

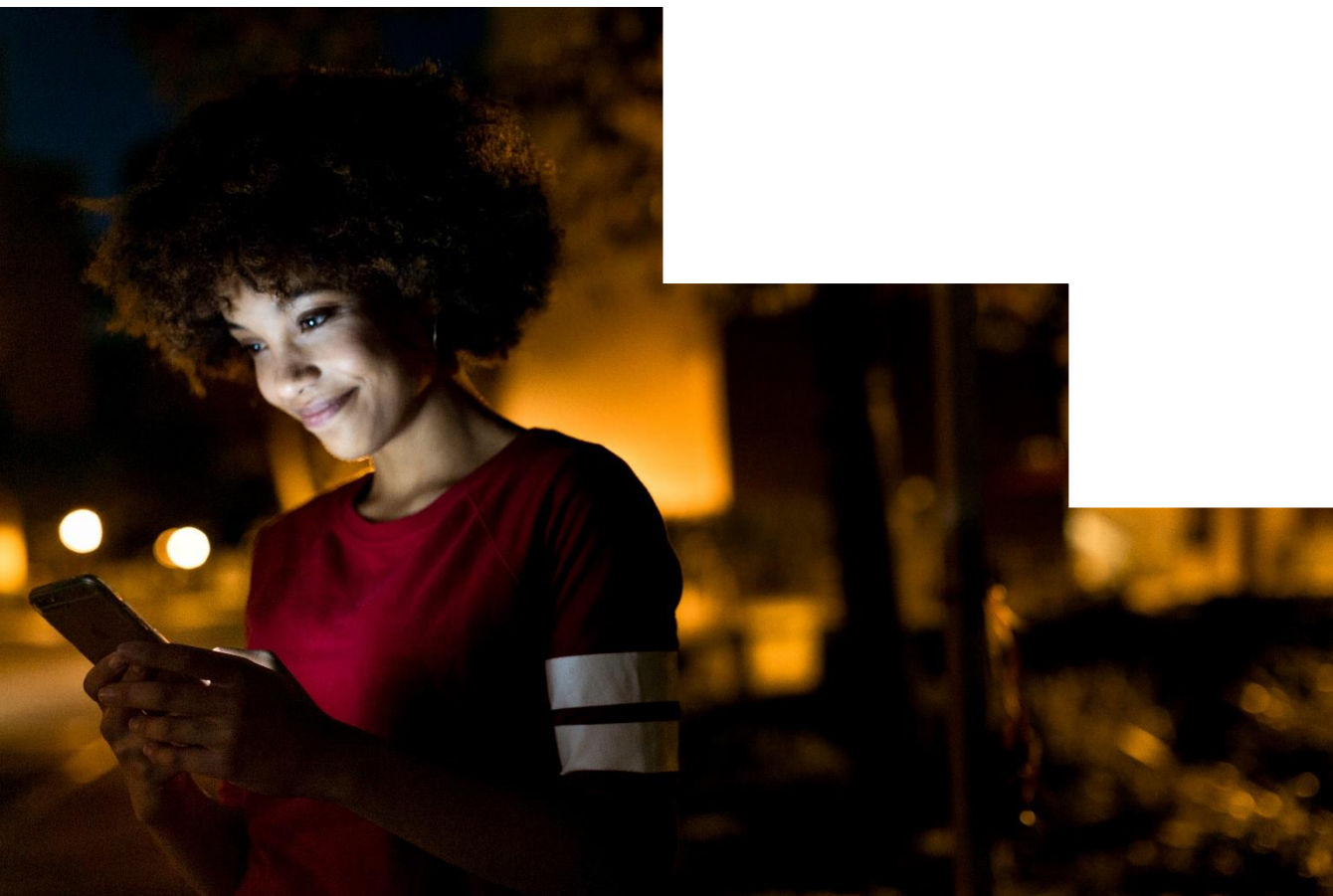


Robotic Process Automation in a Day

Lab 7 – Add AI model to process invoice forms

30 mins

October 2021



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Lab Overview

You will complete the following tasks in this lab:

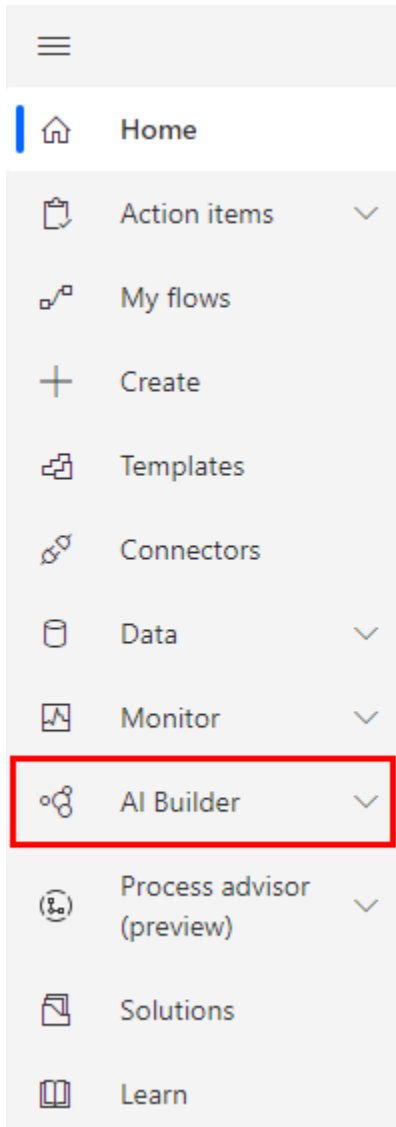
- Build a new AI model for Form Processing
- Train the new AI model to process Contoso Invoice forms
- Integrate the new AI model into the Cloud flow from Lab 6
- Perform a test run of the updated Cloud flow and associated AI Builder-based predictions

Prerequisites

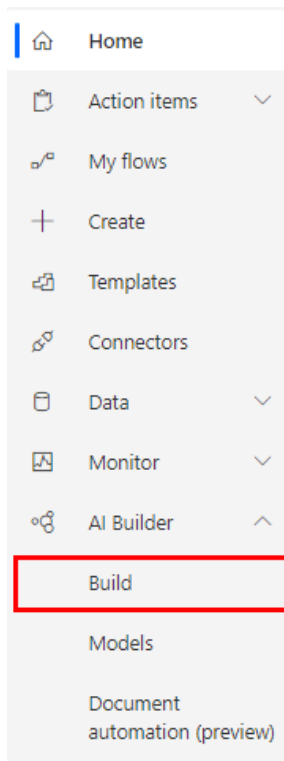
This lab builds on the initial setup lab (lab 1), and labs 3-6 – ensure these labs are complete.

Build and use AI models to enhance user experience in workflows

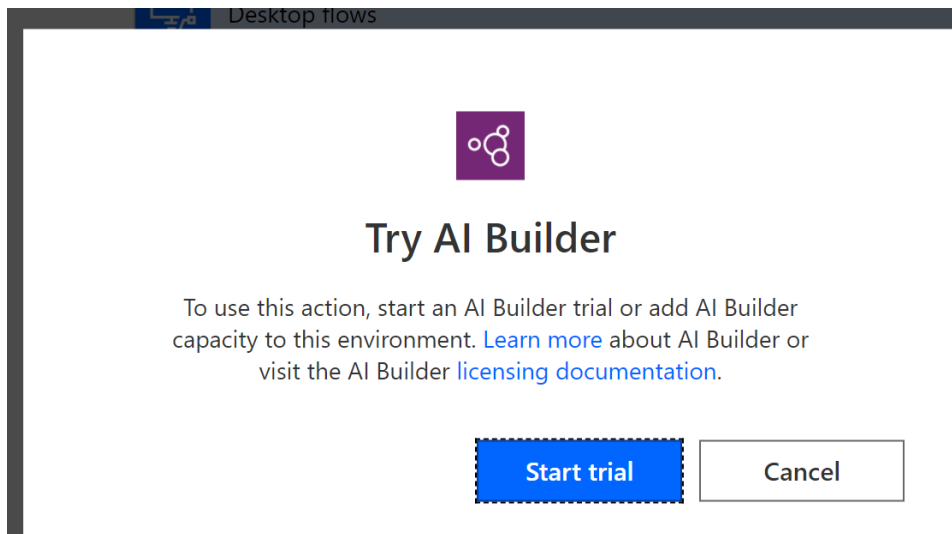
1. Open the test profile in a browser and navigate to <https://powerautomate.microsoft.com>
2. In the left navigation pane, select **AI Builder**.



