Acumatica
The Cloud ERP

CI/CD with Acumatica

Deploy your Acumatica customizations with confidence

Gabriel Michaud
Founder
Velixo

Velixo

Excel-based reporting for Acumatica

Lettie Wiemann

Controller, Vanguard Resources

"**I love Velixo**. It's user-**friendly** and incredibly **quick**. I actually **trust** Velixo Reports and have piece of mind knowing I'm **capturing everything** since it's **integrated** with Acumatica."

Acumatica The Cloud ERP — CERTIFIED APPLICATION

Acumatica PRESIDENTS CLUB

5 min.
Time to install and build your first report

70+
Exclusive Acumatica functions and tools designed for financial and project reporting

Any Inquiry
Works with *any* Acumatica Generic Inquiry

800+
Happy Customers Worldwide

Unlimited
Number of users and installations included

Contact Info

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*** Live every 3rd Wednesday of the month at noon EST! ***

1-833-EXCEL-TALK

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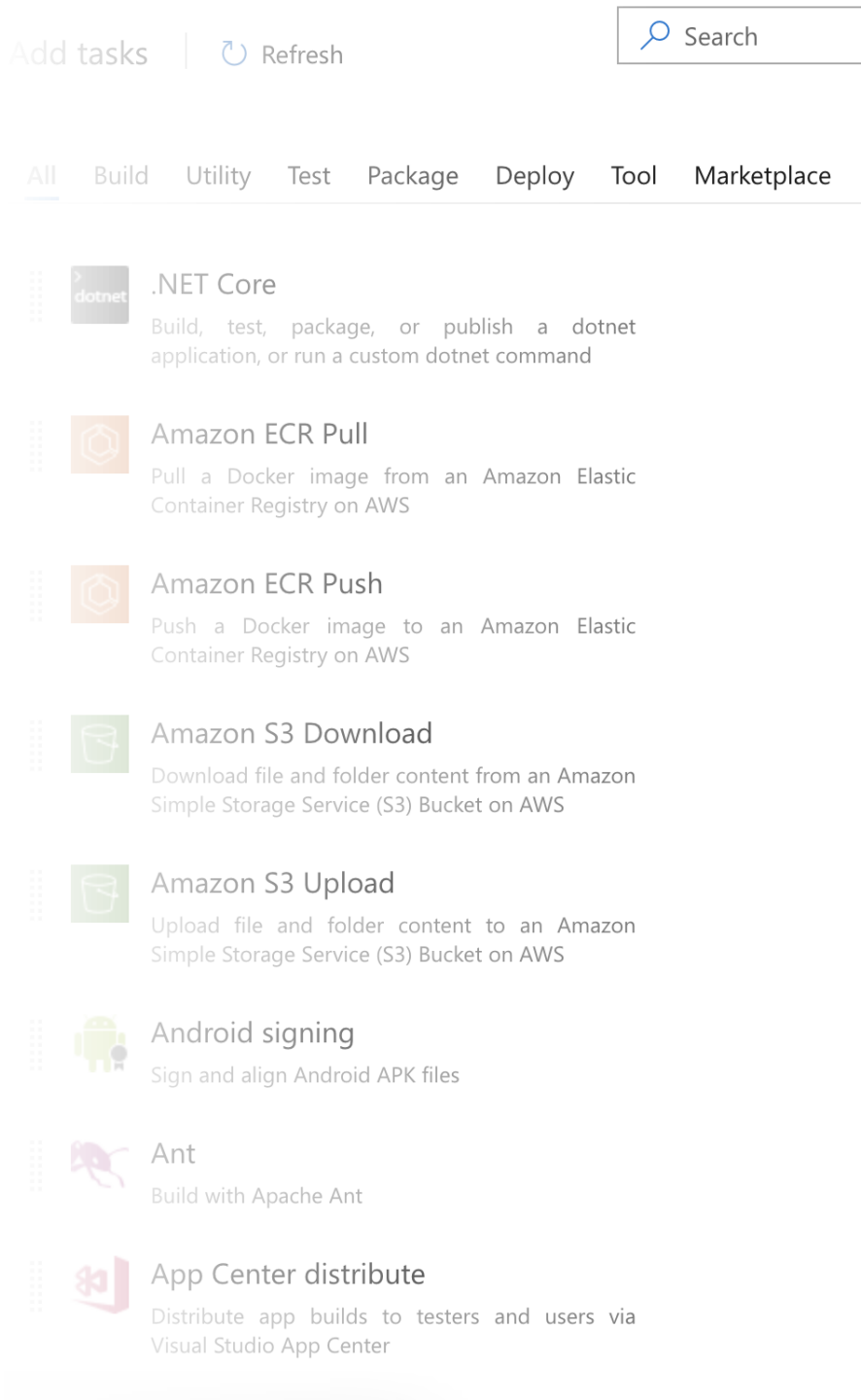
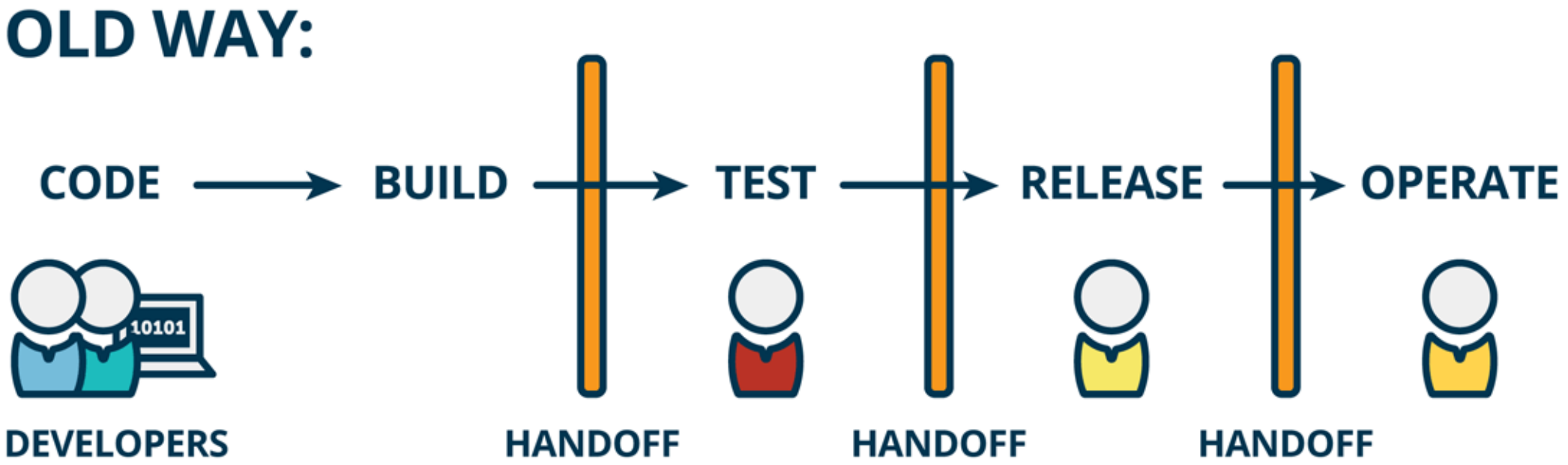
AUGForums.com/ExcelTalk

