

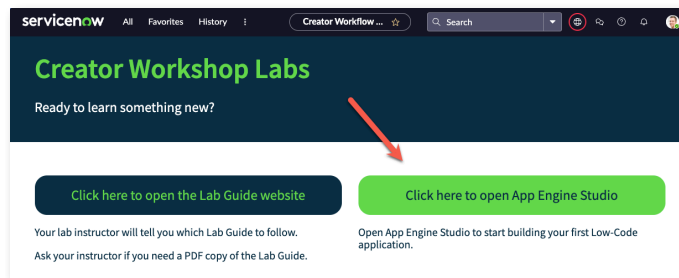


Exercise 1: Create Application

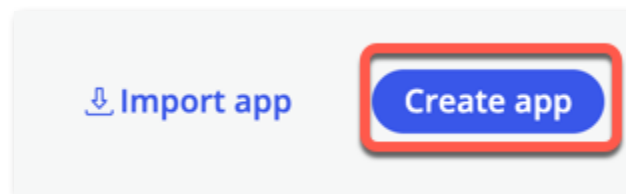
Duration: 5 minutes

Before we begin, we will need to create our scoped application. It will contain all of the tables, forms, flows, and other assets that make up our application.

1. On the Landing Page click the bright green button that says **Click here to open App Engine Studio**, and it will take you to the App Engine Studio home page.



2. Click **Create app** on the top right of the screen



3. On the Create App page, name the app "Travel request", and for description,

enter "Track travel requests from employees."

CREATE APP

Let's get started on your new app.

Add a name and description that define the purpose of your app. You can also add a thumbnail image.

Name *

Description

Drag app logo or browse to upload

BMP, GIF, ICO, JPEG, JPG, PNG, SVG

Cancel Continue

4. Click Continue

5. Leave the default roles - *admin* and *user*, and click Continue

6. Click Go to app dashboard

! INFO

What you've just done is create a scoped application. Scope uniquely identifies every application file, why is this important?

- Scope protects an application, its files, and its data from conflicts with other applications.
- Scope determines which parts of an application are available for use by other applications in ServiceNow.
- Scope allows developers to configure which parts of their application can be acted on by other applications.
- Scope prevents work done in the main ServiceNow browser window (not in

Studio) from becoming part of an application's files.

- Without Scope, it will be very difficult to govern new applications!

Exercise 2: Creating Tables -

Overview

Duration: 30 minutes

2.1 Travel Request Table

Create a table called "Travel Request". This is where we will capture the travel requests.

2.2 Airport Table

Create a table called "Airport Table". This is where we will import and store a list of Airport locations to use in the app.

2.3 Reference the table

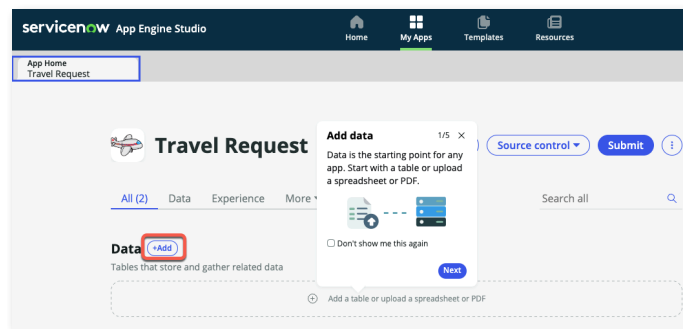
We will create a field on the Travel Request table to reference the Airport Table.

Exercise 2.1: Create Travel Request

Table

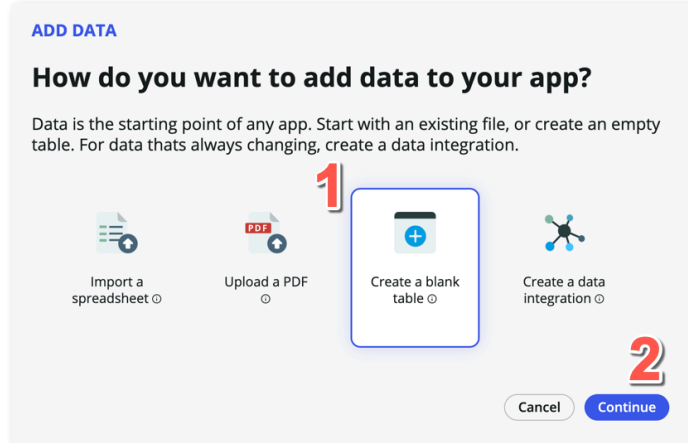
Duration: 10 minutes

1. Under Data, click Add



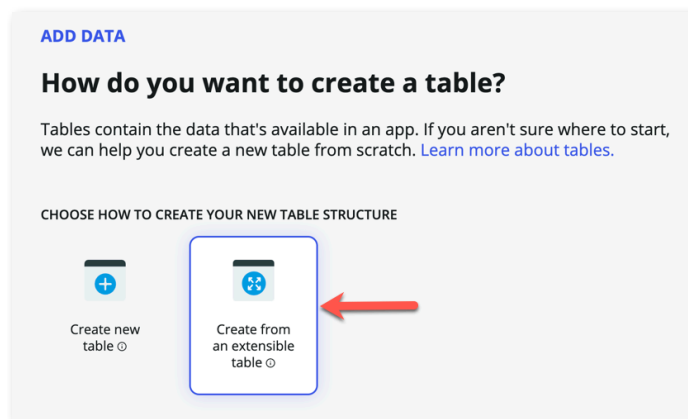
2. On the *Add Data* page, click Create a blank table

3. Click Continue

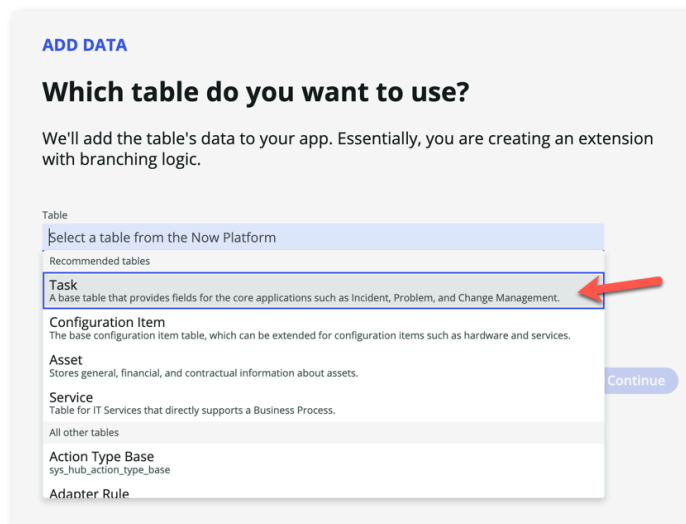


4. On the next page, select **Create from an extensible table**

5. Click **Continue**



6. On the next page, click **Table**, and select **Task** under *Recommended Tables*



! INFO

The task table is one of the core tables provided on the platform. Any table that extends task can take advantage of task-specific functionality such as SLAs and Approvals. This speeds up the overall process and ease of building logic and functionality.

7. Click Continue
8. For Table label, enter **Travel request**. Table name should be auto-populated.
9. Check **Auto number**
10. For Prefix, enter **TRV**

ADD DATA

Now, let's get more info about your new table

Define the properties of your new table.

Table label * 1

Table name prefix * Table name *

Make extensible Auto number

Prefix * 2 Starting number * Number of digits * 3

11. Click Continue

12. Allow all access for *admin* and Create and Read access for *user*

ADD DATA

Let's add permissions to your table.

Create roles and define how much control each role has of this table. Note: at least one role needs to have 'read' access for you to 'preview' the data in your table.

Role Name	Description	All	Create	Read	Write	Delete
admin	Default admin role	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
user	Default user role	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Click Continue

14. Click Edit table

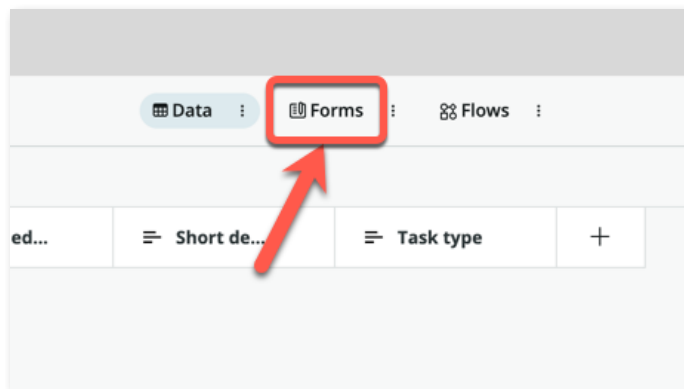
15. If presented with the **Welcome to Table builder** pop-up, read through the steps, then close it

16. You should now be on the *Table Builder* interface, in the *Spreadsheet* view

i NOTE

Instead of adding fields individually via table builder, we will add fields directly onto the form view instead. But note that there are several ways to add fields to a table.

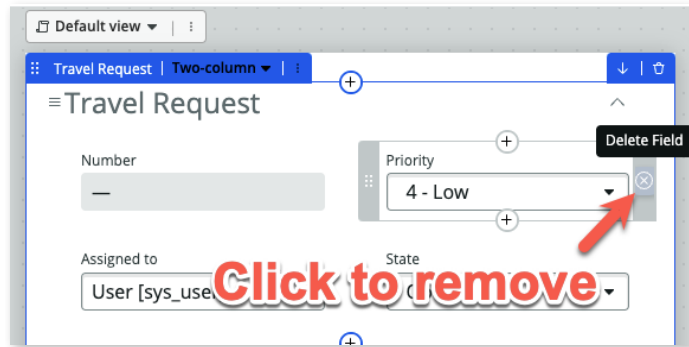
17. Click on the Forms pill



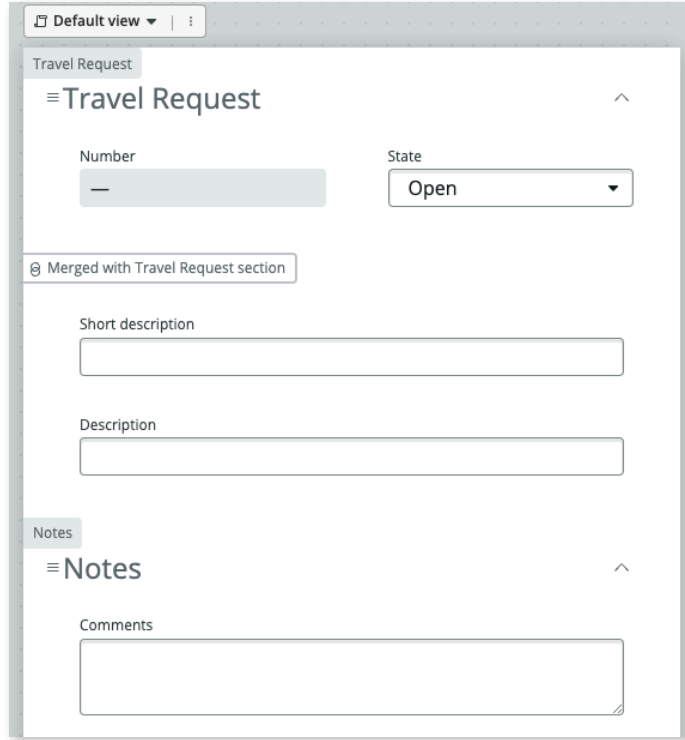
18. The current form layout is inherited from the **task** table, we will only keep the fields relevant to us

19. Remove the following fields from the form:

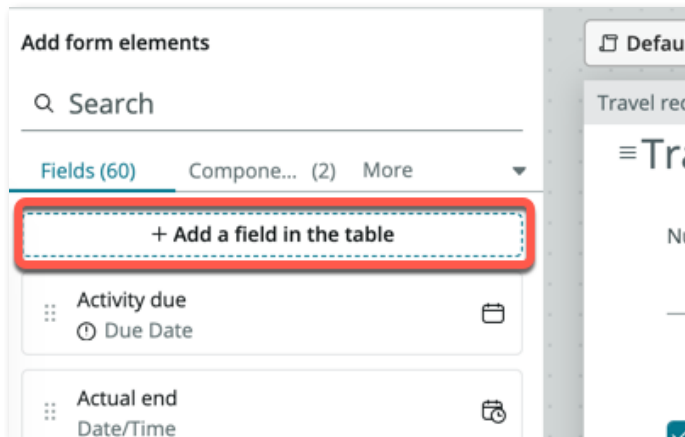
- Priority
- Assigned to



20. The form should look like this

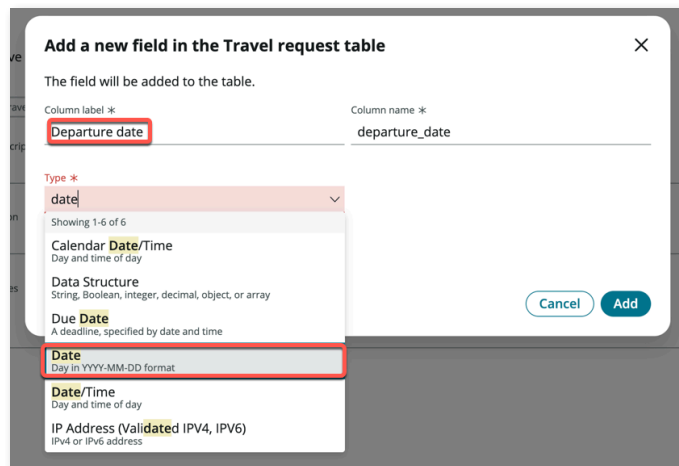


21. On the left panel, click Add a field in the table



22. On the pop-up modal, enter **Departure date** under **Column label**, the **Column name** should be auto-populated

23. Change **Type** to **Date**

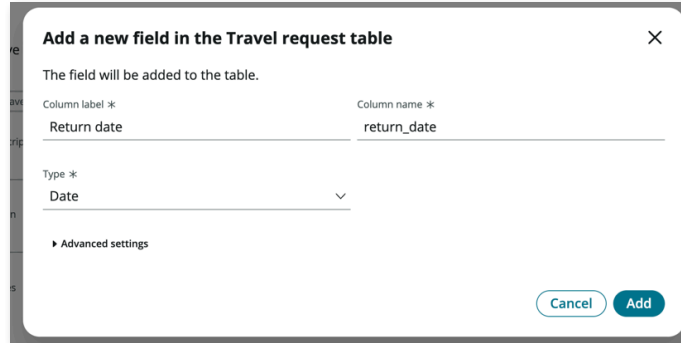


24. Click **Add**

25. Click **Add another one**

26. Enter **Return date** under **Column label**, the **Column name** should be auto-populated

27. Change **Type** to **Date**



28. Click Add

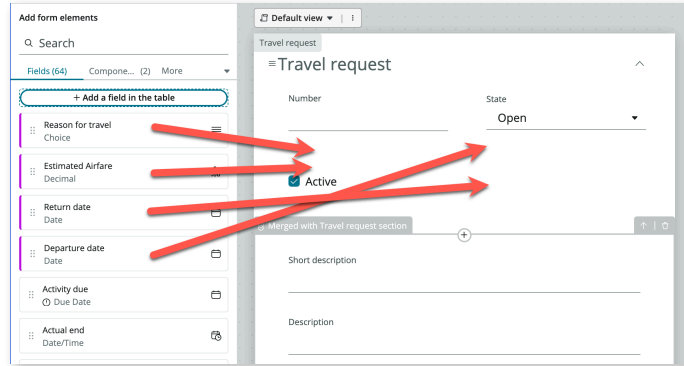
29. Click Add another one

30. Repeat the steps above for the following 2 fields:

Column label	Type
Estimated Airfare	Decimal
Reason for travel	Choice

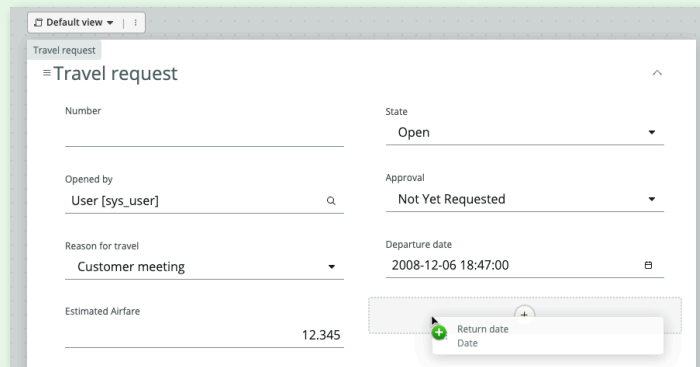
31. The panel on the left should show 4 new fields with a purple highlight

32. Drag and drop those 4 fields onto the form



TIP

You will need to ensure that you see a grey outline box with a plus icon before releasing the field

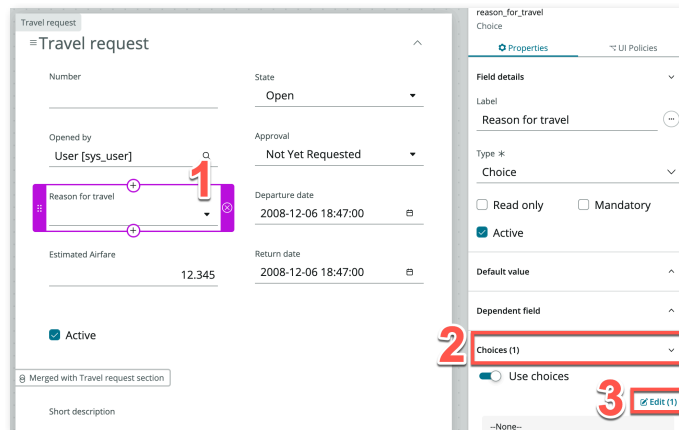


33. Search and add two more standard fields onto the form beneath the Number and State fields: **Opened by**, **Approval** (These come standard with the Task table)

34. Click **Save** on the top right of the form

35. Within your form, locate and click Reason for travel

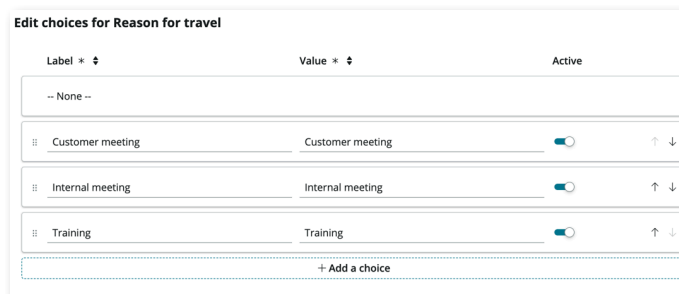
36. The right-side panel will update for the configuration of this field. Expand Choices, then click Edit (1)



37. On the Edit choices for Reason for travel screen, click + Add a choice

38. Under Label, enter Customer meeting, the Value field should auto-populate

39. Add another two Labels: Internal meeting and Training



40. On the bottom right, click **Apply**

41. Click **Save**

At this point, we could also capture the Origin and Destination via a String field so that the users can enter free text, but for more consistency, let's create an **Airports** table so that users can select these locations (like how you would select on any airline reservation website)

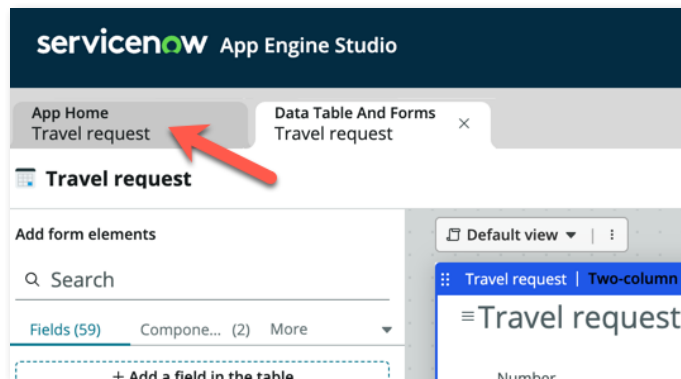
 NOTE

Great, you now have a table to store the Travel Requests!

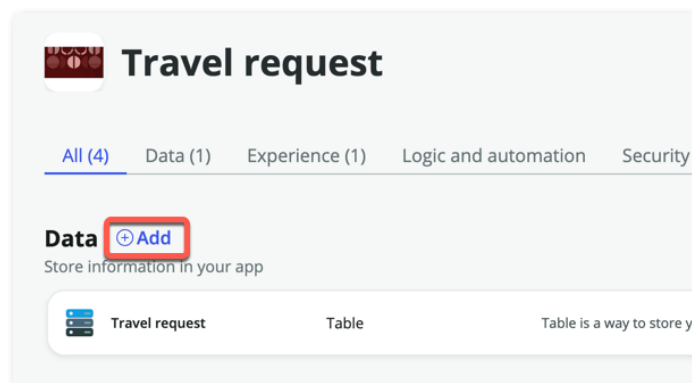
Exercise 2.2: Create an Airport Table

Duration: 10 minutes

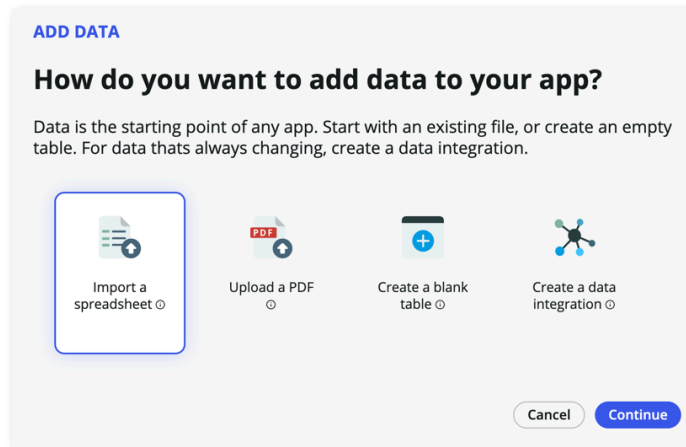
1. Click the App Home tab to return to the main view



2. Under Data, click Add



3. Click Import a spreadsheet



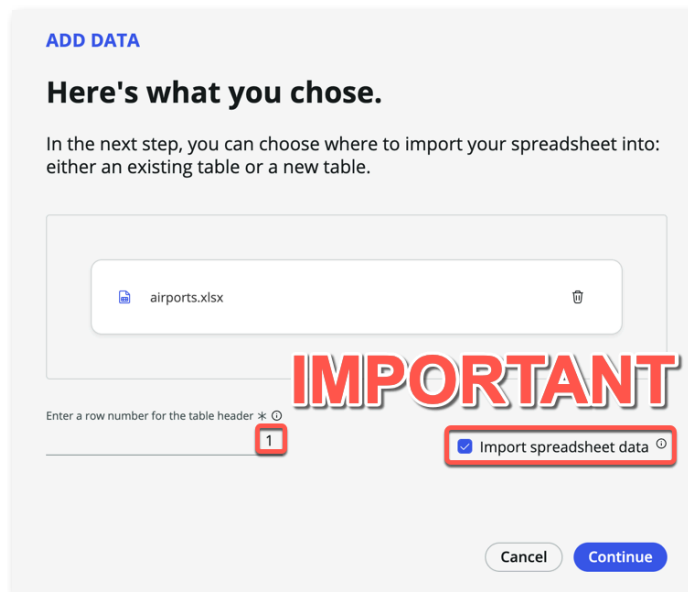
4. Click Continue

5. Download this file: [airports.xlsx](#)

6. Upload the downloaded file to the upload box. You should see the following screen once the upload is successful

7. Ensure that Enter a row number for the table header is set to 1

8. Check the Import spreadsheet data box



9. Click Continue

10. On the following page, click Create new table

ADD DATA

Where do you want to import your file into?