3. Select **Build**.



4. **Note:** You may see a prompt informing you that you need to get AI Builder. You can opt-in for a free, 30 days trial. The trial will also start automatically once you follow the steps below. Click **Start trial** button.








5. Select Form Processing.











Enhance your business with AI

Add intelligence to your business. Create tailored AI models to automate processes and find insights. [Learn more](#)

Refine a model for your business needs

 Category Classification Categorize text by its meaning so it's easier to analyze.	 Entity Extraction Recognize specific information about your business from data.	 Form Processing Read and save information from standard documents.	 Object Detection Recognize and count things in images.	 Prediction Predict whether something will happen.
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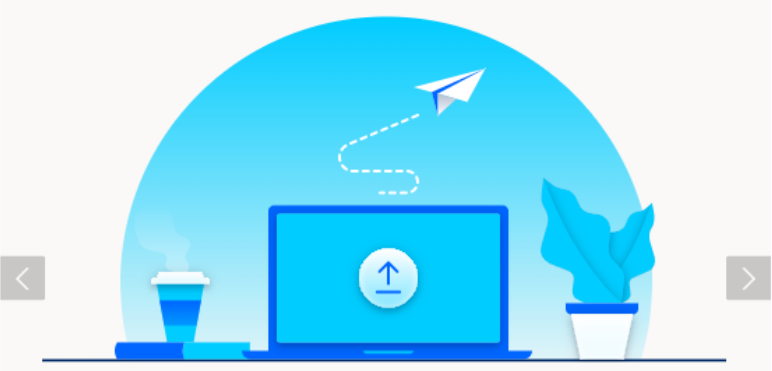
Get straight to productivity

 Business Card Reader Automatically process business card information	 Category Classification (preview) Categorize text by its meaning so it's easier to analyze	 Entity Extraction Extract entities and their types from text	 Invoice Processing (preview) Read and save information from invoices	 Key Phrase Extraction Extract the key talking points from text
 Language Detection Identify the language being used in text	 Receipt Processing (preview) Read and save information from receipts	 Sentiment Analysis Analyze positive/negative sentiment in text	 Text Recognition Automatically process text from images	 Text Translation Translate text into a new language automatically

6. Name it **Enter invoice information AI model**. Then click **Create**.


Form Processing Premium ×

Get started Examples Best practices



Step 3: Publish and use your new AI model
Now you can automate document processing in apps, flows. [Learn more about using AI models](#). Enjoy your extra free time!

Name this AI model *

What you'll need
 5+ documents with the same layout

By selecting **Create**, you are signing up for a 30 day free trial. [Learn more](#)


Create **Cancel**



7. We will now create 4 fields for our AI Model. Click the dropdown arrow next to the + **Add** button, and select **Field** option

Power Automate

- Choose information to extract**
- Add collections of documents
- Tag documents
- Model summary

Choose information to extract
List all pieces of information that you want the AI model to extract from your documents. For example: Name, Address, Total amount, Line items... You'll tag them in the documents.

+ Add 

-  **Field**
-  Single page table (preview)

8. Create the following field **Bill to** by entering its name in the **Name** text box and then click **Done**.

← **Field** ×

Define the field you want the AI model to extract.

Name *

Bill to

Done Cancel





9. Repeat the steps above, until the 4 fields that we need to create include:
 - a. Bill to
 - b. Contact
 - c. Date
 - d. Total

- ✓ Choose information to extract
4 fields
- Add collections of documents
- Tag documents
- Model summary

Choose information to extract

List all pieces of information that you want the AI model to extract from your documents. For example: Name, Address, Total amount, Line items... You'll tag them in the documents.

+ Add | v

	Name	Type
	Bill to	Field
	Contact	Field
	Date	Field
	Total	Field

Next

Click **Next** button

10. Collections allow for the grouping of documents for a particular organizer, customer or counterparty. We will now create a collection for Contoso by clicking on **New collection**.

- ✓ Choose information to extract
4 fields
- Add collections of documents
0 collections
- Tag documents
- Model summary

Add collections of documents

Add sample documents for your model to study. Put similar documents into the same collection.

Create a collection for each layout ⓘ

New collection

11. Double click on **Collection 1** and then rename it to be called **Contoso**.

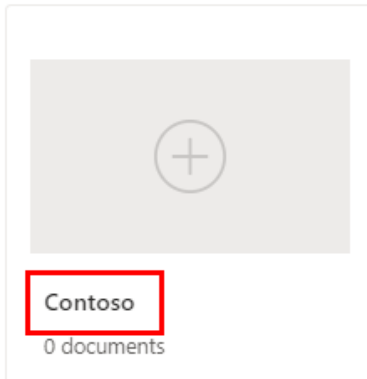
Add collections of documents

Add sample documents for your model to study. Put similar documents into the same collection.

Create a collection for each layout ⓘ

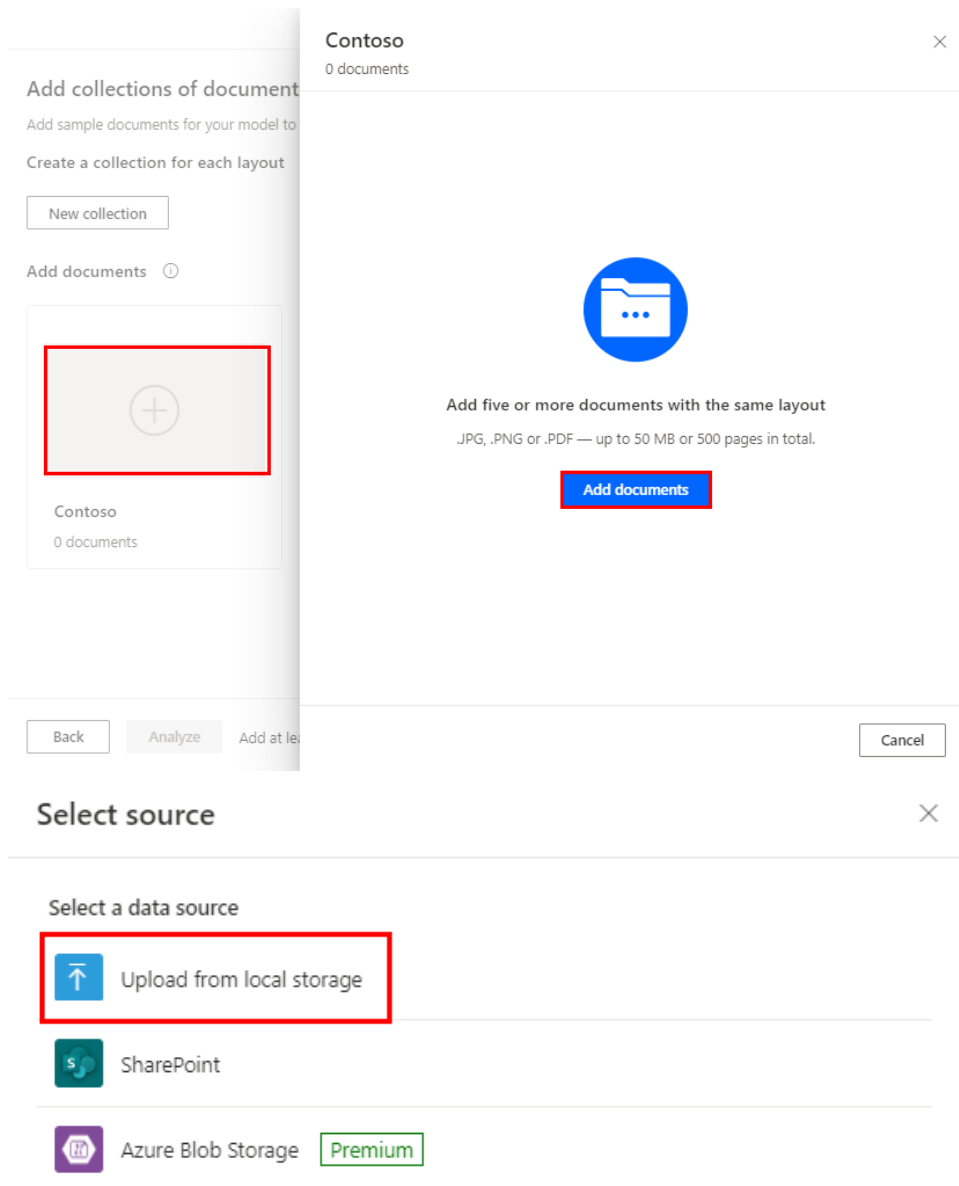
New collection

Add documents ⓘ



12. Click on the + sign to upload our sample PDF files from the lab resources folder. We will choose to **Upload from local storage**. The documents we want to upload include: (You can find them under the **Student lab data packages** folder