Agenda

- Introduction
- Why CI/CD?
- Setting up your own CI/CD pipeline for Acumatica development projects



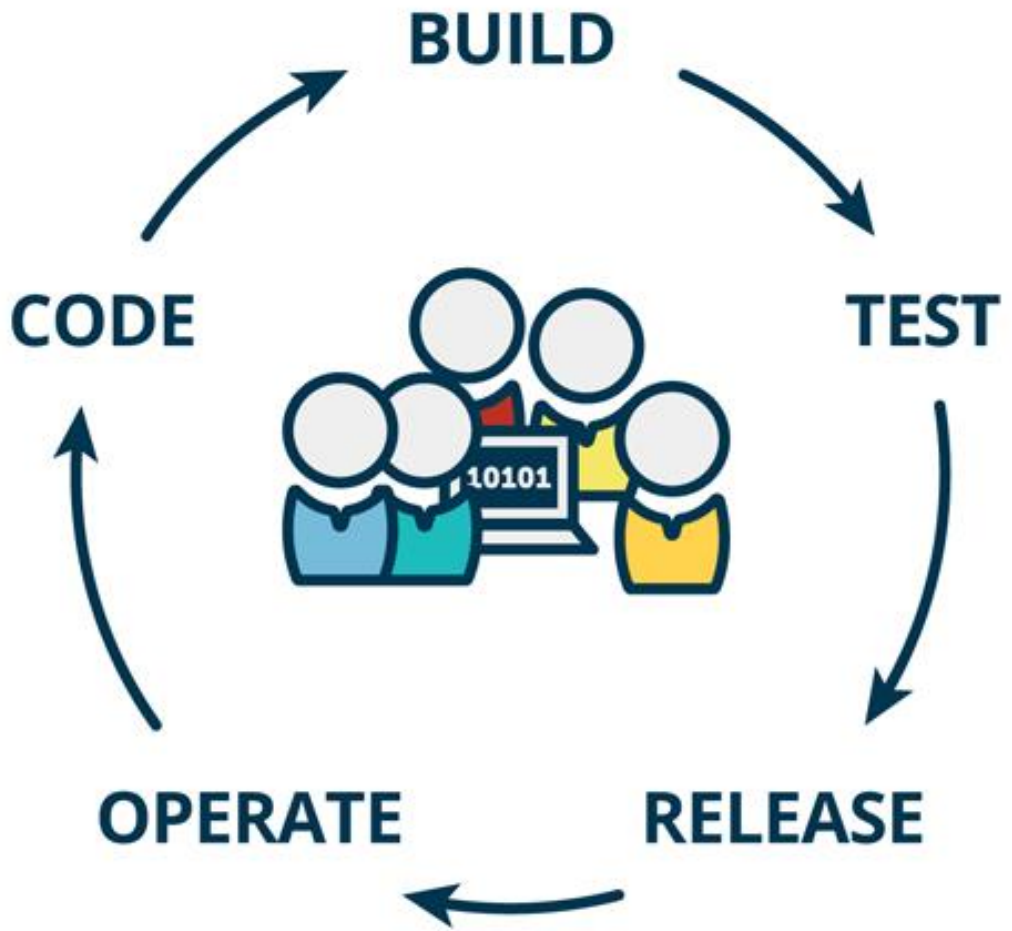
« Traditional » Software Development



Source: The Product Managers' Guide to Continuous Delivery and DevOps
https://www.mindtheproduct.com/what-the-hell-are-ci-cd-and-devops-a-cheatsheet-for-the-rest-of-us/

¯_(ツ)_/¯
IT WORKS
ON MY MACHINE

Enter Continuous Integration!



