CHAPTER 7

Excel Automation

While Excel is quite powerful and widely used in today's working environment, automating in Excel has historically required skills and training. UiPath's StudioX integrates intuitively with Microsoft Excel simplifying citizen developers' experience when automating tasks such as extracting, filtering, manipulating, writing to, reading, and transferring data.

Learning Objectives

At the end of this chapter, you will learn how to

- Define an Excel scope to automate
- Insert, delete, duplicate, rename, and iterate through worksheets
- Insert, delete, and split columns
- Insert, delete, and iterate through Excel rows
- Write values and formulas into cells
- Read values and formulas from cells
- Create, change, and refresh a pivot table
- Copy, append, fill, write to, auto-fill, clear, and sort a range

A. Javed et al., *Robotic Process Automation using UiPath StudioX*,
https://doi.org/10.1007/978-1-4842-6794-3_7

- Save an Excel file in different formats, including PDF
- Export data to CSV format
- Apply filters and VLookups and run macros

Sample Overview

The sample scenario utilized in this chapter is Employee Onboarding. The exercise consists of three Excel workbooks used by the Human Resources (HR) team at a small firm that has recently hired 20 new employees.

The purpose of these Excel files are to provide the HR team with a centralized location to manage the new hired employee data and report on their onboarding status as they acclimate to the organization.

EmployeeOnboarding.xlsx: This workbook is used to manage the list of employees with details such as new hire start dates, salaries, and required training. This will be the main file that most of the exercises in the chapter will use in order to organize sheets, add input data, fill in formulas, and create tables for analysis.

EmployeeOnboardingInput.xlsx: This file provides five new employees' data that will need to be appended to the EmployeeOnboarding Excel file containing the original 20 employees.

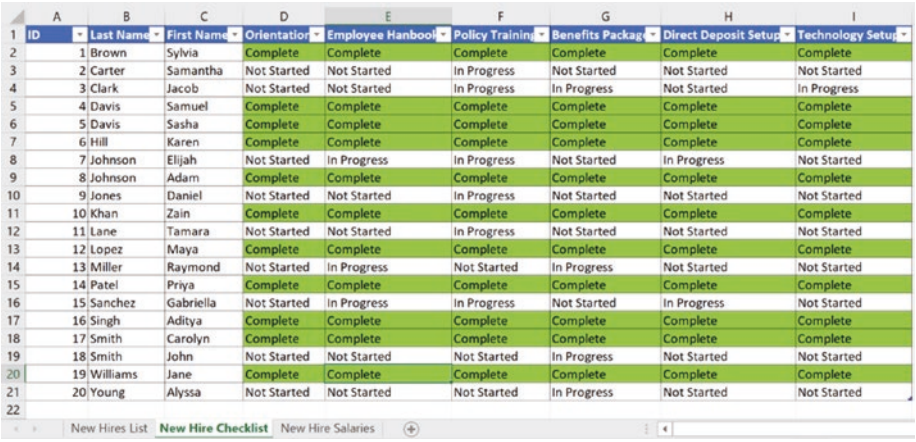
EmployeeOnboarding Final.xlsm: This is the final version of the New Hires List sheet that needs to be formatted and have a Macro executed so that it is ready to be delivered.

Figures 7-1, 7-2, and 7-3 display the spreadsheets before executing any Excel automation exercises detailed in this chapter.

	A	B	C	D	E
1	ID	Full Name	Start Date	Department	Status
2	1	Brown, Sylvia	1/6/2020	Operations	
3	2	Carter, Samantha	4/10/2020	Accounting	
4	3	Clark, Jacob	7/20/2020	Human Resources	
5	4	Davis, Samuel	1/6/2020	Operations	
6	5	Davis, Sasha	7/20/2020	Information Technology	
7	6	Hill, Karen	1/6/2020	Operations	
8	7	Johnson, Elijah	7/20/2020	Information Technology	
9	8	Johnson, Adam	4/10/2020	Human Resources	
10	9	Jones, Daniel	7/20/2020	Information Technology	
11	10	Khan, Zain	1/6/2020	Operations	
12	11	Lane, Tamara	7/20/2020	Human Resources	
13	12	Lopez, Maya	4/10/2020	Accounting	
14	13	Miller, Raymond	7/20/2020	Information Technology	
15	14	Patel, Priya	1/6/2020	Accounting	
16	15	Sanchez, Gabriella	7/20/2020	Information Technology	
17	16	Singh, Aditya	4/10/2020	Human Resources	
18	17	Smith, Carolyn	1/6/2020	Accounting	
19	18	Smith, John	7/20/2020	Human Resources	
20	19	Williams, Jane	4/10/2020	Information Technology	
21	20	Young, Alyssa	1/6/2020	Accounting	
22					

