

Lab 2: Develop using Git

The purpose of this lab is to show how you can coordinate changes between your environment and Git repository. The primary scenario will show how to make changes in your repository source code and sync it into your environment. This lab will also cover collaborating with other developers using two different environments synched to the same repository. This lab will also cover basic conflict management strategies.

Prerequisite for this lab is to have two different environments, with one connected to a Git repository. Complete Lab 1 – Setup and Configure then proceed with this lab.

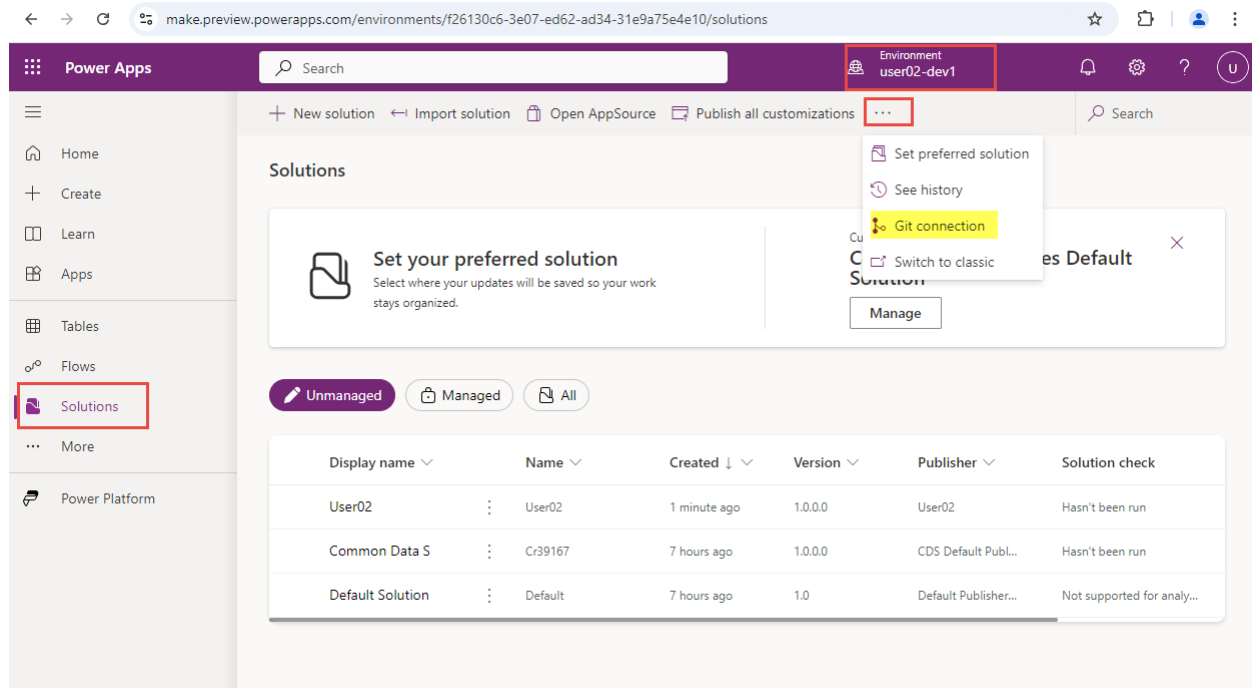
Lab 2 – Tasks

- Making changes in Git, then syncing into your environment
- Resolving conflicts with changes in Git and in your environment
- Connecting two different environments to Git
- Syncing changes between two environments using Git

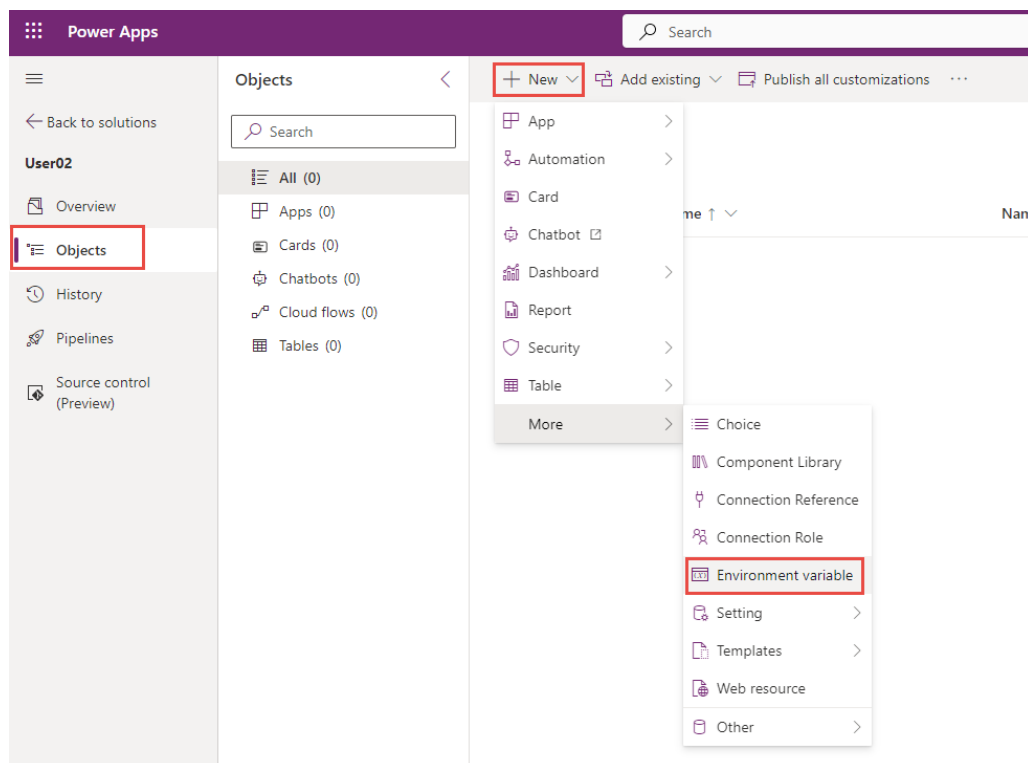
Task 1:

Let's build a very simple Canvas app.

Navigate to maker portal, select the first development environment you connected to Git in Lab 1, then select Solutions from the left navigation. Ensure that the Git feature enablement is on your querystring, or that you can still see the Git connection option in the menu. If you do not see the Git menu option, simply add this to your url: `?powerappsAlmSourceControl.enableAlmSourceControl=true`



We will use the solution that you set up in Lab 1. It is an empty solution. Click your solution name to edit it, then from that screen select **+ New | More | Environment Variable** to create a new environment variable.



Give the environment variable a unique name, and enter a description you will recognize, select **Text** as a data type and click **Save**.

New environment variable

Environment variables can have different values when re-used, enter information about this variable so that future users can understand its purpose. [Learn more](#)

Display name *

EV1


Name * 

user02_ EV1

Description

original EV description

Data Type *

 Text 

Default Value 

Current Value

Override the default value by setting the current value for your environment.

 New value

Save

Cancel

Click the Skip button to start with an empty canvas.

Back on the solution explorer, switch to the Source Control tab using the left navigation and review the changes. You should see the new environment variable to be created and your solution to be updated. Click Commit.

Power Apps

Search

Environment user02-dev1

Commit Check for updates Git Connection

Source control PREVIEW

When ready, commit your changes to Git. Check for updates to pull others' changes into this environment. To collaborate across environments, connect them to the same Git location. [Learn more.](#)

Current branch
main

Changes (2) Updates (0) Conflicts (0)

Items in this list are changes in your environment that need to be committed to this branch.

Display name	Name	Object	Git Operation	Changed on ↓
User02	User02	Solution	Update	9/16/2024 4:48:05 pm
user02_EV1	user02_EV1	Environment Variable Defi...	Create	9/16/2024 4:48:04 pm

Enter a commit message and click **Commit**.

Commit



Review and write a comment about the item you are committing.