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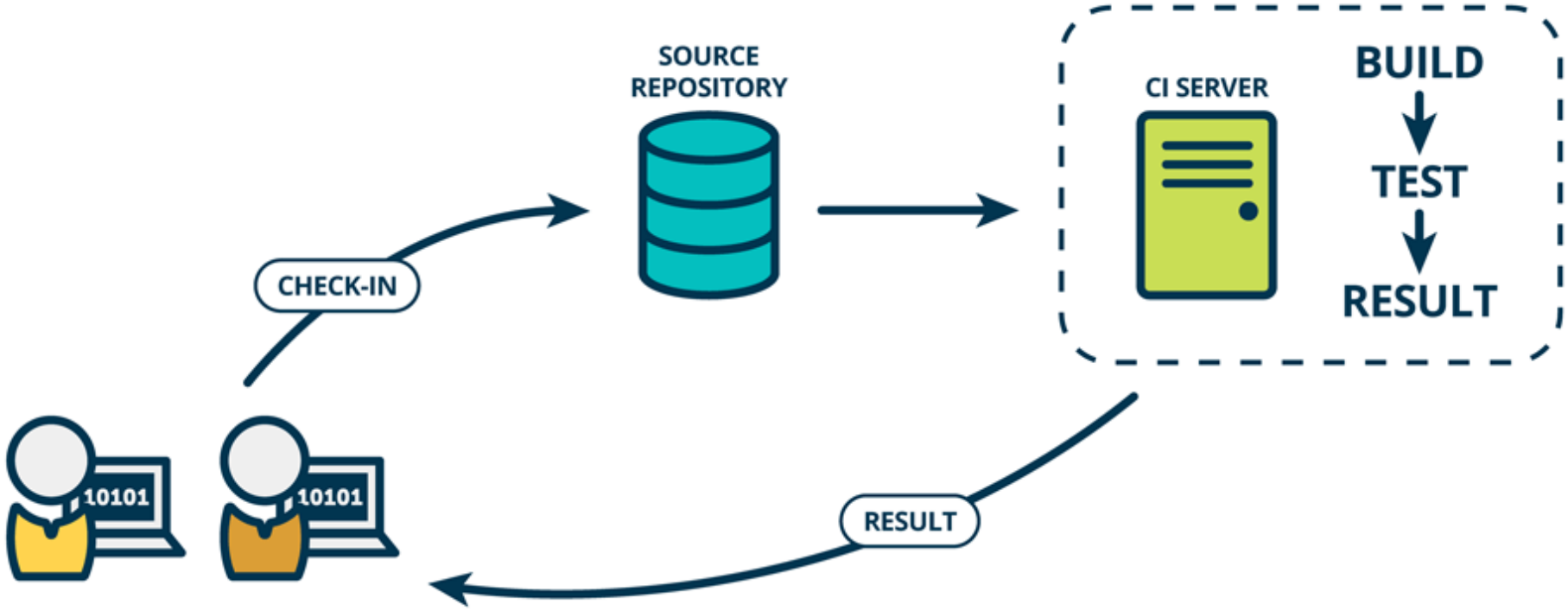
Continuous Integration

Continuous integration (CI) is a software development practice in which developers regularly integrate their code changes into a source code repository. To ensure that the new code does not introduce bugs, automated builds and tests run before or after developers check in their changes.



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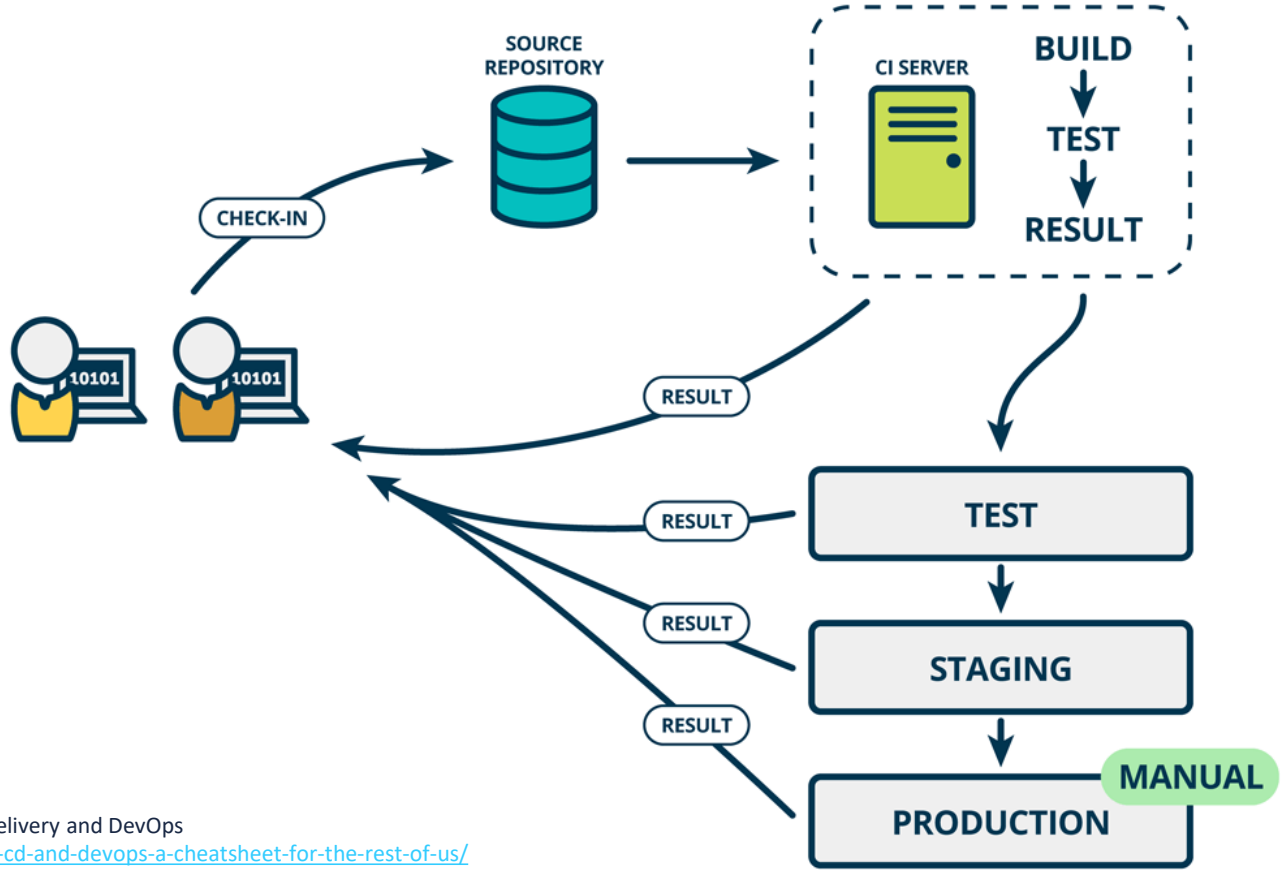
Continuous Delivery

Continuous Delivery (CD) is the ability to get changes of all types—including new features, configuration changes, bug fixes and experiments—into production, or into the hands of users, safely and quickly in a sustainable way.