New Hires List | New Hire Checklist | New Hire Salaries

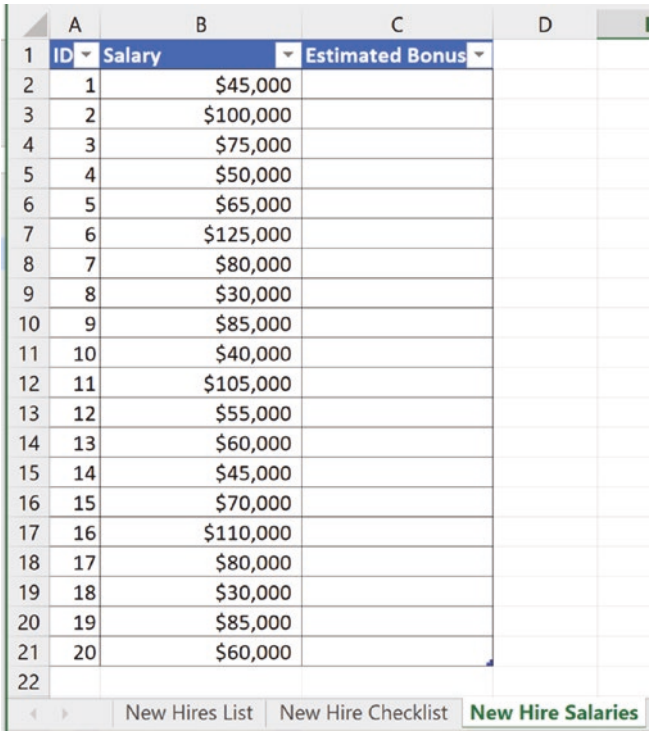
Figure 7-1. *Sample Employee Onboarding Excel file – New Hires List sheet*



	A	B	C	D	E	F	G	H	I
1	ID	Last Name	First Name	Orientation	Employee Handbook	Policy Training	Benefits Package	Direct Deposit Setup	Technology Setup
2	1	Brown	Sylvia	Complete	Complete	Complete	Complete	Complete	Complete
3	2	Carter	Samantha	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
4	3	Clark	Jacob	Not Started	Not Started	In Progress	In Progress	Not Started	In Progress
5	4	Davis	Samuel	Complete	Complete	Complete	Complete	Complete	Complete
6	5	Davis	Sasha	Complete	Complete	Complete	Complete	Complete	Complete
7	6	Hill	Karen	Complete	Complete	Complete	Complete	Complete	Complete
8	7	Johnson	Elijah	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
9	8	Johnson	Adam	Complete	Complete	Complete	Complete	Complete	Complete
10	9	Jones	Daniel	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
11	10	Khan	Zain	Complete	Complete	Complete	Complete	Complete	Complete
12	11	Lane	Tamara	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
13	12	Lopez	Maya	Complete	Complete	Complete	Complete	Complete	Complete
14	13	Miller	Raymond	Not Started	In Progress	Not Started	In Progress	Not Started	Not Started
15	14	Patel	Priya	Complete	Complete	Complete	Complete	Complete	Complete
16	15	Sanchez	Gabriella	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
17	16	Singh	Aditya	Complete	Complete	Complete	Complete	Complete	Complete
18	17	Smith	Carolyn	Complete	Complete	Complete	Complete	Complete	Complete
19	18	Smith	John	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started
20	19	Williams	Jane	Complete	Complete	Complete	Complete	Complete	Complete
21	20	Young	Alyssa	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started
22									

New Hires List | New Hire Checklist | New Hire Salaries

Figure 7-2. *Sample Employee Onboarding Excel file – New Hire Checklist sheet*



	A	B	C	D
1	ID	Salary	Estimated Bonus	
2	1	$45,000		
3	2	$100,000		
4	3	$75,000		
5	4	$50,000		
6	5	$65,000		
7	6	$125,000		
8	7	$80,000		
9	8	$30,000		
10	9	$85,000		
11	10	$40,000		
12	11	$105,000		
13	12	$55,000		
14	13	$60,000		
15	14	$45,000		
16	15	$70,000		
17	16	$110,000		
18	17	$80,000		
19	18	$30,000		
20	19	$85,000		
21	20	$60,000		
22				

New Hires List | New Hire Checklist | New Hire Salaries

Figure 7-3. *Sample Employee Onboarding Excel file – New Hire Salaries sheet*

Activities Reference

As shown in Figure 7-4, all Excel automation activities can be found under the Excel category/tile. The following sections will provide instructions on how to configure and use each activity.

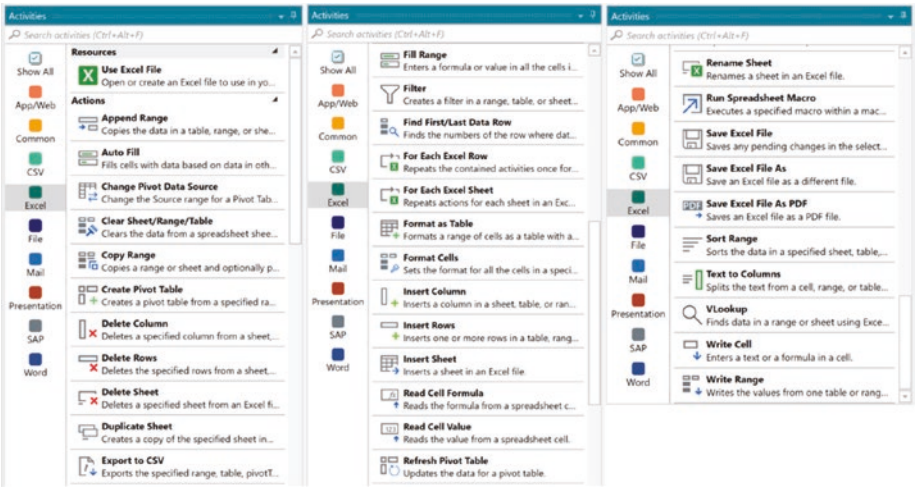


Figure 7-4. *Activities for Excel automation*

Use Excel File

The **Use Excel File** activity found under Resources allows you to create or open an Excel file to utilize the file's data in your automation.

