

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.

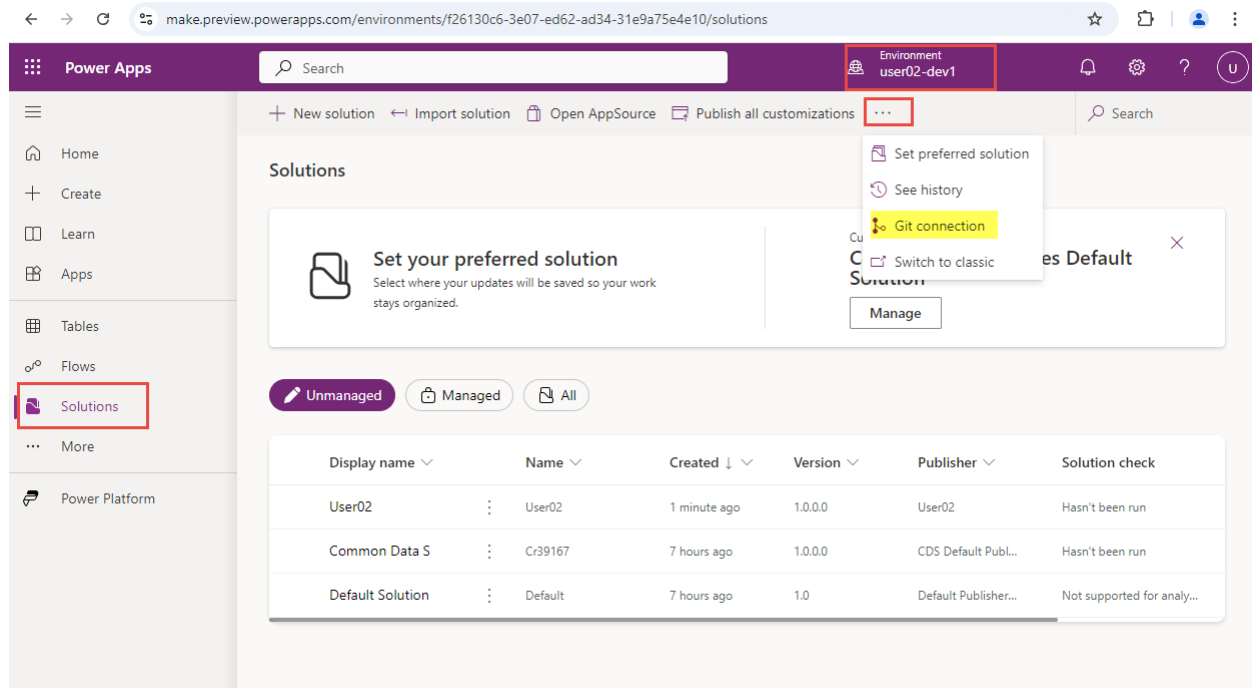
Lab 2 – Tasks

- 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

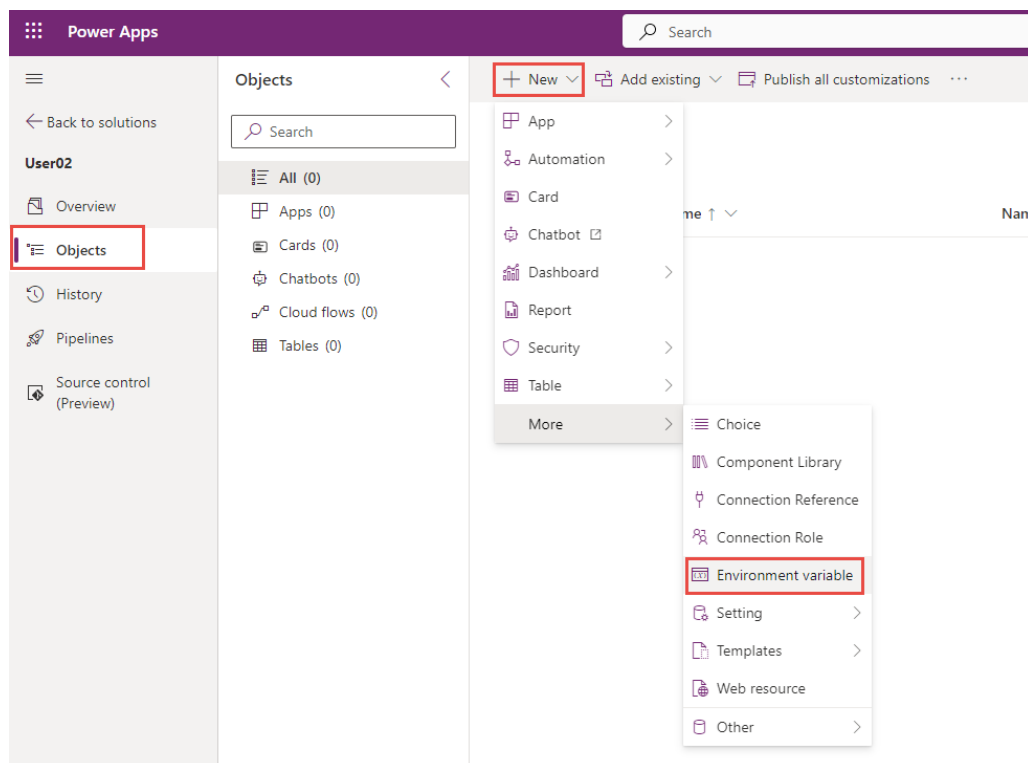
Task 1:

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

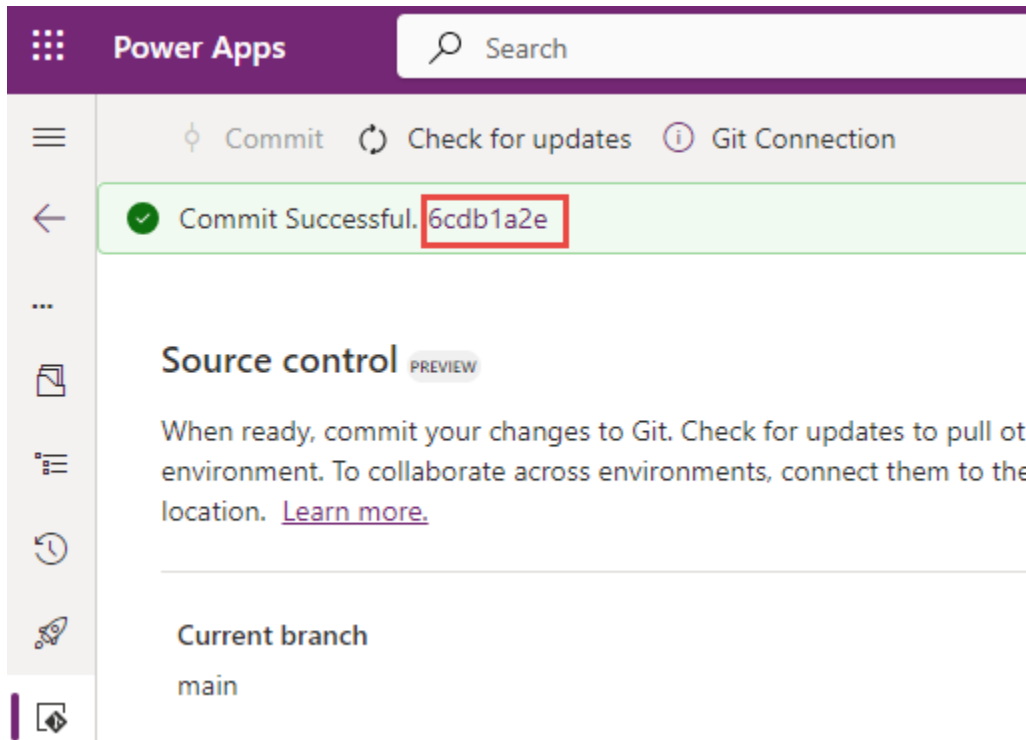
Commit to branch

main

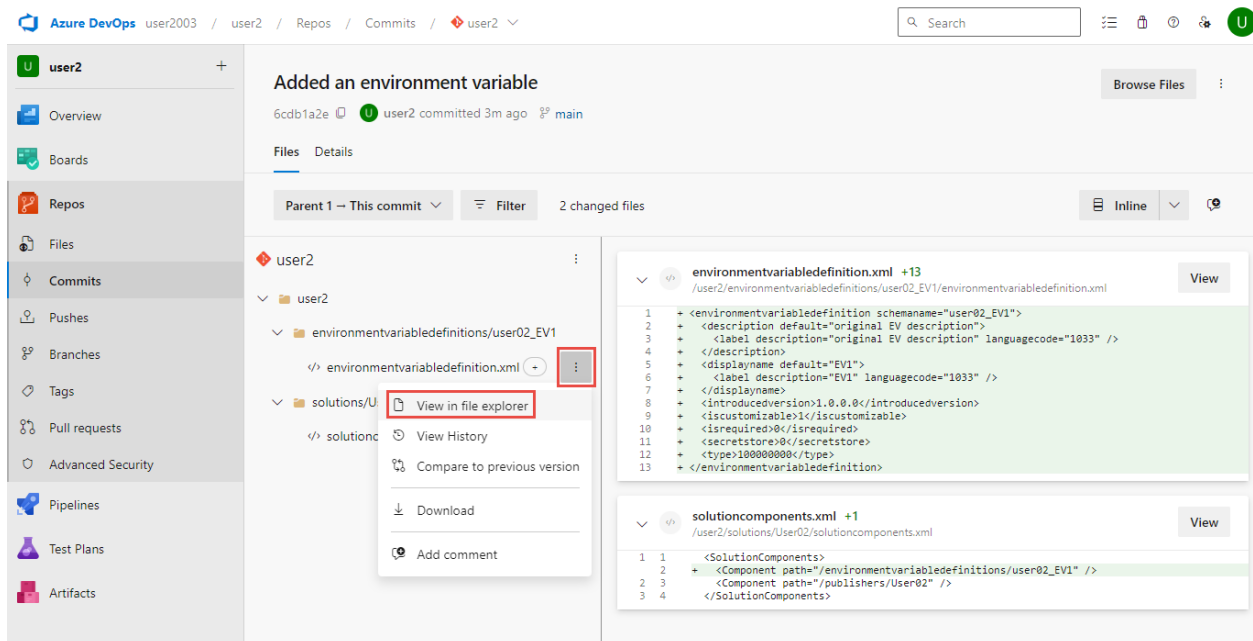
Commit

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.

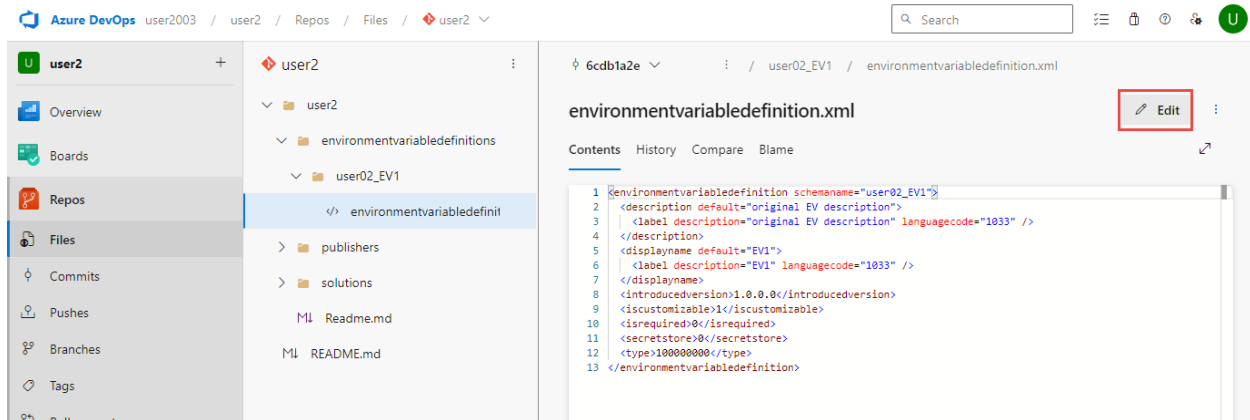


Locate the environment variable definition from within the files included in your commit. Hover over that to expose the command bar, and then select **View in file explorer** to go directly to the file.

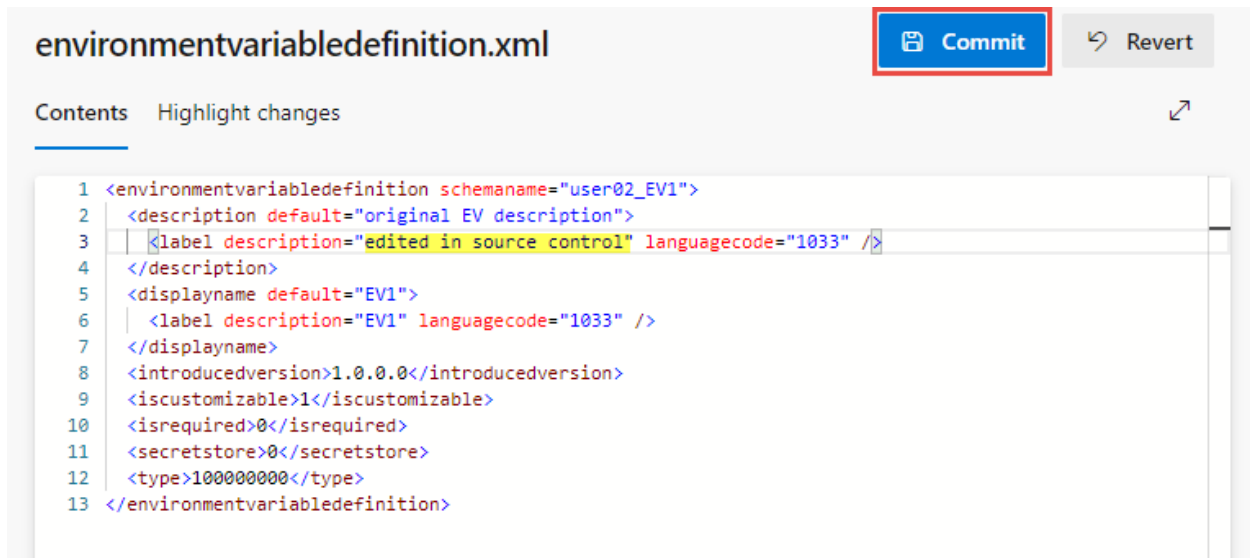


Task 2:

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

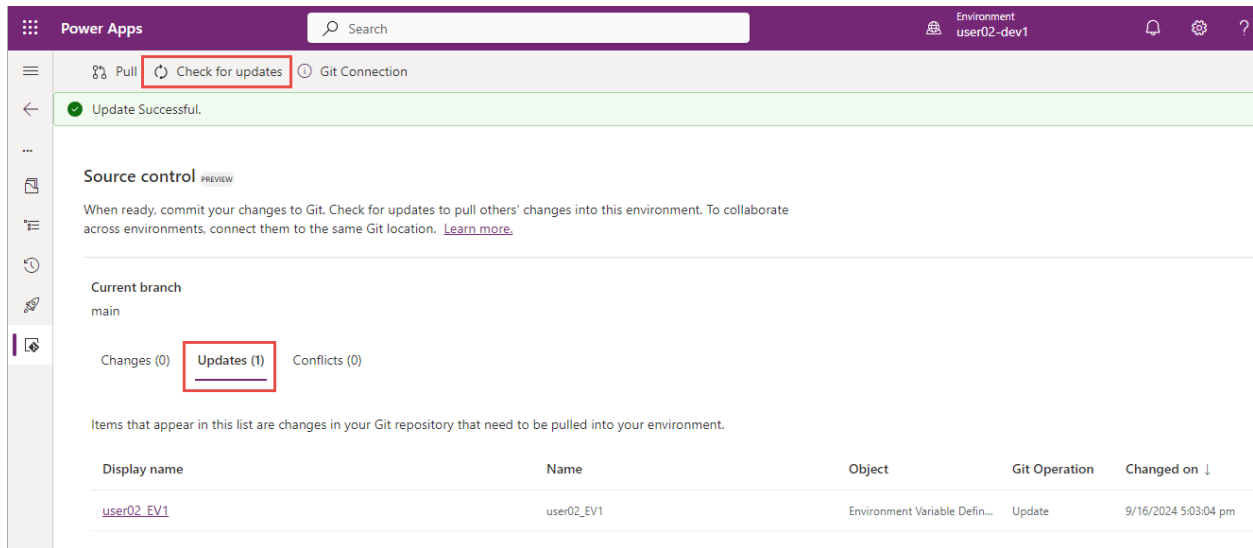


☐ Create a pull request

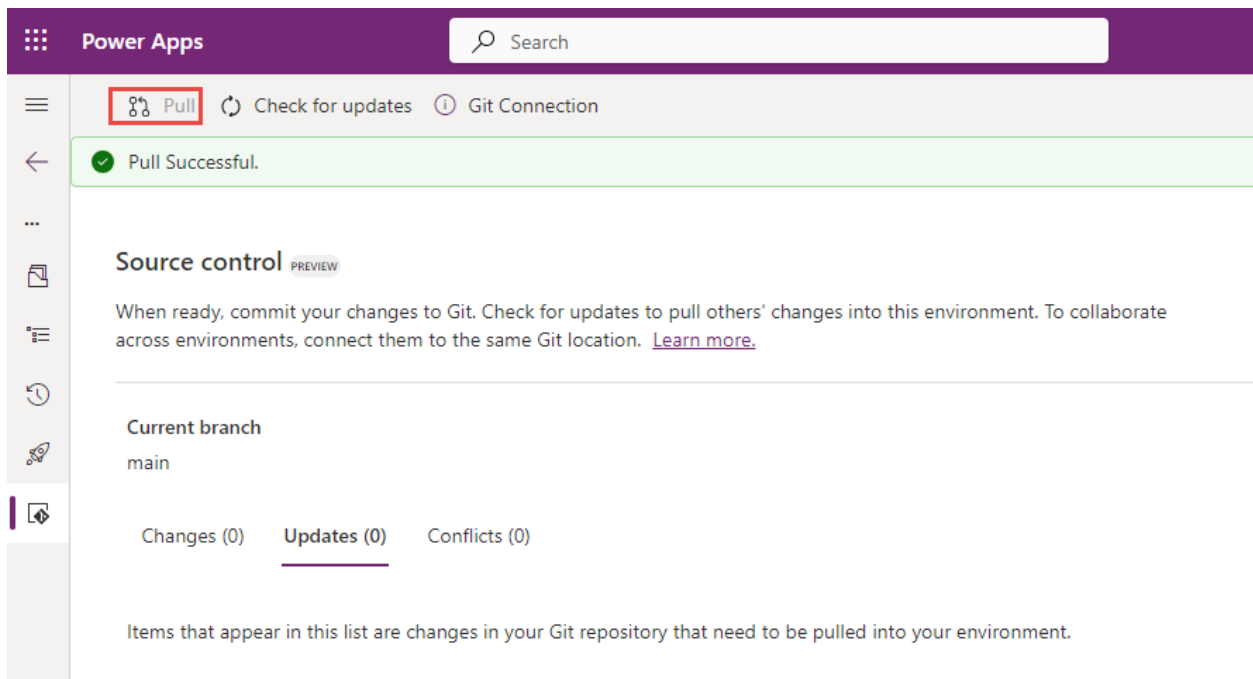
Cancel

Commit

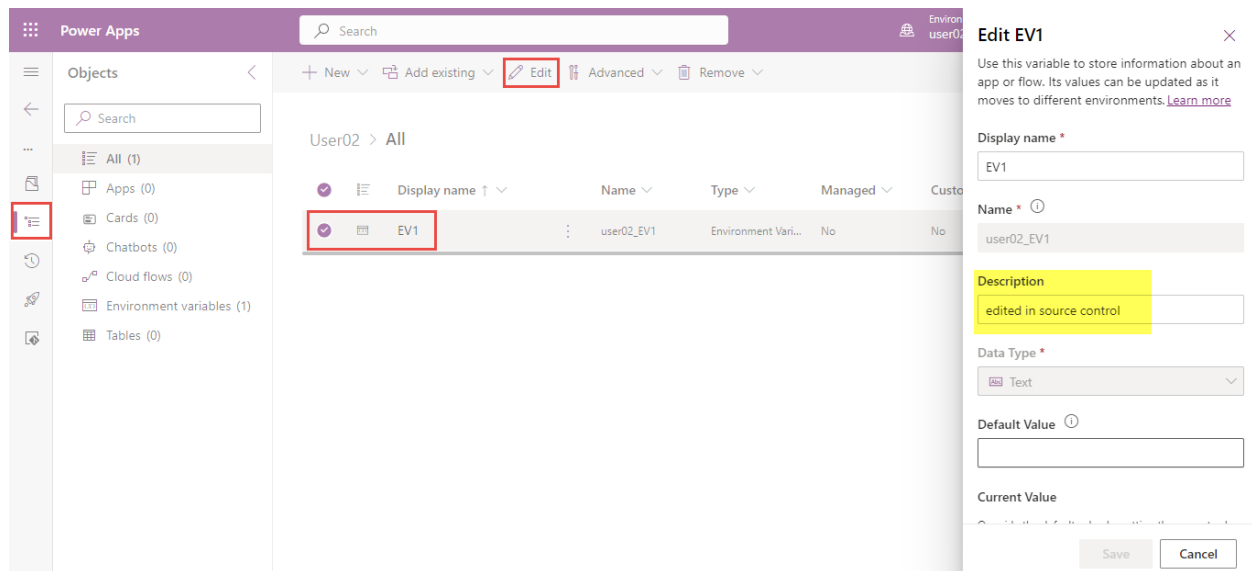
Switch back to your Power Apps tab in the browser and click **Check for updates**. You should now see one available update. Click the Updates tab to review.



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.



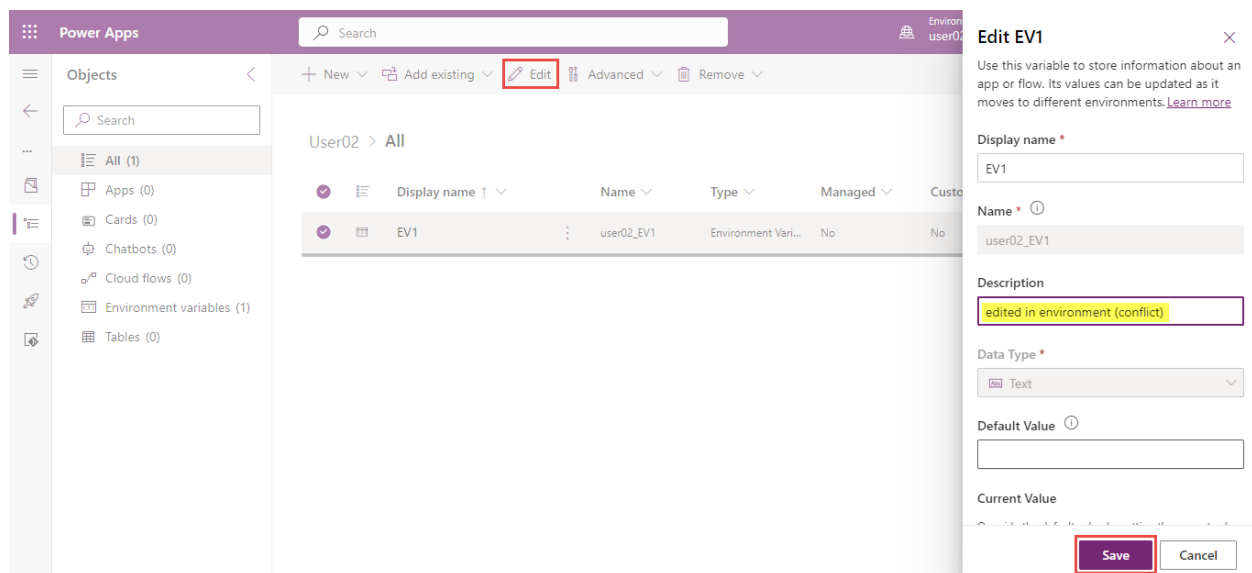
After your pull is completed, switch to the solution objects view using the left navigation, locate your environment variable and edit it.