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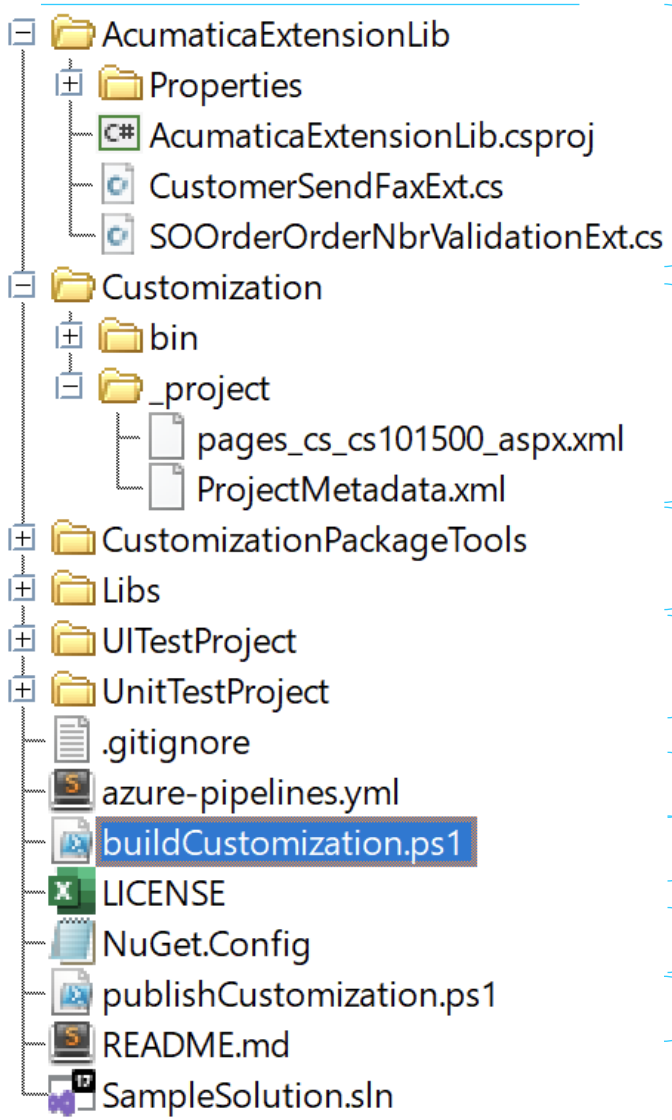
Coding Time!

Our Toolset

- A GitHub repository with our Acumatica project and associated tests
- A test Acumatica 2021 R2 instance
- Azure Pipelines
- A local build Azure Pipelines build agent
- MSTest for unit/integration tests
- Acumatica Test Framework (built on Selenium WebDriver)
- Acumatica Unit Test librairies
- **Some duct tape!**

GitHub Repository Structure



https://github.com/VelixoSolutions/AcumaticaCIDemo/

Acumatica Extension Library

- Post-build event copies DLL to customization project

Acumatica Customization Project

- Saved using Source Control menu in customization project
- Note: bin folder is *not* under source control – generated at build time

Command line app for packaging/publishing of customization + other dependencies required for unit testing

User Interface and Unit Test projects

Azure Pipelines YAML File

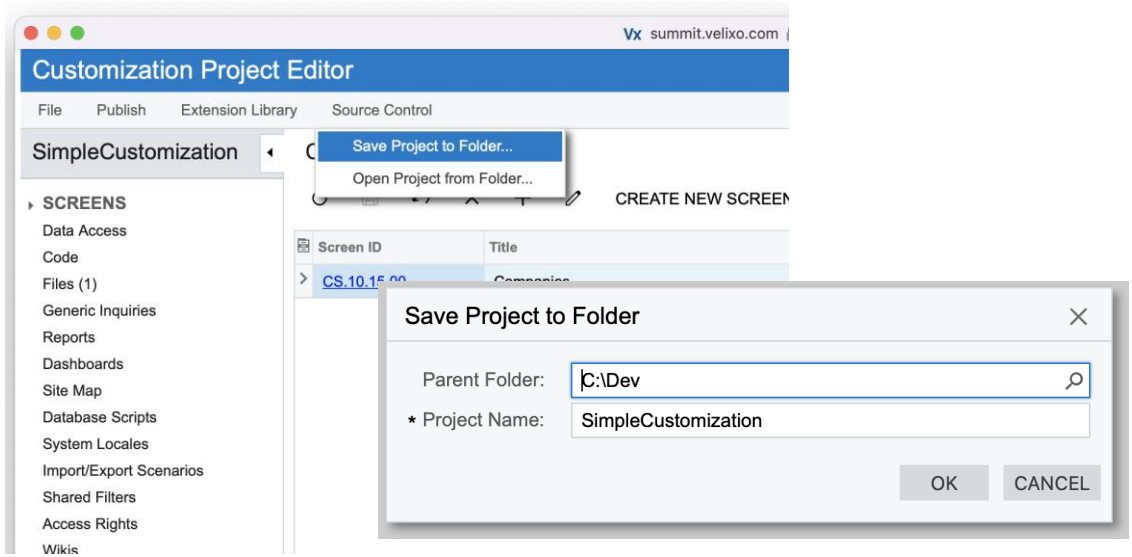
Script to **build** customization package