Comment *

Added an environment variable

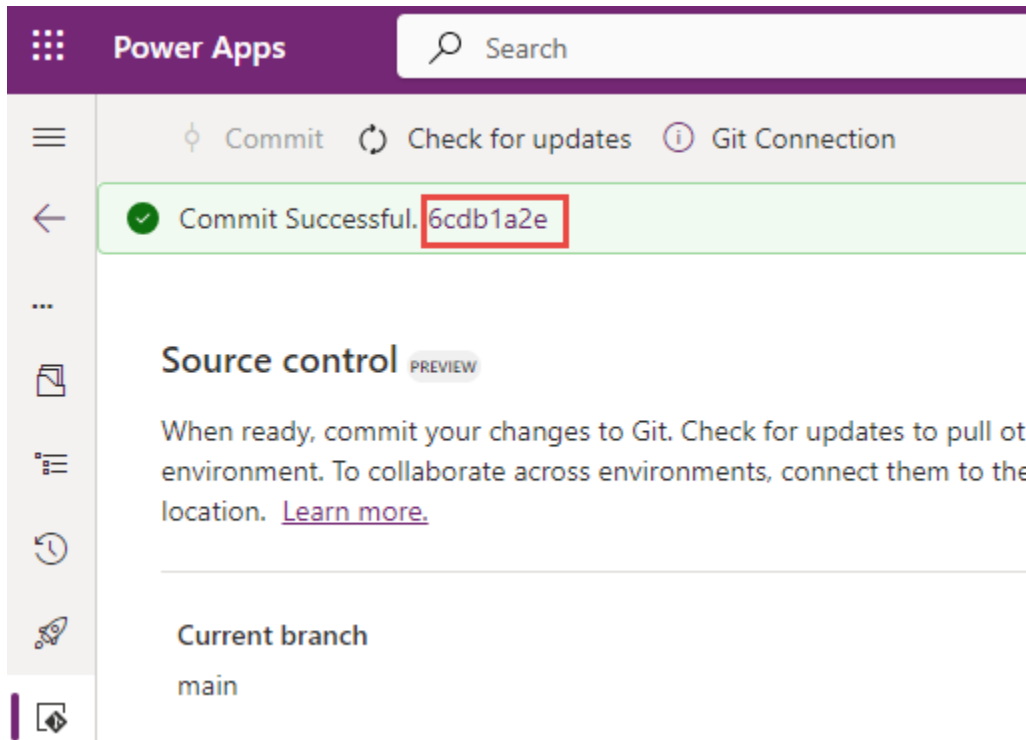
Commit to branch

main

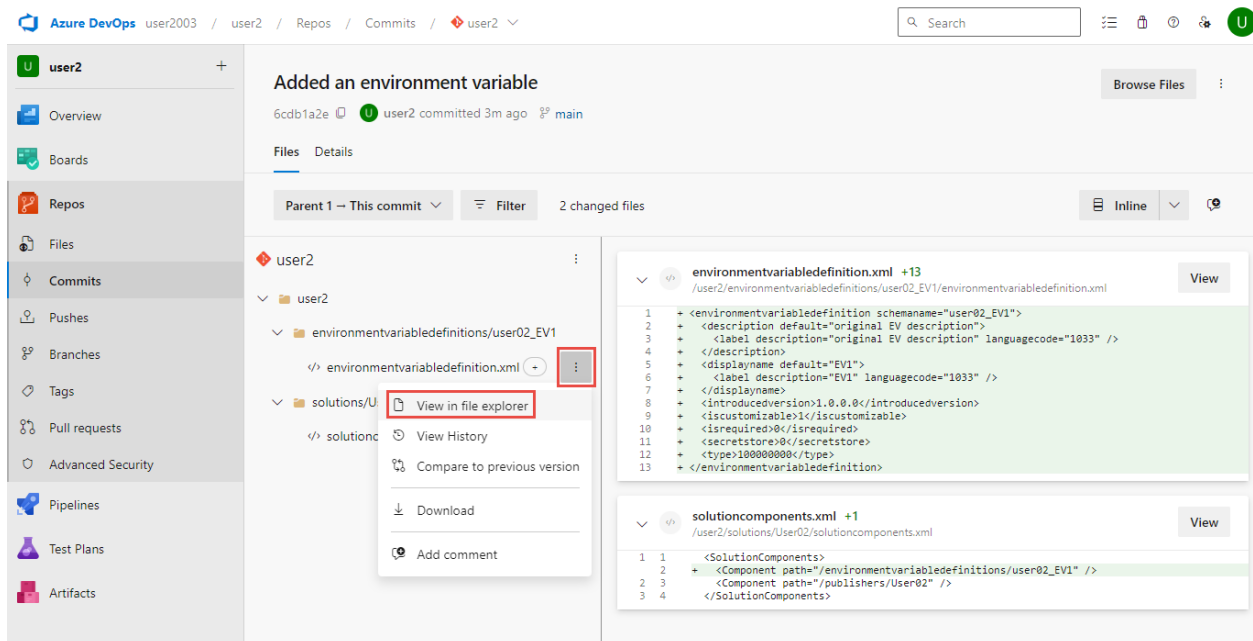
Commit

Cancel

You will shortly see an information bar near the top of the screen that will include the commit id. Click that commit link to open a new tab to your repository.

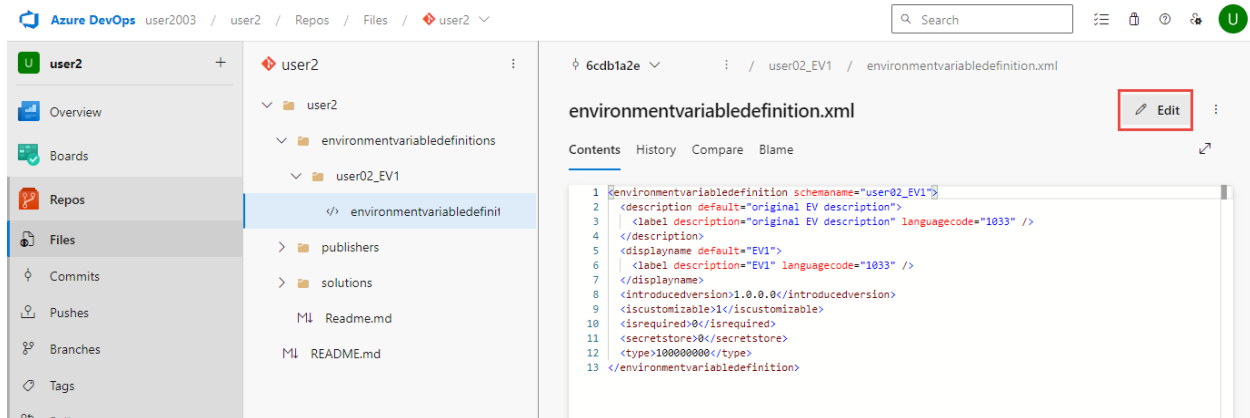


Locate the environment variable definition from within the files included in your commit. Hover over that to expose the command bar, and then select **View in file explorer** to go directly to the file.

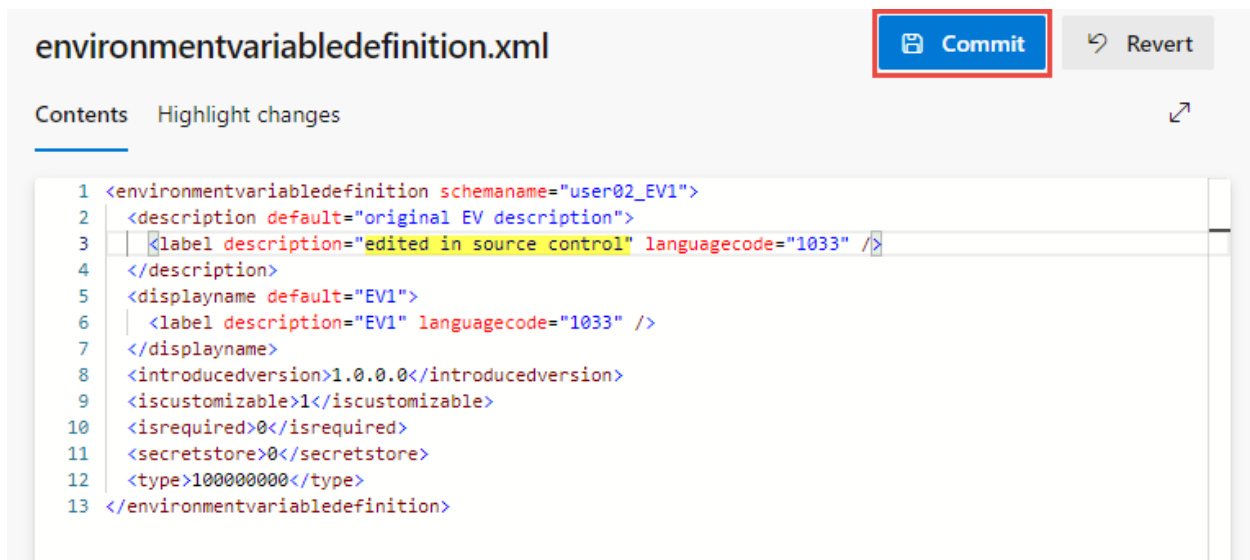


Task 2:

We want to demonstrate how you can change the source code in your repository and sync it within your environment. Using the file you located in the last task, click the **Edit** button to make a direct edit in your repository.



Change the text to a different value and then click **Commit**.



Enter a comment for the commit, use your branch name (use the same branch as you used to bind your environment to Git to avoid having to also use and complete a pull request). Click **Commit** to finish.