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
- Readme.md
- 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
- Readme.md
- 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.

Power Apps

Search

Environment user02-dev1

Keep Current Changes Accept Incoming Changes **Check for updates** Git Connection

Update Successful.

You have active conflicts. Resolve them before committing or pulling changes.

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 (0) Updates (0) **Conflicts (1)**

These objects have conflicting changes. Resolve conflicts by selecting which version to keep.

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.

Power Apps

Search

Environment user02-dev1

Keep Current Changes **Accept Incoming Changes** Check for updates Git Connection

Update Successful.

You have active conflicts. Resolve them before committing or pulling changes.

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 (0) Updates (0) **Conflicts (1)**

These objects have conflicting changes. Resolve conflicts by selecting which version to keep.

Display name	Name	Object	Changed on ↓
<input checked="" type="radio"/> 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

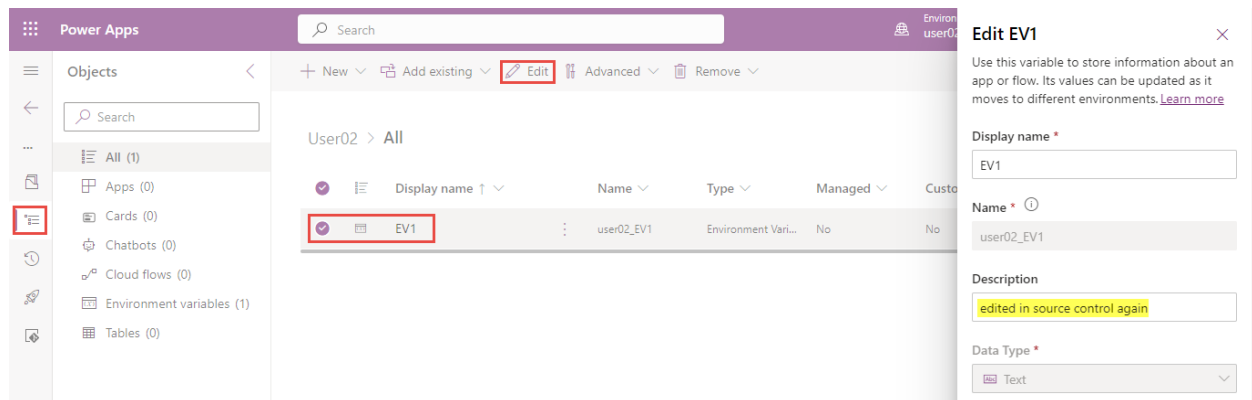
Cancel

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. Below this, there's a tab bar with 'Changes (0)', 'Updates (1)', and 'Conflicts (0)'. The 'Updates (1)' tab is selected, showing a list of updates. The first update is 'user02_EV1' with the object 'Environment Variable Defi...' and a 'Changed on' date of '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.