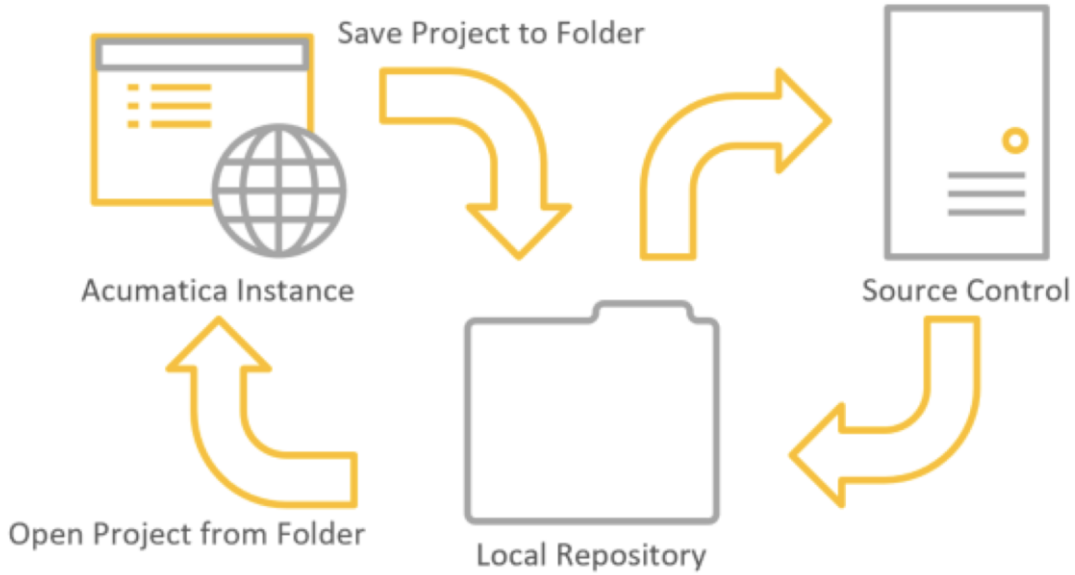
NuGet config to specify location of test SDK packages (not in online repo!)

Script to **publish** customization package

Acumatica Source Control Integration

- Not a direct link to any specific source control tool
- Read and write to a local folder
- Use a local folder subscribed to source control

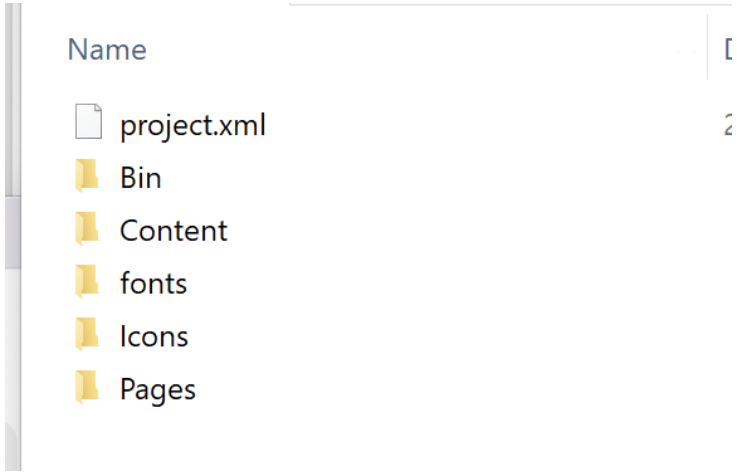




For more information, see *"Source Code and Automation for Acumatica Developers"* from the Acumatica Virtual Developer Confence 2019
Link: https://www.acumatica.com/media/2019/07/2019-Acumatica-DevCon-Source-Control-Automation.pdf

Building the Customization Package

- What's in a customization package?



- PX.CommandLine.exe
  - Problem 1: Requires a full Acumatica ERP instance to build
  - Problem 2: Slow
  - Problem 3: Doesn't seem to work at all when run in the context of a build agent

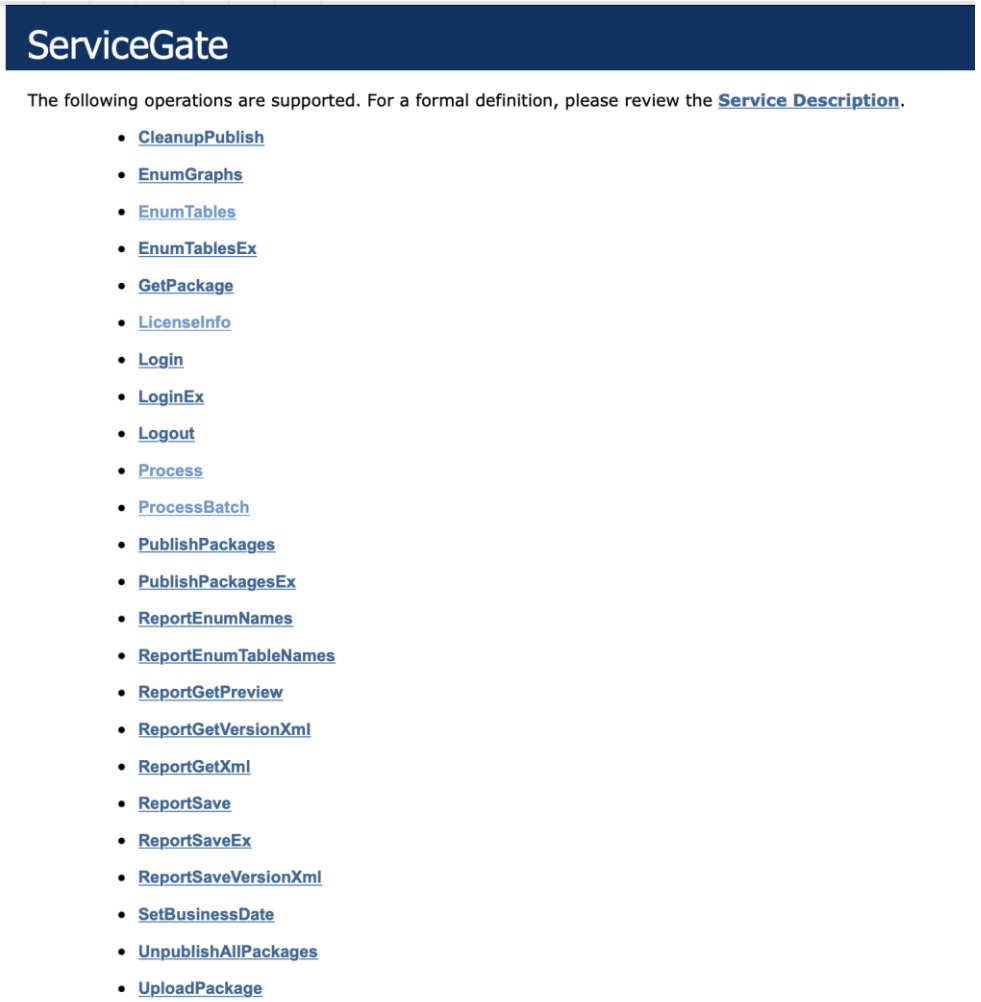
- Is there an alternative? Let's build one!

```
CustomizationPackageTools.exe build --customizationpath "Customization\" --
packagefilename "Customization\SimpleCustomization.zip" --description "Simple
customization project"
```