- Contoso_INVOICE_(Fabrikam_UK).pdf
- Contoso_INVOICE_(Litware_CAN).pdf
- Contoso_INVOICE_(Proseware_NY).pdf
- Contoso_INVOICE_(TailSpin).pdf
- Contoso_INVOICE_(WingTip).pdf








13. Select the 5 pdf files used for training. And click

Upload documents

×

These documents will be used to train your model.

✓	📄	Name	Size	Status
✓		Contoso_INVOICE_(Fabrikam_UK).pdf	68.7 KB	
✓		Contoso_INVOICE_(Litware_CAN).pdf	68.5 KB	
✓		Contoso_INVOICE_(Proseware_NY).pdf	68.5 KB	
✓		Contoso_INVOICE_(TailSpin).pdf	68.5 KB	
✓		Contoso_INVOICE_(WingTip).pdf	69 KB	

Upload 5 documents

Cancel






14. Once the documents have been uploaded, we should see a success message like the following image. Click **Close** to continue.

Upload documents



These documents will be used to train your model.

✓ Successfully uploaded 5 of 5 documents

	Name	Size	Status
	Contoso_INVOICE_(Fabrikam_UK).pdf	68.7 KB	Uploaded
	Contoso_INVOICE_(Litware_CAN).pdf	68.5 KB	Uploaded
	Contoso_INVOICE_(Proseware_NY).pdf	68.5 KB	Uploaded
	Contoso_INVOICE_(TailSpin).pdf	68.5 KB	Uploaded

Close

15. We can now analyze our documents by clicking on the **Analyze** button.

✓ Choose information to extract
4 fields

Add collections of documents
1 collection

○ Tag documents

○ Model summary


Add collections of documents

Add sample documents for your model to study. Put similar documents into the same collection.

Create a collection for each layout ⓘ

New collection

Add documents ⓘ



Contoso
5 documents

Back

Analyze

Add at least five sample documents for each collection

16. After it completes. We now need to tag our document. For each of our fields we need to hover over the respective area and then click on that area. When we do so, a menu will appear that allows us to assign that area to a specific field. As we do this, our **Fields** list will get checked off. Repeat this step to tag separately for each of the field: **Bill to**, **Contact**, **Date** and **Total**.

17. Finished tag all the filed in document 1

- ☒ Choose information to extract
4 fields
- ☒ Add collections of documents
1 collection
- ☒ Tag documents
- ☐ Model summary

Show detected words
Enter invoice information AI model Save and close

↑ ↓
1
of 1
🔍

Contoso

Contoso Electronics
3720 159th Ave NE
Redmond, WA
98052

Bill to: **Fabrikam, Inc.**
Contact: **invoicing@fabrikam.com**
2 Kingdom Street
Paddington, London
W2 6RD

INVOICE

Invoice #: 1001

Date: Jan 15, 2019
Due Date: Jan 31, 2019

Balance due: \$4,232.16 USD

Item	Quantity	Unit cost	Amount
Mark 8	12	\$189.75	\$2,277.00
ACC-1000	3	\$45.49	\$136.47
DG-2000	5	\$18.99	\$119.28
NC460-60	1	\$24.33	\$24.33
X1050	7	\$92.96	\$650.75
Subtotal			3207.83
Tax (19%)			609.49
Shipping			414.84
Total			\$4,232.16

Contoso

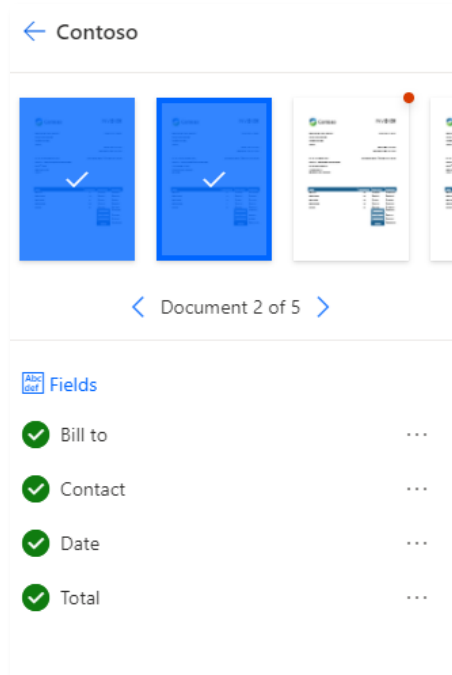
Document 1 of 5

Fields

- ☒ Bill to
- ☒ Contact
- ☒ Date
- ☒ Total

Back
Next

18. Now select the 2nd document. We need to ensure that our fields have been recognized on all our documents by clicking them one by one and examine that we have green checkmarks beside our fields.



19. After we have validated all 5 documents, we can click on the **Next** button to continue.

The screenshot shows the 'Contoso' application interface for Document 5 of 5. The document details are as follows:

3720 159th Ave NE
Redmond, WA
98052

Date: Feb 15, 2019
Due Date: Feb 26, 2019

Bill to: **WingTip Toys**
Contact: **b.friday@wingtip toys.com**
677 5th Ave,
New York, NY
10022

Balance due: \$3,345.87 USD

Item	Quantity	Unit cost	Amount
Mark 8	5	\$189.75	\$948.75
ACC-1000	15	\$45.49	\$682.35
DG-2000	3	\$18.99	\$56.97
NC460-60	20	\$24.33	\$486.33
X1050	8	\$92.96	\$743.68
Subtotal			\$2918.08
Tax (10%)			\$291.80
Shipping			\$135.99
Total			\$3,345.87

At the bottom, there are two buttons: 'Back' and 'Next' (highlighted with a red border).

20. We are now ready to train our AI Model and can do so by clicking the **Train** button. This will take a couple minutes to complete.

✓ Choose information to extract
4 fields

✓ Add collections of documents
1 collection

✓ Tag documents
5 documents tagged

● Model summary


Model summary


Review your model's details below. If everything looks good, select Train. [Learn more about training](#)

Model type
Form Processing

Owner
Virtual Agent

Collections
1

Data source	Number of images
 My device	5 images

Information to extract	Details
 Fields	<div>Bill to</div> <div>Contact</div> <div>Date</div> <div>Total</div>

Back

Train



Your model is training

This may take a while. You can close this window and come back later.

[Go to models](#)


21. After AI Model training completed, we can publish your AI model by clicking **Publish**.

Note: Publish your model when you want to make it available to users in your Power Automate environment.