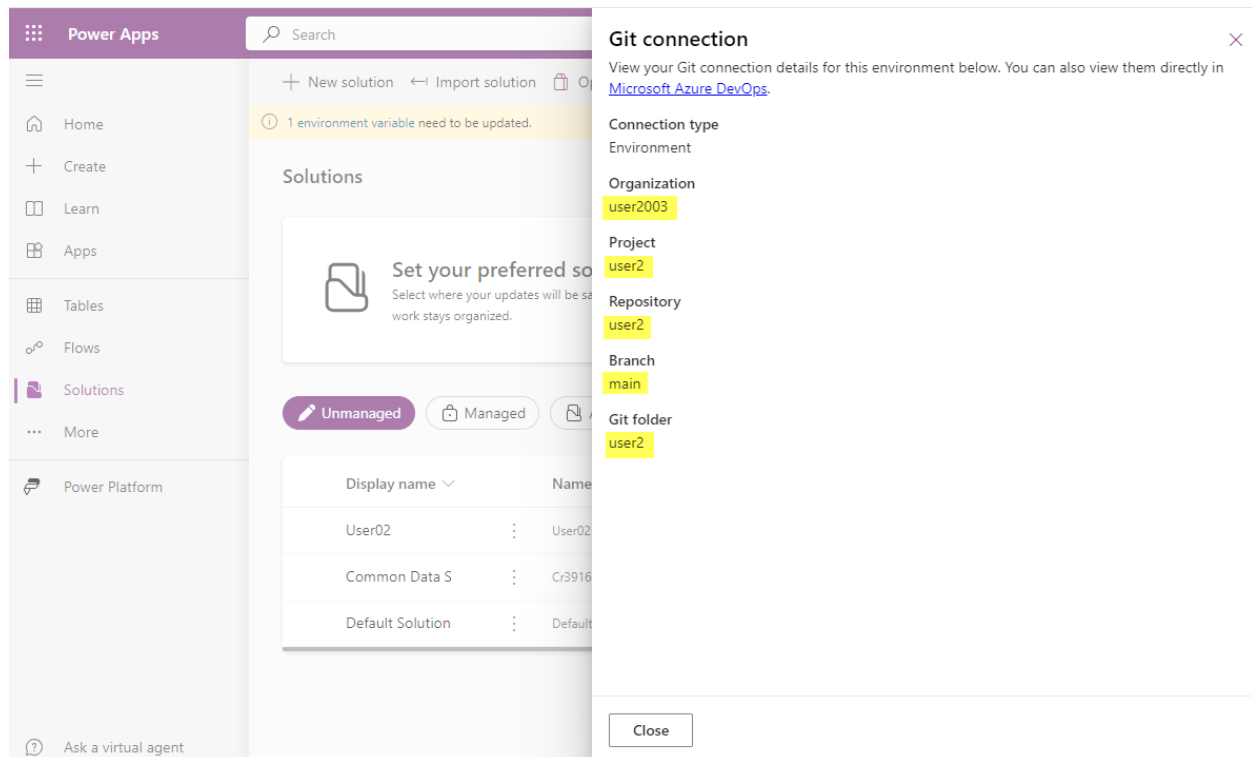


Task 3

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

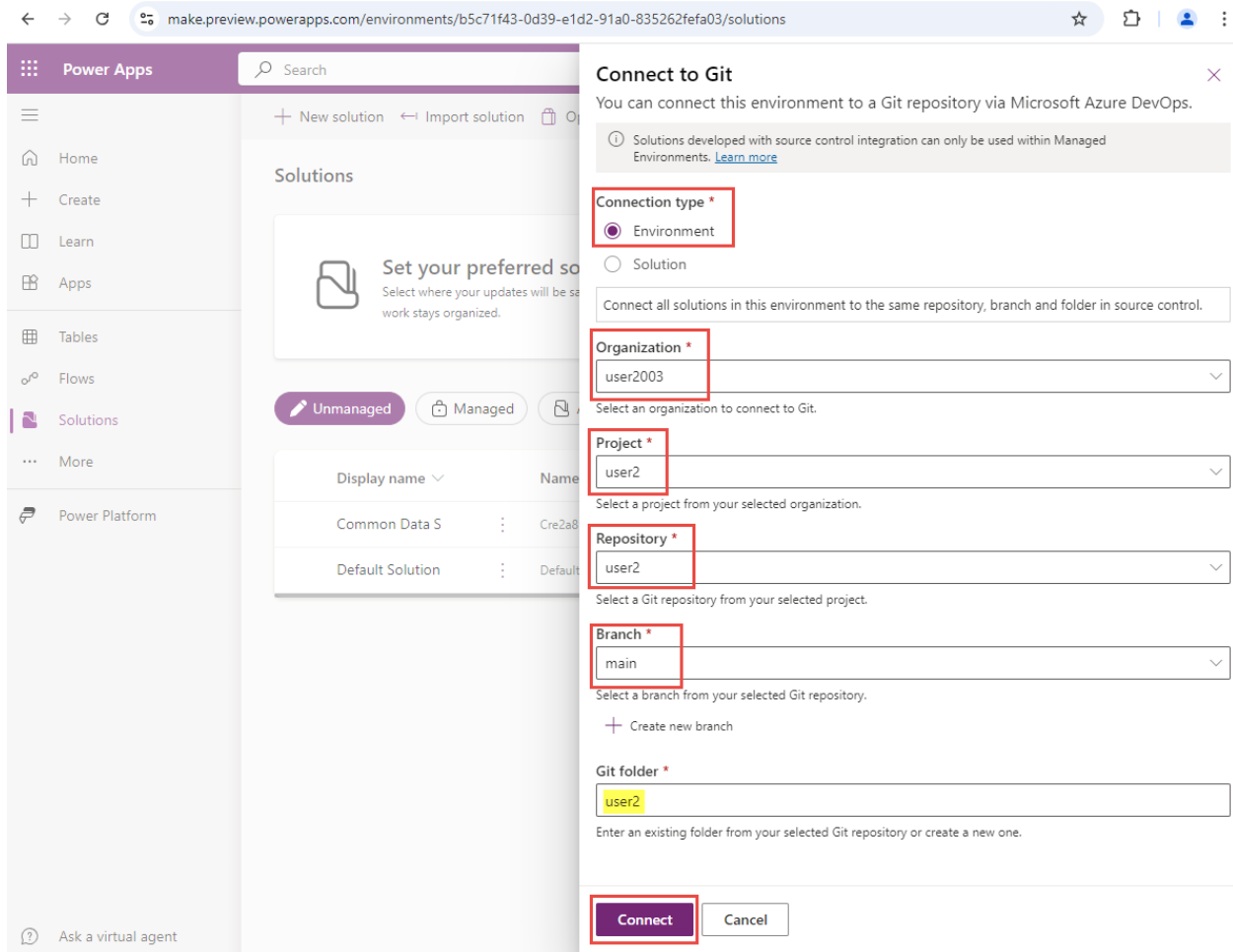
This task will require that you have a second development environment. As per the instructions in Lab 1, if you have not already created one, create a second development environment. For this lab, we recommend duplicating your tab and selecting the appropriate environment for each tab, making it easy to switch back and forth between the environments.

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.



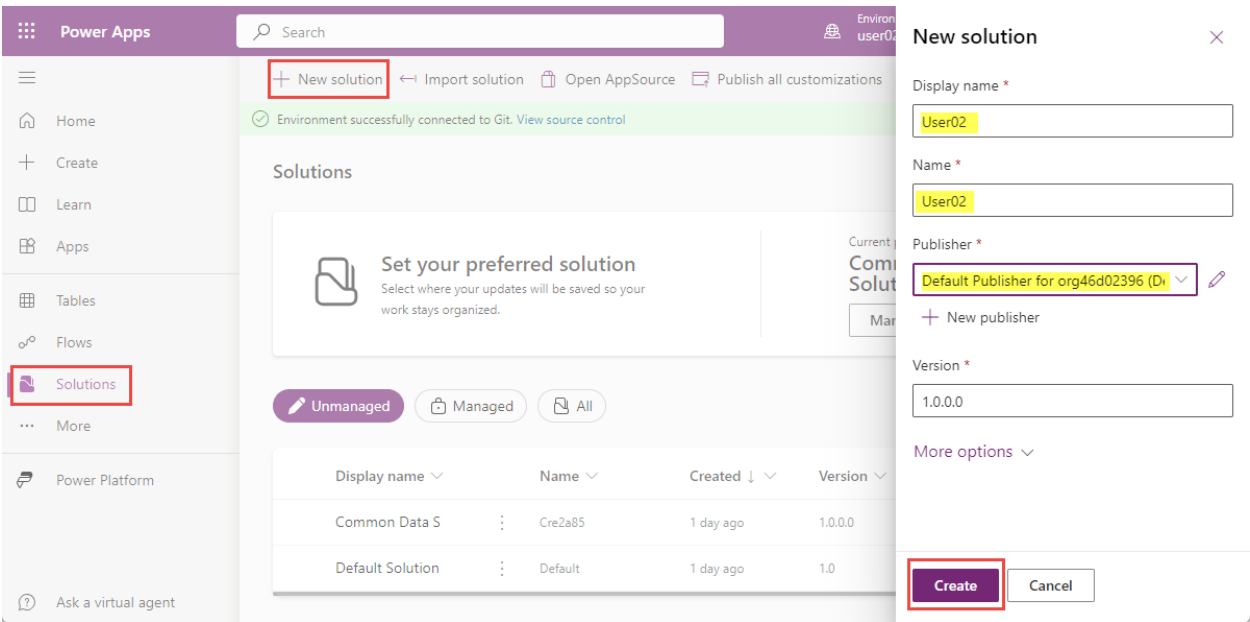
Switch back to the tab for your second development environment, select **Solutions** and then click **Connect to Git**. In the connection dialog, select the same connection type (environment), organization, project, repository, branch, and enter the same folder name.

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.

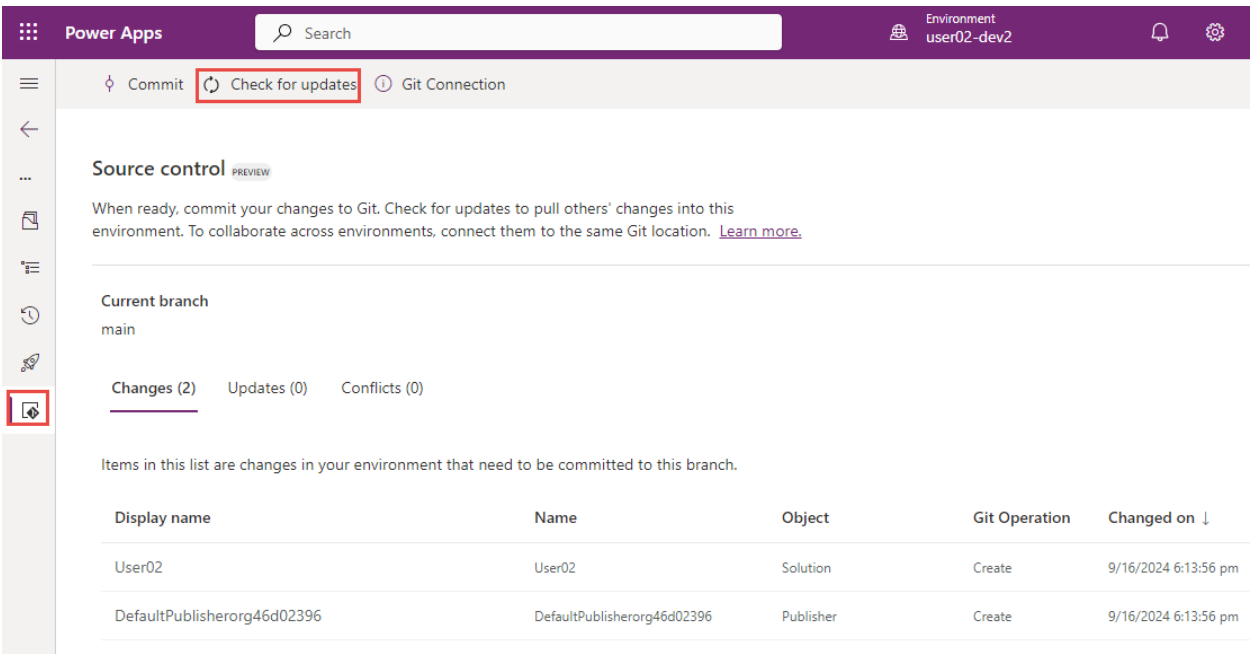


The system will only synchronize existing solutions in the environment, so we need to bootstrap the sync process by either importing a fresh solution that was exported from the other environment, or simply create a new solution with the same unique name. Switch to the Solutions area using the left navigation 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