This is the foundation for the Excel automation and serves as the parent activity integrating StudioX with Excel. For example, copying and pasting, sorting, filtering, inserting, and deleting data activities can be added as child activities within the **Use Excel File** activity.

Configuration

This section provides instructions on how to configure a **Use Excel File** activity, shown in Figure 7-5.

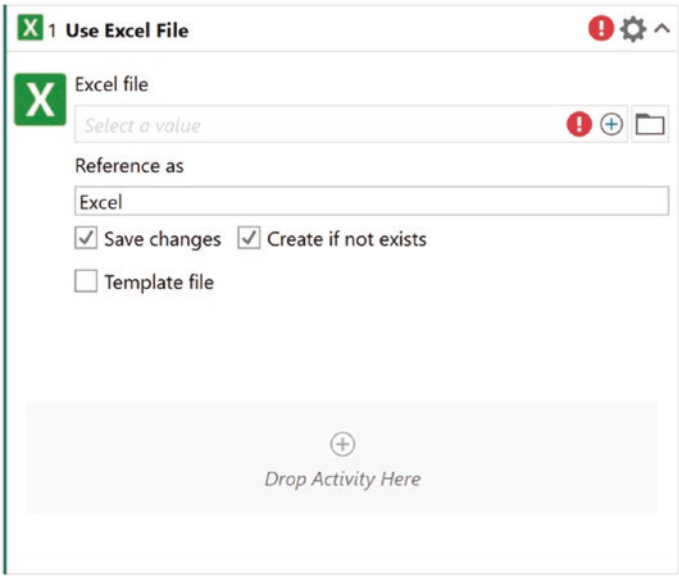


Figure 7-5. *Use Excel File activity card*

Excel file: This is a required configuration available on the activity card. This configuration gives StudioX the full file path for the workbook data that the Excel automation will use.

Reference as: This is a required configuration available on the activity card. It is recommended that this field is populated with a unique and descriptive name to reference the Excel file for the automation project, for example, InvoiceData or EmployeeOnboarding. By default, the field is populated with `Excel`.

Save changes: This is an optional configuration available on the activity card. This configuration ensures that the workbook is saved after each action is taken on an activity. By default, this option is checked. If this option is unchecked, then the message `Save off` is displayed next to the Excel file in the Data Manager panel.

Create if not exists: This is an optional configuration available on the activity card. This configuration ensures that a blank file is created if it does not exist in the target location. By default, this option is checked.

Edit password: This is an optional configuration available on the `Properties` panel. This field is used for editing a password-protected Excel file. Enter the password in this field if necessary.

Password: This is an optional configuration available on the `Properties` panel. This field is used for opening a password-protected Excel file. Enter the password in this field if necessary.

ReadOnly: This is an optional configuration available on the `Properties` panel. If checked, the workbook will open in read-only mode for automation. This option will allow the automation to extract data from a workbook even if it is password protected. By default, this option is not checked.

Note The following Exercise for Use Excel File activity must be done prior to completing the exercises in any of the other Excel activities sections.

EXERCISE

Goal: Use the Use Excel File activity to open the EmployeeOnboarding.xlsx Excel workbook located in the file path C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx.

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Use Excel File` activity to a blank process.
2. Next, click the `Folder` icon in the `Excel file` field and select `C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx` file.
3. Next, enter a name for this file in the `Reference as` field. For this example, enter the name `EmployeeOnboarding`.
4. Leave the default configurations as is for this example.

Once you have completed the exercise, the final configuration of the **Use Excel File** activity should resemble Figure 7-6. The output of this example will read the EmployeeOnboarding.xlsx from the selected file path and add it as an Excel file resource for this StudioX project.

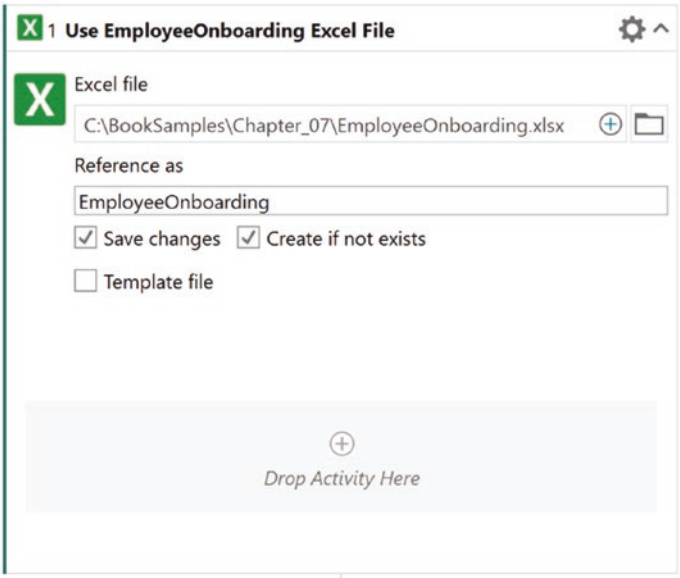


Figure 7-6. *EmployeeOnboarding .xlsx populated in Use Excel File activity*

Insert Sheet

The **Insert Sheet** activity allows you to add an empty sheet to a workbook.

