

ALM Accelerator for Power Platform (AA4PP)

Overview, Pre-requisites, ALM Accelerator Lab Module

Hands-on Lab Step-by-Step

June 2022

V 0.91



Lab Overview and Pre-requisites

Abstract and Learning Objectives

This is a beginner level lab for you to get hands on experience with ALM accelerator for Microsoft Power Platform (AA4PP). The lab includes step-by-step instructions for someone new to these technologies. Technologies covered are:

Power Apps: A software as a service application platform that enables power users in line of business roles to easily build and deploy custom business apps. You will learn how to use the ALM Accelerator Canvas and Model-driven App for administration.

Azure DevOps: Azure DevOps supports a collaborative culture and set of processes that bring together developers, project managers, and contributors to develop software, and in the context of this lab, implement a proper CI/CD.

Make sure to follow all the pre-requisite steps listed in this document before starting the labs. Because the Power Platform is a cloud-based solution, you can complete all labs remotely.

For a list of additional learning resources and introductory videos, see [Learning Resources](#)

Lab structure and Learning Objectives

The lab is divided into pre-setup and lab module.

The labs download includes a managed solution of AA4PP from GitHub, you can find the latest release under [this link](#). The labs listed here explain E2E how to configure and install AA4PP, import a demo solution and save it in Azure DevOps and deploy to downstream environments.

Pre-requisites: Before starting the hands-on lab

Task 1: Download the Lab Files you have the files if you are reading this

1. Download file Lab File (Zip file)
2. **Save a local copy of the lab contents:** Save it to a local folder, such as C:\AA4PP. Extract the ZIP package. This package contains the lab manual (what reading now) and zip file of a pre-built solution file for ALM Accelerator and the sample solution to test.

Task 2: Sign-up for a new trial tenant

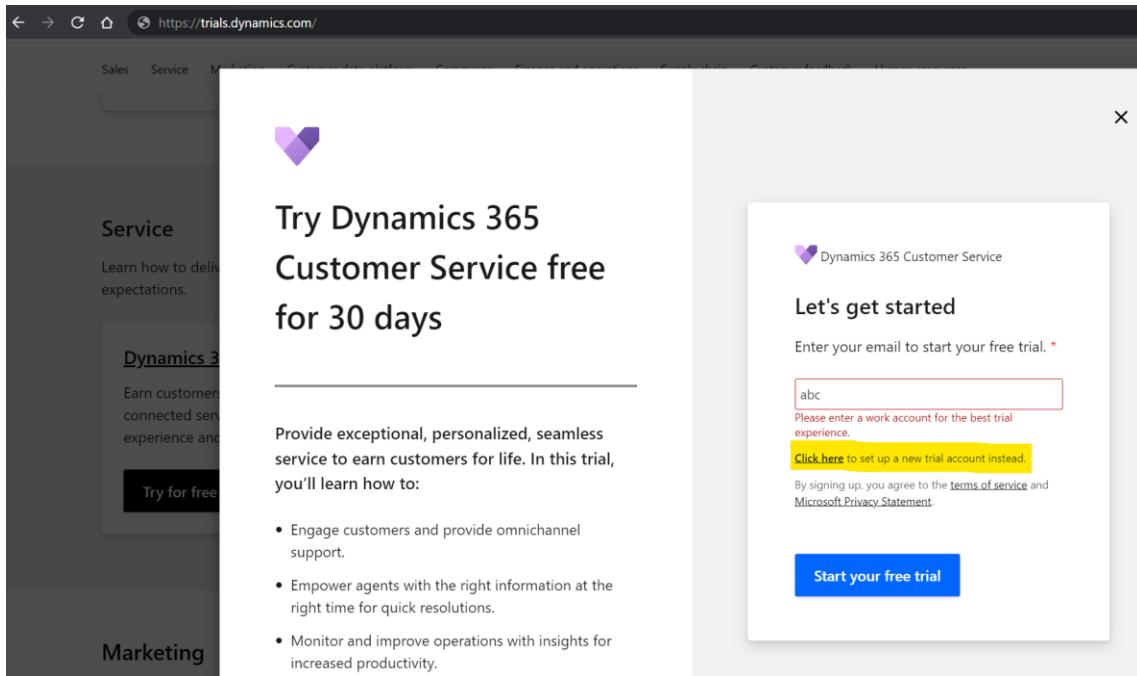
To simplify our lab and remove chances of discovering limitations or governance and control in your organization tenant, we are going to setup a brand-new trial tenant all for yourself for this lab.

After the following steps you will have a tenant and environments to use in the ALM Accelerator for Power Platform to test and learn.

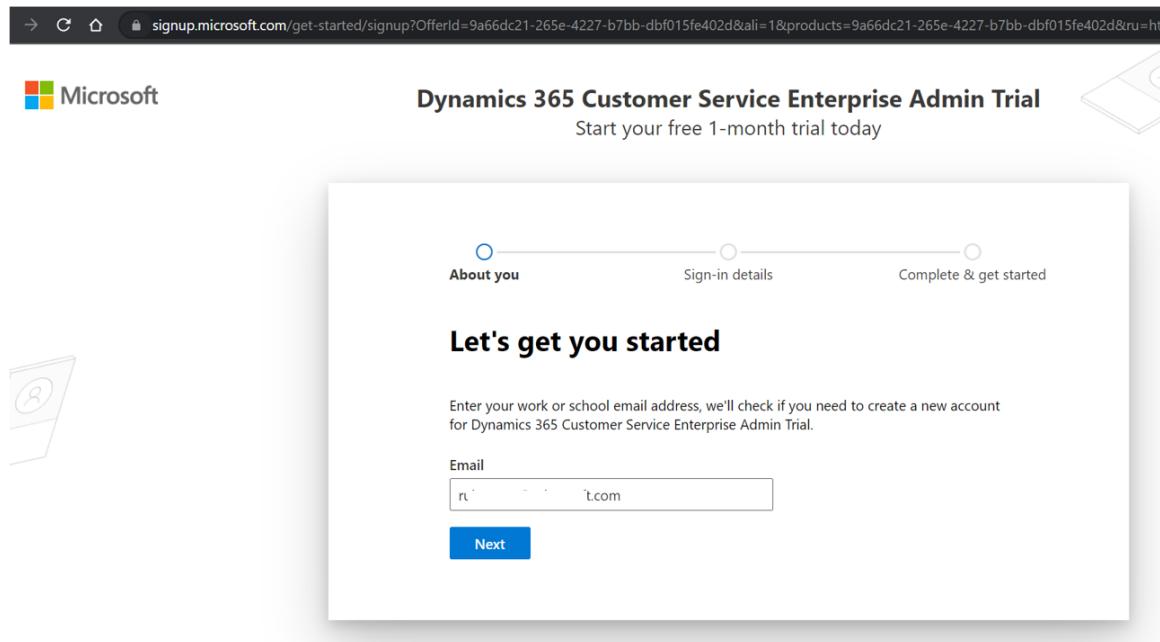
1. Open the browser in incognito/inPrivate mode and go to <https://trials.dynamics.com/>, find the **Dynamics 365 Customer services** and select **Try for free**.

The screenshot shows a web browser window with the URL https://trials.dynamics.com/ in the address bar. Below the address bar is a navigation menu with links: Sales, Service, Marketing, Customer data platform, Commerce, Finance and operations, Supply ch... (partially visible). The main content area has a light gray background. On the left, there is a section titled "Service" with the sub-section "Dynamics 365 Customer Service". This section contains a brief description: "Learn how to deliver exceptional service experiences that meet—and exceed—customer expectations." Below this description is a "Try for free >" button. To the right of this section is another section titled "Dynamics 365 Field Se..." with a similar description and a "Try for free >" button. The overall layout is clean and professional, typical of a Microsoft product trial landing page.

2. In the enter your email just write **abc** and select **Start your free trial**, afterwards you will be able to see **Select here to setup a new trial account**



3. Provide your school or work email and select **Next**



4. In case you have used your email in other trials you will need to select **Create a new account instead**



Dynamics 365 Customer Service Enterprise Admin Trial

Start your free 1-month trial today



About you Sign-in details Complete & get started

Let's get you started

Looks like you're already using ru [.com](#) with another Microsoft service. Sign in to use this account with this trial, or create a new account.

[Sign In](#) [Create a new account instead](#)

5. Fill out the form and select **Next**

Note: The name of the company will be used to create the domain name, in this case you may want to name something like **ALM4PP** or similar

Dynamics 365 Customer Service Enterprise Admin Trial

Start your free 1-month trial today

About you Sign-in details Complete & get started

Tell us about yourself

First name

This is required

Middle name (Optional)

Last name

This is required

Business phone number

Company name

Company size

Country or Region

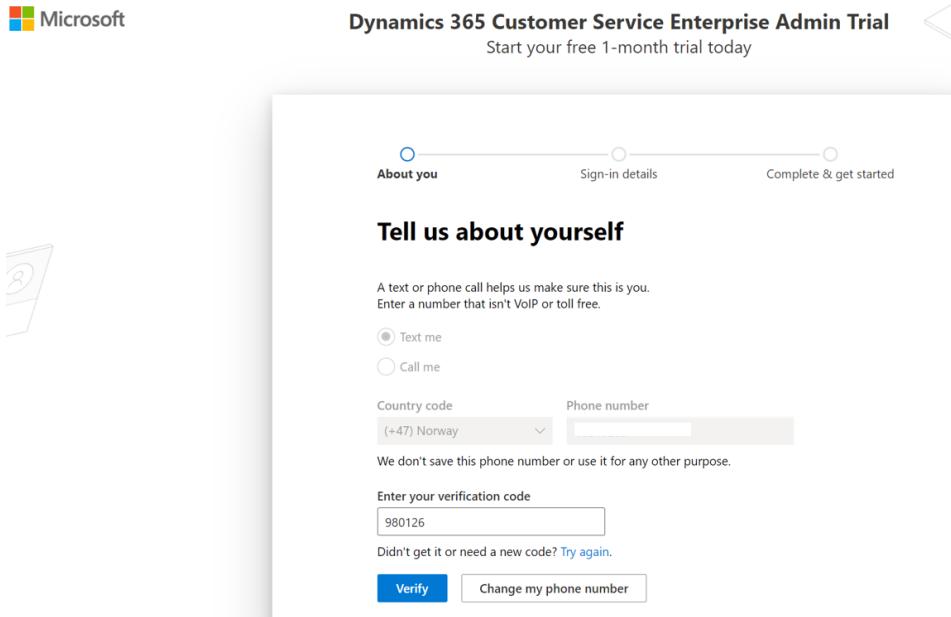
I understand that Microsoft may contact me about my trial.

I will receive information, tips, and offers about solutions for businesses and organizations, and other Microsoft products and services. [Privacy Statement](#).

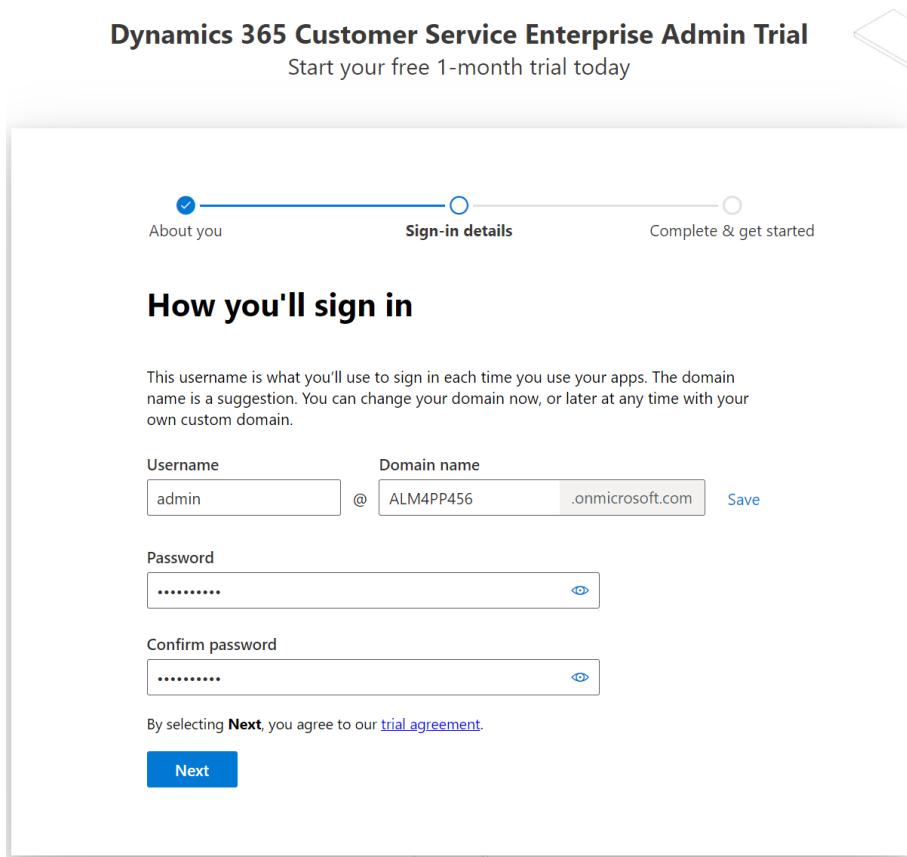
I would like Microsoft to share my information with select partners so I can receive relevant information about their products and services. To learn more, view the [Privacy Statement](#).

[Next](#)

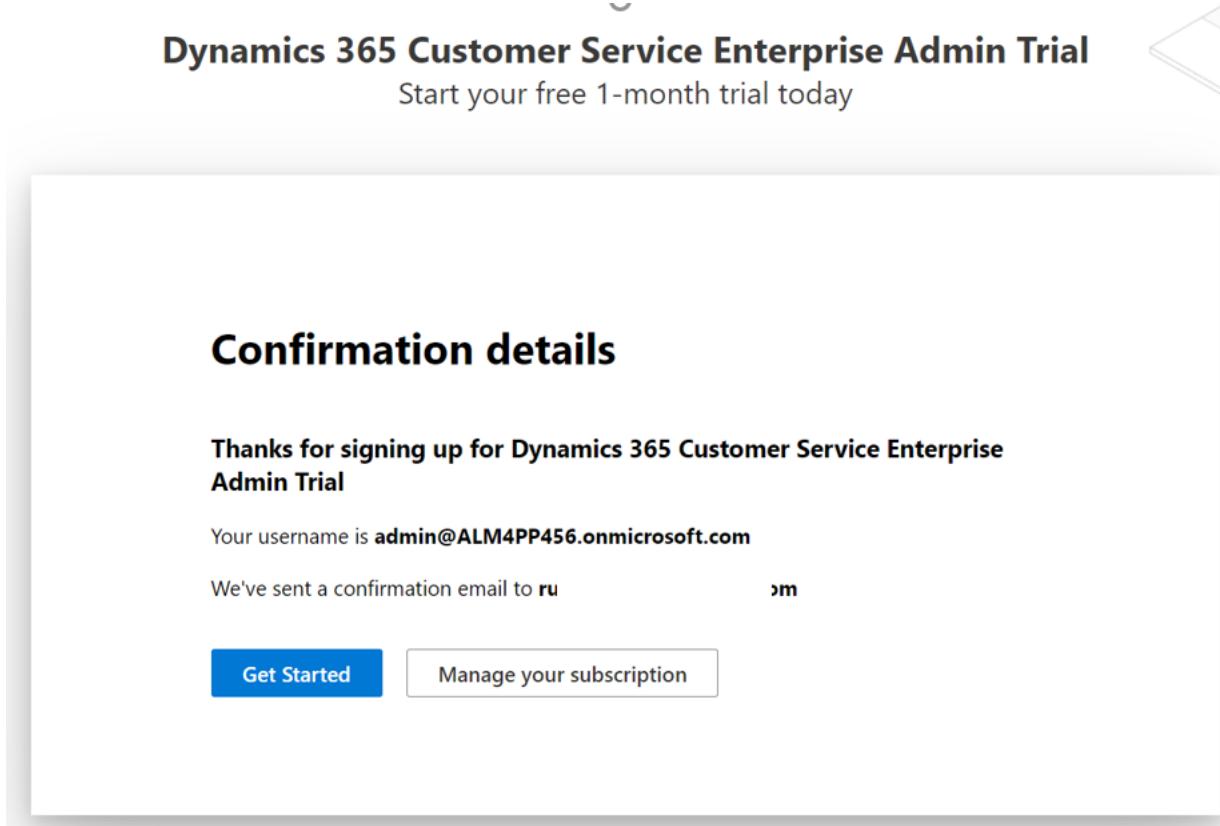
6. Validate your phone number select **Verify**



7. Rename the user to be **admin** and provide a password. If you would like to rename the domain of your tenant this would be the last opportunity, for simplicity we will keep the suggested name and select **Next**.



8. Select **Get Started**

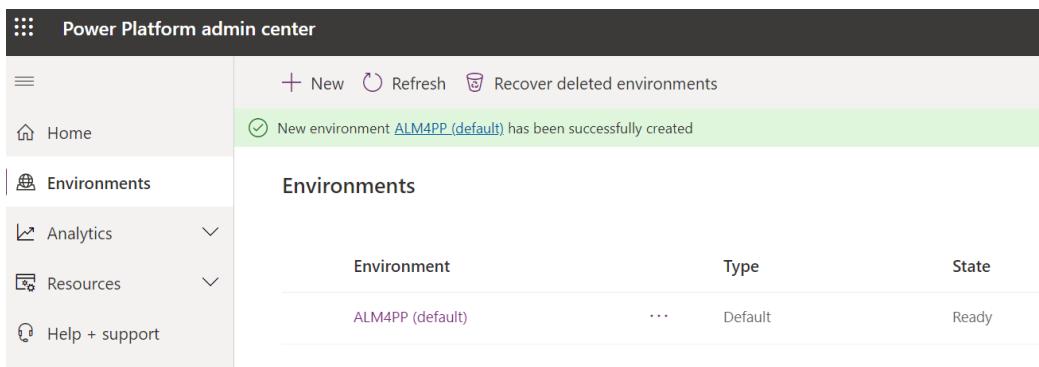


The screenshot shows the Dynamics 365 Customer Service Enterprise Admin Trial confirmation page. At the top, it says "Dynamics 365 Customer Service Enterprise Admin Trial" and "Start your free 1-month trial today". Below that, the heading "Confirmation details" is displayed. A message reads "Thanks for signing up for Dynamics 365 Customer Service Enterprise Admin Trial". It also states "Your username is admin@ALM4PP456.onmicrosoft.com" and "We've sent a confirmation email to ru". At the bottom, there are two buttons: "Get Started" (blue) and "Manage your subscription".

- Now we will create 3 environments with name **ALM-Dev**, **ALM-Validation**, **ALM-Test**, we will keep the default type as **Trial (Subscription-based)**.

Note: Please repeat the following steps to create the 3 environments

- Select **New** from the top right corner



The screenshot shows the Power Platform admin center. The left sidebar has options: Home, Environments (selected), Analytics, Resources, and Help + support. The main area shows a table of environments. A green success message at the top right says "New environment ALM4PP (default) has been successfully created". The table has columns: Environment, Type, and State. One row is shown: ALM4PP (default), Default, Ready.

Environment	Type	State
ALM4PP (default)	Default	Ready

- Fill **Name** of the environment and keep the **Trial(Subscription-based)** and select **Next**. In The URL of the environment, since needs to be unique, add some suffix, for instance your name.

New environment

This operation is subject to [capacity constraints](#)

Name *
ALM-Dev

Region *
Norway - Default

A local region can provide quicker data access

Type ⓘ *
Trial (subscription-based)

Purpose
Describe the environment's purpose

Create a database for this environment? ⓘ
 Yes

A database must always be created for the selected type: Trial (subscription-based)

Add database

This operation is subject to [capacity constraints](#)

Language *
English

Default language for user interfaces in this environment

URL
If you don't enter a domain name, we will pick one for you
ALM-Dev-rui

Currency *
NOK (kr)

Reports will use this currency

Enable Dynamics 365 apps?
In addition to Power Apps. [Learn more](#)
 No

Deploy sample apps and data?
 No

Security group
Restrict environment access to people in this security group. Otherwise, everyone can access. [Learn more](#)

Select

Save **Cancel**

Add database

This operation is subject to [capacity constraints](#)

Language *
English

Default language for user interfaces in this environment

URL
If you don't enter a domain name, we will pick one for you
ALM-Dev-rui

Currency *
NOK (kr)

Reports will use this currency

Enable Dynamics 365 apps?
In addition to Power Apps. [Learn more](#)
 No

Deploy sample apps and data?
 No

Security group
Restrict environment access to people in this security group. Otherwise, everyone can access. [Learn more](#)

Select

Cancel

Note: Define the url based on the name of the environment you are creating, by select **here** in the Url

URL

A unique domain name will be generated.

Click [here](#) to enter a custom domain

- c. After you have completed the 3 environments, we will need to create an additional one that will represent our Production environment for that repeat the previous steps but select **Trial** as the environment **Type**

New environment

ⓘ This operation is subject to [capacity constraints](#)

Name *	ALM-Prod
Region *	Norway - Default
A local region can provide quicker data access	
Type ⓘ *	Trial
Purpose	Describe the environment's purpose

Create a database for this environment? ⓘ

Yes

Add database

ⓘ This operation is subject to [capacity constraints](#)

Language *	English
Default language for user interfaces in this environment	
URL	If you don't enter a domain name, we will pick one for you
ALM-Prod-rui	
Currency *	NOK (kr)
Reports will use this currency	
Enable Dynamics 365 apps?	
In addition to Power Apps. Learn more	
<input type="checkbox"/> No	
Dynamics 365 apps can only be enabled for Production or Sandbox environments. You can start a trial here	
Deploy sample apps and data?	
<input type="checkbox"/> No	
Security group	
Restrict environment access to people in this security group. Otherwise, everyone can access. Learn more	

10. After you have completed you should have a similar list

Power Platform admin center				
		Environments		
		New environment ALM-Prod has been successfully created		
☰	Home	Environment	Type	State
		ALM-Prod	...	Trial (29 days remaining)
		ALM-Test	...	Trial (subscription-based)
		ALM-Validation	...	Trial (subscription-based)
		ALM-Dev	...	Trial (subscription-based)
		ALM4PP (default)	...	Default

Task 3: Create an organization in Azure DevOps

Please follow the steps below to create an account in Azure DevOps using the admin user.

1. Navigate to [Azure DevOps](#) and select "Start free".

The screenshot shows the Azure DevOps overview page. At the top, there are navigation links for Home, Services, and Azure DevOps. Below that is a large central image illustrating various DevOps concepts like planning, building, and deploying. Two prominent buttons are visible: a blue 'Start free' button and a white 'Start free with GitHub' button. Below these buttons, there's a link for users who already have an account: 'Sign in to Azure DevOps >'. The main content area features three service highlights: 'Azure Boards' (with a green icon), 'Azure Pipelines' (with a blue icon), and 'Azure Repos' (with a red icon). Each highlight includes a brief description and a 'Learn more >' link.

