

ALM Accelerator for Power Platform (AA4PP)

Overview, Pre-requisites, ALM Accelerator Lab Module

Hands-on Lab Step-by-Step

August 2022

V 0.92



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 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

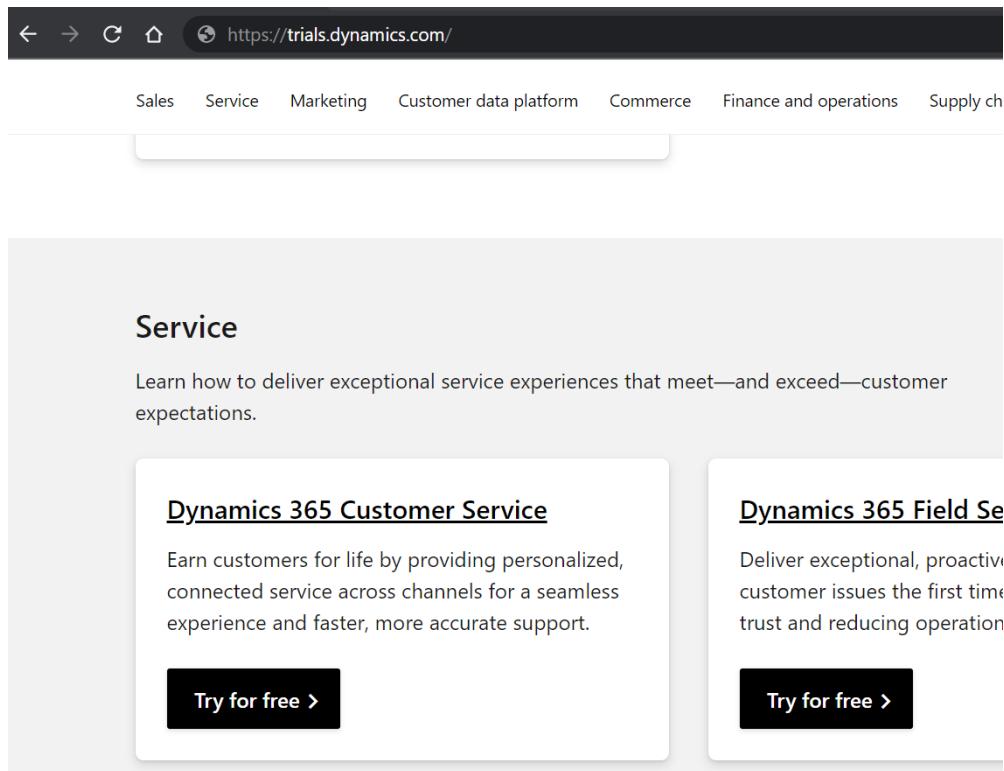
1. Download file Lab File (Zip file)
2. **Save a local copy of the lab contents:** Save it to a local folder, such as C:\AA4PP. Extract the ZIP package. This package contains the lab manual (what reading now) and zip file of a pre-built solution file for ALM Accelerator and the sample solution to test.

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. The page content is as follows:

Sales Service Marketing Customer data platform Commerce Finance and operations Supply ch

Service

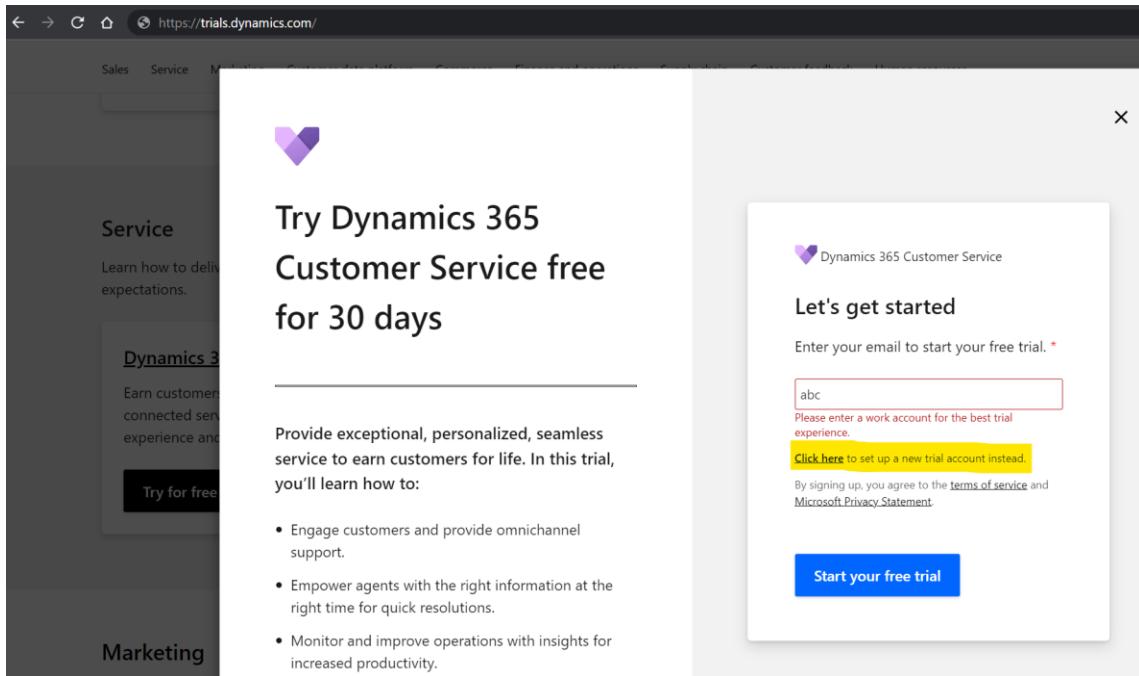
Learn how to deliver exceptional service experiences that meet—and exceed—customer expectations.

Dynamics 365 Customer Service
Earn customers for life by providing personalized, connected service across channels for a seamless experience and faster, more accurate support.

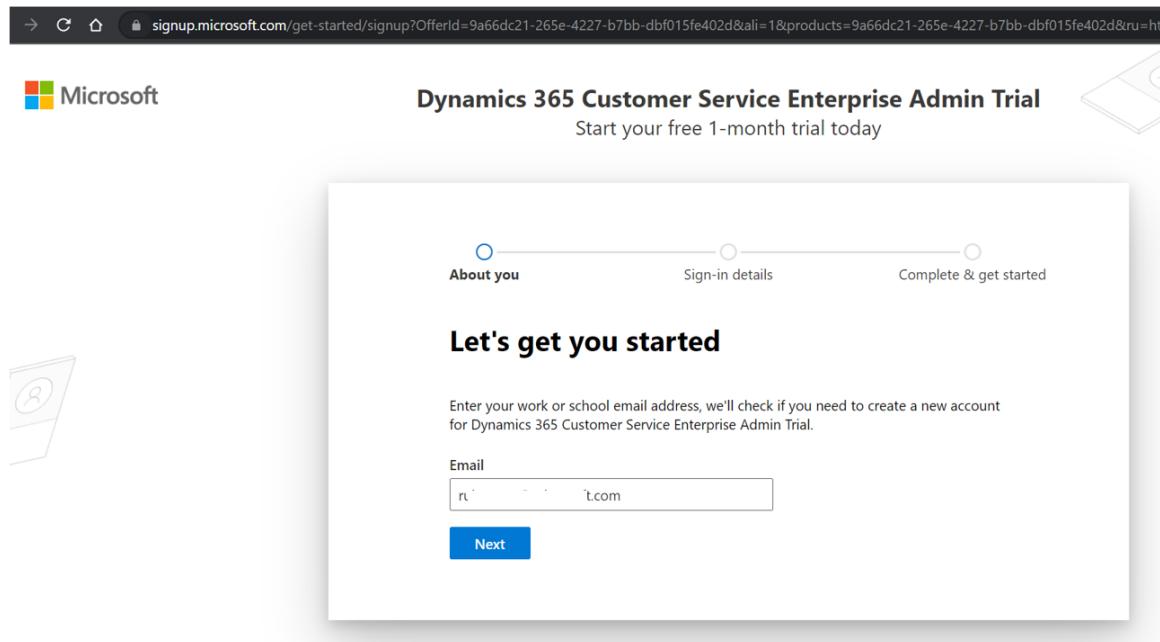
Dynamics 365 Field Se
Deliver exceptional, proactive customer service the first time, building trust and reducing operation

[Try for free >](#) [Try for free >](#)

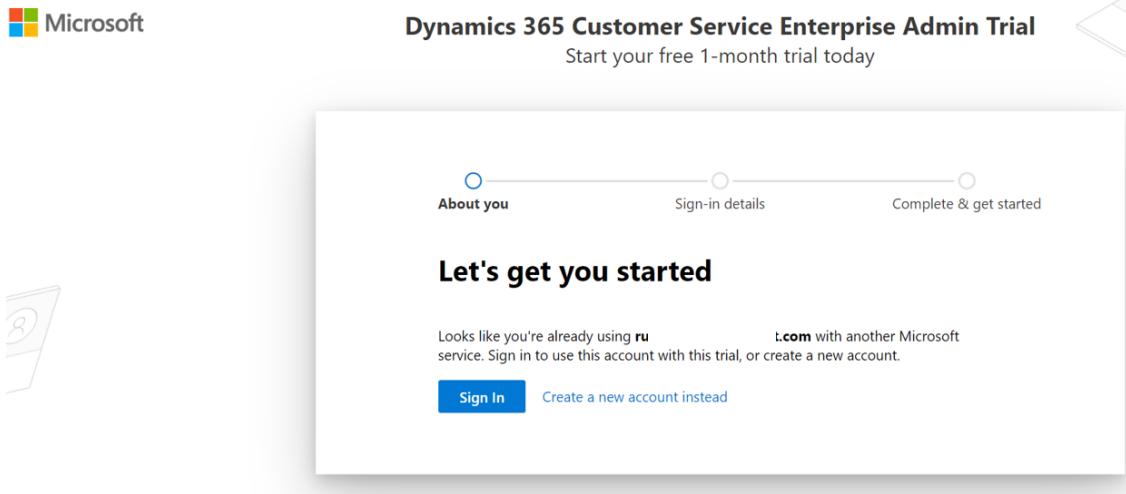
2. In the enter your email just write **abc** and select **Start your free trial**, afterwards you will be able to see **Select here to setup a new trial account**



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**



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

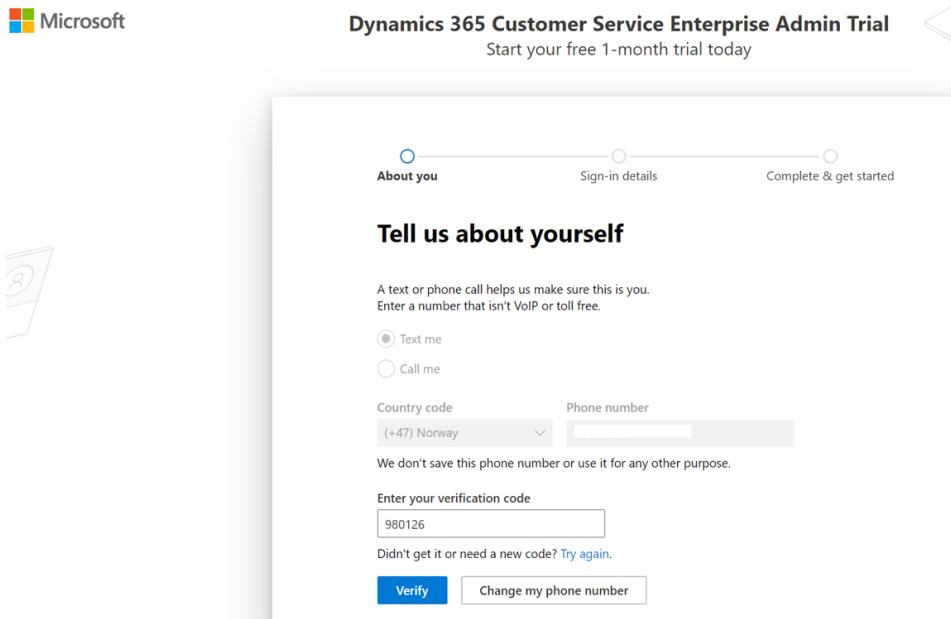
Note: The name of the company will be used to create the domain name, in this case you may want to name something like **ALM4PP** or similar

Dynamics 365 Customer Service Enterprise Admin Trial

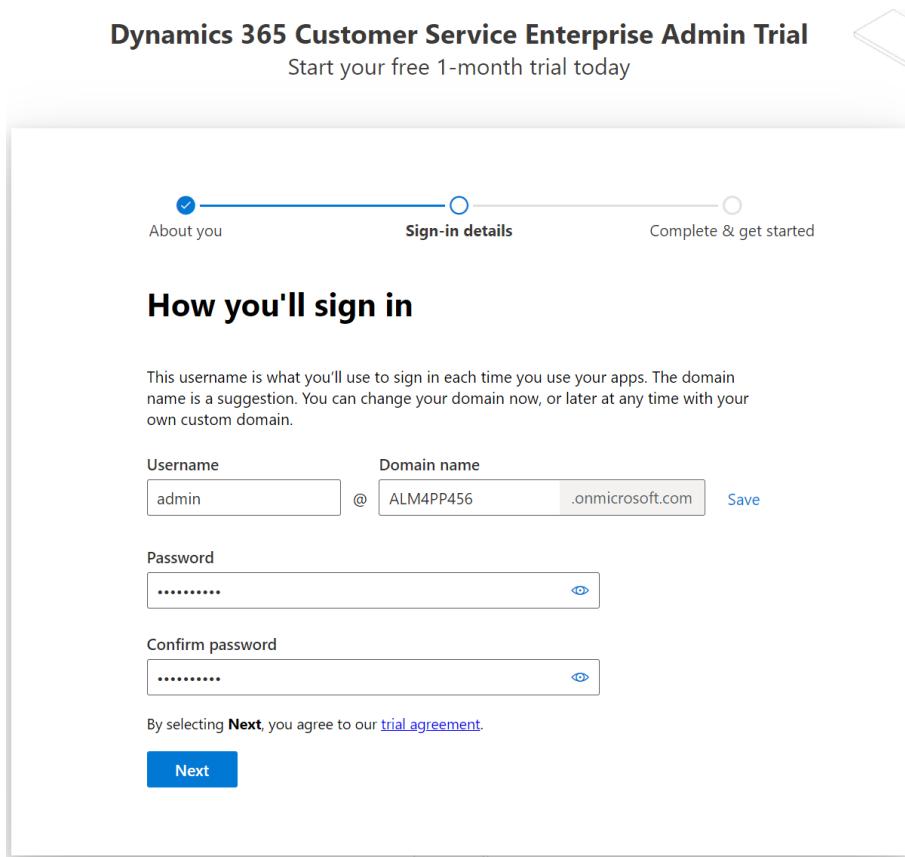
Start your free 1-month trial today

The screenshot shows the 'Tell us about yourself' form page. At the top, a navigation bar shows three steps: 'About you' (highlighted with a blue dot), 'Sign-in details', and 'Complete & get started'. The main heading is 'Tell us about yourself'. The form contains several input fields: 'First name' (red border, required), 'Middle name (Optional)', 'Last name' (red border, required), 'Business phone number' (red border), 'Company name' (red border), 'Company size' (dropdown menu 'Select one from below'), 'Country or Region' (dropdown menu 'United States'), and a 'Privacy Statement' checkbox. Below the form, there are two paragraphs of text and a checkbox for sharing information with partners. A 'Next' button is at the bottom.

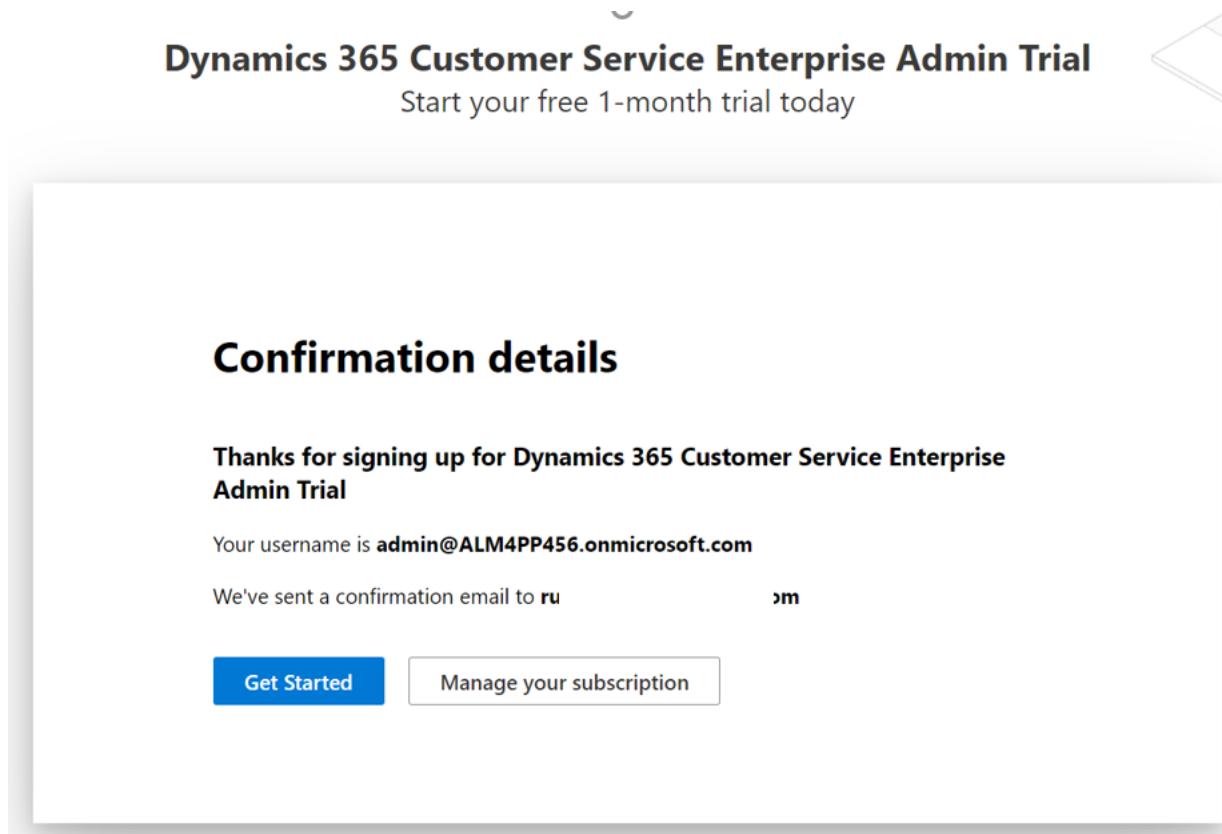
6. Validate your phone number select **Verify**



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**



- 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

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

Next **Cancel** **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](#)
 No

Dynamics 365 apps can only be enabled for Production or Sandbox environments. You can start a trial [here](#)

Deploy sample apps and data?
 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

☰

Home

Environments

- ↳ Analytics
- ↳ Resources
- ↳ Help + support
- ↳ Data integration
- ↳ Data (preview)
- ↳ Policies
- ↳ Admin centers

+ New ⏪ Refresh ⏴ Recover deleted environments

ⓘ New environment [ALM-Prod](#) has been successfully created

Environments

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, a large "Azure DevOps" heading is followed by a sub-headline: "Plan smarter, collaborate better, and ship faster with a set of modern dev services." Two buttons are visible: "Start free" (in blue) and "Start free with GitHub" (in white). A large, colorful illustration on the right depicts people working on a rocket launching from a platform, with clouds and code-like symbols. Below the illustration, there are three service highlights: "Azure Boards" (with a checkmark icon), "Azure Pipelines" (with a pipeline icon), and "Azure Repos" (with a repository 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 features the Azure DevOps logo and the email address "admin@ALM4PP456.onmicrosoft.com". The main heading is "Get started with Azure DevOps". Below it, a note 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 "Country/region" dropdown 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.

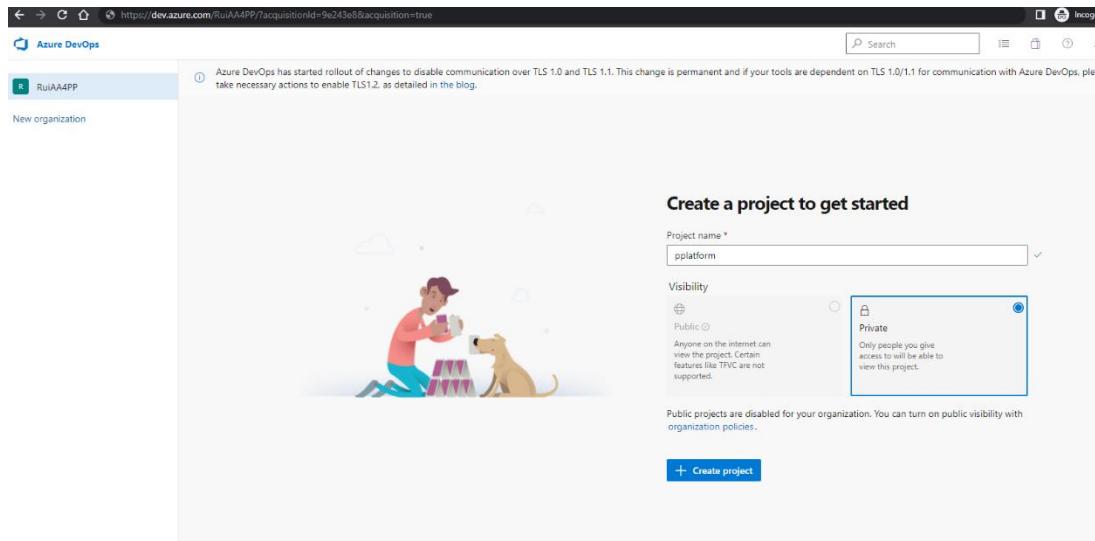


4. Sometimes it might take 1 or 2 minutes in the loading state

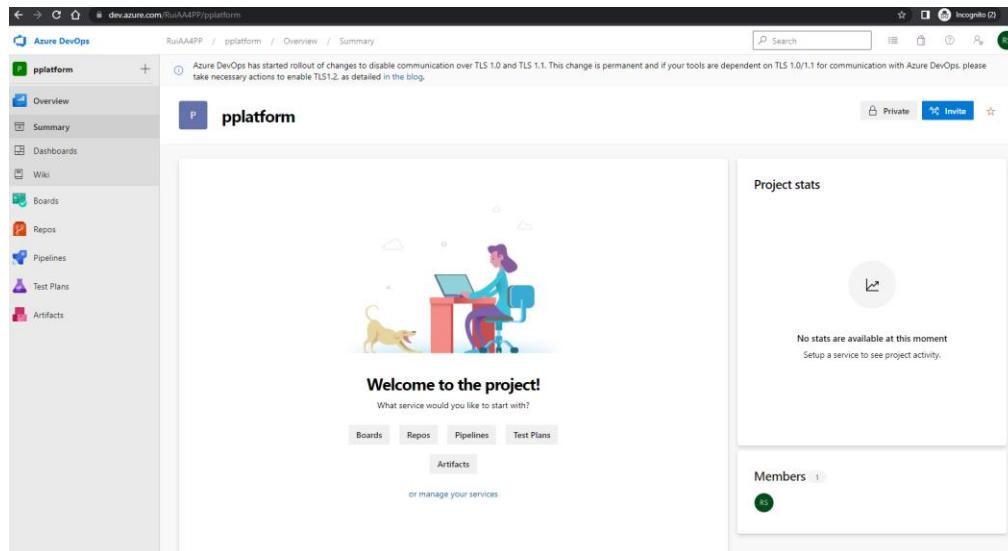


5. After the DevOps organization is created you should be able to create a new project. Let's name the project "pplatform" and select the **Private** visibility and select **Create project**.