Configuration

This section provides instructions on how to configure an **Insert Sheet** activity, displayed in Figure 7-7.

Figure 7-7. *Insert Sheet activity card*

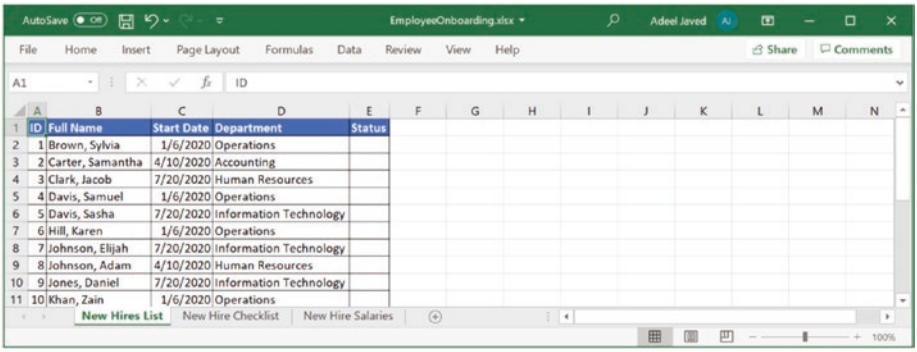
Create in workbook: This is a required configuration available on the activity card. This configuration provides StudioX with the workbook to insert as the new sheet. The `Create in workbook` field is pre-populated with the workbook specified in the parent `Use Excel File` activity. You can click the `Plus` icon to reference a different workbook.

Sheet name: This is a required configuration available on the activity card. This configuration determines the name of the new sheet.

Reference new sheet as: This is an optional configuration available on the activity card. This configuration allows you to specify the name you want to use to reference the sheet in further activities. This is commonly configured through the `Text Builder` option allowing you to give the reference name.

EXERCISE

Goal: Building on our previous exercise, use the `Insert Sheet` activity to add a new sheet to the `EmployeeOnboarding` Excel file. Figure 7-8 shows the initial state of `EmployeeOnboarding.xlsx`.



ID	Full Name	Start Date	Department	Status
1	Brown, Sylvia	1/6/2020	Operations	
2	Carter, Samantha	4/10/2020	Accounting	
3	Clark, Jacob	7/20/2020	Human Resources	
4	Davis, Samuel	1/6/2020	Operations	
5	Davis, Sasha	7/20/2020	Information Technology	
6	Hill, Karen	1/6/2020	Operations	
7	Johnson, Elijah	7/20/2020	Information Technology	
8	Johnson, Adam	4/10/2020	Human Resources	
9	Jones, Daniel	7/20/2020	Information Technology	
10	Khan, Zain	1/6/2020	Operations	

Figure 7-8. *Displays the EmployeeOnboarding Excel workbook before the automation is executed*

Source Code: Chapter_7_ExcelSheetActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Insert Sheet` activity to the body of the parent `Use Excel File` activity in the `Designer` panel.
2. The `EmployeeOnboarding` file will be auto-populated in the `Create in workbook` field. Leave it as is: `[EmployeeOnboarding]`.
3. Next, click the `Plus` icon in the `Sheet name` field, select `Text Builder`, and type `New Data`.
4. Leave `Reference new sheet as` blank.

Once you have completed the exercise, the final configuration of the **Insert Sheet** activity should resemble Figure 7-9.

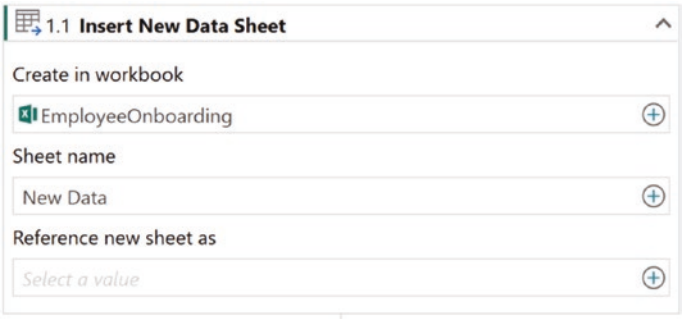


Figure 7-9. *Displays the final configuration for the Insert Sheet activity*

Figure 7-10 shows the output of the Insert Sheet activity that has added a New Data sheet to the EmployeeOnboarding Excel file.