2. Select the Country/region, and **Continue**

The screenshot shows the 'Get started with Azure DevOps' setup page. It displays the Azure DevOps logo and the email address 'admin@ALM4PP456.onmicrosoft.com'. The main heading is 'Get started with Azure DevOps'. A note below states: 'Choosing **Continue** means that you agree to our [Terms of Service](#), [Privacy Statement](#), and [Code of Conduct](#)'. A message indicates that the user will receive information, tips, and offers about Azure DevOps and other Microsoft products and services, with a link to the 'Privacy Statement'. A dropdown menu labeled 'Country/region' is set to 'United States'. A large blue 'Continue' button is at the bottom right.

3. Define your DevOps organization, in my case I used "RuiAA4PP" but you can name it what you want.

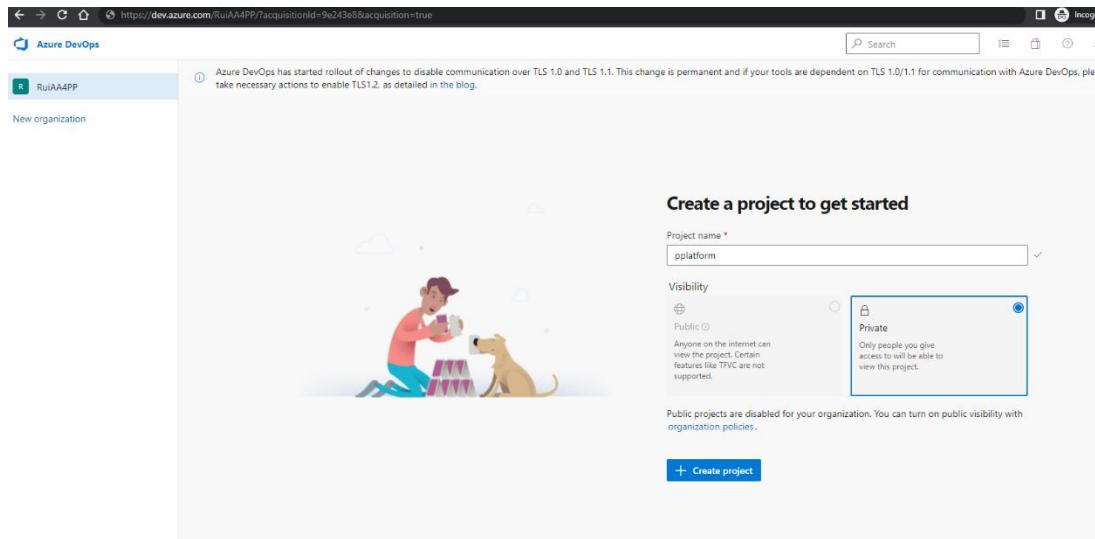


4. Sometimes it might take 1 or 2 minutes in the loading state

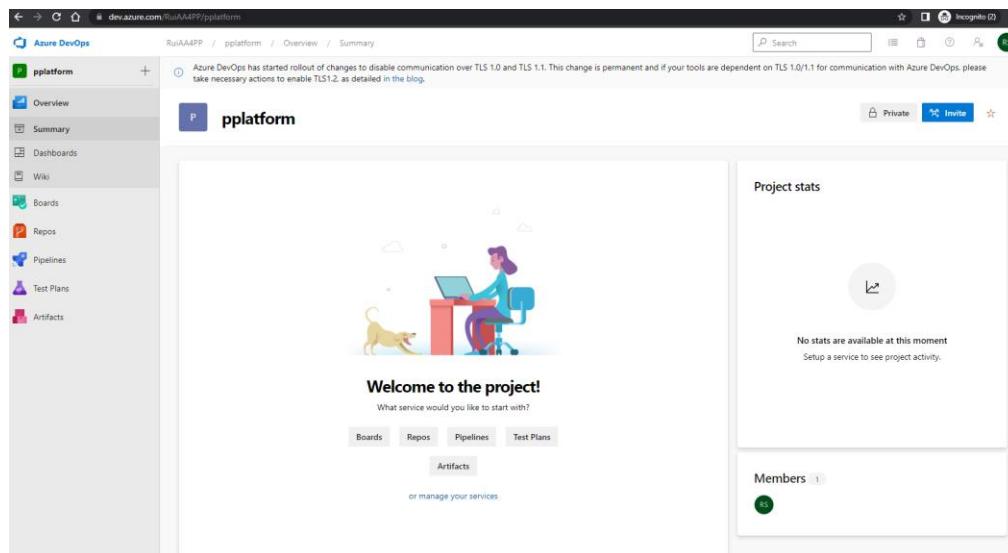


5. After the DevOps organization is created you should be able to create a new project. Let's name the project "pplatform" and select the **Private** visibility and select **Create project**.

AA4PP Lab



6. Congratulations, you have created the Azure DevOps project, this is how looks like the success.



7. Later we will need parallelism grant, so go to this website <https://aka.ms/azpipelines-parallelism-request> and fill out the form, only after you are granted you will be able to run pipelines configured later. This process might take some hours or days, it is important you do it asap.

Azure DevOps Parallelism Request

This form is for users to request increased parallelism in Azure DevOps.

Please consider that it could take 2-3 business days to proceed the request. We are working on improving this process at the moment. Sorry for the inconvenience.

* Required

1. What is your name? *

You Name

2. What is your email address? *

your_real@email.com

3. What is the name of your Azure DevOps Organization? *

(E.g. for <https://myorganization.visualstudio.com> or <https://dev.azure.com/myorganization> link formats - organization name would be 'myorganization')

RuiAA4PP

4. Are you requesting a parallelism increase for Public or Private projects? *

Private

Public

Submit

Never give out your password. [Report abuse](#)

After the process has been completed you should receive an email like this

Free tier request was completed

AT Ari
To Cc

Hi Rui Santos,

We've received your request to increase free parallelism in Azure DevOps.

Please note that your request was Completed

Request Details:

Name	R
Email	rui
Organization Name	RuiAA4PP
Parallelism Type	Private

Request Free Parallelism for your organization: [Azure DevOps Parallelism Request Form](#)

Useful information:

- Azure DevOps Documentation: [Configure and pay for parallel jobs](#)
- Azure DevOps Blog post [Change in Azure Pipelines Grant for Private Projects](#)
- Azure DevOps Blog post [Change in Azure Pipelines Grant for Public Projects](#)

Configurations in your tenant

In this module you will configure different parts of the ALM process. The environment strategy is important to have in mind, and in case you want more details you can read this [documentation](#).

Another important aspect related to strategy and vision, are the roles and responsibilities when establishing a Center of Excellence. In your organization, this might be different, or you might start with only a few roles and grow to more as your adoption journey continues, you can read this [documentation](#).

Task 4: Configurations – Azure<-> Power Platform <-> Azure DevOps

Next we need to make sure our Environments in Power Platform are able to be accessed by Azure DevOps, please remember, is the Azure DevOps pipelines that will access the different environments to retrieve and deploy the solutions, for that to be possible we need to create an app registration in azure following by some configurations in Azure DevOps and Dataverse. The next steps will illustrate what you need to do.

1. Sign in to the [Azure portal](#).
2. Go to **Azure Active Directory**

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'All' (selected), 'Services (85)', 'Resources', 'Resource Groups', 'Marketplace (4)', and 'Documentation (20)'. The main content area is titled 'Azure Active' and shows the 'Azure Active Directory' service selected. Below the title, there are sections for 'Services', 'Marketplace', and 'Tools'. The 'Services' section lists 'Azure Active Directory', 'Security', 'Activity log', and 'Azure Cosmos DB'. The 'Tools' section includes links like 'Identity Protector', 'Azure Active Directory B2C', and 'External Identities in Azure Active Directory'. At the bottom, there are links for 'Subscriptions', 'Resource groups', 'All resources', 'Dashboard', and various 'Tools' such as 'Microsoft Learn', 'Azure Monitor', 'Microsoft Defender for Cloud', and 'Cost Management'.

3. Find on the left bar **App registrations**.

RuiAA4PP | Overview

Basic information

Name	RuiAA4PP	Users	5
Tenant ID	d310d16e-402e-4b8f-aa35-5ced00d6e8be	Groups	2
Primary domain	RuiAA4PP.onmicrosoft.com	Applications	0
License	Azure AD Free	Devices	0

Alerts

Upcoming TLS 1.0, 1.1 and 3DES deprecation
Please enable support for TLS 1.2 on clients(applications/platform) to avoid any service impact.
[Learn more](#)

My feed

Rui Santos
2e12cbb-a-4505-4c86-b6c8-df69f92a1a59
Global administrator
[View role information](#)
[View profile](#)

Azure AD Connect
Not enabled
Sync has never run
[Go to Azure AD Connect](#)

4. Select **New registration**, and then give the registration a name, such as **ALMAcceleratorServicePrincipal**. Leave all other options as default, and then select **Register**.
5. Select **API permissions > + Add a permission**.
6. Select **Dynamics CRM**,

The screenshot shows the Microsoft Azure portal's API permissions configuration for the ALMAcceleratorServicePrincipal. In the left sidebar, under 'Manage', 'API permissions' is selected. The main area shows a table of configured permissions:

API / Permissions name	Type	Description
Microsoft Graph (1)		
User.Read	Delegated	Sign in and read user profile

To the right, a 'Request API permissions' panel lists various Microsoft APIs:

- Microsoft Graph**: Take advantage of the tremendous amount of data in Office 365, Enterprise Mobility + Security, and Windows 10. Access Azure AD, Excel, Intune, Outlook/Exchange, OneDrive, OneNote, SharePoint, Planner, and more through a single endpoint.
- Azure Communication Services**: Rich communication experiences with the same secure CPaaS platform used by Microsoft Teams.
- Azure DevOps**: Integrate with Azure DevOps and Azure DevOps server.
- Azure Rights Management Services**: Allow validated users to read and write protected content.
- Azure Service Management**: Programmatic access to much of the functionality available through the Azure portal.
- Data Export Service for Microsoft Dynamics 365**: Export data from Microsoft Dynamics CRM organization to an external destination.
- Dynamics 365 Business Central**: Programmatic access to data and functionality in Dynamics 365 Business Central.
- Dynamics CRM**: Access the capabilities of CRM business software and ERP systems.
- Flow Service**: Embed flow templates and manage flows.
- Intune**: Programmatic access to Intune data.
- Office 365 Management APIs**: Retrieve information about user, admin, system, and policy actions and events from Office 365 and Azure AD activity logs.
- Power BI Service**: Programmatic access to Dashboard resources such as Datasets, Tables, and Rows in Power BI.
- SharePoint**: Interact remotely with SharePoint data.
- Skype for Business**: Integrate real-time presence, secure messaging, calling, and conference conference capabilities.
- Yammer**: Access resources in the Yammer web interface (e.g. messages, users, groups etc.)

7. and configure permissions as follows:

- Select **Delegated permissions**.
- Select **user_impersonation**.

The screenshot shows the Microsoft Azure portal's API permissions configuration for the ALMAcceleratorServicePrincipal. The 'Configured permissions' section shows a single permission: 'User.Read' under 'Microsoft Graph (1)'. The right pane shows the 'Request API permissions' interface:

Select permissions: Search bar containing 'user_impersonation'.

Permission	Admin consent required
user_impersonation	No

8. Select **Add permissions**.

9. Repeat the preceding steps for the following permissions:

- PowerApps-Advisor**. This is required for running static analysis via the [app checker](#). This permission can be found under **APIs my organization uses**.

Request API permissions

Select an API

Microsoft APIs **APIs my organization uses** My APIs

Apps in your directory that expose APIs are shown below

Name	Application (client) ID
PowerApps-Advisor	c9299480-c13a-49db-a7ae-cdfe54fe0313

- b. Select the permission illustrated in the following image and select **Add permissions**

Permission	Admin consent required
Analysis.All	Yes
Analysis.All	No

- c. **DevOps.** This is required for connecting to Azure DevOps via the custom connector in the ALM accelerator app. This permission can either be found under Microsoft APIs or under **APIs my organization uses**.

Request API permissions

Select an API

Microsoft APIs **APIs my organization uses** My APIs

Apps in your directory that expose APIs are shown below

Name	Application (client) ID
Azure DevOps	499b84ac-1321-427f-aa17-267ca6975798

Request API permissions

[All APIs](#)

Azure DevOps
https://app.vssps.visualstudio.com/ [Docs](#)

What type of permissions does your application require?

Delegated permissions Your application needs to access the API as the signed-in user.	Application permissions Your application runs as a background service or daemon without a signed-in user.
---	---

Select permissions [expand all](#)

Start typing a permission to filter these results

The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organization, or in organizations where this app will be used. [Learn more](#)

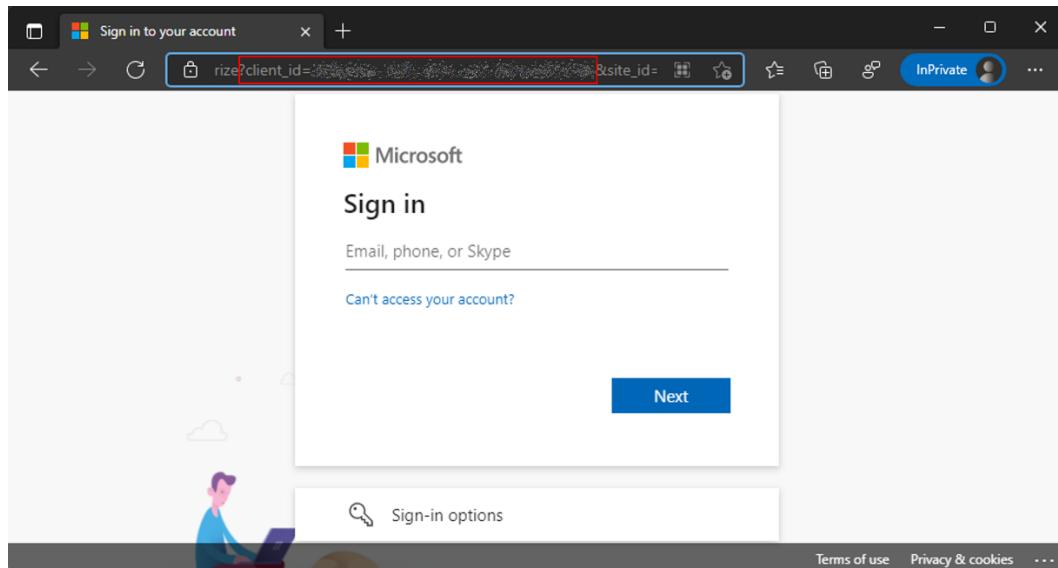
Permission	Admin consent required
Permissions (1)	
<input checked="" type="checkbox"/> user_impersonation <small>Have full access to Visual Studio Team Services REST APIs</small>	No

- d. If adding the Azure DevOps permissions from the **APIs my organization uses** list, you should copy the **Application (client) ID** for later use.

Note: You'll use this value later and specifically call it out as the **DevOps Application (client) ID**, which is different from the **Application (client) ID** you'll copy in step 12 of this procedure.

If you cannot find the Azure DevOps permissions in the **APIs my organization uses** you can get the **DevOps Application (client) ID** by following these steps:

1. Open a private browser session and go to [https://dev.azure.com/\[your devops organization\]/_apis](https://dev.azure.com/[your devops organization]/_apis)
2. After being redirected to the login page, copy the value of the **client_id** parameter in the url on the login page



After adding permissions in your app registration, select **Grant Admin consent for (your tenant)**.

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. [Learn more about permissions and consent](#)

Add a permission Grant admin consent for RuiAA4PP

API / Permissions name	Type	Description	Admin consent requ...	Status
✓ Azure DevOps (1)				...
user_impersonation	Delegated	Have full access to Visual Studio Team Services REST APIs	No	...
✓ Dynamics CRM (1)				...
user_impersonation	Delegated	Access Common Data Service as organization users	No	...
✓ Microsoft Graph (1)				...
User.Read	Delegated	Sign in and read user profile	No	...
✓ PowerApps-Advisor (2)				...
Analysis.All	Delegated	Analysis.All	Yes	Not granted for RuiAA4... ...
Analysis.All	Delegated	Analysis.All	No	...

To view and manage permissions and user consent, try [Enterprise applications](#).

You should have a similar status:

API / Permissions name	Type	Description	Admin consent requ...	Status
✓ Azure DevOps (1)				...
user_impersonation	Delegated	Have full access to Visual Studio Team Services REST APIs	No	Granted for RuiAA4PP ...
✓ Dynamics CRM (1)				...
user_impersonation	Delegated	Access Common Data Service as organization users	No	Granted for RuiAA4PP ...
✓ Microsoft Graph (1)				...
User.Read	Delegated	Sign in and read user profile	No	Granted for RuiAA4PP ...
✓ PowerApps-Advisor (2)				...
Analysis.All	Delegated	Analysis.All	Yes	Granted for RuiAA4PP ...
Analysis.All	Delegated	Analysis.All	No	Granted for RuiAA4PP ...

3. Select **Certificates & Secrets**, and then select **New client secret**.
4. Set the **Description** to "AA4PP" and the **Expiration** to 24 months, and then select **Add**.
5. After adding the secret, copy the value and store it for safekeeping to be used later.

ALMAcceleratorServicePrincipal | Certificates & secrets

Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web addressable location (using an HTTPS scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.

Client secrets (1)

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

Description	Expires	Value	Secret ID
ALM Acc	4/19/2024	7tv*****	

6. Return to the **Overview** section of your app registration, and copy the **Application (client) ID** and **Directory (tenant) ID**.

ALMAcceleratorServicePrincipal

Display name : ALMAcceleratorServicePrincipal
 Application (client) ID : ff5ad711-509d-4b4b-b680-2f3b82587027
 Object ID : ee71e821-3d7a-4ce7-a31e-7b540681b29f
 Directory (tenant) ID : d310d16e-402e-4b8f-aa35-5ced00d6e0be
 Supported account types : My organization only

Client credentials : [Add a certificate](#)
 Redirect URIs : [Add a Redirect URI](#)
 Application ID URI : [Add an Application ID URI](#)
 Managed application in ... : [ALMAcceleratorServicePrincipal](#)

Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)? [Learn more](#)

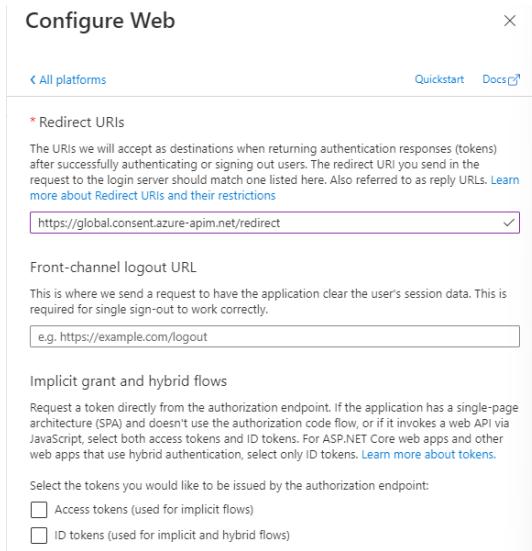
Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure AD Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. [Learn more](#)

Note: You'll use this value later and call it out as the **Application (client) ID**, which is different from the **DevOps Application (client) ID** you copied earlier in step 7.

At this moment you should have saved the following information

Azure DevOps Id:	499b84ac-1321-427f-aa17-267ca6975798
Secret:	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxxMb
Application (client) ID:	ff5axxxx-xxxx-xxxx-xxxx-xxxxxx7027
Directory (tenant) ID:	d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxe8be

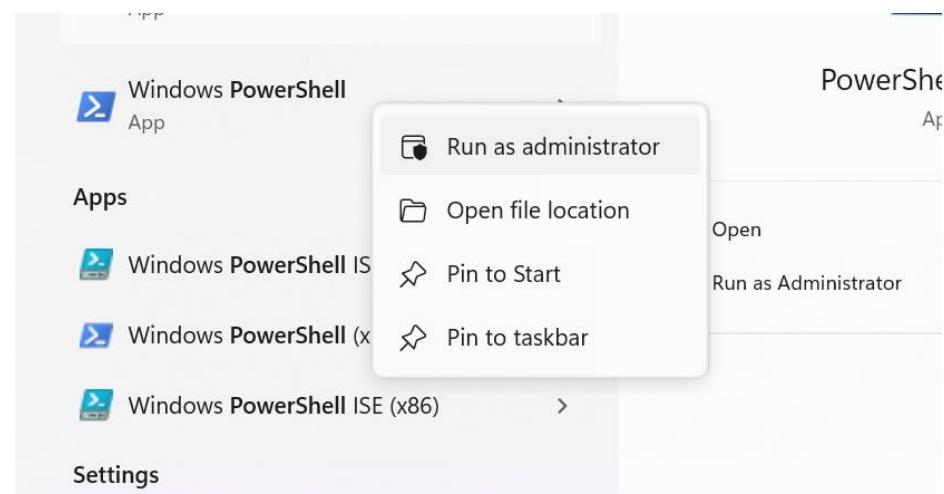
7. Select **Add a Redirect URI > Add a Platform > Web.**
8. Set the **Redirect URI** to <https://global.consent.azure-apim.net/redirect>.