Models > Enter invoice information AI model
Form Processing • Not published • Virtual Agent

Training document

See details



Publish

Quick test

Selected fields

See more


Bill to


Contact

Date

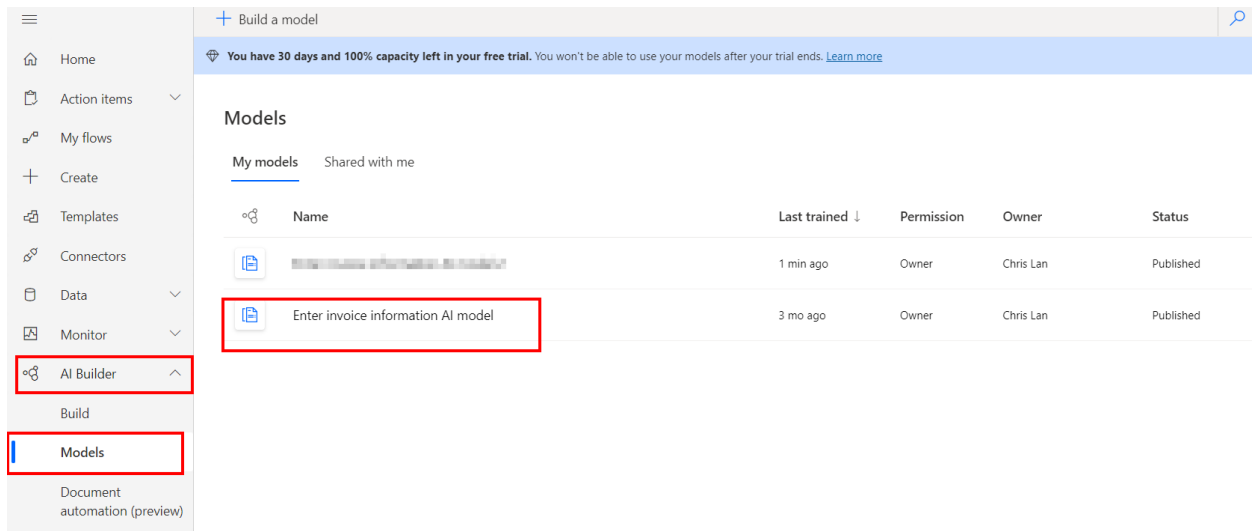
Total

How your model is used

 Power Automate
Model isn't published

 Power Apps
Model isn't published

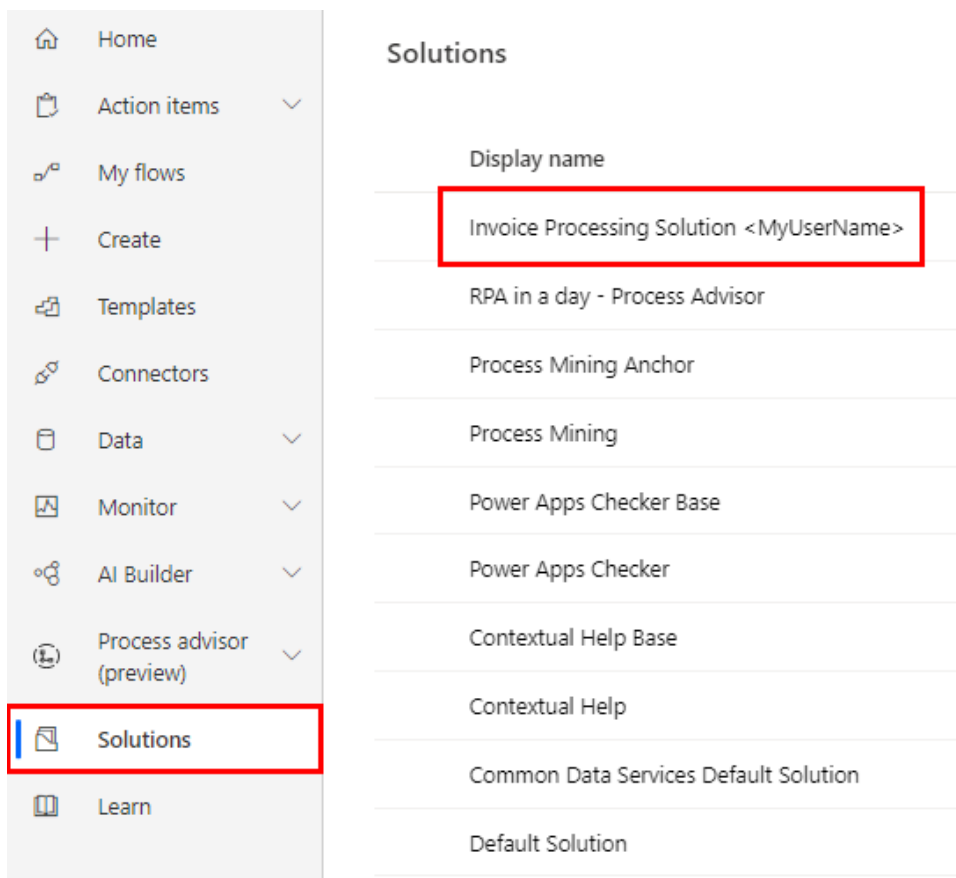
22. You can find your AI models under **AI builder > Models**.



The screenshot shows the AI Builder interface. In the left-hand navigation pane, the 'AI Builder' option is selected, and the 'Models' sub-option is highlighted with a red box. The main content area is titled 'Models' and shows a table of 'My models'. One model, 'Enter invoice information AI model', is highlighted with a red box. The table has columns for Name, Last trained, Permission, Owner, and Status.

Name	Last trained	Permission	Owner	Status
Enter invoice information AI model	3 mo ago	Owner	Chris Lan	Published

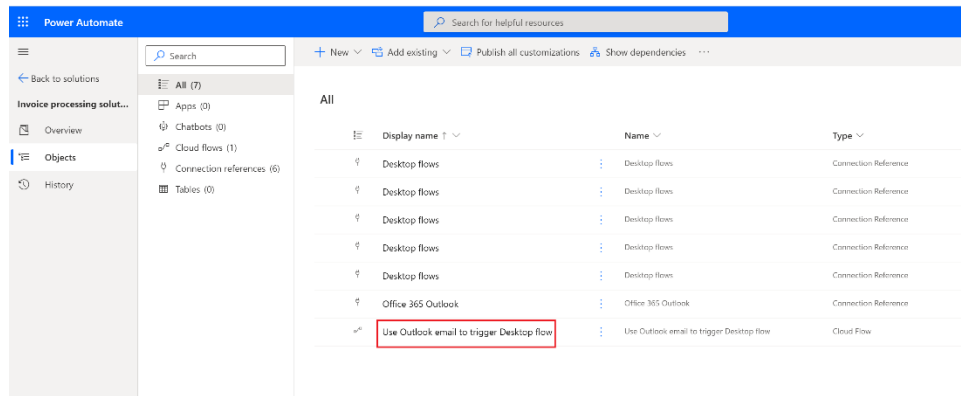
23. Now we have an AI model trained and published. Next we will learn how to use this AI model that you just trained in your automation. From the left navigation menu, go to **Solutions** and open **Invoice processing solution**.



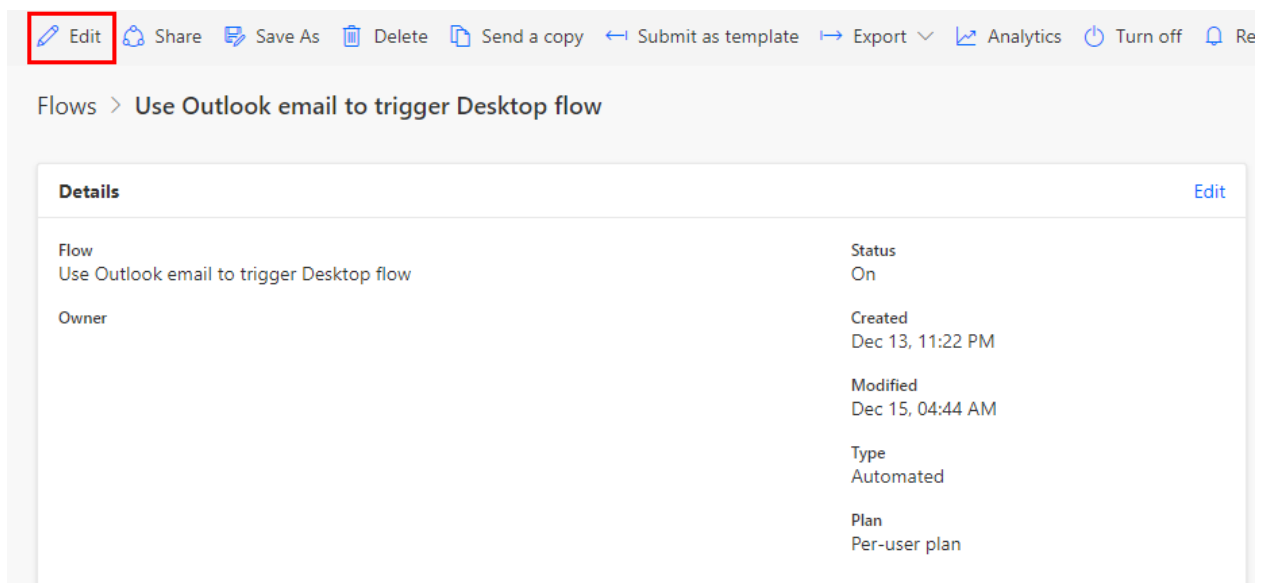
The screenshot shows the Solutions page. In the left-hand navigation pane, the 'Solutions' option is highlighted with a red box. The main content area is titled 'Solutions' and displays a list of available solutions. The 'Invoice Processing Solution <MyUserName>' is highlighted with a red box.