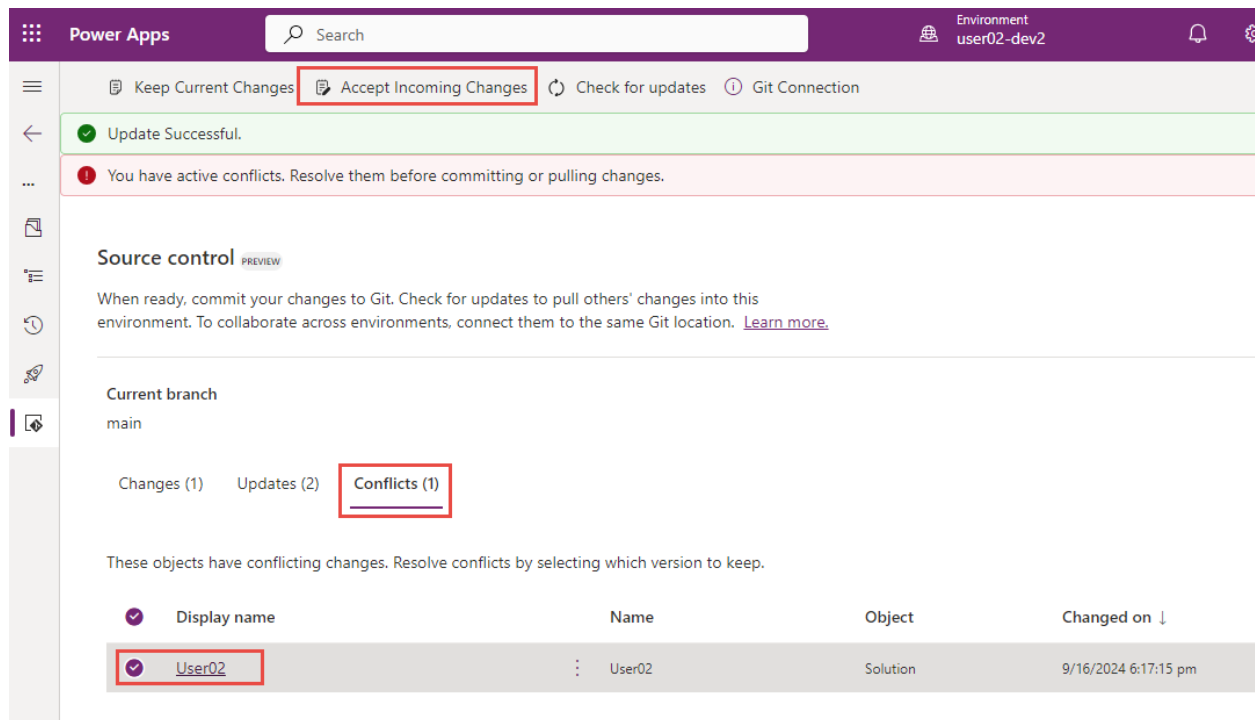
default publisher for your organization, or create a custom publisher that is the same as your other solution and then click **Create** to create the solution.



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.



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.

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

The screenshot shows the Power Apps interface with the 'New environment variable' dialog open for environment 'User02'. The dialog has 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. In the background, a table lists existing environment variables:

Display name	Name	Type
EV1	user02_EV1	Environment Vari.

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.

This screenshot is similar to the first one, but the 'New environment variable' dialog is now for environment 'User02' and the variable is named 'EV3'. The fields are:

- 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. The background table shows the same existing variable 'EV1'.

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 'Environment user02'. The left sidebar contains icons for 'Commit', 'Check for updates', 'Git Connection', and a 'Source control' icon (highlighted with a red box). The main content area is titled 'Source control' and includes a 'PREVIEW' tab. It contains instructions on committing changes to Git and a table of changes. The 'Commit' button in the top bar is also highlighted with a red box. A 'Commit' dialog is open on the right, showing a comment field with the text 'adding EV3' and a 'Commit to branch' dropdown set to 'main'. The 'Commit' button in the dialog is highlighted with a red box.