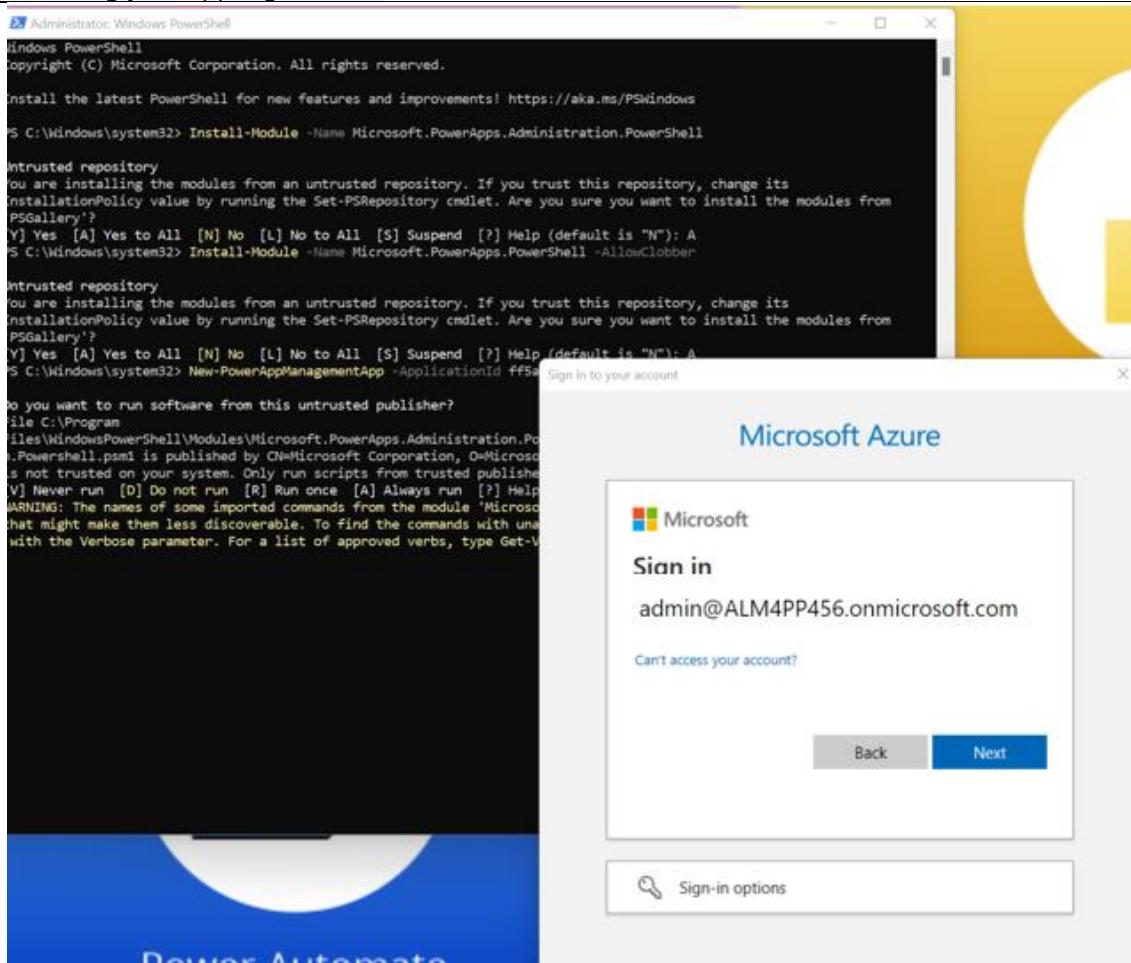
9. Select **Configure**.
10. You should be able to see the Redirect URIs

In order for the pipelines in Azure DevOps, perform certain actions against the environments (for example, Sharing Apps and setting component ownership) in your Power Platform tenant you will need to grant Power App Management

permissions to your App registration. To do so you will need to run the following PowerShell (with administrative rights) cmdlet:



```
Install-Module -Name Microsoft.PowerApps.Administration.PowerShell
Install-Module -Name Microsoft.PowerApps.PowerShell -AllowClobber
New-PowerAppManagementApp -ApplicationId ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxxxx7027 [the Application (client) ID you copied when creating your app registration]
```

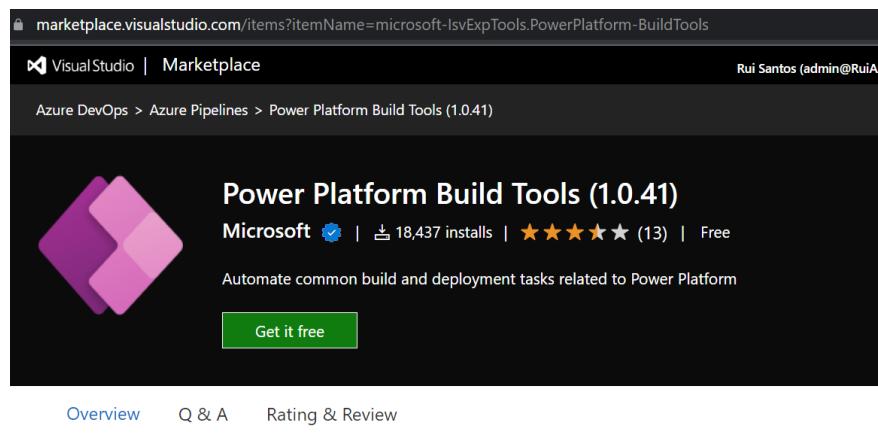


The result of the last command should be the applicationId you have introduced.

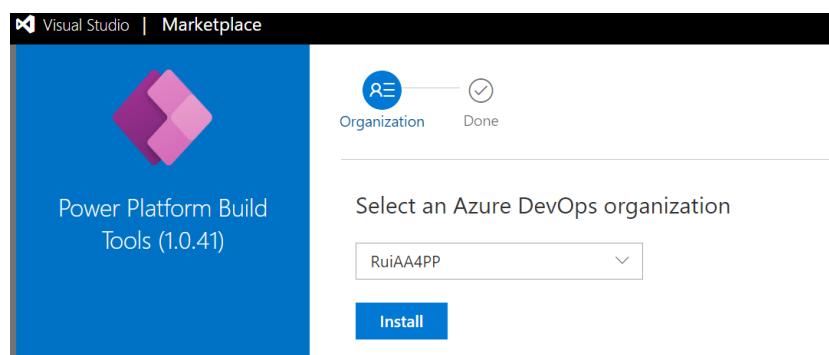
Task 5: Install Azure DevOps extensions

The ALM accelerator uses several Azure DevOps extensions, including some third-party extensions that are available in the Azure DevOps marketplace. Under **Organization settings** in Azure DevOps, install the extensions described in the following procedure. For more information about Azure DevOps extensions from Microsoft and others, go to [Evaluate a Marketplace extension publisher](#). In addition, each of the third-party extension's webpages and the link to their source code are provided in the following list.

1. Go to <https://dev.azure.com>, and select **Organization settings**.
2. Select **General > Extension > Browse marketplace**.
3. Install the following extensions:
 - **Power Platform Build Tools (required)**: This extension contains the Microsoft build tasks for Microsoft Power Platform.
(<https://marketplace.visualstudio.com/items?itemName=microsoft-lsvExpTools.PowerPlatform-BuildTools>)



Select Install

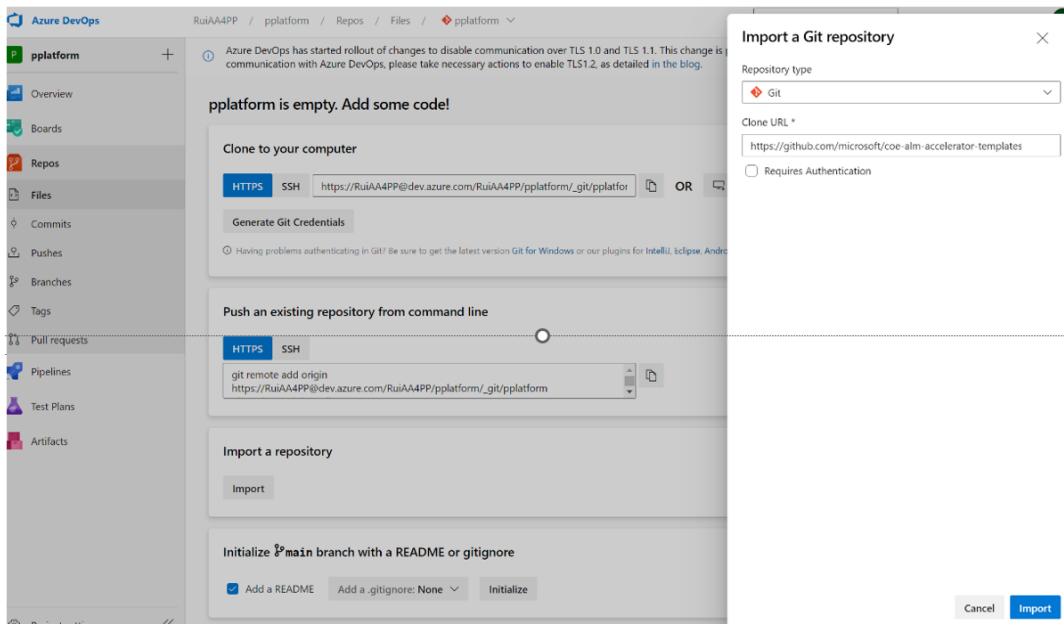


- **Replace Tokens (required)**: This extension is used by the pipelines to replace tokens in configuration files to be able to store secure values in private variables configured for a pipeline.
(<https://marketplace.visualstudio.com/items?itemName=qetza.replacetokens> | <https://github.com/qetza/vsts-replacetokens-task>)

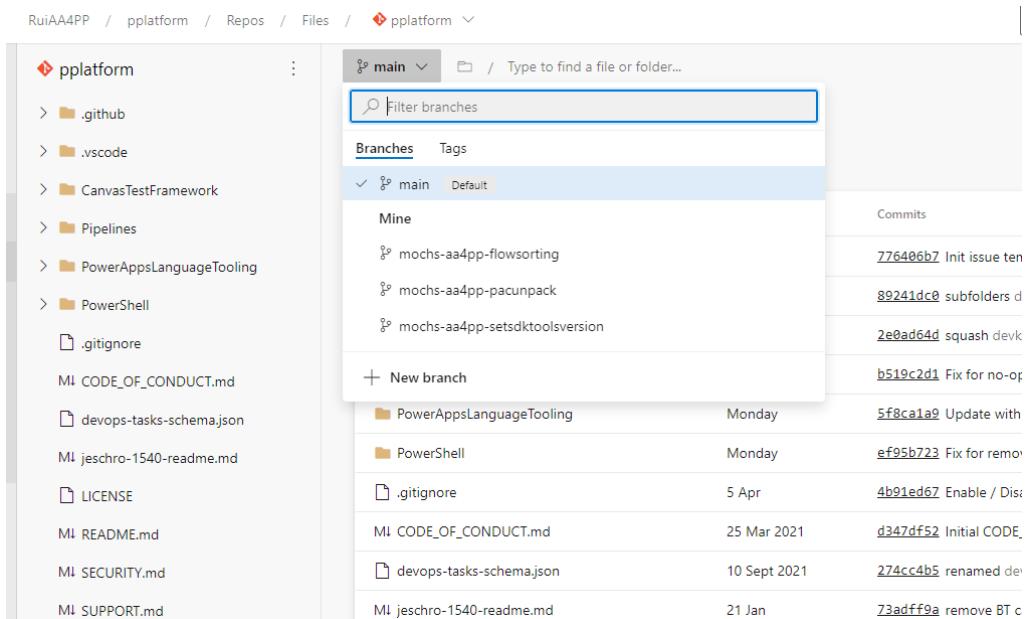
- **SARIF SAST Scans Tab (optional):** This extension can be used to visualize the SARIF files that are generated by the Solution Checker during a build. ([SARIF SAST Scans Tab - Visual Studio Marketplace](#))

Task 6: Clone the YAML pipelines from GitHub to your Azure DevOps instance

1. Go to <https://dev.azure.com/> and sign in to **DevOps (AzDO)**.
2. Select the **pplatform** project.
3. Go to **Repos**, and then select **Import repository** from the repository dropdown list.
4. Enter the URL of the tag for the latest release—for example, <https://github.com/microsoft/coe-alm-accelerator-templates> as the **Clone URL**—and then select **Import**.



5. Check the default branch for this repo is main. Choose **Repos** and **Branches** and ensure that the main branch is tagged as the default. If it isn't, select the three vertical dots (⋮) corresponding to the main branch, and from the **More options** menu, select **Set as default branch**



6. To give access to all pipelines for this repository we can configure the **Open Access**, otherwise a manual authorization will be needed from the pipelines. To configure the **Open Access** follow the next steps.
7. Go to **Project Settings -> Repositories -> pplatform -> Security -> Pipeline permissions -> More(...)** -> **Open Access**

The screenshot shows the Azure DevOps interface for managing repository permissions. The left sidebar has 'Project Settings' selected under 'Repositories'. In the main area, 'All Repositories' is selected, and 'pplatform' is the chosen repository. The 'Security' tab is active. Under 'Users', the 'pplatform Build Service (RuiAA4PP)' account is listed with 'Open access' selected. The 'Pipeline permissions' section shows three YAML pipelines: 'deploy-validation-ALMAcceleratorSampleSolution', 'deploy-test-ALMAcceleratorSampleSolution', and 'deploy-prod-ALMAcceleratorSampleSolution', all of which have 'Allow (inherited)' selected for their pipeline permissions.

Task 7: Create pipeline global variables

1. In Azure DevOps, select **Pipelines > Library > + Variable group**

The screenshot shows the Azure DevOps interface with the 'Library' section selected. On the left, there's a sidebar with various options like Overview, Boards, Repos, Pipelines, Environments, Releases, Task groups, Deployment groups, Test Plans, and Artifacts. The 'Pipelines' option is highlighted. On the right, under 'Variable groups', there's a button labeled '+ Variable group' which is also highlighted with a yellow box. A note at the top right says: 'Azure DevOps has started rollout of changes to disable communication over TLS 1.0 and take necessary actions to enable TLS1.2, as detailed [in the blog](#)'.

Note: Check if there is any new variable added, described in this section <https://docs.microsoft.com/en-us/power-platform/guidance/coe/setup-almacceleratorpowerplatform#create-pipeline-global-variables>

2. Name the variable group **alm-accelerator-variable-group**.
3. Add the following variables to the variable group.

Name	Value
CdsBaseConnectionString	AuthType=ClientSecret;ClientId=\$(ClientId);ClientSecret=\$(ClientSecret);Url=
ClientId	[The Application (client) ID you copied when creating the app registration]
ClientSecret	[The Application (client) secret you copied when creating the app registration] Note: We recommend that you secure this value by selecting the lock next to the value so others can't see your secret.
TenantID	[The Directory (tenant) ID you copied when creating the app registration]
AADHost	The Azure Active Directory authorization endpoint, for public cloud use: login.microsoftonline.com , for government clouds use the appropriate authorization url.

In my case, getting my note from before

Azure DevOps Id:	499b84ac-1321-427f-aa17-267ca6975798
Secret:	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxxMb
Application (client) ID:	ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxx7027

Directory (tenant) ID:	d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxxe8be
------------------------	---

Should look like this

Name	Value
CdsBaseConnectionString	AuthType=ClientSecret;ClientId=\$(ClientId);ClientSecret=\$(ClientSecret);Url=
ClientId	ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxx7027
ClientSecret	jXPxxxxxxxxxxxxxxxxxxxxxxxxxMb
TenantID	d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxxe8be
AADHost	login.microsoftonline.com

After saving, your **Variable group** should look like this.

The screenshot shows the Azure DevOps interface for managing variable groups. On the left, there's a sidebar with options like Overview, Boards, Repos, Pipelines, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, and Artifacts. The 'Library' option is selected. In the main area, the path 'RuiAA4PP / pplatform / Pipelines / Library' is shown. Under 'Library', it says 'alm-accelerator-variable-group*'. Below that, there's a 'Variable group' tab with sub-options for Save, Clone, Security, Pipeline permissions, Approvals and checks, and Help. The 'Properties' section contains fields for 'Variable group name' (set to 'alm-accelerator-variable-group') and 'Description'. There's also a toggle switch for 'Link secrets from an Azure key vault as variables'. The 'Variables' section lists five entries:

Name	Value
AADHost	login.microsoftonline.com
CdsBaseConnectionString	AuthType=ClientSecret;ClientId=\$(ClientId);ClientSecret=\$(ClientSecret);Url=
ClientId	ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxx7027
ClientSecret	jXPxxxxxxxxxxxxxxxxxxxxxxxxxMb
TenantID	d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxxe8be

Since multiple pipelines will need access to the Variable Group, a permission will need to be given for each pipeline, and a manual configuration will need to be performed, for simplification we can Open Access to allow any pipeline access this Variable Group, to configure that select **Pipeline permissions** and select **Open Access**

The screenshot shows the Azure DevOps interface for managing a variable group. The left sidebar is for the 'pplatform' project, with 'Library' selected. The main navigation bar shows 'RuiAA4PP / pplatform / Pipelines / Library'. The current page is 'alm-accelerator-variable-group' under the 'Variable group' tab. The 'Pipeline permissions' tab is highlighted with a yellow box. A modal window titled 'Pipeline permissions' is open, showing a list of pipelines allowed to use this resource. The 'Open access' button is also highlighted with a yellow box.

Variable group name: alm-accelerator-variable-group

Description: alm-accelerator-variable-group

Properties

Pipeline permissions

The following YAML pipelines are allowed to use this resource. YAML pipeline projects are not shown in this list. All Classic pipelines can use this resource.

Pipeline
export-solution-to-git Pipeline
deploy-validation-ALMAcceleratorSampleSolution Pipeline
deploy-test-ALMAcceleratorSampleSolution Pipeline

Open access

Task 8: Update permissions for the project build service

1. In Azure DevOps on the left pane, select **Project settings**.
2. Select **Repositories > Security**.
3. Find and select **Project Collection Build Service Accounts** under **Az DevOps Groups**.
4. Set the following permissions for the build service user.

Permission	Value
Contribute	Allow
Contribute to pull requests	Allow
Create branch	Allow
Edit policies	Allow

5. Find and select the username **[Your Project Name] Build Service ([Your Organization Name])** under **Users**, and then set the following permissions.

Permission	Value
Contribute	Allow
Contribute to pull requests	Allow
Create branch	Allow
Create tag	Allow
Edit policies	Allow

All Repositories

Repositories Settings Policies Security

User permissions Download detailed report

Inheritance ⓘ

Search for users or groups

Azure DevOps Groups

- Build Administrators
- Contributors
- Project Administrators
- Readers
- Project Collection Administrators
- Project Collection Build Service Accounts
- Project Collection Service Accounts

Users

- pplatform Build Service (RuiAA4PP)

Bypass policies when completing pull requests

Bypass policies when pushing

Contribute

Contribute to pull requests

Create branch

Create repository

Create tag

Delete or disable repository

Edit policies

Force push (rewrite history, delete branches and tags)

Manage notes

Manage permissions

Read

Remove others' locks

Rename repository

Not set

Not set

Allow

Allow

Allow

Not set

Allow

Not set

Allow

Not set

Not set

Not set

Allow

Not set

Not set

Allow

Not set

Not set

Not set

6. Select **Pipelines**, select the three dots (...), and then select **Manage Security**.

Azure DevOps RuiAA4PP / pplatform / Pipelines Search

pplatform

- Overview
- Boards
- Repos
- Pipelines**
- Pipelines
- Environments
- Releases
- Library
- Task groups
- Deployment groups
- Test Plans
- Artifacts

Create your first Pipeline

Automate your build and release processes using our wizard, and go from code to cloud-hosted within minutes.

Create Pipeline ...

New folder

Import a pipeline

Manage security

7. Set the following permissions for the build service user **[Your Project Name] Build Service ([Your Organization Name])**.

Permission	Value
Edit build pipeline	Allow
Edit build quality	Allow
Manage build queue	Allow
Override check-in validation by build	Allow
Update build information	Allow
View build pipeline	Allow
View builds	Allow

Permissions for pplatform

User/Group	Permission	Value
Build Administrators	Administer build permissions	Not set
Contributors	Delete build pipeline	Not set
Project Administrators	Delete builds	Not set
Readers	Destroy builds	Not set
Project Collection Administrators	Edit build pipeline	Allow
Project Collection Build Administrators	Edit build quality	Allow
Project Collection Build Service Accounts	Manage build qualities	Not set
Project Collection Test Service Accounts	Manage build queue	Allow
pplatform Build Service (RuiAA4PP)	Override check-in validation by build	Allow
	Queue builds	Not set
	Retain indefinitely	Not set
	Stop builds	Not set
	Update build information	Allow
	View build pipeline	Allow
	View builds	Allow

8. Under **Project Settings -> Pipelines**, select **Agent pools** and select **Security**, and then select **Add**.
9. Find and select the username **[Your Project Name] Build Service ([Your Organization Name])**, and then set the **Role** to **Reader**. Select **Add**.

AA4PP Lab

The screenshot shows the 'Agent pools' section of the 'Project Settings' in Azure DevOps. On the left, there's a sidebar with various project settings like General, Boards, Pipelines, and Repos. The 'Pipelines' section is expanded, and 'Agent pools' is selected. In the main area, there's a table for 'Agent pools' with two entries: 'Azure Pipelines' and 'Default'. A modal window titled 'User permissions' is open over the table, prompting to manage user permissions for all pools within the project. The modal has fields for 'User or group' (set to 'pplatform Build Service (RuiAA4PP)') and 'Role' (set to 'Reader'). At the bottom of the modal are 'Add' and 'Close' buttons.

After **Add**, this is how should look the saved list

The screenshot shows the 'User permissions' list after the build service account has been added. The table now includes four entries: three standard users ('[pplatform]\Build Administrators', '[pplatform]\Project Administrators', '[pplatform]\Project Valid Users') each with 'Administrator' role and 'Assigned' access, and one service account ('pplatform Build Service (RuiAA4PP)') with 'Reader' role and 'Assigned' access.

User	Role	Access
[pplatform]\Build Administrators	Administrat...	Assigned
[pplatform]\Project Administrators	Administrat...	Assigned
[pplatform]\Project Valid Users	Reader	Assigned
pplatform Build Service (RuiAA4PP)	Reader	Assigned

Task 9: Create service connections for Azure DevOps to access Microsoft Power Platform

The following section guides you through the setup steps required for each of the development projects you'll support. In this context, a development project signifies the required infrastructure and configuration needed to support healthy ALM, including configuration of your Dataverse environment that will support the ALM process.

Each Dataverse environment—development, validation, test, or production—must have a Power Platform service connection in Azure DevOps. For each of your environments, follow these steps to set up the service connection.

1. In Azure DevOps select your **Project** (pplatform).
2. Under **Project settings** in your Azure DevOps project, select **Service connections** (Project Settings-> Pipelines -> Service Connections).
3. Select **Create/New service connection**, search for Power Platform, and then select the **Power Platform** service connection type. Select **Next** at the bottom.
4. In the **Server URL**, enter your environment URL, for example <https://myorg.crm.dynamics.com/>.

Important: You must include the trailing forward slash after the URL (.com/, in the preceding example).

5. For the **Service Connection Name**, enter the same URL that you used in step 4.
6. Enter the **Tenant ID**, **Application (client) ID**, and **Client Secret** you copied from Azure AD when you created your app registration, and then select **Grant access permissions to all pipelines**. Select **Save**.