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.santos@contoso.com
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

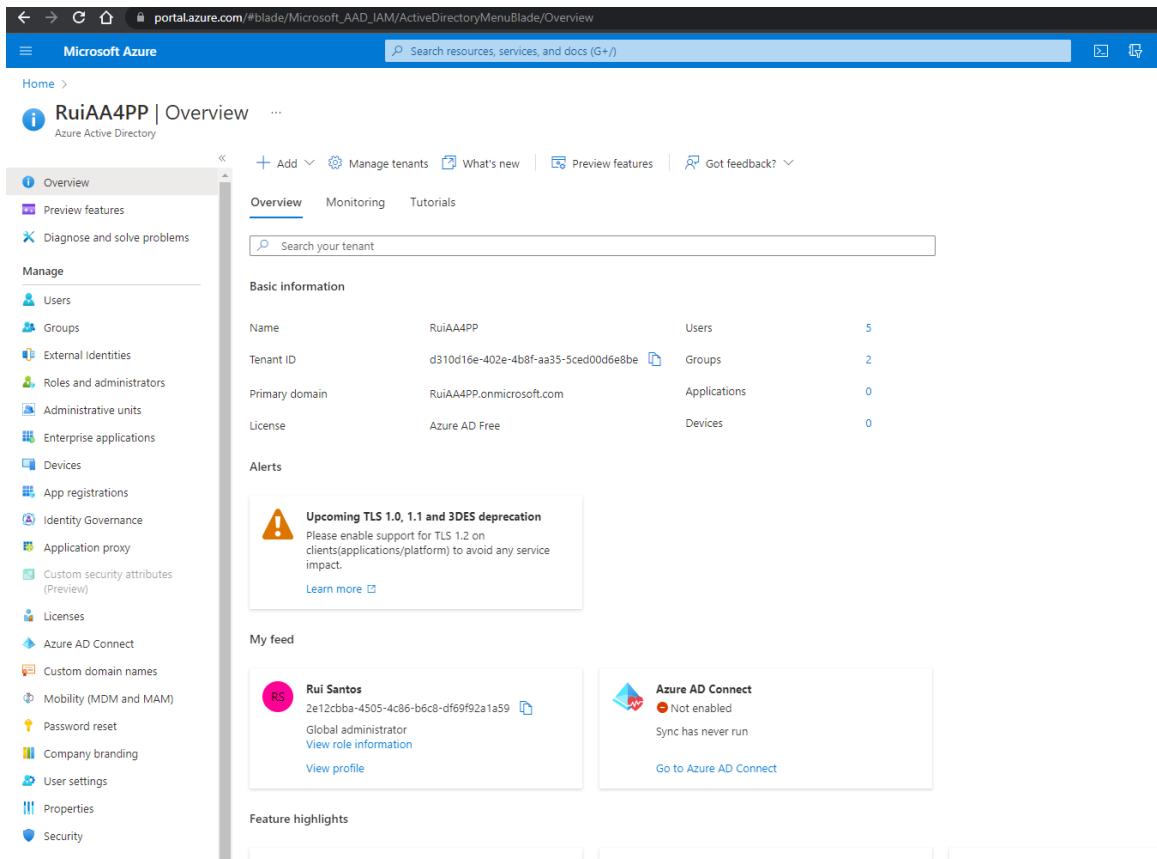
In this module you will configure different parts of the ALM process. The environment strategy is important to have in mind, and in case you want more details you can read this [documentation](#).

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**

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

RuiAA4PP | Overview

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

Feature highlights

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**,

Microsoft Azure

Home > RuiAA4PP > ALMAcceleratorServicePrincipal

ALMAcceleratorServicePrincipal | API permissions

Configured permissions

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

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

Request API permissions

Select an API

Microsoft APIs APIs my organization uses My APIs

Commonly used 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 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**.

Microsoft Azure

Home > RuiAA4PP > ALMAcceleratorServicePrincipal

ALMAcceleratorServicePrincipal | API permissions

Configured permissions

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

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

Request API permissions

What type of permissions does your application require?

Delegated permissions
Your application needs to access the API as the signed-in user.

Select permissions
Start typing a permission to filter these results

Permissions (1)

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**

Request API permissions

◀ All APIs

PowerApps-Advisor
https://dev.api.advisor.powerapps.com

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
Analysis (2)	
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](#)

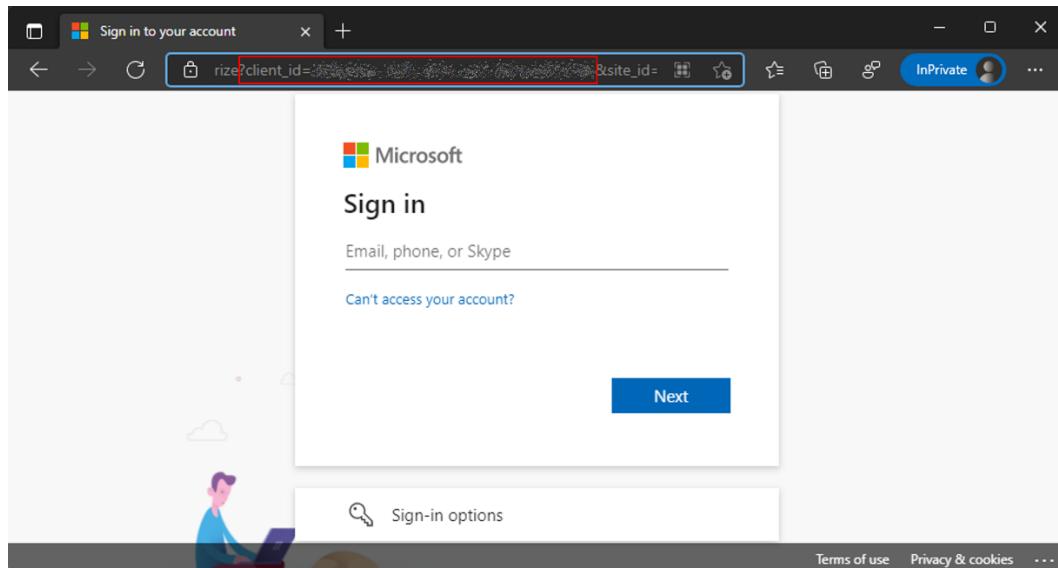
Permission	Admin consent required
Permissions (1)	
<input checked="" type="checkbox"/> user_impersonation	No
Have full access to Visual Studio Team Services REST APIs	

- 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... Grant Admin consent ...
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 Grant Admin consent ...
✓ Dynamics CRM (1)				...
user_impersonation	Delegated	Access Common Data Service as organization users	No	 Granted for RuiAA4PP Grant Admin consent ...
✓ Microsoft Graph (1)				...
User.Read	Delegated	Sign in and read user profile	No	 Granted for RuiAA4PP Grant Admin consent ...
✓ PowerApps-Advisor (2)				...
Analysis.All	Delegated	Analysis.All	Yes	 Granted for RuiAA4PP Grant Admin consent ...
Analysis.All	Delegated	Analysis.All	No	 Granted for RuiAA4PP Grant Admin consent ...

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

Overview

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

Client credentials : [0_certificate_1 secret](#)

Redirect URIs : [Add a Redirect URI](#)

Application ID URI : [Add an Application ID URI](#)

Supported account types : [My organization only](#)

Get Started Documentation

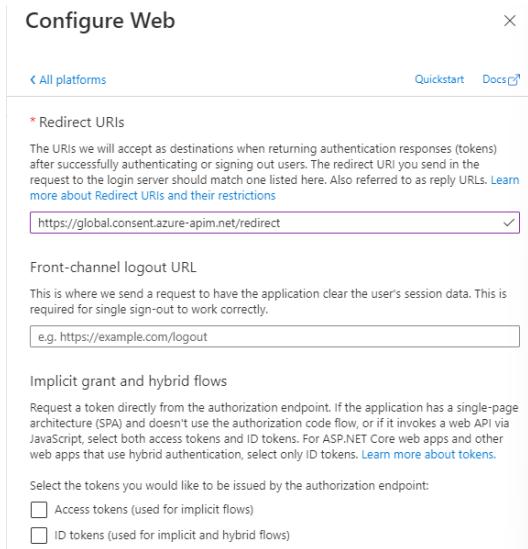
Build your application with the Microsoft identity platform

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:	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxaMb
Application (client) ID:	ff5axxxx-xxxx-xxxx-xxxx-xxxxxx7027
Directory (tenant) ID:	d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxe8be

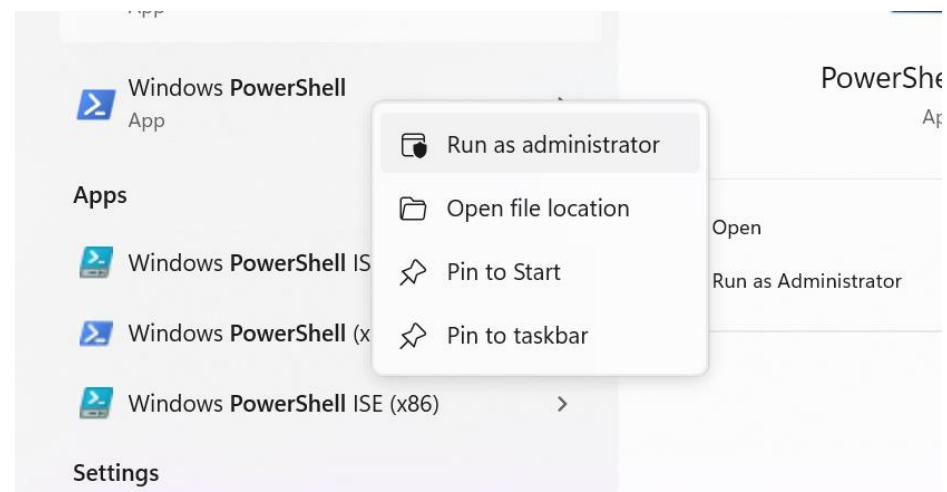
7. Select **Add a Redirect URI** > **Add a Platform** > **Web**.
8. Set the **Redirect URI** to <https://global.consent.azure-apim.net/redirect>.



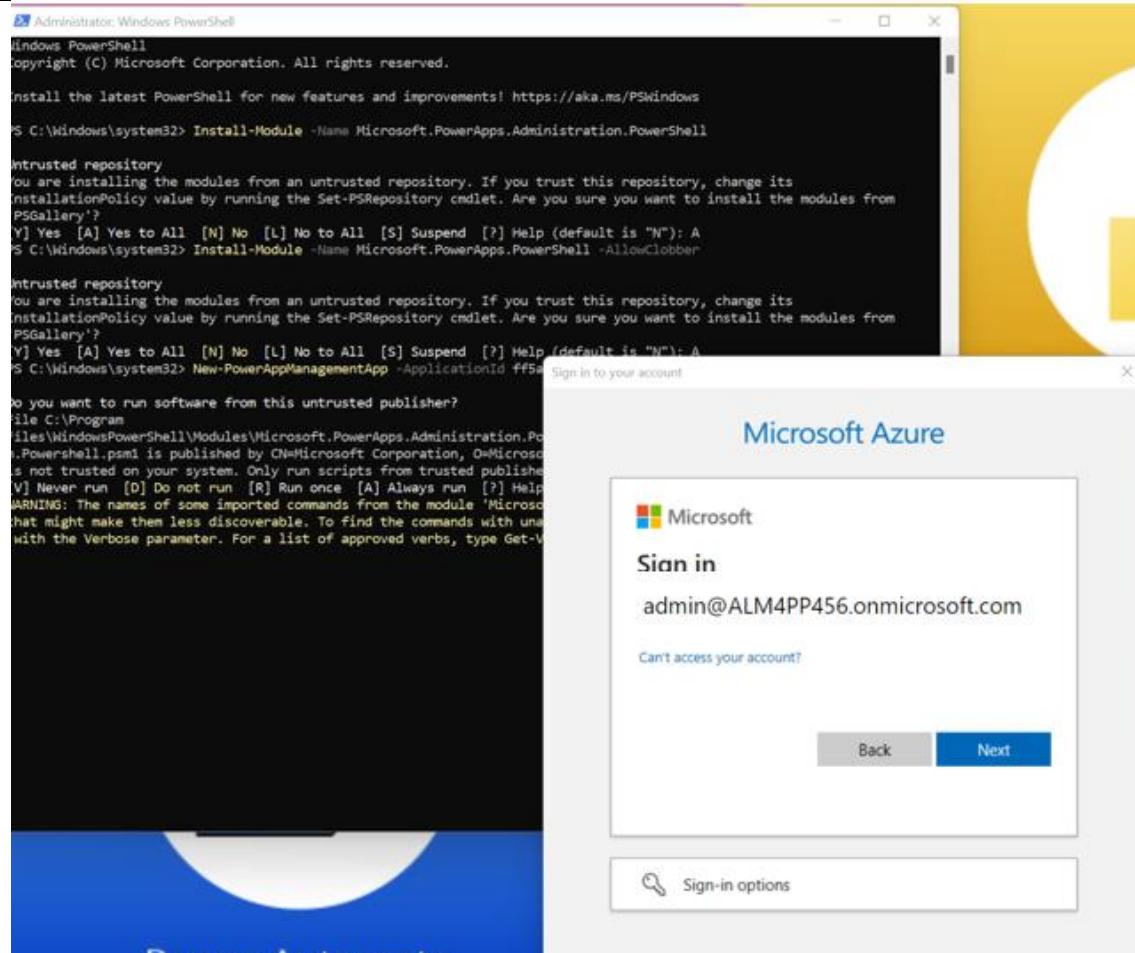
9. Select **Configure**.
10. You should be able to see the Redirect URIs