Create a new table from file or Import your file into an existing table. [Learn more about tables.](#)


Import your file into

A new table

An existing table

CHOOSE HOW TO CREATE YOUR NEW TABLE STRUCTURE

 Create new table ⊙

 Create from an extensible table ⊙

11. Click Continue

12. You should land on the page that says: "Great! Here's the info we brought over from your spreadsheet"

BUILD DATA

Great! Here's the info we brought over from your spreadsheet

Make sure you update any necessary field info before we keep going.

⊙ Add new field

Field Label * <small>⊙</small>	Field name * <small>⊙</small>	Type <small>⊙</small>	Character limit * <small>⊙</small>
icao	icao	String	40
country	country	String	40
state	state	String	40
city	city	String	40

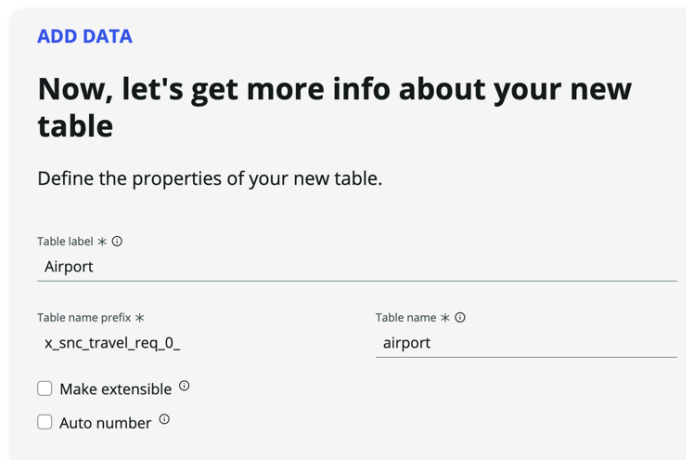
Cancel Continue

13. Scroll through the list to see all the fields that will be created. Notice that you can change the data Type if necessary, but we can leave everything as String fields for now

14. Click Continue

15. Under Table label, enter Airport. Table name will be automatically populate

16. Click Continue



ADD DATA

Now, let's get more info about your new table

Define the properties of your new table.

Table label * ⓘ
Airport

Table name prefix * ⓘ Table name * ⓘ
x_snc_travel_req_0_ airport

Make extensible ⓘ

Auto number ⓘ

17. In the roles page, check All for *admin*, and only Read for *user*

ADD DATA

Let's add permissions to your table.

Create roles and define how much control each role has of this table. Note: at least one role needs to have 'read' access for you to 'preview' the data in your table.

⊕ Add a role

Role Name	Description	All	Create	Read	Write	Delete
admin	Default admin role	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
user	Default user role	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cancel Continue

18. Click Continue

19. Click Edit table

20. You should see the imported data in the Table spreadsheet view

The screenshot shows the 'Airport' table in the 'Table spreadsheet view' within the App Engine Studio. The table contains the following data:

ID	Code	IAT	IATA	Name TL	City	State	Country	IATA
IST				Ataturk Hava L...	Bakirköy	Istanbul	Turkey	LTBA
BLR				Bangalore Inte...	Bangalore	Karnataka	United States	V0BG
BKK				Bangkok Inter...	Lak Si	Bangkok	Thailand	VTBS
MAD				Barajas Airport	Madrid	Madrid	Spain	LEMD
BCN				Barcelona Inte...	El Prat de Llob...	Catalonia	Spain	LEBL
PEK				Beijing Capital ...	Shunyi	Beijing	India	ZBAA
BRU				Brussels Airport	Bruxelles	Vlaams Brabant	Belgium	EBBR
BOM				Chhatrapati Sh...	Mumbai	Maharashtra	India	VABB
CPH				Copenhagen A...	Kastrup	Hovedstaden	Denmark	EKCH
DUS				Dusseldorf Int...	Dusseldorf	North Rhine-W...	Germany	EDDL
ATH				Eleftherios Ven...	Athens	Attiki	Greece	LGAV
MUC				Franz-Josef-Str...	Oberding	Bavaria	Germany	EDDM
GVA				Geneva Airport	Geneva	Canton of Gen...	Switzerland	LSGG
HAM				Hamburg Airp...	Hamburg	Hamburg	Germany	EDDH
HKG				Hong Kong Int...	Hong Kong	Hong Kong Isla...	Hong Kong	VHHH
LAX				Los Angeles Int...	Los Angeles	California	United States	KLAX
MAN				Manchester Int...	Manchester	England	United Kingdom	EGCC

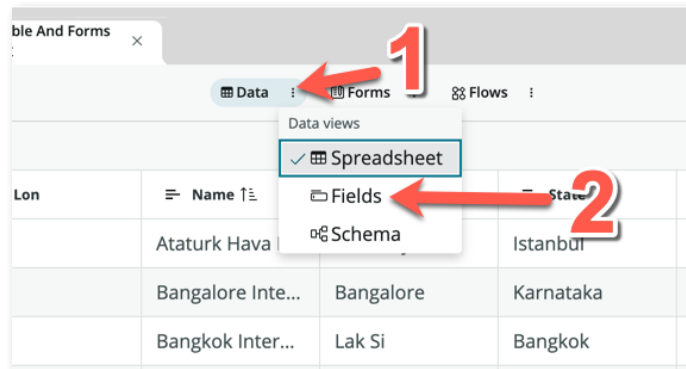
Showing 1-20 of 24

Records per page 20

! INFO

In case you were wondering, the Lat and Lon fields are deliberately left empty. In the optional bonus exercise, we will use an API to get these values, but has no impact on our exercises.

21. Click more next to the Data pill, and change the Data views to Fields



22. Toggle Display to true for the Name field

Column label # 1	Column name *	Type *	Reference	Max length	Default value	Display	Updated
City	city	String		40		<input type="checkbox"/>	2023-08-1
Code	code	String		40		<input type="checkbox"/>	2023-08-1
Country	country	String		40		<input type="checkbox"/>	2023-08-1
Created	sys_created_on	Date/Time				<input type="checkbox"/>	2023-08-1
Created by	sys_created_by	String		40		<input type="checkbox"/>	2023-08-1
Icao	icao	String		40		<input type="checkbox"/>	2023-08-1
Lat	lat	String		40		<input type="checkbox"/>	2023-08-1
Lon	lon	String		40		<input type="checkbox"/>	2023-08-1
Name	name	String		43		<input checked="" type="checkbox"/>	2023-08-1
State	state	String		40		<input type="checkbox"/>	2023-08-1
Updated	sys_updated_on	Date/Time				<input type="checkbox"/>	2023-08-1
Updated by	sys_updated_by	String		40		<input type="checkbox"/>	2023-08-1
Updates	sys_mod_count	Integer				<input type="checkbox"/>	2023-08-1

23. Click Save

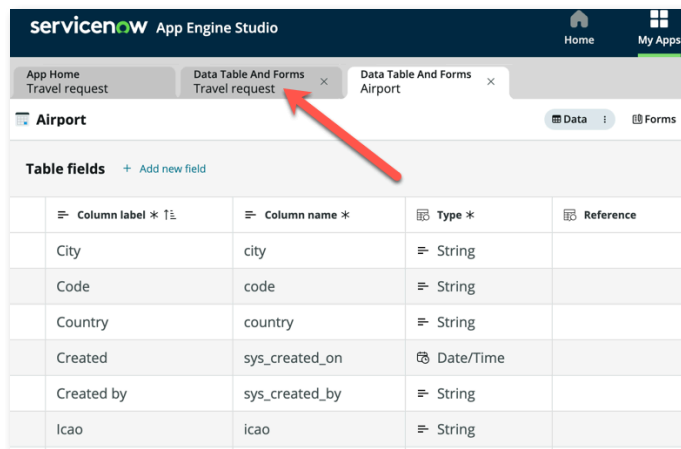
i NOTE

Great, you now have a table to store the list of Airports!

Exercise 2.3: Reference the Airport table from the Travel Request table

Duration: 5 minutes

1. If the Travel request tab is still open, click to navigate to it



2. If not, return to App Home and open the Travel request table, ensure you are in the Form view
3. Click + Add a field in the table, and add the following fields:

Column label	Type
Travel from	Reference (Airport)
Travel to	Reference (Airport)

Add a new field in the Travel request table ✕

The field will be added to the table.

Column label *
Travel from

Column name *
travel_from

Type *
Reference

Table to reference *
airport

Showing 1-1
Airport
x_snc_travel_req_0_airport

▶ Advanced settings

Cancel
Add

4. Drag and drop your two newly created custom fields onto the form

The screenshot shows the 'Travel request' form editor. On the left, the 'Add form elements' panel is open, showing the 'Add a field in the table' button. Two red arrows point from this button to the 'Travel from' and 'Travel to' fields in the form. The 'Travel to' field is highlighted with a purple box. The form fields include: Number, State (Open), Approval (Not Yet Requested), Departure date (2008-12-06 18:47:00), Return date (2008-12-06 18:47:00), Estimated Airfare (12.34), Travel from (Airport [x_snc_travel_req_C]), and Travel to (Airport [x_snc_travel_req_C]).

5. Click Save

 INFO

For simplicity, we are not adding additional fields like Daily estimated expenses, etc. You can always choose to add those fields if you want to.

Congratulations, you have completed Exercise 2 and now have a complete way to store the Travel requests from your employees.

Exercise 3: Creating a user form on the Portal

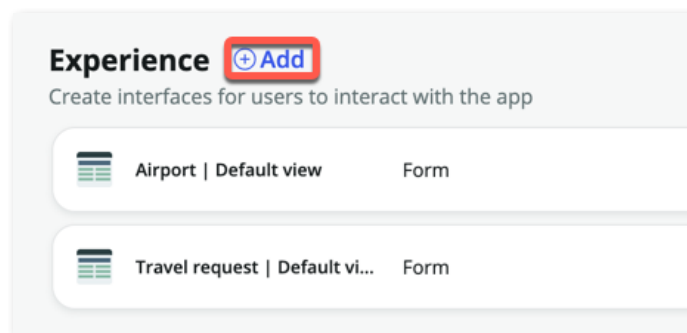
Duration: 30 minutes

For this exercise, we will focus on exposing your newly created table on one of the employee portals so that your employees can easily access and create a travel request for themselves.

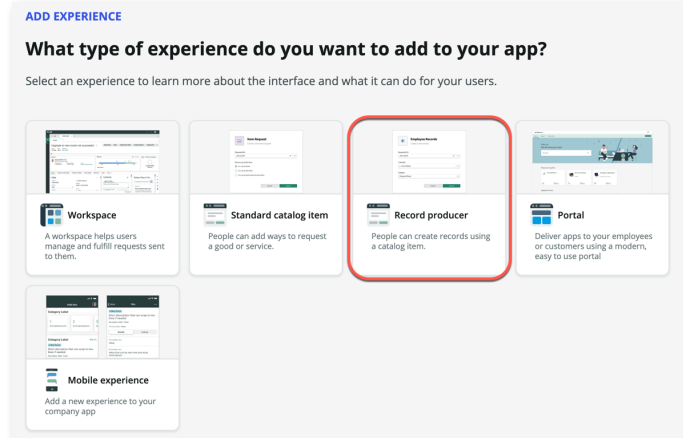
This is also known as a Record Producer in ServiceNow terminology.

1. Click the App Home tab to return to the main view

2. Click Add under Experience



3. On the following screen, click Record Producer



4. Click Begin

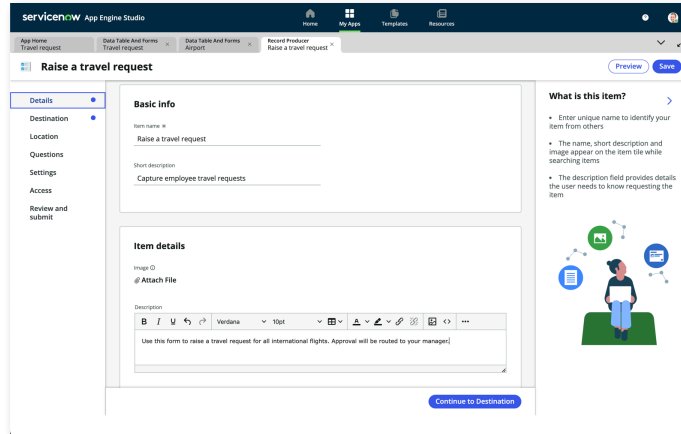
5. On the ADD EXPERIENCE screen, enter *Raise a travel request* under Name, and *Capture employee travel requests* for description

6. Click Continue

7. Click Edit record producer

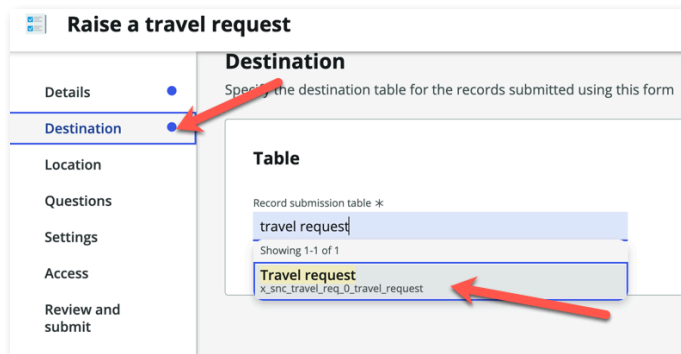
8. Under Description, enter the following text: "Use this form to raise a travel request for all international flights. Approval will be routed to your manager."

9. (Optional) Add an image if you wish (You can use anything you find online)



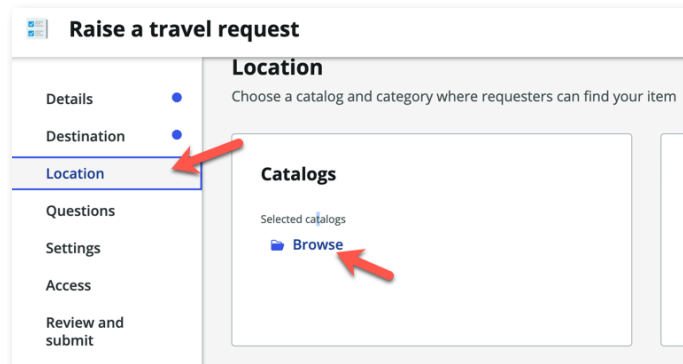
10. On the left sidebar, click Destination

11. We will define where this form will route requests to. Search and select Travel request. This is the table we first created.



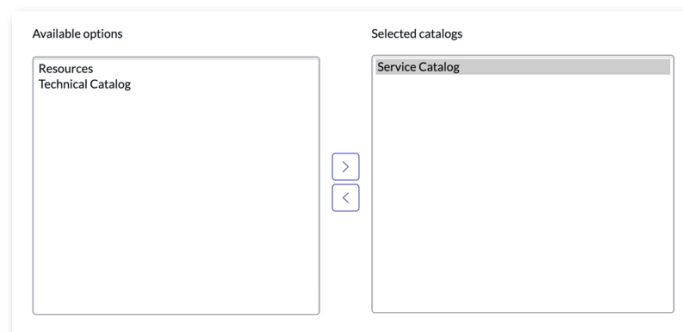
12. On the left sidebar, click Location. We will define which portal this form will be located in. A form can belong to multiple portals on ServiceNow

13. On the main area, click Browse



14. On the next screen, look for Service Catalog under the Available section and move it to the right

15. Ensure that Service Catalog now appears in the Selected section



16. On the bottom right, click Save selections

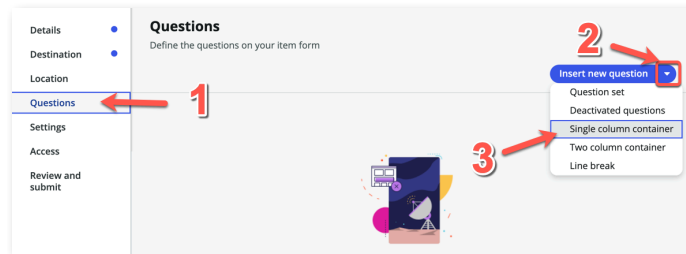
17. Click Browse under Categories

18. This time, do the same as before, and select **Can We Help You?** from the **Available** list

19. On the bottom right, click **Save selections**

20. On the left sidebar, select **Questions**

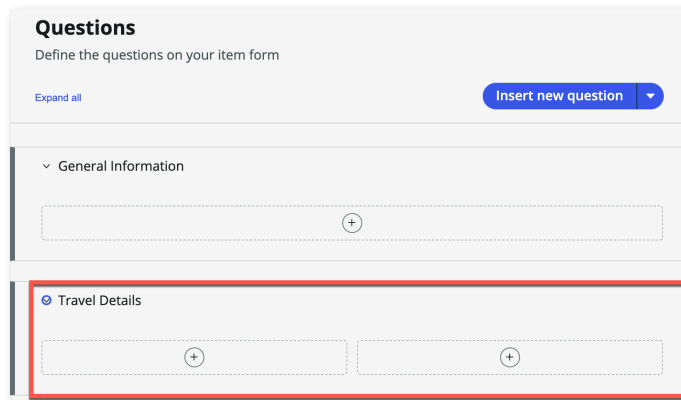
21. Click on the dropdown arrow next to **Insert new question**, and click **Single column container**



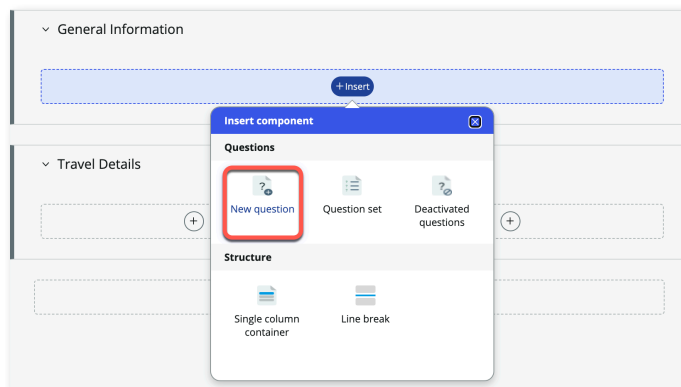
22. In the pop-up box, enter **General Information** under **Title**

23. Click **Submit**

24. Repeat the top 3 steps again, but this time select **Two column container** and enter **Travel Details**



25. Expand the General Information section, click the + Insert icon, and select New question



26. In the next form, fill it out as below

Name	Selection
Question type	Choice
Question subtype	Dropdown (fixed values)
Map to a specific field on the table	Checked
Table field	Reason for travel
Question label	What is the reason for travel?
Mandatory	Checked

What is the reason for travel?

Select a question type and fill in the details

Question
 Choices
 Default value
 Auto-populate
 Annotation

Type
How do you want the user to answer your question (e.g. text, selections, dates)?

Question type
Choice

Question subtype *
Dropdown (fixed values)

Details
What would you like to ask or inform the user of?

Map to a specific field on the table

Question Choices Default value Auto-populate Annotation

Details

What would you like to ask or inform the user of?

Map to a specific field on the table

Table field

Reason for travel

Question label *

What is the reason for travel?

Name * ⓘ

reason_for_travel

Mandatory

27. Click Choices

28. Check Include none choice

29. Under Available Choices, add the 3 reasons you added during table creation for Display name: Customer meeting, Internal meeting, Training

30. Copy each of these onto the Value column as well (Both Display name and Value will be the same)

• Question Choices Default value Auto-populate Annotation

Available Choices
To make your multiple choice valid, add at least two choices.

Display name	Value
Customer meeting	Customer meeting
Internal meeting	Internal meeting
Training	Training

+

31. On the bottom right, click **Insert Question**

32. Expand the **Travel Details** section

33. On the left column, add a **New question**

Questions
Define the questions on your item form

Expand all Insert new question

Insert component

Questions

New question Question set Deactivated questions

Structure

Single column container Line break

+ insert

W... (fixed values)

Trav... + insert

+

34. Fill out the form as follows

Name	Selection
Question type	Date / Time
Question subtype	Date
Map to a specific field on the table	Checked
Table field	Departure date
Question label	When are you leaving?

35. Click Insert Question at the bottom right

36. Repeat the steps above again for Return date

Name	Selection
Question type	Date / Time
Question subtype	Date
Map to a specific field on the table	Checked
Table field	Return date

Name	Selection
Question label	When do you return?