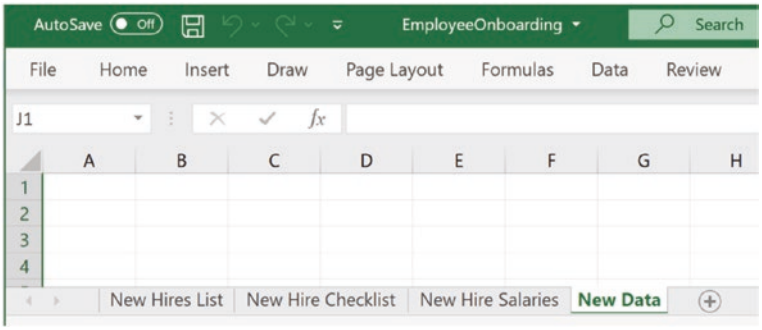


Figure 7-10. *A new sheet is added to the EmployeeOnboarding Excel file*

Rename Sheet

The **Rename Sheet** activity changes the name of an existing sheet in a workbook.

Configuration

This section provides instructions on how to configure a **Rename Sheet** activity, shown in Figure 7-11.

Figure 7-11. *Rename Sheet activity card*

From: This is a required configuration available on the activity card. This configuration identifies the existing sheet that needs to be renamed.

To: This is a required configuration available on the activity card. This configuration determines what to rename the sheet identified in the `From` field.

EXERCISE

Goal: Building on our previous exercise, use the `Rename Sheet` activity to update the name of the `New Data` sheet to `New Hire Statistics`. Figure 7-10 shows the sheets in the `EmployeeOnboarding.xlsx` file before the automation.

Source Code: Chapter_7_ExcelSheetActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Rename Sheet` activity to the body of the parent `Use Excel File` activity after the `Insert Sheet` activity from previous exercise.

2. Next, click the `Plus` icon in the `From` field, and hover over `EmployeeOnboarding` workbook to select the `New Data [Sheet]`.

3. Next, click the `Plus` icon in the `To` field, select the `Text` option, and using `Text Builder`, type in `New Hire Statistics`.

Once you have completed the exercise, the configuration of the **Rename Sheet** activity should resemble Figure 7-12.

Figure 7-12. *Displays the final configuration for the Rename Sheet activity*

Figure 7-13 shows the output of the **Rename Sheet** activity that has updated the name of the New Data sheet to New Hires Statistics.

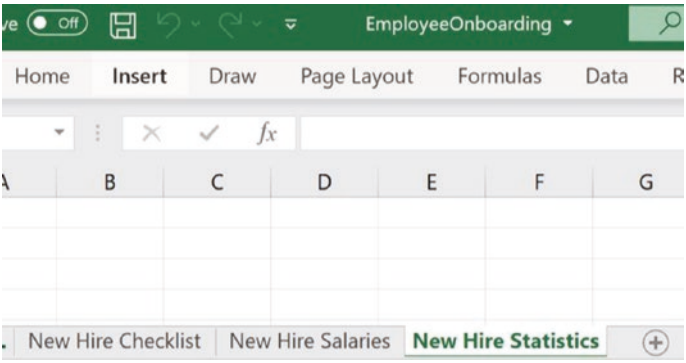


Figure 7-13. *New Data sheet renamed to New Hire Statistics*

Duplicate Sheet

The **Duplicate Sheet** activity creates a copy of a chosen sheet within the same workbook.

Configuration

This section provides instructions on how to configure a **Duplicate Sheet** activity, shown in Figure 7-14.

Figure 7-14. *Duplicate Sheet activity card*

Sheet to duplicate: This is a required configuration available on the activity card. This configuration supplies the name of the existing sheet that will be copied.

Rename to: Although not required, it is recommended to configure this field to enter a name for the new sheet that will be meaningful for the workbook. If this field is not configured, the new duplicated sheet will be created with the default name of `New Sheet`.

EXERCISE

Goal: Building on our previous exercise, use the `Duplicate Sheet` activity to create a duplicate of the `New Hire Salaries` sheet in the `EmployeeOnboarding` workbook. Figure 7-13 displays the sheets in the `EmployeeOnboarding.xlsx` prior to the exercise.

Source Code: Chapter_7_ExcelSheetActivitiesExercise

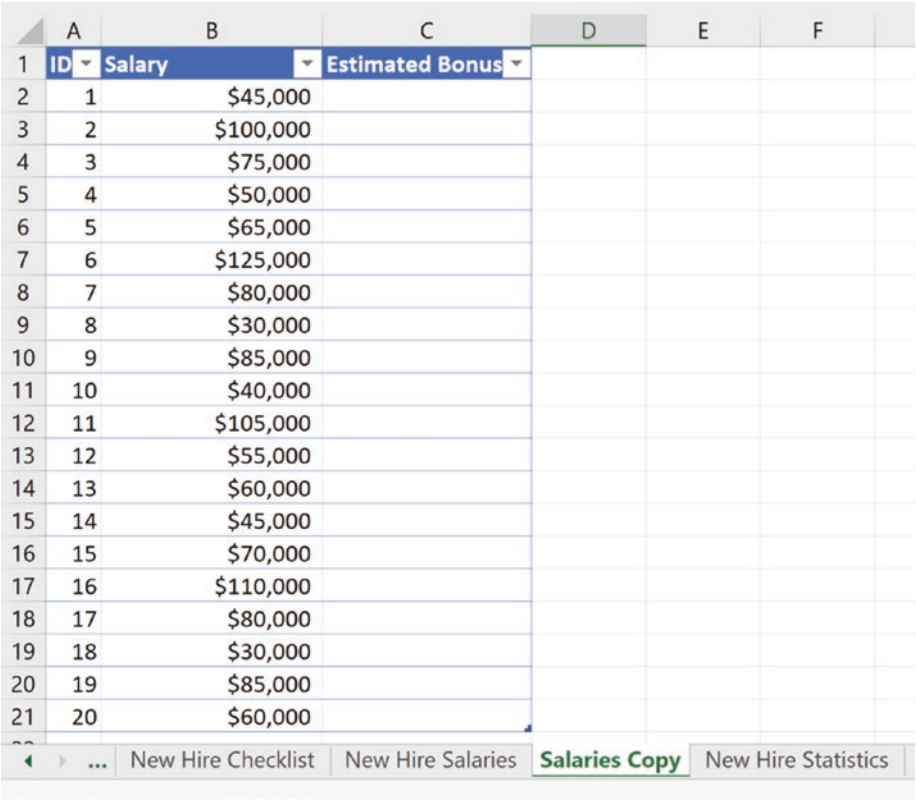
Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Duplicate Sheet` activity to the body of the parent `Use Excel File` activity in the `Designer` panel.
2. Next, click the `Plus` icon in the `Sheet to duplicate` field, and hover over the `EmployeeOnboarding` workbook to select the `New Hire Salaries [Sheet]`.
3. Next, click the `Plus` icon in the `Rename to` field, select the `Text Builder` option, and type in `Salaries Copy`.