New Power Platform service connection	New Power Platform service connection	New Power Platform service connection	New Power Platform service connection
Server URL <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/> Authentication Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxxxxe8be"/> <small>Tenant ID (also called directory ID in Azure portal) to authenticate with. https://aka.ms/buildtools-spn for a script that shows Tenant ID and associated Client Secret. The application user must also be created in CDS</small> <input type="button" value="Invalid GUID input"/> Application ID <input type="text" value="ff5axxxx-xxxx-xxxxx-xxxxx-x00000x7027"/> <small>Azure Application ID to authenticate with.</small> <input type="button" value="Invalid GUID input"/> Client secret of Application ID <input type="text" value="*****"/> <small>Client secret of the Service Principal associated to above Application ID; used to prove identity.</small> <input type="button" value="Details"/> Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/> Description (optional) <input type="text"/> Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot	Server URL <input type="text" value="https://rui-alm-test.crm19.dynamics.com/"/> Authentication Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxxxxe8be"/> <small>Tenant ID (also called directory ID in Azure portal) to authenticate with. https://aka.ms/buildtools-spn for a script that shows Tenant ID and associated Client Secret. The application user must also be created in CDS</small> <input type="button" value="Invalid GUID input"/> Application ID <input type="text" value="ff5axxxx-xxxx-xxxxx-xxxxx-x00000x7027"/> <small>Azure Application ID to authenticate with.</small> <input type="button" value="Invalid GUID input"/> Client secret of Application ID <input type="text" value="*****"/> <small>Client secret of the Service Principal associated to above Application ID; used to prove identity.</small> <input type="button" value="Details"/> Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/> Description (optional) <input type="text"/> Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot	Server URL <input type="text" value="https://rui-alm-validation.crm19.dynamics.com/"/> Authentication Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxxxxe8be"/> <small>Tenant ID (also called directory ID in Azure portal) to authenticate to. Refer to https://aka.ms/buildtools-spn for a script that shows Tenant ID and configures Application ID and associated Client Secret. The application user must also be created in CDS</small> <input type="button" value="Invalid GUID input"/> Application ID <input type="text" value="ff5axxxx-xxxx-xxxxx-xxxxx-x00000x7027"/> <small>Azure Application ID to authenticate with.</small> <input type="button" value="Invalid GUID input"/> Client secret of Application ID <input type="text" value="*****"/> <small>Client secret of the Service Principal associated to above Application ID; used to prove identity.</small> <input type="button" value="Details"/> Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/> Description (optional) <input type="text"/> Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot	Server URL <input type="text" value="https://rui-alm-production.crm19.dynamics.com/"/> Authentication Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxxxxe8be"/> <small>Tenant ID (also called directory ID in Azure portal) to authenticate to. Refer to https://aka.ms/buildtools-spn for a script that shows Tenant ID and configures Application ID and associated Client Secret. The application user must also be created in CDS</small> <input type="button" value="Invalid GUID input"/> Application ID <input type="text" value="ff5axxxx-xxxx-xxxxx-xxxxx-x00000x7027"/> <small>Azure Application ID to authenticate with.</small> <input type="button" value="Invalid GUID input"/> Client secret of Application ID <input type="text" value="*****"/> <small>Client secret of the Service Principal associated to above Application ID; used to prove identity.</small> <input type="button" value="Details"/> Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/> Description (optional) <input type="text"/> Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot
<input type="button" value="Back"/> <input type="button" value="Save"/>			

After configuring the four service connections (one per each environment) you should have something similar to this picture

The screenshot shows the 'Service connections' page in the Azure DevOps interface. On the left, there's a sidebar with 'Project Settings' for 'ppplatform'. Under 'Service connections', there are four entries listed:

- <https://rui-alm-dev.crm19.dynamics.com/>
- <https://rui-alm-production.crm19.dynamics.com/>
- <https://rui-alm-test.crm19.dynamics.com/>
- <https://rui-alm-validation.crm19.dynamics.com/>

To simplify the Lab we are not configuring more users than the Administrator, so you can skip the next step (number 7).

7. **(Optional)** In order for users to be able to use the service connection from the ALM Accelerator for Power Platform app, the service connections must provide user permissions to all users. Update permissions as follows for environments that users need to be able to access from the app (for example, maker environments):
 0. From the **Service Connections** list, select the service connection to be shared with users
 1. Select **More (...)** in the upper-right corner, and then select **Security**.
 2. If you don't see the user or group, select **Add -> User or Group -> Role**

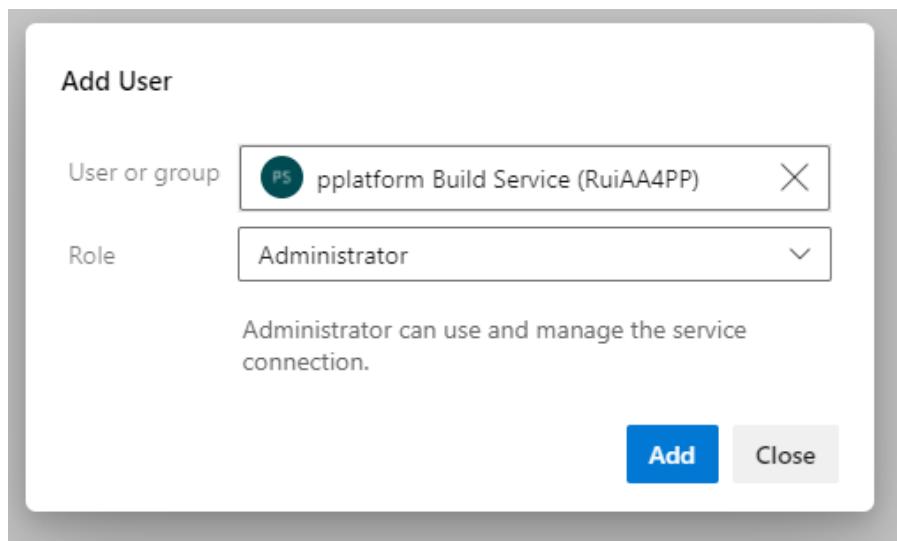
Note: Sometimes the newly added users show up with the "administrator" role. Refreshing the page shows that the users have been added with the "user" role.

3. If you see the user or group, select the Role from the dropdown list.
4. Repeat these steps for each of your environments—development, validation, test, and production.

Task 10: Update permissions for the project build service to use the Service Connections

1. In Azure DevOps on the left pane, select **Project settings**.
2. Select **Service connections**, select ... in the upper-right corner, and then select **Security**. Select **Add**.

3. Find and select the username **[Your Project Name] Build Service ([Your Organization Name])**, and then set the **Role** to Administrator. Select **Add**.



Some pipelines will need to have access to these Service Connections, a manual step will be needed to allow each pipeline, to simplify, an Open Access can be configured.

1. To configure Open Access for the Service Connection, open the service connection by select **More(...)** from top right and select **Security**.

AA4PP Lab

The screenshot shows the 'Project Settings' page for a project named 'ppplatform'. The left sidebar lists various settings sections like General, Boards, Pipelines, and Service connections. The 'Service connections' section is currently selected and highlighted with a yellow box. On the right, the details for a single service connection are displayed. The connection is named 'https://rui-alm-dev.crm19.dynamics.com/' and is of type 'Power Platform', using power platform authentication via application id and client secret. A 'Creator' section shows 'Rui Santos' with the email 'admin@RuiAA4PP.onmicrosoft.com'. A context menu is open on the top right, with the 'Security' option highlighted by a yellow box.

2. Select **Open Access** like the next picture shows

The screenshot shows the 'Security' tab within the 'Project Settings' page. The left sidebar shows the 'Service connections' section is still selected. The main area displays 'User permissions' for the project, listing three users with 'Administrator' roles: '[ppplatform]\Endpoint Administrators', 'ppplatform Build Service (RuiAA4PP)', and 'Rui Santos'. Below this is a 'Pipeline permissions' section. A context menu is open on the right side of the pipeline permissions table, with the 'Open access' option highlighted by a yellow box. A message at the bottom states 'No permitted pipelines'.

3. Perform the **previous actions for all Service Connections**, each service connection represents the credentials to access the Power Platform environments.

Task 11: Create an app user in your Dataverse environments

Each environment—development, validation, test, and production—needs an application user. For each of your environments, follow these steps to set up the application user.

1. Go to [Power Platform admin center](#).
2. Select your environment, and then select **Settings**.
3. Select **Users + permissions > Application users**.
4. Select **New app user** to add a new application user.
5. Select the Azure app registration you created,

6. **Business Unit**, and **Security Role** (System Administrator).

App *	ALMAcceleratorServicePrincipal	
Business unit *	alm-dev-rui	
Security roles(1)	System Administrator	

Note: Repeat the previous steps for each of your environments—development, validation, test, and production.

Task 13: Create the pipelines

The Azure DevOps pipelines are responsible for multiple actions, but in general they will be able to export the solution from one environment to another, they are also responsible to unpack the solution and save the code in Git.

Follow the steps in this section to create the following pipelines based on the YAML in the Azure DevOps repo. These pipelines will run when you **Commit to Git**, **Import a Solution**, or **Delete a Solution** from the AA4PP app, respectively.

YAML file	Pipeline name
export-solution-to-git.yml	export-solution-to-git
import-unmanaged-to-dev-environment.yml	import-unmanaged-to-dev-environment
delete-unmanaged-solution-and-components.yml	delete-unmanaged-solution-and-components

1. In Azure DevOps, go to **Pipelines > Create a New Pipeline**.
2. Select **Azure Repos Git** for your code repository and point to the Azure DevOps repo you created (ppplatform) and seeded with the pipeline templates in the preceding steps.
3. On the **Configure your pipeline** page, select **Existing Azure Pipelines YAML file**

and point to **/Pipelines/export-solution-to-git.yml**, select **Save** from Run menu

```

1 # This pipeline gets triggered manually or via an API call.
2 # It is a general purpose automation that allows you to export a solution from a Dataverse environment and commit it to a git branch.
3 # It facilitates:

```

By default the Pipeline name will be “pplatform”, rename the pipeline to **export-solution-to-git** by mouse hover in the name of pipeline, select **More(...)** and **Rename/move**

The screenshot shows the Azure DevOps Pipelines interface. In the center, there's a table titled 'Recently run pipelines'. It has two columns: 'Pipeline' and 'Last run'. Under 'Pipeline', there's a row for 'pplatform' with the subtext 'No runs yet'. To the right of this row, a context menu is open, listing options: 'Edit', 'Run pipeline', 'Manage security', 'Rename/move' (which is highlighted in grey), and 'Delete'.

Repeat the same steps for

/Pipelines/import-unmanaged-to-dev-environment.yml and

/Pipelines/delete-unmanaged-solution-and-components.yml

The result will be like this:

The screenshot shows the Azure DevOps Pipelines 'Pipelines' page. On the left, there's a sidebar with icons for Overview, Boards, Repos, Pipelines (which is selected and highlighted in grey), Pipelines (under Pipelines), and Environments. The main area is titled 'All pipelines' and lists three pipelines: 'delete-unmanaged-solution-and-components' (No runs yet), 'export-solution-to-git' (No runs yet), and 'import-unmanaged-to-dev-environment' (No runs yet). There's also a 'New folder' button at the top right of the pipeline list.

Note: Confirm if the security is correctly configured. The settings should be inherited from Task 8 Step 6.

Select **More (...)**, near the button **New pipeline**, and choose **Manage Security**. Confirm the user **(project name) Build Service (orgname)** has **Edit build pipeline** to **Allow**:

Permissions for pplatform



Search for users or groups		pplatform Build Service (RuiAA4PP)
▼	Azure DevOps Groups	
 BA	Build Administrators	Not set ▾
 C	Contributors	Not set ▾
 PA	Project Administrators	Not set ▾
 R	Readers	Allow ▾ <input checked="" type="checkbox"/>
 PA	Project Collection Administrators	Allow ▾
 PA	Project Collection Build Administrators	Allow ▾
 PA	Project Collection Build Service Accounts	Allow ▾
 PA	Project Collection Test Service Accounts	Not set ▾
▼	Users	
 PS	Pplatform Build Service (RuiAA4PP) 	
	Administer build permissions	Not set ▾
	Delete build pipeline	Not set ▾
	Delete builds	Not set ▾
	Destroy builds	Not set ▾
	Edit build pipeline	Allow ▾
	Edit build quality	Allow ▾
	Manage build qualities	Not set ▾
	Manage build queue	Allow ▾
	Override check-in validation by build	Allow ▾
	Queue builds	Not set ▾
	Retain indefinitely	Not set ▾
	Stop builds	Not set ▾
	Update build information	Allow ▾
	View build pipeline	Allow ▾
	View builds	Allow ▾

ALM Accelerator for Power Platform

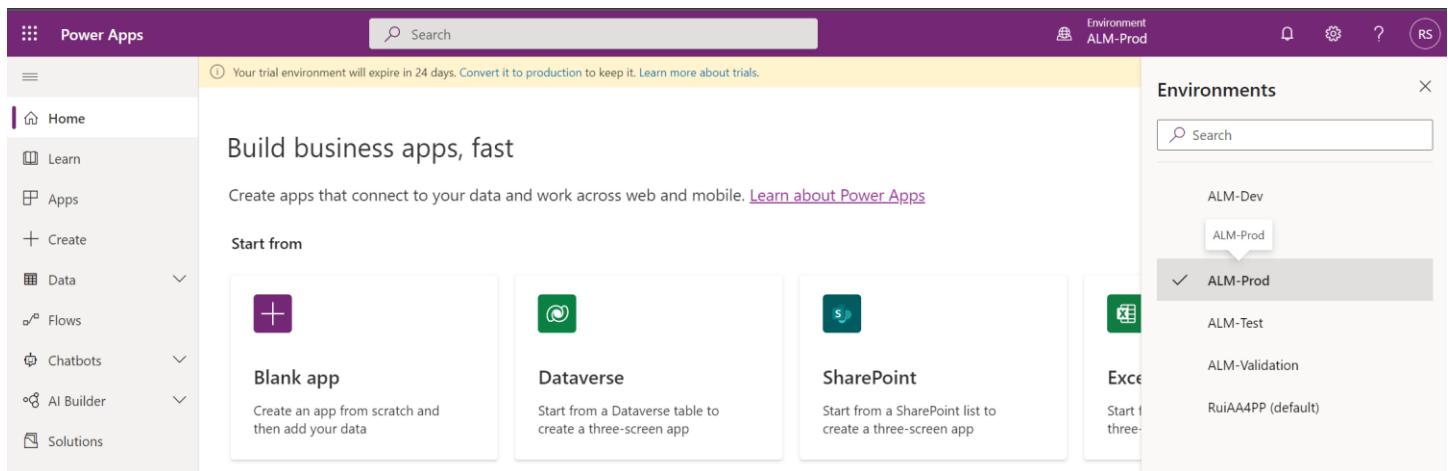
Installation

In the files of this lab you should find a zip

CenterofExcellenceALMAccelerator_1.0.20220503.1_managed.zip, in case you want to download the latest version, please download the latest managed solution file from [GitHub](#).

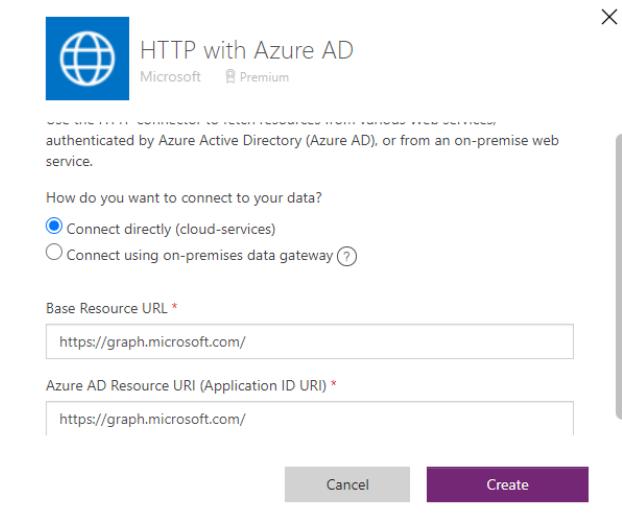
Follow the next instructions to install the solution, using the admin user.

1. Go to [Power Apps](#) and select the environment you want to use to host the ALM Accelerator for Power Platform app, in this case the **ALM-Prod** environment.

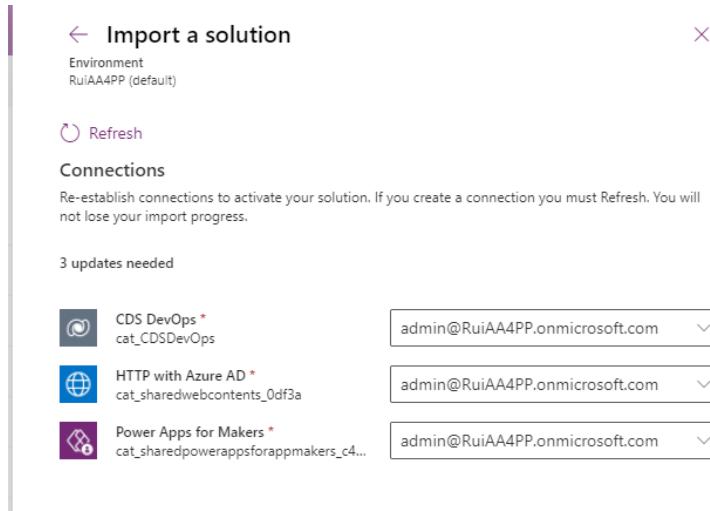


2. On the left pane, select **Solutions**.
3. Select **Import** and browse to the location of the managed solution you downloaded.
4. Select **Next**, and then select **Next** again.
5. On the **Connections** page, select or create a new connection to use to connect to Dataverse for the **CDS DevOps connection**.

Note: When creating a connection for **HTTP with Azure AD**, use <https://graph.microsoft.com/> for both parameters.



After configuring all the connections, you should see something like:



Select **Import** and wait for the platform to complete the import process.

Configure the Azure DevOps custom connector

1. In [Power Apps](#), select your environment (**ALM-Prod**), and then select **Data > Custom Connectors > CustomAzureDevOps**.
2. Select **Edit**, go to the **Security** section, select **Edit**, and then set the following fields.

Name	Value
Client ID	The Application (client) ID you copied when creating the app registration
Client secret	The Application (client) Secret you copied when creating the app registration

Name	Value
Tenant ID	Leave as the default, common
Resource URL	The DevOps Application (client) ID you copied when adding permissions to your app registration

From the notes before

Azure DevOps Id:	499b84ac-1321-427f-aa17-267ca6975798
Secret:	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxxMb
Application (client) ID:	ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxx7027
Directory (tenant) ID:	d310 ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxxe8be

Change the values:

Name	Value
Client ID	ff5axxxx-xxxx-xxxxx-xxxxx-xxxxxx7027
Client secret	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxxMb
Tenant ID	Leave as the default, common
Resource URL	499b84ac-1321-427f-aa17-267ca6975798

The screenshot shows the Microsoft Power Apps interface for creating a custom connector named "CustomAzureDevOps". The left sidebar lists various Power Apps services like Home, Learn, Apps, Create, Data, Tables, Choices, Dataflows, Azure Synapse Link, Connections, Custom Connectors, Gateways, Flows, Chatbots, AI Builder, and Solutions. The main area is titled "Security" and contains instructions for setting authentication. A pink header bar at the top says "Authentication type" and "Choose what authentication is implemented by your API *". A dropdown menu shows "OAuth 2.0". Below this, the "OAuth 2.0" configuration section is filled out with the following values:

- Identity Provider: Azure Active Directory
- Client id: ff5ad1
- Client secret: (redacted)
- Login URL: https://login.windows.net
- Tenant ID: common
- Resource URL: 499b84ac-1321-427f-aa17-267ca6975798
- Enable on-behalf-of login: false
- Scope: Scope
- Redirect URL: Save the custom connector to generate the redirect URL

3. Select **Update connector**.
4. Verify that the **Redirect URL** is populated on the **Security** page with the URL <https://global.consent.azure-apim.net/redirect>. If the redirect URL is other than <https://global.consent.azure-apim.net/redirect>, copy the URL and [return to the app registration you created](#) and update the redirect URI you set earlier to the updated URL.
5. After you've completed the preceding steps, verify the connector from the **Test** menu:
 - a. Open the **Test** menu.
 - b. Select **New Connection**, and then follow the prompts to create a new connection.
 - c. In [Power Apps](#), select your environment, and then select **Data > Custom Connectors > CustomAzureDevOps**.
 - d. Select **Edit**, go to the **Test** section, and then find the **GetOrganizations** operation. Create a new connection in case it is not showing any, and go back to test the customer connector.
 - e. Select **Test operation**, and verify that the **Response Status** returned is **200**.

The screenshot shows the 'Test operation' step of a custom connector named 'CustomAzureDevOps'. The top navigation bar includes 'Connector Name: CustomAzureDevOps' and steps 1. General through 5. Test. A 'Connections' sidebar on the right lists a selected connection: 'admin@RuiAA4PP.onmicrosoft.com (Created at 2022-05-04T22:45:39.3028416Z)'. The main content area displays the 'Operations (17)' section, listing various actions and triggers. The 'GetOrganizations' action is highlighted with a green checkmark and numbered 1. Other listed operations include GetIdentities, GetProjects, GetBuilds, GetBuild, GetBuildTimeline, GetBuildDefinitions, GetGitRepos, GetPullRequests, CreatePullRequest, and GetPullRequest.

Test operation

Test a specified operation of this custom connector using the selected connection. You must update the custom connector in order to test recent changes.

Operations (17)

These are the operations defined by your custom connector. This includes actions and triggers.

1. GetOrganizations

2. GetIdentities

3. GetProjects

4. GetBuilds

5. GetBuild

6. GetBuildTimeline

7. GetBuildDefinitions

8. GetGitRepos

9. GetPullRequests

10. CreatePullRequest

11. GetPullRequest

Connections

Selected connection *

admin@RuiAA4PP.onmicrosoft.com (Created at 2022-05-04T22:45:39.3028416Z)

+ New connection

GetOrganizations

Test operation

Status
(200)

Headers

```
{ "activityid": "0ba7ed6a-b1f6-4eb5-918e-b54282311b00", "cache-control": "no-cache, no-store, must-revalidate", "content-encoding": "gzip", "content-type": "application/json; charset=utf-8; api-version=0.0" }
```

Body

```
[ { }
```

Exercise 1: Import the sample solution.

In this exercise, you will import the sample solution file ALMAcceleratorSampleSolution_1.0.20220502.4.zip into the ALM-Dev environment and configure AA4PP to deploy the solution to Azure DevOps and the downstream environments.

PETE:

Add E3/5 trial licenses to tenant in admin center

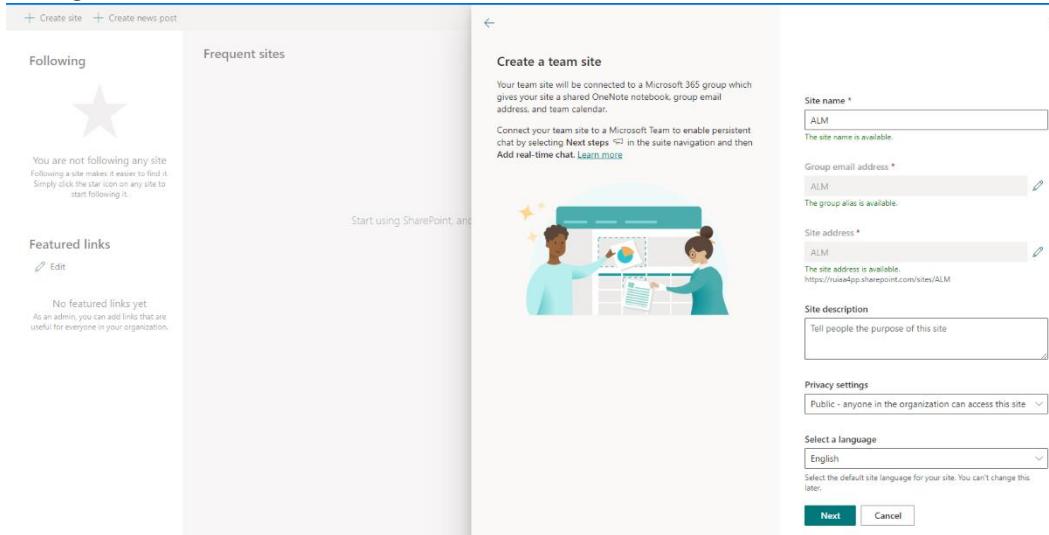
The screenshot shows the Microsoft 365 Admin Center interface. On the left, there's a navigation sidebar with options like Home, Users, Teams & groups, Billing, Purchase services, Your products, Licenses, Bills & payments, and Billing accounts. The main content area is titled "Microsoft 365 E5". It displays a brief description: "Office 365 E5, Enterprise Mobility + Security E5, and Windows 10/11 Enterprise E5. This per-user licensed suite of products offers customers the latest, most advanced enterprise collaboration, and business analytics." Below this, there are fields for "Select license quantity" (set to 1) and "Select billing frequency" (with two options: "€53.70 license/month" and "€644.40 license/year"). To the right, the "Subtotal before applicable taxes" is listed as "€53.70". There are "Buy" and "Start free trial" buttons, with "Start free trial" being highlighted with a red oval. A search bar is at the top right.