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:



```
Set-ExecutionPolicy -ExecutionPolicy RemoteSigned
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>)

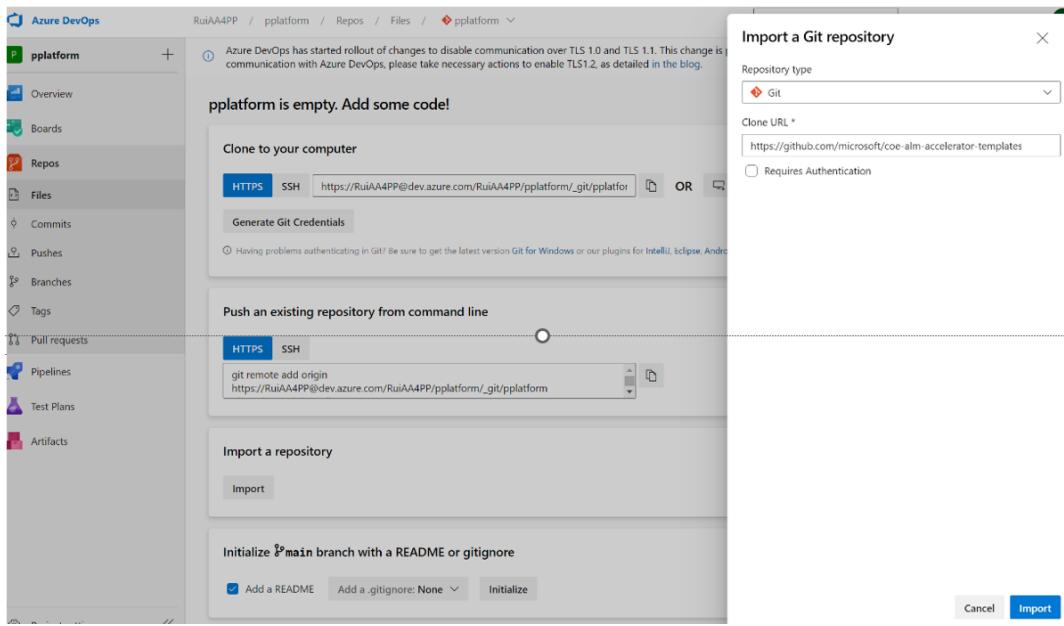
Select **Install**

- **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>)

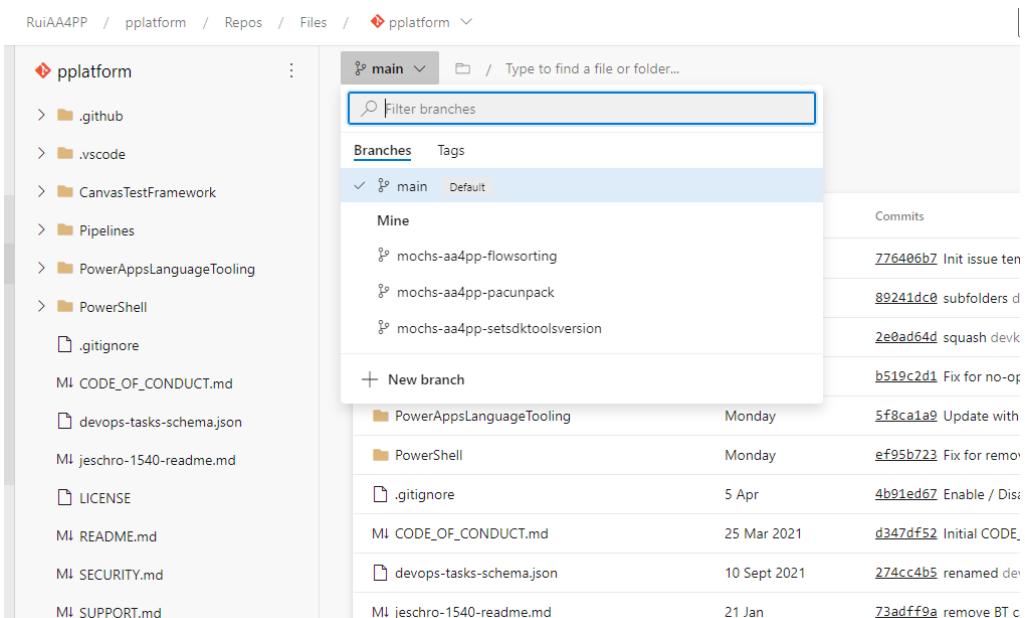
- **SARIF SAST Scans Tab (optional):** This extension can be used to visualize the SARIF files that are generated by the Solution Checker during a build. ([SARIF SAST Scans Tab - Visual Studio Marketplace](#))

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

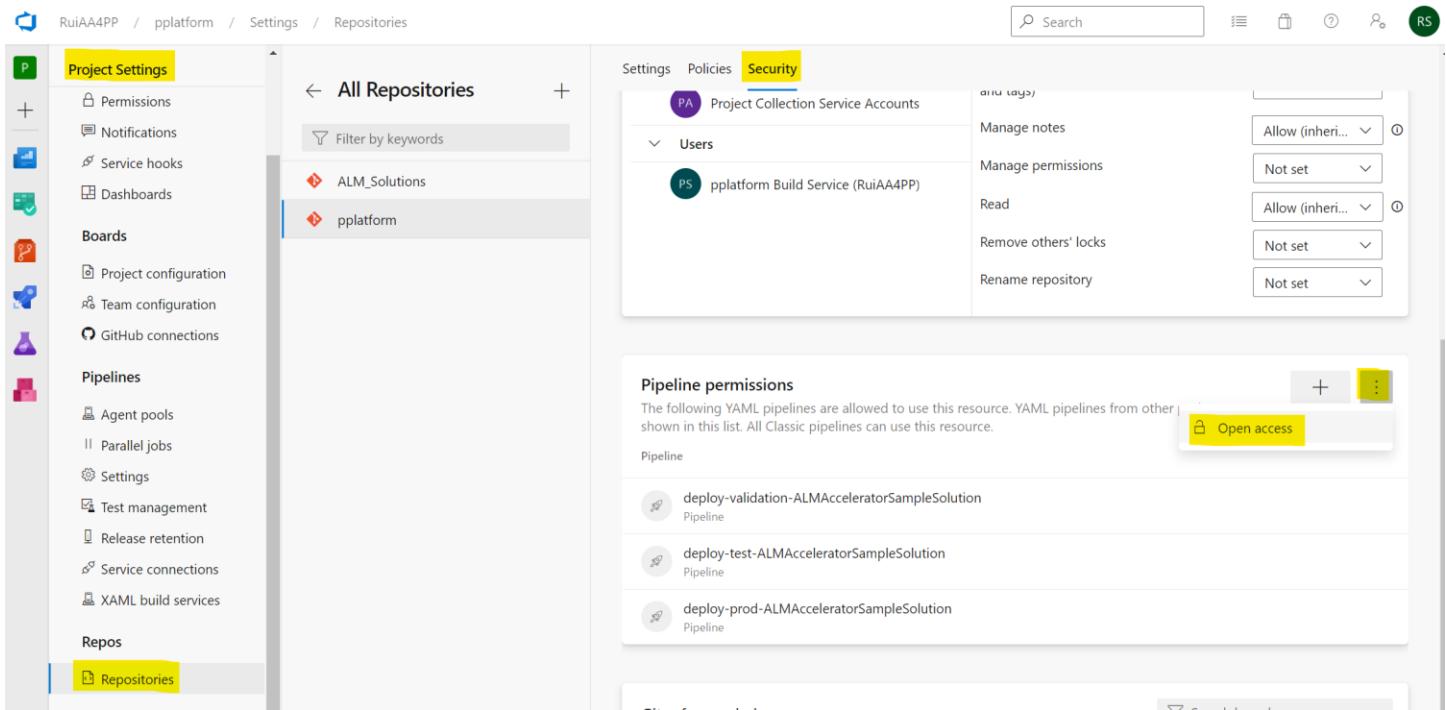
1. Go to <https://dev.azure.com/> and sign in to **DevOps (AzDO)**.
2. Select the **pplatform** project.
3. Go to **Repos**, and then select **Import repository** from the repository dropdown list.
4. Enter the URL of the tag for the latest release—for example, <https://github.com/microsoft/coe-alm-accelerator-templates> 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 is the 'Project Settings' menu, with 'Repositories' selected. The main area is titled 'All Repositories' and shows two repositories: 'ALM_Solutions' and 'pplatform'. The 'pplatform' repository is selected. The 'Security' tab is active, showing the 'Users' section. It lists 'Project Collection Service Accounts' and 'pplatform Build Service (RuiAA4PP)'. For the build service, several permissions are listed with dropdown menus: 'Manage notes' (Allow (inher...)), 'Manage permissions' (Not set), 'Read' (Allow (inher...)), 'Remove others' locks' (Not set), and 'Rename repository' (Not set). Below this is a section titled 'Pipeline permissions' with a note about YAML pipelines. It lists three pipelines: 'deploy-validation-ALMAcceleratorSampleSolution Pipeline', 'deploy-test-ALMAcceleratorSampleSolution Pipeline', and 'deploy-prod-ALMAcceleratorSampleSolution Pipeline'. A yellow box highlights the 'Open access' button at the bottom right of this section.

Task 7: Create pipeline global variables

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

Note: Check is 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-xxxx-xxxx-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	jXPxxxxxxxxxxxxxxxxxxxxxxxxaMb
TenantID	d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxxe8be
AADHost	login.microsoftonline.com

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

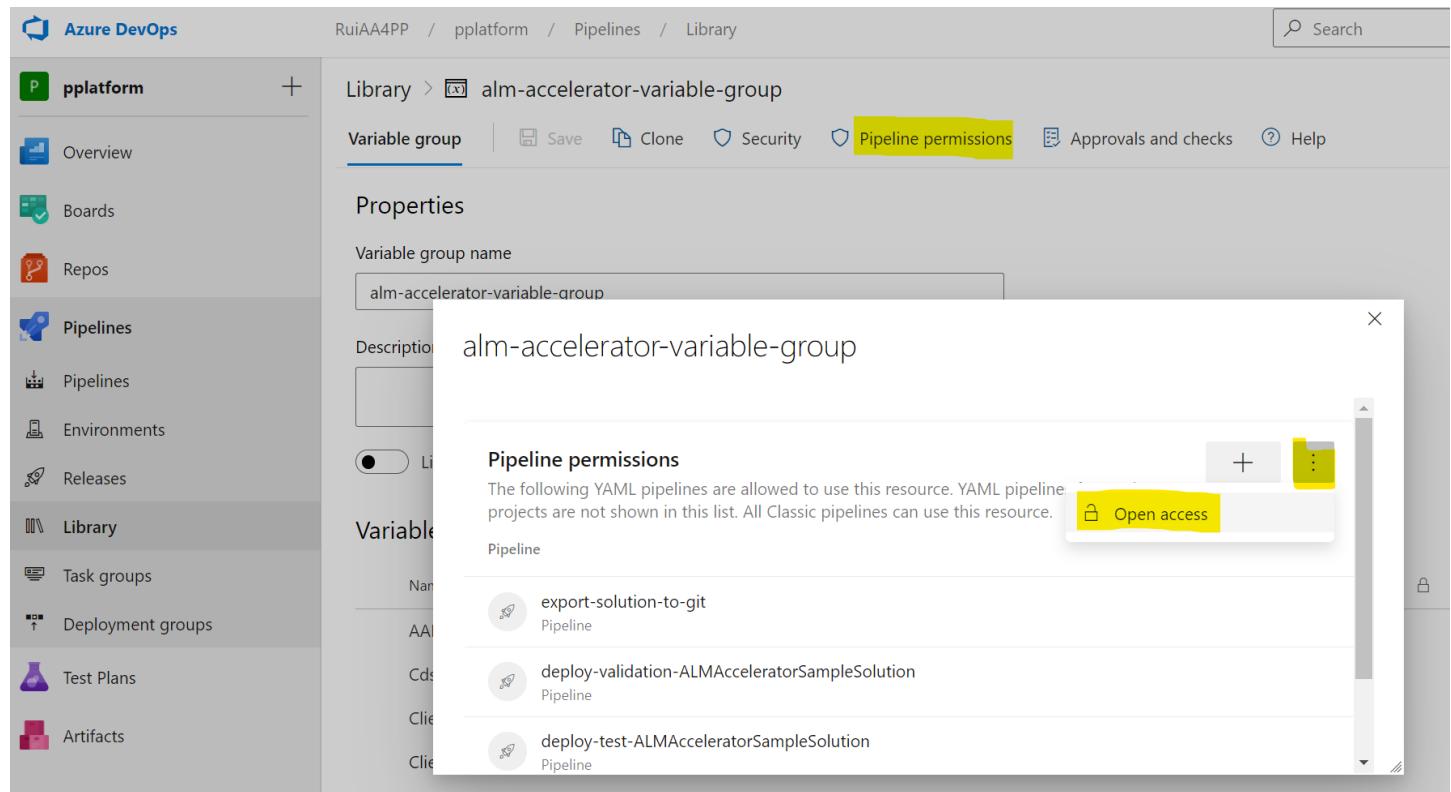
Variable group name: alm-accelerator-variable-group*

Description:

Link secrets from an Azure key vault as variables

Name	Value
AADHost	login.microsoftonline.com
CdsBaseConnectionString	AuthType=ClientSecret;ClientId=\$(ClientId);ClientSecret=\$(ClientSecret);Url=
ClientId	ff5axxxx-xxxx-xxxx-xxxx-xxxxxxxx7027
ClientSecret	jXPxxxxxxxxxxxxxxxxxxxxxxxxaMb
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**



RuiAA4PP / pplatform / Pipelines / Library

Library > alm-accelerator-variable-group

Variable group | Save | Clone | Security | Pipeline permissions | Approvals and checks | Help

Properties

Variable group name: alm-accelerator-variable-group

Description: alm-accelerator-variable-group

Variables

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.

+

Open access

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

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

Allow

Not set

Not set

Allow

Not set

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

Permission	Value
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

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**.

User	Role	Access
[pplatform]\Build Administrators	Administrator	Assigned
[pplatform]\Project Administrators	Administrator	Assigned
[pplatform]\Project Valid Users	Reader	Assigned

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

User	Role	Access
[pplatform]\Build Administrators	Administrator	Assigned
[pplatform]\Project Administrators	Administrator	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.

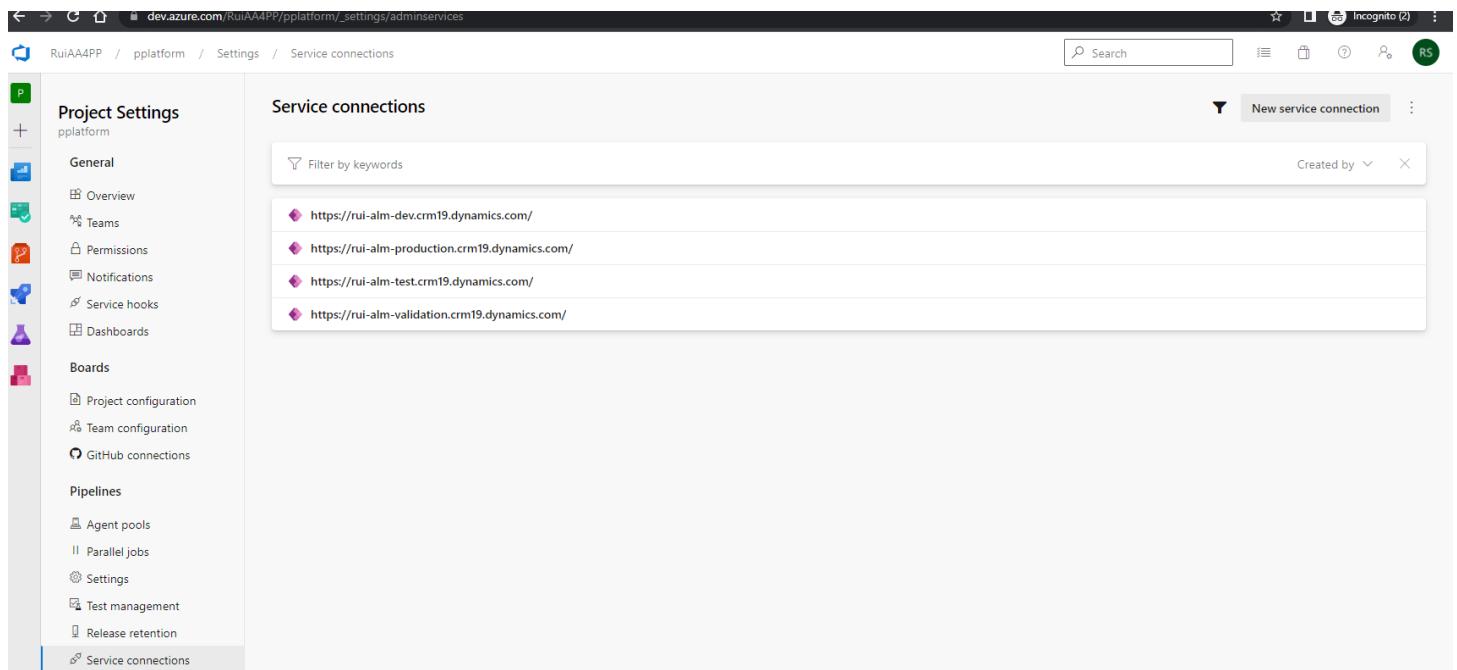
1. In Azure DevOps select your **Project** (pplatform).
2. Under **Project settings** in your Azure DevOps project, select **Service connections** (Project Settings-> Pipelines -> Service Connections).
3. Select **Create/New service connection**, search for Power Platform, and then select the **Power 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
<p>Server URL <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/></p> <p>Authentication</p> <p>Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx8be"/> 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 <input type="button" value="Invalid GUID input"/></p> <p>Application ID <input type="text" value="ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx7027"/> Azure Application ID to authenticate with. <input type="button" value="Invalid GUID input"/></p> <p>Client secret of Application ID <input type="text" value="*****"/> Client secret of the Service Principal associated to above Application ID; used to prove identity. <input type="button" value="Details"/></p> <p>Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/></p> <p>Description (optional)</p> <p>Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot</p>	<p>Server URL <input type="text" value="https://rui-alm-test.crm19.dynamics.com/"/></p> <p>Authentication</p> <p>Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx8be"/> 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 <input type="button" value="Invalid GUID input"/></p> <p>Application ID <input type="text" value="ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx7027"/> Azure Application ID to authenticate with. <input type="button" value="Invalid GUID input"/></p> <p>Client secret of Application ID <input type="text" value="*****"/> Client secret of the Service Principal associated to above Application ID; used to prove identity. <input type="button" value="Details"/></p> <p>Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/></p> <p>Description (optional)</p> <p>Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot</p>	<p>Server URL <input type="text" value="https://rui-alm-validation.crm19.dynamics.com/"/></p> <p>Authentication</p> <p>Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx8be"/> 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 associated Client Secret. The application user must also be created in CDS <input type="button" value="Invalid GUID input"/></p> <p>Application ID <input type="text" value="ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx7027"/> Azure Application ID to authenticate with. <input type="button" value="Invalid GUID input"/></p> <p>Client secret of Application ID <input type="text" value="*****"/> Client secret of the Service Principal associated to above Application ID; used to prove identity. <input type="button" value="Details"/></p> <p>Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/></p> <p>Description (optional)</p> <p>Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot</p>	<p>Server URL <input type="text" value="https://rui-alm-production.crm19.dynamics.com/"/></p> <p>Authentication</p> <p>Tenant ID <input type="text" value="d310 ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx8be"/> 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 associated Client Secret. The application user must also be created in CDS <input type="button" value="Invalid GUID input"/></p> <p>Application ID <input type="text" value="ff5axxxx-xxxx-xxxx-xxxx-xxxxxxx7027"/> Azure Application ID to authenticate with. <input type="button" value="Invalid GUID input"/></p> <p>Client secret of Application ID <input type="text" value="*****"/> Client secret of the Service Principal associated to above Application ID; used to prove identity. <input type="button" value="Details"/></p> <p>Service connection name <input type="text" value="https://rui-alm-dev.crm19.dynamics.com/"/></p> <p>Description (optional)</p> <p>Security <input checked="" type="checkbox"/> Grant access permission to all pipelines Learn more Troubleshoot</p>
<p>Back Save</p>			

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. The left sidebar is titled 'Project Settings' and includes sections for General, Teams, Permissions, Notifications, Service hooks, Dashboards, Boards, Project configuration, Team configuration, GitHub connections, Pipelines, Agent pools, Parallel jobs, Settings, Test management, Release retention, and Service connections. The 'Service connections' section is currently selected. The main content area is titled 'Service connections' and contains a table with four rows, each representing a service connection: 'https://rui-alm-dev.crm19.dynamics.com/' (marked with a pink diamond icon), 'https://rui-alm-production.crm19.dynamics.com/' (marked with a pink diamond icon), 'https://rui-alm-test.crm19.dynamics.com/' (marked with a pink diamond icon), and 'https://rui-alm-validation.crm19.dynamics.com/' (marked with a pink diamond icon). A 'New service connection' button is located in the top right corner of the table area.

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

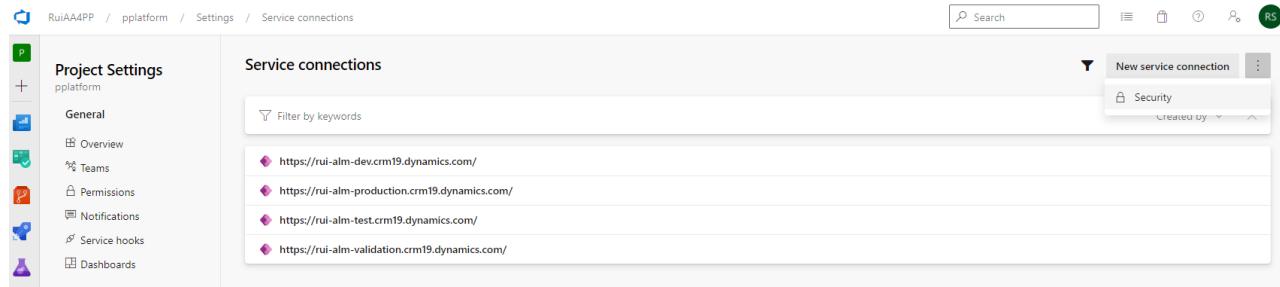
7. **(Optional)** In order for users to be able to use the service connection from the ALM Accelerator for Power Platform app, the service connections must provide user permissions to all users. Update permissions as follows for environments that users need to be able to access from the app (for example, 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.

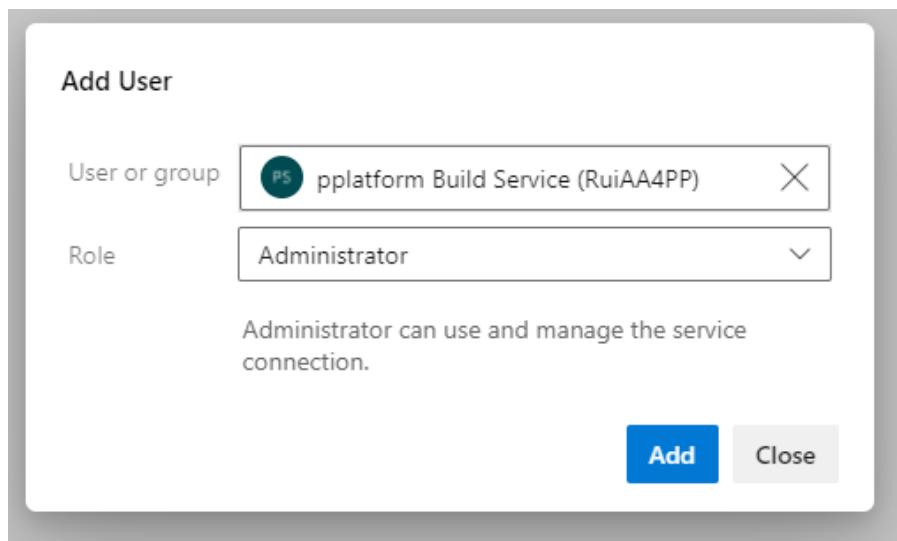
3. If you see the user or group, select the Role from the dropdown list.
4. Repeat these steps for each of your environments—development, validation, test, and production.

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**.

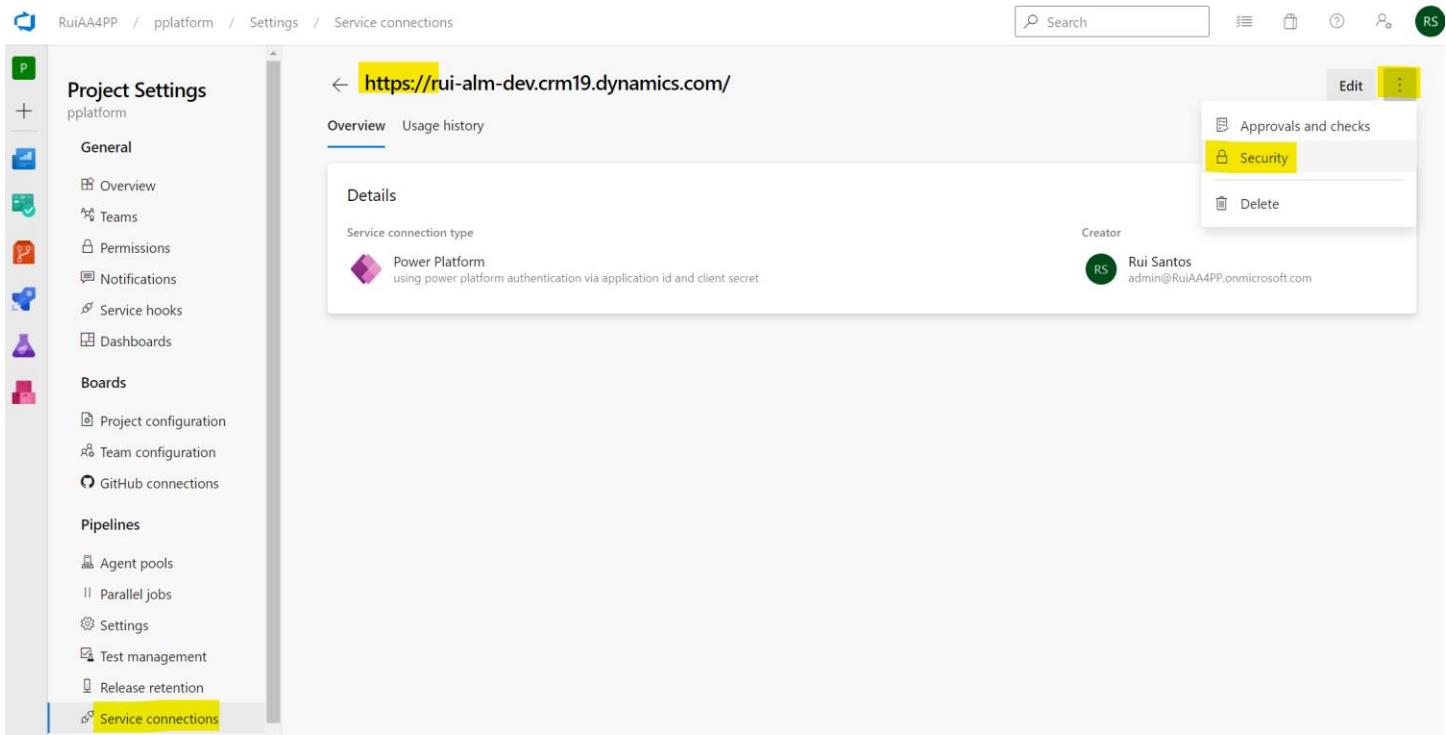


3. Find and select the username **[Your Project Name] Build Service ([Your Organization Name])**, and then set the **Role** to Administrator. Select **Add**.



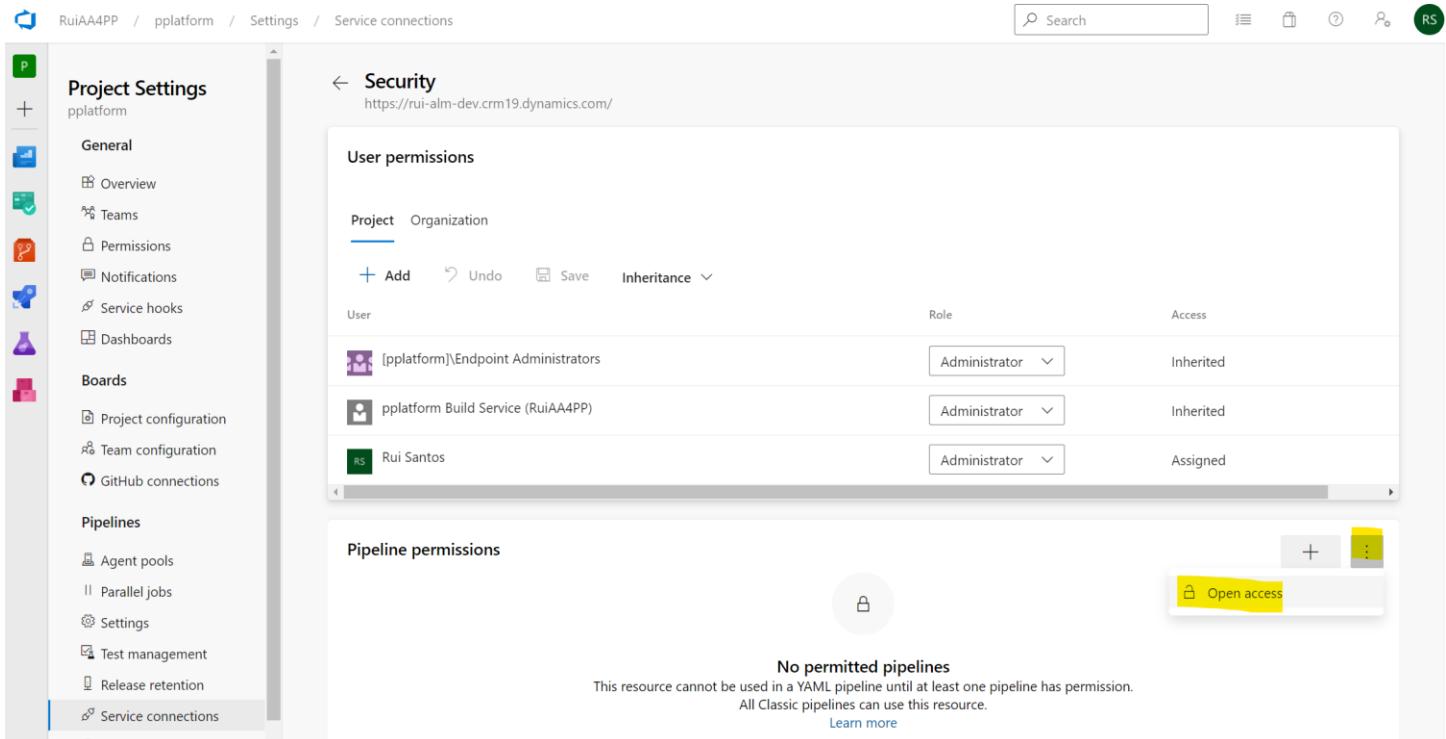
Some pipelines will need to have access to these Service Connections, a manual step will be needed to allow each pipeline, to simplify, an Open Access can be configured.

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



The screenshot shows the 'Service connections' page in the Microsoft Power Platform Project Settings. The URL in the address bar is <https://rui-alm-dev.crm19.dynamics.com/>. The left sidebar has 'Service connections' selected. The main content area shows a service connection named 'Power Platform' with the description 'using power platform authentication via application id and client secret'. A context menu is open on the right, with 'Security' highlighted in yellow. The creator of the connection is Rui Santos (admin@RuiAA4PP.onmicrosoft.com).