Display name
Invoice Processing Solution <MyUserName>
RPA in a day - Process Advisor
Process Mining Anchor
Process Mining
Power Apps Checker Base
Power Apps Checker
Contextual Help Base
Contextual Help
Common Data Services Default Solution
Default Solution

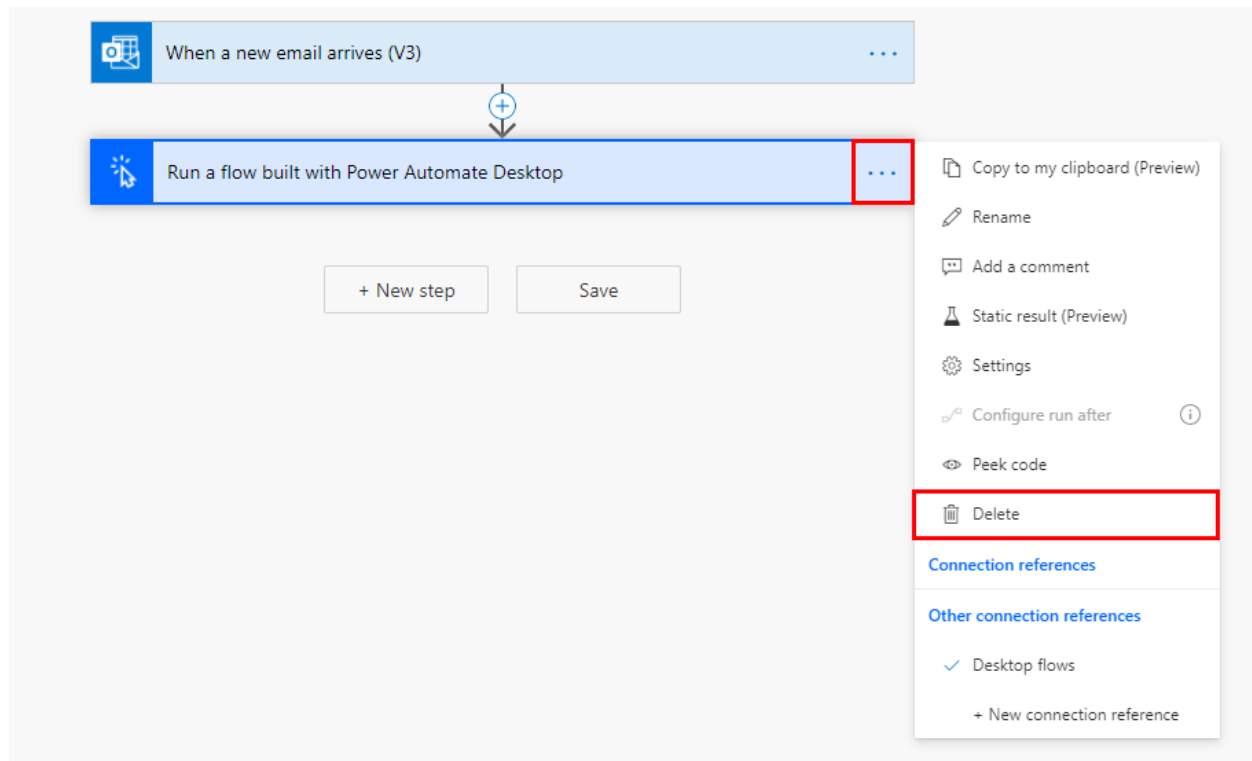
24. Open **Use Outlook email to trigger Desktop flow**



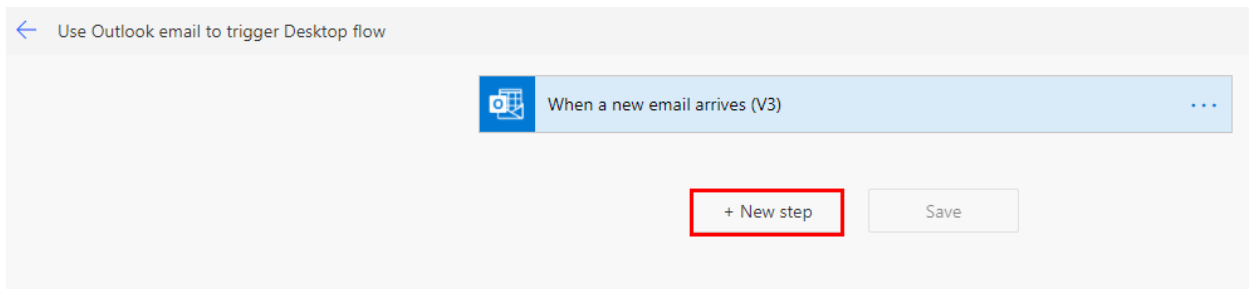
25. Click Edit



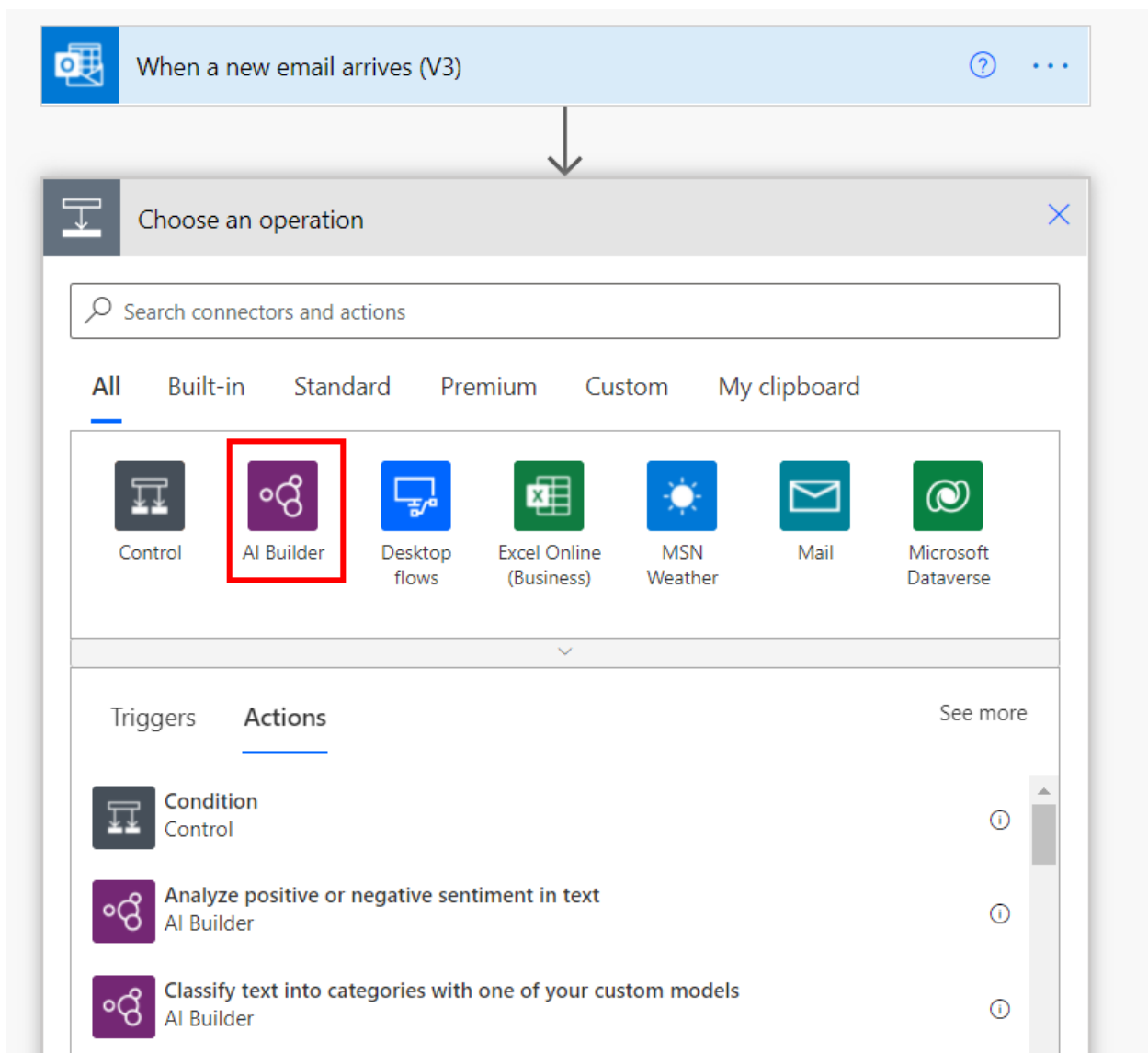
26. Delete Run a flow built with Power Automate Desktop step by clicking ... > Delete