Prep Task: Create a Sharepoint site and an Issue Tracker

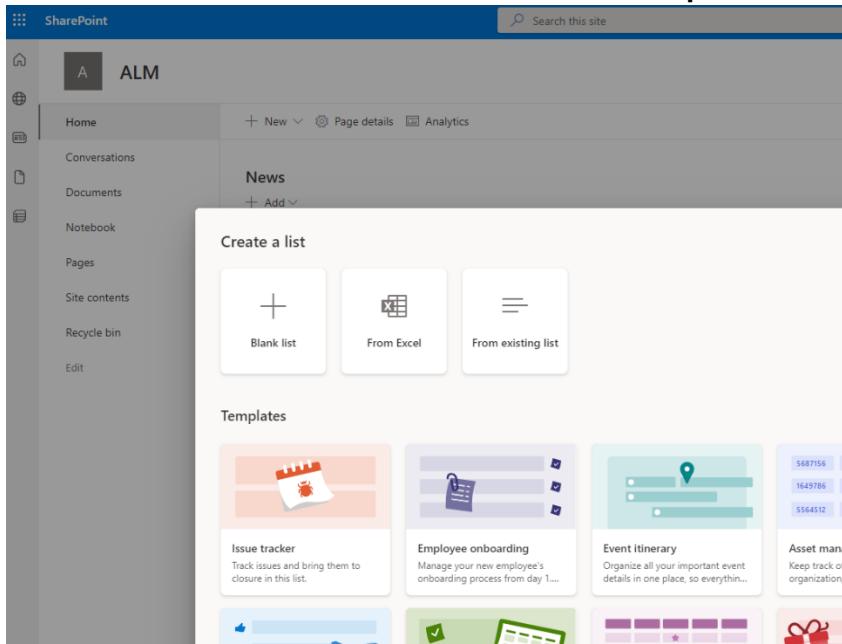
Create a Sharepoint site by going to <https://office.com> and select **Sharepoint** in a new tab

The screenshot shows the Microsoft Office website at office.com. The left sidebar lists various apps: Outlook, OneDrive, Word, Excel, PowerPoint, OneNote, SharePoint, Teams, Yammer, and Admin. Below this is a link to "All apps". The main content area features a large "Get started" button and a "Begin building your Office experience" call-to-action. In the center, there's a graphic illustrating various Office features like a pie chart, a bar chart, and a document. A "Create new" button is located in the bottom right corner of the main content area.

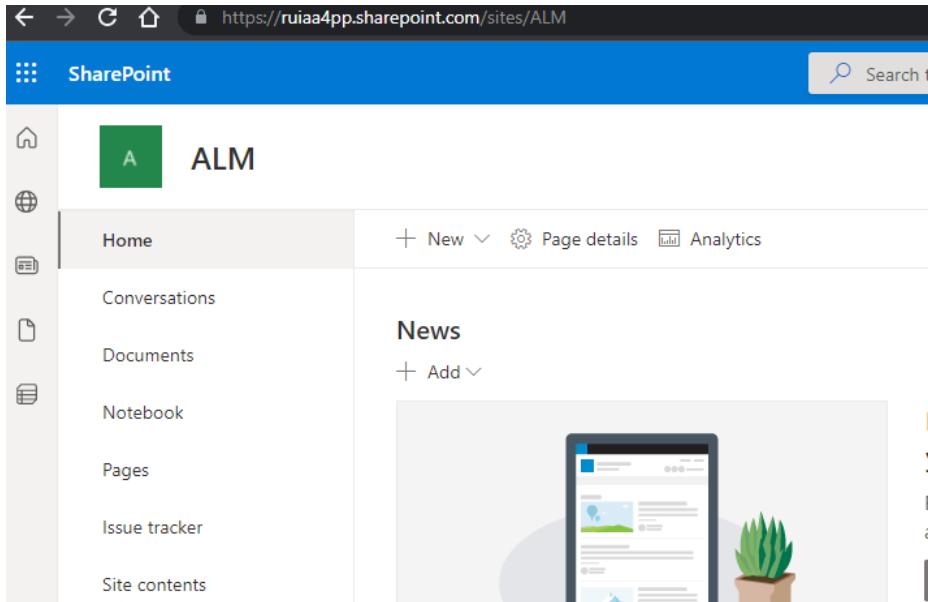
- Select **Create site** and pick **Team site**, provide any name you would like and make it **Public** under Privacy settings. Add the user admin as owner and select finish.



- Select **New->List** and select the **Issue tracker->Use Template -> Create**.



- Go back to the main page and **copy the url**, in my case <https://ruiaa4pp.sharepoint.com/sites/ALM>.



Import the sample solution

1. Select the **Development** environment

A screenshot of the Microsoft Power Apps portal. On the left, there's a sidebar with options like Home, Learn, Apps, Create, Data, Tables, Choices, Dataflows, Azure Synapse Link, and Connections. A message at the top says, "Your trial environment will expire in 29 days. Convert it to production to keep it. Learn more about trials." In the center, there's a section titled "Build business apps, fast" with four options: "Blank app", "Dataverse", "SharePoint", and "Excel". On the right, there's a sidebar titled "Environments" with a list of environments: ALM-Dev (selected), ALM-Prod, ALM-Test, ALM-Validation, and RuiAA4PP (default).

2. Select **Solutions** and import the ALMAcceleratorSampleSolution. Please find the sample solution in the lab resources ALMAcceleratorSampleSolution_xxxxx.4.zip or find the latest version [here](#).

Solutions

Display name	Name	Created ↓	Version
Power Apps Checker Base	msdyn_PowerAppsC...	01/05/2022	1.2.0.176
Power Apps Checker	msdyn_PowerAppsC...	01/05/2022	1.2.0.176
Contextual Help Base	msdyn_ContextualH...	01/05/2022	1.0.0.22
Contextual Help	msdyn_ContextualH...	01/05/2022	1.0.0.22
Common Data Services Default Solution	Crf015d	01/05/2022	1.0.0.0
Default Solution	Default	01/05/2022	1.0

3. Create new connections for the Sample App

Import a solution

Environment
ALM-Dev

Refresh

Connections

Re-establish connections to activate your solution. If you create a connection you must Refresh. You will not lose your import progress.

2 updates needed

CDS_Current * cat_CDS_Current	admin@RuiAA4PP.onmicrosoft.com
SharePoint * SharePoint	admin@RuiAA4PP.onmicrosoft.com

Solutions

Display name	Name	Created ↓	Version
Power Apps Checker Base	msdyn_PowerAppsC...	01/05/2022	1.2.0.176
Power Apps Checker	msdyn_PowerAppsC...	01/05/2022	1.2.0.176
Contextual Help Base	msdyn_ContextualH...	01/05/2022	1.0.0.22
Contextual Help	msdyn_ContextualH...	01/05/2022	1.0.0.22
Common Data Services Default Solution	Crf015d	01/05/2022	1.0.0.0
Default Solution	Default	01/05/2022	1.0

4. Paste in the url of the Sharepoint site copied before in the prep task, into Environment Variables definition. Select the Issue tracker from the drop-down menu and select **Import**

← Import a solution X

Environment
ALM-Dev

Environment Variables
Enter information for each field, so your app works properly. You can edit your environment variables later.

1 updates needed

76 ALMAcceleratorSampleTest - https://pplatf...
 ▼  SharePoint
cat_shared_sharepointonline_97456712308a4e...

76 Issue tracker
 ▼  SharePoint
cat_shared_sharepointonline_21f63b2d26f043f...

Wait until the solution is created completely.

Exercise 2: Add the Sample solution to AA4PP

In this exercise, you will configure AA4PP to deploy the solution to Azure DevOps and the downstream environments.

1. Select the **Production** environment

The screenshot shows the Power Apps environment selection dialog. On the left, there's a sidebar with options like Home, Learn, Apps, Create, Data, Flows, Chatbots, AI Builder, and Solutions. The main area displays four app creation options: Blank app, Dataverse, SharePoint, and Excel. To the right, an 'Environments' pane lists several environments: ALM-Dev, ALM-Prod (selected), ALM-Test, ALM-Validation, and RuiAA4PP (default). A message at the top indicates a trial environment will expire in 24 days.

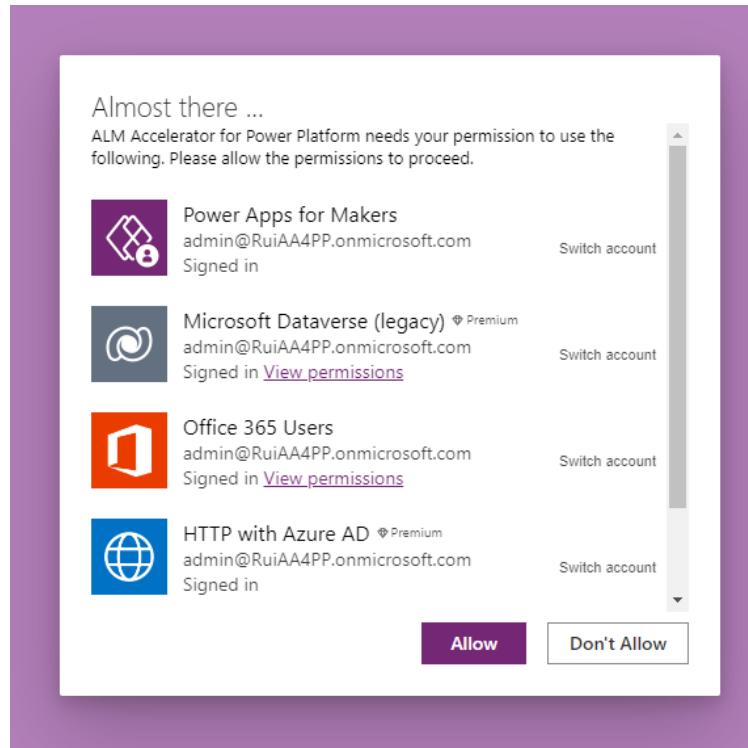
2. Select **Apps** from the left menu

The screenshot shows the Power Apps Apps page. The sidebar has the same navigation as the previous screen. The main content area shows a list of apps under the 'Apps' tab. The list includes:

Name	Modified	Owner	Type
ALM Accelerator for Power Platform Administration	35 min ago	Rui Santos	Model-driven
ALM Accelerator for Power Platform	37 min ago	Rui Santos	Canvas
Solution Health Hub	3 d ago	SYSTEM	Model-driven

Task 1: Open the ALM Accelerator for Power Platform

1. Allow all the connections

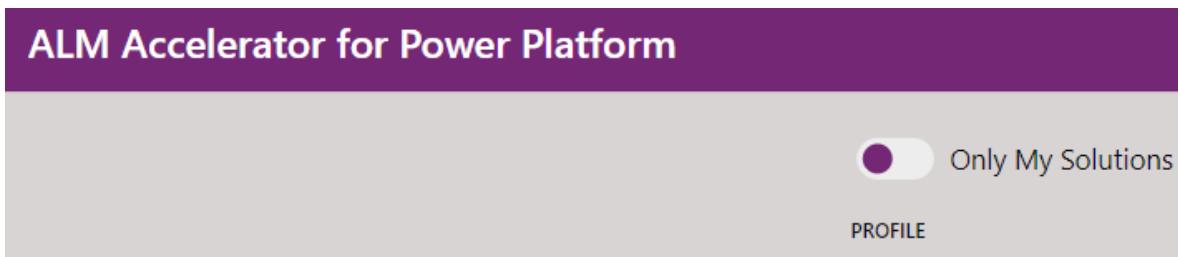


Note: In case you need to configure the HTTP with Azure AD, specify <https://graph.microsoft.com> in both parameters.

2. Select the Maker environment, where the users will create Apps, in our case ALM-Dev



3. Show All solutions by switching the toggle from the top



4. You should be able to see the "ALM Accelerator Sample Solution"

AA4PP Lab

The screenshot shows the ALM Accelerator for Power Platform interface. At the top, there's a purple header bar with the title "ALM Accelerator for Power Platform". On the right side of the header, it says "Select Your Maker Environment" and "ALM-Dev". Below the header, there are several navigation and search elements: "REFRESH", "MANAGE SOLUTIONS", "IMPORT SOLUTION", "Only My Solutions" (radio button), "Search Solutions" (with a magnifying glass icon), and a "PROFILE" section with "Choose a Profile" and "No Profile Selected". The main area is titled "SOLUTION" and contains a card for "ALM Accelerator Sample Solution" with options "Open Solution" and "Configure Deployment Settings". Below this are buttons for "COMMIT SOLUTION", "DEPLOY SOLUTION", and "DELETE SOLUTION", each with a circular progress indicator and a right-pointing arrow. The overall theme is light gray with purple accents.

Task 2: Create a new Profile

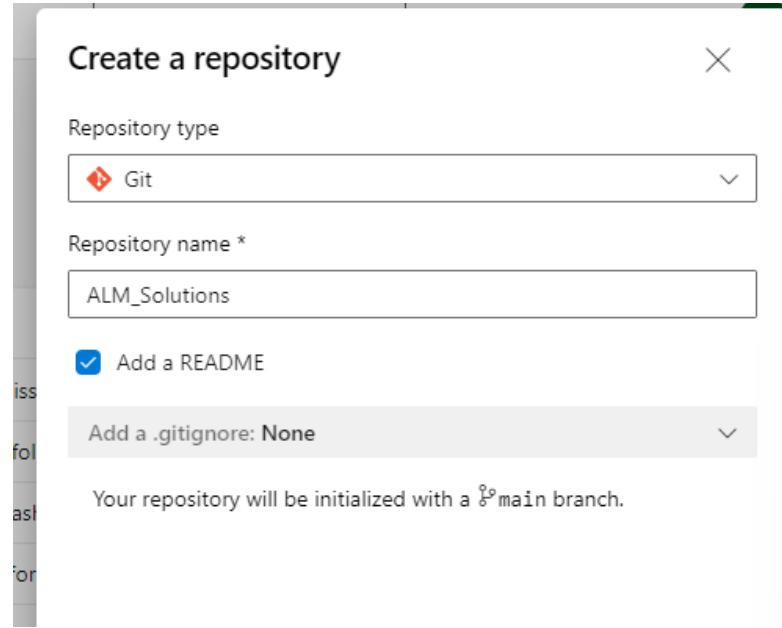
To configure where do we want to deploy the solution, we need to create a Profile.

Note: you shouldn't send your solution code to the **pplatform** repository, you should have one repository per each solution or one repository to all solutions, keep the pplatform clean for future updates of the pipelines.

In this case we will use one repository for all solutions, but before we configure AA4PP we need to create the repository in Azure DevOps. Go <https://dev.azure.com> select the **pplatform** project and select **Repos**. Create a new Repository by selecting **New Repository**.

The screenshot shows the Azure DevOps interface for the 'pplatform' repository. The left sidebar lists various project management and development features: Overview, Boards, Repos (selected), Files, Commits, Pushes, Branches, Tags, Pull requests, Pipelines, Test Plans, and Artifacts. The main content area displays the contents of the 'pplatform' repository, which includes several folders (.github, .vscode, CanvasTestFramework, Pipelines, PowerAppsLanguageTooling) and several files (CODE_OF_CONDUCT.md, devops-tasks-schema.json, jeschro-1540-readme.md, LICENSE, README.md, SECURITY.md, SUPPORT.md). A context menu is open over the repository name, containing options: New repository, Import repository, Manage repositories, and a list of recent repositories. The recent repositories list includes: .github (23 Jul 2021), .vscode (10 Sept 2021), CanvasTestFramework (9 Feb), Pipelines (28 Apr), PowerAppsLanguageTooling (Monday), PowerShell (Monday), .gitignore (5 Apr), CODE_OF_CONDUCT.md (25 Mar 2021), devops-tasks-schema.json (10 Sept 2021), jeschro-1540-readme.md (21 Jan), and LICENSE (25 Mar 2021).

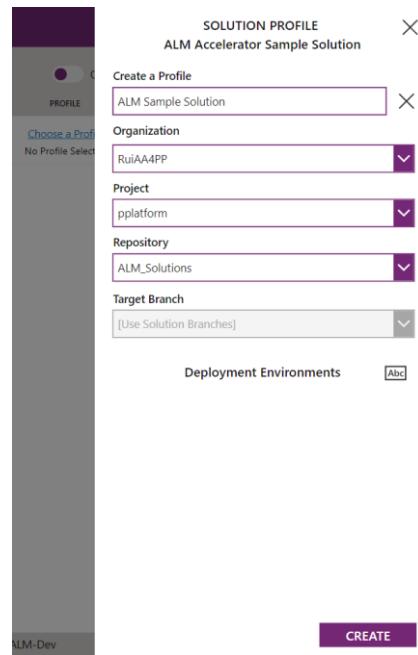
1. Add a good name, remember this repository will be the container for all your solutions



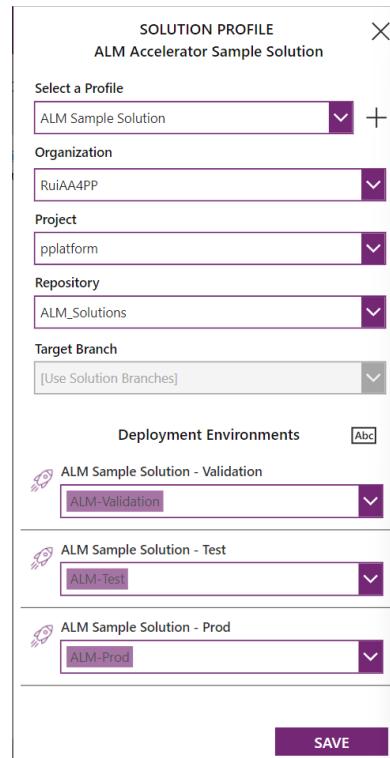
2. The pipelines will need to access this repository, a manual configuration will be needed. To simplify the process, we can configure **Open Access** to allow all pipelines to access this repositories, to configure this go to **Project Settings -> Repositories -> ALM_Solutions -> Security -> Open Access**.

User Type	Action	Setting
Project Administrators	Create branch	Allow (inher...)
Readers	Create tag	Allow (inher...)
Project Collection Administrators	Delete or disable repository	Not set
Project Collection Build Service Acc	Edit policies	Not set
Project Collection Service Accounts	Force push (rewrite history, delete branches and tags)	Not set
Users	Manage notes	Allow (inher...)
pplatform Build Service (RuiAA4PP)	Manage permissions	Not set
Rui Santos	Read	Allow (inher...)
	Remove others' locks	Not set
	Rename repository	Not set

3. Going to AA4PP, select **Choose a Profile** -> Select **plus icon**, we should be able to see the Repository we just created, select **ALM_Solutions** and select **Create**



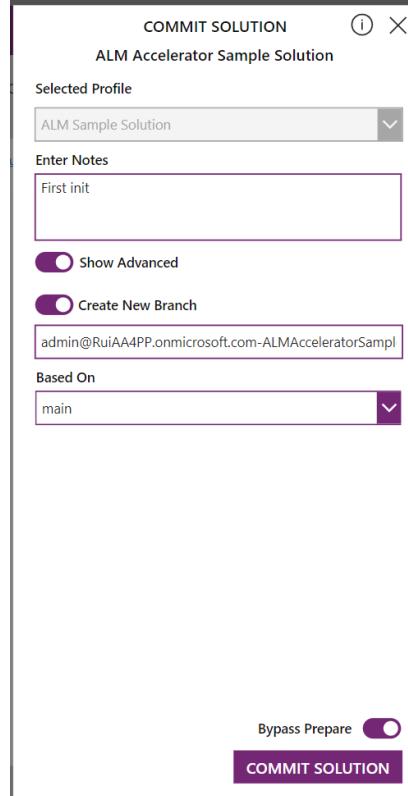
4. Select the **Deployment Environments** by picking the right environment for each step. Use the dropdown menu to find, or search and select **Save**



5. We should have the option to Commit Solution available, select in **Commit Solution**

The screenshot shows the ALM Accelerator for Power Platform interface. At the top, there's a purple header bar with the title "ALM Accelerator for Power Platform". Below it is a navigation bar with links for "REFRESH", "MANAGE SOLUTIONS", "IMPORT SOLUTION", "Only My Solutions" (selected), "Search Solutions", and a search icon. The main area is titled "SOLUTION" and shows two solutions: "ALM Accelerator Sample Solution" and "ALM Sample Solution". Between them are buttons for "COMMIT SOLUTION", "DEPLOY SOLUTION", and "DELETE SOLUTION". A "PROFILE" section is also present. The "ALM Accelerator Sample Solution" card includes links for "Open Solution" and "Configure Deployment Settings".

6. Enter some **notes** about the commit and **Bypass Prepare** (for simplification) and **Commit Solution**



You should be able to see the commit in progress.

The screenshot shows the ALM Accelerator for Power Platform interface again. The "COMMIT SOLUTION" step is now in progress, indicated by a blue clock icon next to the "COMMIT SOLUTION" button. The other stages ("DEPLOY SOLUTION" and "DELETE SOLUTION") are shown as simple buttons. The "ALM Sample Solution" card indicates the status "Validation - Test - Prod".

Selecting the blue clock, you are redirected to Azure DevOps and you can see the pipeline running.