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



The screenshot shows the 'Security' page for the same service connection. The URL is <https://rui-alm-dev.crm19.dynamics.com/>. The 'User permissions' section shows three users with 'Administrator' roles: '[ppplatform]\Endpoint Administrators', 'ppplatform Build Service (RuiAA4PP)', and 'Rui Santos'. The 'Pipeline permissions' section has a button labeled 'Open access' highlighted in yellow. A note 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 12: 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 (pplatform) 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 Pipelines interface. In the center, there is a table titled 'Recently run pipelines' with one item: 'pplatform' (No runs yet). A context menu is open over the 'pplatform' row, with 'Rename/move' highlighted. Other options in the menu include 'Edit', 'Run pipeline', 'Manage security', 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' page. The left sidebar shows 'pplatform' selected. The main area shows a table titled 'All pipelines' with three items: 'delete-unmanaged-solution-and-components' (No runs yet), 'export-solution-to-git' (No runs yet), and 'import-unmanaged-to-dev-environment' (No runs yet).

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
 PA	Project Collection Administrators	Allow
 PA	Project Collection Build Administrators	Not set
 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

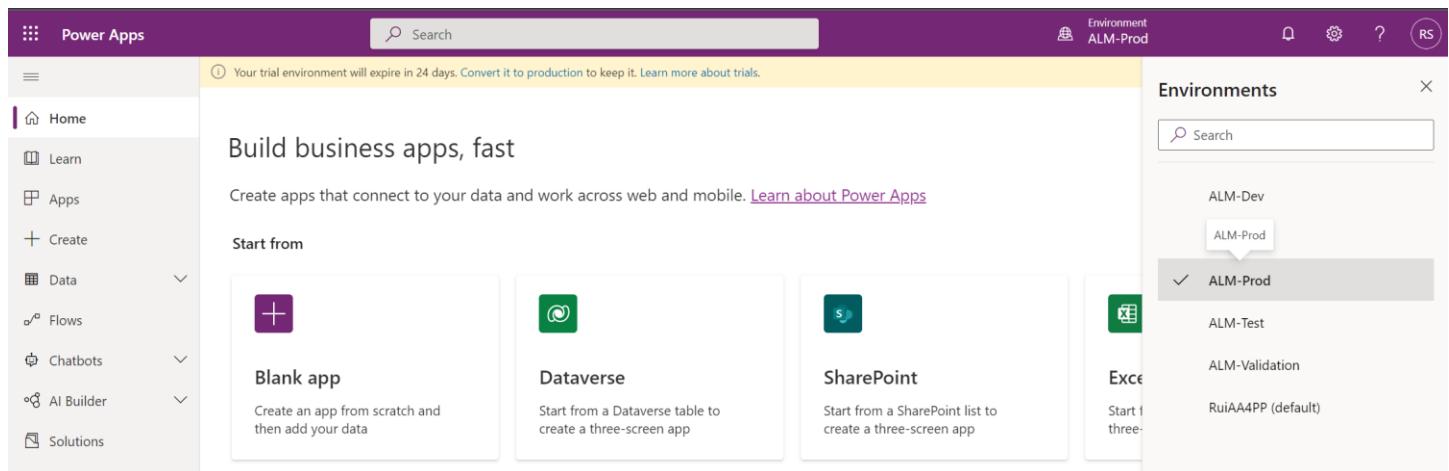
Installation

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](#).

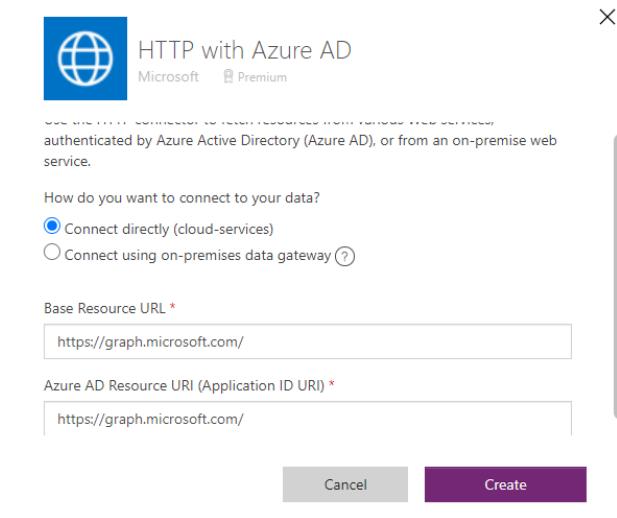
Follow the next instructions to install the solution, using the admin user.

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.

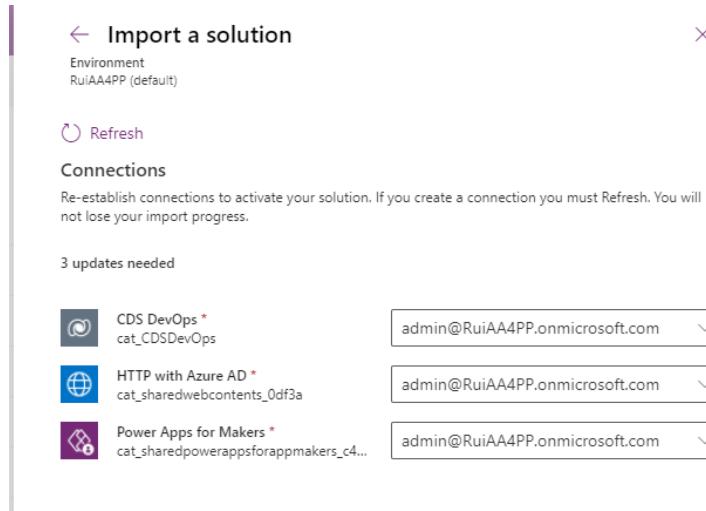


2. On the left pane, select **Solutions**.
3. Select **Import** and browse to the location of the managed solution you downloaded.
4. Select **Next**, and then select **Next** again.
5. On the **Connections** page, select or create a new connection to use to connect to Dataverse for the **CDS DevOps 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:	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxaMb
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	jXPxxxxxxxxxxxxxxxxxxxxxxxxxxxxaMb
Tenant ID	Leave as the default, common
Resource URL	499b84ac-1321-427f-aa17-267ca6975798

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 URL 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' page for a custom connector named 'CustomAzureDevOps'. The top navigation bar includes 'Connector Name' (CustomAzureDevOps), '1. General', '2. Security', '3. Definition', '4. Code (Preview)', '5. Test' (selected), 'Swagger Editor', 'Update connector', and 'Close'.

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.

Index	Operation
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

Request **Response**

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

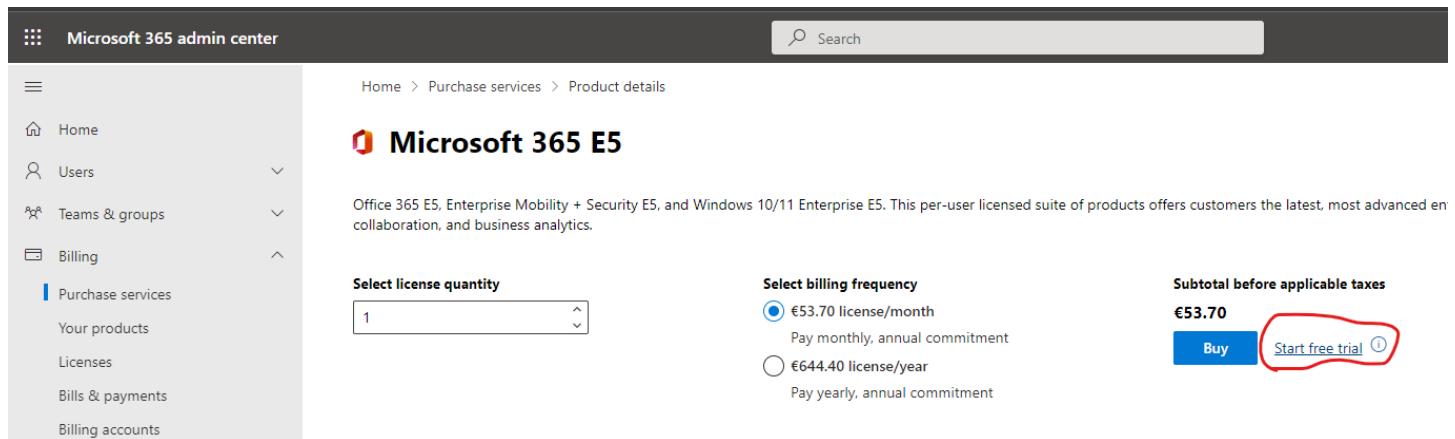
```
[ { }
```

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:

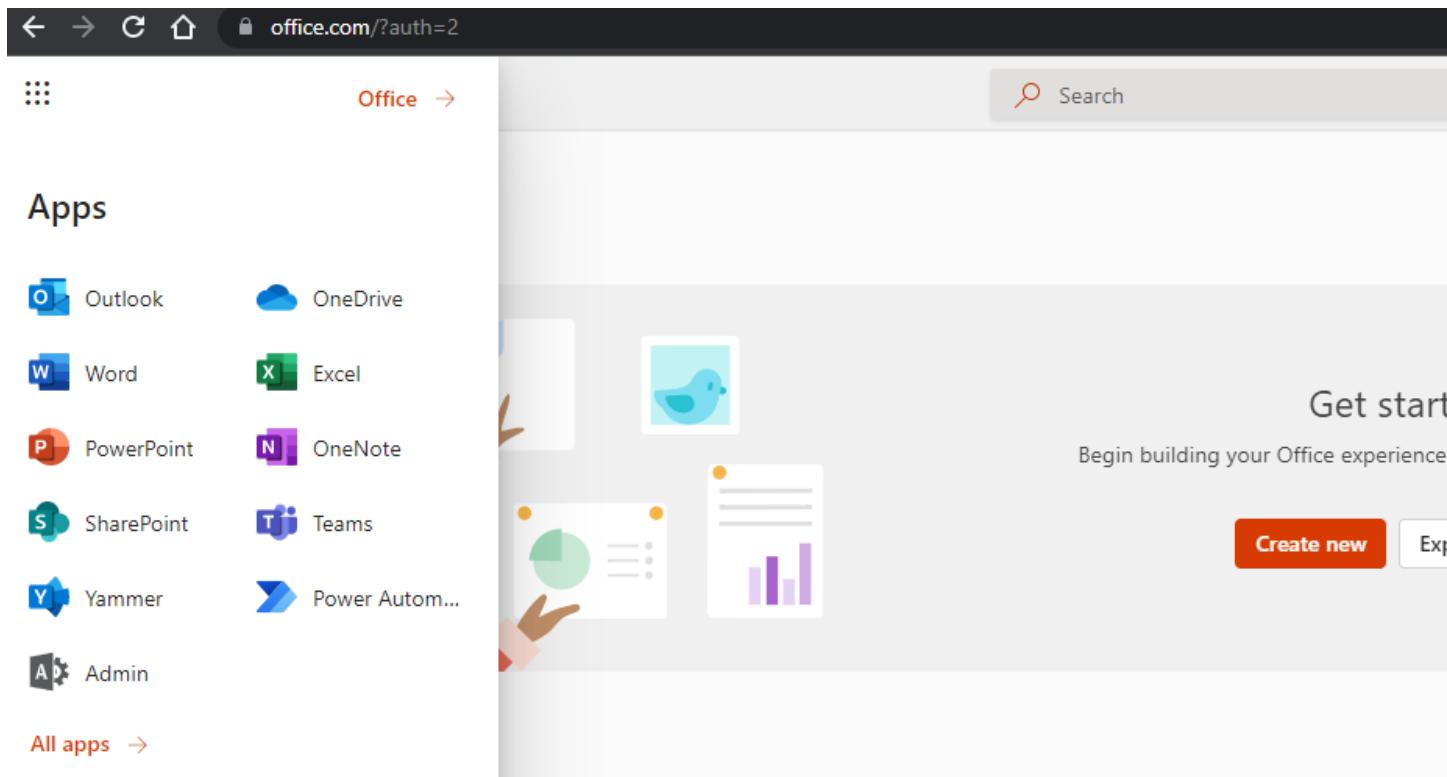
Add E3/5 trial licenses to tenant in admin center



The screenshot shows the Microsoft 365 admin center interface. The left sidebar includes Home, Users, Teams & groups, Billing, Purchase services, Your products, Licenses, Bills & payments, and Billing accounts. The main content area shows the 'Microsoft 365 E5' product details. It includes a 'Select license quantity' dropdown set to 1, a 'Select billing frequency' section with two options: '€53.70 license/month' (selected) and '€644.40 license/year', and a 'Subtotal before applicable taxes' of '€53.70'. A 'Buy' button and a 'Start free trial' button are present. The 'Start free trial' button is highlighted with a red oval.

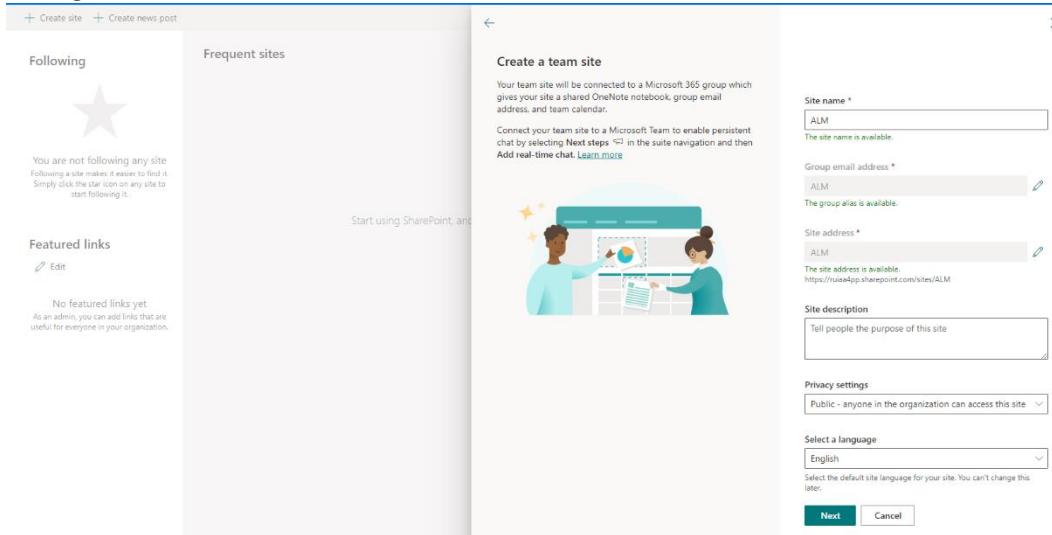
Prep Task: Create a Sharepoint site and an Issue Tracker

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

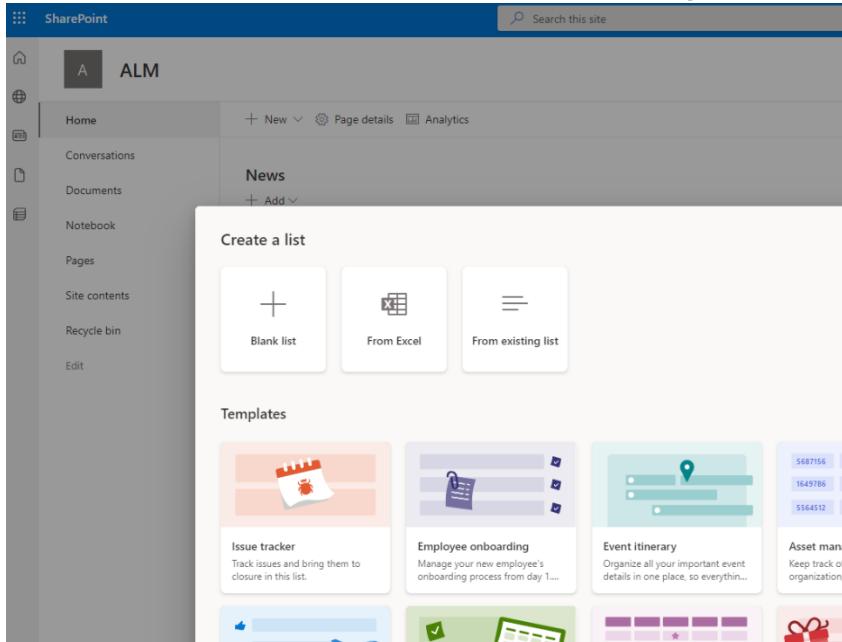


The screenshot shows the Microsoft Office 365 landing page. The left sidebar lists Apps: Outlook, OneDrive, Word, Excel, PowerPoint, OneNote, SharePoint, Teams, Yammer, and Admin. The SharePoint icon is highlighted. The main area features a 'Get started' section with the text 'Begin building your Office experience' and a 'Create new' button. The SharePoint icon is also highlighted with a red oval.

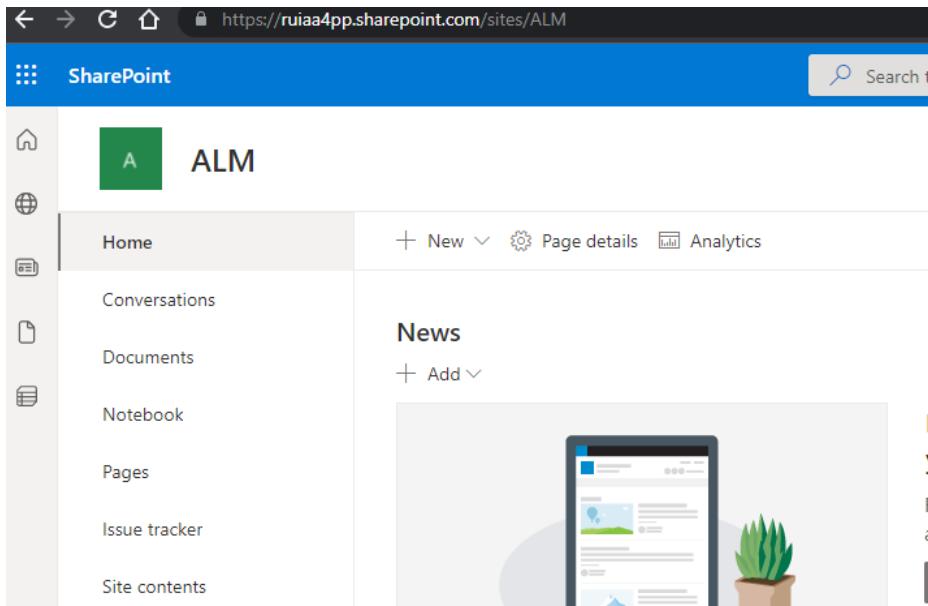
1. Select **Create site** and pick **Team site**, provide any name you would like and make it **Public** under Privacy settings. Add the user admin as owner and select finish.



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



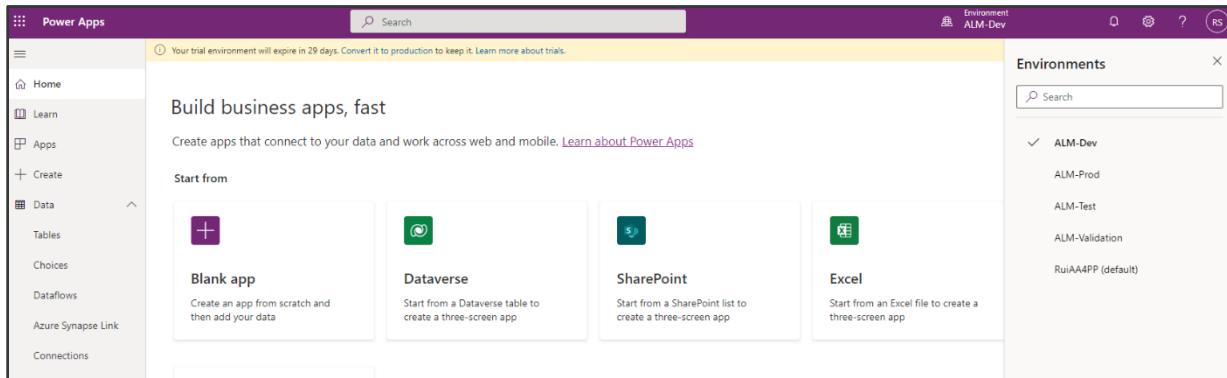
3. Go back to the main page and **copy the url**, in my case <https://ruiaa4pp.sharepoint.com/sites/ALM>.



The screenshot shows a SharePoint site titled 'ALM'. The left navigation bar includes links for Home, Conversations, Documents, Notebook, Pages, Issue tracker, and Site contents. The main content area displays a 'News' section with a placeholder for adding news items. A sidebar on the right contains icons for Home, Site, News, Lists, and Analytics.

Import the sample solution

1. Select the **Development** environment



The screenshot shows the Power Apps portal. The left sidebar includes Home, Learn, Apps, Create, Data (Tables, Choices, Dataflows, Azure Synapse Link, Connections), and a search bar. The main area displays a 'Build business apps, fast' section with four options: Blank app, Dataverse, SharePoint, and Excel. On the right, an 'Environments' sidebar lists ALM-Dev, ALM-Prod, ALM-Test, ALM-Validation, and RuiAA4PP (default). A message at the top indicates a trial environment will expire in 29 days.

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	Cr015d	01/05/2022	1.0.0.0
Default Solution	Default	01/05/2022	1.0

Select a file
Browse ALMAcceleratorSampleSolution_1.0.20220502.4.zip

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

Connection	Value
CDS_Current *	admin@RuiAA4PP.onmicrosoft.com
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	Cr015d	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. The 'Environments' section on the right lists several environments: ALM-Dev, ALM-Prod (which is selected and highlighted with a checkmark), ALM-Test, ALM-Validation, and RuiAA4PP (default). The main area displays a message about a trial expiration and options to start from a Blank app, Dataverse, SharePoint, or Excel.

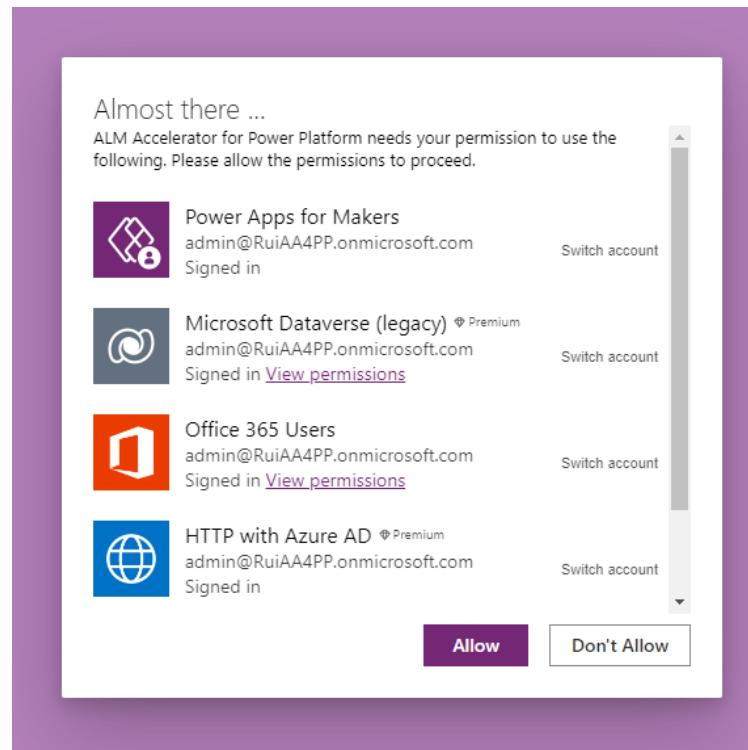
2. Select **Apps** from the left menu

The screenshot shows the Power Apps 'Apps' list. The 'RuiAA4PP (c)' environment is selected. The list displays three apps:

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.

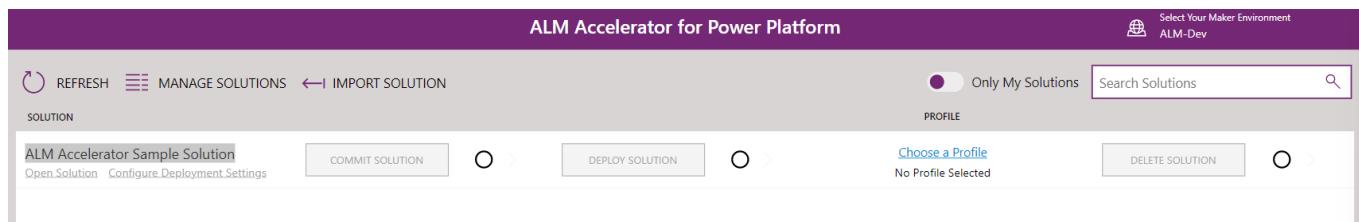
2. Select the Maker environment, where the users will create Apps, in our case ALM-Dev



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



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

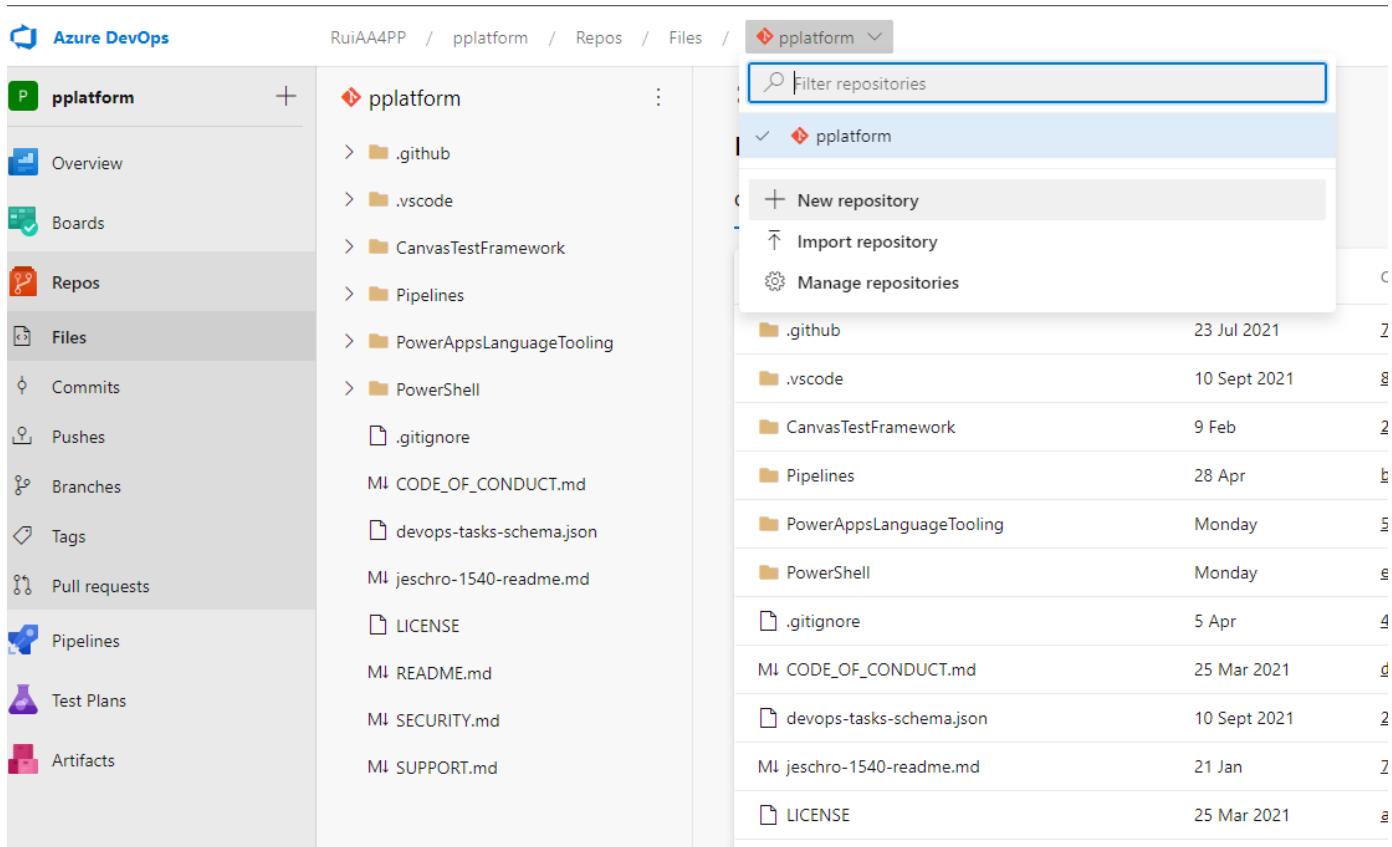


Task 2: Create a new Profile

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.

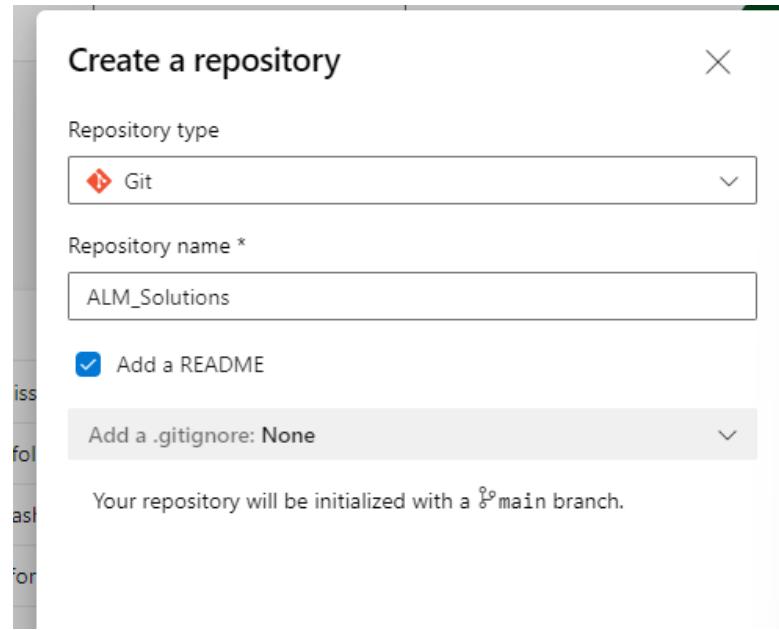
In this case we will use one repository for all solutions, but before we configure AA4PP we need to create the repository in Azure DevOps. Go <https://dev.azure.com> select the **pplatform** project and select **Repos**. Create a new Repository by selecting **New Repository**.



The screenshot shows the Azure DevOps interface for the 'pplatform' project. The left sidebar has 'pplatform' selected. The 'Files' tab is active. A context menu is open over the 'pplatform' repository, with 'New repository' highlighted. The repository list shows various files and folders including '.github', '.vscode', 'CanvasTestFramework', 'Pipelines', 'PowerAppsLanguageTooling', 'PowerShell', '.gitignore', 'CODE_OF_CONDUCT.md', 'devops-tasks-schema.json', 'jeschro-1540-readme.md', 'LICENSE', 'README.md', 'SECURITY.md', and 'SUPPORT.md'. The 'New repository' option is highlighted in the context menu.

File/Folder	Last Modified	Actions
.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	...
LICENSE	25 Mar 2021	...
README.md		
SECURITY.md		
SUPPORT.md		

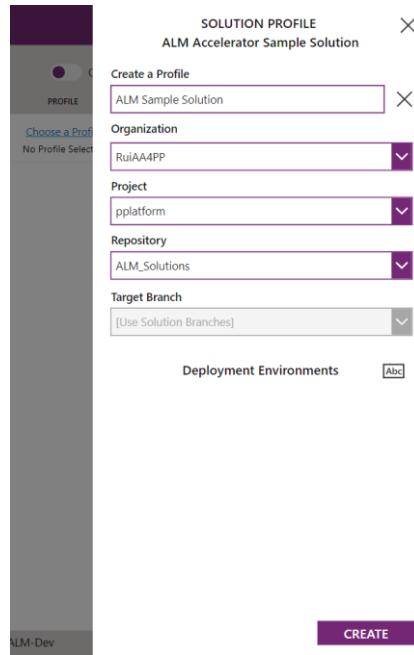
1. Add a good name, remember this repository will be the container for all your solutions



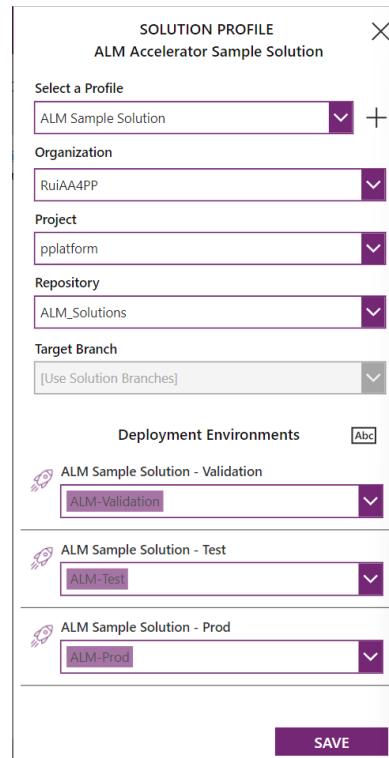
2. The pipelines will need to access this repository, a manual configuration will be needed. To simplify the process, we can configure **Open Access** to allow all pipelines to access this repositories, to configure this go to **Project Settings -> Repositories -> ALM_Solutions -> Security -> Open Access**.

Setting	Value
Create branch	Allow (inheri...)
Create tag	Allow (inheri...)
Delete or disable repository	Not set
Edit policies	Not set
Force push (rewrite history, delete branches and tags)	Not set
Manage notes	Allow (inheri...)
Manage permissions	Not set
Read	Allow (inheri...)
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**



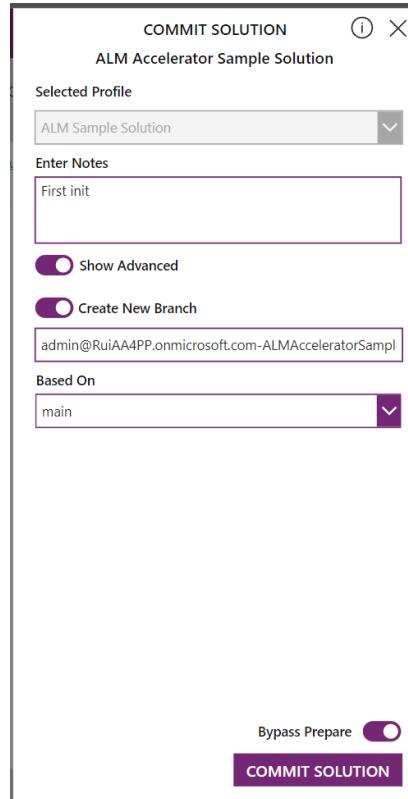
4. Select the **Deployment Environments** by picking the right environment for each step. Use the dropdown menu to find, or search and select **Save**



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 are navigation links for Refresh, Manage Solutions, Import Solution, and a search bar for solutions. Below the header, there are sections for 'SOLUTION' and 'PROFILE'. The 'SOLUTION' section shows the 'ALM Accelerator Sample Solution' with options to 'Open Solution' and 'Configure Deployment Settings'. The 'PROFILE' section shows 'ALM Sample Solution' with a validation status of 'Validation - Test - Prod'. Below these are buttons for 'COMMIT SOLUTION', 'DEPLOY SOLUTION', and 'DELETE SOLUTION'.

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. The 'COMMIT SOLUTION' button is now highlighted with a blue clock icon, indicating the process is in progress. The rest of the interface remains the same, showing the 'ALM Accelerator Sample Solution' and 'ALM Sample Solution' profile.

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 run. The left sidebar is for the 'pplatform' project, with 'Pipelines' selected. The main area shows the 'Jobs in run #export-A...' for the 'export-solution-to-git' pipeline. The 'export_solution_to_git' job is listed with a duration of 40s. The job steps are: Initialize job (2s), Checkout Pipeline ... (15s), Checkout Source Bra... (1s), Set SpnToken for us... (20s), Set toolsPaths, Cache Powershell Mod..., and Initialize Git. The right side shows the log output for the 'export_solution_to_git' job, which includes environment variables and the start of the job execution.