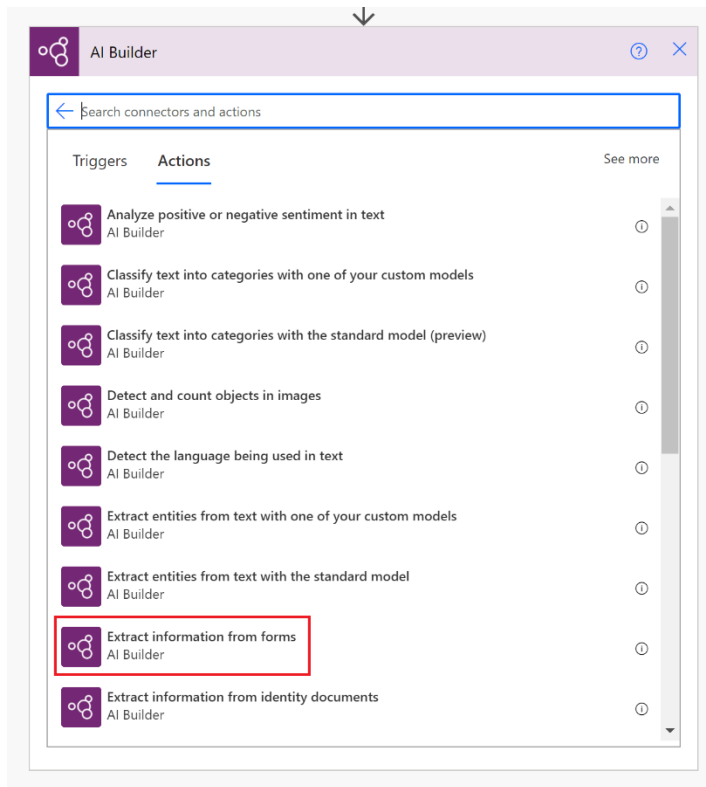
27. Add a new step.



28. Select AI Builder.

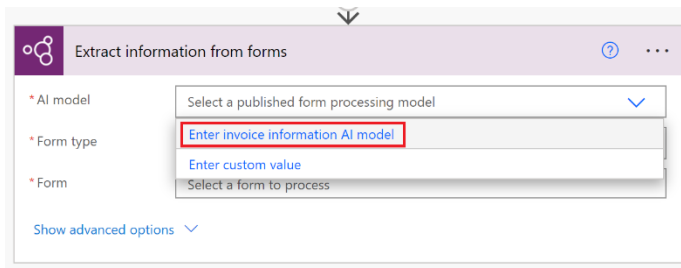


29. Search for **Predict** using the search bar. Select **Extract information from forms**



30. Use the following values:

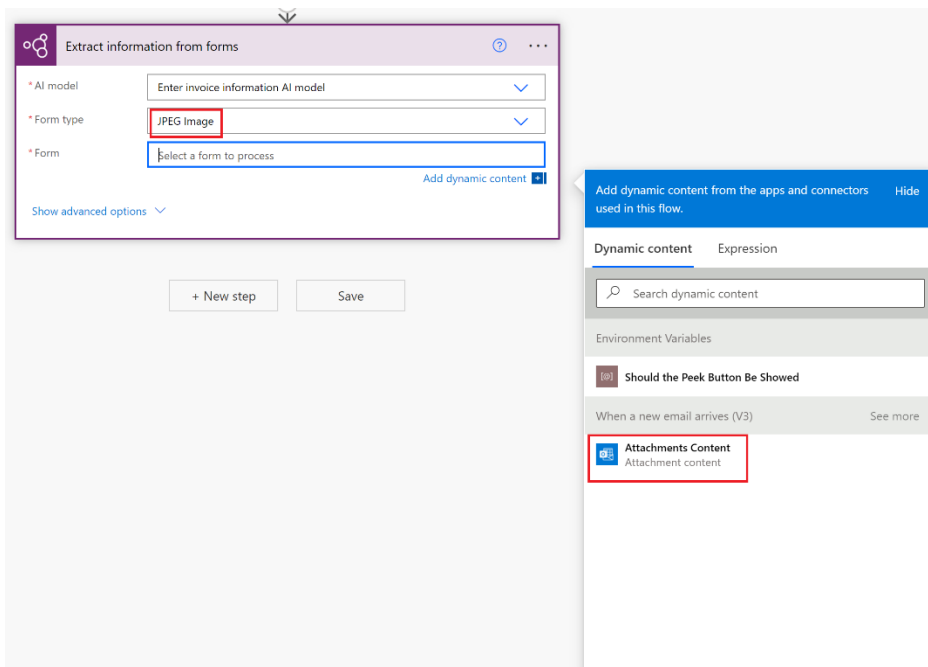
In the AI Model field, choose: **Enter invoice information AI model**



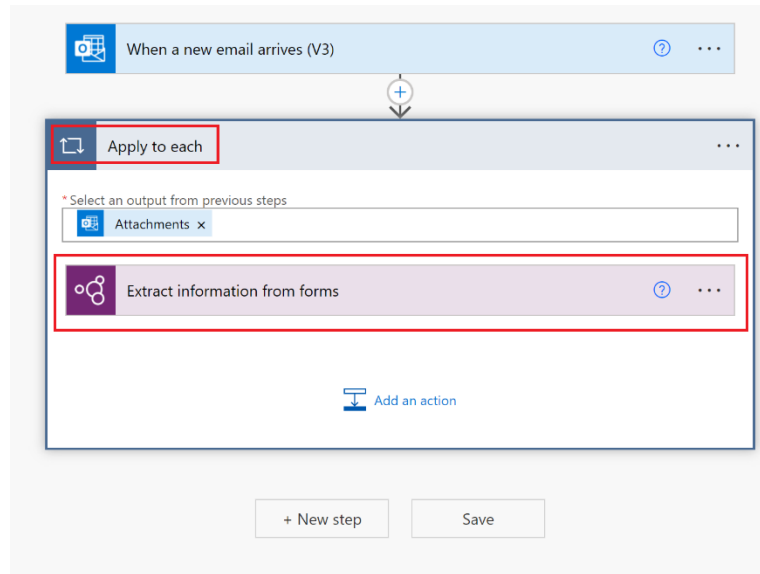
31. In the Form type field, choose JPEG Image

In the Form field, choose: **Attachments Content** (select from Dynamic content under action ***When a new email arrives (V3)***)