The screenshot shows the Azure DevOps interface for a pipeline named 'export-solution-to-git'. On the left, the pipeline 'pplatform' is selected. In the center, the 'Jobs in run #export-A...' section is displayed, with the 'export_solution_to_git' job expanded. The job log shows the following steps:

```

1 Pool: Azure_Pipelines
2 Image: windows-2022
3 Queued: Just now [manage_parallel_jobs]
4 Agent: Hosted Agent
5 Started: Just now
6
7 The agent request is already running or has already completed.
8 ▶ Job preparation parameters
9 ▶ ↗ 14 queue time variables used
10 Job live console data:
11 Starting: export_solution_to_git

```

Going back to the Jobs list we should see the **export_solution_to_git** run successful

The screenshot shows the 'Jobs' list for the pipeline run. The 'export_solution_to_git' job is listed with a green checkmark indicating success. The job summary includes:

- Manually run by Rui Santos
- Repositories: pplatform (+1)
- Time started and elapsed: Today at 13:46, 5m 17s
- Related: 0 work items
- Tests and coverage: Get started
- Warnings: 3 (with three detailed messages about unapproved verbs in PowerShell cmdlets)
- Jobs table:

Name	Status	Duration
export_solution_to_git	Success	5m 8s

Going to the repository **ALM_Solutions** we see 2 new branches created, ALMAcceleratorSampleSolution and [user@domain.com-\(SolutionName\)](#)

AA4PP Lab

The screenshot shows the Azure DevOps repository interface for the 'ALM_Solutions' repository. The main branch is 'main'. A commit for 'README.md' was added by Rui Santos. The 'Getting Started' section contains a todo list:

- 1. Installation process
- 2. Software dependencies
- 3. Latest releases
- 4. API references

The ALMAcceleratorSampleSolution represents the Test branch and the [user@domain.com-\(SolutionName\)](#) represents the development branch of the specific user. Selecting the [user@domain.com-\(SolutionName\)](#) branch we can see all the code of our solution

The screenshot shows the Azure DevOps repository interface for the 'ALM_Solutions' repository. The ALMAcceleratorSampleSolution branch is selected. The 'SolutionPackage' contents are displayed, showing various modules and their last changes:

Name ↑	Last change	Commits
AppModules	7m ago	7687270e Init Rui Santos
AppModuleSiteMaps	7m ago	7687270e Init Rui Santos
CanvasApps	7m ago	7687270e Init Rui Santos
Connectors	7m ago	7687270e Init Rui Santos
Entities	7m ago	7687270e Init Rui Santos
environmentvariabledefinitions	7m ago	7687270e Init Rui Santos
Other	7m ago	7687270e Init Rui Santos
Roles	7m ago	7687270e Init Rui Santos
Workflows	7m ago	7687270e Init Rui Santos

If you select the ALMAcceleratorSampleSolution branch (representing the test branch) we only see the helper pipelines created automatically, these pipelines will be used to deploy the code to the downstream environments.

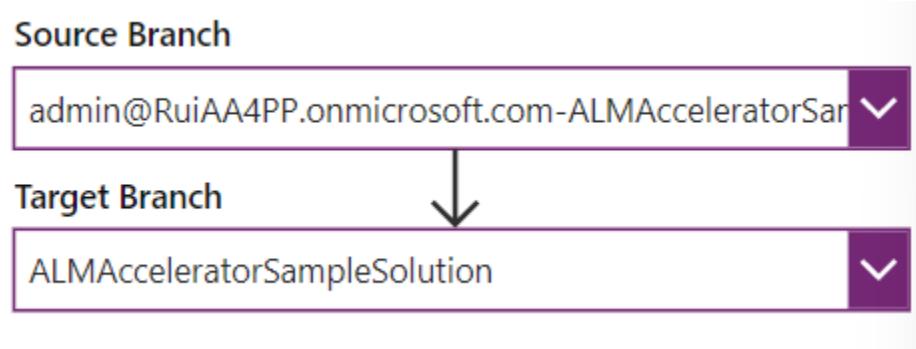
AA4PP Lab

The screenshot shows the ALM Accelerator for Power Platform interface. On the left is a sidebar with various icons. The main area shows a solution named 'ALM_Solutions' containing a folder 'ALMAcceleratorSampleSolution' which has three files: 'deploy-prod-ALMAccelerat...', 'deploy-test-ALMAccelerato...', and 'deploy-validation-ALMAcc...'. A file 'README.md' is also listed. The right side displays a message: 'File not found or you do not have permission' with a blue exclamation mark icon. Below the message, it says 'No item exists at path '/ALMAcceleratorSampleSolution/SolutionPackage' at version 'Branch ALMAcceleratorSampleSolution''. A blue button labeled 'Go to default branch' is present.

To deploy to our ALM-Test environment we go back to AA4PP and select **Deploy**, after we specify the **Title** and **Notes** we can select **Deploy Solution**.

The screenshot shows the 'DEPLOY SOLUTION' dialog box for the 'ALM Accelerator Sample Solution'. It includes fields for 'Selected Profile' (set to 'ALM Sample Solution'), 'Title' ('Init'), 'Enter Notes' ('init'), and 'Advanced Settings' (with 'Source Branch' set to 'admin@RuiAA4PP.onmicrosoft.com-ALMAcceleratorS...' and 'Target Branch' set to 'ALMAcceleratorSampleSolution'). A large grayed-out area on the left represents the main application interface. At the bottom right is a 'DEPLOY SOLUTION' button.

Note: Pay attention to the **Source Branch** and **Target Branch**, as explained before we will deploy our code from the dev branch [user@domain.com-\(SolutionName\)](#) to our Test branch ALMAcceleratorSampleSolution, represented in the following diagram.



After selecting **Deploy Solution** the AA4PP will use the pipelines to move the code to the different environments as managed solutions, selecting the **blue clock** we are redirected to Azure DevOps and see the pipeline execution.

1. Now you should see a blue clock under **build_and_deploy_job** select on it to see the progress of the job

Azure DevOps - RuiAA4PP / pplatform / Pipelines / deploy-validation-ALMAcceleratorSampleSolution / 1.0.20220505.5

Jobs in run #1.0.2022...

deploy-validation-ALMAcceleratorSampleSolution

Build and Deploy

build_and_deploy_job 31s

- Initialize job 6s
- Checkout Pipeline Br... 7s
- Checkout Source Bra... 1s
- Set SpnToken for us...** 15s
- Set toolsPaths
- Install Power Platform ...
- Set Source Repo Name

Set SpnToken for use by other tasks that need one

```

1 Starting: Set SpnToken for use by other tasks that need one
2 =====
3 Task      : PowerShell
4 Description : Run a PowerShell script on Linux, macOS, or Windows
5 Version   : 2.200.0
6 Author    : Microsoft Corporation
7 Help      : https://docs.microsoft.com/azure/devops/pipelines/tasks/utility/powershell
8 =====
9 Generating script.
10 ====== Starting Command Output ======
11 "C:\Program Files\PowerShell\7\pwsh.exe" -NoLogo -NoProfile -NonInteractive -ExecutionPolicy Unrestricted -Command ". 'D:\a\_temp\2734fee5-f4ce-4a5c-9a9b-4e64f52

```

2. After the pipeline is finished, we can complete the Pull Request selecting **Complete**

Azure DevOps - RuiAA4PP / pplatform / Repos / Pull requests / ALM_Solutions

Init

Active | 15 | Rui Santos admin@RuiAA4PP.onmicrosoft.com-ALMAcceleratorSampleSolution into ALMAcceleratorSampleSolution

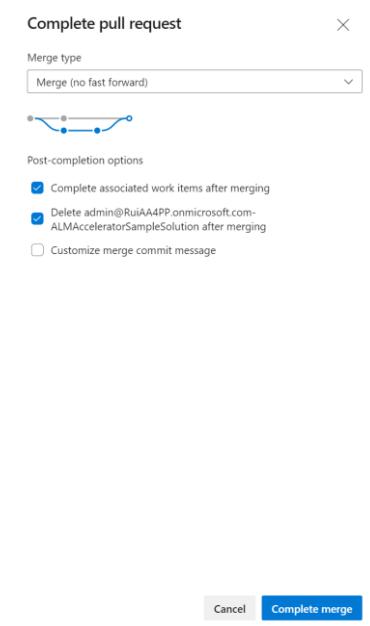
Overview **Files** **Updates** **Commits**

Reviewers

Required
No required reviewers

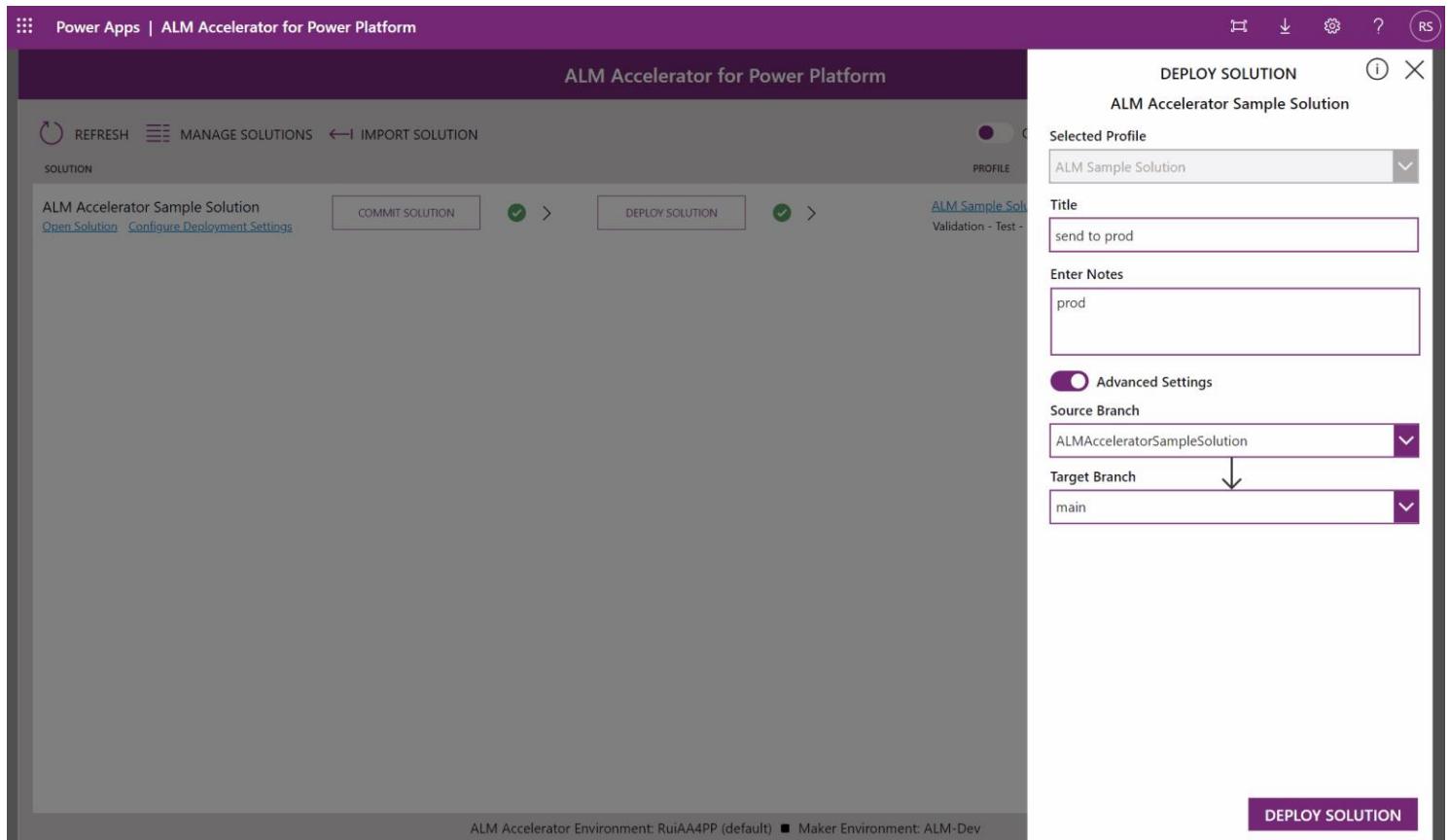
Optional
No optional reviewers

Tags
No tags



3. Select **Complete merge**. This action will pull all the code to the test branch (ALMAcceleratorSolution), automatically the pipeline to deploy to test environment will be trigger and we will be able to see our solution in the ALM_Test. After completing the merge follow the approvals in the next sequence of image.

- The last step is to deploy to production, to do that we go to AA4PP and we select **deploy solution**, notice the selection of **main** branch, which represent the production branch associated to ALM_Prod. After the pipeline is completed, we proceed with the completion of the Pull-Request.



FAQ

How to configure agent pools missing configuration

Define the **Default agent pool for YAML**

The screenshot shows the Azure Pipelines interface for a YAML pipeline named 'deploy-prod-May2022Test'. The pipeline consists of a single step: 'Get sources' from 'May2022Test'. On the right, under 'Pipeline', there are configuration settings:

- Name ***: deploy-prod-May2022Test
- Default agent pool for YAML**: Azure Pipelines
- YAML file path ***: (with a help icon)

How to edit the Environment URL

To make the url of the environments friendly, let's rename them, using the admin account select on each of the environments and perform this action:

- 1) From the Environment list select on the name of the environment
- 2) Select **Edit** under **Details** section and change the URL accordingly to the environment **Name**. Since the URL must be unique in the world try to add some personalization to it. Originally the url will be in a format of "orgxxxxxx".

AA4PP Lab

The screenshot shows the 'Edit details' dialog for the environment 'ALM-Dev'. The 'Name' field is set to 'ALM-Dev'. The 'URL' field contains 'org5c4f9170.crm19.dynamics.com'. Under 'Access', there are sections for 'Security roles' (with 'See all' link), 'Teams' (with 'See all' link), 'Refresh cadence' (set to 'Frequent'), 'S2S Apps' (with 'See all' link), and 'Resources' which lists 'Dynamics', 'Portals', 'Power A', and 'Flows'. The 'Purpose' section is a text area with placeholder text 'Describe the environment's purpose'. At the bottom right are 'Save' and 'Cancel' buttons.

- 3) Rename it in a format easy to identify which ALM step belongs, i.e. xxxx-alm-test

This screenshot is identical to the one above, except the 'Name' field in the 'Edit details' dialog has been changed to 'rui-alm-dev'. The rest of the environment details and the dialog structure are the same.

After the rename has been concluded you can see the new url in the **Environment URL**. Please remember the "crm19", part of the url, depends on the location you have chosen to create the Environment, in this example, crm19 corresponds to the Norwegian datacenter.

The screenshot shows the Power Platform admin center interface. On the left, there's a navigation sidebar with sections like Home, Environments, Analytics, Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main area displays environment details for 'ALM-Dev'. It includes tabs for Details, Version, and Updates. The Details tab shows information such as Environment URL (rui-alm-dev.crm19.dynamics.com), State (Ready), Region (Norway), Refresh cadence (Frequent), Type (Trial (29 days remaining)), Security group (Not assigned), and Organization ID (74003d4e-305f-4fa2-bf98-0c80c50deaf2). The Version tab shows Database version (9.2.22043.00137). The Updates tab indicates 2022 release wave 1 is On, with a link to see what's new in the release. Below these tabs, the Recent operation section shows an edit operation initiated by Rui Santos on 5/4/2022 at 8:28:41 PM. To the right, there are sections for Access (Security roles, Teams, Users, S2S Apps) and Resources (Dynamics 365 apps, Portals, Power Apps, Flows).

Is recommended, in a real scenario, to have an additional Environment where you install the AA4PP to enable the makers from your organization to access it (and also have ALM for the AA4PP), in this case to reduce the number of environments we will use the Default environment to install the AA4PP as the production environment for AA4PP.

The screenshot shows the Microsoft Power Platform admin center interface. The left sidebar has a 'Environments' section selected, with 'RuiAA4PP (default)' highlighted. The main content area displays the environment details:

Details		See all	Edit
Type	Default	Region	Norway
Refresh cadence	Frequent	Purpose	Not specified

Below this is a 'Add database' section with a link to 'Learn more about databases.' To the right is a 'Resources' sidebar with links for 'Power App' and 'Flows'.

At the bottom of the main content area is a 'Recent operation' section:

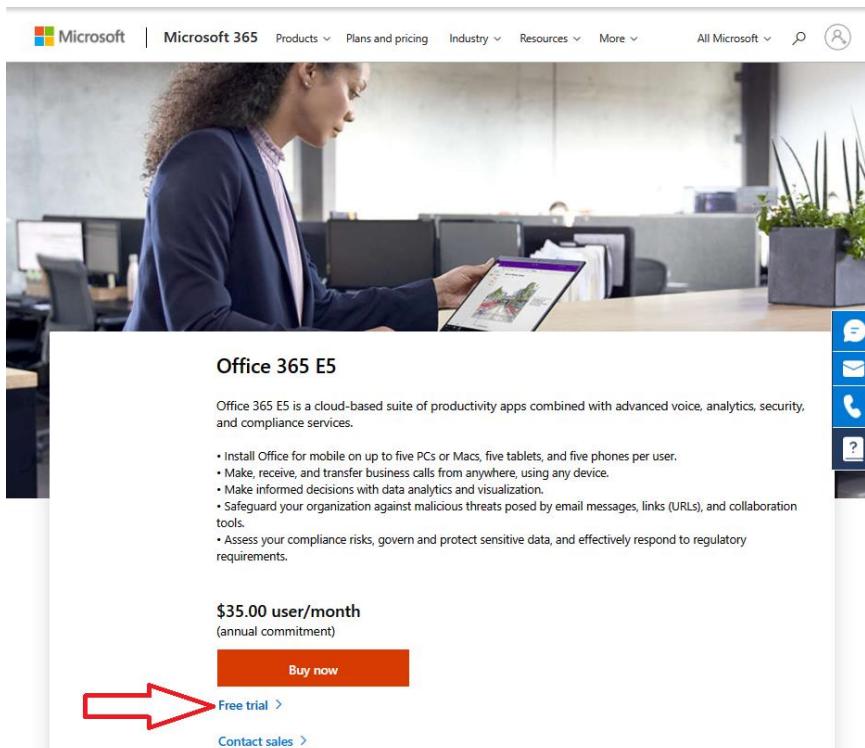
Type	Start time
Create	04/05/2022, 16:02:00
Initiated by	Status
SYSTEM	Ready

How to start a NEW trial tenant of Office 365 and create environments

Tip for Pro's If you are very confident you have licensing, capacity, and ability to deploy Environments with Dataverse and import Solutions in your tenant, then you could skip this entire Task 3.

NOTE: Dev Community plan described [here](#) is just 1 free Environment and within your organization tenant, if you would like to follow this lab you will need at least 4 environments (Dev – Validation – Test – Production), so only this plan might limited.

1. In new **In-Private browser session** provision a free Office 365 demo tenant at [Microsoft Office 365 Trail web page](#). **TIP:** If you had other sessions active in your In-Private browser, we suggest you close it and start over to be sure you are completely fresh session.
2. Select on **Free trial**



3. Use your personal Email Address, as long as it's not your work email. If you used your organization email address, be sure you select the **No, I'll sign up for a new account** this way the trial does not attempt to attach to anything you already have.



You've selected Office 365 E5

1 Let's get you started

Looks like you're already using **laptop.com** with another Microsoft service. Sign in to use this account with this trial, or create a new account.

[Sign In](#)

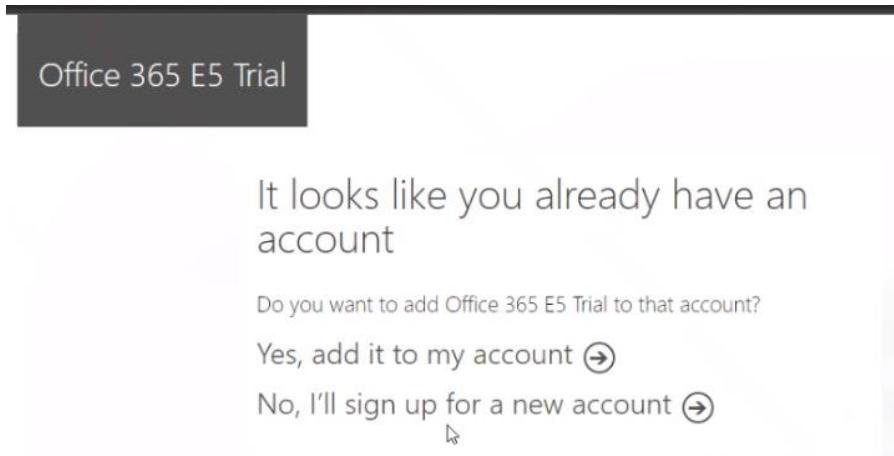
[Create a new account instead](#)

2 Tell us about yourself

3 How you'll sign in

4 Confirmation details

4. This screen might look like this depending on variety in regions



5. For Company Name – you can use your name something like “AA4PP’s Lab” use your work or cell phone for business phone number. Use a cell phone you can access for the verification code step as it must be received and validated.

(2) Tell us about yourself

A text or phone call helps us make sure this is you.
Enter a number that isn't VoIP or toll free.

Text me
 Call me

Country code Phone number

(+1) United States

We don't save this phone number or use it for any other purpose.

Enter your verification code

This is required

Didn't get it or need a new code? Try again.

6. In *yourbusiness.onmicrosoft.com* you can get creative Ex: YourNameAA4PP.onmicrosoft.com

The screenshot shows the Microsoft Office 365 E5 setup wizard. At the top, it says "You've selected Office 365 E5". Below that, a vertical numbered list indicates the steps: 1. Let's get you started (step 1), 2. Tell us about yourself (step 2), 3. How you'll sign in (step 3, which is highlighted with a blue circle around the number), and 4. Confirmation details (step 4). Step 3 contains the following text:
To set up your account, you'll need a domain name.
[What is a domain?](#)
You'll probably want a custom domain name for your business at some point. For now, choose a name for your domain using **onmicrosoft.com**.
A text input field shows "yourbusiness" and ".onmicrosoft.com" is selected. Below the input field are two buttons: "Check availability" (in blue) and "Next".

7. Short username like "Admin" or just your first name is just fine and certainly choosing a memorable password you can remember. Write this down somewhere for yourself.

8. This is what success looks like:



This task would have created a net-new tenant for your trial away from your organization, you might have users your personal email address or mobile phone this was only for activation validation and account recovery reasons.

No Credit Card required, and you can ignore and abandon this environment with no recourse.

You can stop right at this point and close the setup page - you won't need anything else setup on in Office for this lab. Don't close this browser session.

9. In this same browser session go to: [Pricing - Power Apps](#) – select **Try free** under Per App plan

Power Apps pricing

Review standard plans, costs, and availability to start running business apps.

Subscription plans

Best for businesses that want predictable user-based licensing – with the flexibility to license users to run one app at a time or run unlimited apps.

Per app plan	Per user plan
\$5 per user/app/month Run one app or portal per user, stacking licenses for access to each additional as their needs change. <ul style="list-style-type: none">Includes 250 AI Builder service credits per month.¹Requires access to the Microsoft 365 admin center with global administrator or billing administrator roles. Buy now >	\$20 per user/month Run unlimited apps and portals per user for one flat monthly rate. <ul style="list-style-type: none">Includes 500 AI Builder service credits per month.¹Available to buy now with a credit card. Buy now > Try free >

10. Select **Yes, add it to my account**

Power Apps per user plan Trial

It looks like you already have an account

Do you want to add Power Apps per user plan Trial to that account?

[Yes, add it to my account ↗](#)

[No, I'll sign up for a new account ↗](#)

11. Select on **Try now**

Check out
confirm your order

Power Apps per user plan Trial | 1 month term
25 users

12. After you select **Try Now** you will get redirected to Microsoft admin portal otherwise continue until you complete the process (or go directly to <https://admin.microsoft.com>), stop once you are navigated to the Office 365 admin center. Under **Active users**, select **Add multiple users**:

The screenshot shows the Microsoft 365 Admin Center interface. The left sidebar has a 'Users' section expanded, with 'Active users' selected. The main content area is titled 'Active users' and shows a 'Recommended actions' section with links for 'Add a user', 'User templates', 'Add multiple users', 'Multi-factor authentication', 'Delete a user', 'Refresh', and 'Reset password'. A search bar at the bottom right is labeled 'Search active users list'.