Once you have completed the exercise, the final configuration of the **Duplicate Sheet** activity should resemble Figure 7-15.

Figure 7-15. *Displays the final configuration for the Duplicate Sheet activity*

The output of this example duplicates the New Hire Salaries sheet with the name Salaries Copy as displayed in Figure 7-16.



	A	B	C	D	E	F
1	ID	Salary	Estimated Bonus			
2	1	$45,000				
3	2	$100,000				
4	3	$75,000				
5	4	$50,000				
6	5	$65,000				
7	6	$125,000				
8	7	$80,000				
9	8	$30,000				
10	9	$85,000				
11	10	$40,000				
12	11	$105,000				
13	12	$55,000				
14	13	$60,000				
15	14	$45,000				
16	15	$70,000				
17	16	$110,000				
18	17	$80,000				
19	18	$30,000				
20	19	$85,000				
21	20	$60,000				

Figure 7-16. *Displays the duplicated Salaries Copy sheet*

Delete Sheet

The **Delete Sheet** activity deletes a specified sheet from a workbook.

Configuration

This section provides instructions on how to configure a **Delete Sheet** activity, shown in Figure 7-17.

Figure 7-17. *Delete Sheet activity card*

Select sheet: This is a required configuration available on the activity card. This configuration identifies the exact sheet to be deleted from the workbook.

EXERCISE

Goal: Building on our previous exercise, use the `Delete Sheet` activity to delete the `Salaries Copy` sheet from the `EmployeeOnboarding` Excel file. Figure 7-16 displays the `EmployeeOnboarding.xlsx` sheet before the exercise.

Source Code: Chapter_7_ExcelSheetActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Delete Sheet` activity under the parent `Use Excel File` activity in the `Designer` panel.
2. Next, click the `Plus` icon in the `Select sheet` field, and from `EmployeeOnboarding` workbook, select `Salaries Copy [Sheet]`.

Once you have completed the exercise, the final configuration of the **Delete Sheet** activity should resemble Figure 7-18.

Figure 7-18. *Displays the final configuration for the Delete Sheet activity*

The output of this example deletes the sheet with the name Salaries Copy in the EmployeeOnboarding.xlsx workbook, as shown in Figure 7-19.

	A	B	C	D	E
1	ID	Salary	Estimated Bonus		
2	1	$45,000			
3	2	$100,000			
4	3	$75,000			
5	4	$50,000			
6	5	$65,000			
7	6	$125,000			
8	7	$80,000			
9	8	$30,000			
10	9	$85,000			
11	10	$40,000			
12	11	$105,000			
13	12	$55,000			
14	13	$60,000			
15	14	$45,000			
16	15	$70,000			
17	16	$110,000			
18	17	$80,000			
19	18	$30,000			
20	19	$85,000			
21	20	$60,000			

... New Hire Checklist | New Hire Salaries | New Hire Statistics

Figure 7-19. *Displays that the Salaries Copy sheet is now deleted*

For Each Excel Sheet

The **For Each Excel Sheet** activity allows you to execute one or more activities against each sheet within the same workbook.

Note You must configure at least one child activity within the For Each Excel Sheet activity card to iterate through multiple actions on a set of sheets.

Configuration

This section provides instructions on how to configure a **For Each Excel Sheet** activity, as shown in Figure 7-20.