37. Now we will capture the locations by looking at the **Airport** table we created

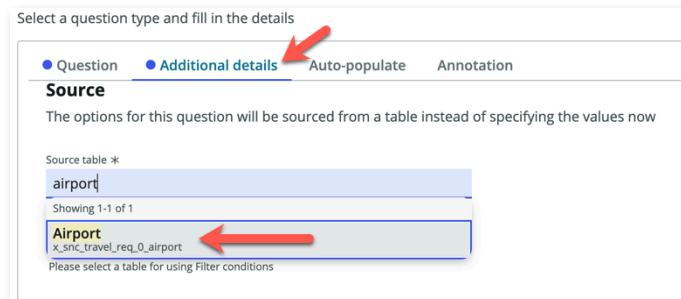
38. Under the same **Travel Details** section, add a new question

Name	Selection
Question type	Choice
Question subtype	Record reference
Map to a specific field on the table	Checked
Table field	Travel from
Question label	Where are you departing from?
Mandatory	Checked

39. Click the **Additional details** tab

40. Under **Source table**, search and select **Airport** (This is the table you imported

from the spreadsheet)



41. On the bottom right, click **Insert Question**

42. In the main screen, follow the steps above once more for **Travel to**

Name	Selection
Question type	Choice
Question subtype	Record reference
Map to a specific field on the table	Checked
Table field	Travel to
Question label	Where are you traveling to?
Mandatory	Checked

43. Remember to choose **Airport** for the **Source table** under the **Additional details** tab

44. Now we will capture the estimated airfare. Insert a new question below **Where are you departing from?**

45. In the main screen, follow the steps above once more for **Estimated Airfare**

Name	Selection
Question type	Text
Question subtype	Single-line
Map to a specific field on the table	Checked
Table field	Estimated Airfare
Question label	What is your estimated airfare?
Mandatory	Checked

46. Click the **Additional Details** tab and type and select **Number** for the text validation

47. On the bottom right, click **Insert Question**

48. Your form should now look like this

The screenshot shows the ServiceNow App Engine Studio interface for configuring a 'Raise a travel request' form. The main area is titled 'Questions' and contains several sections:

- Information:** A dropdown menu for 'What is the reason for travel?' with a '+' icon to add more options.
- Dates and Locations:** Four input fields: 'When are you leaving?' (Date), 'When do you return?' (Date), 'Where are you departing from?' (Dropdown), and 'Where are you travelling to?' (Dropdown). A 'What is your estimated airfare?' field is also present.

On the right side, there is a 'What info do you need?' section with a list of tips and a 'Preview' button. At the bottom right, there is a 'Continue to Settings' button.

49. Click Save in the upper right hand corner.

50. Preview how your form will look like by clicking on the Preview button on the top right

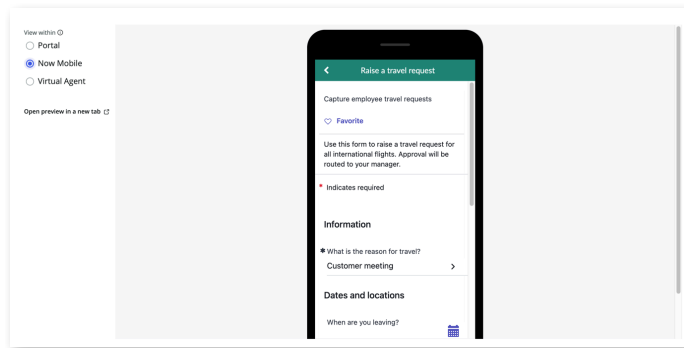
The screenshot shows the 'Preview your catalog item' interface for the 'Raise a travel request' form. The form is displayed in a preview mode, showing the following fields:

- Information:** A dropdown menu for 'What is the reason for travel?' with a value of '-- None --'.
- Dates and Locations:** Four input fields: 'When are you leaving?' (Date), 'When do you return?' (Date), 'Where are you departing from?' (Dropdown), and 'Where are you travelling to?' (Dropdown). A 'What is your estimated airfare?' field is also present.

On the right side, there is a 'Required information' section with a 'Submit' button. At the bottom left, there is an 'Add attachments' button.

51. Try filling in the form with any details, but you won't be able to submit the form as it is in preview mode only

52. Click **Now Mobile** on the left sidebar



i NOTE

Virtual agent is not installed so you will not be able to preview the conversation.

53. The experience also automatically gets added to the mobile catalog, so your users can request for travel on the go
54. Close the preview by clicking the cross icon on the top right
55. On the left sidebar, click **Review and submit**
56. Click the **Submit** button

We will test this form on the *Service Portal* at the end of this session. Now it's time for us to create an approval workflow for this travel request!

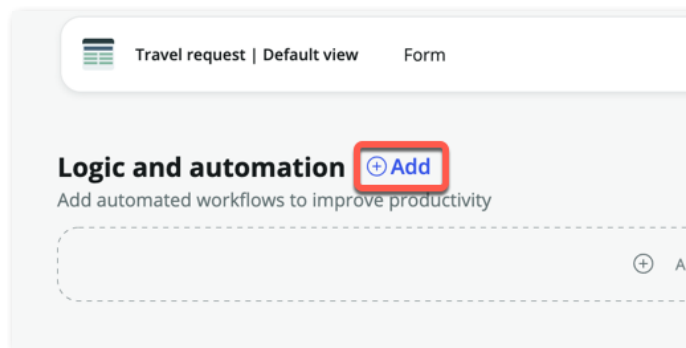
Exercise 4: Creating an approval workflow

Duration: 30 minutes

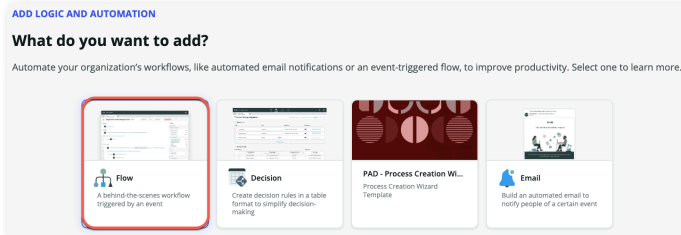
Within this exercise, we will be creating an approval workflow. Let's describe what we will be designing in a sentence: *Whenever a new travel request is raised, we will route the request to the requestor's manager for approval. Once approved, we will mark the status of the request as complete*

1. Navigate back to the App Home tab

2. Click Add under Logic and automation



3. Click Flow



4. Click Build from scratch

5. For Name, enter Travel request approval

6. For Description, enter Route travel request approval to requestor's manager

7. Expand Show advanced options

8. Change Run as to System user

ADD AUTOMATION

Let's set up your flow

This flow needs a name, description, and other details.

Name

Travel request approval

Description

Route travel request approval to requestor's manager

Hide advanced options

Application

x_snc_travel_req_0

Protection

-- None --

Run as

System User

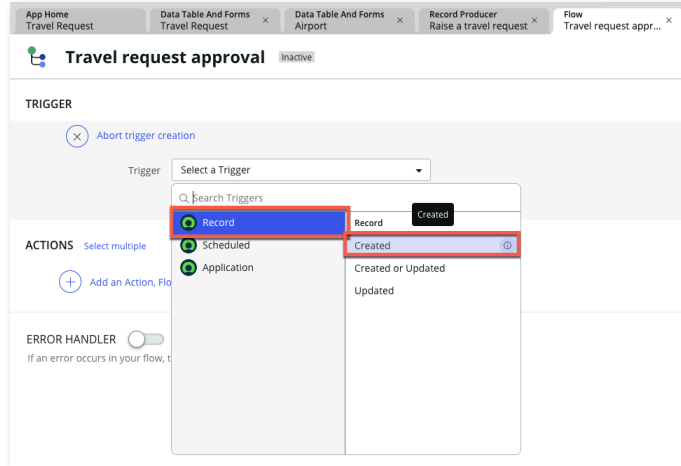
9. Click Continue

10. Click Edit this flow

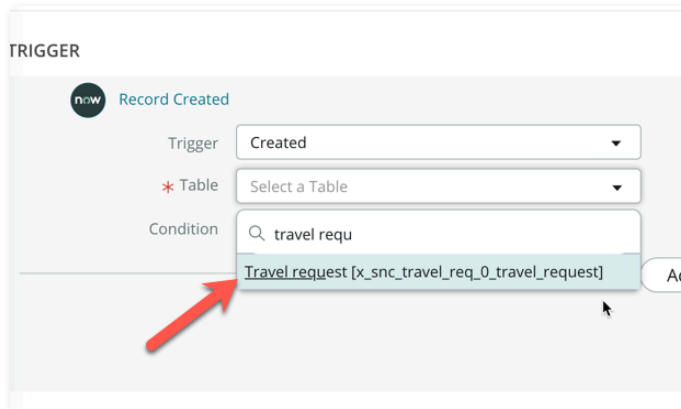
11. Close the Getting started pop-up box

12. Click Add a trigger

13. Under RECORD, click Created



14. Under Table, search and select Travel request

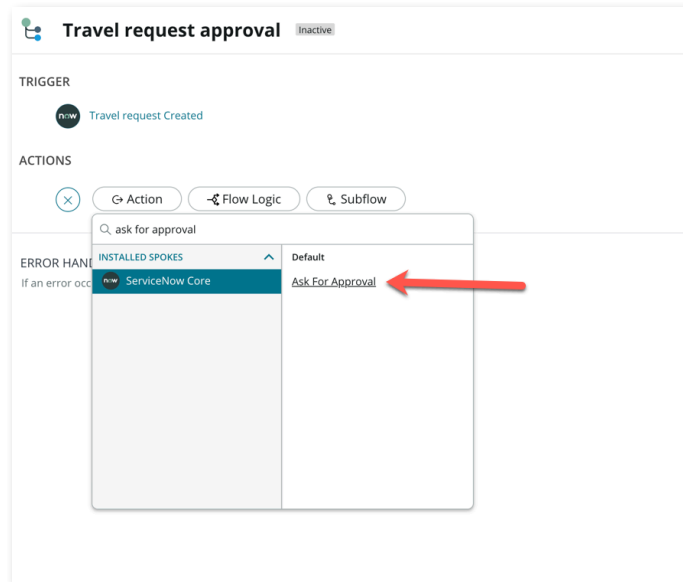


15. Click Done

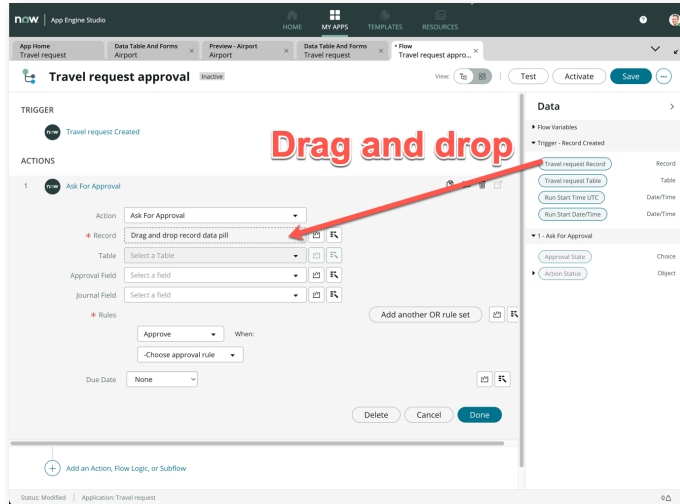
16. Click Add an Action, Flow Logic, or Subflow

17. Click Action

18. Search and select Ask for approval

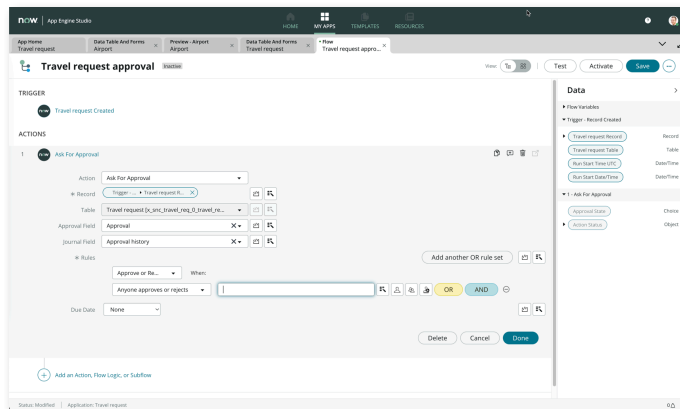


19. In the Ask for Approval action box, drag and drop the Travel request Record from the Data pill picker on the right sidebar, into the Record box



20. Under Rules, change Approve to Approve or Reject

21. Change -Choose approval rule to Anyone approves or rejects

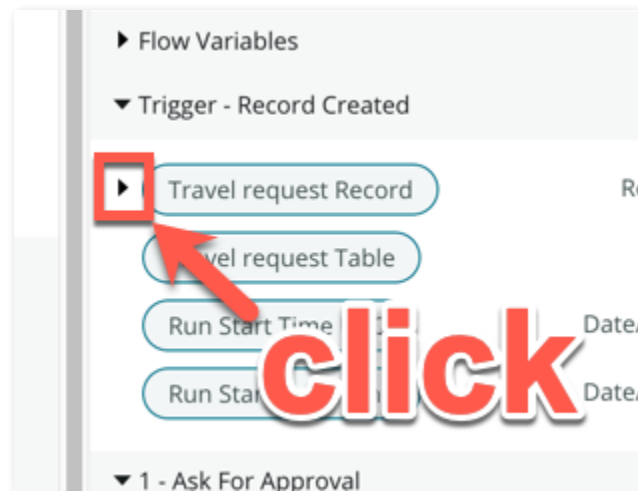


! INFO

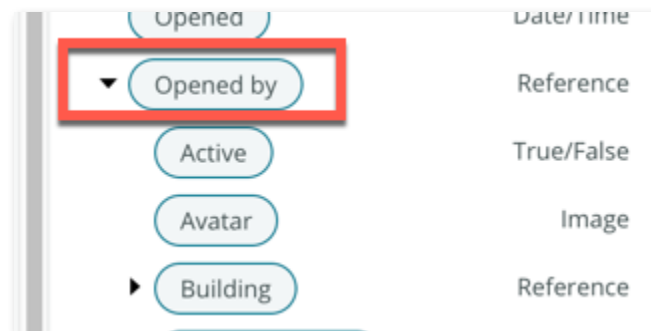
We want the approval to be routed to the requestor's manager, so we will

perform what is known as dot-walking to find the related user's manager.

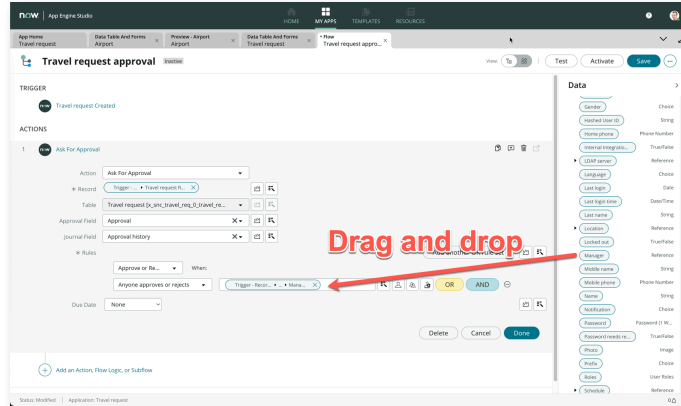
- From the right sidebar (Data pill picker), expand the Travel request Record by clicking the expand arrow



- Look for the Opened by data pill, and expand it

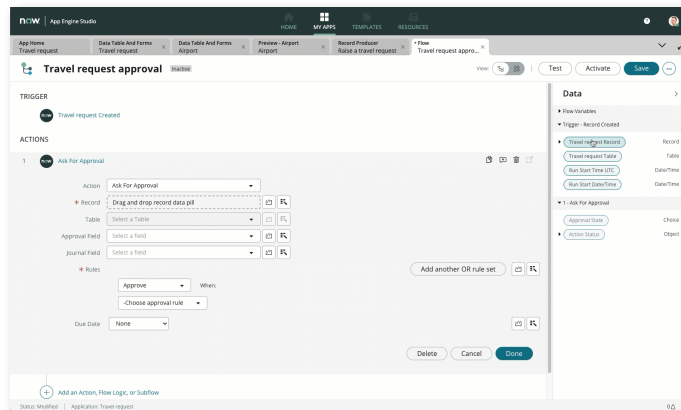


- Under the Opened by section, look for the Manager data pill



25. Click Done

26. Here is a full video walkthrough in case you had difficulties at any step

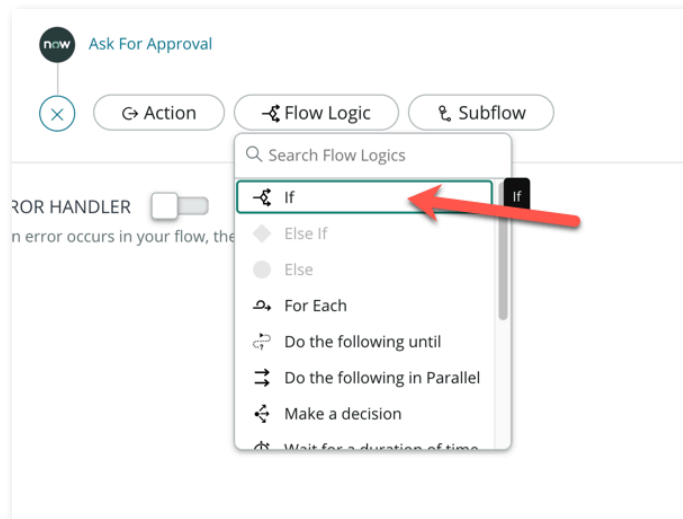


What we have achieved here is that we are looking for the user who opened the record's manager to be the approver for this record.

27. Click Add an Action, Flow Logic, or Subflow

28. Click Flow Logic

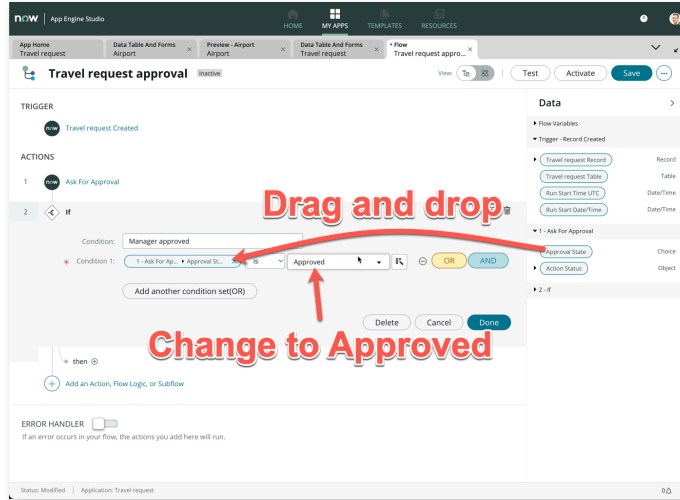
29. Click If



30. For Condition Label, enter Manager approved

31. Drag and drop the Approval State data pill from the right sidebar onto Condition 1

32. Change the choice to Approved



33. Click Done

34. Click Save on the top right of the screen

35. Click on the + icon next to then

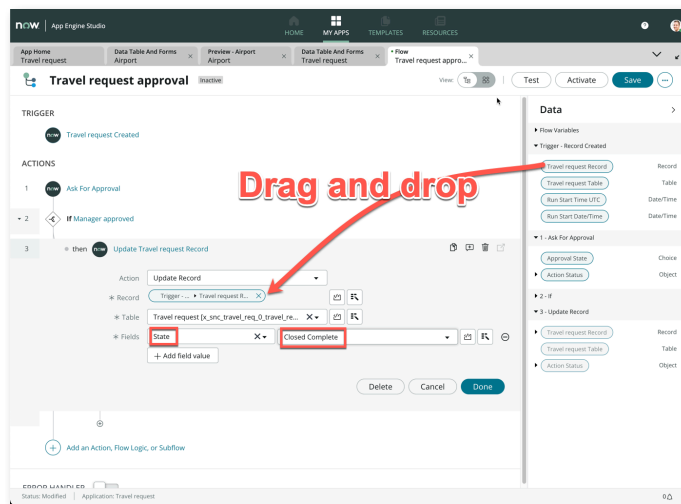


36. Click Action

37. Search and select Update Record

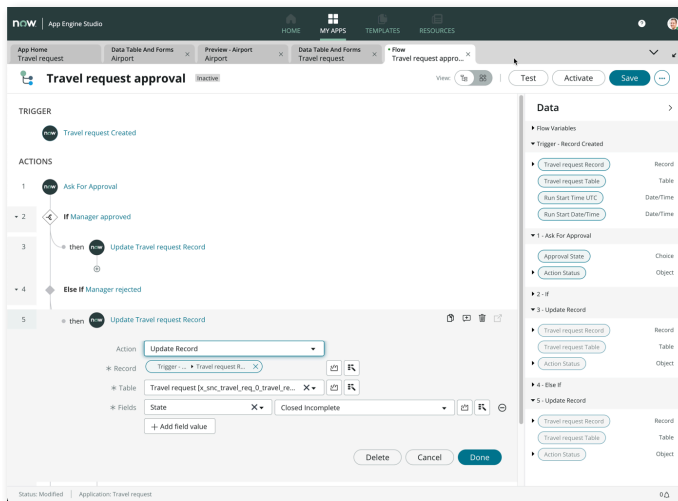
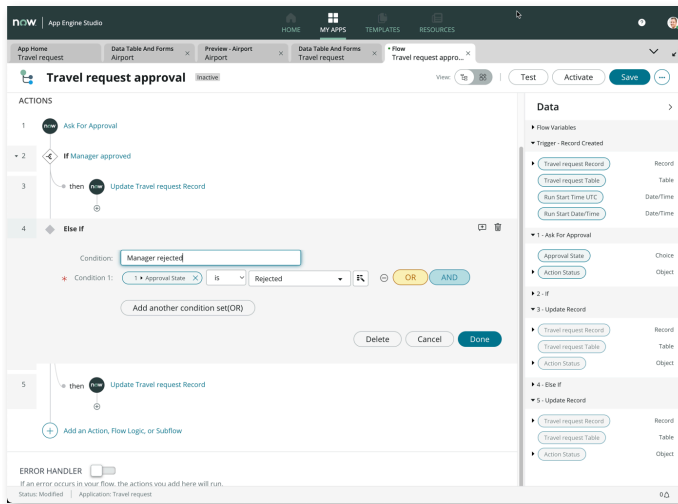
38. Drag and drop the Travel request Record onto the Record field

39. Under Fields, select the State field and change the choice to Closed Complete

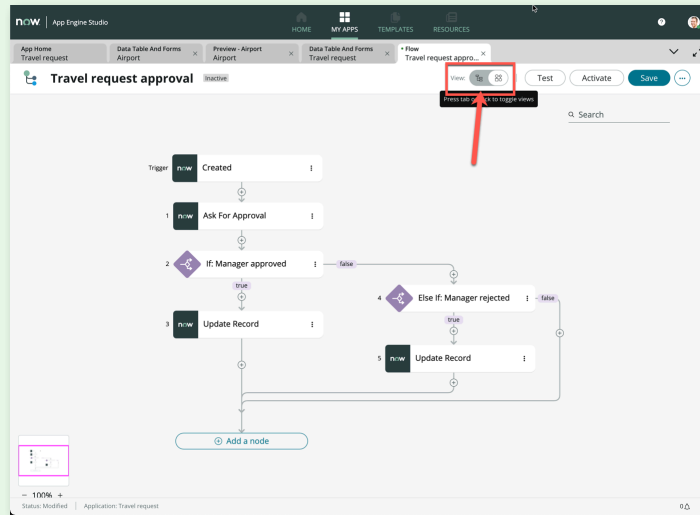


40. Click Done

41. Click Save on the top right of the screen
(Optional) Now we will complete the flow by creating the logic of a rejected approval. As a challenge, can you complete the rest of the flow yourself? The end result should look like this:



TIP
Hint: You can always toggle the flow diagramming view by clicking on this icon



42. Click Activate on the top right of the screen

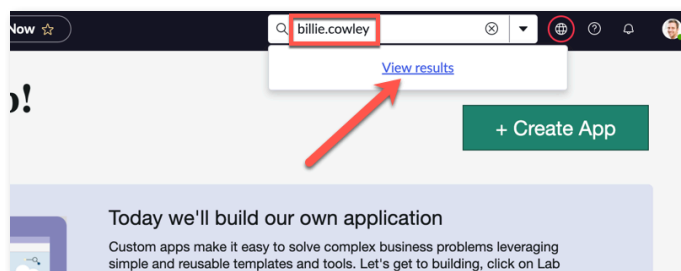
Exercise 5: Putting it all together - Testing our application

Duration: 15 minutes

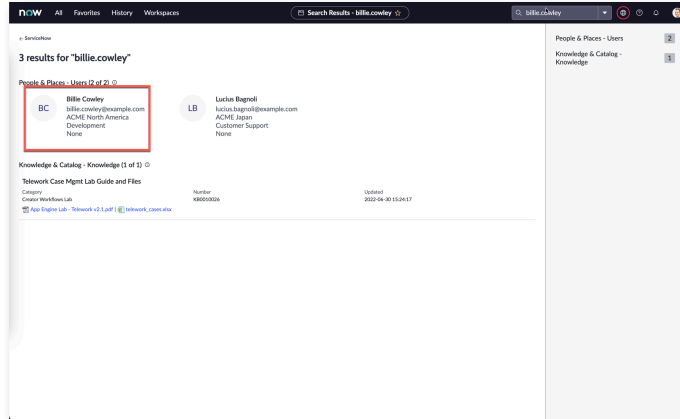
Congratulations on making it so far!