Commit



Comment

Updated environmentvariabledefinition.xml in source repo

Branch name

main

Work items to link

Search work items by ID or title

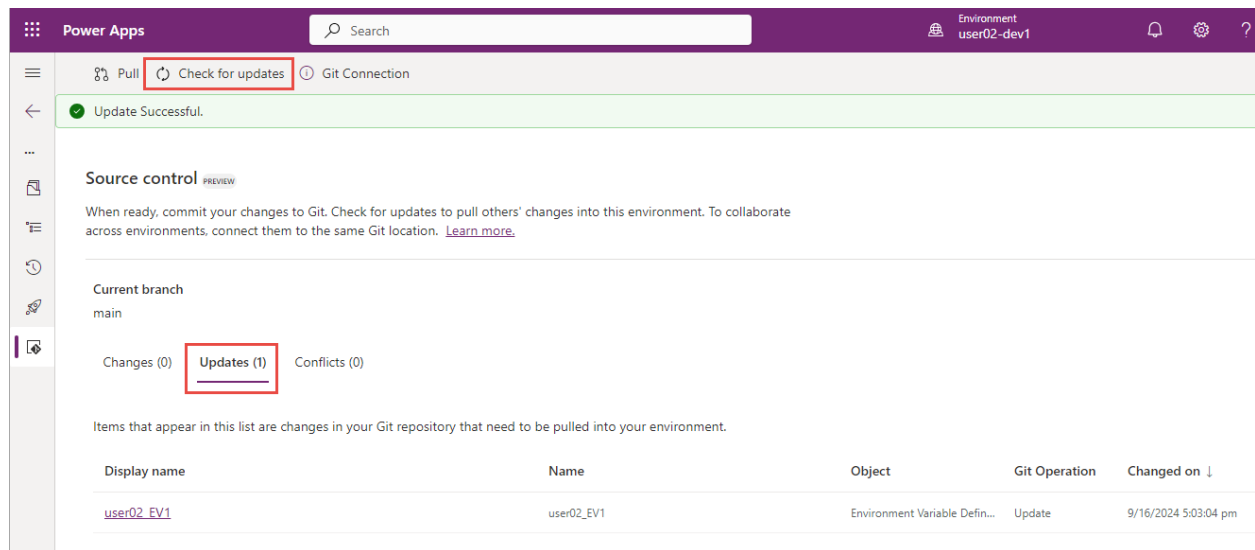


☐ Create a pull request

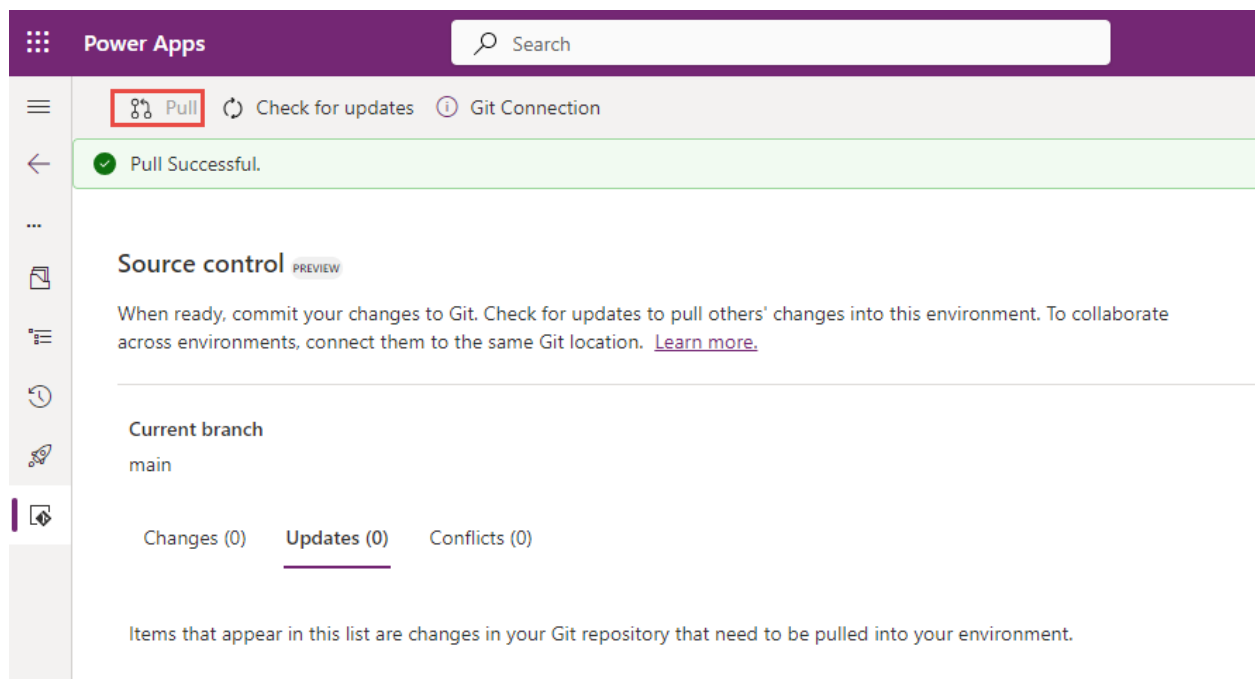
Cancel

Commit

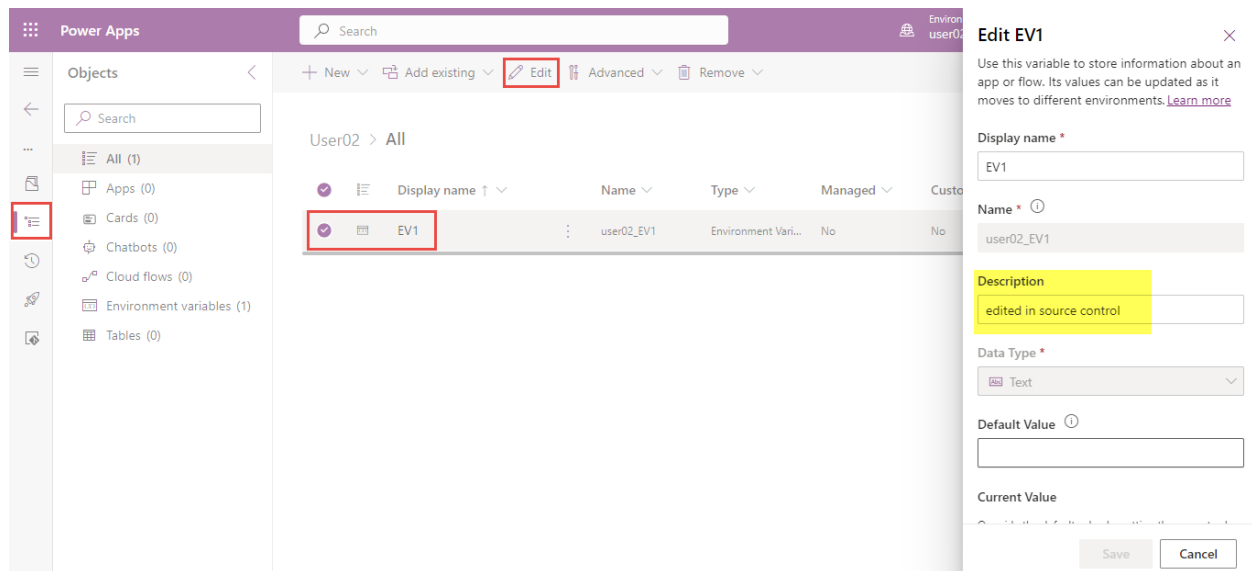
Switch back to your Power Apps tab in the browser and click **Check for updates**. You should now see one available update. Click the Updates tab to review.



Since there are no conflicts, you can now click the Pull button in the command bar to initiate the import of the environment variable change into your environment.



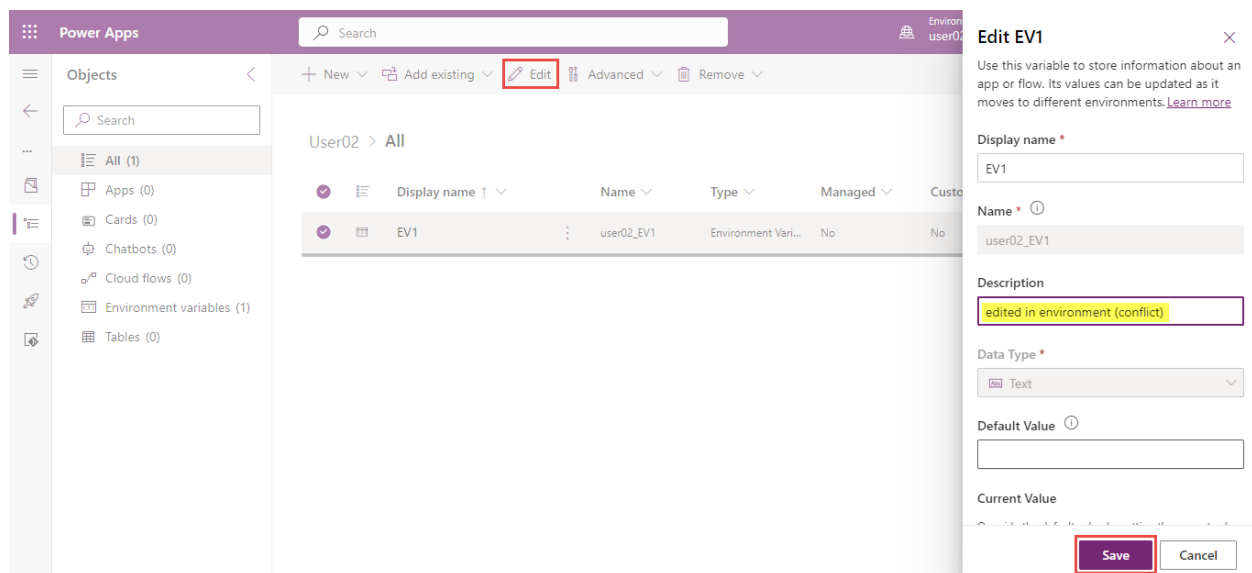
After your pull is completed, switch to the solution objects view using the left navigation, locate your environment variable and edit it.



Notice that edits that you made in your source control system have been brought into your environment.

Task 3:

Let's create a conflict by making changes in source code and the environment and then syncing. Edit the existing environment variable and change the description to another new value.



Locate the file in your source code again and commit a new PR with another value that is different than your environment.