13. Add similar usernames, follow the image. The format is

First Name: ALM

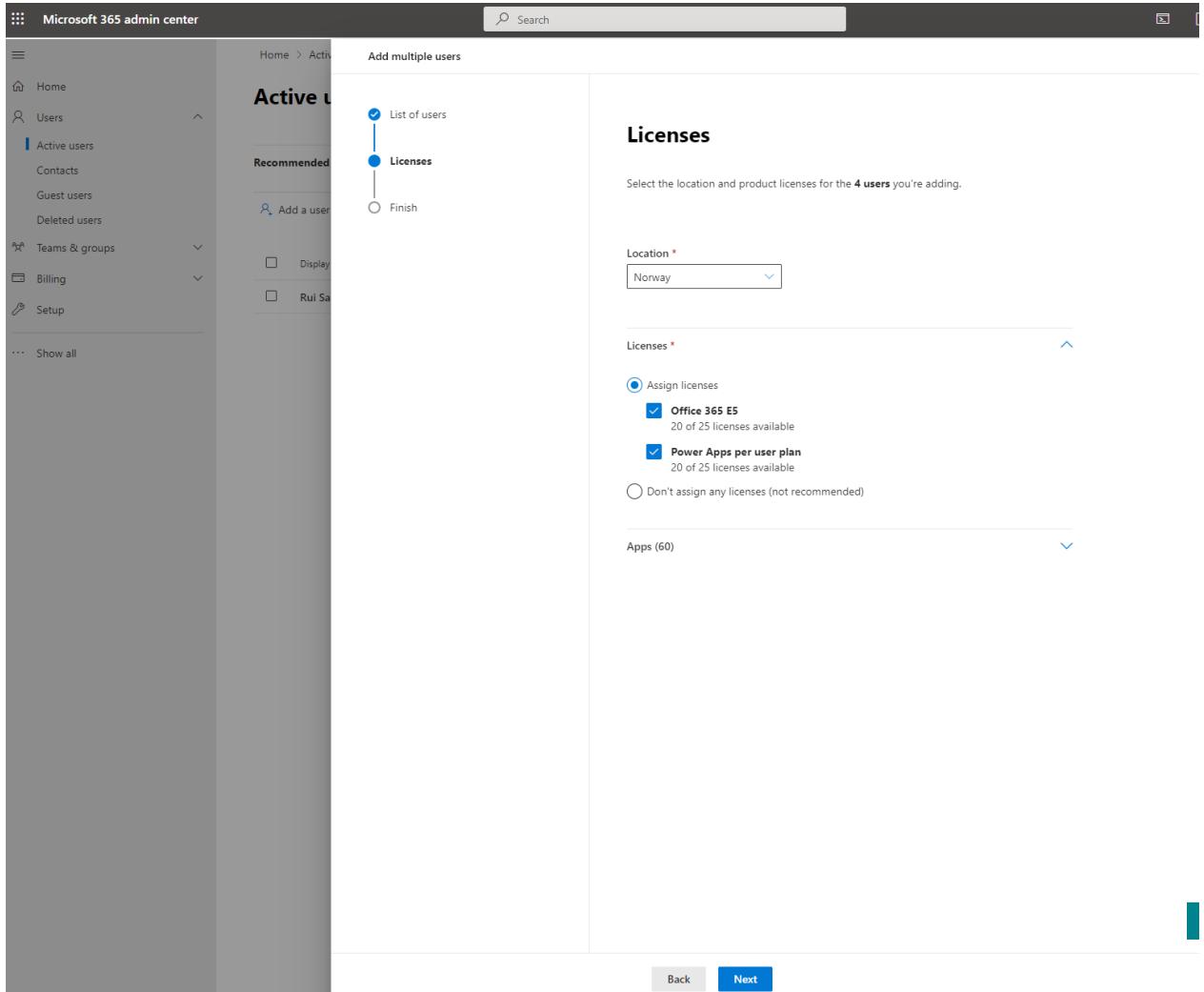
Last Name: Dev/Validation/Test/Prod

The screenshot shows the Microsoft 365 Admin Center interface. The left sidebar has 'Active users' selected under 'Users'. The main area title is 'Add multiple users' with a sub-section 'Add list of users'. A navigation bar at the top includes 'Home', 'Search', and icons for 'Print', 'Copy', 'Help', and 'Feedback'. Below the title are three options: 'List of users' (selected), 'Licenses', and 'Finish'. A note says 'Enter up to 249 users. All users are given temporary passwords.' Below this are buttons for '+ Add row' and 'Remove row'. A table header with columns 'First name', 'Last name', 'Username', and 'Domain' is shown. Five rows of data are entered:

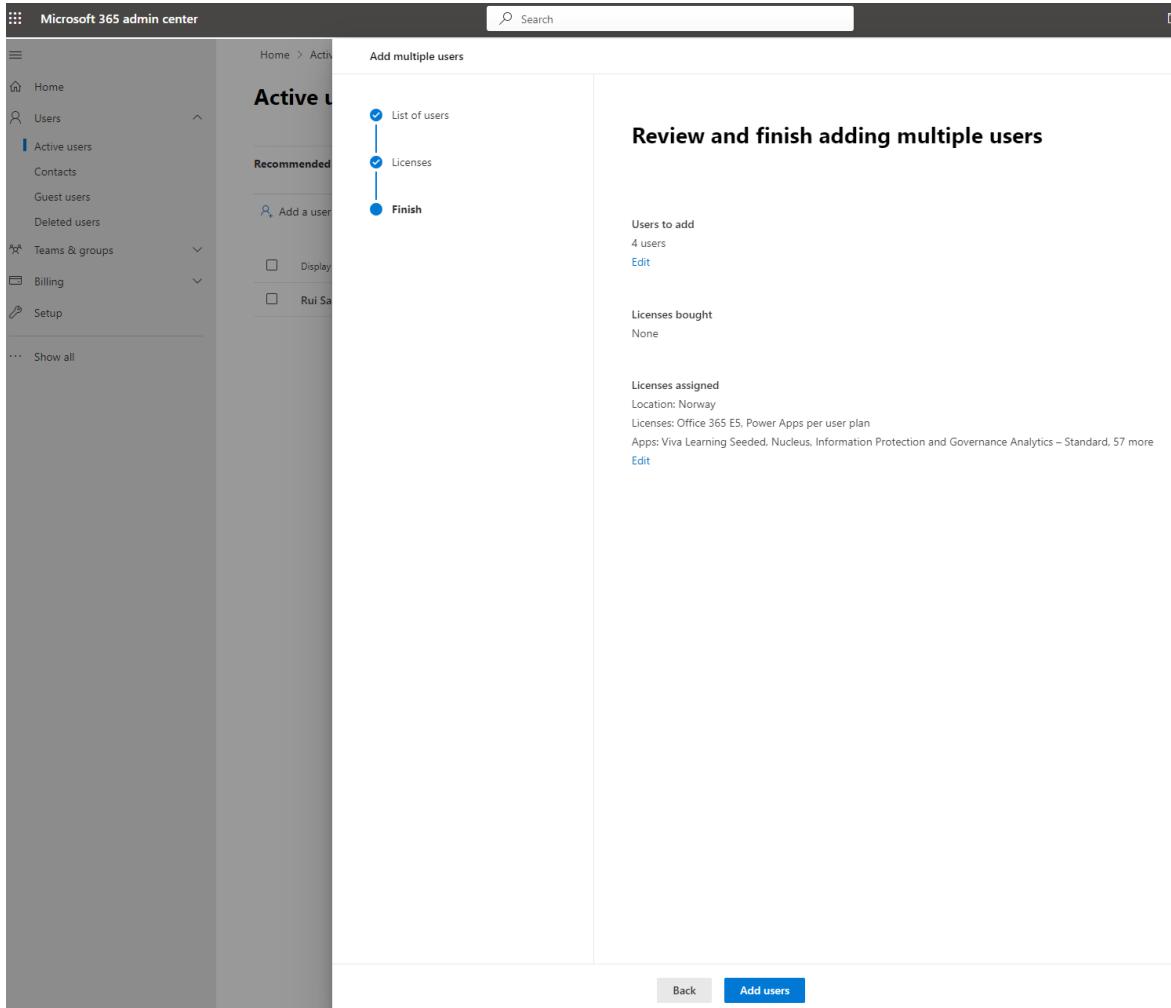
First name	Last name	Username	Domain
ALM	Last name	Dev	RuiAA4PP.onmicrosoft.com
ALM	Last name	Validation	RuiAA4PP.onmicrosoft.com
ALM	Last name	Test	RuiAA4PP.onmicrosoft.com
ALM	Last name	Prod	RuiAA4PP.onmicrosoft.com

An input field 'First name' is empty, and the 'Last name' and 'Username' fields are also empty. A note 'I'd like to upload a CSV with user information' with an unchecked checkbox follows. At the bottom are 'Next' and 'Cancel' buttons, and a 'Help & support' link.

14. Add an Office 365 and PowerApps per user plan to all these user users in this screen



15. Finish the process by **Adding Users**



16. Your users are now added to your tenant, to have access to them select **Show** to see the passwords and save them for later use:

AA4PP Lab

The screenshot shows the Microsoft 365 Admin Center interface. On the left, the navigation menu includes Home, Users (Active users, Contacts, Guest users, Deleted users), Teams & groups, Billing, and Setup. The main content area is titled "Add multiple users" under "Active users". A progress bar on the right indicates the process: "List of users" (green checkmark), "Licenses" (green checkmark), and "Finish" (green checkmark). The main message says "You added 4 users". It notes that these users will appear in the Active users list and can now log in. An email sign-in information section contains the email address "admin@RuiAA4PP.onmicrosoft.com". Below it is a "Send email" button and a "Download user details" link. A table lists the four users with their display names and usernames. To the right of the table is a network diagram icon. At the bottom right is a "Help & support" button.

Save locally the usernames and password generated

Username	Password
Dev@RuiAA4PP.onmicrosoft.com	*****
Validation@RuiAA4PP.onmicrosoft.com	*****
Test@RuiAA4PP.onmicrosoft.com	*****
Prod@RuiAA4PP.onmicrosoft.com	*****

You should be able to see the full list of the users you just created:

Home > Active users

Active users

Recommended actions (2)

- Add a user
- User templates
- Add multiple users
- Multi-factor authentication
- Delete a user
- Refresh
- Reset password
- Filter
- Search active users list

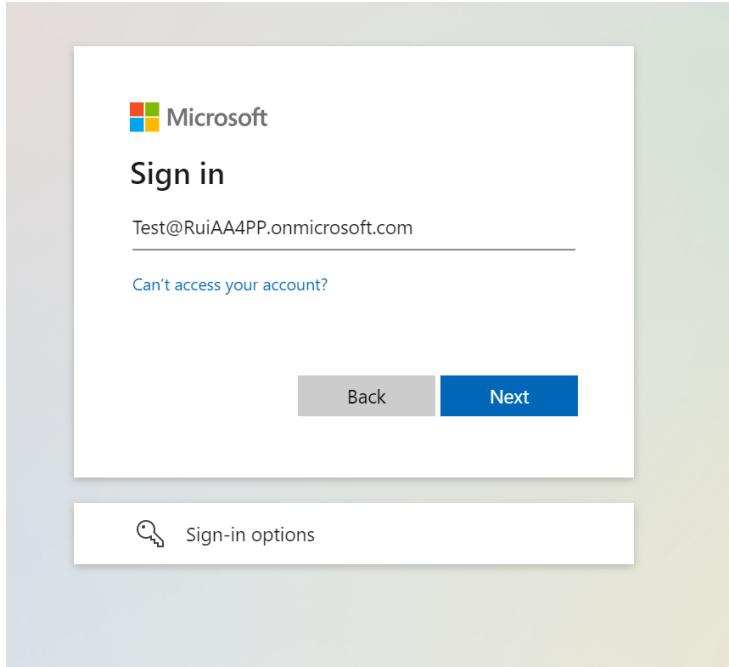
Display name ↑	Username	Licenses	Choose columns
ALM	Prod@RuiAA4PP.onmicrosoft.com	Power Apps per user plan , Office 365 E5	
ALM	Validation@RuiAA4PP.onmicrosoft.com	Power Apps per user plan , Office 365 E5	
ALM	Test@RuiAA4PP.onmicrosoft.com	Power Apps per user plan , Office 365 E5	
ALM	Dev@RuiAA4PP.onmicrosoft.com	Power Apps per user plan , Office 365 E5	
Rui Santos	admin@RuiAA4PP.onmicrosoft.com	Power Apps per user plan , Office 365 E5	

Since each environment needs to have Dataverse (to import/export your solution), we would need capacity in the tenant to create the 4 environments needed. Since we are in a trial tenant (free of charge) we can use the benefit of each user been able to create 1 trial environment, so we will login with each user and create an Environment, in total we will have 4.

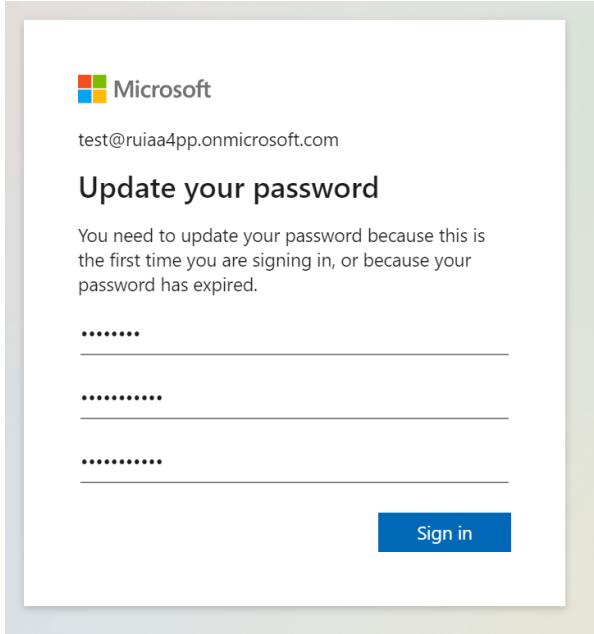
Note: After you have associated the licenses to the user, it sometimes takes some minutes to reflect in the system, if you are getting errors when create the environment, try to logout and login again and repeat the process.

Login with each username&password and repeat these instructions. Use the browser in incognito mode and go to <https://admin.powerplatform.com/> and follow the next instructions:

- 1) Sign-out if you are logged in
- 2) Login with one of the user



- 3) The first time you login with the user you need to update the password, for the purpose of this lab, you can specify the same password to help you remember, but it's up to you.



- 4) Choose Connect the username with the name of the Environment:

- "dev" user, create the "ALM-Dev" environment
- "validation" user, create the "ALM-Validation" environment
- "test" user, create the "ALM-Test" environment
- "prod" user, create the "ALM-Prod" environment

Use the **Region** closer to you, use Type **Trial** and enable **Create a database for this environment** (to create the Dataverse instance)

The screenshot shows the Power Platform admin center interface. On the left, there's a navigation sidebar with options like Home, Environments, Analytics, Resources, Data integration, Data (preview), Policies, and Admin centers. The main area is titled 'Environments' and displays a message: 'No environments were found'. Below this, a note says: 'An environment is a space to store, manage, and share your organization's business data, apps, and flows. [Learn more](#)'. On the right, a modal window titled 'New environment' is open. It contains fields for 'Name *' (ALM-Test), 'Region *' (Norway - Default), 'Type' (Trial), and 'Purpose' (a text area). A checkbox 'Create a database for this environment?' is checked. At the bottom of the modal are 'Next' and 'Cancel' buttons.

- 5) Select **next** and specify the **Language** and **Currency** to your preferences and select **save**.
Note: As best practice you should configure the unique URL under select **here** in URL

The screenshot shows the 'Add database' configuration dialog. It includes fields for 'Language *' (English), 'URL' (a placeholder field), 'Currency *' (NOK (kr)), 'Enable Dynamics 365 apps?' (radio button set to 'No'), 'Deploy sample apps and data?' (radio button set to 'No'), and 'Security group' (a 'Select' button). At the bottom are 'Save' and 'Cancel' buttons.

[← Add database](#) [X](#)

(i) This operation is subject to [capacity constraints](#)

Language *
 English

Default language for user interfaces in this environment

URL
If you don't enter a domain name, we will pick one for you

Currency *
 NOK (kr)

Reports will use this currency

Enable Dynamics 365 apps?
In addition to Power Apps. [Learn more](#)
 No

Deploy sample apps and data?
 No

Security group
Restrict environment access to people in this security group. Otherwise, everyone can access. [Learn more](#)

[Save](#) [Cancel](#)

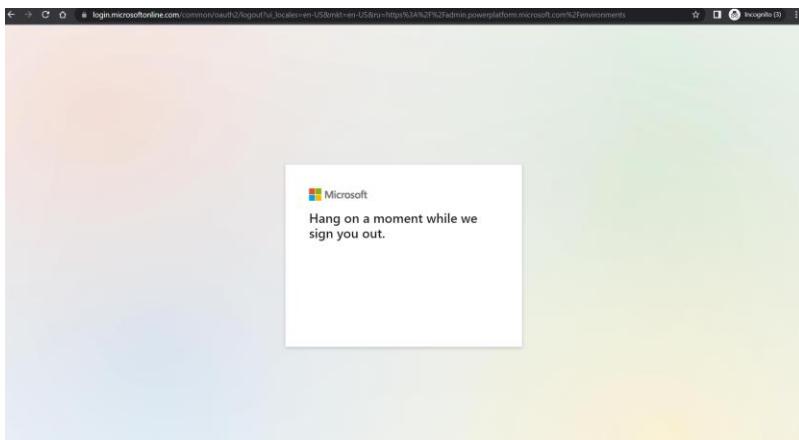
6) The creation of the environment should have started

Environments						
Environment	Type	State	Region	Created on	Created by	
ALM-Test	Trial	PreparingInstance	Norway	05/04/2022 6:52 PM	ALM	

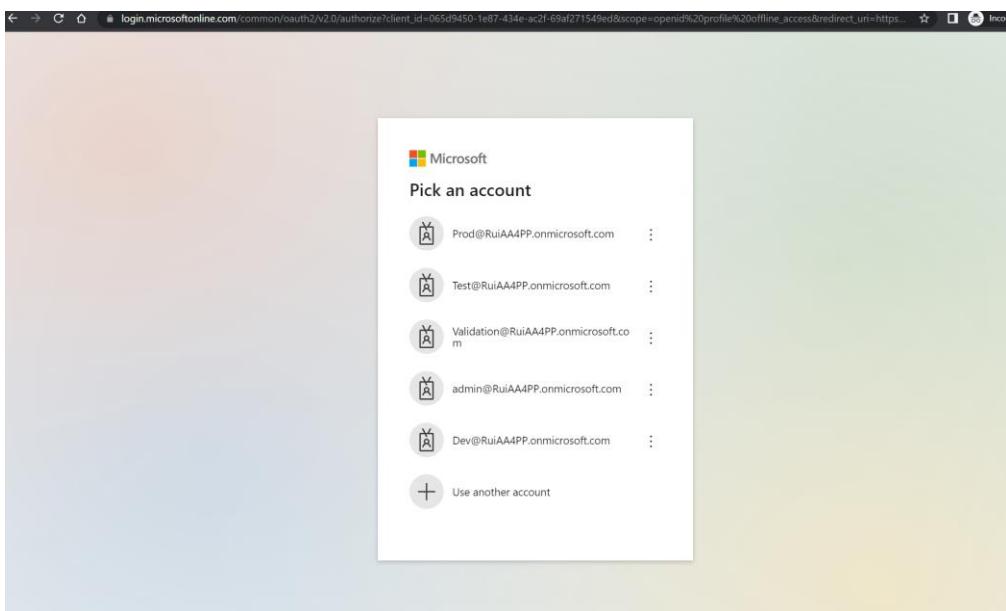
Note: You don't have to wait until the creation is completed. You can follow the same procedures to create the other 3 environments repeating the previous steps using a different username&password.

After you have created the 4 environments follow the next steps:

- a. Logout from your current account



- b. Login with the admin account in <https://admin.powerplatform.com>



- c. You should be able to see all Environments created:

AA4PP Lab

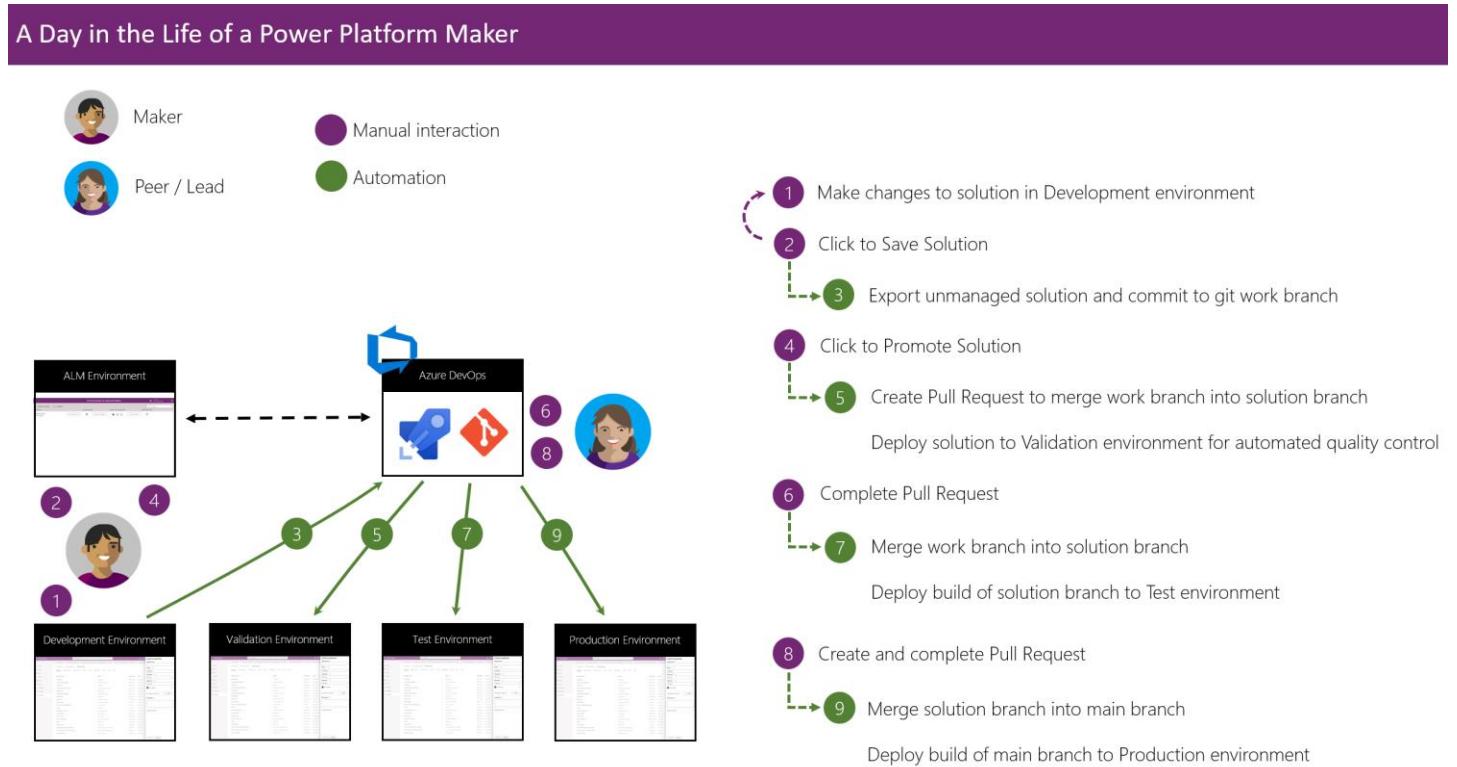
The screenshot shows the Microsoft Power Platform admin center interface. The left sidebar has a 'Environments' section expanded, listing 'Analytics', 'Resources', 'Help + support', 'Data integration', 'Data (preview)', 'Policies', and 'Admin centers'. The main area is titled 'Environments' and lists five environments: 'ALM-Prod', 'ALM-Test', 'ALM-Validation', 'ALM-Dev', and 'RuiAA4PP (default)'. Each environment row includes columns for Environment name, Type (e.g., Trial or Default), State (Ready), Region (Norway), Created on (date and time), and Created by (user). A search bar is at the top right.