Publishing the customization package

- Acumatica Service API at /api/ServiceGate.asmx (SOAP only!)
- Azure Pipelines can't call a web service API, but it can run any command-line app or PowerShell script

```
CustomizationPackageTools.exe publish --packagefilename "Customization\SimpleCustomization.zip" --packagename "SimpleCustomization" --url "https://summit.velixo.com" --username mylogin --password mypassword
```



Testing - taking advantage of the Acumatica testing tools and frameworks

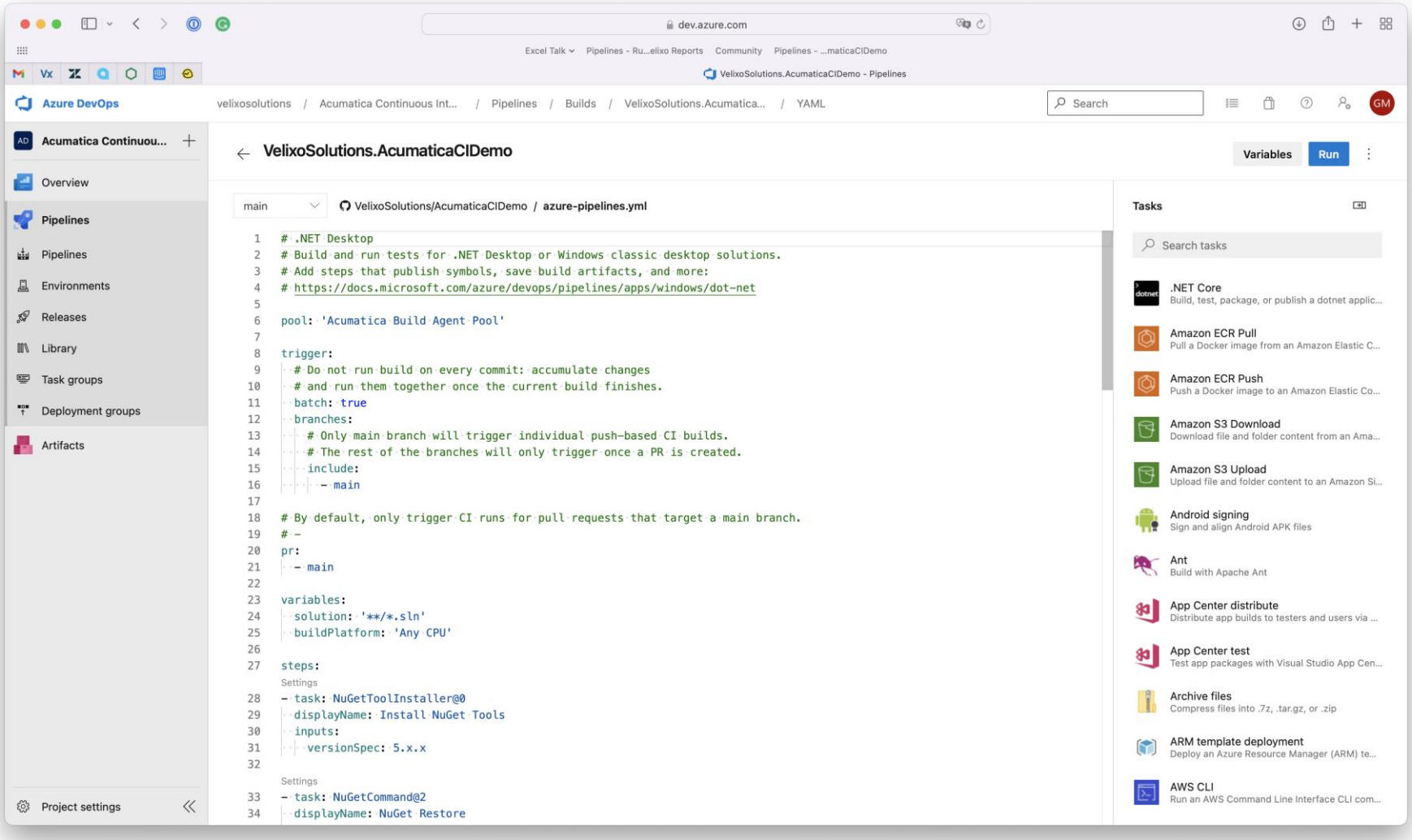
User Interface Tests (Acumatica Test SDK)

```
[TestClass]
0 references
public class CustomerSendFaxTests : UITestBase
{
    [TestMethod]
    | 0 references
    public void TestSendFaxButton()
    {
        var customer = new Customer();
        customer.OpenScreen();
        customer.First();
        customer.SendFax();
        Assert.AreEqual("Who still uses a Fax?",
            customer.DefaultContact.Fax.GetValue());
    }
}
```

Unit Tests (PX.Tests.Unit.dll)