Azure DevOps user2003 / user2 / Repos / Files / user2

user2

- Overview
- Boards
- Repos
- Files
- Commits
- Pushes
- Branches
- Tags

user2

- environmentvariabledefinitions
 - user02_EV1
 - environmentvariabledefinit
- publishers
- solutions
- ML Readme.md
- ML README.md

environmentvariabledefinition.xml

Edit

Contents History Compare Blame

```
1 <environmentvariabledefinition schemaname="user02_EV1">
2   <description default="original EV description">
3     <label description="edited in source control" languagecode="1033" />
4   </description>
5   <displayname default="EV1">
6     <label description="EV1" languagecode="1033" />
7   </displayname>
8   <introducedversion>1.0.0.0</introducedversion>
9   <iscustomizable>1</iscustomizable>
10  <isrequired>0</isrequired>
11  <secretstore>0</secretstore>
12  <type>100000000</type>
13 </environmentvariabledefinition>
```

Azure DevOps user2003 / user2 / Repos / Files / user2

user2

- Overview
- Boards
- Repos
- Files
- Commits
- Pushes
- Branches
- Tags
- Pull requests

user2

- environmentvariabledefinitions
 - user02_EV1
 - environmentvariabledefinit
- publishers
- solutions
- ML Readme.md
- ML README.md

environmentvariabledefinition.xml

Commit Revert

Contents Highlight changes

```
1 <environmentvariabledefinition schemaname="user02_EV1">
2   <description default="original EV description">
3     <label description="edited in source control again" languagecode="1033" />
4   </description>
5   <displayname default="EV1">
6     <label description="EV1" languagecode="1033" />
7   </displayname>
8   <introducedversion>1.0.0.0</introducedversion>
9   <iscustomizable>1</iscustomizable>
10  <isrequired>0</isrequired>
11  <secretstore>0</secretstore>
12  <type>100000000</type>
13 </environmentvariabledefinition>
```

Commit

Comment

Updated environmentvariabledefinition.xml in source control

Branch name

main

Work items to link

Search work items by ID or title

Cancel

Commit

Switch back to the maker portal and select the source code tab. Click **Check for updates** and the system will detect a conflict and give you a warning message about it. Click on the Conflicts tab to review the conflicts. You will see that your environment variable is listed.

The screenshot shows the Power Apps Source control interface. At the top, there's a purple header with 'Power Apps' and a search bar. Below the header, there's a navigation bar with four buttons: 'Keep Current Changes', 'Accept Incoming Changes', 'Check for updates' (highlighted with a red box), and 'Git Connection'. A green message bar says 'Update Successful.' Below that, a red warning bar says 'You have active conflicts. Resolve them before committing or pulling changes.' The main content area is titled 'Source control' and includes instructions: 'When ready, commit your changes to Git. Check for updates to pull others' changes into this environment. To collaborate across environments, connect them to the same Git location. [Learn more.](#)' Below this, it shows 'Current branch: main'. There are three tabs: 'Changes (0)', 'Updates (0)', and 'Conflicts (1)' (highlighted with a red box). A message says 'These objects have conflicting changes. Resolve conflicts by selecting which version to keep.' Below this is a table with columns: 'Display name', 'Name', 'Object', and 'Changed on ↓'. The table has one row: 'user02_EV1' (highlighted with a red box), 'user02_EV1', 'Environment Variable Defi...', and '9/16/2024 5:33:47 pm'.

Display name	Name	Object	Changed on ↓
user02_EV1	user02_EV1	Environment Variable Defi...	9/16/2024 5:33:47 pm

Select the environment variable, then choose which version to keep by clicking on the menu options **Keep Current Changes** to keep the changes in your environment, or **Accept Incoming Changes** to indicate that you want to accept the changes that were made in your source repository. For this task, we are going to select to accept the incoming changes.

The screenshot shows the Power Apps Source control interface after resolving the conflict. The navigation bar now has 'Keep Current Changes', 'Accept Incoming Changes' (highlighted with a red box), 'Check for updates', and 'Git Connection'. The green message bar still says 'Update Successful.' The red warning bar is still present. The 'Conflicts (1)' tab is still selected. The table now has a checkbox in the 'Display name' column, which is checked for 'user02_EV1' (highlighted with a red box). The other columns remain the same: 'Name' is 'user02_EV1', 'Object' is 'Environment Variable Defi...', and 'Changed on' is '9/16/2024 5:33:47 pm'.

<input checked="" type="checkbox"/>	Display name	Name	Object	Changed on ↓
<input checked="" type="checkbox"/>	user02_EV1	user02_EV1	Environment Variable Defi...	9/16/2024 5:33:47 pm

This will present a confirmation dialog of which you can accept.

Confirm Accept Incoming Changes?

Once submitted, this action cannot be undone.

After this selection is saved, this item will move from the **Conflicts** list to the **Updates** list in source control, where you will need to pull the object.

☐ Don't show this again

Ok, continue

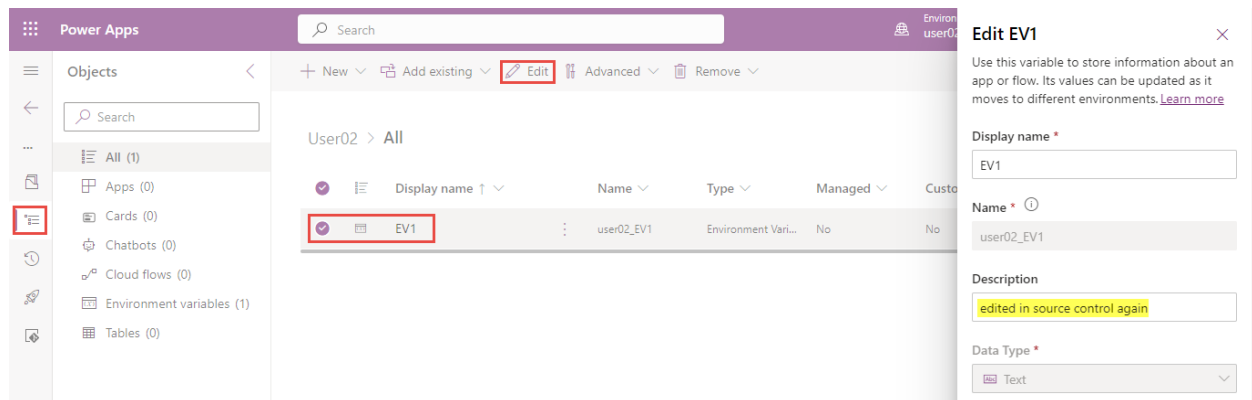
Cancel

At this point, the change strategy is remembered, but the data has not been synchronized with source code yet. The system will now track this as an update that is available to pull into your environment. Click the **Updates** tab to review it, then click **Pull** to complete the operation and bring that change into your environment.

The screenshot shows the Power Apps Source Control interface. At the top, there's a purple header with 'Power Apps' and a search bar. Below the header, there's a navigation bar with 'Pull', 'Check for updates', and 'Git Connection'. The main content area shows a 'Source control' section with a 'main' branch. Under 'Current branch', there are tabs for 'Changes (0)', 'Updates (1)', and 'Conflicts (0)'. The 'Updates (1)' tab is selected, showing a list of updates. The table below has columns: Display name, Name, Object, Git Operation, and Changed on. One update is listed: 'user02_EV1' with Name 'user02_EV1', Object 'Environment Variable Defi...', Git Operation 'Update', and Changed on '9/16/2024 5:40:49 pm'.

Display name	Name	Object	Git Operation	Changed on ↓
user02_EV1	user02_EV1	Environment Variable Defi...	Update	9/16/2024 5:40:49 pm

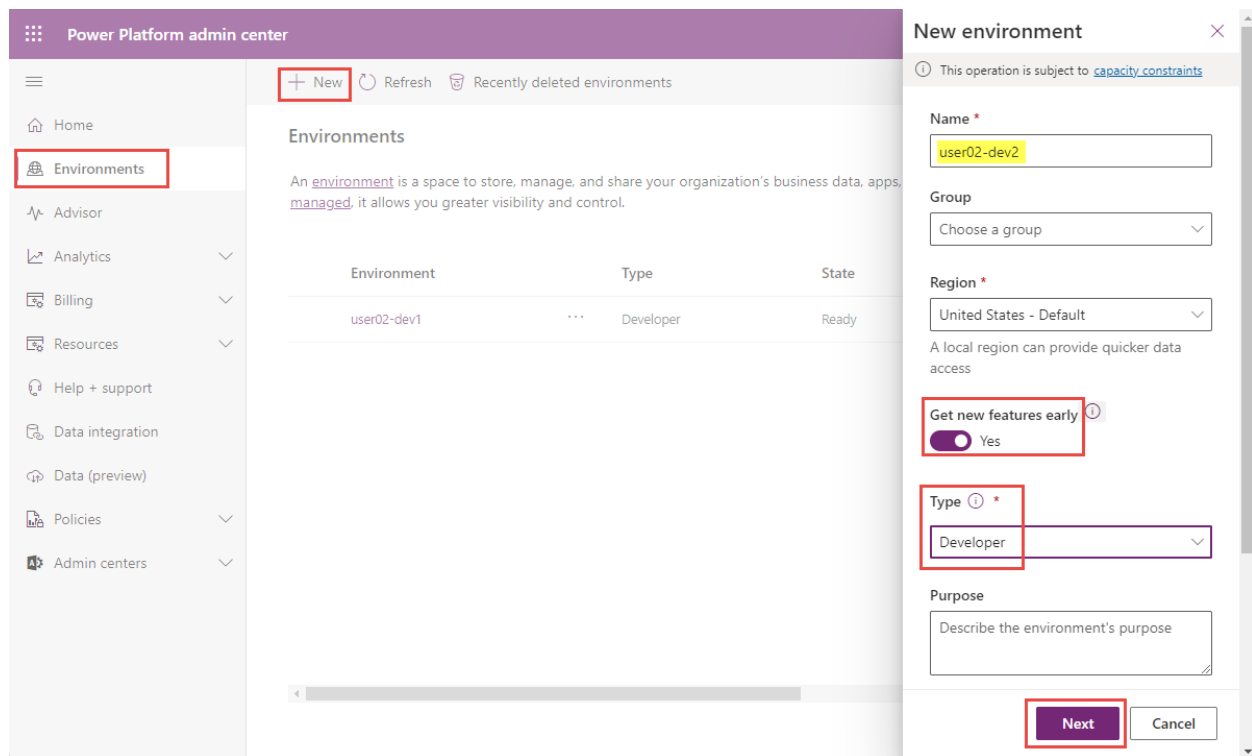
Using the left navigation, switch to the **Objects** panel, select your environment variable, then click **Edit** to view it. Confirm that the description is consistent with the value you checked into source control.