Commit

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

Comment *

adding EV3

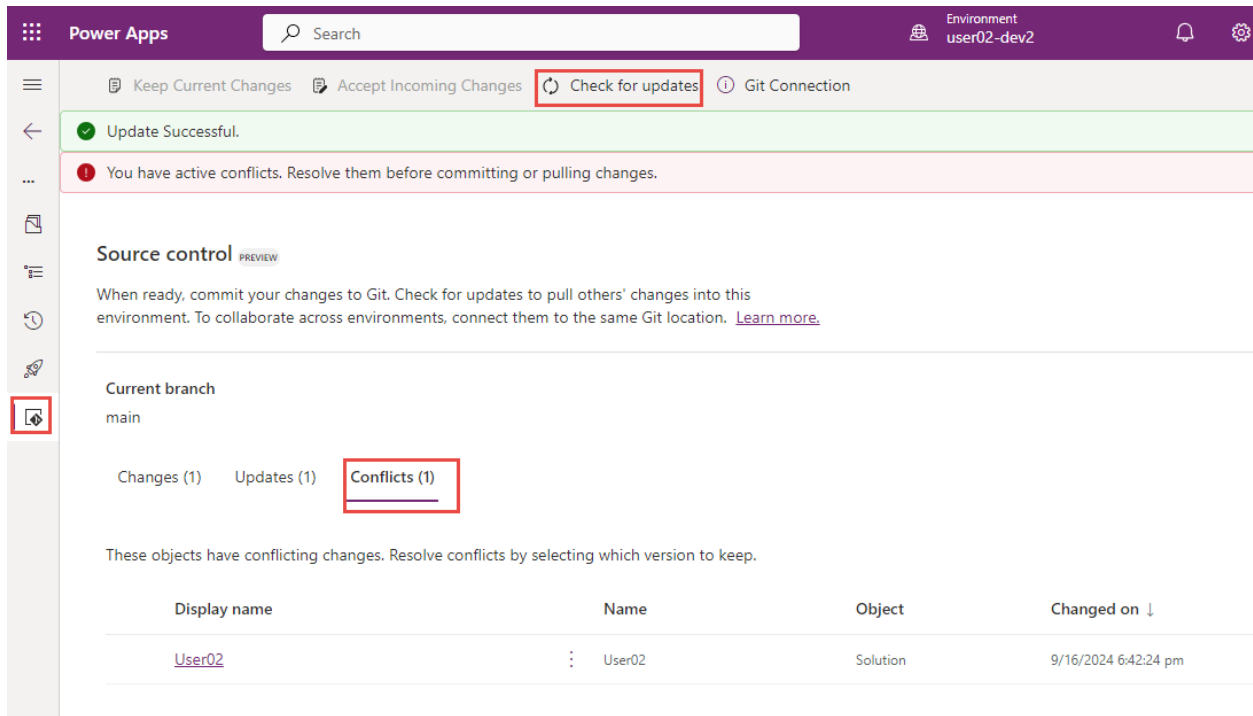
Commit to branch

main

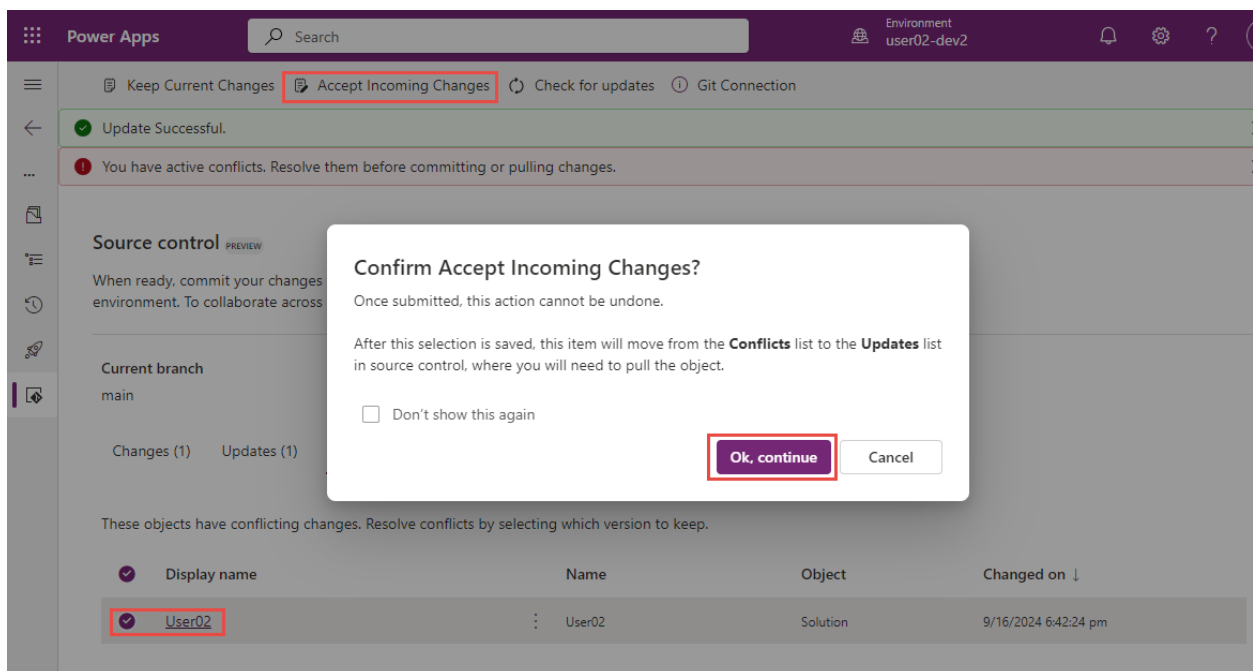
Commit Cancel

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.



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.

The screenshot shows the Power Apps Source control interface. At the top, there's a header with 'Power Apps', a search bar, and the environment 'user02-dev2'. Below the header, there's a navigation bar with 'Pull', 'Check for updates', and 'Git Connection'. The main content area shows a list of updates. The 'Updates (2)' tab is selected and highlighted with a red box. Below the tabs, there's a table of updates.

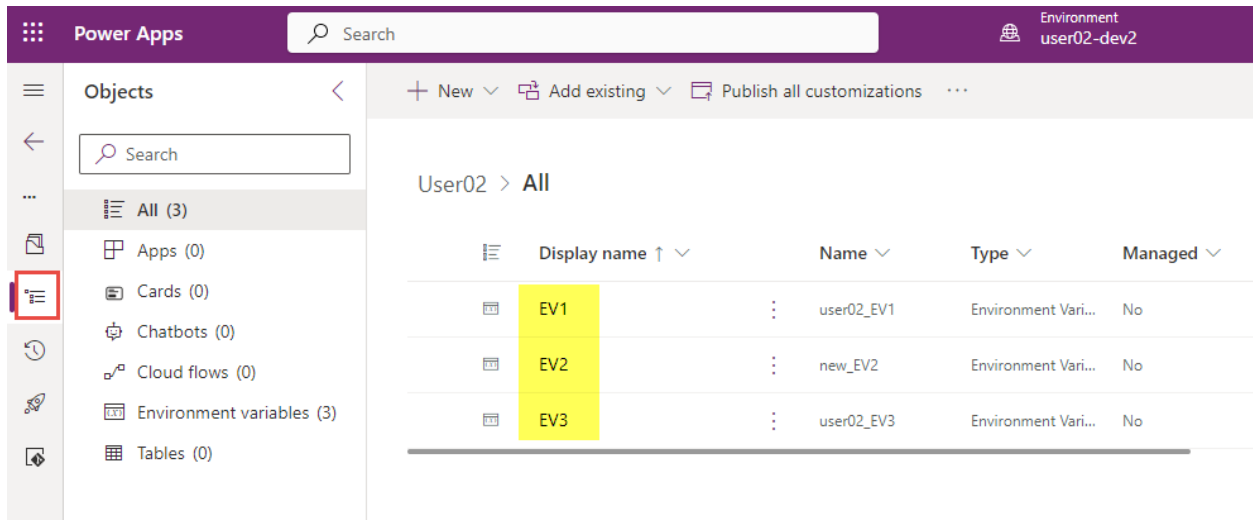
Display name	Name	Object	Git Operation	Changed on ↓
User02	User02	Solution	Update	9/16/2024 6:46:41 pm
user02_EV3	user02_EV3	Environment Variable Defi...	Create	9/16/2024 6:42:24 pm

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 header with 'Power Apps', a search bar, and the environment 'user02-dev2'. Below the header, there's a navigation bar with 'Commit', 'Check for updates', and 'Git Connection'. The main content area shows a list of changes. The 'Changes (1)' tab is selected and highlighted with a red box. Below the tabs, 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.



Power Apps Environment: user02-dev2

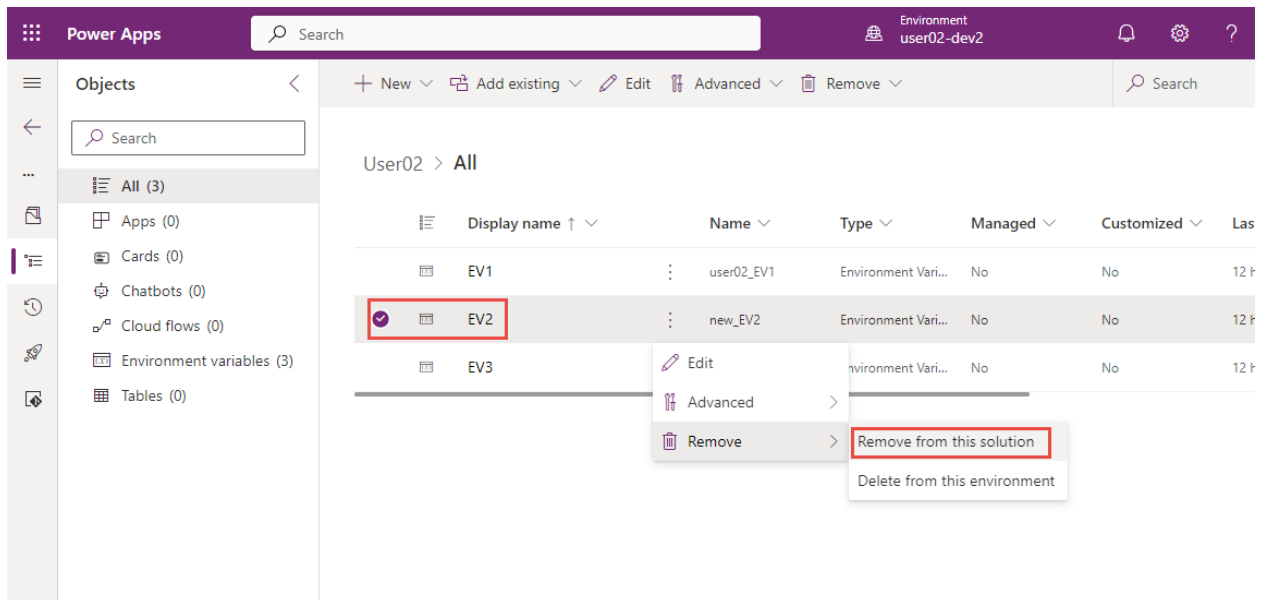
Objects Search

Environment variables (3)