```

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 '#export-ALMAcceleratorSampleSolution-to-git-branch' run. The 'export_solution_to_git' job is listed as successful. The 'Summary' tab is selected, showing details like repositories (2), time started (Today at 13:46), and duration (5m 17s). The 'Warnings' section lists three items related to unapproved verbs in PowerShell modules. The 'Jobs' section shows the successful run of the 'export_solution_to_git' job.

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

The screenshot shows the Microsoft DevOps interface for the `ALM_Solutions` repository. The main branch is `main`. A commit for `b686c58e` adds a `README.md` file by `Rui Santos`. The `Getting Started` section contains a todo list:

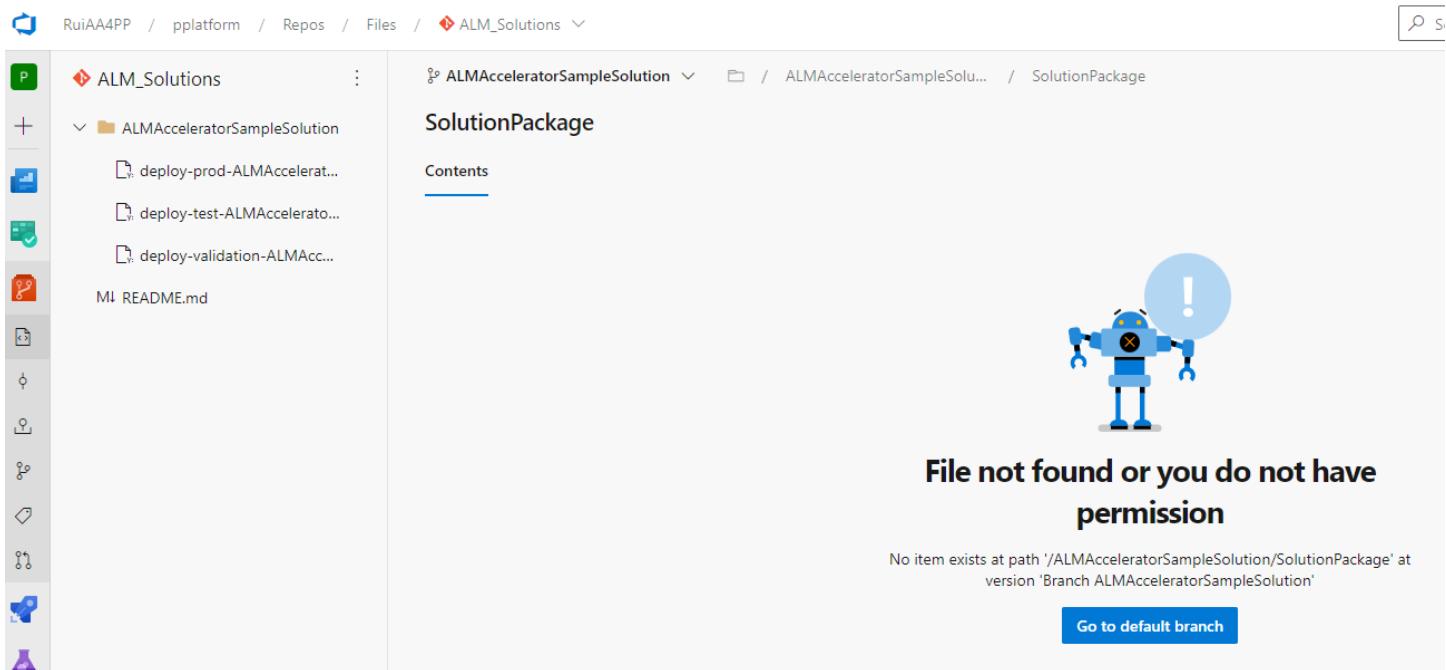
- 1. Installation process
- 2. Software dependencies
- 3. Latest releases
- 4. API references

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 Microsoft DevOps interface for the `ALMAcceleratorSampleSolution` branch. The `SolutionPackage` folder is selected, showing its contents:

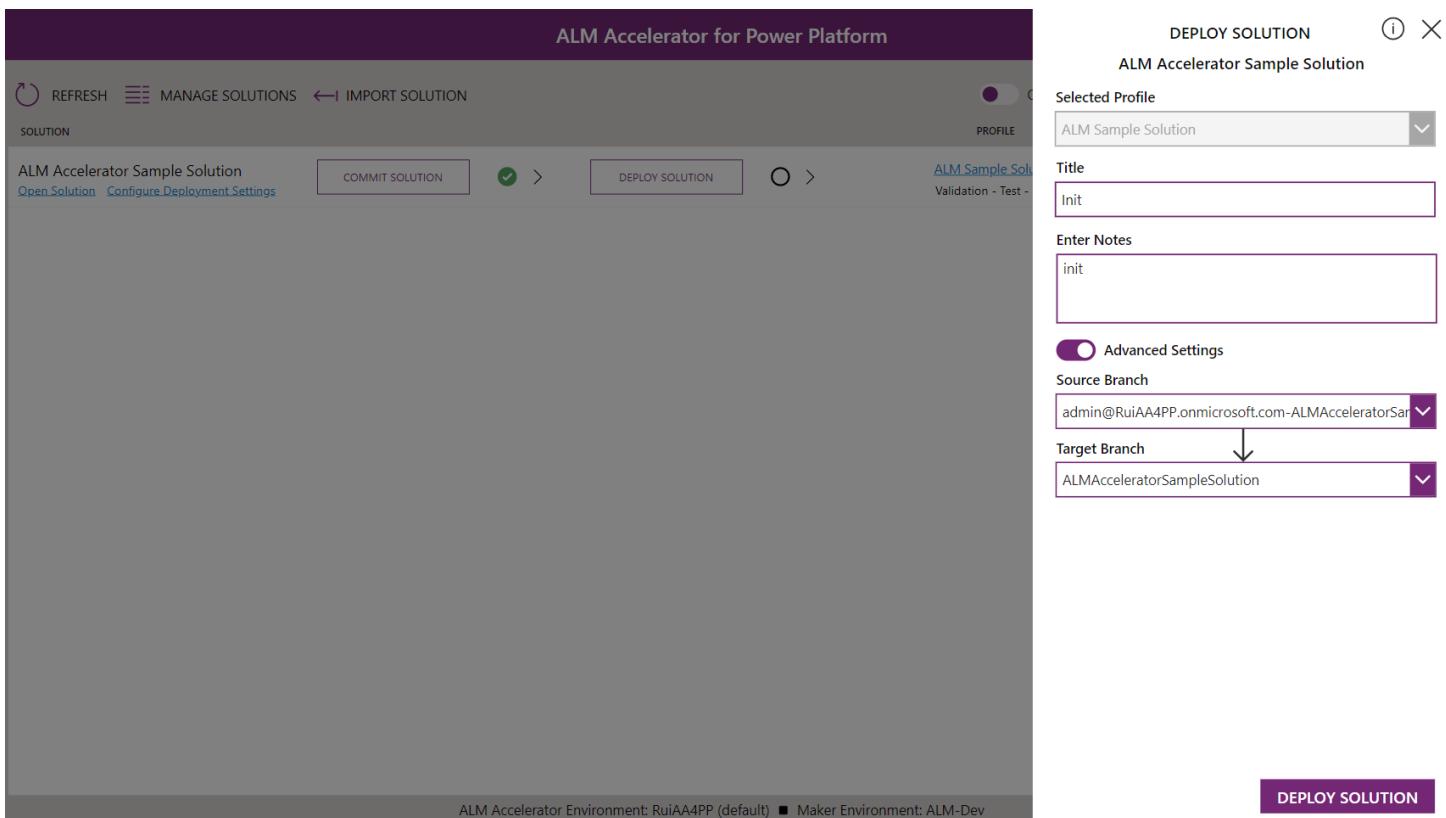
Name	Last change	Commits
<code>AppModules</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>AppModuleSiteMaps</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>CanvasApps</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>Connectors</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>Entities</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>environmentvariabledefinitions</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>Other</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>Roles</code>	7m ago	<code>7687270e</code> Init Rui Santos
<code>Workflows</code>	7m ago	<code>7687270e</code> 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.