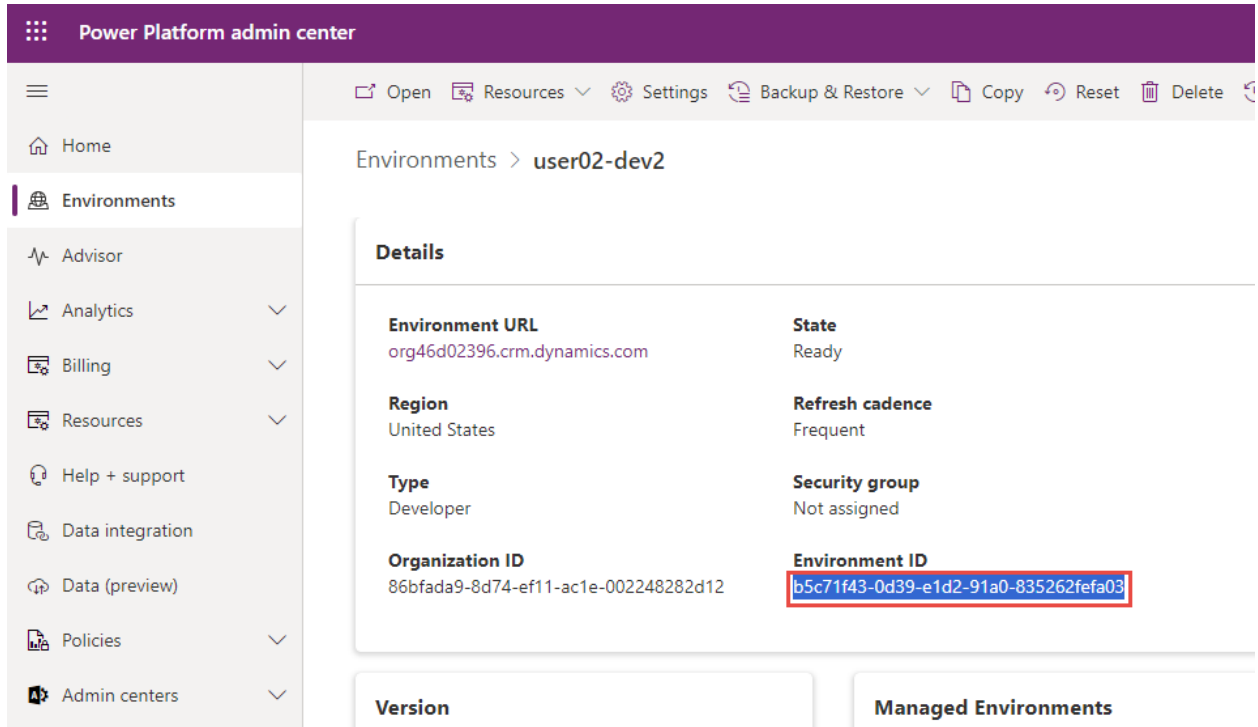
Task 3

This task will use source control integration to enable development across two environments, providing a level of isolation for makers.

This task will require that you have a second development environment. As per the instructions in Lab 1, if you have not already created one, create a second development environment. You can do this by clicking the gear icon in the maker portal and selecting **Admin Center**, then on the power platform admin center page, click **Environments** in the left navigation and then **+New**. Enter a unique name for this environment (please use your username as a prefix. You **MUST** select **Get new features early** and select the **Developer** type. Click **Next**, then **Save** to create the environment.



There is some caching in the maker portal, so let's get the environment id from the admin center by selecting your environment once it is created, then copying the environment ID from that page. You may have to refresh the admin center a couple of times as the environment is created in the background.

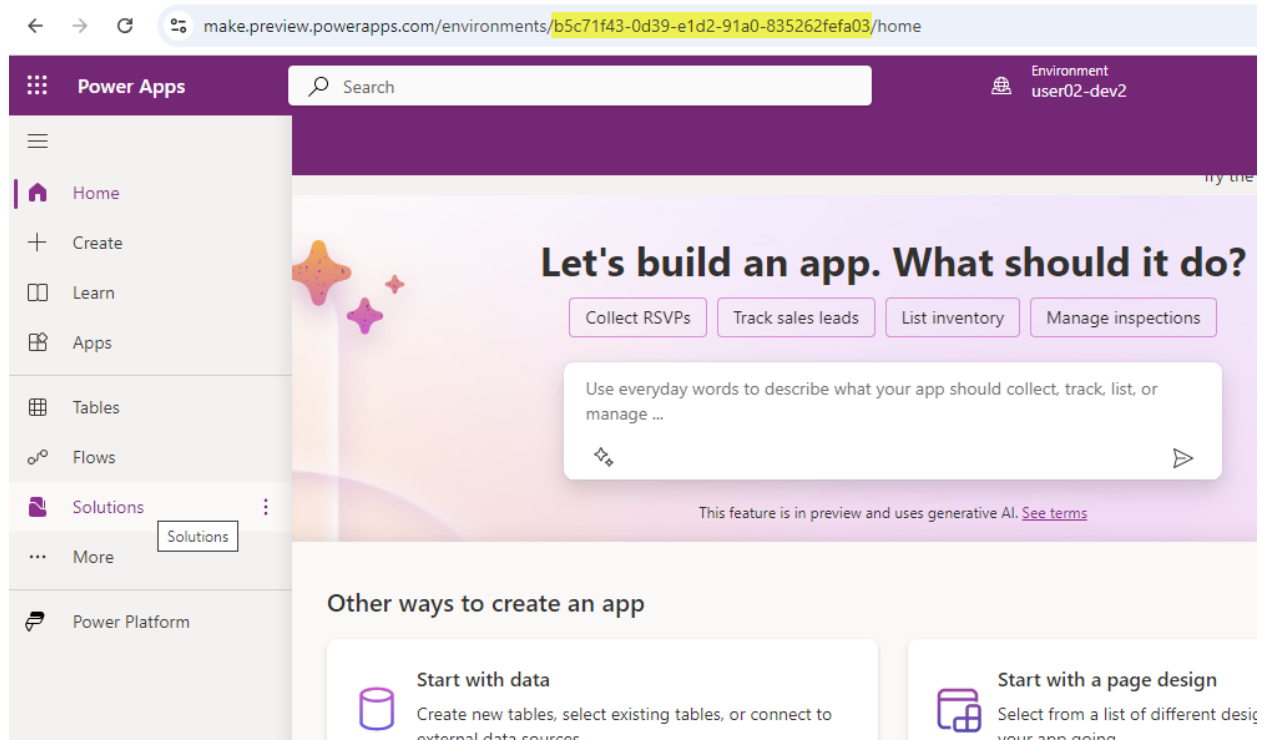


The screenshot shows the Power Platform admin center interface. On the left is a navigation pane with options: Home, Environments (selected), Advisor, Analytics, Billing, Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main content area shows the breadcrumb 'Environments > user02-dev2'. Below this is a 'Details' section with a table of environment properties:

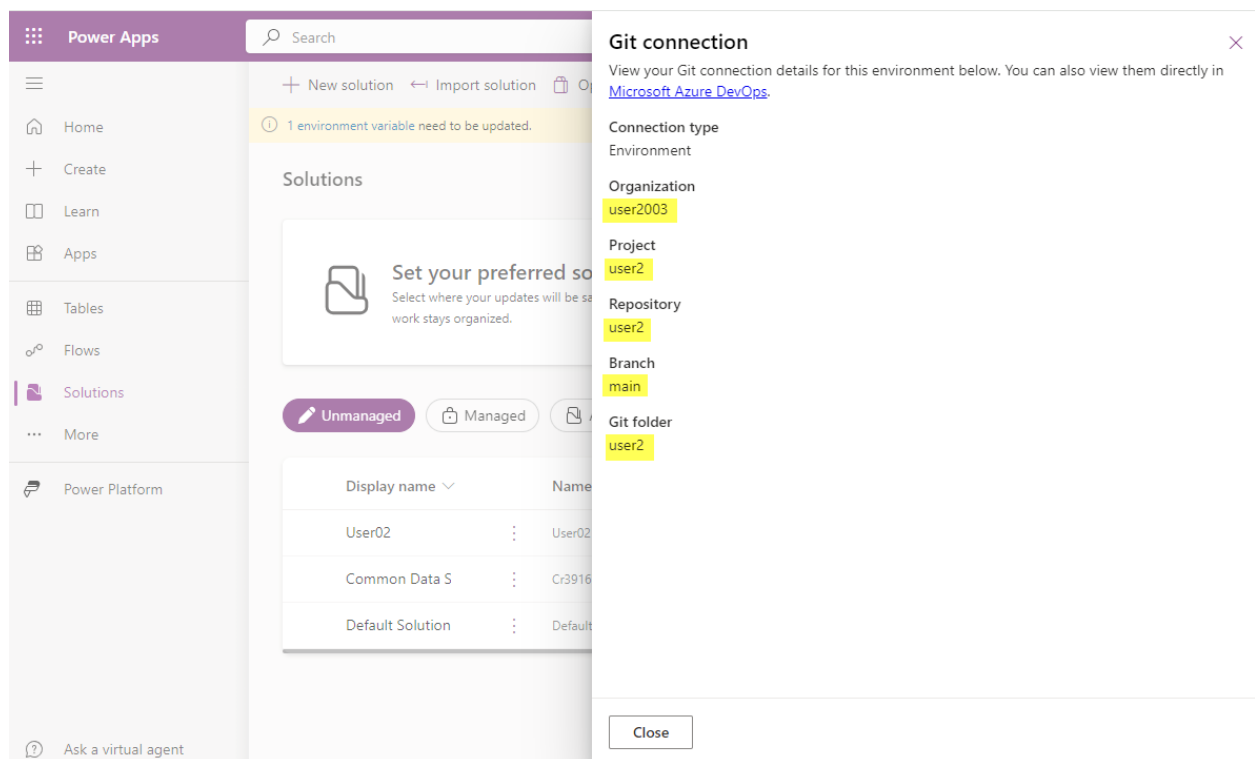
Details	
Environment URL	State
org46d02396.crm.dynamics.com	Ready
Region	Refresh cadence
United States	Frequent
Type	Security group
Developer	Not assigned
Organization ID	Environment ID
86bfada9-8d74-ef11-ac1e-002248282d12	b5c71f43-0d39-e1d2-91a0-835262fefa03

At the bottom of the details section are two tabs: 'Version' and 'Managed Environments'.