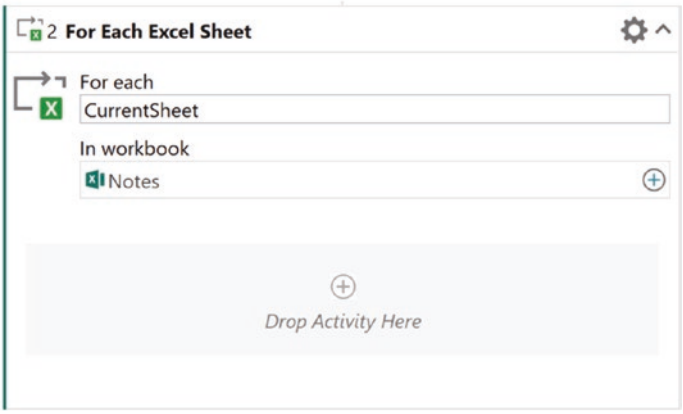


Figure 7-20. *For Each Excel Sheet activity card*

For each: This is a required configuration available on the activity card. This configuration allows you to provide a name to reference the current sheet which is being iterated through; this is especially important for referencing in the child activities. The default text is entered as `CurrentSheet` and can be changed based on what data you are iterating through. You can simply rename this field or leave the default.

In workbook: This is a required configuration available on the activity card. This configuration identifies the workbook containing the sheets that need to be iterated through. If this activity is inside of a parent Use Excel File activity, then the field will be auto-populated with the parent Excel file.

EXERCISE

Goal: Building on our previous exercise, use the `For Each Excel Sheet` activity to iterate through the sheets in the `EmployeeOnboarding` Excel file and print their names in the Output panel.

Source Code: Chapter_7_ExcelSheetActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `For Each Excel Sheet` activity in the body of `Use Excel File` activity in the `Designer` panel.
2. Next, leave the `For each` field with the default text of `CurrentSheet`; leave the `In workbook` field auto-populated with the `EmployeeOnboarding` Excel.
3. Then, add a `Write line` activity as a child activity to the `For Each Excel Sheet` activity.
4. Next, click the `Plus` icon in the `Text` field, and from `CurrentSheet`, select `Name`. This will write the name of each current sheet to the Output panel.

Once you have completed the exercise, the final configuration of the **For Each Excel Sheet** activity should resemble Figure 7-21.

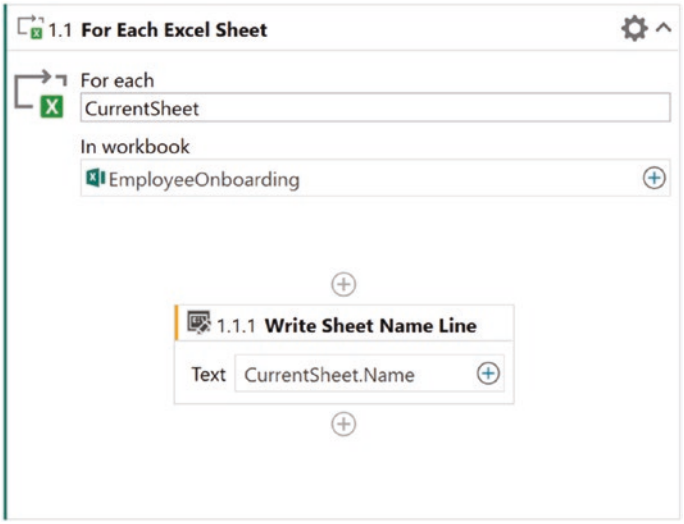


Figure 7-21. *Displays the final configuration for the For Each Excel Sheet activity*

The output of this exercise writes the name of each sheet in the EmployeeOnboarding.xlsx workbook to the Output panel, as shown in Figure 7-22.

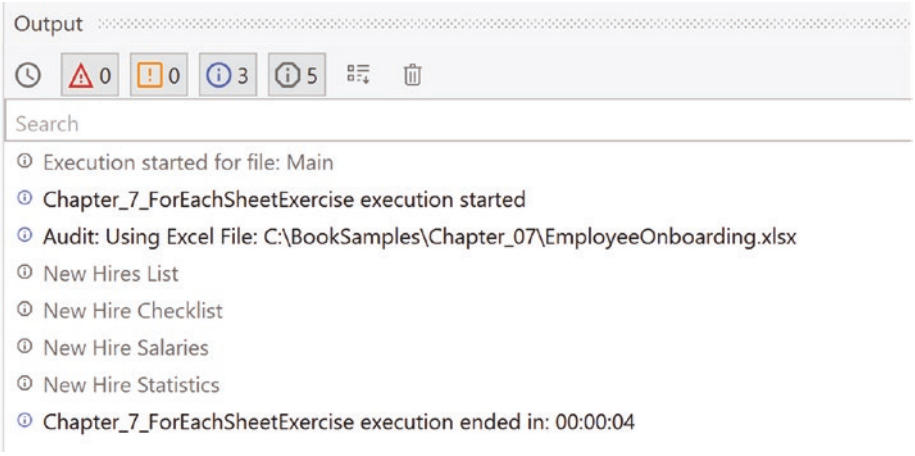


Figure 7-22. *Displays the names of all four worksheets written to the Output panel*

Insert Column

The **Insert Column** activity adds a newly defined column to a range, sheet, or table in a worksheet.

Configuration

This section provides instructions on how to configure an **Insert Column** activity, shown in Figure 7-23.