We have one last thing to do, which is to test our application. Our person of interest here is Billie Cowley who is wanting to raise a travel request. His direct manager is Krystle Stika, and this relationship has already been inherited through a Microsoft AD integration. We will first directly grant the Travel request user role to one of our employees for the test.

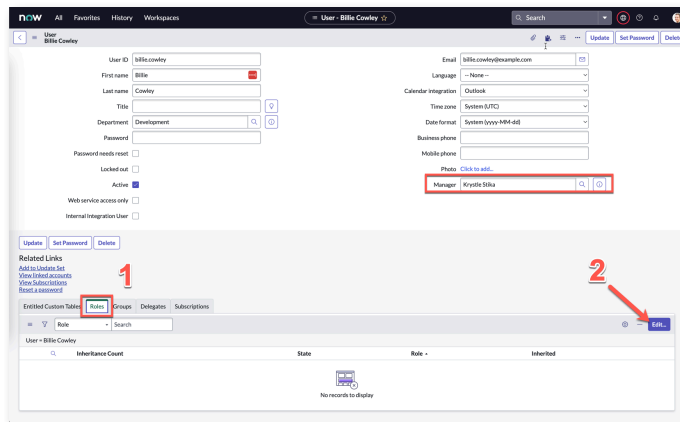
1. Head back into the main ServiceNow interface
2. On the global search, enter `billie.cowley` and click `View results`



3. Click Billie Cowley



4. On Billie's user record, click the Roles tab below, then click Edit on the right hand side

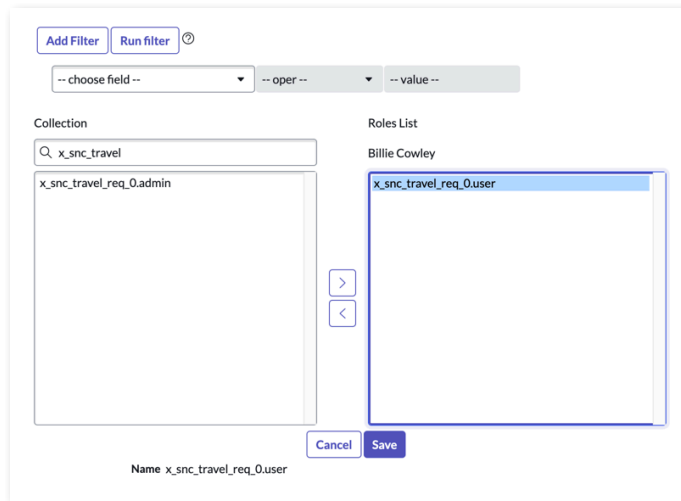


! INFO

Also notice on the screenshot above that Billie's manager is Krystle Stika. You won't be able to see this on your screen, but note that this has been preconfigured for you.

5. Under **Collection**, search `x_snc_travel`, you should see the two roles you created for your custom application.

6. Grant the user role to Billie by moving it into the Roles List

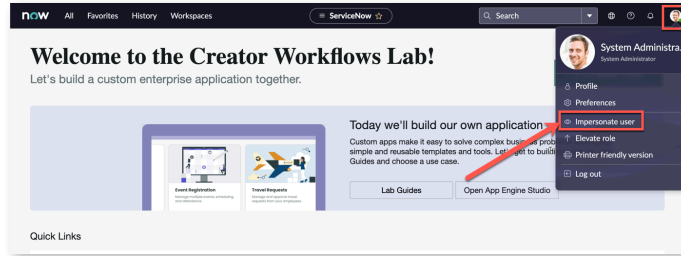


7. Click Save

! INFO

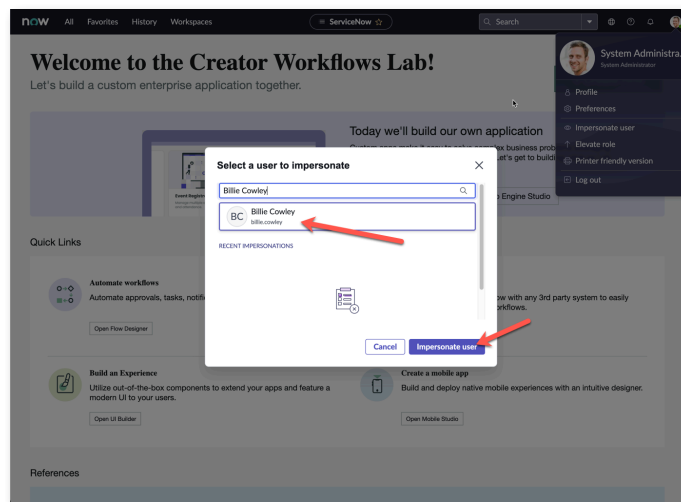
This is actually not best practice, but only for the purposes of today's activity. In a real implementation, it would be best to assign a role to a group, and then assign users to that group so they all inherit that role.

8. Click on the profile picture on the top right, and click **Impersonate user**



9. Search and select Billie Cowley

10. Click Impersonate user



11. Close the pop-up screen

12. Copy the current URL of the page, and open a new Browser tab

13. Paste the URL, and replace everything after `service-now.com` with `/sp`



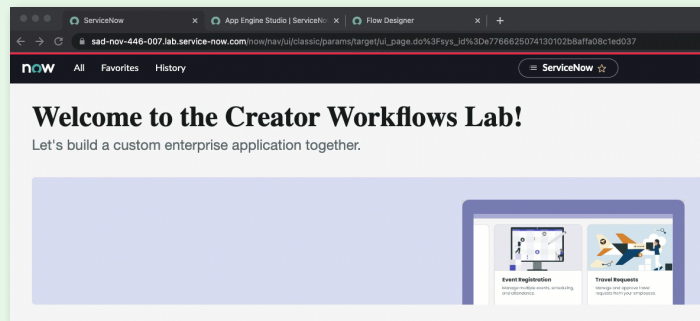
TIP

if the copied URL is:

`https://sad-oct-123-001.lab.service-now.com/now/nav/ui/classic/params/target/ui_page.do%3Fsys_id%3De7766625074130102b8affa08c1ed037`

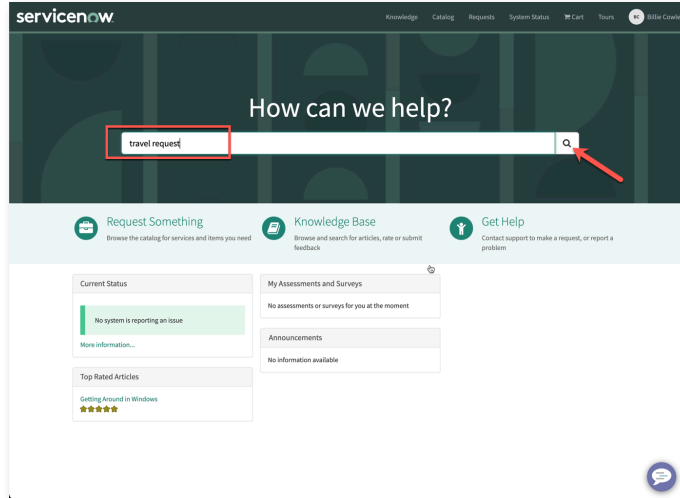
change it to:

`https://sad-oct-123-001.lab.service-now.com/sp`



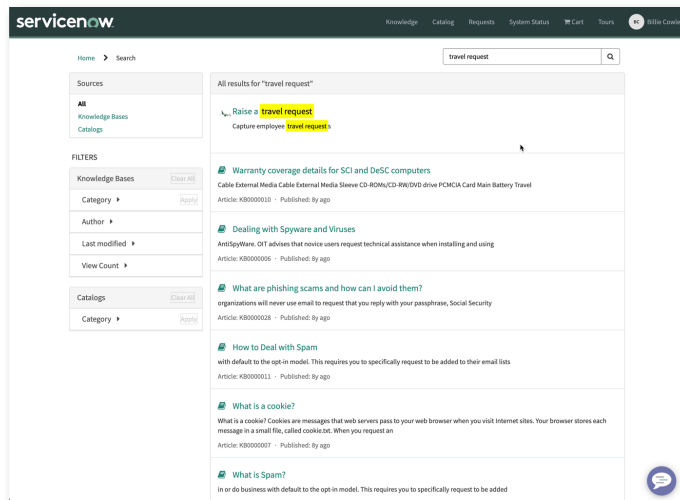
14. The Service Portal home page should now open

15. Under How can we help?, search for Travel request



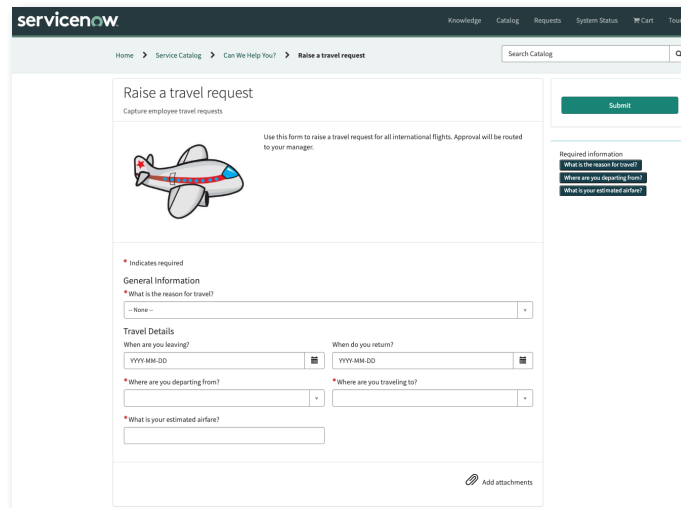
16. Click the Search icon

17. The top result should return the form we had created in Exercise 3



18. Click Raise a travel request

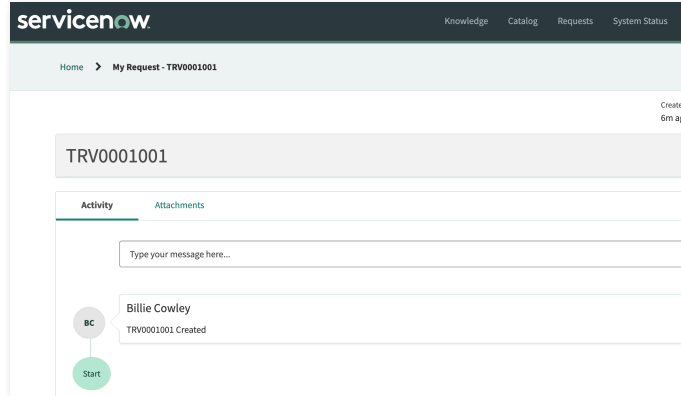
19. Confirm that the form appears as expected, then fill in all the fields



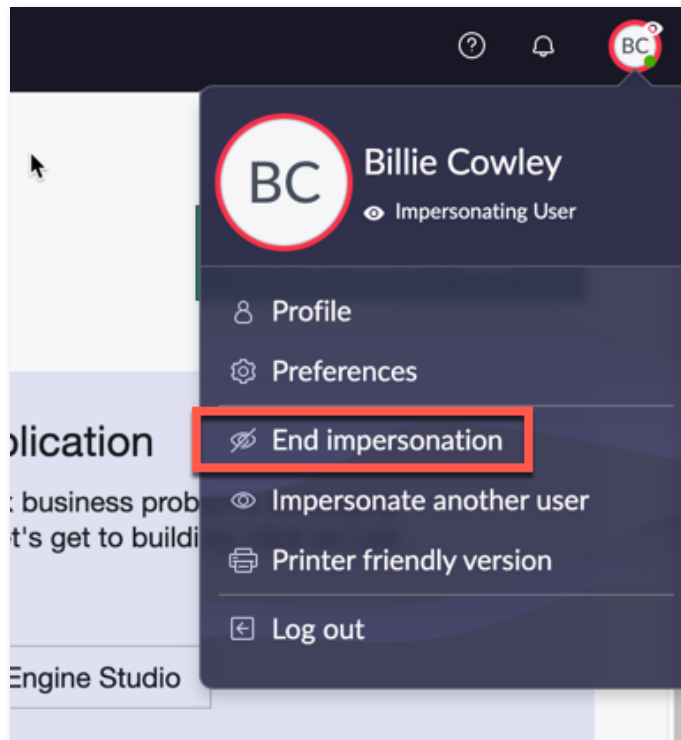
The screenshot shows the ServiceNow interface for raising a travel request. The page title is "Raise a travel request" with the subtitle "Capture employee travel requests". A navigation breadcrumb shows "Home > Service Catalog > Can We Help You? > Raise a travel request". A search bar is located in the top right. The main content area features an airplane icon and a note: "Use this form to raise a travel request for all international flights. Approval will be routed to your manager." A "Submit" button is visible in the top right corner. Below the icon, there are sections for "General Information" and "Travel Details". The "General Information" section includes a dropdown menu for "What is the reason for travel?". The "Travel Details" section includes two date pickers: "When are you leaving?" and "When do you return?". Below these are two dropdown menus: "Where are you departing from?" and "Where are you traveling to?". At the bottom of the form, there is a text input field for "What is your estimated airfare?" and an "Add attachments" button.

20. Click Submit

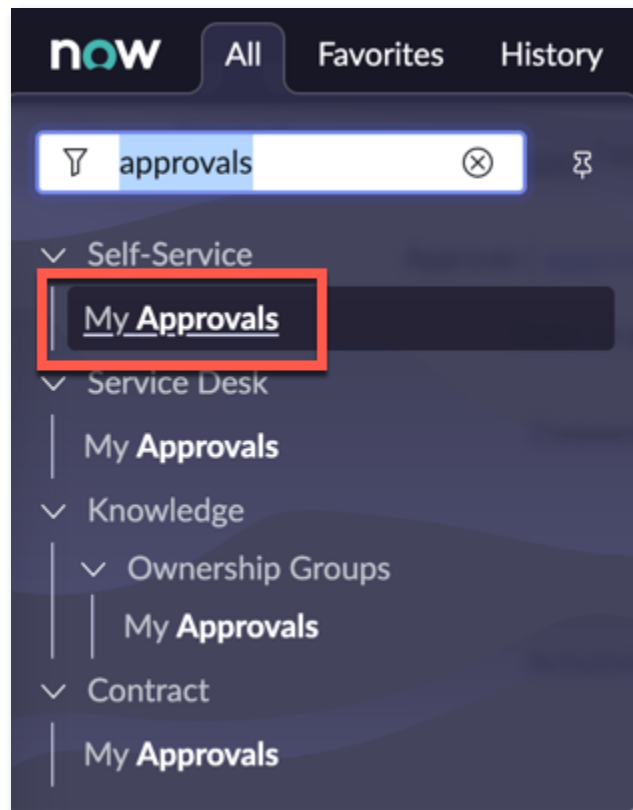
21. The next screen can be used to track the status of the request and add attachments



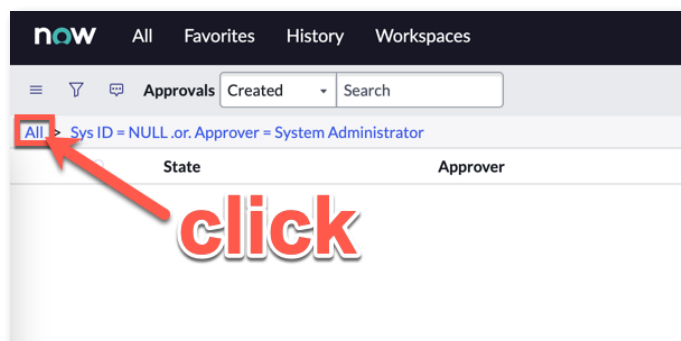
22. Go back to the ServiceNow main interface, and End impersonation



23. Under All, search and select My Approvals

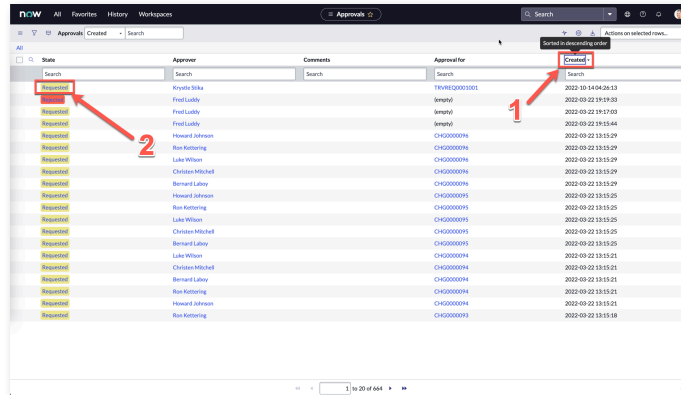


24. Remove the filter by clicking All

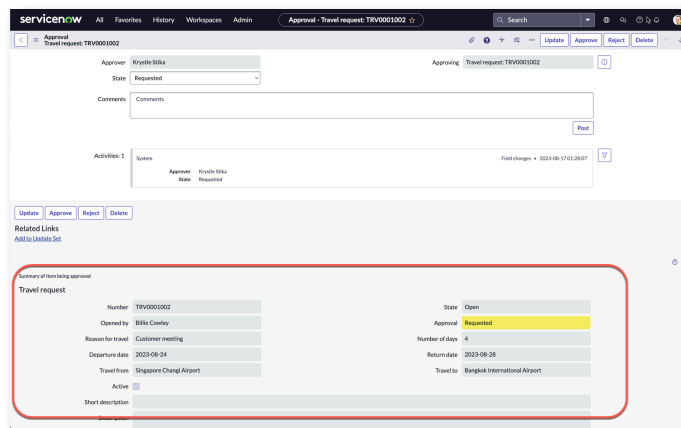


25. Filter by the latest created approval date by clicking Created

26. Click on the Requested record for Krystle Stika as the Approver



27. Review the details you submitted on the bottom of the form, then click Approve



28. You will be brought back to the list view

29. Click on the Approved record for your Travel request, if you followed all the steps so far, this should be the first record created: TRV0001001

State	Approver	Comments	Approval for	Created
Approved	Krystle Stika		TRV0001001	2023-10-22 05:14:09
Rejected	Fred Luddy		(empty)	2023-05-11 19:19:33
Requested	Fred Luddy		(empty)	2023-05-11 19:17:03
Requested	Fred Luddy		(empty)	2023-05-11 19:15:44
Requested	Howard Johnson		CHG0000096	2023-05-11 13:15:29
Requested	Ron Ketterling		CHG0000096	2023-05-11 13:15:29
Requested	Luke Wilson		CHG0000096	2023-05-11 13:15:29
Requested	Christen Mitchell		CHG0000096	2023-05-11 13:15:29
Requested	Bernard Laboy		CHG0000096	2023-05-11 13:15:29
Requested	Howard Johnson		CHG0000095	2023-05-11 13:15:25
Requested	Ron Ketterling		CHG0000095	2023-05-11 13:15:25
Requested	Luke Wilson		CHG0000095	2023-05-11 13:15:25
Requested	Christen Mitchell		CHG0000095	2023-05-11 13:15:25
Requested	Bernard Laboy		CHG0000095	2023-05-11 13:15:25
Requested	Luke Wilson		CHG0000094	2023-05-11 13:15:21
Requested	Christen Mitchell		CHG0000094	2023-05-11 13:15:21
Requested	Bernard Laboy		CHG0000094	2023-05-11 13:15:21
Requested	Ron Ketterling		CHG0000094	2023-05-11 13:15:21
Requested	Howard Johnson		CHG0000094	2023-05-11 13:15:21
Requested	Ron Ketterling		CHG0000093	2023-05-11 13:15:18

30. On the record, notice that the State was automatically changed to Closed Complete, as per our approval flow that was designed

Number	TRV0001001	State	Closed Complete
Opened by	Billie Cowley	Approval	Approved
Reason for travel	Customer meeting	Number of days	4
Departure date	2023-08-24	Return date	2023-08-28
Travel from	Singapore Chang Airport	Travel to	Bangkok International Airport
Active	<input checked="" type="checkbox"/>		
Short description			
Description			
Work notes			

Congratulations, you did it!