Switch back to the PowerApps maker portal and paste in your environment ID into your url and press enter. The maker will redirect you to the home page for that environment and you will now see it in the environment dropdown. This process is only required to immediately use an environment that was just created.



We need to connect the environment to the same source location. It is probably a good idea to duplicate this tab and select your first development environment. From there you can then click **Solutions**, then **Git Connection** to view the current settings.



Switch back to the tab for your second development environment, select **Solutions** and then click **Connect to Git**. In the connection dialog, select the same connection type (environment), organization, project, repository, branch, and enter the same folder name.

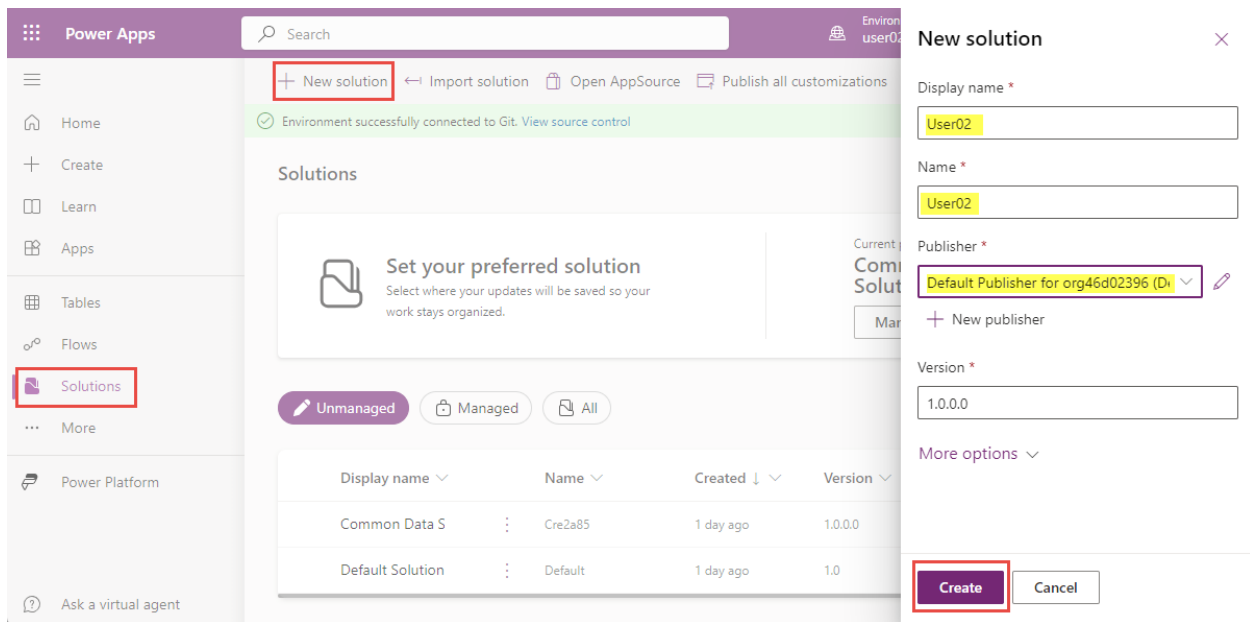
Please double check ALL of the values as the present version of our feature does not have the ability to disconnect from Git or to reconnect to a different location. If you make a mistake, you will have to delete your environment and recreate it.

The screenshot shows the 'Connect to Git' dialog box in the Power Apps interface. The dialog is titled 'Connect to Git' and has a close button (X) in the top right corner. It contains the following fields and options:

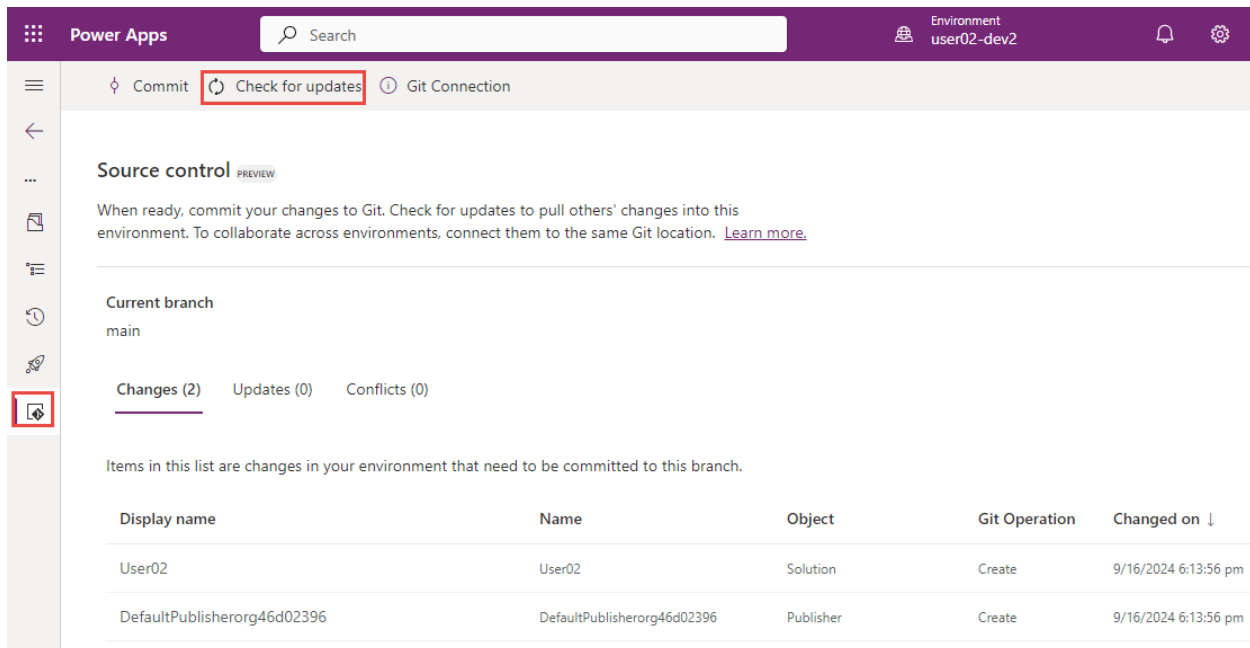
- Connection type ***: A radio button selection with 'Environment' selected and 'Solution' as an alternative.
- Organization ***: A dropdown menu showing 'user2003'.
- Project ***: A dropdown menu showing 'user2'.
- Repository ***: A dropdown menu showing 'user2'.
- Branch ***: A dropdown menu showing 'main'.
- Git folder ***: A text input field containing 'user2'.
- Buttons**: 'Connect' and 'Cancel' buttons at the bottom.

Red boxes highlight the 'Connection type', 'Organization', 'Project', 'Repository', 'Branch', 'Git folder', and 'Connect' fields.

The system will only synchronize existing solutions in the environment, so we need to bootstrap the sync process by either importing a fresh solution that was exported from the other environment, or simply create a new solution with the same unique name. Switch to the Solutions area using the left navigation and click **+ New Solution** from the menu bar. Enter the same Name of the solution that you used in your first development environment. If you were following the instructions closely, it would be your username. You can switch to the appropriate tab and validate that name if you need to. You can simply use the default publisher for your organization, or create a custom publisher that is the same as your other solution and then click **Create** to create the solution.



Once the solution is created, it will be available for synchronizing with your source repository. When the solution is created, switch to the source code tab in the left navigation. You will see that your solution and publisher are there. You don't want to check in the solution in its current state because it is empty. Click the **Check for updates** button and you will see the system detect a conflict.



Select the **Conflicts** tab, then select the solution record from that list. Click the **Accept Incoming Changes** menu option to choose to accept the solution file from your source repository.

The screenshot shows the Power Apps Source Control interface. At the top, there's a purple header with 'Power Apps' and a search bar. Below the header, a command bar contains 'Keep Current Changes', 'Accept Incoming Changes' (highlighted with a red box), 'Check for updates', and 'Git Connection'. A green notification bar says 'Update Successful.' Below that, a red warning bar states 'You have active conflicts. Resolve them before committing or pulling changes.'

The main content area is titled 'Source control' with a 'PREVIEW' tag. It includes instructions: 'When ready, commit your changes to Git. Check for updates to pull others' changes into this environment. To collaborate across environments, connect them to the same Git location. [Learn more.](#)'

Under 'Current branch', it shows 'main'. Below that, there are three tabs: 'Changes (1)', 'Updates (2)', and 'Conflicts (1)' (highlighted with a red box). The text below the tabs says: 'These objects have conflicting changes. Resolve conflicts by selecting which version to keep.'

A table lists the conflicting items:

Display name	Name	Object	Changed on ↓
User02	User02	Solution	9/16/2024 6:17:15 pm

Confirm your selection in the confirmation dialog.

Confirm Accept Incoming Changes?