User02 > All

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

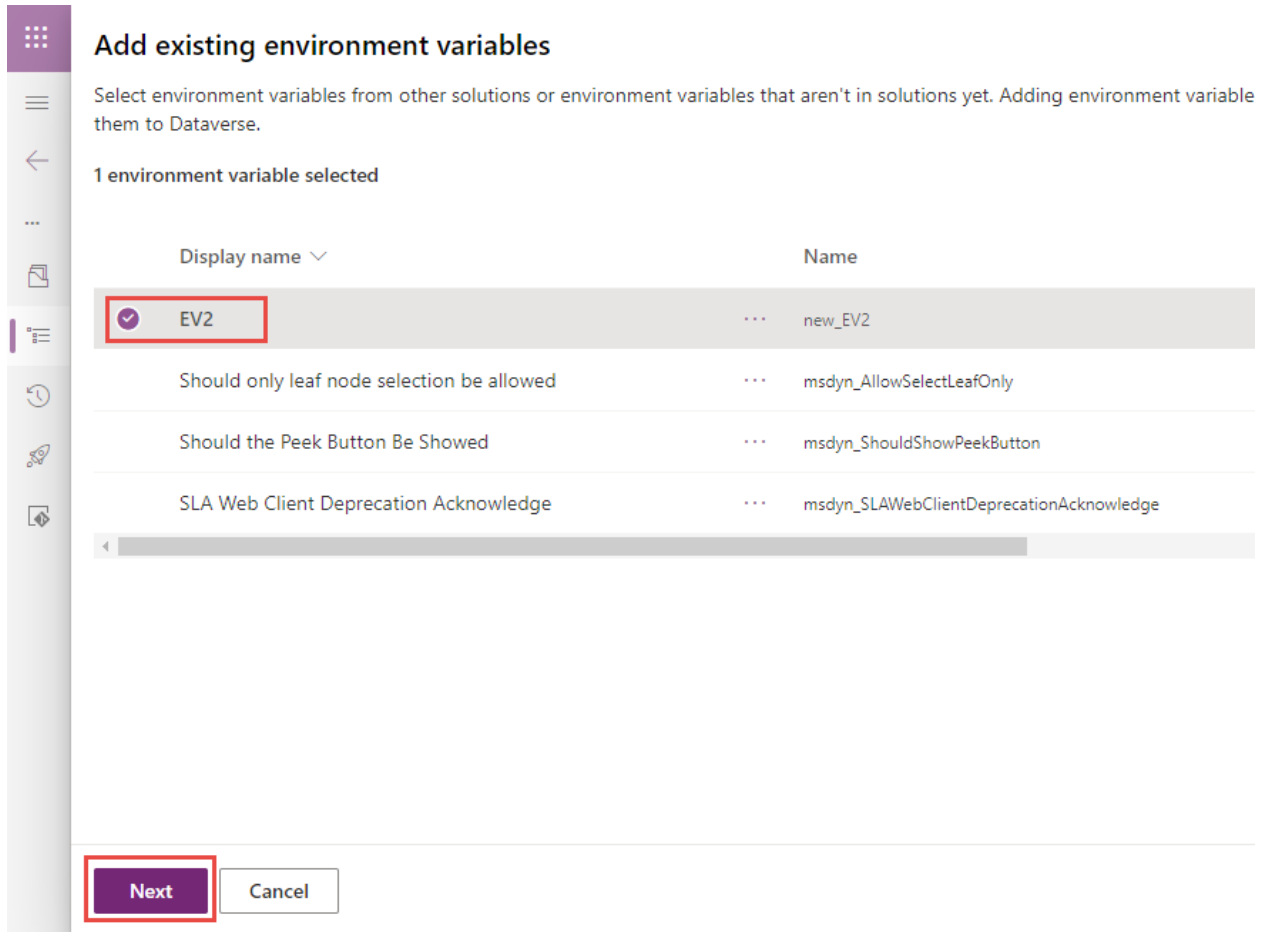
Environment variables (3)

User02 > All

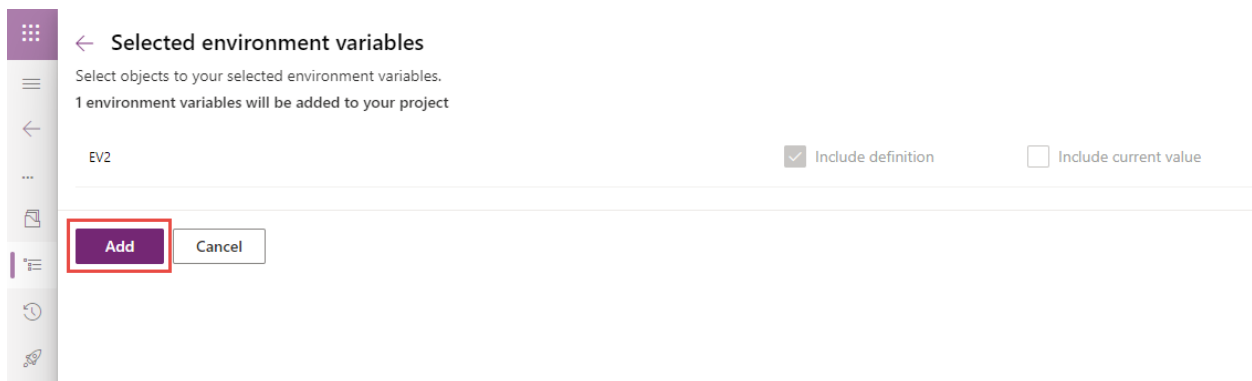
Display name ↑	Name	Type	Managed	Customized	Las
EV1	user02_EV1	Environment Vari...	No	No	12 h
✓ EV2	new_EV2	Environment Vari...	No	No	12 h
EV3	user02_EV3	Environment Vari...	No	No	12 h

Remove from this solution

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



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.

The screenshot shows the Power Apps interface with the 'Source control' panel active. The top navigation bar includes 'Power Apps', a search bar, and the environment 'user02-dev2'. The 'Commit' button is highlighted with a red box. Below the navigation bar, the 'Source control' panel displays instructions and a table of changes. The 'Current branch' is 'main'. The 'Changes (2)' tab is selected, showing two items: 'User02' (Solution, Update) and 'new_EV2' (Environment Variable Defi..., Create). Both items were changed on 9/17/2024 at 7:30:55 am and 7:30:54 am respectively. The 'Commit' button in the left sidebar is also highlighted with a red box.

Display name	Name	Object	Git Operation	Changed on ↓
User02	User02	Solution	Update	9/17/2024 7:30:55 am
new_EV2	new_EV2	Environment Variable Defi...	Create	9/17/2024 7:30:54 am

Enter a commit comment and complete the commit.

The screenshot shows a 'Commit' dialog box with a close button (X). It prompts the user to 'Review and write a comment about the item you are committing.' The 'Comment *' field contains the text 'adding EV2 to the solution'. Below the comment field, it shows 'Commit to branch' as 'main'. At the bottom, there are two buttons: 'Commit' (highlighted with a red box) and '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.

The screenshot shows the Power Apps Source control interface. At the top, there's a navigation bar with 'Pull', 'Check for updates' (highlighted with a red box), and 'Git Connection'. Below this, a green banner indicates 'Update Successful'. The main section is titled 'Source control' and includes a 'Current branch' section showing 'main'. Below that, there are three tabs: 'Changes (0)', 'Updates (2)' (highlighted with a red box), and 'Conflicts (0)'. A message states: 'Items that appear in this list are changes in your Git repository that need to be pulled into your environment.' Below this is a table with the following data:

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 Objects view. The left sidebar has a navigation menu with 'All (3)' selected. The main area displays 'User02 > All' with a table of objects. The table has columns: 'Display name', 'Name', 'Type', and 'Managed'. The data is as follows:

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.