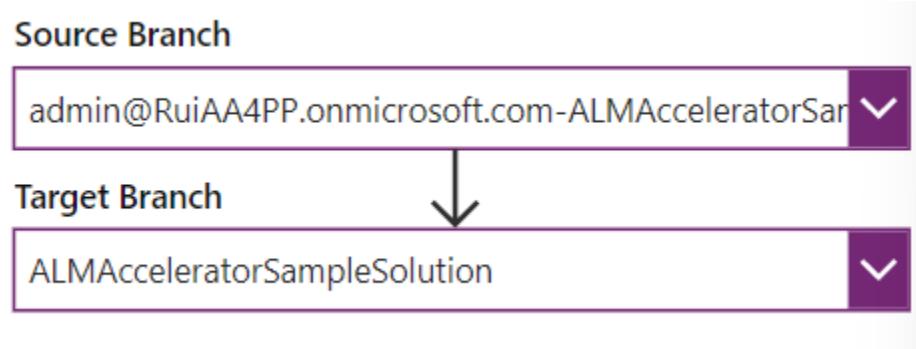
The screenshot shows the ALM Accelerator for Power Platform interface. The left sidebar has a 'P' icon and various other icons. The main area shows a 'SolutionPackage' with 'Contents' and three deployment files: 'deploy-prod-ALMAccelerat...', 'deploy-test-ALMAccelerato...', and 'deploy-validation-ALMAcc...'. A 'README.md' file is also listed. The right side shows a blue robot icon with an exclamation mark and the text 'File not found or you do not have permission'. Below that, a message says 'No item exists at path '/ALMAcceleratorSampleSolution/SolutionPackage' at version 'Branch ALMAcceleratorSampleSolution''. A 'Go to default branch' button is at the bottom.

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 'ALM Accelerator for Power Platform' interface. On the left, there's a 'SOLUTION' section with 'ALM Accelerator Sample Solution' and buttons for 'Open Solution' and 'Configure Deployment Settings'. In the center, there are buttons for 'COMMIT SOLUTION', 'DEPLOY SOLUTION', and 'ALM Sample Solution'. On the right, a 'DEPLOY SOLUTION' panel is open for 'ALM Accelerator Sample Solution'. It shows a 'Selected Profile' dropdown set to 'ALM Sample Solution'. Under 'Title', the value 'Init' is entered. Under 'Enter Notes', the value 'init' is entered. A 'Advanced Settings' toggle is turned on. Under 'Source Branch', the value 'admin@RuiAA4PP.onmicrosoft.com-ALMAcceleratorSa...' is selected. Under 'Target Branch', the value 'ALMAcceleratorSampleSolution' is selected. 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-\(SolutionName\)](mailto: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 / pplatfrom / Pipelines / deploy-validation-ALMAcceleratorSampleSolution / 1.0.20220505.5

Search

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 =====
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 / pplatfrom / Repos / Pull requests / ALM_Solutions

Search

Init

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

Approve Complete

Overview Files Updates Commits

Required check succeeded

Build Validation Build Validation succeeded Re-queue

No merge conflicts Last checked 6h ago

Description

Init

Reviewers Add

Required

No required reviewers

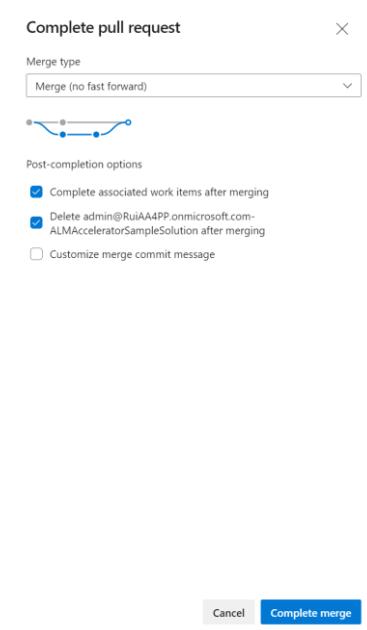
Optional

No optional reviewers

Tags

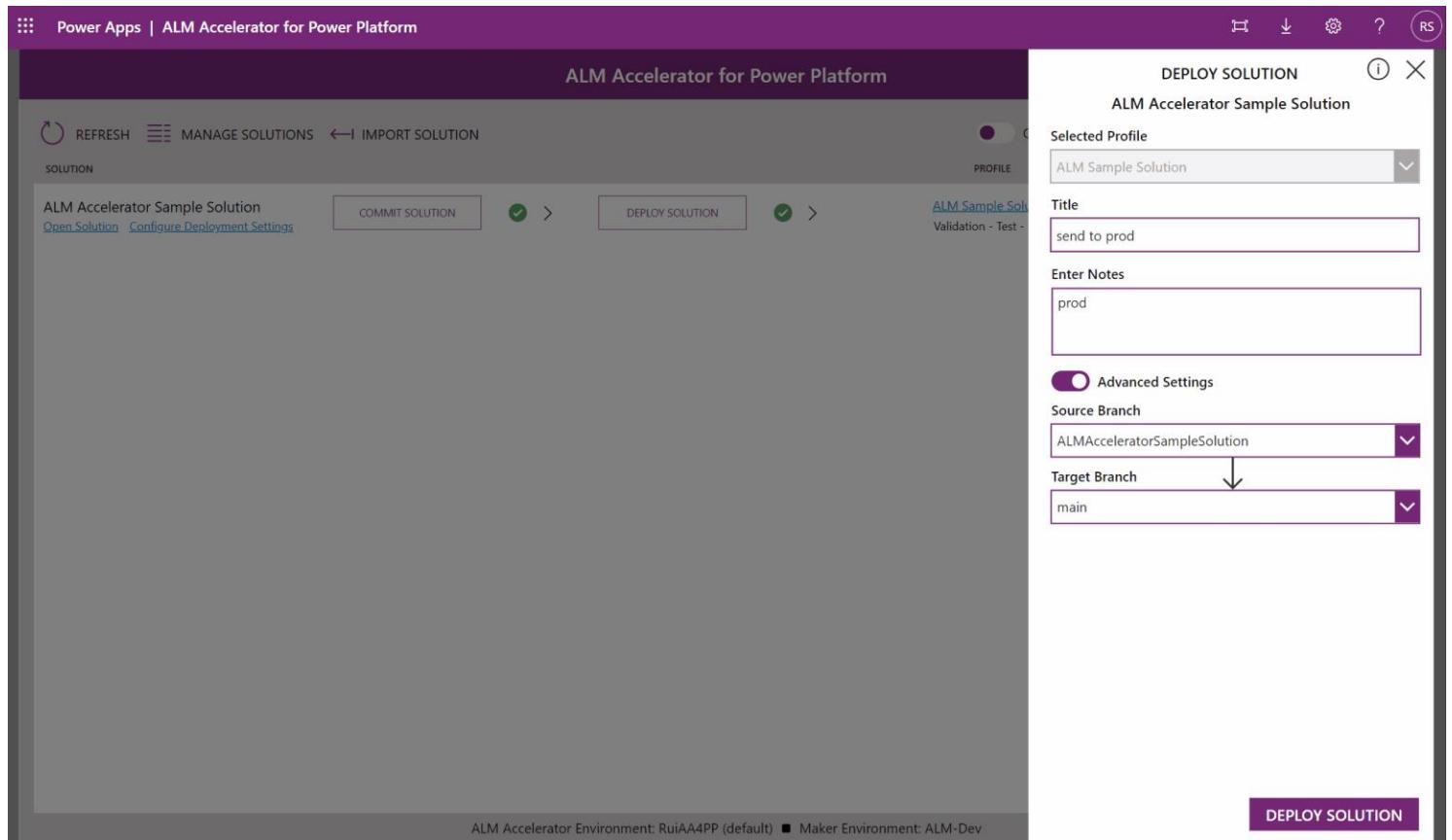
No tags

Work items



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.

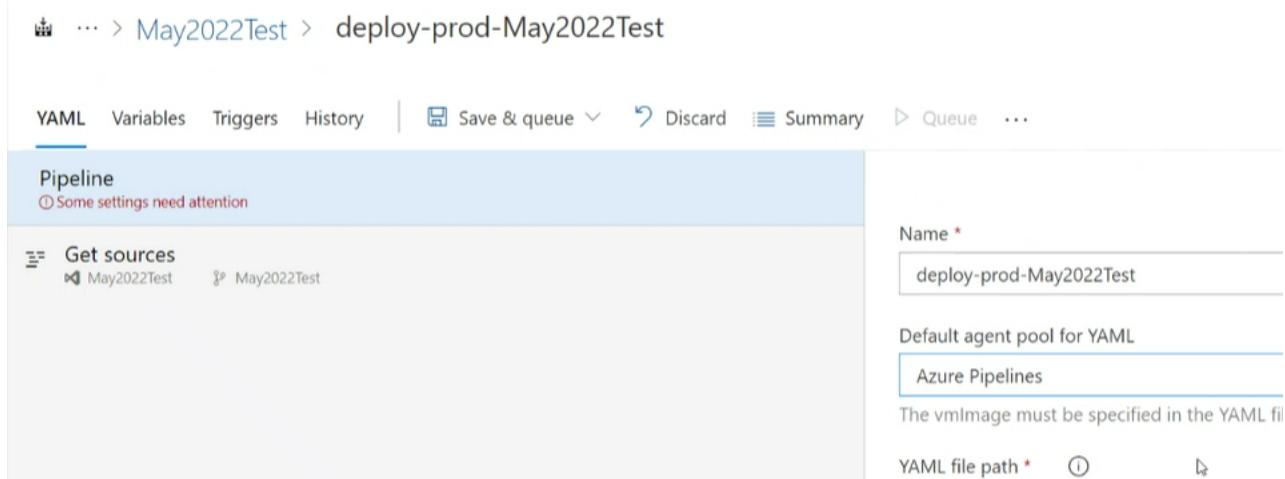
4. The last step is to deploy to production, to do that we go to AA4PP and we select **deploy solution**, notice the selection of **main** branch, which represent the production branch associated to ALM_Prod. After the pipeline is completed, we proceed with the completion of the Pull-Request.



FAQ

How to configure agent pools missing configuration

Define the **Default agent pool for YAML**



... > May2022Test > deploy-prod-May2022Test

YAML Variables Triggers History | Save & queue Discard Summary Queue ...

Pipeline
Some settings need attention

Get sources May2022Test May2022Test

Name * deploy-prod-May2022Test

Default agent pool for YAML Azure Pipelines

The vmlImage must be specified in the YAML file

YAML file path * ⓘ

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:

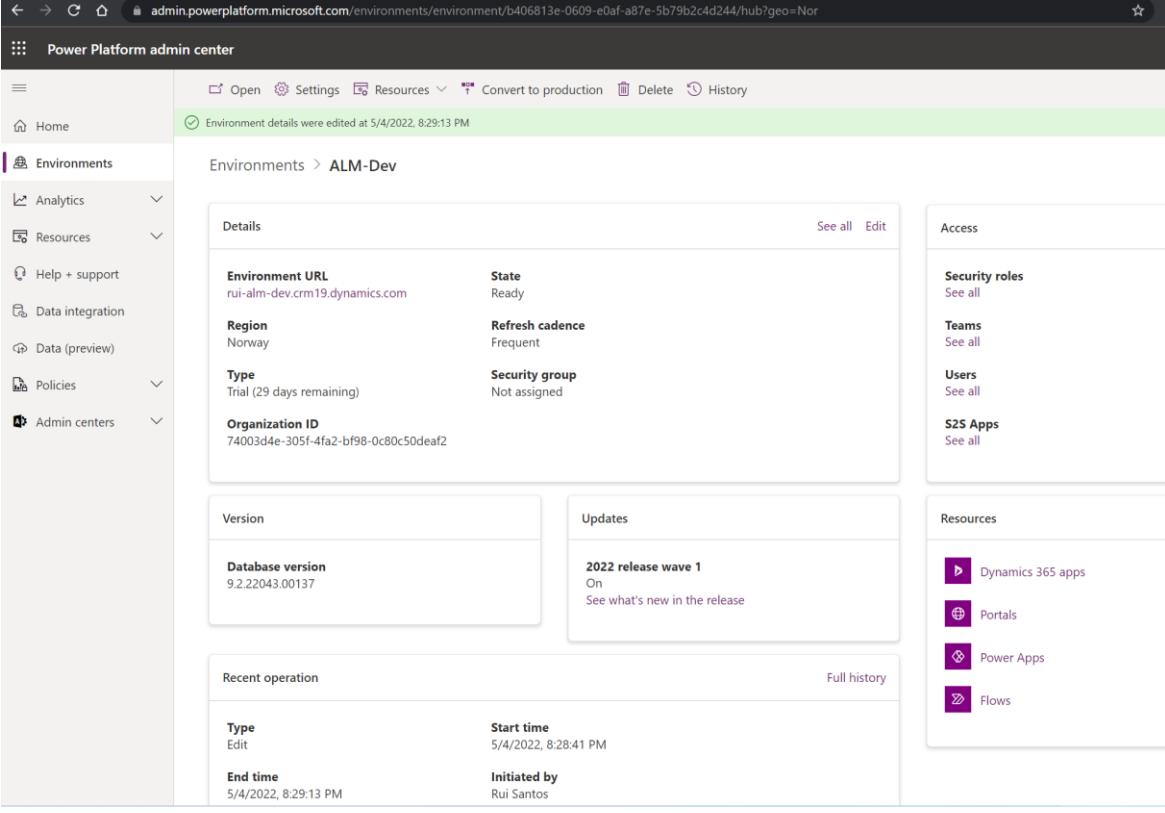
- 1) From the Environment list select on the name of the environment
- 2) Select **Edit** under **Details** section and change the URL accordingly to the environment **Name**. Since the URL must be unique in the world try to add some personalization to it. Originally the url will be in a format of "orgxxxxxx".

The screenshot shows the 'Edit details' dialog for an environment named 'ALM-Dev'. The dialog includes fields for Name (ALM-Dev), URL (org5c4f9170.crm19.dynamics.com), Security roles (See all), Teams (See all), Refresh cadence (Frequent), and Purpose (Describe the environment's purpose). The 'Access' section is also visible.

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

The screenshot shows the 'Edit details' dialog for the same environment 'ALM-Dev'. The URL field has been changed to 'rui-alm-dev'. The rest of the dialog and the main environment details page remain 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. The left sidebar is titled 'Environments' and lists various options: Home, Analytics, Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main content area is titled 'Environments > ALM-Dev'. It displays the following details:

Details	
Environment URL rui-alm-dev.crm19.dynamics.com	State Ready
Region Norway	Refresh cadence Frequent
Type Trial (29 days remaining)	Security group Not assigned
Organization ID 74003d4e-305f-4fa2-bf98-0c80c50deaf2	

Below the details, there are two tabs: 'Version' and 'Updates'. The 'Version' tab shows the 'Database version' as 9.2.22043.00137. The 'Updates' tab shows '2022 release wave 1' is 'On'. To the right of the details, there are sections for 'Access' (Security roles, Teams, Users, S2S Apps) and 'Resources' (Dynamics 365 apps, Portals, Power Apps, Flows). A status bar at the top indicates 'Environment details were edited at 5/4/2022, 8:29:13 PM'.

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 Power Platform admin center interface. The left sidebar is a navigation menu with the following items:

- Home
- Environments** (selected)
- Analytics
- Resources
- Help + support
- Data integration
- Data (preview)
- Policies
- Admin centers

The main content area displays the details for the environment **RuiAA4PP (default)**. The details are as follows:

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

Below the details, there is a section for adding a database:

Add database [+ Add database](#)

Collect, store, and share your data. Create database for this environment. [Learn more about databases.](#)

Recent operation

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

On the right side, there are two sections:

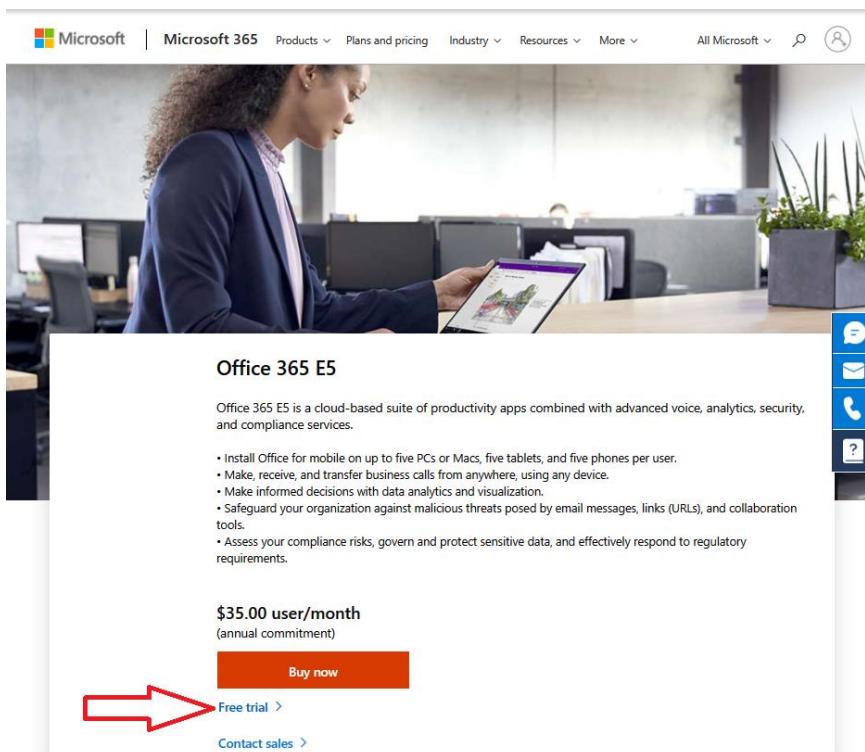
- Access**
 - Environment ad** [See all](#)
 - Environment mi** [See all](#)
- Resources**
 - Power App**
 - Flows**

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](#)

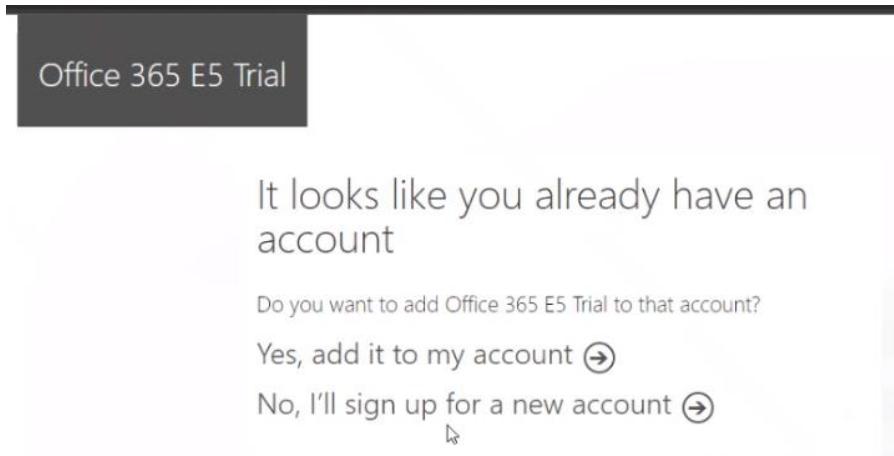
[Create a new account instead](#)

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.

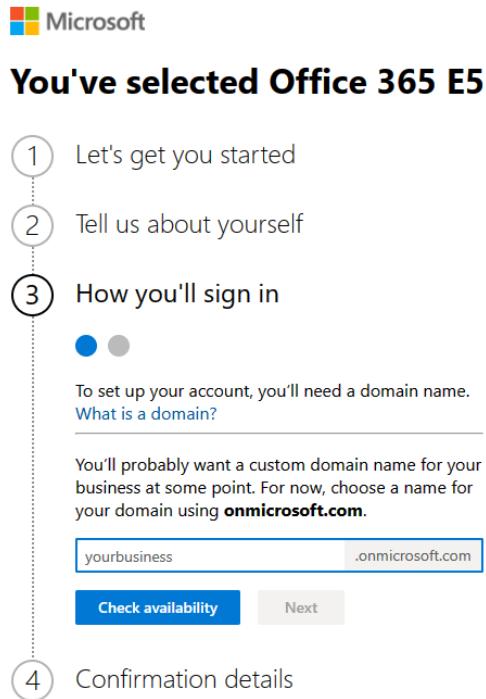
Enter your verification code

This is required

Didn't get it or need a new code? [Try again.](#)

Verify [Change my phone number](#)

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



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	\$20 per user/month
Run one app or portal per user, stacking licenses for access to each additional as their needs change.	Run unlimited apps and portals per user for one flat monthly rate.
<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.	<ul style="list-style-type: none">Includes 500 AI Builder service credits per month.¹Available to buy now with a credit card.
Buy now >	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 ↗](#) 

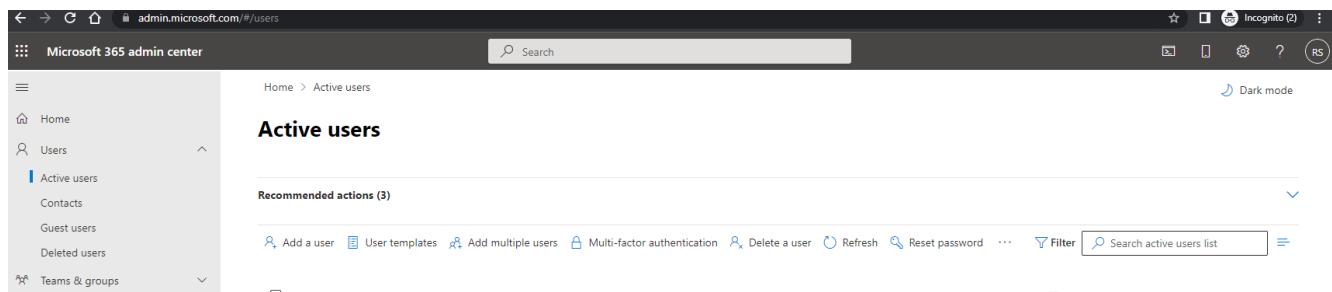
[No, I'll sign up for a new account ↗](#)

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 is collapsed. The main navigation bar shows 'admin.microsoft.com/#/users'. The 'Active users' section is selected. The 'Active users' heading is bolded. Below it, a 'Recommended actions' bar contains several buttons: 'Add a user', 'User templates', 'Add multiple users' (which is highlighted with a blue border), 'Multi-factor authentication', 'Delete a user', 'Refresh', 'Reset password', and a 'Filter' button. A search bar for 'Search active users list' is also present. The overall layout is clean and modern, typical of Microsoft's admin center design.