Once submitted, this action cannot be undone.

After this selection is saved, this item will move from the **Conflicts** list to the **Updates** list in source control, where you will need to pull the object.

☐ Don't show this again

Ok, continue

Cancel

Switch to the **Updates** tab and review the changes. You should see your solution, publisher and environment variable component as available. Click the **Pull** button in the command bar to sync these into your environment.

Power Apps

Search

Environment user02-dev2

Pull Check for updates Git Connection

Source control PREVIEW

When ready, commit your changes to Git. Check for updates to pull others' changes into this environment. To collaborate across environments, connect them to the same Git location. [Learn more.](#)

Current branch
main

Changes (1) **Updates (3)** Conflicts (0)

Items that appear in this list are changes in your Git repository that need to be pulled into your environment.

Display name	Name	Object	Git Operation	Changed on ↓
User02	User02	Solution	Update	9/16/2024 6:21:25 pm
user02_EV1	user02_EV1	Environment Variable Defi...	Create	9/16/2024 6:17:14 pm
User02	User02	Publisher	Create	9/16/2024 6:17:14 pm

Switch to the **Objects** view using the left navigation and review that your solution objects are present.

Power Apps

Search

Environment user02-dev2

Objects

+ New Add existing Publish all customizations

Search

All (1)

- Apps (0)
- Cards (0)
- Chatbots (0)
- Cloud flows (0)
- Environment variables (1)
- Tables (0)

User02 > All

Display name ↑ ↓	Name ↓	Type ↓	Managed ↓
EV1	user02_EV1	Environment Vari...	No

Let's create a new object in this environment. Click **+ New | More | Environment Variable** to create a new environment variable. Create a new environment called EV2.

The screenshot shows the Power Apps interface with the 'New environment variable' dialog open. The dialog is titled 'New environment variable' and contains the following fields:

- Display name ***: EV2
- Name ***: new_ EV2
- Description**: environment variable created in dev2
- Data Type ***: Text
- Default Value**: (empty)
- Current Value**: (empty)

The 'Save' button is highlighted with a red box.

We want to show that changes can be made in either environment, so switch back to your first environment's tab in your browser and create another environment variable there, calling it EV3. If you closed that tab, you can simply select the environment from the environment list at the top of the maker portal.

The screenshot shows the Power Apps interface with the 'New environment variable' dialog open. The dialog is titled 'New environment variable' and contains the following fields:

- Display name ***: EV3
- Name ***: user02_ EV3
- Description**: environment variable created in dev1
- Data Type ***: Text
- Default Value**: (empty)
- Current Value**: (empty)

The 'Save' button is highlighted with a red box.

At this point, in the dev1 environment, you should have the original EV1 as well as EV3 in your solution and in dev2 environment you should have the original EV1 as well as EV2. In

the dev1 environment, switch to the **Source Control** tab. Review the changes and click **Commit**. Enter your commit comment and click **Commit**.

The screenshot shows the Power Apps Source Control interface. The top navigation bar includes 'Power Apps', a search bar, and the environment 'user02-dev1'. The left sidebar has a 'Commit' button highlighted with a red box. The main area displays the 'Source control' tab with a 'Commit' button highlighted. Below the 'Commit' button, there are tabs for 'Changes (2)', 'Updates (0)', and 'Conflicts (0)'. The 'Changes (2)' tab is active, showing a list of items to be committed. The 'Commit' dialog is open on the right, showing a comment field with the text 'adding EV3' and a 'Commit' button highlighted with a red box.

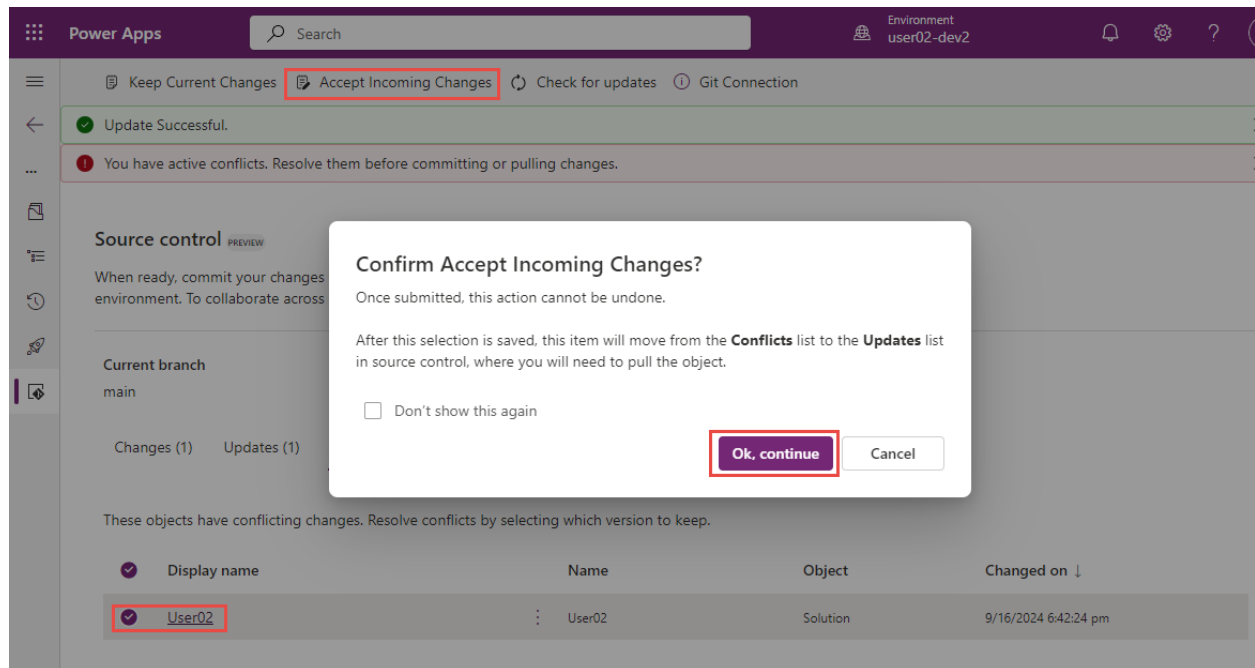
Display name	Name	Object
User02	User02	Solution
user02_EV3	user02_EV3	Environment Variable Defi...

Switch to your browser tab for your first development environment, then click the **Source Control** tab in the left navigation. Click the **Check for updates** button and then click the **Conflicts** tab once the conflict is identified.

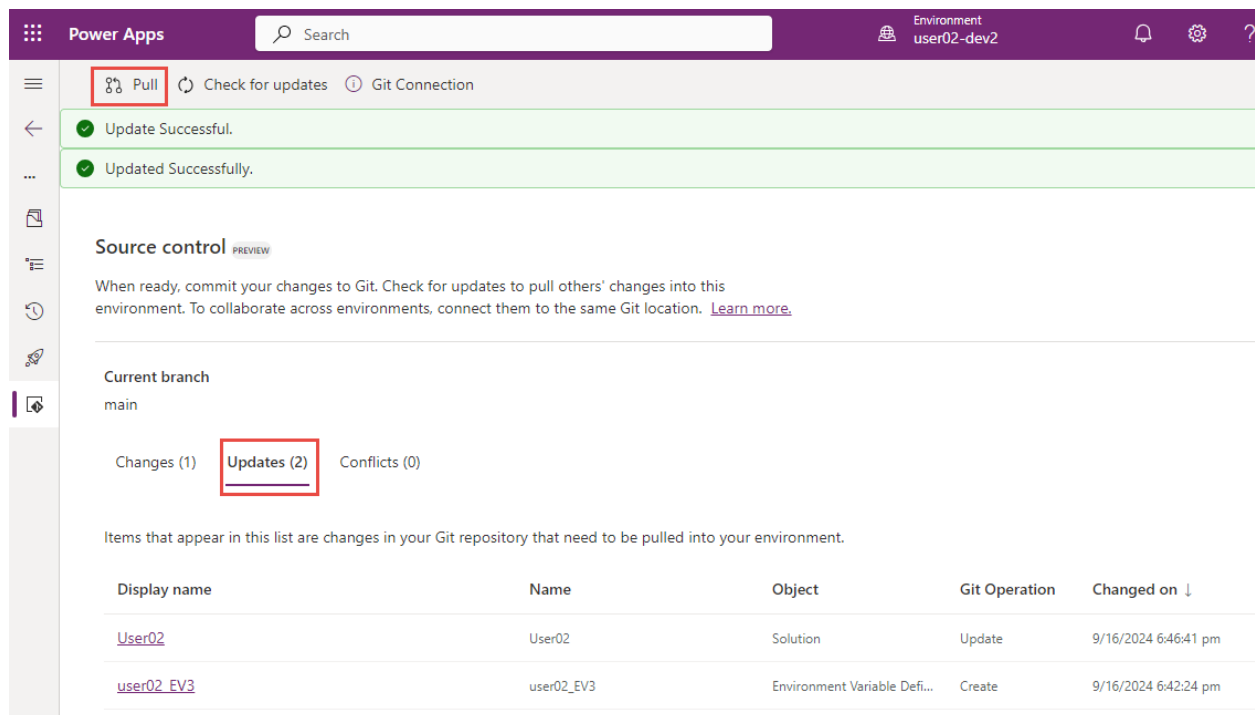
The screenshot shows the Power Apps Source Control interface. The top navigation bar includes 'Power Apps', a search bar, and the environment 'user02-dev2'. The left sidebar has a 'Check for updates' button highlighted with a red box. The main area displays the 'Source control' tab with a 'Check for updates' button highlighted. Below the 'Check for updates' button, there are tabs for 'Changes (1)', 'Updates (1)', and 'Conflicts (1)'. The 'Conflicts (1)' tab is active, showing a list of items with conflicting changes. The 'Conflicts' tab is highlighted with a red box.