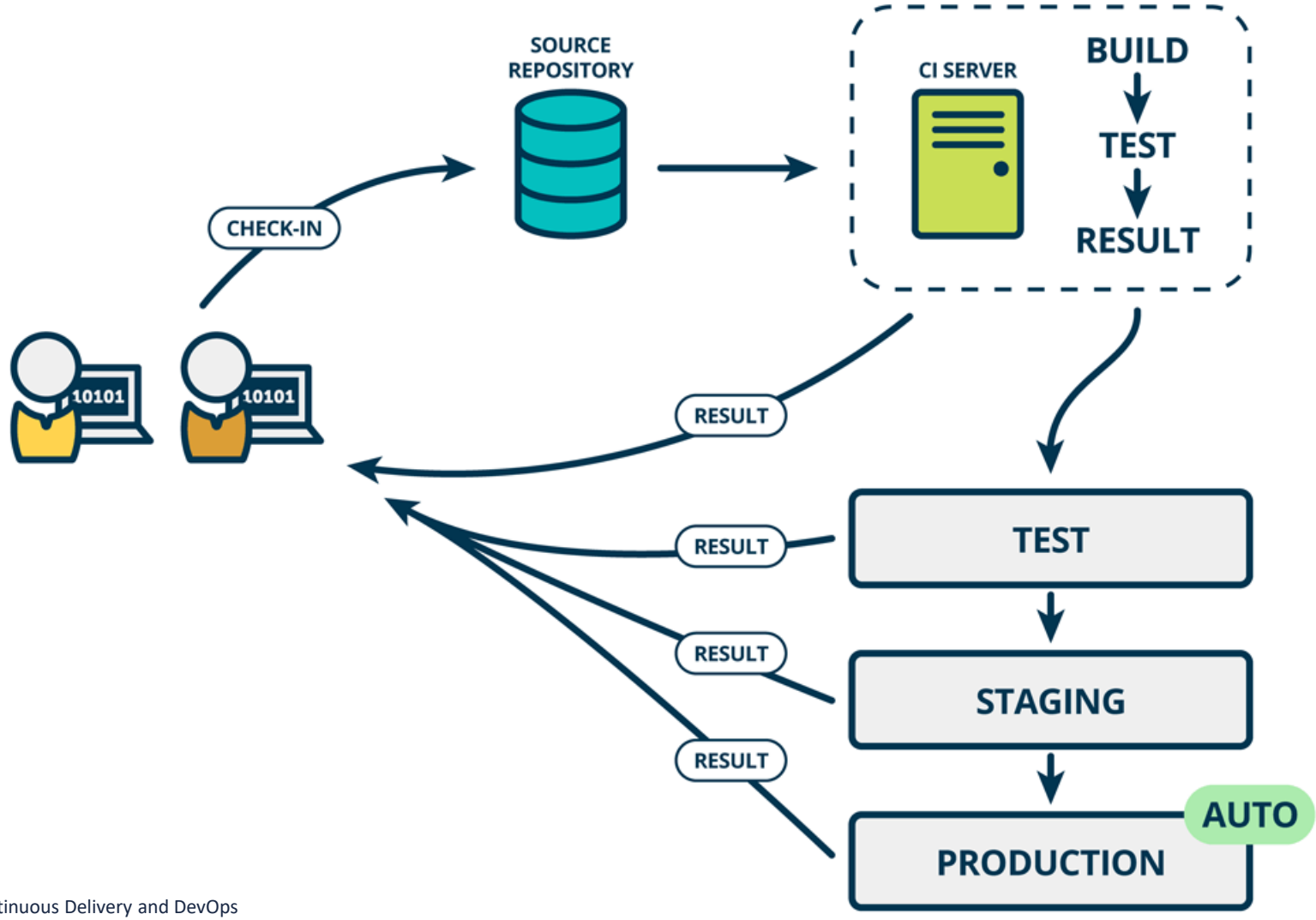
```
[TestMethod]
| 0 references
public void TestSendFaxButton()
{
    //Arrange
    var graph = PXGraph.CreateInstance<CustomerMaint>();
    var faxExt = graph.GetExtension<AcumaticaExtensionLib.CustomerSendFaxExt>();

    Customer customer = graph.BAccount.Insert(
        new Customer()
        {
            AcctCD = "TEST",
            AcctName = "Test"
        });

    //Act
    faxExt.SendFax.Press();

    //Assert
    var contactExt = graph.GetExtension<CustomerMaint.DefContactAddressExt>();
    Assert.AreEqual("Who still uses a Fax?", contactExt.DefContact.Current.Fax);
}
```

Putting it all together – the Azure pipeline YAML file



Let’s try it out!