You've successfully built a simple application for employees to raise travel requests and seek manager approval!



There is obviously so much more you can do with the application to make it even better.

Here are some ideas:

1. Add functionality to capture multiple location travel itineraries
2. Run all requests and approvals via Email / Microsoft Teams / Slack / Virtual Agent etc.
3. [Bonus Exercise 2.1](#) - Build a travel workspace with playbooks that can monitor requests and also have direct communication with the requestors

4. **Bonus Exercise 2.2** - Build dashboards to track requests

5. **Bonus Exercise 3** - Integrate with APIs to get a list of flights on specific travel dates so you get as accurate a travel estimate as possible.

You get the idea... the list is endless. You are only limited by your imagination on making the experience seamless for everyone involved. This is only the beginning.

ServiceNow makes the world of work, work better for people!

Bonus Exercises

Bonus Exercise 1: Adding Calculations

Learn how to use Excel-like formulas to add cost calculations for a travel request. Our goal here is to use a per diem rate multiplied by number of days, added to the estimated airfare cost to get an estimated total trip cost.

Bonus Exercise 2: Dashboard Workspace

Learn how to create an interactive workspace for your users to process travel requests. You will also learn how to build a dashboard with custom reports in the workspace.

Bonus Exercise 3: Integrating via APIs

Use a real webservice API to update our list of airports which we previously imported via an Excel spreadsheet. This will ensure that the locations all remain up to date with some additional data fields for tracking.

Bonus Exercise 1 Overview:

Calculate Trip Cost

Duration: 30 minutes

In this bonus exercise, you will learn how to use Excel-like formulas to add cost calculations for a travel request. Our goal here is to use a per diem rate multiplied by number of days, added to the estimated airfare cost to get an estimated total trip cost.

2.1: Creating Calculations

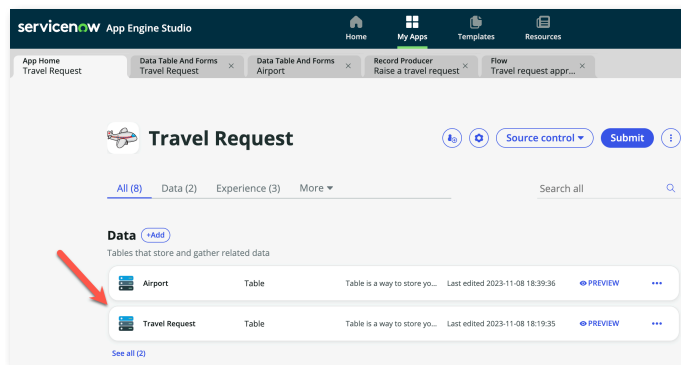
Learn to add automated calculations to your table.

2.2: Test the Calculations

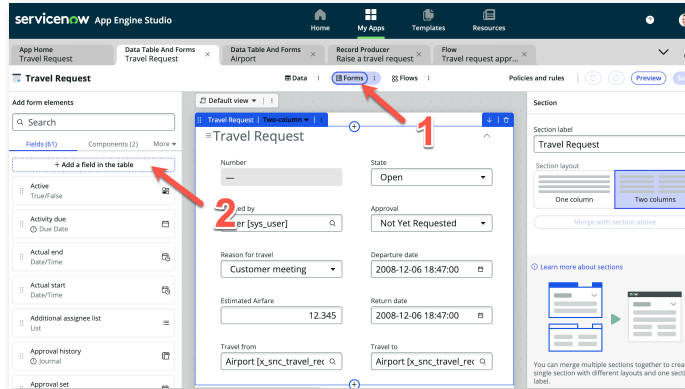
Ensure that the calculations are working as expected.

Bonus Exercise 1.1: Create the Calculations

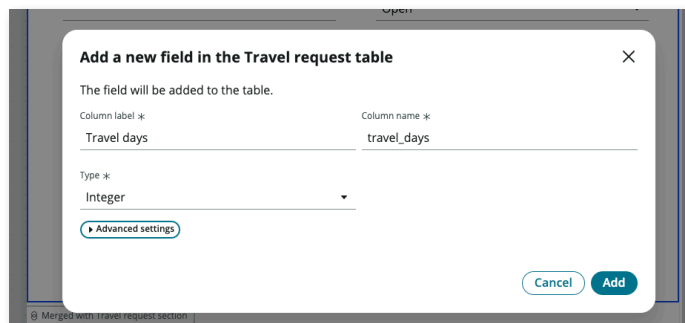
1. Navigate back to your App Home screen if you are not currently on it, then click the Travel request table to open table builder



2. Click the Forms button to get to form builder
3. Click Add a field in the table

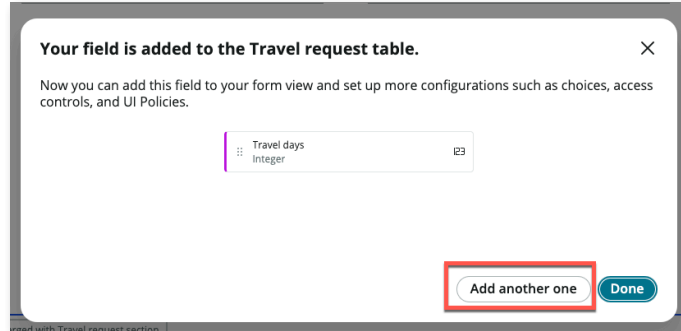


4. In the pop-up, enter Travel days in Column label, and change Type to Integer. Leave the auto-populated field under Column name

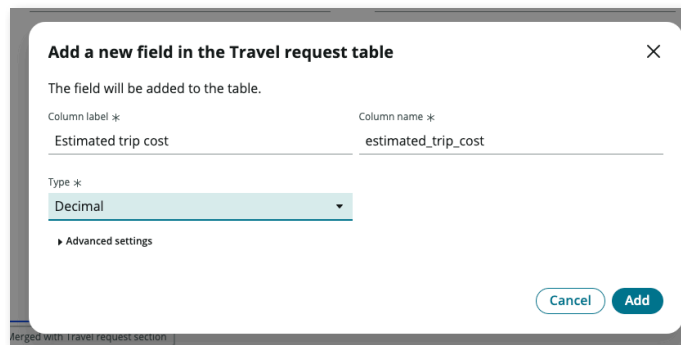


5. Click Add

6. Click Add another one

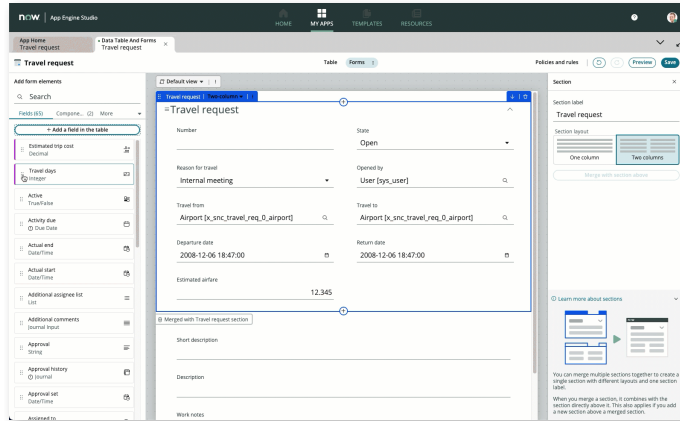


7. Enter Estimated trip cost in Column label, and change Type to Decimal. Leave the auto-populated field under Column name



8. Click Add
9. Click Done
10. You should notice now on the left sidebar two form elements highlighted with a purple left border. These are your new fields you added

11. Drag and drop the Travel days and Estimated trip cost form elements onto your form



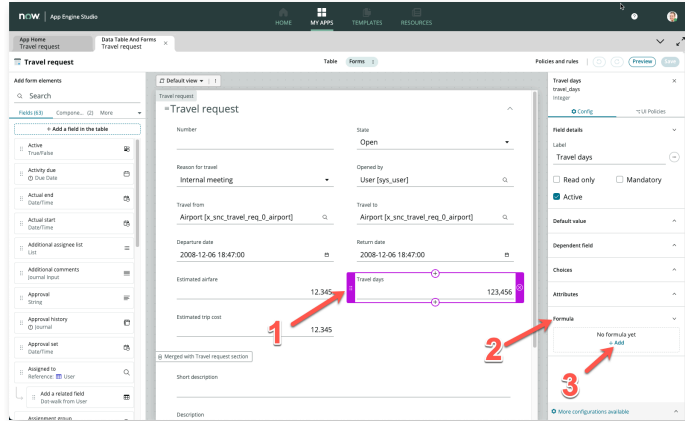
12. Click Save

13. Click the Travel days form element

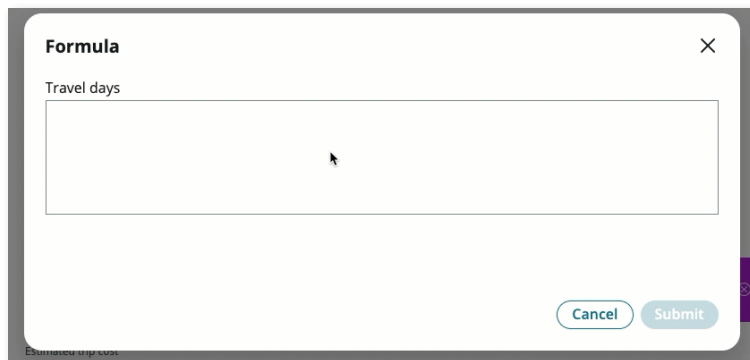
14. On the rightside bar, you should see the options change

15. Click Formula

16. Click Add



17. In the pop-up Formula box, enter the following formula:
`TIMEDIFF (return_date , departure_date)`

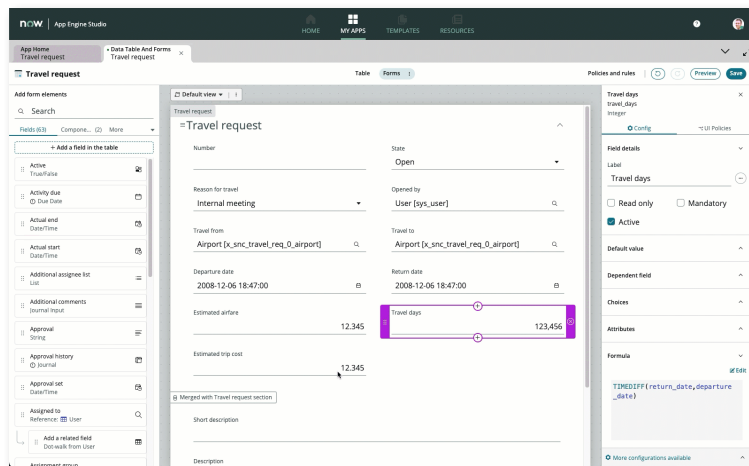


18. Click Submit
19. On the top right, click Save
20. Click Estimated trip cost

21. Click Formula, then Add

22. In the pop-up Formula box, enter the following formula:

`SUM(estimated_airfare,MULTIPLY(travel_days, 150))`



! INFO

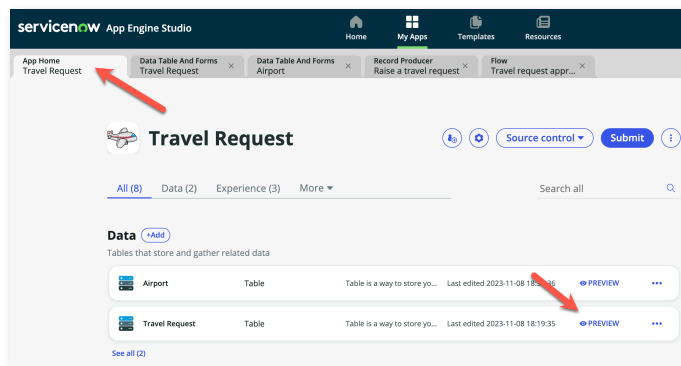
Our formula here takes into account that each travel day, the employee is given \$150 per diem

23. Click Submit

24. On the top right, click Save

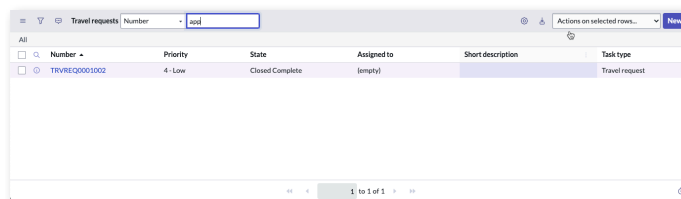
Bonus Exercise 1.2: Test the Calculations

1. Go back to App Home



2. Click PREVIEW on the Travel request row

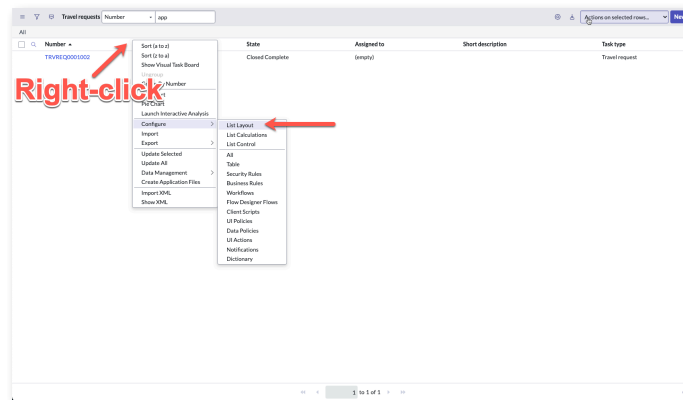
3. A new tab opens up to show the list of Travel requests



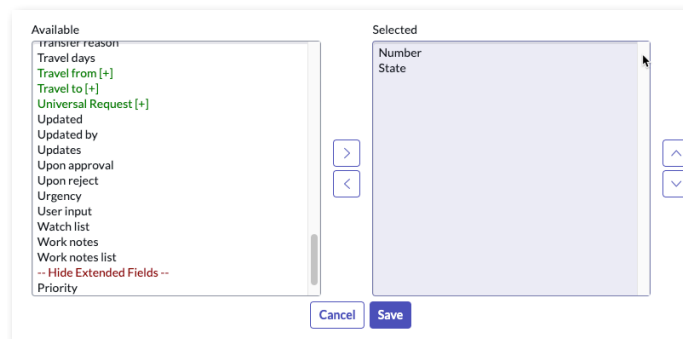
4. We did not format this list view back in Exercise 2, so let's go ahead to do that quickly

5. Right-click anywhere on one of the column headers

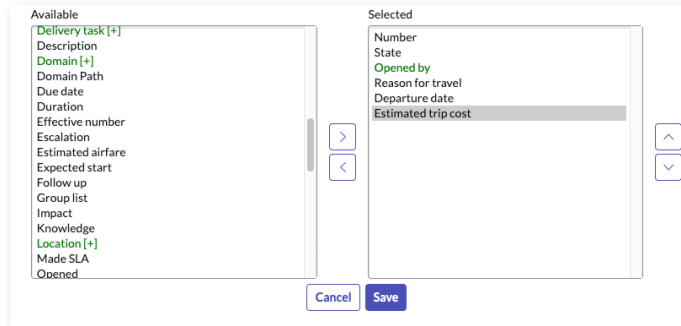
6. Click List Layout under Configure



7. On the right Selected section, remove everything except Number and State. Do this by double-clicking on each line to be removed



8. Add Opened by, Reason for travel, Departure date, Estimated trip cost from the left Available section onto the right Selected section



9. Click Save

10. You should now return to the list layout (your records will be slightly different based on what you entered in the exercise 4)

Number	State	Opened by	Reason for travel	Departure date	Estimated trip cost
TRV0001001	Closed Complete	Billie Cowley	Customer meeting	2023-11-11	2,700

11. Click New on the top right

12. Fill up the form, ensure that you enter information for Departure date, Return date, Travel from, Travel to, and any numerical figure for Estimated airfare

Travel Request
New record

Number: TRV0001002
State: Open
Opened by: System Administrator
Approval: Not Yet Requested
Reason for travel: -- None --
Departure date: 2023-11-20
Estimated Airfare: 2,000
Return date: 2023-11-23
Travel from: Singapore Changi Airport
Travel to: Los Angeles International Airport
Estimated trip cost: 0
Travel days:
Short description:
Description:
Submit

13. Right-click on the form header, then click Save

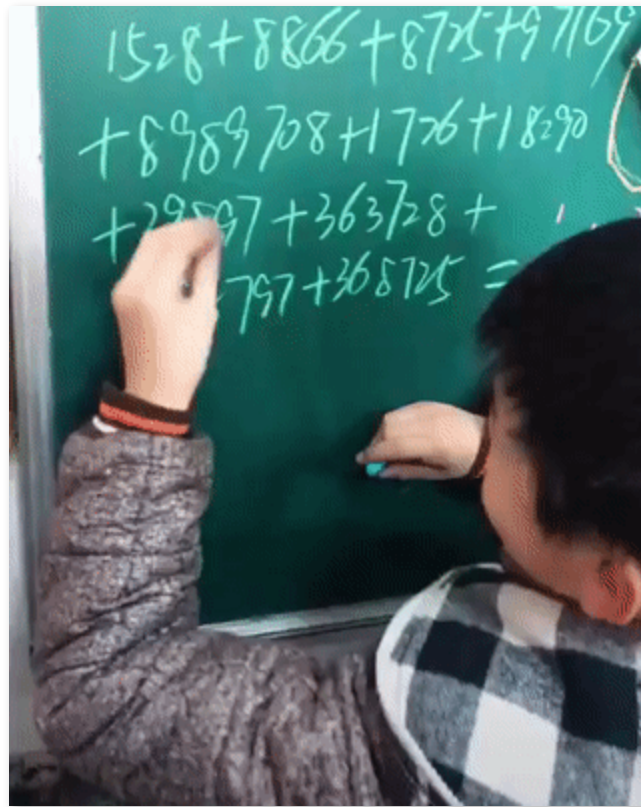
Travel request
TRVREQ0001004

Number: TRVREQ0001004
State: Open
Reason for travel: Internal meeting
Travel from: Singapore Changi Airport
Departure date: 2022-11-23
Estimated airfare: 1,390.5
Estimated trip cost: 1,990.5
Travel to: Los Angeles International Airport
Return date: 2022-11-27
Travel days: 4
Short description:
Description:
Work notes:
Update Delete
Related Links
Add to Update Set

14. Notice that the Travel days and Estimated trip cost fields are automatically populated, ensure that the values are correct

15. In the screenshot above, the following was calculated

$$2000 + (3 * 150) = 2,450$$



Well done, you now understand how to build Excel-like formulas into your application! Here are some other possible formulas that are currently supported, but more are on the way:

- **AND** Performs a logical AND operation on the arguments.
- **AVERAGE** Returns the average value of the arguments.
- **CONCATENATE** Joins one or more input strings into a single string.
- **DIVIDE** Returns the quotient value after dividing argument 2 by argument 1.
- **IF** Executes the specified statements based on the Boolean output of the conditional expression.
- **ISBLANK** Finds white spaces or blank values in the string and returns true if there are any.
- **LENGTH** Returns the total number of characters in the input string.
- **LOWERCASE** Converts the input string to all lowercase characters.
- **MAX** Returns the highest value in the specified arguments.

- **MIN** Returns the lowest value in the specified arguments.
- **MULTIPLY** Returns the multiplied value of the arguments.
- **NOW** Returns the current date and time of the instance in ISO format.
- **OR** Performs logical OR operation on the arguments.
- **POWER** Returns the result of the base value raised to the power of the exponent value.
- **REPLACE** Replaces characters in the source string with the characters in the target string.
- **SUBTRACT** Returns the result value after subtracting argument 2 from argument 1.
- **SUM** Returns the sum of all the arguments.
- **TIMEDIFF** Finds difference between 2 dates for Duration field.
- **TITLECASE** Converts the input string to all title case characters.
- **UPPERCASE** Converts the input string to all uppercase characters.

 INFO

Here is a link to the official Product Documentation with an up-to-date list of the formulas:

[Product Docs: Formulas for column values in Table Builder](#)

Bonus Exercise 2 Overview: Add a workspace

Duration: 30 minutes

3.1: Add a Workspace

Learn to create an interactive workspace for your users to process travel requests.

3.2: Creating a dashboard

You will also learn how to build a dashboard with custom reports in the workspace.