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

First Name: ALM

Last Name: Dev/Validation/Test/Prod

Microsoft 365 admin center

Home > Active users

Add multiple users

Active users

Recommended

List of users

Licenses

Finish

Add a user

Display

Rui Sa

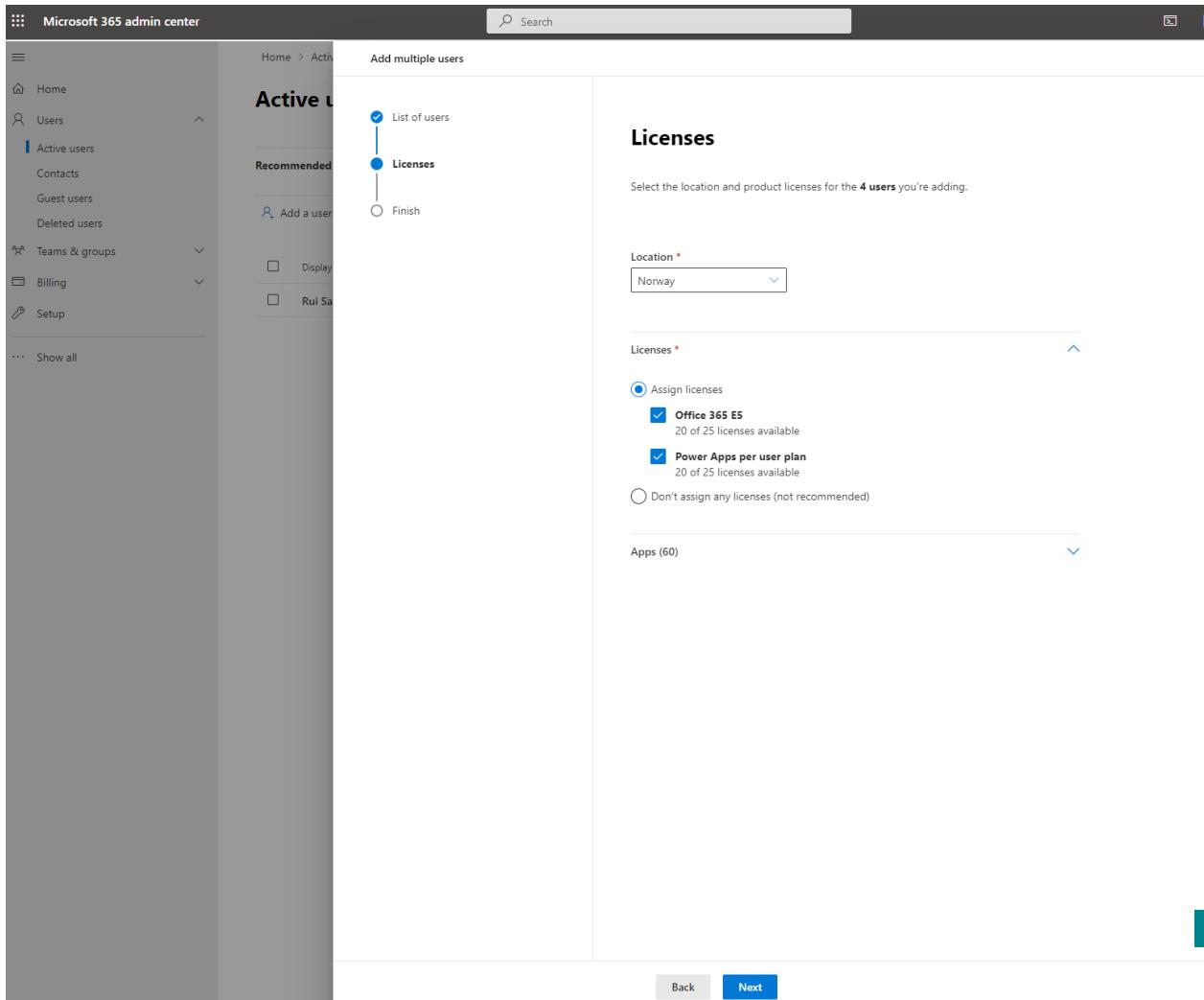
First name Last name Username Domain

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
First name	Last name	Username	@ RuiAA4PP.onmicrosoft.com

I'd like to upload a CSV with user information

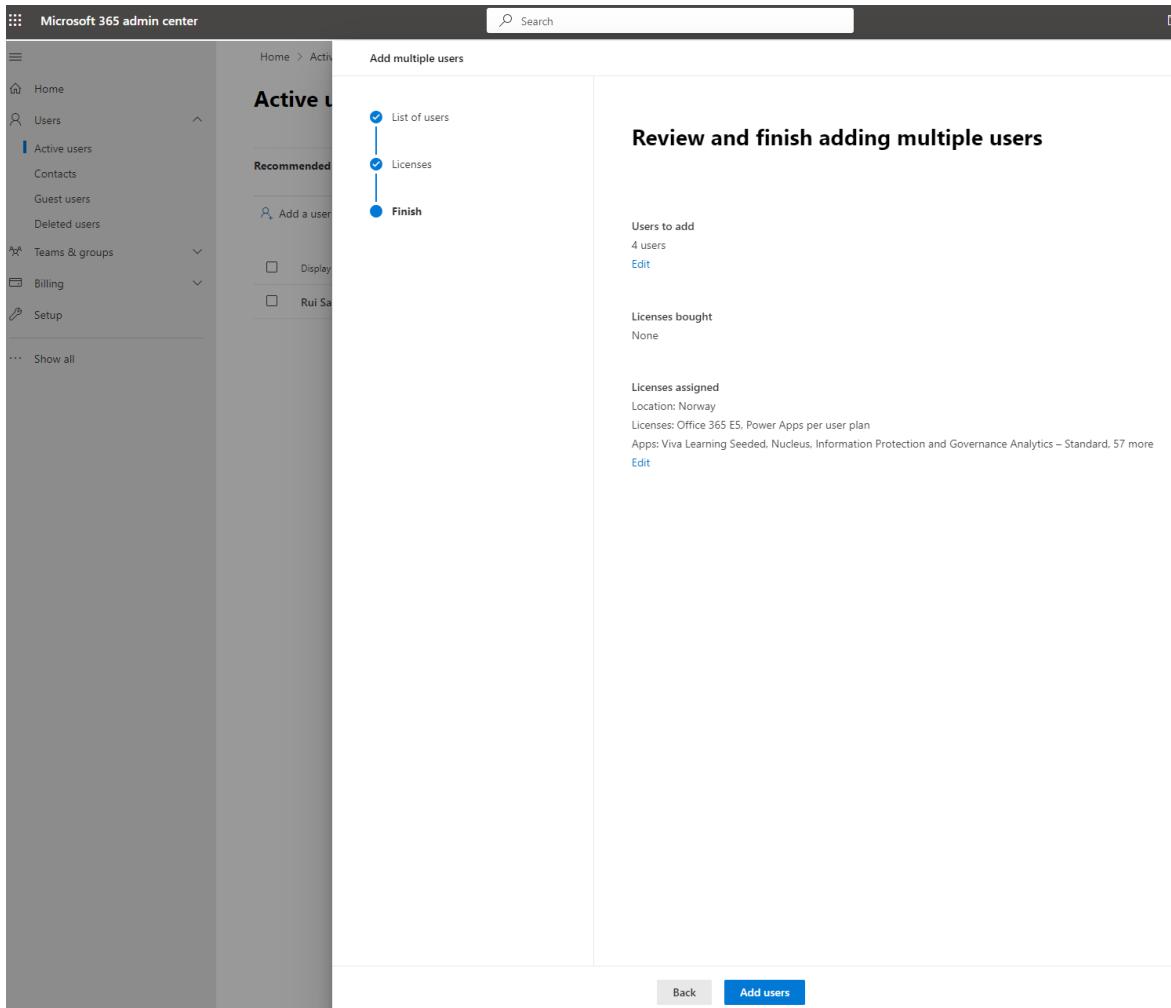
Next Cancel Help & support

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



The screenshot shows the Microsoft 365 admin center interface. On the left, a sidebar navigation includes Home, Users (Active users, Contacts, Guest users, Deleted users), Teams & groups, Billing, and Setup. The main content area is titled 'Add multiple users' and shows a flow: 'List of users' (selected), 'Licenses' (selected), and 'Finish'. The 'Licenses' step is titled 'Licenses' and instructs the user to 'Select the location and product licenses for the 4 users you're adding.' A 'Location' dropdown is set to 'Norway'. Under 'Licenses', the 'Assign licenses' radio button is selected, with 'Office 365 E5' (20 of 25 licenses available) and 'Power Apps per user plan' (20 of 25 licenses available) checked. The 'Don't assign any licenses (not recommended)' option is also available. Below this is a section for 'Apps (60)'. At the bottom are 'Back' and 'Next' buttons.

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:

Microsoft 365 admin center

Home > Active users

Add multiple users

Active users

Recommended

Display

ALM

ALM

ALM

ALM

Rui SA

List of users

Licenses

Finish

You added 4 users

These users will appear in your list of **Active users** where you can view and manage their settings. All users have been given temporary passwords and they can now log in to their accounts.

Email sign-in information

The file contains sign-in information, so we recommend that you only send it to one person.

admin@RuiAA4PP.onmicrosoft.com

Send email

Download user details

Display name	Username	Temporary Password
ALM	Dev@RuiAA4PP.onmicrosoft.com	*****
ALM	Validation@RuiAA4PP.onmicrosoft.com	*****
ALM	Test@RuiAA4PP.onmicrosoft.com	*****
ALM	Prod@RuiAA4PP.onmicrosoft.com	*****

Help & support

Close

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:

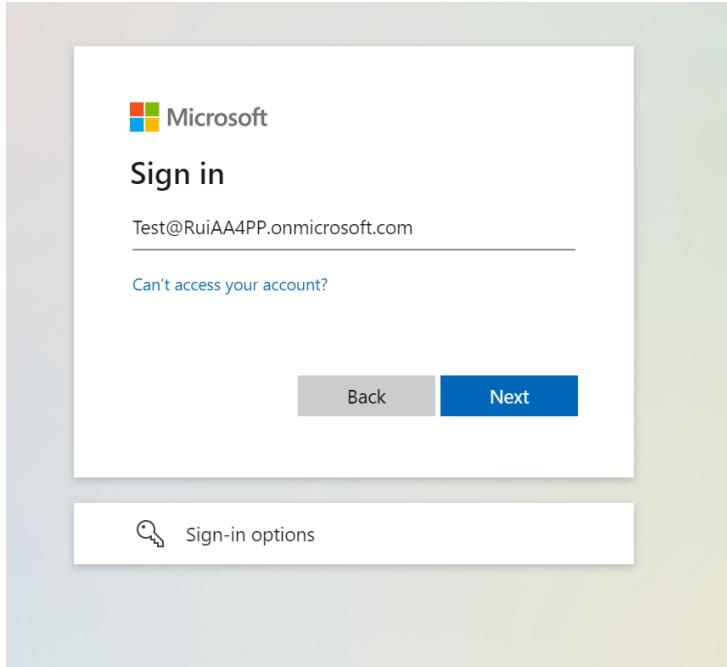
Display name ↑	Username	Licenses	Choose columns
ALM	Prod@RuiAA4PP.onmicrosoft.com	Power Apps per user plan, Office 365 E5	
ALM	Validation@RuiAA4PP.onmicrosoft.com	Power Apps per user plan, Office 365 E5	
ALM	Test@RuiAA4PP.onmicrosoft.com	Power Apps per user plan, Office 365 E5	
ALM	Dev@RuiAA4PP.onmicrosoft.com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

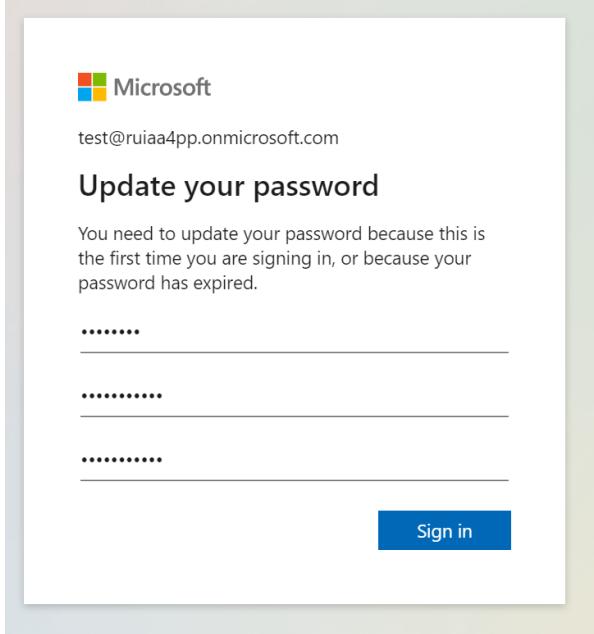
Note: After you have associated the licenses to the user, it sometimes takes some minutes to reflect in the system, if you are getting errors when create the environment, try to logout and login again and repeat the process.

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)

New environment

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

Name *

Region *

A local region can provide quicker data access

Type *

Purpose

Create a database for this environment? Yes

Next Cancel

- 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

Add database

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

Language *

Default language for user interfaces in this environment

URL

A unique domain name will be generated. Click [here](#) to enter a custom domain

Currency *

Reports will use this currency

Enable Dynamics 365 apps?

In addition to Power Apps. [Learn more](#)

No

⚠ Dynamics 365 apps can only be enabled for Production environments. You can start a trial [here](#)

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](#) [X](#)

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

Language *
 [▼](#)

Default language for user interfaces in this environment

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

Currency *
 [▼](#)

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](#)

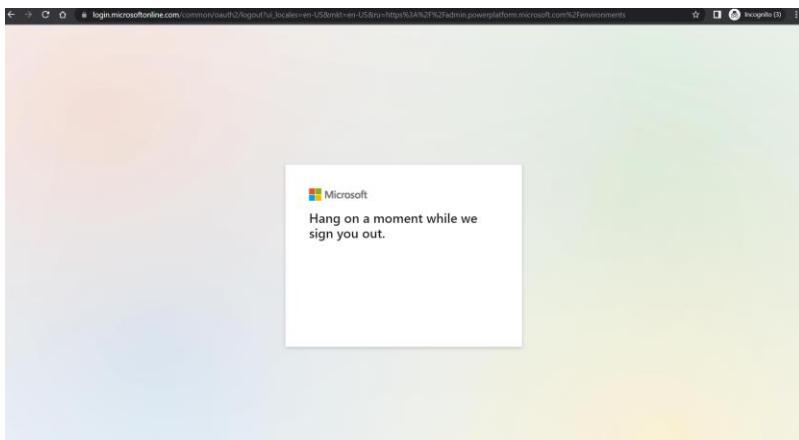
6) The creation of the environment should have started

Power Platform admin center						
Environments		Environments				
		Environment	Type	State	Region	Created on ↓
		ALM-Test	Trial	PreparingInstance	Norway	05/04/2022 6:52 PM
<i>(i) New environment ALM-Test is getting prepared. It can be used once active.</i>						

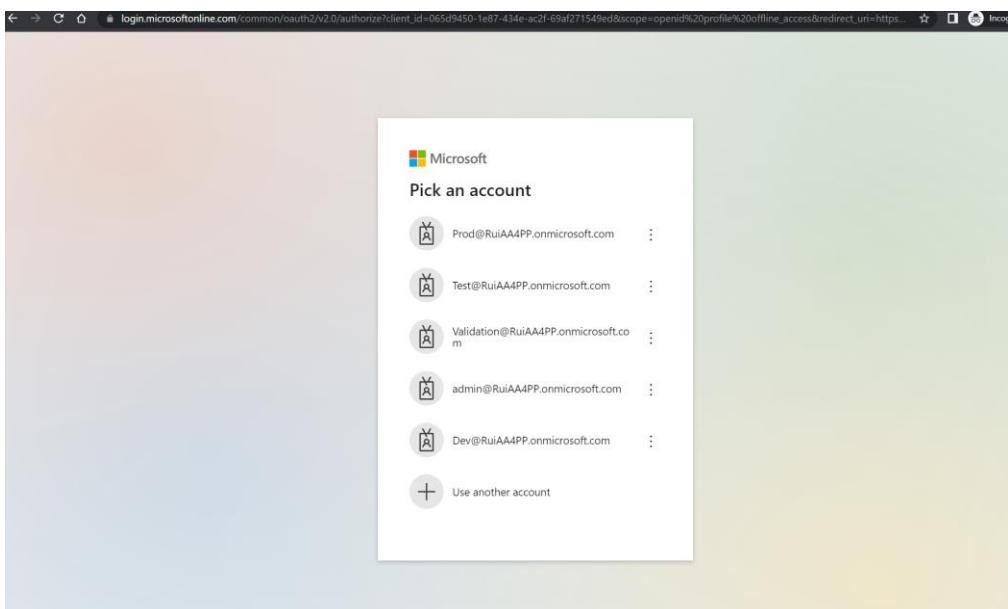
Note: You don't have to wait until the creation is completed. You can follow the same procedures to create the other 3 environments repeating the previous steps using a different username&password.

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

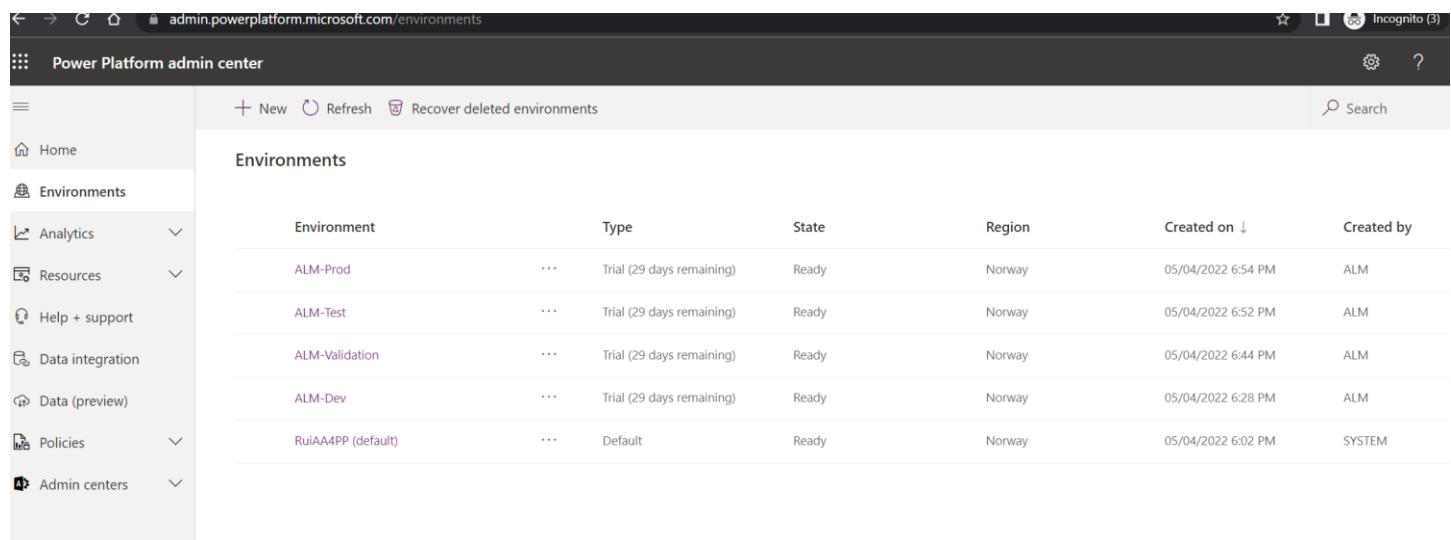
- a. Logout from your current account



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



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



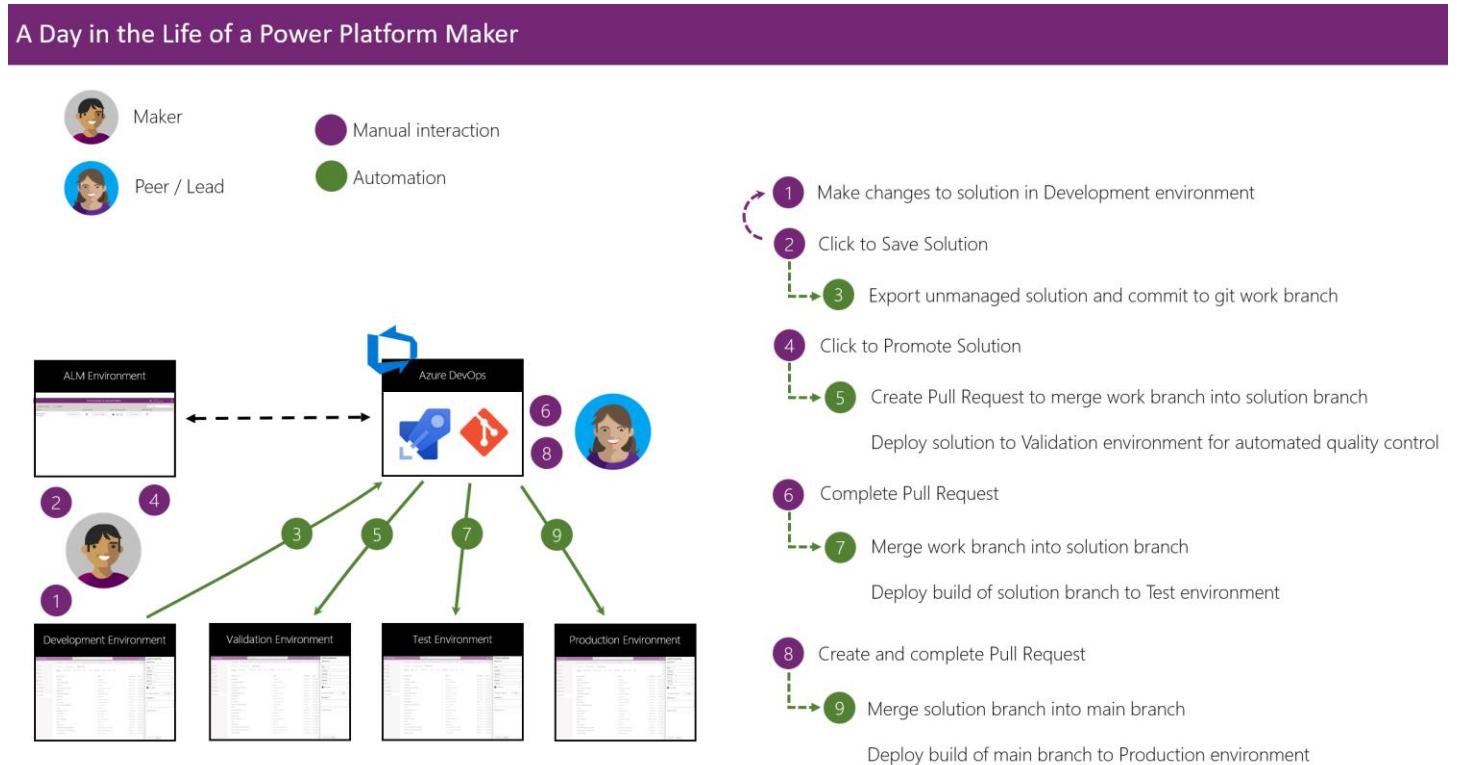
The screenshot shows the Power Platform admin center interface. The left sidebar is collapsed, and the main content area is titled "Environments". At the top of the content area are buttons for "+ New", "Refresh", and "Recover deleted environments", along with a search bar. The main table lists six environments:

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

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**).