Taking it to the next level - Continuous Deployment



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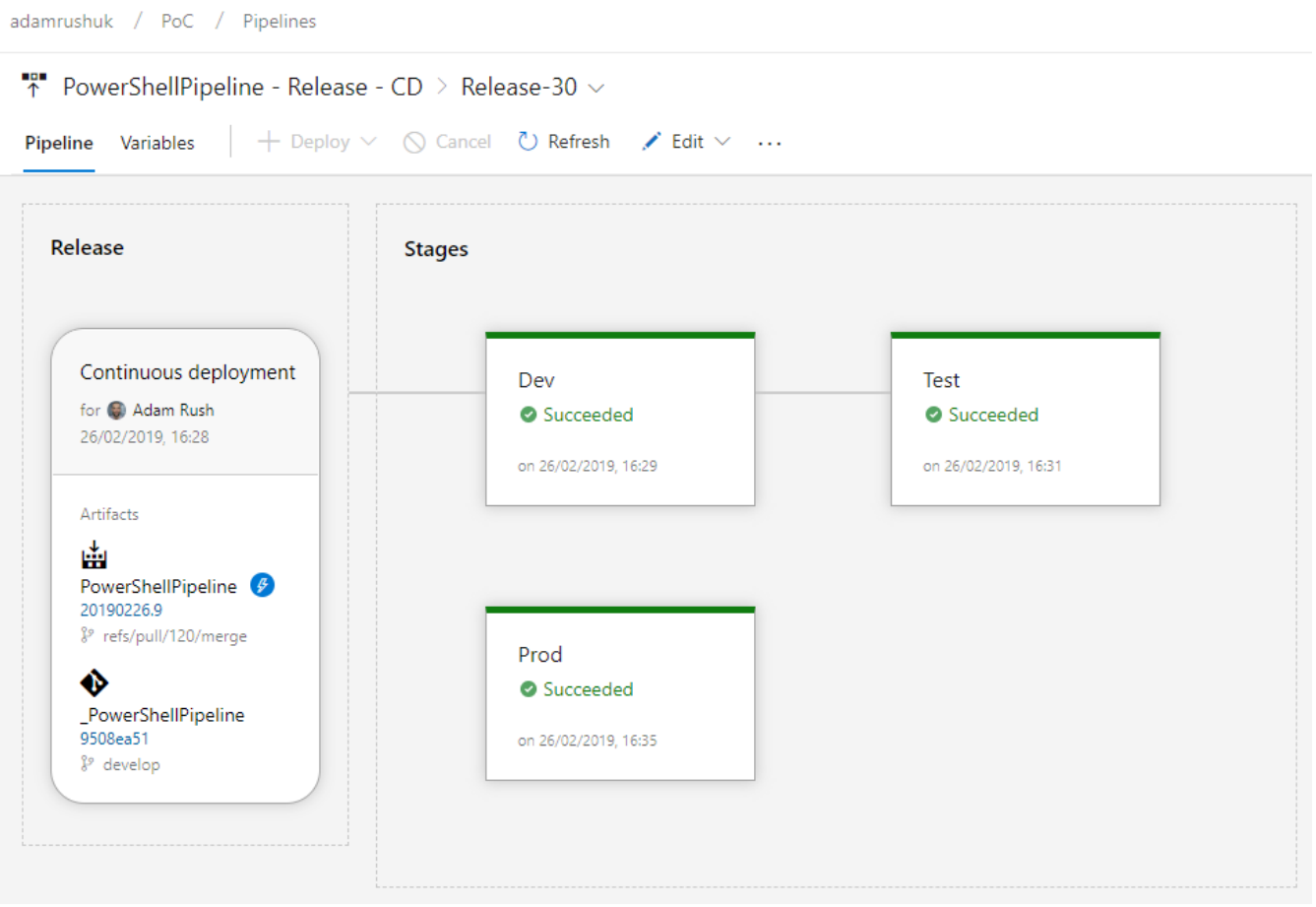
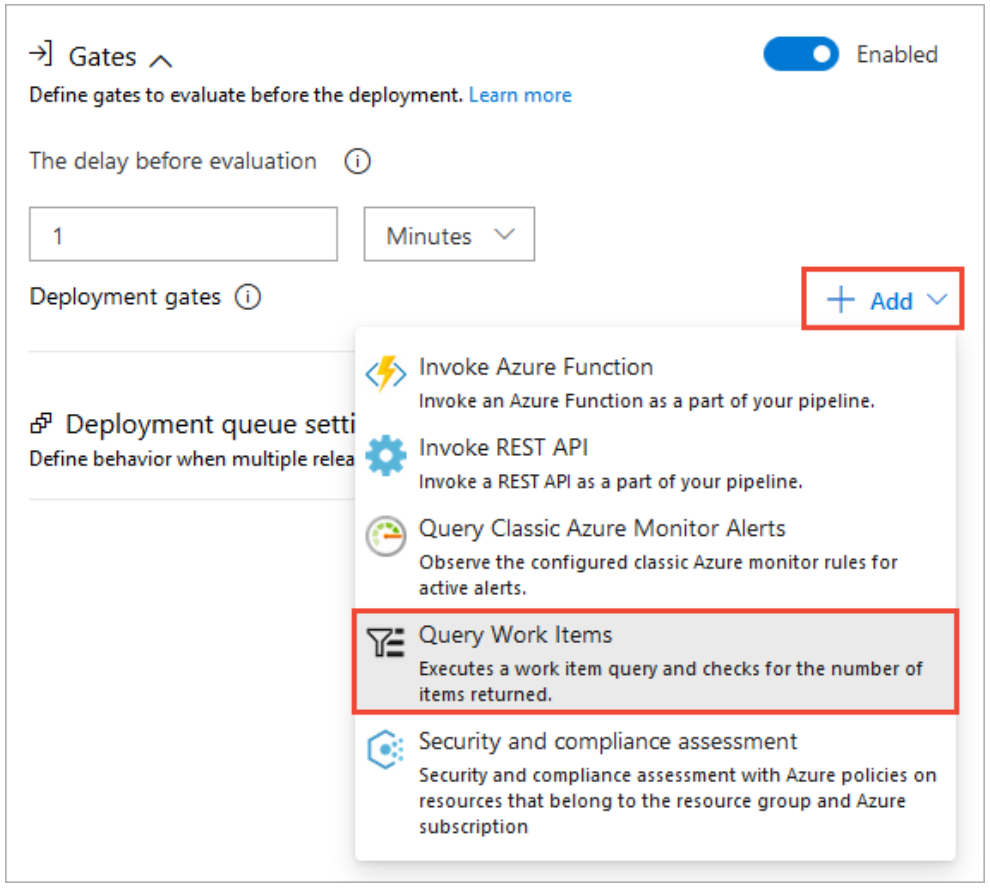
Azure Release Pipelines





Reference

- The Product Manager's Guide to Continuous Delivery and DevOps https://www.mindtheproduct.com/what-the-hell-are-ci-cd-and-devops-a-cheatsheet-for-the-rest-of-us/
- Deploy an Azure Pipelines Agent on Windows https://docs.microsoft.com/en-us/azure/devops/pipelines/agents/v2-windows?view=azure-devops
- Getting Started with Acumatica Test SDK (VLOG by Robert Waite, Acumatica MVP) https://www.youtube.com/watch?v=LiqTwe_Zhgk
- GitHub repository used in this session: https://github.com/VelixoSolutions/AcumaticaCIDemo/
- T280 DEVELOPMENT: TESTING BUSINESS LOGIC WITH THE ACUMATICA UNIT TEST FRAMEWORK 2021 R2 https://openuni.acumatica.com/courses/development/t280-development-testing-business-logic/
- NEW: Test SDK Beginner's Guide https://github.com/AaronBeehoo/Acumatica-Test-SDK-Beginners-Guide/

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Let’s stay in touch! gabriel@velixo.com