Bonus Exercise 2.1: Create a Workspace

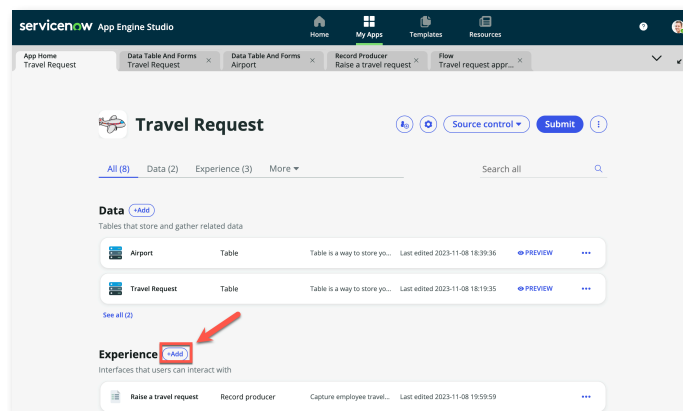
Duration: 30 minutes

⚠ CAUTION

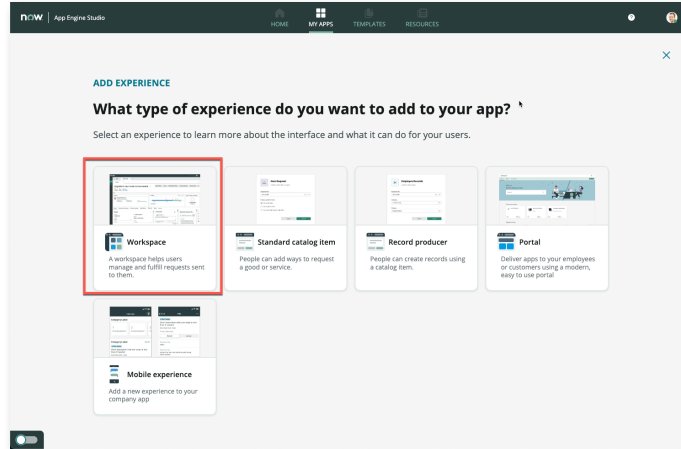
Pre-requisites: Bonus Exercise 1

Some screens will show forms that were configured in Bonus Exercise 1. These are minor changes that will not affect the completion of this exercise.

1. Navigate back to your **App Home** screen if you are not currently on it, then click **Add** under **Experience**



2. Click **Workspace**



3. Click Begin

4. Change Name to Travel Request Workspace, Description to A central workspace to manage all travel requests

ADD EXPERIENCE

Let's design your Workspace

This experience needs a name, description and URL.

Name * ⓘ
Travel Request Workspace

Description ⓘ
A central workspace to manage all travel requests

URL * ⓘ
travel-request-workspace
/now/travel-request-workspace

Roles ⓘ
x_snc_travel_req_0.admin × x_snc_travel_req_0.user ×

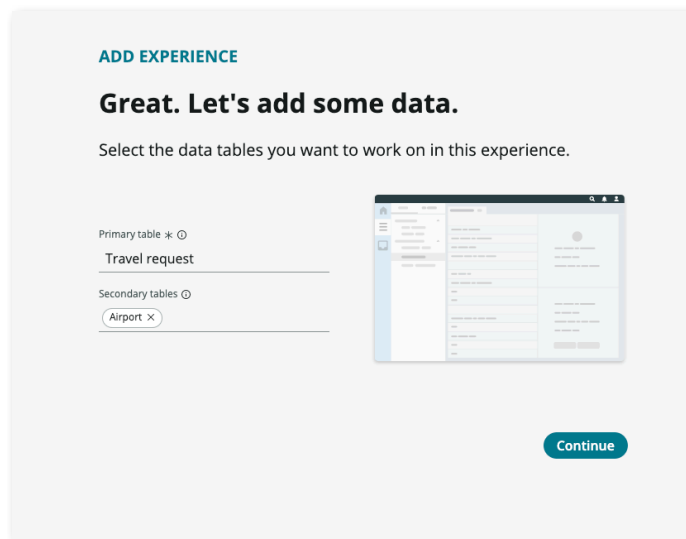
[Cancel](#) [Continue](#)

5. Leave the rest default and click Continue

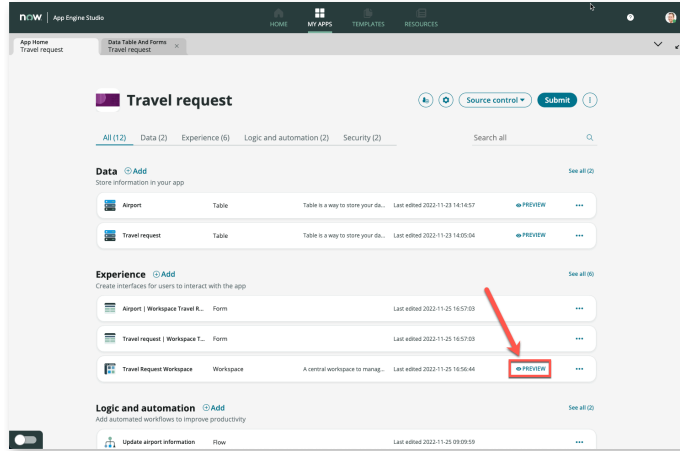
6. Your screen should show **Airport** as the primary table, and **Travel request** in the secondary tables, we will need to swap these two around

7. Search and select **Travel request** under Primary table

8. Search and select **Airport** under Secondary tables

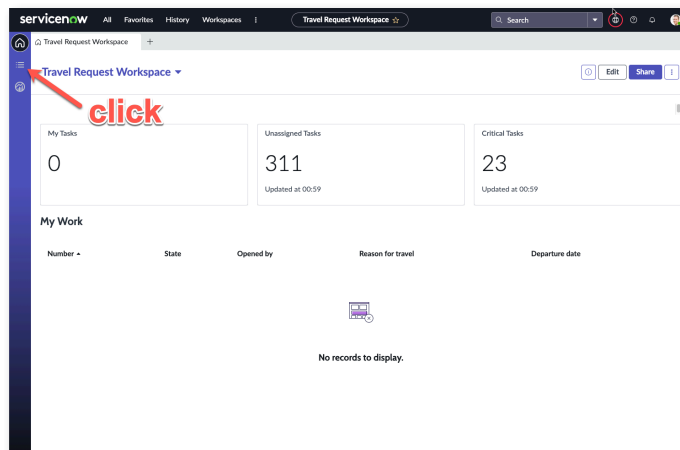


9. Click **Continue** and wait for a short loading time. The experience is getting built based on your application configurations so far
10. On the next screen, click **Done**
11. You should be brought back to **App Home**
12. Click **Preview** on the new **Travel Request Workspace** row



13. A new browser tab will open and the workspace will be loaded

14. Click on the list icon on the left sidebar



15. Notice that on the Lists, your Travel request and Airport tables appear

16. Click **All** under **Travel request**, notice that this removes all filters and shows all your created travel requests
17. Click **New** on the top right
18. The form view appears. This should be the same as what you had configured in Exercise 1. There are the additional fields **Travel days** and **Estimated trip cost** from Bonus Exercise 1
19. Fill in the form with data of your liking, then click **Save**

The screenshot shows the ServiceNow interface for a Travel Request record (TRV0001003). The form is displayed in a multi-column layout. The main form area contains the following fields:

- Number:** TRV0001003
- State:** Open
- Opened by:** System Administrator
- Approval:** Not Yet Requested
- Reason for travel:** Training
- Departure date:** 2023-11-25
- Estimated Airfare:** 2,377
- Return date:** 2023-11-30
- Travel from:** Los Angeles International
- Travel to:** Barcelona International
- Estimated trip cost:** 3,127
- Travel days:** 5

On the right side, there are three panels:

- Compose:** A text area for comments with a "Post Comments" button.
- Activity:** A list of activity items, showing one entry from System Administrator with details like "Field changes" and "2023-11-09 00:27:06".
- Attachments:** A section titled "No Attachments Available" with a "Select" button.



TIP

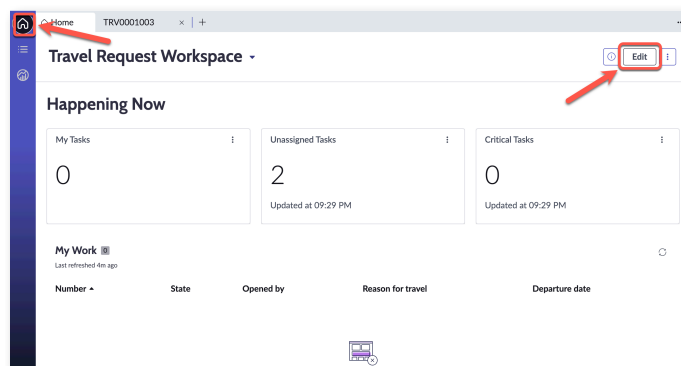
On the right, **Attachments** can be added at any time. Attachments submitted together with our form in Exercise 2 will also appear here for viewing and download

Bonus Exercise 2.2: Create a Dashboard

Let's create a dashboard so that users can have an easy view to understand current requests. Then, we will add three widgets to the dashboard.

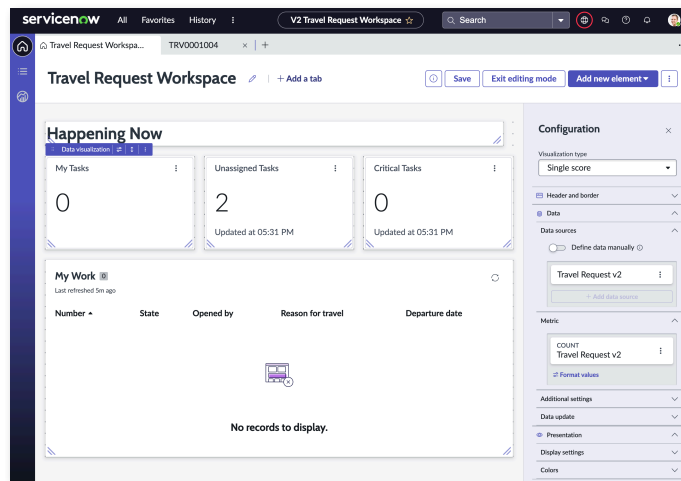
Widget 1: All travel requests

1. Click on the Home icon on the left sidebar to return to the workspace home page
2. On the top right, click Edit



3. Click My Tasks, then the Configure button on the highlighted Data visualization

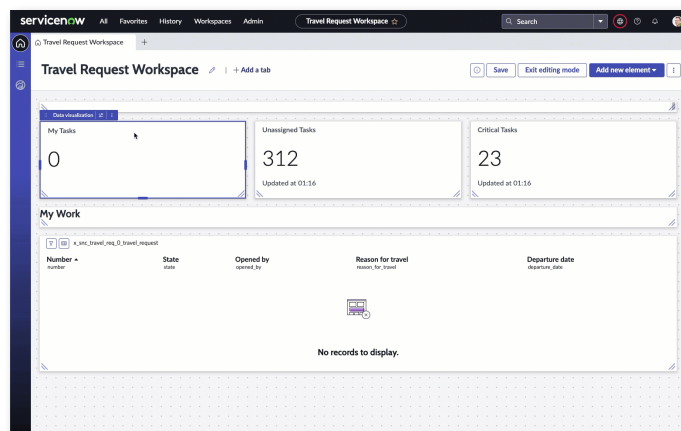
4. The right sidebar appears showing the Visualization type Single score



TIP

If you face issues with the screen not loading, change to a different Visualization type, then change it back to Single score

5. Expand Header and border, then change Chart title to All Travel Requests. Here are all the steps so far:

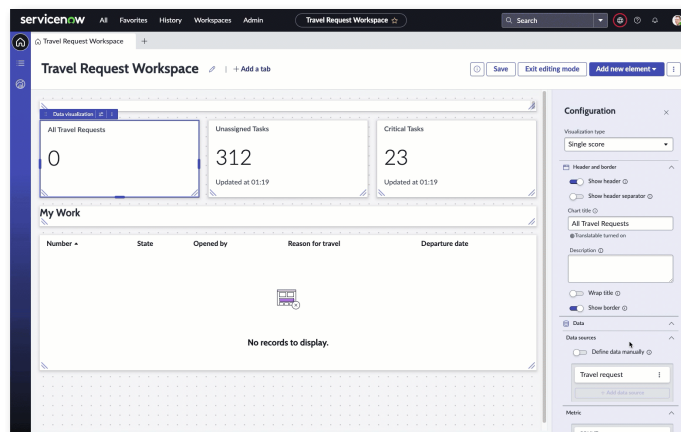


6. Under the Data sources section, click the 3 dot icon next to Travel request, then click Edit

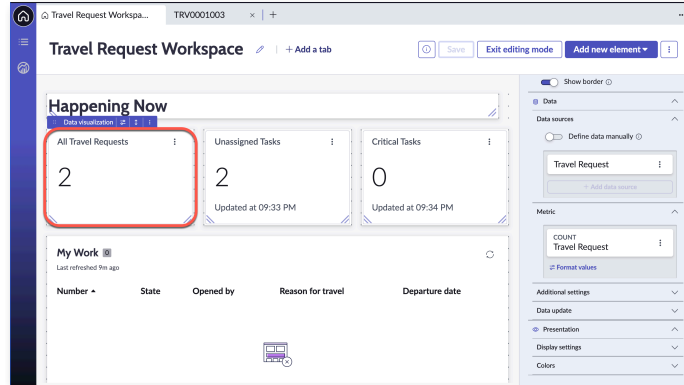
7. On the Edit data source screen, click Edit under Filters

8. Remove the Assigned to condition by clicking the X icon

9. Click Apply



10. Confirm that the All Travel Requests widget now refreshes to show the number of Travel requests that you have created



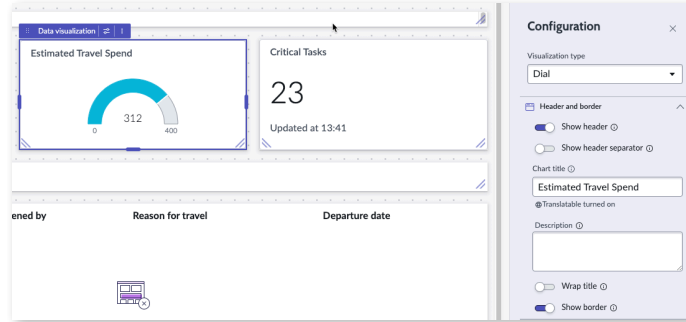
1. Click Save on the top right

Widget 2: Estimated travel spend vs budget

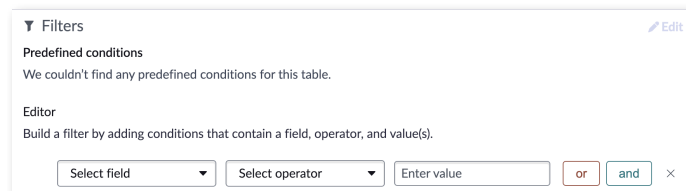
 DANGER

This widget can only be configured if you completed Bonus Exercise 1. If you have not completed that, please skip this widget.

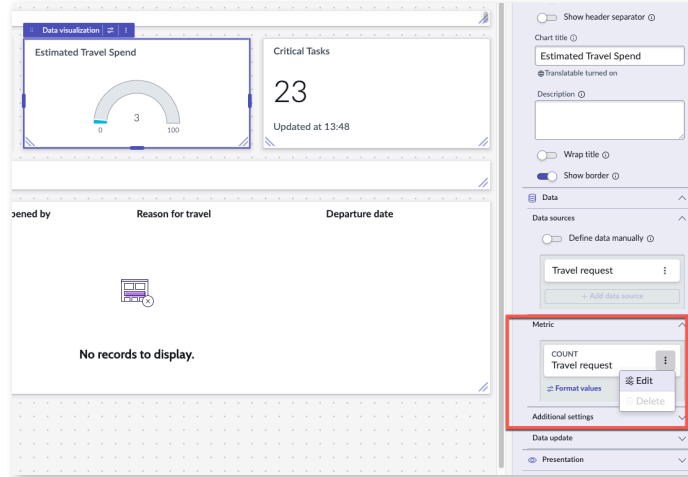
1. Click and configure the next widget, Unassigned Tasks
2. Change the Visualization type to Dial
3. Under Header and border change Chart title to Estimated Travel Spend



4. Under Data sources, edit the Travel Request data source
5. On the next Edit data source screen, click on Travel request [x_snc_travel_req_0_travel_request] under Suggested on the left sidebar
6. Click Edit under filters, and remove the two conditions by clicking the x.
7. Set the following condition: **Opened** on **Months -> This month** and click Apply.

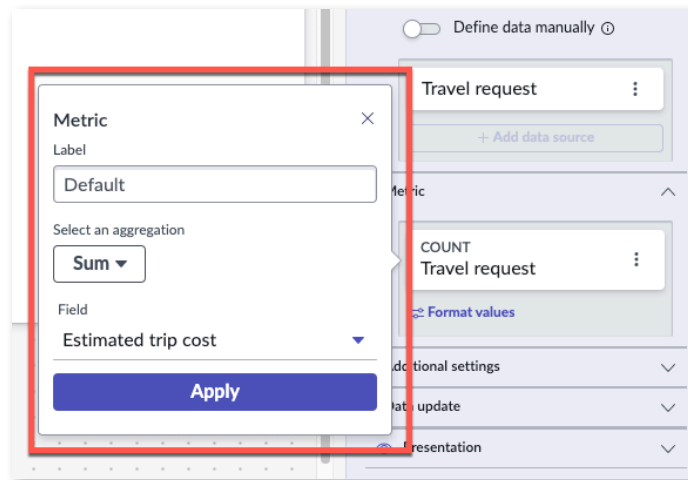


8. Back on the Edit dashboard view, on the right sidebar, under the Metric section, click the 3 dot icon, then Edit for Travel request



9. On the pop-up box, change Count under Select an aggregation to Sum

10. Change Field to Estimated trip cost



11. Click Apply

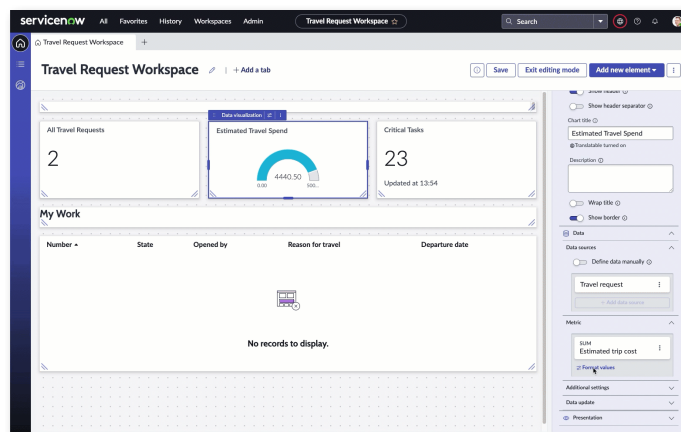
12. Click Format values under the Estimated trip cost metric

13. In the pop-up box, toggle Use custom formatting

14. Change Rounding to Up

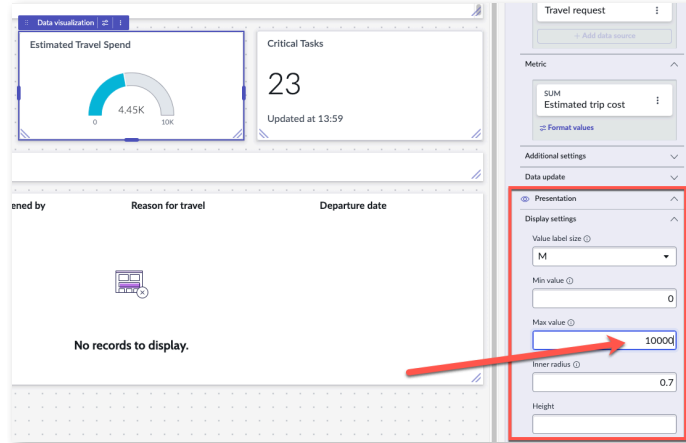
15. Toggle Enable abbreviation

16. Click Save



17. On the right Configuration sidebar, expand Presentation, then expand Display settings

18. Change Max value to a budget you think fits your current Estimated Travel Spend. e.g. here the Estimated Travel Spend is currently 4.45K for the month, so we will put the Max value at 10K



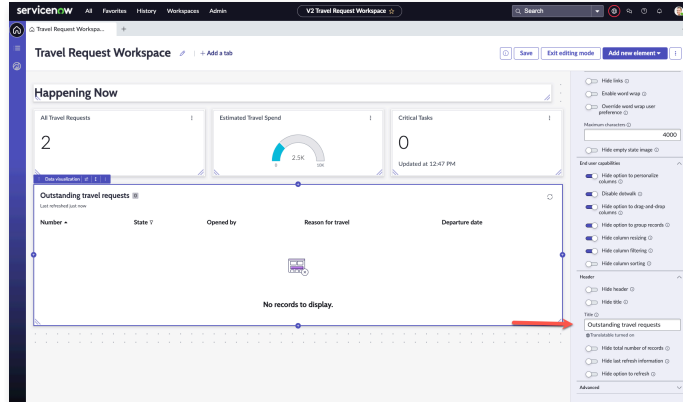
19. On the top right, click Save
20. Your middle Estimated Travel Spend widget should have been dynamically updating based on all the changes that we have been making

Widget 3: Outstanding Approvals

CAUTION

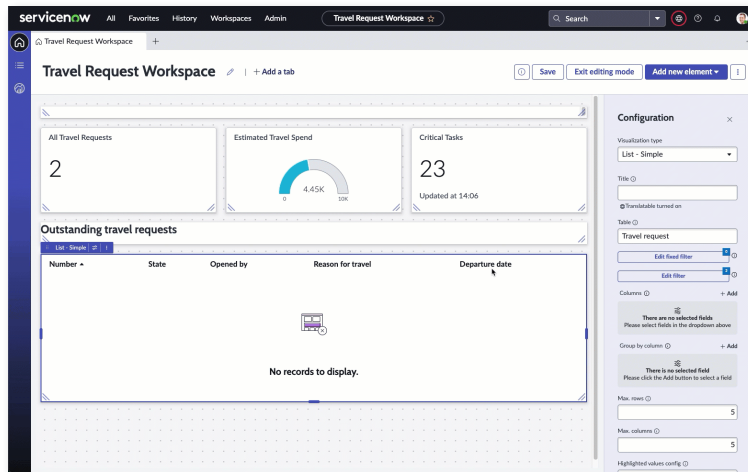
This widget will appear different if you have not completed Bonus Exercise 1, but will not impact completing the widget.