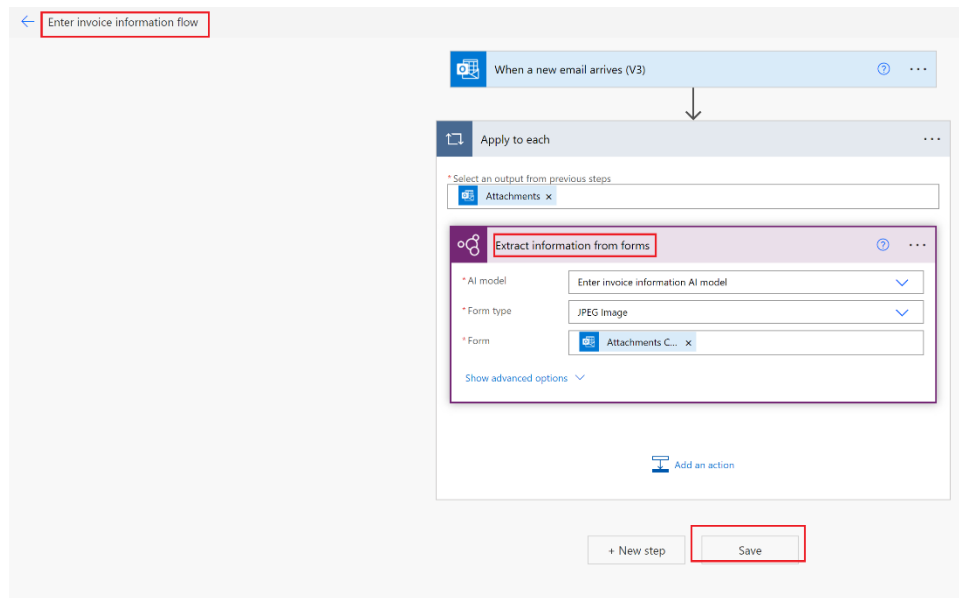
Note: Click See more if you don't see **Attachments Content** from Dynamic content



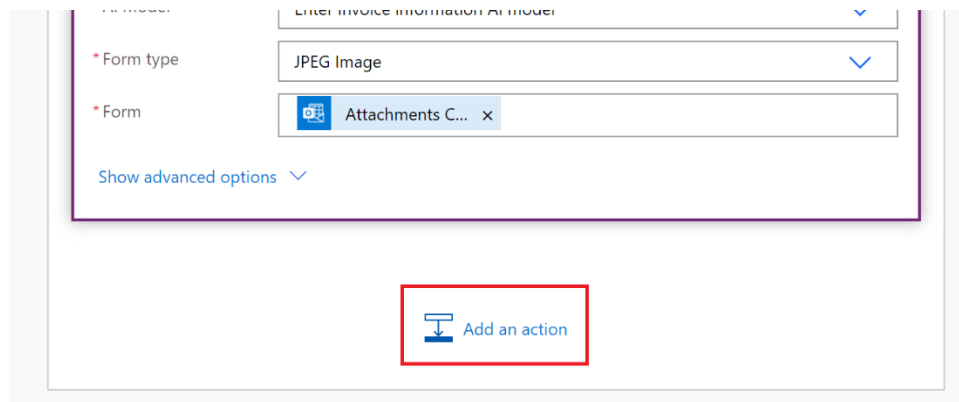
Note: After you populated the **Form** action field with the **Attachments Content** array, you will notice that an **Apply to each** loop has automatically added to the flow designer around the AI Builder action. This occurs since the **Attachments content** array could technically include more than one attachment so the Apply to each will make sure each of the attachment file is processed separately by the AI model. For the purpose of this lab, we will only send in a single attachment.



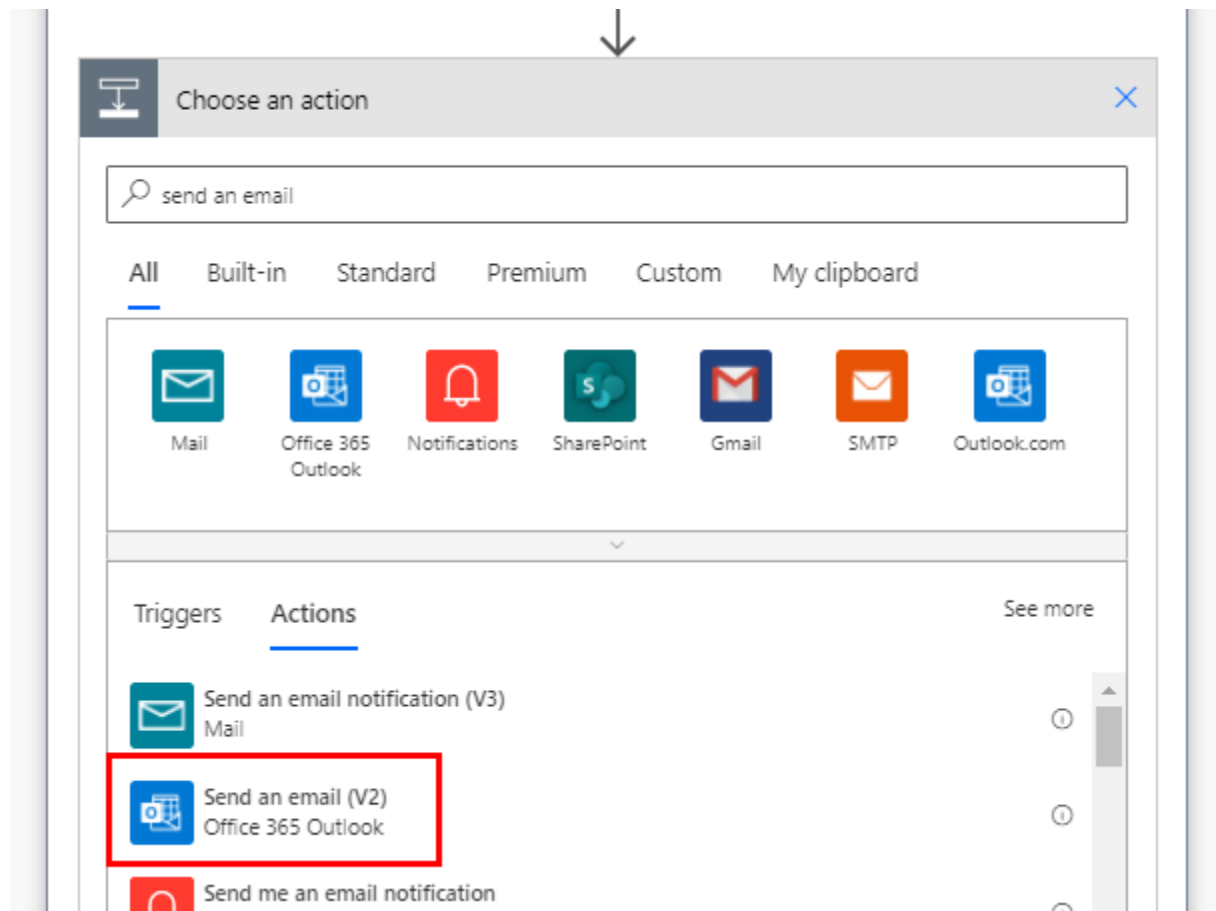
32. You can click the AI Builder action title to expand the card to see more details. Now change the flow name to **Enter invoice information flow**. Then click **Save**.