Environment	Type	State	Region	Created on ↓	Created by
ALM-Prod	...	Trial (29 days remaining)	Ready	Norway	05/04/2022 6:54 PM
ALM-Test	...	Trial (29 days remaining)	Ready	Norway	05/04/2022 6:52 PM
ALM-Validation	...	Trial (29 days remaining)	Ready	Norway	05/04/2022 6:44 PM
ALM-Dev	...	Trial (29 days remaining)	Ready	Norway	05/04/2022 6:28 PM
RuiAA4PP (default)	...	Default	Ready	Norway	05/04/2022 6:02 PM

Why the need for different environments

A recommended approach for Power Platform ALM (Application Life-cycle Management) is to have 4 Environments. To handle the developments of Apps (**ALM-Dev**), validate of the solution deployed to Azure Dev Ops (**ALM-Validation**), test environment is where the testes from business will test the solution (**ALM-Test**) and production is where the end users will access the solution (**ALM-Prod**).

We will explain better in coming tasks, but the main flow is:



How to find the latest CoE ALM Accelerator Templates

To find the latest release go to <https://github.com/microsoft/coe-alm-accelerator-templates/> and select on the right side **Releases->Latest**

To find the latest release go to <https://github.com/microsoft/coe-alm-accelerator-templates/> and select on the right side **Releases->Latest**

Search or jump to... Pull requests Issues Marketplace Explore

microsoft / coe-alm-accelerator-templates Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main 4 branches 14 tags Go to file Add file Code About

No description, website, or topics provided.

Readme MIT License Code of conduct 34 stars 14 watching 24 forks

Releases 9

ALM Accelerator For Power Plat... (Latest) 8 hours ago + 8 releases

Packages No packages published Publish your first package

Select in the tag and follow the url on the page

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Releases / CenterofExcellenceALMAccelerator-May2022

ALM Accelerator For Power Platform May 2022 (Latest)

CoEStarterKitBot released this 8 hours ago CenterofExcellence 5f8ca1a

Public preview release of the ALM Accelerator For Power Platform. See <https://github.com/microsoft/coe-starter-kit/releases/tag/CoEStarterKit-May2022> for details.

Assets 2

Source code (zip) Source code (tar.gz)

Microsoft Open Source Docs Portal GitHub @ MSFT Support Options Release Guide

Use the url in the instructions

[microsoft / coe-starter-kit](#) Public

Code Issues Pull requests Discussions Actions Projects Wiki Security Insights

Releases / CoEStarterKit-May2022

CoE Starter Kit May 2022

Latest

CoEStarterKitBot released this 8 hours ago · CoEStarterKit... · fe1bb0e

First Time Setup Instructions

- Get started with the CoE Starter Kit Setup: <https://docs.microsoft.com/en-us/power-platform/guidance/coe/setup>
- Get started with the ALM Accelerator for Power Platform Setup: <https://docs.microsoft.com/en-us/power-platform/guidance/coe/setup-almacceleratorpowerplatform-cli>

Upgrade Instructions

- Upgrading from the latest version of the CoE Starter Kit: <https://docs.microsoft.com/power-platform/guidance/coe/after-setup#installing-upgrades>
- Upgrading from the latest version of the ALM Accelerator for Power Platform
 - Import the latest managed AA4PP Solution https://github.com/microsoft/coe-starter-kit/releases/download/CoEStarterKit-May2022/CenterofExcellenceALMAccelerator_1.0.20220503.1_managed.zip
 - Update your pipeline templates repo with the latest from <https://github.com/microsoft/coe-alm-accelerator-templates/tree/CenterofExcellenceALMAccelerator-May2022>

Change Log

- #1799-[CoE Starter Kit] Store HTTP hostname
- #1898-ALM Accelerator for Power Platform - Show Deployment Pipeline Statuses

Select the Https url under **Code-> Clone**

[github.com/microsoft/coe-alm-accelerator-templates/tree/CenterofExcellenceALMAccelerator-May2022](#)

Search or jump to...

Pull requests Issues Marketplace Explore

[microsoft / coe-alm-accelerator-templates](#) Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

CenterofExcellenceALMAccelerator-May2022

4 branches 14 tags

mikeyfactorial	Update with latest from PALT (#130)
.github/ISSUE_TEMPLATE	Init issue template chooser
.vscode	subfolders
CanvasTestFramework	squash
Pipelines	Fix for no-op issue (#126)
PowerAppsLanguageTooling	Update with latest from PALT (#131)
PowerShell	Fix for removing dev config directory
.gitignore	Enable / Disable Flows (#122)
CODE_OF_CONDUCT.md	Initial CODE_OF_CONDUCT.md commit
LICENSE	Updating LICENSE to template content
README.md	Update README.md
SECURITY.md	Initial SECURITY.md commit

Local Codespaces

Clone HTTPS SSH GitHub CLI

<https://github.com/microsoft/coe-alm-accelerator-templates>

About No description Read MIT Code 34 stars 14 weeks 24 forks

Read MIT Code 34 stars 14 weeks 24 forks

Release ALM 8 hours + 8 releases

Package ..

How to unblock a job missing permission

Select in the red text **Permission needed**

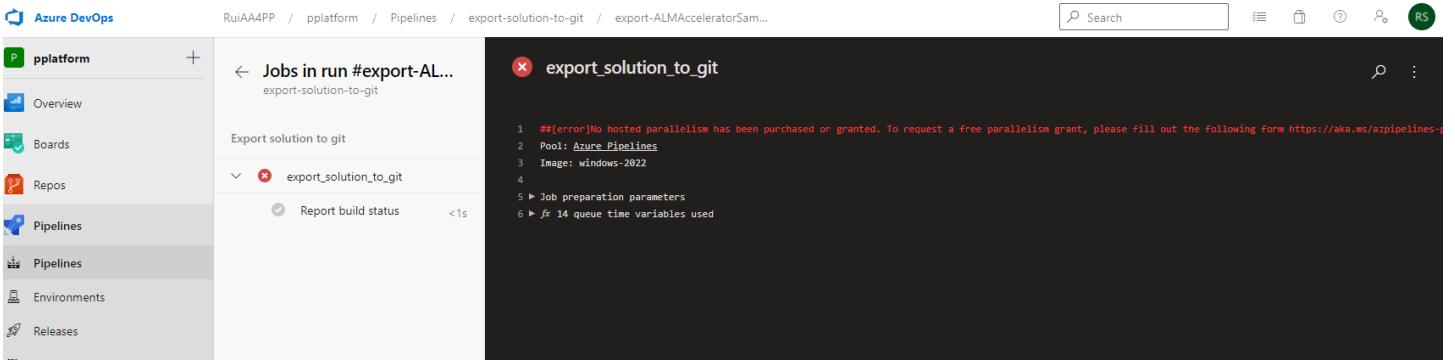
The screenshot shows the Azure Pipelines interface for a pipeline named '#export-ALMAcceleratorSampleSolution-to-git-branch Update with latest from PALT (#130)'. The 'Summary' tab is selected. A warning message at the top states: '⚠ This pipeline needs permission to access 2 resources before this run can continue to Export solution to git'. Below this, the 'Jobs' section lists one job: 'export_solution_to_git' which is currently 'Waiting'. The 'Sources' section shows two repositories: 'pplatform' and 'ALM_Solutions', both from 'Azure Repos'. The 'pplatform' repository has a branch/tag 'main' and version '5f8ca1a9'. The 'ALM_Solutions' repository also has a 'main' branch and version 'b686c58e'.

Permit both

The screenshot shows the same pipeline details page as above, but with a 'Waiting for review' overlay. The overlay contains two permission requests: 'Permission needed' for 'alm-accelerator-variable-group' and 'Permission needed' for 'ALM_Solutions Repository'. Both requests have a blue 'Permit' button next to them. The rest of the pipeline details page remains the same, showing the 'export_solution_to_git' job in a 'Waiting' state and the 'pplatform' source repository.

How to add parallelism to Azure DevOps

You need to have parallelism grant, this might take some hours or sometimes day to get. This action was performed in the Pre-requisites of this lab, but in case it hasn't been done open the forms url shown in the error.



How to configure the permission of pipelines

Find the list of pipelines going to **Pipelines -> All**

The screenshot shows the 'Pipelines' page with the 'All' tab selected. It lists three pipelines: 'delete-unmanaged-solution-and-components', 'export-solution-to-git', and 'import-unmanaged-to-dev-environment', all of which have 'No runs yet'.

Update the permissions of the pipelines by going **More (...)**, from top right and select **Manage Security**.

The screenshot shows the 'Pipelines' page with the 'All' tab selected. The 'More' menu is open, showing options like 'Import a pipeline' and 'Manage security'.

How to fix a missing service connection

Init

Active | 1 Rui Santos admin@RuiAA4PP.onmicrosoft.com-ALMAcceleratorSampleSolution into ALMAcceleratorSampleSolution

Overview Files Updates Commits

1 required check failed
1 optional check failed

Build Validation Build Validation failed

The pipeline is not valid. Job build and deploy_job: Step PowerPlatformChecker input PowerPlatformSPN references service connection https://orgc001826.crm19.dynamics.com/ which could not be found. The service connection does not exist or has not been authorized for use. For authorization details, refer to https://aka.ms/yamlauthz.

No merge conflicts Last checked 2m ago

Description

init

Reviewers

Required: No required reviewers

Optional: No optional reviewers

Tags

No tags

Work items

No work items

1. Cancel the Pull Request selecting **Abandon**

Init

Active | 1 Rui Santos admin@RuiAA4PP.onmicrosoft.com-ALMAcceleratorSampleSolution into ALMAcceleratorSampleSolution

Overview Files Updates Commits

1 required check failed
1 optional check failed

Build Validation Build Validation failed

The pipeline is not valid. Job build and deploy_job: Step PowerPlatformChecker input PowerPlatformSPN references service connection https://orgc001826.crm19.dynamics.com/ which could not be found. The service connection does not exist or has not been authorized for use. For authorization details, refer to https://aka.ms/yamlauthz.

No merge conflicts Last checked 2m ago

Description

init

Reviewers

Required: No required reviewers

Optional: Rui Santos Approved

Tags

No tags

2. In case you continue to see the same error, let's confirm using the AA4PP if the environments has the correct URL, to do that open the **ALM Accelerator for Power Platform Administration** App from the portal

The screenshot shows the Microsoft Power Apps portal. On the left, there's a navigation sidebar with options like Home, Learn, Apps, Create, Data, Flows, Chatbots, and AI Builder. The main area is titled 'Apps' and shows a list of three items:

Name	Modified	Owner	Type
ALM Accelerator for Power Platform	13 h ago	Rui Santos	Canvas
ALM Accelerator for Power Platform Administration	13 h ago	Rui Santos	Model-driven
Solution Health Hub	4 d ago	SYSTEM	Model-driven

3. Select the item under **Activate Deployment User Settings**

The screenshot shows the 'Active Deployment User Settings' view for the 'ALM Accelerator for Power Platform A...' app. The navigation sidebar includes 'Recent', 'Pinned', 'Deployments', 'Deployment User Se...', 'Deployment Profile', and 'Deployment Requests'. The main area displays a list of deployment users, with one entry highlighted by a yellow box:

Name
admin@RuiAA4PP.onmicrosoft.com - Def...

4. Select the item under **Deployment Profiles**

The screenshot shows the 'Deployment Profiles' view. The navigation sidebar includes 'Recent', 'Pinned', 'Deployments', 'Deployment User Se...', 'Deployment Profile', and 'Deployment Requests'. The main area displays a list of deployment profiles, with one entry highlighted by a yellow box:

Name	AzDO Organization	AzDO Project	Repository	Created On
ALM Sample Solution	RuiAA4PP	pplatform	ALM_Solutions	5/4/2022 11:36 PM

5. Select the **Validation** under **Deployment Steps**

AA4PP Lab

ALM Sample Solution - Saved
Deployment Profile

General Related

Name	* ALM Sample Solution
AzDO Organization	* RuiAA4PP
AzDO Project	* pplatform
Repository	* ALM_Solutions
Repository ID	55b36400-5853-4223-8e98-b0f1fd219f0e
Target Branch	[Use Solution Branches]

Deployment Steps

Name	Step Number ↑	Deployment Environment	Approval Type	Deployable	Created On
Validation	1	ALM Sample Solution - Validation	Pull Request	Not Allowed	5/4/2022 11:36 PM
Test	2	ALM Sample Solution - Test	Pull Request	Allowed	5/4/2022 11:36 PM
Prod	3	ALM Sample Solution - Prod	Pull Request	Allowed	5/4/2022 11:36 PM

1 - 3 of 3 Page 1 →

6. Select the Environment link under General

Power Apps | ALM Accelerator for Power Platform A...

Home Recent Pinned Deployments Deployment User Settings Deployment Profile Deployment Requests

Validation - Saved Deployment Step

General Related

Name	* Validation
Deployment Profile	* ALM Sample Solution
Step Number	1
Environment	<input checked="" type="checkbox"/> ALM Sample Solution - Validation

Deployment Settings

Deployable	Not Allowed	Approval Type	Pull R
------------	-------------	---------------	--------

7. Confirm if the url matches with the environment url created, in this case, that was the error

ALM Sample Solution - Validation - Saved
Deployment Environment

General Related

Name	* ALM Sample Solution - Validation
URL	* https://org6c001826.crm19.dynamics.com/

8. Update the url to be correct in my case <https://rui-alm-validation.crm19.dynamics.com/> and select **Save**

ALM Sample Solution - Validation - Unsaved
Deployment Environment

General Related

Name	* ALM Sample Solution - Validation
URL	* https://rui-alm-validation.crm19.dynamics.com/

9. Go back to your AA4PP canvas app and do a full refresh of the page if you still see the blue clock near the **Deploy Solution**, to the Azure DevOps by selecting the clock and **Abandon** the Pull Request. Go back to the AA4PP wait a few seconds and when you see the red cross button select **Deploy Solution**.
10. If you continue to have the same error, you need to check the automatic pipeline created. At the time of the generation of the pipeline there is a variable that contains the url of the environment, to check that go to **Pipelines** find the red with the name **deploy-validation-ALMAcceleratorSample** and select on **More(...)** and **Edit**

AA4PP Lab

The screenshot shows the Azure DevOps Pipelines page for the 'pplatform' project. On the left, there's a sidebar with links for Overview, Boards, Repos, Pipelines (which is selected), Environments, and Releases. The main area is titled 'Pipelines' and shows 'Recently run pipelines'. It lists two runs: one for 'deploy-validation-ALMAcceleratorSample...' which failed (#1.0.20220505.4 • Init) and one for 'export-solution-to-git' which succeeded (#export-ALMAcceleratorSampleSolution-to-git-branch • Update with latest from PALT (#130)). Each pipeline entry includes a 'Last run' timestamp, a 'PR automated for' link, and options to 'Edit', 'Run pipeline', and 'Manage security'.

11. Select **Variables** in the top and scroll down

The screenshot shows the Azure DevOps Pipeline YAML editor for the 'deploy-validation-ALMAcceleratorSampleSolution' pipeline. The top navigation bar has tabs for 'Variables' (which is selected) and 'Run'. The code editor displays the following YAML configuration:

```
resources:
  repositories:
    - repository: PipelineRepo # repository name (DO NOT CHANGE THIS VALUE)
```

12. If you see the wrong url select on the Variable to edit the value

The screenshot shows the Azure DevOps Pipeline Variables editor. It lists several variables with their current values:

- flow.sharing.GetEnvironmentVariableValues.16a... =
- flow.sharing.LikeQuote.90d90640-11bc-ec11-9... =
- owner.ownerEmail.AppTitle.71cc728c-2487-eb1... =
- owner.ownerEmail.GetEnvironmentVariableValu... =
- owner.ownerEmail.LikeQuote.90d90640-11bc-e... =
- ServiceConnection = https://org6c001826.crm19.dynamics.com/

The value for 'ServiceConnection' is highlighted with a yellow background.

13. Update the url with the correct value and select **Ok** and **Save**.

← Update variable

Name

ServiceConnection

Value

https://rui-alm-validation.crm19.dynamics.com/

Keep this value secret

Let users override this value when running this pipeline

14. Go back to the AA4PP and **Abandon** the Pull request, and repeat the **Deploy Solution** steps

15. Selecting the blue clock you should be able to see the Build Validation waiting state, select in **Build Validation**

The screenshot shows the Azure DevOps interface for a pull request titled "Init" in the "pplatform" repository. The pull request was created by Rui Santos and is associated with the ALMAcceleratorSampleSolution into ALMAcceleratorSampleSolution. The "Build Validation" check is highlighted with a yellow box, indicating it is currently queued. There are other checks listed: "1 required check not yet run" and "1 optional check not yet run". The "No merge conflicts" check is marked as green. The "Description" field contains the text "Init".

16. Select **Permissions need** red text and **Permit** and confirm.

AA4PP Lab

The screenshot shows a Microsoft DevOps pipeline interface. At the top, the path is RuiAA4PP / ppplatform / Pipelines / deploy-validation-ALMAcceleratorSampleSolution / 1.0.20220505.5. On the right, there's a sidebar titled "Checks for Build and Deploy" with sections for "Permission" (Permission needed) and "ppplatform Repository". A yellow box highlights the "ppplatform Repository" section.

#1.0.20220505.5 Init
deploy-validation-ALMAcceleratorSampleSolution

Summary **Scans**

Pull request by Rui Santos

Repositories 2
ALM_Solutions , +1
See Sources card for details

Time started and elapsed
Today at 14:53

Related
0 work items
1 consumer

⚠ This pipeline needs permission to access a resource before this run can continue to Build and Deploy

Jobs

Name	Status
build_and_deploy_job	Waiting

How to upgrade the ALM Accelerator

Note: Find the latest information to upgrade following this link <https://docs.microsoft.com/en-us/power-platform/guidance/coe/setup-almacceleratorpowerplatform-upgrade-config>.

The ALM accelerator for Power Platform (AA4PP), apart from the solution components, also uses pipeline templates, updated in every release. Every new release would need some steps to be followed to upgrade it, this document describes the required steps.

Before you start

In every release the version of the solution is updated to the date when was created, example: 1.0.20220406.1 would mean version 1.0 created on 20220406 (yyyyMMdd) April 6 of 2022.

Download the latest release

Access the latest release of the ALM accelerator for Power Platform [follow this link](#). The page describes the Change Log, and some instructions about the upgrade. At the end of the page, the assets files created in the newly release, example: **centerofexcellencealmaccelerator_1.0.20220517.1_managed.zip**.

To get the latest tag of the pipelines [follow this link](#) and select **tags** near the branch name, you should find the latest tag in the top of the list, example: **CenterofExcellenceALMAccelerator-May2022**.

Installing the ALM accelerator for Power Platform solution

Go to <https://make.powerapps.com> and after selecting the environment you plan to use, select **Solutions** -> **Import solution** -> **Browse** to select the location of the zip file downloaded in the previous section, example: **centerofexcellencealmaccelerator_1.0.20220517.1_managed.zip**. Select **Next** and expand the **Advanced settings**, make sure the **Upgrade** is selected. Select **Import** to finalize the upgrade.

After the import is completed the reactivation of the **CustomAzureDevOps** custom connector needs to be done. The following steps need to be done.

1. Select **Data** -> **Custom Connectors** and edit the **CustomAzureDevOps**
2. Go straight to the Security tab and select **Edit**
3. Add your **ClientId**, **Client Secret & ResourceUrl**
4. Select the **Test** tab and select **Test operation**
5. Confirm the **status** of the response is Ok and select **Update connector** in the top

Note: If you already followed these steps before, you could run the **sync-pipeline-repo** pipeline with the new tag copied in the previous section, and **approve** and **complete** the pull request. If it is the first time you are executing these steps, please continue.

Updating the pipelines in Azure DevOps

To simplify this process, there's a pipeline template that will automatically sync your Azure DevOps repo with the pipeline template repo in the CoE Starter Kit GitHub repository. Follow the steps below to get started using the pipeline sync pipeline.

1. In Azure DevOps, enter in the project you would like to update and go to **Pipelines**, then select **New pipeline**.
2. Select **Azure Repos Git** for your code repository and point to the Azure DevOps repo you created and seeded with the pipeline templates.
3. On the **Configure your pipeline** page, select **Existing Azure Pipelines YAML file**, point to **/Pipelines/sync-pipeline-repo.yml**, and then select **Continue**.
4. Select **Variables** and select **New Variable**. Give the name **TEMPLATE-REPO** and value [**https://github.com/microsoft/coe-alm-accelerator-templates**](https://github.com/microsoft/coe-alm-accelerator-templates) and select **OK** and **Save** to finalize the creation.

Note

The sync pipeline can be used to sync any GitHub repo to Azure DevOps. By setting the TEMPLATE-REPO to the source GitHub repo, you can specify the source of the sync.

5. Under **Run** dropdown, select **Save**, select ... next to **Run Pipeline**, and then select **Rename/Move**.
6. Update the pipeline name to **sync-pipeline-repo**, and then select **Save**.
7. Run the new pipeline.
8. Do the following settings: in **SyncFrom** select **Tag** , in **SourceBranchOrTag** enter the tag copied in the previous section (example: **CenterofExcellenceALMAccelerator-May2022**), in **BranchToCreate** define the name you want, example: update-from-original-repo, in **TargetBranch** define the name you want example: **main**, and then select **Run**.
9. After the pipeline runs, a pull request will be created for the **BranchToCreate** into the **TargetBranch** example: Pull request from **update-from-original-repo** to **main**. To commit the changes, approve and complete the pull request by selecting **Repos** and **Pull requests** .

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