1. Click the **My Work** list at the bottom of the dashboard.
2. On the right configuration sidebar, scroll to the bottom of the configuration panel to the **Header** section. Change **Label** from **My Work** to **Outstanding travel requests**



3. On the right configuration sidebar, scroll up and click **Edit filter**
4. On the pop-up box, remove **Assigned to is (dynamic) Me** by clicking X on the far right of the row
5. Click the **and** button
6. In the new **and** row that appears, set the following condition:
State is one of Pending, Open, Work in Progress

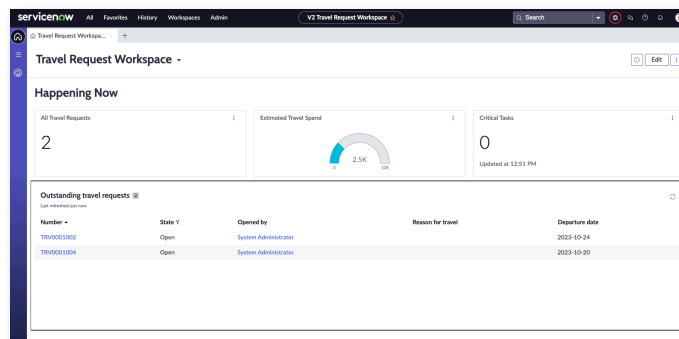
Refer to the video below:



7. Click Apply, then on the top right of the screen, click Save

8. Click Exit editing mode

9. Your dashboard should look similar to this



10. We have left the final Critical Tasks widget for you to experiment with. Feel free to make any changes that you would like with the different Visualizations available by repeating the steps in this exercise.

💡 TIP

All widgets are also built with the drill-down capability. You can click on any of the widgets created to get to the underlying data supporting that widget.



Well done once again!

In this exercise, you have built a dashboard purely through drag and drop. This is obviously just a short snippet into the possibilities here, and there is so much more that can be done to give data-rich visualizations to those who need easy access to data as fulfillers and admins, all in a single workspace.

Bonus Exercise 3 Overview:

Integrating via APIs

3.1 Create the Action

Create a custom Integration Hub Action that will call a real webservice API to update our list of airports. This will ensure that the locations all remain up to date with some additional data fields for tracking.

3.2 Use the Action in a Flow

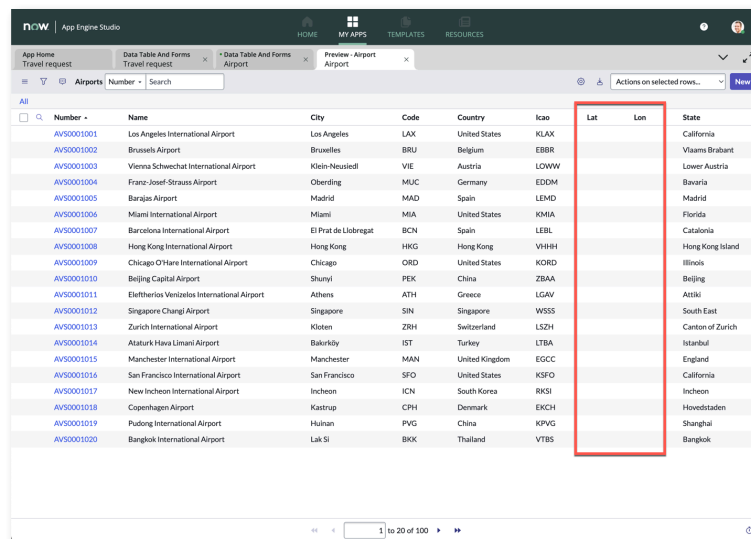
The Action will now appear as a custom Integration Hub Spoke Action. You will put it in a scheduled Flow to keep the Airport table information up to date.

Bonus Exercise 3.1: Create an Integration Hub Action

Duration: 30 minutes

In this bonus exercise, we will use a real webservice API to update our list of airports which we previously imported via an excel spreadsheet. This will ensure that the locations all remain up to date with some additional data fields for tracking.

If you noticed in exercise 1, when we imported the Airports from the excel sheet, the Lat and Lon data is empty, we will fix that in this exercise.



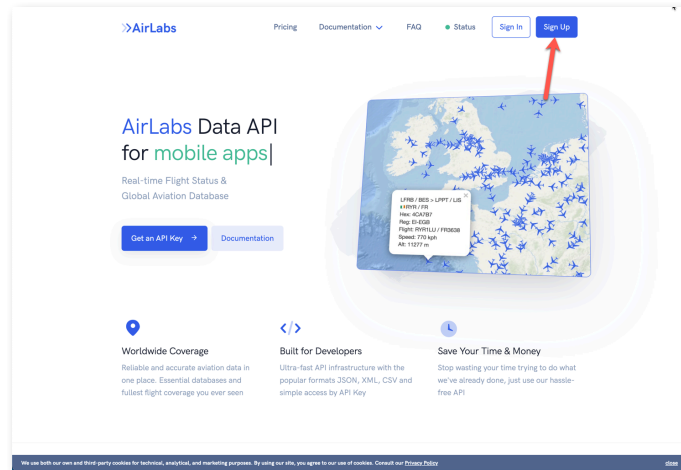
Number	Name	City	Code	Country	Icao	Lat	Lon	State
AV50001001	Los Angeles International Airport	Los Angeles	LAX	United States	KLAX			California
AV50001002	Brussels Airport	Bruxelles	BRU	Belgium	EBBR			Vlaams Brabant
AV50001003	Vienna Schwechat International Airport	Klein-Neusiedl	VIE	Austria	LOWW			Lower Austria
AV50001004	Franz-Josef-Strauss Airport	Oberding	MUC	Germany	EDDM			Bavaria
AV50001005	Barajas Airport	Madrid	MAD	Spain	LEMD			Madrid
AV50001006	Miami International Airport	Miami	MIA	United States	KMIA			Florida
AV50001007	Barcelona International Airport	El Prat de Llobregat	BCN	Spain	LEBL			Catalonia
AV50001008	Hong Kong International Airport	Hong Kong	HKG	Hong Kong	VHHH			Hong Kong Island
AV50001009	Chicago O'Hare International Airport	Chicago	ORD	United States	KORD			Illinois
AV50001010	Beijing Capital Airport	Shunyi	PEK	China	ZBAA			Beijing
AV50001011	Eleftherios Venizelos International Airport	Athens	ATH	Greece	LGAV			Attiki
AV50001012	Singapore Changi Airport	Singapore	SIN	Singapore	WSSS			South East
AV50001013	Zurich International Airport	Kloten	ZRH	Switzerland	LSZH			Canton of Zurich
AV50001014	Ataturk Hava Limani Airport	Bakirköy	IST	Turkey	LTBA			Istanbul
AV50001015	Manchester International Airport	Manchester	MAN	United Kingdom	EGCC			England
AV50001016	San Francisco International Airport	San Francisco	SFO	United States	KSFO			California
AV50001017	New Incheon International Airport	Incheon	ICN	South Korea	RKSI			Incheon
AV50001018	Copenhagen Airport	Kastrup	CPH	Denmark	EKCH			Hovedstaden
AV50001019	Pudong International Airport	Huinan	PVG	China	KPVG			Shanghai
AV50001020	Bangkok International Airport	Lak Si	BKK	Thailand	VTBS			Bangkok

⚠ CAUTION

This session will require you to use a 3rd party API service to get data. Your personal data will be required to sign up to this service. If you are not comfortable with exposing this data, skip this exercise or let your instructor

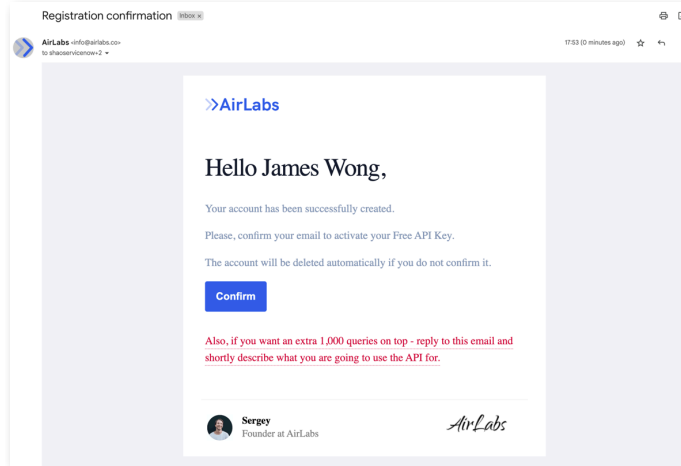
know.

1. Go to <https://airlabs.co/> and click Sign Up



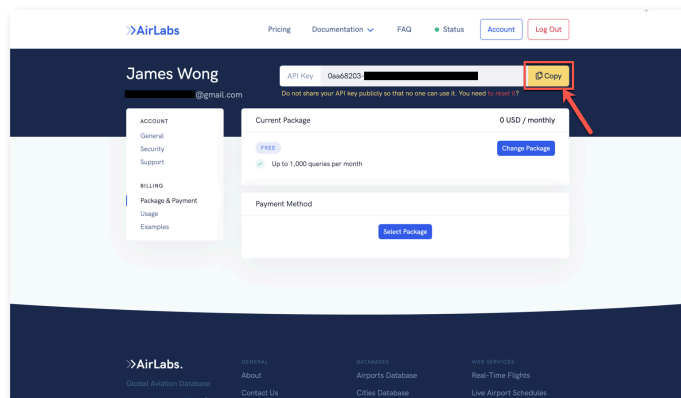
2. Fill in the relevant details to sign up for an account

3. Verify your account with the email sent to the email address sent to your email account



4. Sign in to your airlabs account on the next page

5. Click Copy next to API Key

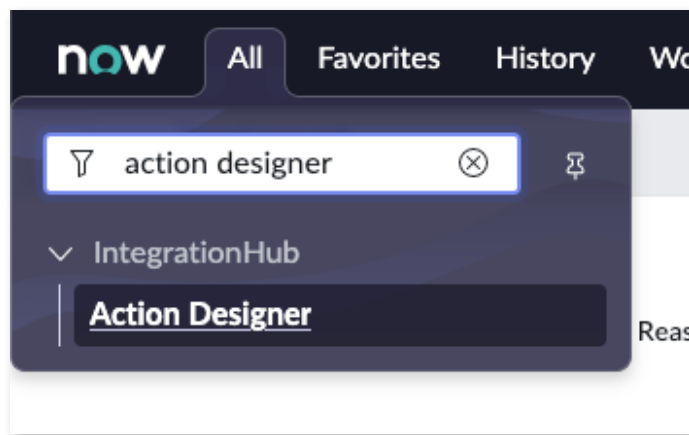


6. Paste your copied API Key somewhere that you are able to retrieve later

7. Click Documentation, then Airports

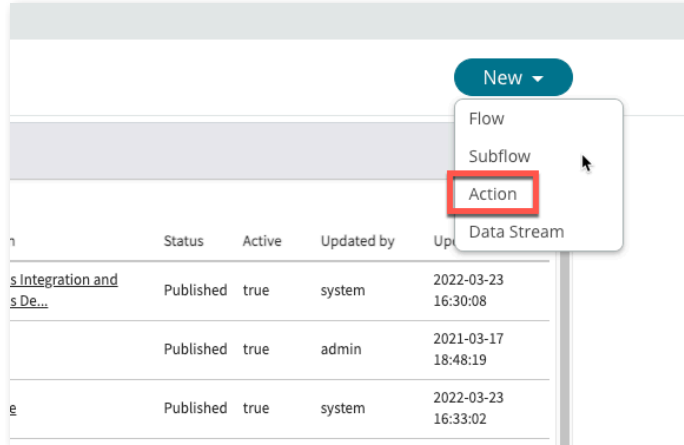
8. Quickly read through this API documentation, notice that the API request has already been populated for you - We will rebuild this

9. Navigate back to your main ServiceNow interface, and search and click Action Designer under All

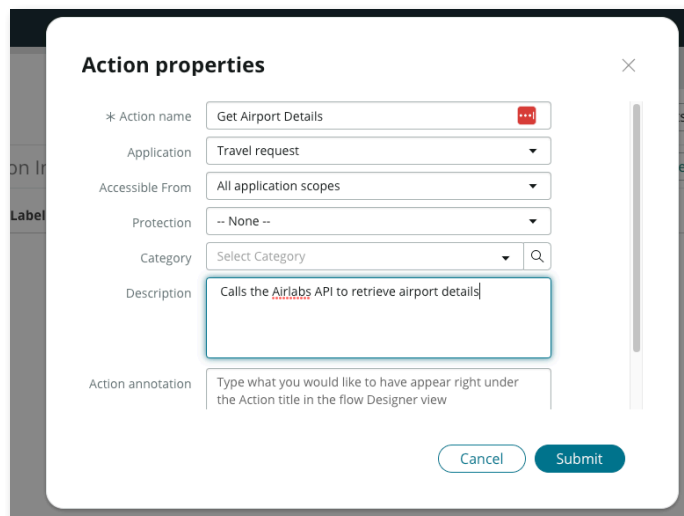


10. You are brought to the Flow Designer interface

11. Click the New button on the top right, then click Action



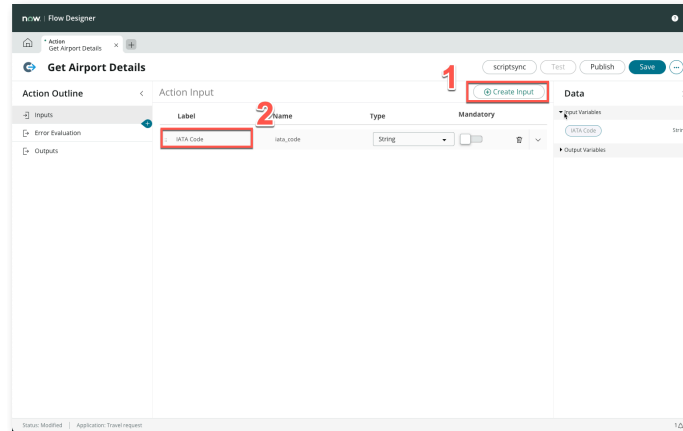
12. In the pop-up, enter Get Airport Details under *Action name*. For description, enter Calls the Airlabs API to retrieve airport details



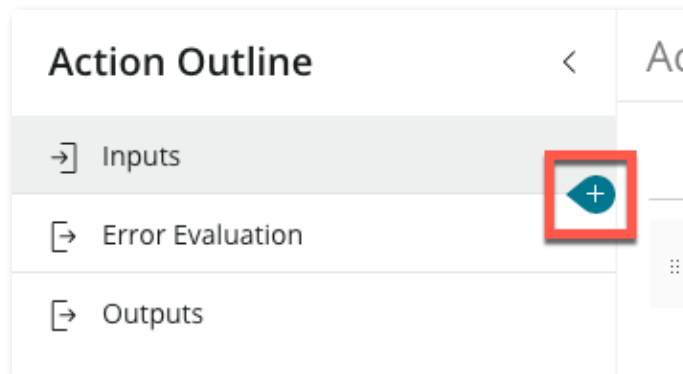
13. Click Submit

14. Click Create Input

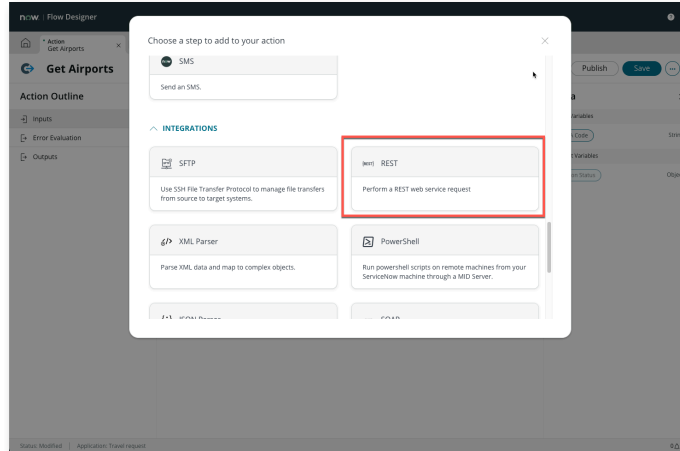
15. Under Label, enter IATA Code, then press enter



16. Click on the + icon in between Inputs and Error Evaluation on the left sidebar



17. In the pop-up box, scroll down and click REST



18. Change Connection to Define Connection Inline

19. Copy this URL and paste it under Base URL:

```
https://airlabs.co/api/v9
```



TIP

Use the copy button above to make sure you have the correct URL

20. Enter /airports under Resource Path

21. Click on the + icon for Query Parameters

22. Enter `api_key` under Name, then paste your previously copied API Key under Value

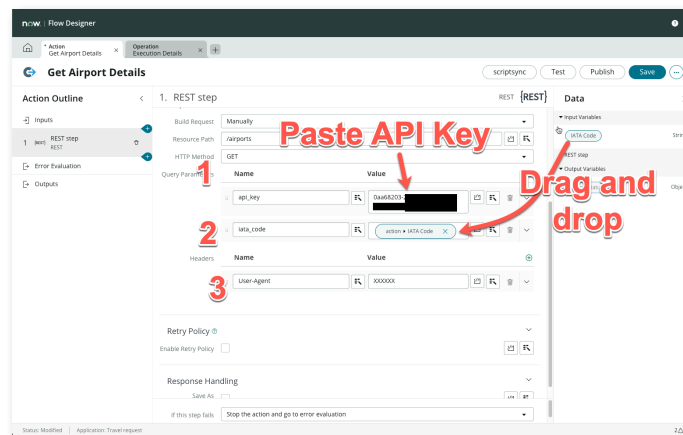
23. Click on the + icon for Query Parameters

24. Enter `iata_code` under Name, then drag and drop the IATA Code data pill on the right sidebar onto the Value field

25. Click on the + icon for Headers

26. Enter User-Agent under Name, and XXXXXX under Value

27. Your form should now look like this:

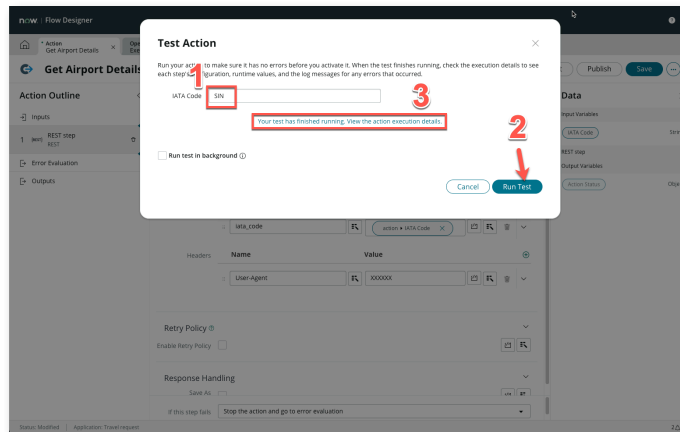


28. Click Save at the top right

29. Click Test at the top right

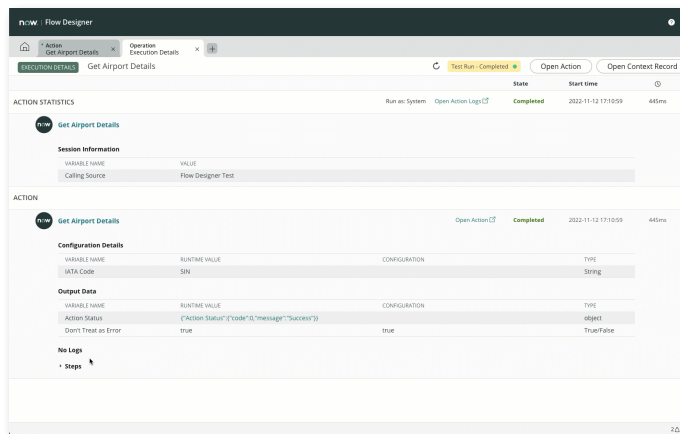
30. Enter SIN under the IATA Code field, then click Run Test

31. Click Your test has finished running. View the action execution details.



32. The new tab shows every step of the execution so far. Expand Steps (towards the bottom of the screen) and scroll down to the line that shows Response Body

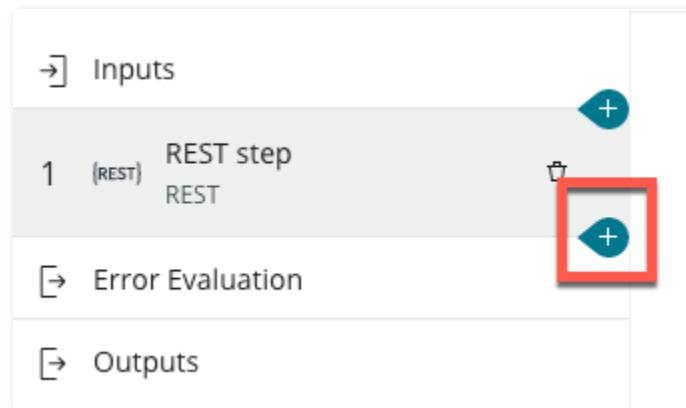
33. Click on the corresponding value and copy the entire block of text



34. Navigate back to the main Action Get Airport Details tab

35. Close the pop-up

36. Click on the + icon on the left sidebar after REST step



37. Scroll down and click JSON Parser

38. Drag and drop the Response Body data pill from the right sidebar onto the Source data field

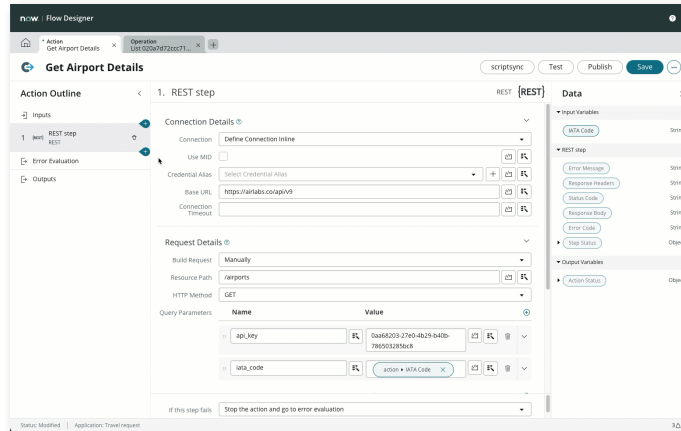
39. Paste what you copied onto the main body

