrove Copil...

**Share Objects**

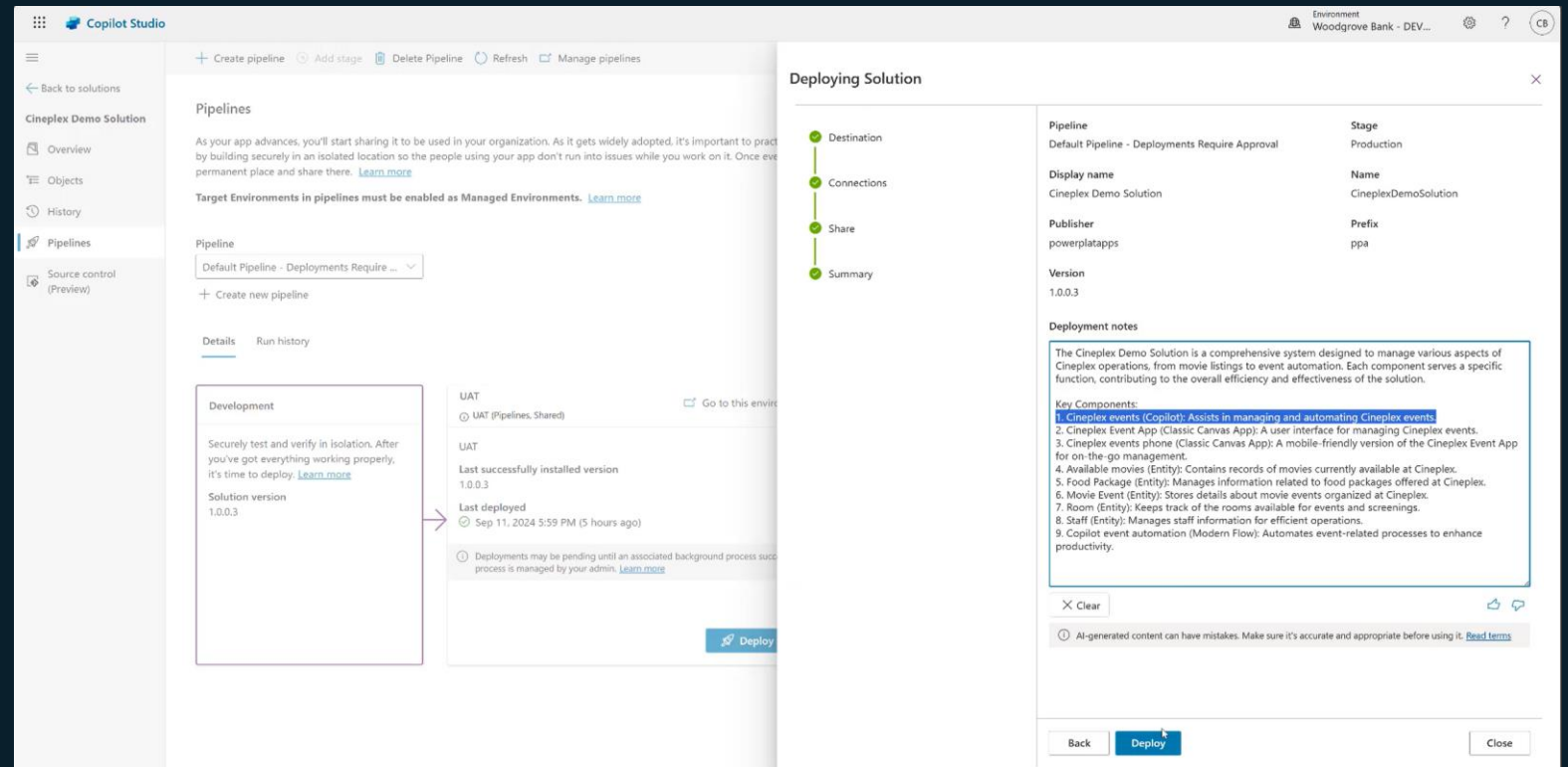
Name	Type
Cineplex Event App	Canvas App
Cineplex events phone	Canvas App
Copilot event automation	Cloud Flow
Cineplex events	Copilot

Back Next Close

# Deployment Notes

Generally Available

- Copilot generates deployment notes for pipeline deployments
- Gives admins insights into every deployed solution with zero effort
- Streamlines approvals



**New** Copilots now included in key components!

## Lab 4: Publish to Catalog

Labs are here:

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<https://github.com/microsoft/PPCC24-ALM>

# Q & A

<https://aka.ms/ppcc24-ALM-QA>