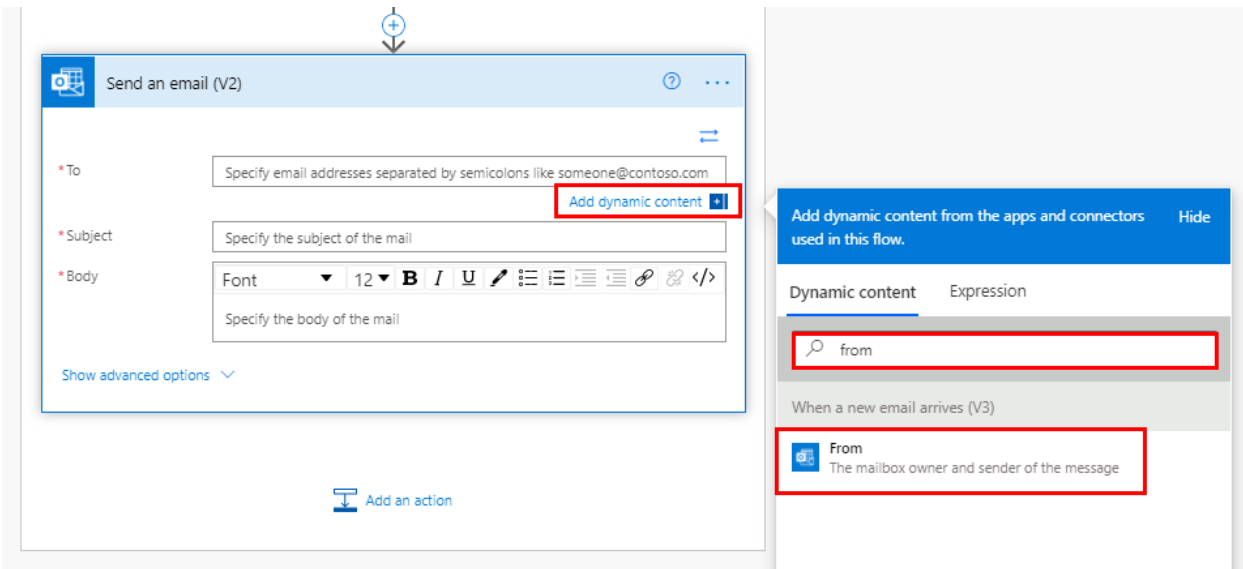
33. In order to verify the AI Builder model processing result, let us add another action to send ourselves an verification email to the sender acknowledging the invoice is received. We will add another action by clicking **Add an action** icon under the AI Builder action.



34. Search for action start with Send an email and choose **Send an email (V2)**



35. On the **To** field click on “**Add dynamic content**” and search for “**From**” . This will the email address of the sender party.



36. Fill up the rest of the fields for the email step:


- Subject: “Thanks for sending the invoice”
- Body: “We received an invoice with those information” and “We will process and get back to your shortly” and together with the following variables values from Dynamics variables panel under AI Builder action

We received an invoice with below email step:



Total displayName x	Total value x
Date displayName x	Date value x
Contact displayName x	Contact value x
Bill to displayName x	Bill to value x

We will process and get back to you shortly.


Thanks,
Contoso



Send an email (V2)



To



From

Subject

Thanks for sending the invoice

Add dynamic content

Body

Font12**B***I*U

We received an invoice with below email step:

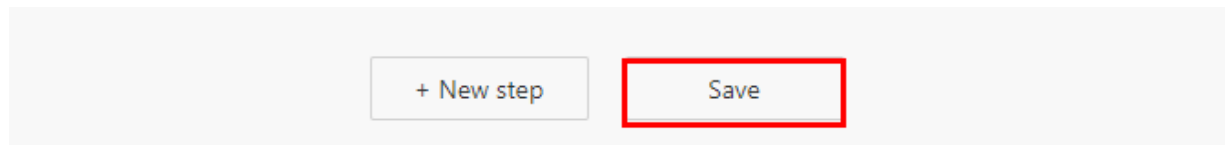
 Total displayName <div></div>	:	 Total value <div></div>
 Date displayName <div></div>	:	 Date value <div></div>
 Contact displayName <div></div>	:	 Contact value <div></div>
 Bill to displayName <div></div>	:	 Bill to value <div></div>

We will process and get back to you shortly.

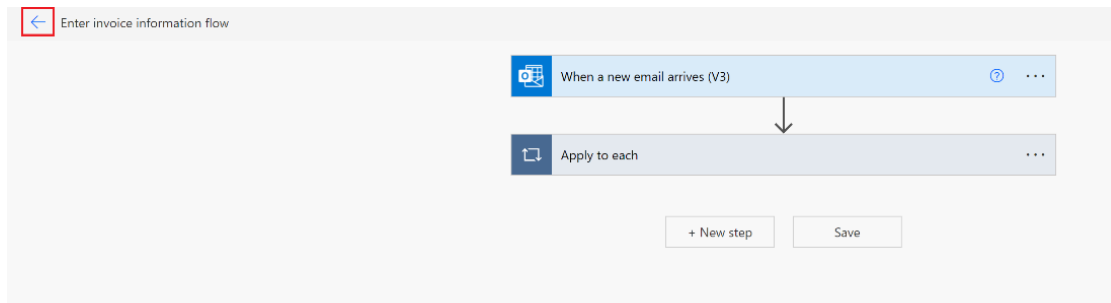
Thanks,
Contoso

Show advanced options

37. Click **Save**.



38. Click **back** button before the flow name to the flow detail page



39. Trigger the flow to test by sending an email. In a separate tab, open the Office 365 Outlook app.

40. Compose a new email with the following settings:

- a. To: {email address of the user identity you are using in this lab}
- b. Subject: **new invoice**
- c. Attachments: **newinvoice.jpg** (from the lab resource files)

Note: This attachment can be in any of the jpg or pdf format and AI builder model can process both. Here we just use jpg file in this exercise.

Note: Your email signature may be viewed as an attachment. That will block this flow logic unless we add more validation. So, we recommend you try to send email without signature.

41. Send the email and now the flow should be triggered to run automatically.

42. Now go back the flow detail page in the original tab. Notice a new run has been kicked off. Note, you might have to click refresh button a few times to see the new run history

✎ Edit 🗑 Share 💾 Save As 🗑 Delete 📄 Send a copy ⬅ Submit as template ➡ Export 📊 Analytics ⏻ Turn off 🔔 Repair tips off

Flows > Enter invoice information flow

Details [Edit](#)

Flow Enter invoice information flow	Status On
Owner test user 1	Created Oct 10, 02:34 PM
	Modified Oct 10, 03:26 PM
	Type Automated
	Plan Per-user plan

28-day run history ⓘ [All runs](#)

Start	Duration	Status
Oct 10, 03:30 PM (0 sec ago)	59 ms	Running
Oct 10, 03:26 PM (3 min ago)	00:00:12	Succeeded
Oct 10, 02:55 PM (34 min ago)	00:00:32	Succeeded

43. Click to open this run details. It will show whether your flow ran successfully.



44. You can also click the title to expand the Apply to each action and AI Builder action to view the output from the Predict action. It should contain the data parsed from the file. That output will be able to be consumed by following actions. We will cover that in next lab #8.

← Enter invoice information flow • Ran at 10/10/2021 3:30:18 PM

✓ Your flow ran successfully.

When a new email arrives (V3) 1s

Apply to each 7s

< Previous < Previous failed Show 1 of 1 Next failed > Next >

Extract information from forms 6s

INPUTS Show raw inputs >

AI model
Enter invoice information AI model

Form type
image/jpeg

Form
/9j/4AAQSkZJRgABAQEAAeAB4AAD/4RDuRXhpZgAATU0AKgAAAAgABAE7AAIAAAAMAAQ...

OUTPUTS Show raw outputs >

tables

```
{
  "@odata.type": "#Microsoft.Dynamics.CRM.expando"
}
```

Bill to value
Litware Inc.

Bill to fieldType

45. You should now also have received an acknowledgment email with the AI Builder process results against the jpg invoice file.

[EXTERNAL] Thanks for sending the invoice



Ali Sharifi <admin@M365x183173.OnMicrosoft.com>

To ● Ali Sharifi

We received an invoice with below details:

Total: \$6,743.12

Date: Mar 15, 2019

Contact: adixon@litware.com

Bill to: Litware Inc.

We will process and get back to you shortly.

Thanks,
Contoso

Check your knowledge

Lab 7

7 mins

1. After uploading our sample documents in AI Builder, we can click the _____ button to evaluate our documents to look for patterns within the documents.

- A. Analyze
- B. Back
- C. New collection
- D. None of the above

Answer: A. Analyze

2. How do we tag our document when we finish analyzing?

- A. Hover over the respective area and then click on that area
- B. Hold down CTRL and click on that area
- C. Hold down ALT and click on that area
- D. Hold down Shift and click on that area

Answer: A. Hover over the respective area and then click on that area

3. Do we need to ensure that our fields have been recognized on all our documents by clicking them one by one and ensuring we have green checkmarks beside our fields?

- A. True
- B. False

Answer: A. True, fields need to be recognized across all documents for the document to be trained properly.

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