40. Toggle the Structured Payload View

41. Click Generate Target

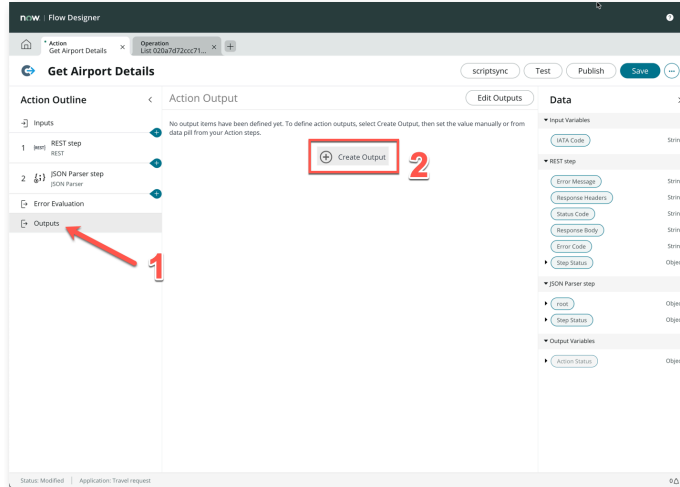
42. The Target on the right should be generated

43. Here are all the steps in sequence:

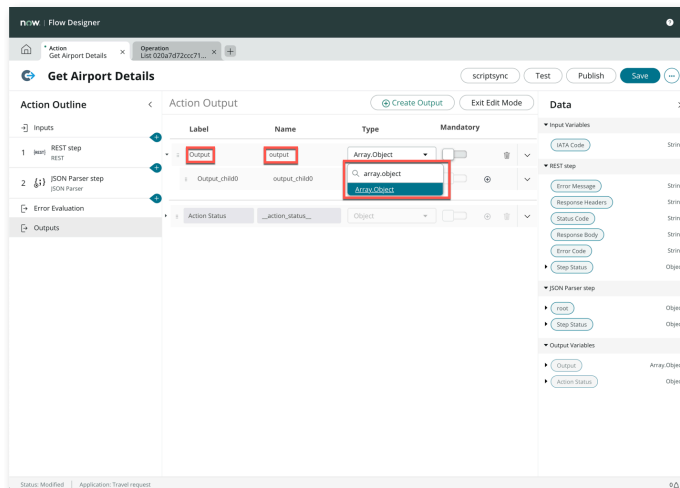


44. Click Outputs on the left sidebar

45. Click Create Output



46. In the new row, change Label to Output, Name to output and Type to Array.Object

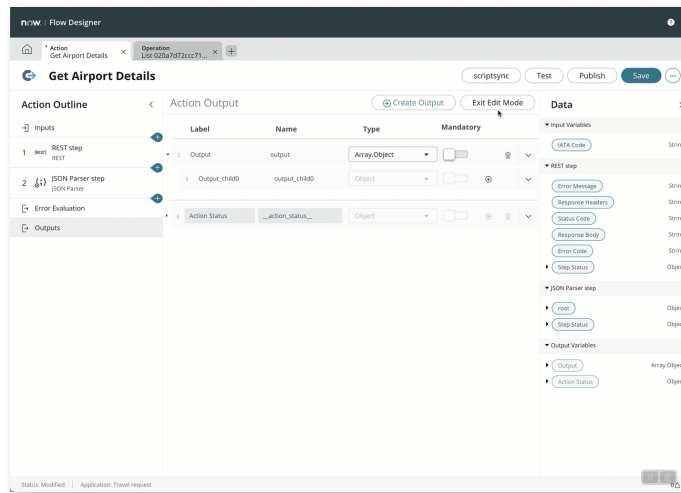


47. Click Exit Edit Mode

48. On the right sidebar, expand root under JSON Parser Step

49. Drag and drop the response data pill onto the Output Value field

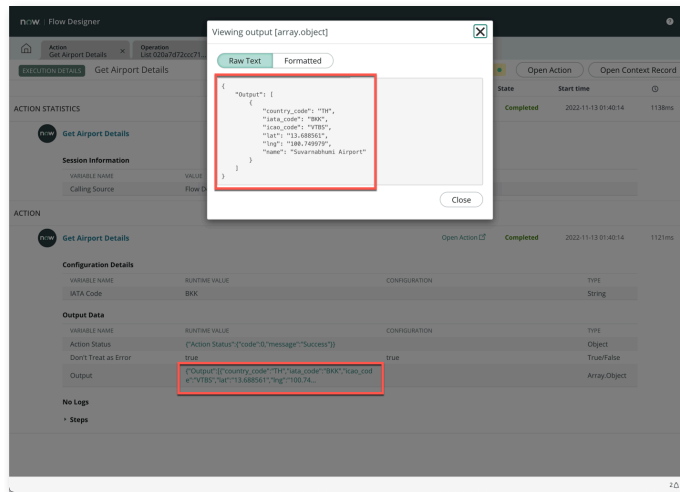
50. Click Publish on the top right



51. Click Test

52. Enter BKK and run test, then view execution details

53. Ensure that the Output is defined, and when clicking on it you see a result similar to what is shown below



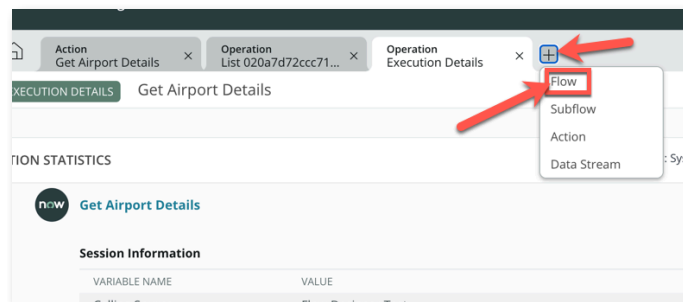
You've create an Integration Hub action! It will automatically integrate with the remote API to gather information about the airports. Now let's use it in a workflow.

Bonus Exercise 3.2: Use the Action in a Flow

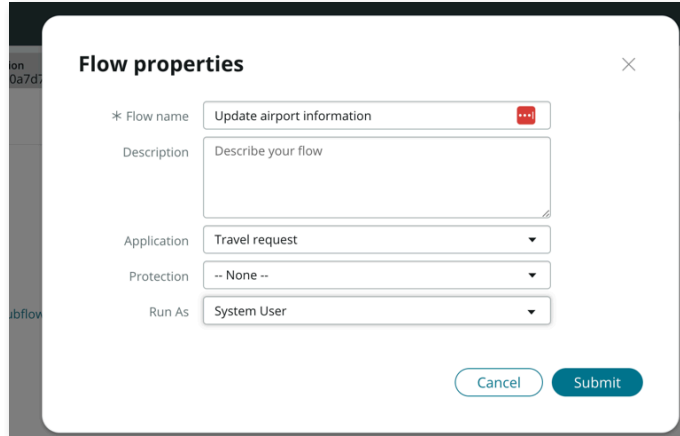
Duration: 15 minutes

In this bonus exercise, we will add the Action to a scheduled Flow to keep our Airport information up to date on a regular basis.

1. Close all the pop-up boxes and click on the + tab
2. Click Flow

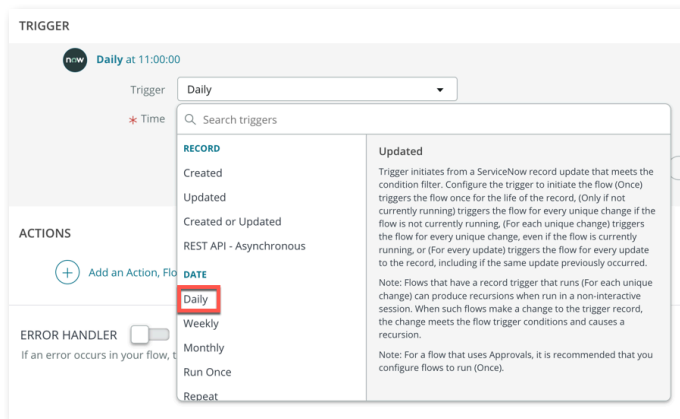


3. Under Flow name, enter Update airport information
4. Set Run As to System User



5. Click Submit

6. Click Add a trigger, then select Daily under date. This will run this workflow everyday

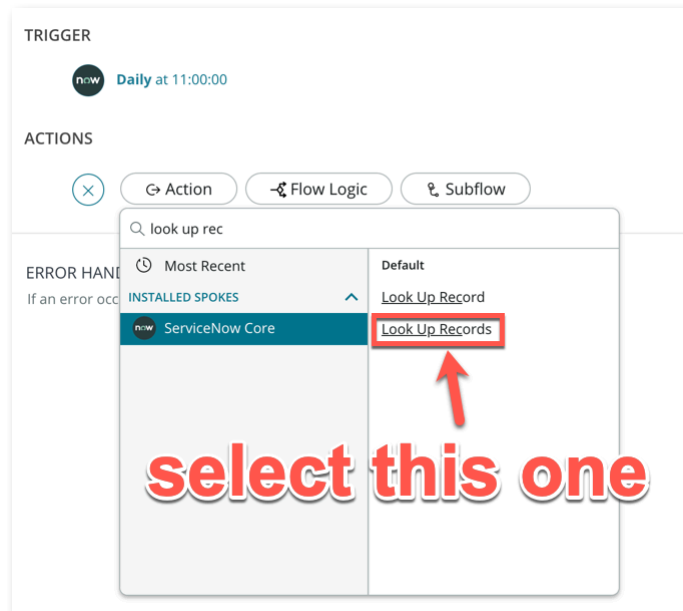


7. Click Done

8. Click Add an Action, Flow Logic, or Subflow

9. Click Action

10. Search and select Look Up Records - Pay special attention to selecting Look Up Records and not Look Up Record



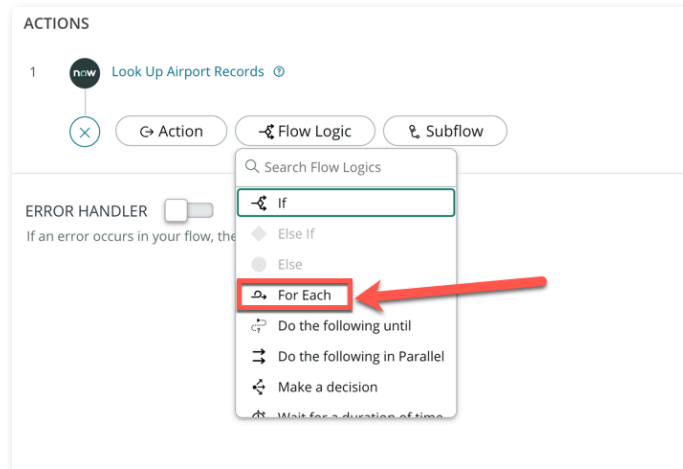
11. Search and select Airport under Table

12. Click Done

13. Click Add an Action, Flow Logic, or Subflow

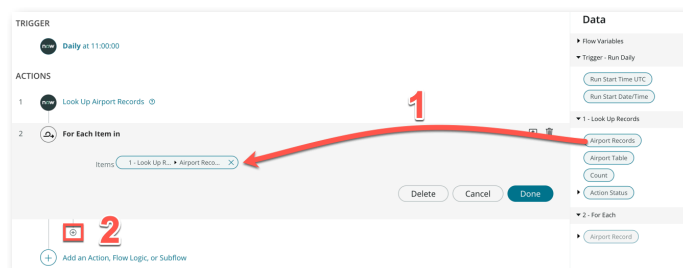
14. Click Flow Logic

15. Click For Each



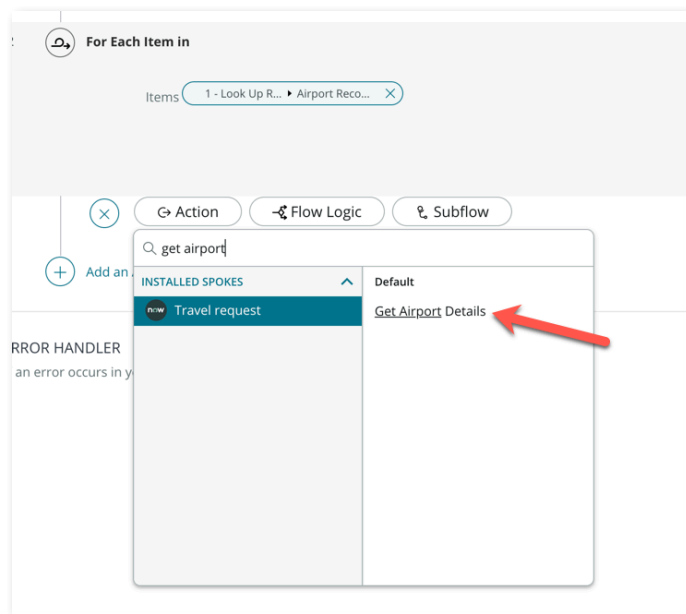
16. Drag and drop the Airport Records data pill from the right sidebar onto the Items field

17. Click the small + icon directly under the For Each Item in step



18. Click Action

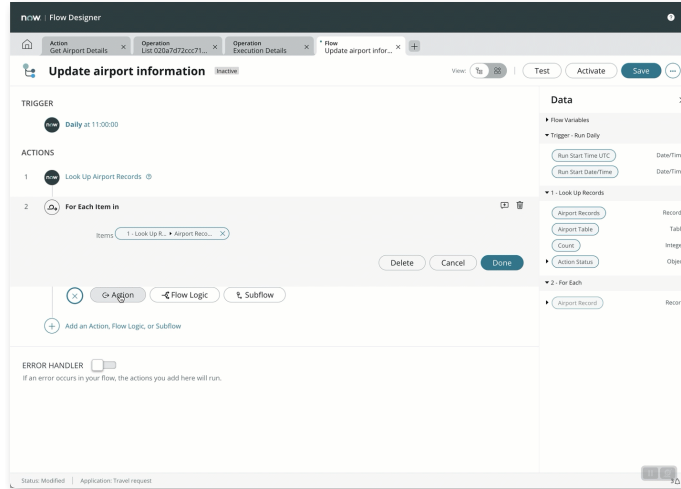
19. Search and click **Get Airport Details** (this was the API integration action we just created)



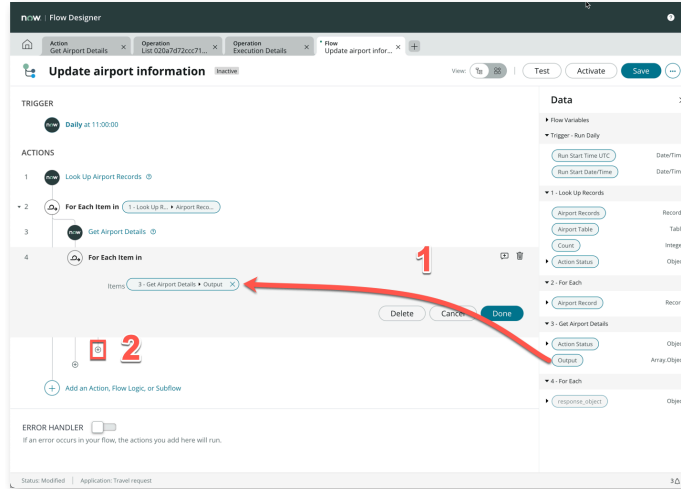
20. Expand Airport Record on the right sidebar under the 2 - For Each section

21. Drag and drop the Code data pill onto the IATA Code field

22. Click Done



23. Add a new For Each Flow Logic under Get Airport Details
24. Drag and drop the Output data pill from the 3 - Get Airport details section onto Items
25. Click the small + icon directly under the new For Each Item in step



26. Click Action, then search and select Update Record

27. Drag and drop the Airport Record data pill under 2 - For Each onto the Record field

29. Click + Add field value

30. Search and select Lat, expand the response_object data pill under 4 - For Each

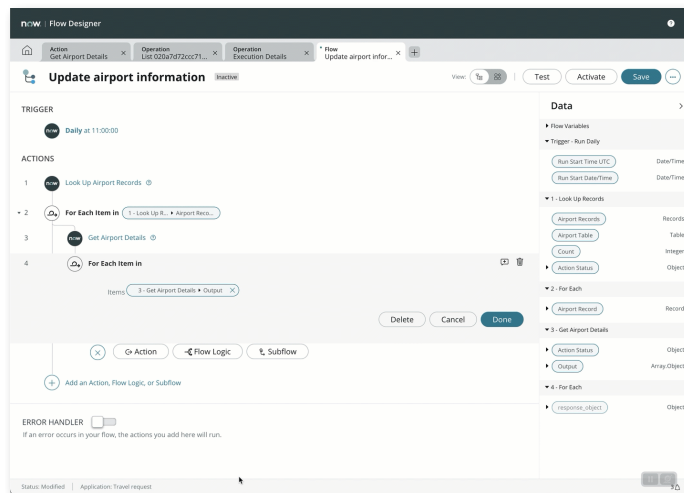
31. Drag and drop the lat data pill on the empty field

32. Click + Add field value

33. Search and select Lon, expand the response_object data pill under 4 - For Each

34. Drag and drop the lng data pill on the empty field

35. Refer to the full animation below:



36. Click Done

37. Click Activate on the top right

38. Click Test

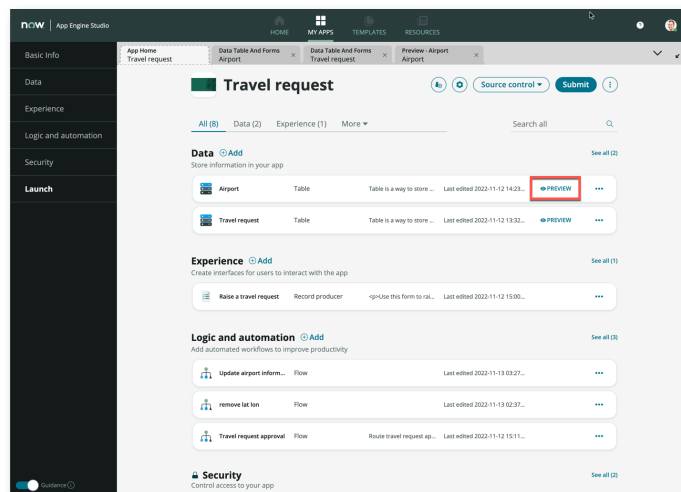
39. Click Run Test

40. This will take a few minutes to run as we have 24 airports to update. Once done, click Your test has finished running. View the flow execution details.

41. Review the execution, take some time to expand each step to understand what has happened in this flow

Step	Action	Status	Start Time	End Time	Duration
1	Look Up Records	Completed	2022-11-25 09:10:08	09:10	4ms
2	For Each Item in (Look Up R... Airport Recor...)	Completed	2022-11-25 09:10:08	10:04	1:53:56s
3	Get Airport Details	Completed	2022-11-25 09:10:08	10:04	167ms
4	For Each Item in (Get Airport Details > Update...)	Completed	2022-11-25 09:10:08	09:10	0ms
5	Update Record	Completed	2022-11-25 09:10:08	10:04	16ms

42. Go back to App Engine Studio and preview the Airport table



43. This will open in a new tab, verify that all the Lat and Lon fields are now populated

Number	Name	Ctry	Code	Country	Icao	Lat	Lon	State
AIR000001	Los Angeles International Airport	Los Angeles	LAX	United States	KLAX	33.941600	-118.408113	California
AIR000002	Brussels Airport	Brussels	BRU	Belgium	EBBR	50.997907	4.461611	Flemish Brabant
AIR000003	Vienne Schwechat International Airport	Klein-Neusiedl	VIE	Austria	LOWW	48.112713	16.562598	Lower Austria
AIR000004	Frankfurt Strauss Airport	Offenbach	FRA	Germany	EDDF	49.999500	10.900200	Hesse
AIR000005	Madrid Airport	Madrid	MAD	Spain	LEMD	40.416500	-3.703100	Madrid
AIR000006	Miami International Airport	Miami	MIA	United States	KMIA	25.793211	-80.292924	Florida
AIR000007	Barcelona International Airport	El Prat de Llobregat	BCN	Spain	LEBL	41.297500	2.083317	Catalonia
AIR000008	Hong Kong International Airport	Hong Kong	HKG	Hong Kong	VHHK	22.312500	113.950000	Hong Kong Island
AIR000009	Chicago O'Hare International Airport	Chicago	MDW	United States	KMDW	41.978507	-87.904712	Illinois
AIR000010	Beijing Capital Airport	Shunyi	PKX	China	ZBAA	40.079500	116.585555	Beijing
AIR000011	Edinburgh Turnhouse International Airport	Edinburgh	EDI	Great Britain	EGPH	55.950000	-3.370000	Scotland
AIR000012	Singapore Changi Airport	Singapore	SIN	Singapore	WSSX	1.350000	103.994500	Singapore
AIR000013	Zurich International Airport	Kloten	ZRH	Switzerland	LSDH	47.463707	8.554708	Canton of Zurich
AIR000014	Atlanta Hartsfield Airport	Atlanta	ATL	United States	KATL	33.640700	-84.429000	Georgia
AIR000015	München International Airport	München	MUC	Germany	EDDM	48.353900	11.519700	Bavaria
AIR000016	San Francisco International Airport	San Francisco	SFO	United States	KSFO	37.621300	-122.375000	California
AIR000017	New York LaGuardia Airport	Queens	LGA	United States	KLGA	40.776900	-73.873800	New York
AIR000018	Changi Airport	Singapore	CXI	Singapore	WSSX	1.350000	103.994500	Singapore
AIR000019	Peking International Airport	Huairou	PKG	China	ZPKD	40.079500	116.585555	Beijing
AIR000020	Bangkok International Airport	Lao Pajit	BKK	Thailand	VTBS	13.747500	100.714000	Bangkok

This flow should now run everyday to update the latitude and longitude of each airport in your table.

In a real life scenario, you could do so much more with the API, but this is just an example to show you the possibilities.

For example, you could integrate with a complex booking API like Amadeus, and your users could search for flights and book flights and hotels directly from your custom application!

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