Display name	Name	Object	Changed on ↓
User02	User02	Solution	9/16/2024 6:42:24 pm

Select the solution conflict and then click the **Accept Incoming Changes** button on the command bar and then confirm the choice.



As the best practice is to pull before you push, switch to the **Updates** tab, review the incoming changes and click **Pull** to bring these into your environment.



Select the **Changes** tab, review the new environment variable that is available to commit. Notice that the solution is not tagged as different. This is a small issue that we will fix shortly.

The screenshot shows the Power Apps Source Control interface. At the top, there's a purple header with 'Power Apps' and a search bar. Below the header, there's a navigation bar with 'Commit', 'Check for updates', and 'Git Connection'. The main area shows a list of updates: 'Update Successful.', 'Updated Successfully.', and 'Pull Successful.'. Below this, there's a section titled 'Source control' with a 'PREVIEW' tag. It contains instructions on how to use source control. The 'Current branch' is 'main'. The 'Changes' tab is selected, showing 'Changes (1)', 'Updates (0)', and 'Conflicts (0)'. Below this, there's a table of changes:

Display name	Name	Object	Git Operation	Changed on ↓
new_EV2	new_EV2	Environment Variable Defi...	Create	9/16/2024 6:48:40 pm

To fix this issue, we must change the solution. The simplest thing is to remove and re-add the component to the solution, which will mark the solution file as dirty. Switch to the objects tab and confirm that this environment has all three environment variables.

The screenshot shows the Power Apps Objects interface. At the top, there's a purple header with 'Power Apps' and a search bar. Below the header, there's a navigation bar with '+ New', 'Add existing', and 'Publish all customizations'. The main area shows a list of objects under 'User02 > All'. The 'All (3)' tab is selected, showing a table of objects:

Display name ↑	Name	Type	Managed
EV1	user02_EV1	Environment Vari...	No
EV2	new_EV2	Environment Vari...	No
EV3	user02_EV3	Environment Vari...	No

Select EV2, and remove it from the solution (but don't delete it)

Power Apps

Environment user02-dev2

Objects

Search

Search

Environment variables (3)

User02 > All

Display name	Name	Type	Managed	Customized	Last modified
EV1	user02_EV1	Environment Variable	No	No	12/1/2020 12:00 PM
EV2	new_EV2	Environment Variable	No	No	12/1/2020 12:00 PM
EV3	new_EV3	Environment Variable	No	No	12/1/2020 12:00 PM

Edit

Advanced

Remove

Remove from this solution

Delete from this environment

Then select **Add Existing | More | Environment variable** and select EV2 from the list.

Add existing environment variables

Select environment variables from other solutions or environment variables that aren't in solutions yet. Adding environment variable them to Dataverse.

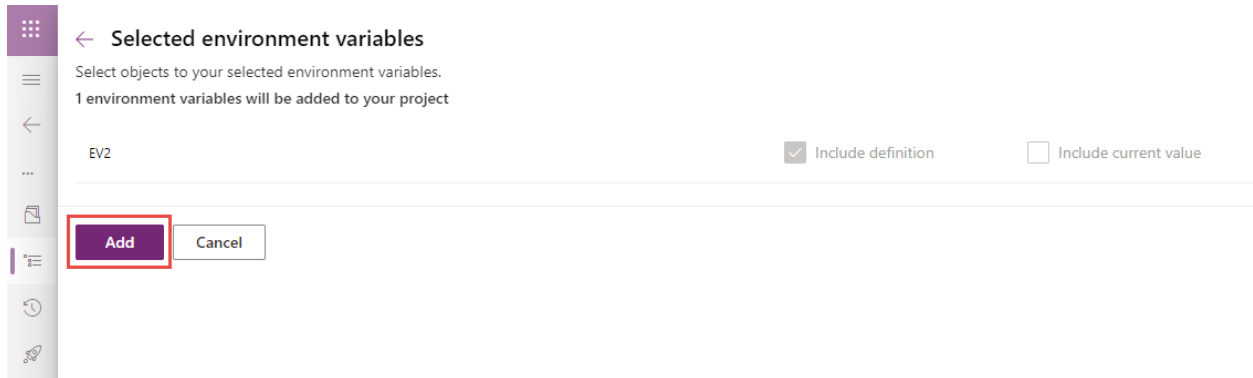
1 environment variable selected

Display name	Name
EV2	new_EV2
Should only leaf node selection be allowed	msdyn_AllowSelectLeafOnly
Should the Peek Button Be Shown	msdyn_ShouldShowPeekButton
SLA Web Client Deprecation Acknowledge	msdyn_SLAWebClientDeprecationAcknowledge

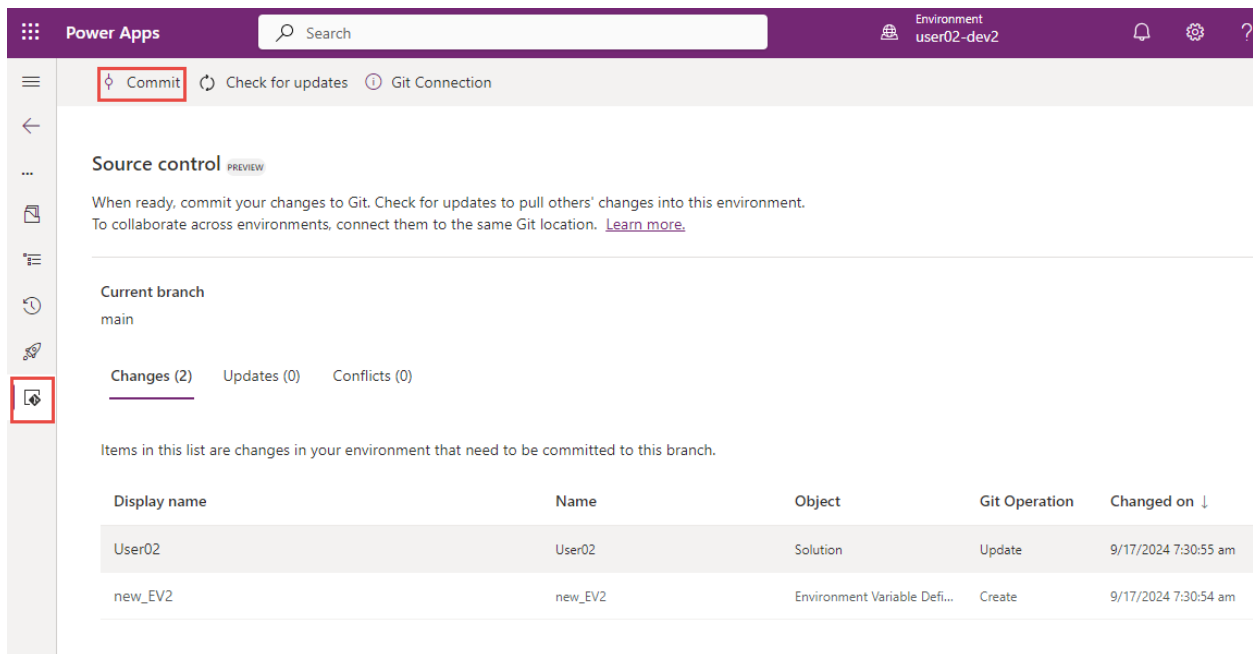
Next

Cancel

Confirm on the next page to add it back to the solution.



Switch to the **Source control** panel and review that you have the new EV2 and the solution update available to commit. Click the **Commit** button to initiate that action.



Enter a commit comment and complete the commit.

Commit

Review and write a comment about the item you are committing.

Comment *

adding EV2 to the solution

Commit to branch

main

Commit

Cancel

At this point, your second development environment is fully synchronized with source control and the changes that were made in the first development environment, but the first development environment doesn't have the new changes you just committed. To complete the process, simply switch back to the browser tab for your first development environment, navigate to the **Source Control** view, then click **Check for Updates**. The system will detect 2 available updates. Click on the **Updates** tab to review the updates, which should include the solution and EV2.

Power Apps

Search

Environment user02-dev1

Check for updates

Git Connection

Update Successful.

Source control

When ready, commit your changes to Git. Check for updates to pull others' changes into this environment. To collaborate across environments, connect them to the same Git location. [Learn more.](#)

Current branch

main

Changes (0)

Updates (2)

Conflicts (0)

Items that appear in this list are changes in your Git repository that need to be pulled into your environment.

Display name	Name	Object	Git Operation	Changed on ↓
User02	User02	Solution	Update	9/17/2024 7:35:14 am
new EV2	new_EV2	Environment Variable Defi...	Create	9/17/2024 7:35:13 am

Click the Pull button on the command bar to bring these into your environment. Then switch to the objects view and confirm all three environment variables are here too. You may have to wait for the spinner to complete as the view will refresh its contents.

The screenshot shows the Power Apps interface for environment 'user02-dev1'. The left sidebar is titled 'Objects' and contains a search bar and a list of object types: All (3), Apps (0), Cards (0), Chatbots (0), Cloud flows (0), Environment variables (3), and Tables (0). A red box highlights the 'Environment variables' icon in the sidebar. The main area displays a table of environment variables for 'User02'.

Display name ↑ ↓	Name ↓	Type ↓	Managed ↓
EV1	user02_EV1	Environment Vari...	No
EV2	new_EV2	Environment Vari...	No
EV3	user02_EV3	Environment Vari...	No

At the end of this process, you will have successfully made changes in two separate environments using your source code repository as a source of truth. The development in each environment was done in complete isolation of the other environment.