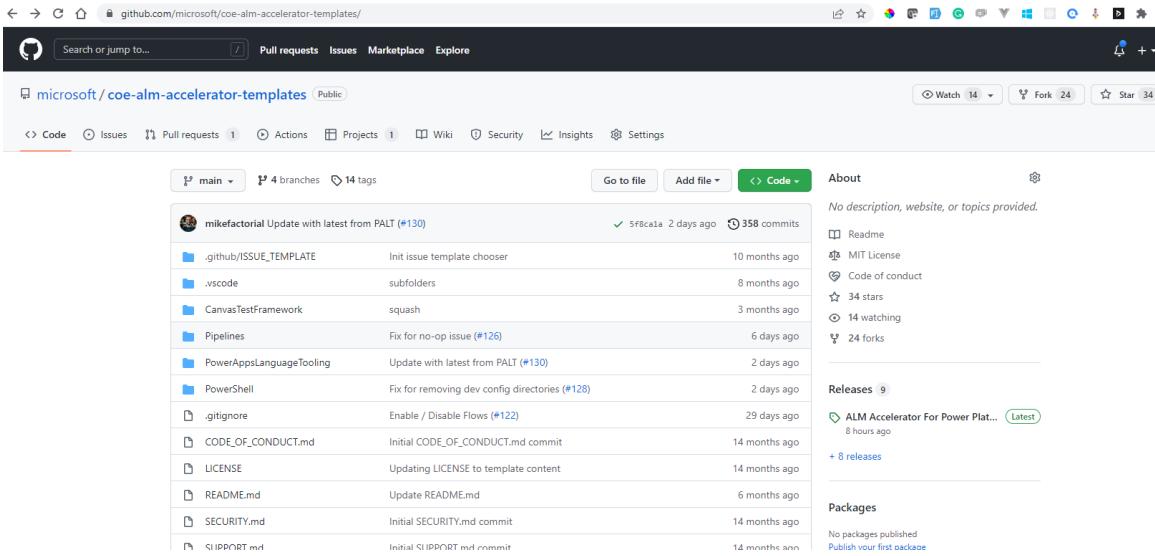
We will explain better in coming tasks, but the main flow is:



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**



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microsoft / coe-alm-accelerator-templates Public

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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

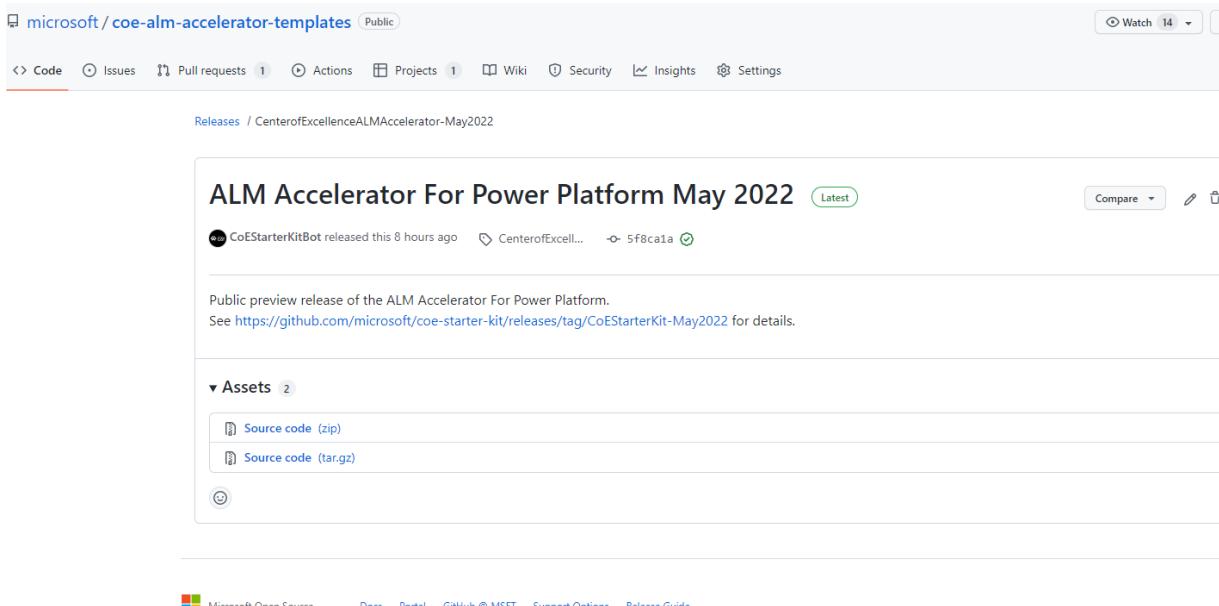
Packages

No packages published Publish your first package

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

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

Select in the tag and follow the url on the page



Releases / CenterofExcellenceALMAccelerator-May2022

ALM Accelerator For Power Platform May 2022 (Latest)

CoEStarterKitBot released this 8 hours ago CenterofExcellenceALMAccelerator-May2022 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

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Releases / CoEStarterKit-May2022

CoE Starter Kit May 2022 Latest

CoEStarterKitBot released this 8 hours ago

CoEStarterKitBot... fe1bb0e

[Compare](#) [Edit](#) [Delete](#)

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>

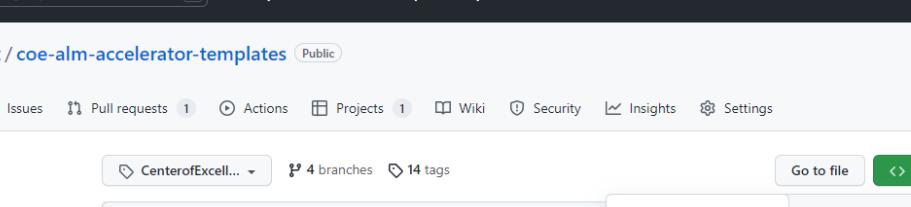
Upgrade Instructions

- 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**



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

 microsoft / **coe-alm-accelerator-templates** Public

Code Issues Pull requests 1 Actions Projects 1 Wiki Security Insights Settings

CenterofExcell... ▾ 4 branches 14 tags Go to file Code

Local Codespaces

Clone <https://github.com/microsoft/coe-alm-accelerator-templates.git> Use Git or checkout with SVN using the web URL.

Open with GitHub Desktop

Open with Visual Studio

Download ZIP

File	Description	Last Commit
CODE_OF_CONDUCT.md	Initial CODE_OF_CONDUCT.md commit	14 months ago
LICENSE	Updating LICENSE to template content	14 months ago
README.md	Update README.md	6 months ago
SECURITY.md	Initial SECURITY.md commit	14 months ago

How to unblock a job missing permission

Select in the red text **Permission needed**

#export-ALMAcceleratorSampleSolution-to-git-branch Update with latest from PALT (#130)

Manually run by Rui Santos

View 251 changes

Repositories 2

pplatform, +1

See Sources card for details

Time started and elapsed

Today at 02:20

Related

0 work items

1 consumed

Tests and coverage

Get started

⚠ This pipeline needs permission to access 2 resources before this run can continue to Export solution to git

View

Jobs

Permission needed

Name	Status	Duration
export_solution_to_git	Waiting	

Sources

Repository	Branch / tag	Version	Related
pplatform	main	5f8ca1a9	None
ALM_Solutions	main	b686c58e	

Permit both

#export-ALMAcceleratorSampleSolution-to-git-branch Update with latest from PALT (#130)

Manually run by Rui Santos

Repositories 2

pplatform, +1

See Sources card for details

Time started and elapsed

Today at 02:20

Related

0 work items

1 consumed

⚠ This pipeline needs permission to access 2 resources before this run can continue to Export solution to git

Waiting for review

Export solution to git

Permission needed

alm-accelerator-variable-group

Permit

Permission needed

ALM_Solutions

Repository

Permit

Jobs

Permission needed

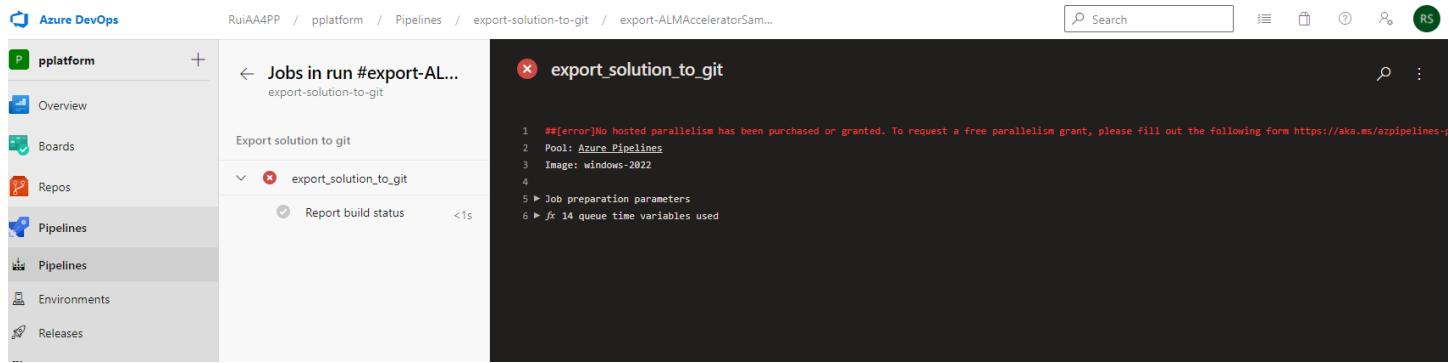
Name	Status
export_solution_to_git	Waiting

Sources

Repository	Branch / tag	Version
pplatform	main	5f8ca1a9

How to add parallelism to Azure DevOps

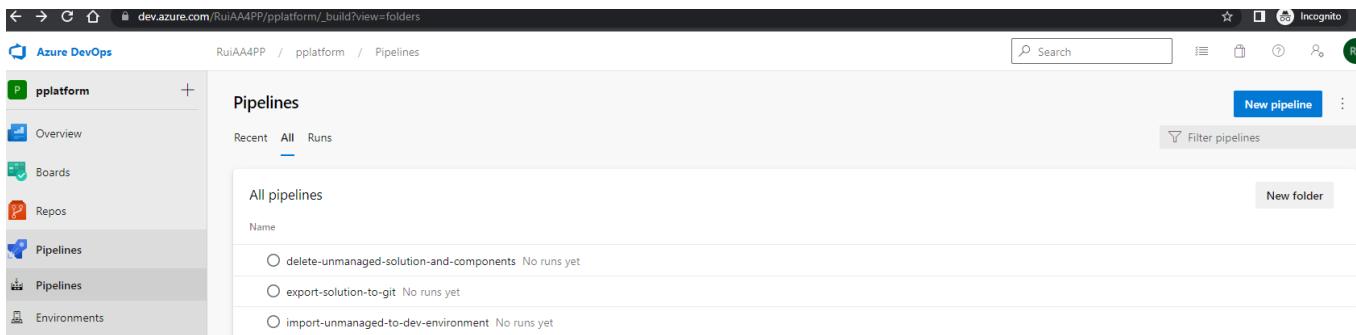
You need to have parallelism grant, this might take some hours or sometimes day to get. This action was performed in the Pre-requisites of this lab, but in case it hasn't been done open the forms url shown in the error.



The screenshot shows the Azure DevOps interface for a pipeline named 'export_solution_to_git'. The pipeline has a single step named 'export_solution_to_git'. An error message is displayed: '#[error]No hosted parallelism has been purchased or granted. To request a free parallelism grant, please fill out the following form https://aka.ms/azpipelines-parallelism-grant'. The pipeline configuration includes a 'Pool: Azure Pipelines' and 'Image: windows-2022'.

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 'Recent' tab selected. A context menu is open over the pipelines, with the 'Manage security' option highlighted.

How to fix a missing service connection

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

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

	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**

Name ↑	Delete So...	Import S...	Manage S...	Profile Cr...	Profile Up...	Advanced...	Advanced...	Drillthrou...	Byp
admin@RuiAA4PP.onmicrosoft.com - Def...									

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

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																									
	<table><thead><tr><th>Name</th><th>Step Number ↑</th><th>Deployment Environment</th><th>Approval Type</th><th>Deployable</th><th>Created On</th></tr></thead><tbody><tr><td>Validation</td><td>1</td><td>ALM Sample Solution - Validation</td><td>Pull Request</td><td>Not Allowed</td><td>5/4/2022 11:36 PM</td></tr><tr><td>Test</td><td>2</td><td>ALM Sample Solution - Test</td><td>Pull Request</td><td>Allowed</td><td>5/4/2022 11:36 PM</td></tr><tr><td>Prod</td><td>3</td><td>ALM Sample Solution - Prod</td><td>Pull Request</td><td>Allowed</td><td>5/4/2022 11:36 PM</td></tr></tbody></table>	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
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...

Validation - Saved Deployment Step

General Related

Name	* Validation
Deployment Profile	ALM Sample Solution
Step Number	1
Environment	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**

Pipelines

Recently run pipelines

Pipeline	Last run
deploy-validation-ALMAcceleratorSampleSolution	#1.0.20220505.4 • Init ALMAcceleratorSampleSolution PR automated for 9m ago <1s
export-solution-to-git	#export-ALMAcceleratorSampleSolution-to-git-branch • Update with latest from PALT (#130) Manually triggered for main 11 5 Run pipeline

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

Variables

```
ALMAcceleratorSampleSolution
ALM_Solutions / ALMAcceleratorSampleSolution/deploy-validation-ALMAcceleratorSampleSolution.yml
```

1 #You can use this sample template if you plan to store the pipeline templates in one repo and your pipeline YAML in another. This
2 resources:
3 repositories:
4 -- repository: PipelineRepo # repository name (DO NOT CHANGE THIS VALUE)

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

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/

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

← Update variable

Name

ServiceConnection

Value

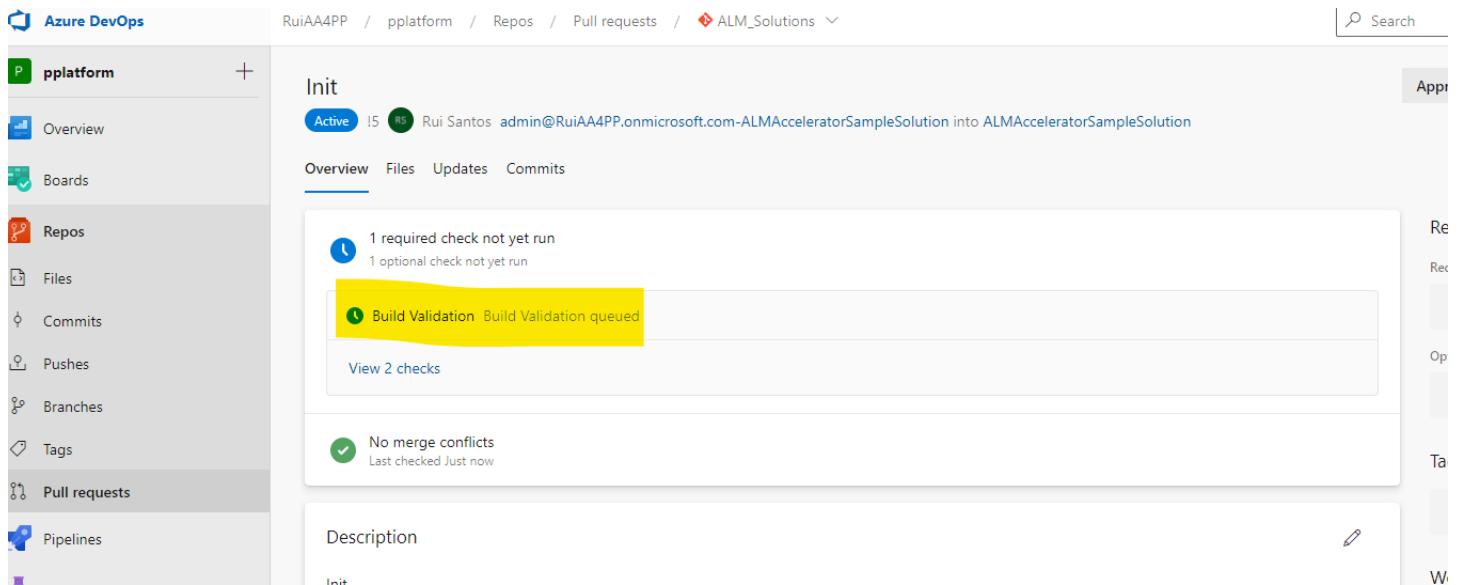
https://rui-alm-validation.crm19.dynamics.com/

Keep this value secret

Let users override this value when running this pipeline

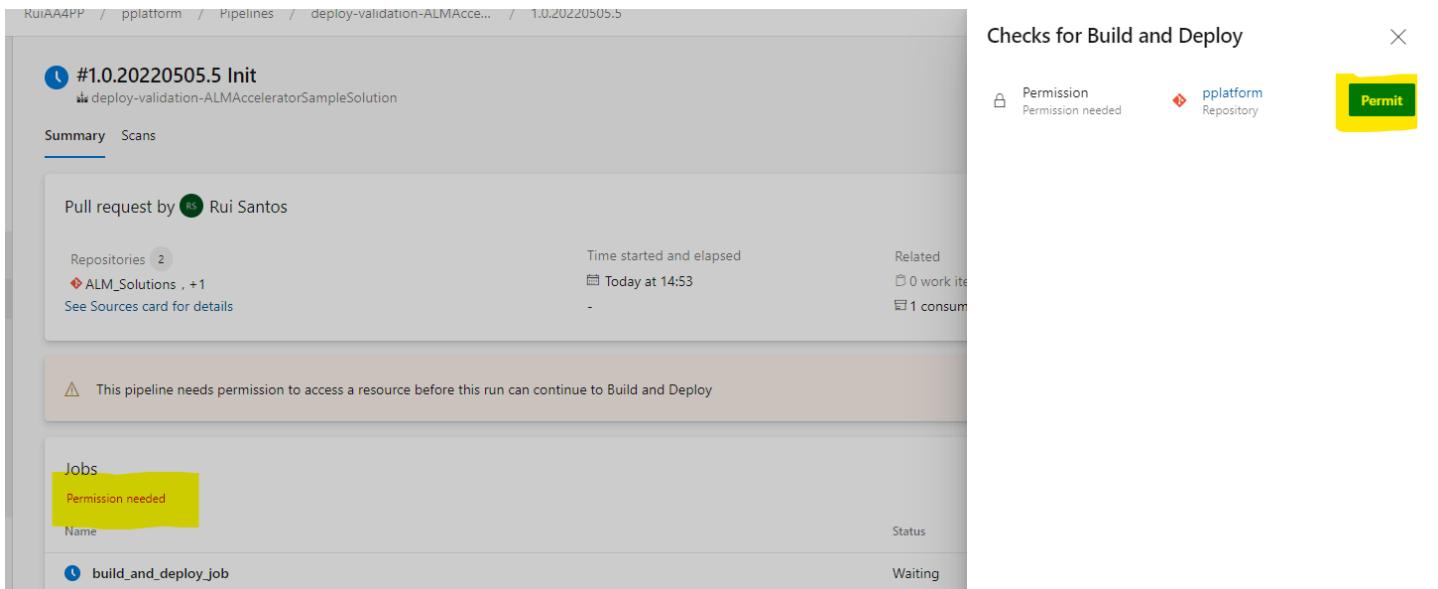
14. Go back to the AA4PP and **Abandon** the Pull request, and repeat the **Deploy Solution** steps

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 'Build Validation' section is highlighted with a yellow box. The status for 'Build Validation' is 'Build Validation queued'. Other sections visible include 'Overview', 'Files', 'Updates', and 'Commits'. The left sidebar shows navigation options like 'Overview', 'Boards', 'Repos', 'Files', 'Commits', 'Pushes', 'Branches', 'Tags', 'Pull requests', and 'Pipelines'.

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



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, a 'Checks for Build and Deploy' panel is open, showing a 'Permission' section with 'Permission needed' and a 'ppplatform Repository' section with a 'Permit' button. The main pipeline view shows a pull request by Rui Santos, initiated at 14:53 today. The pipeline has 2 repositories, 1 of which is ALM_Solutions. A warning message states: '⚠ This pipeline needs permission to access a resource before this run can continue to Build and Deploy'. The 'Jobs' section shows one job named 'build_and_deploy_job' in a 'Waiting' status. The 'Permission needed' section is highlighted with a yellow box.

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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