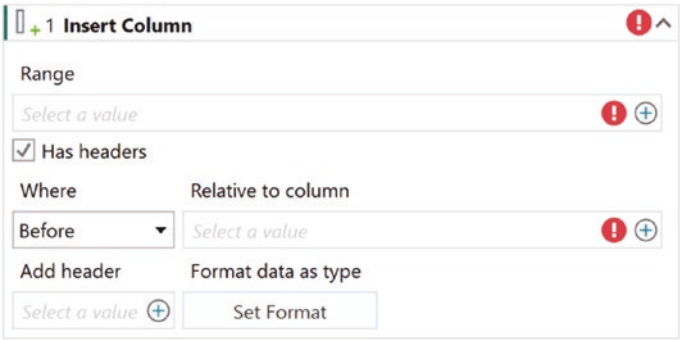


Figure 7-23. *Insert Column activity card*

Range: This is a required configuration available on the activity card. This configuration provides StudioX with the range that the new column will be added to.

Where: This is a required configuration available on the activity card. This configuration allows you to specify if the new column will be inserted before or after another column.

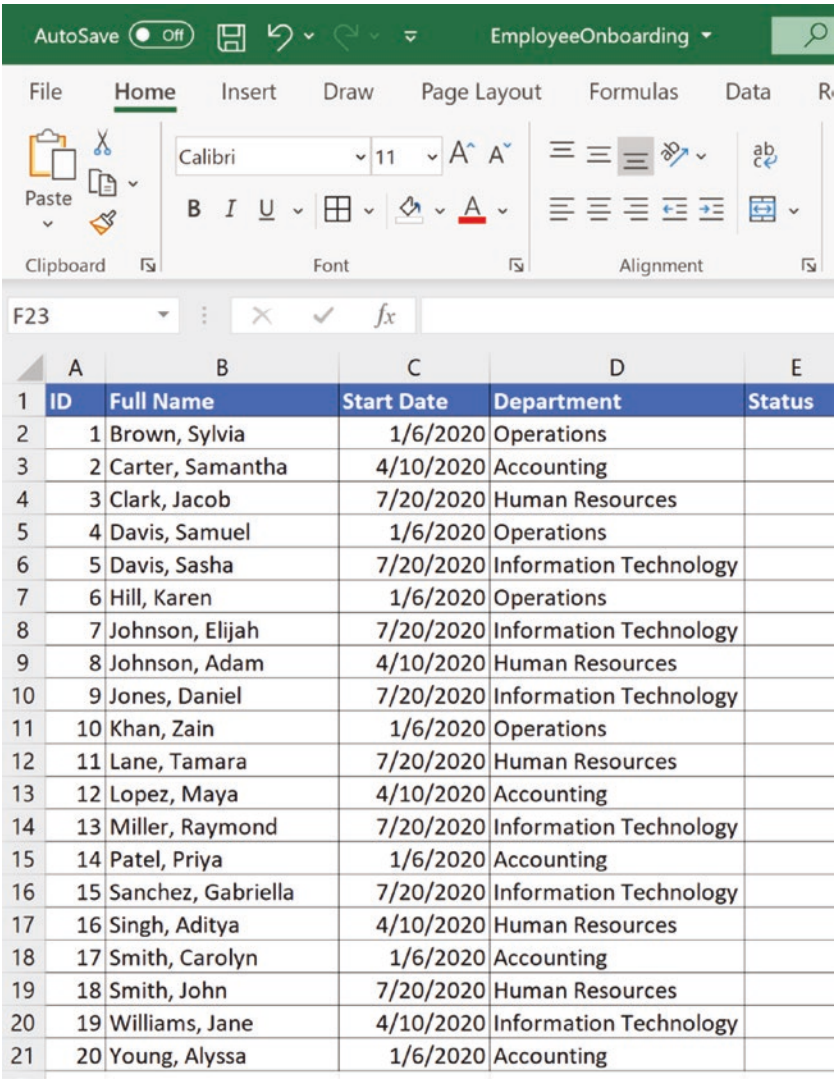
Relative to column: This is a required configuration available on the activity card. This configuration allows you to specify the column relative to which the new column will be inserted.

Add header: This is an optional configuration available on the activity card. This configuration provides the new column with a header name while executing the automation. It is recommended that this field is configured to ensure that the new column contains a header name.

Format data as type: This is an optional configuration available on the activity card. This configuration allows you to set the format for the cells being added in the new column. The configuration for this field is selected through the `Category` dropdown menu populated with the available formats that can be chosen for the cells. The `Category` options include `General`, `Number`, `Date`, `Time`, `Percentage`, `Currency`, `Text`, or `Custom`.

EXERCISE

Goal: Use the `Use Excel File` and `Insert Column` activities to add a `Last Name` and a `First Name` column to the `New Hires List` sheet after the `Full Name` column. Figure 7-24 shows the `New Hires List` range before the exercise.



	A	B	C	D	E
1	ID	Full Name	Start Date	Department	Status
2	1	Brown, Sylvia	1/6/2020	Operations	
3	2	Carter, Samantha	4/10/2020	Accounting	
4	3	Clark, Jacob	7/20/2020	Human Resources	
5	4	Davis, Samuel	1/6/2020	Operations	
6	5	Davis, Sasha	7/20/2020	Information Technology	
7	6	Hill, Karen	1/6/2020	Operations	
8	7	Johnson, Elijah	7/20/2020	Information Technology	
9	8	Johnson, Adam	4/10/2020	Human Resources	
10	9	Jones, Daniel	7/20/2020	Information Technology	
11	10	Khan, Zain	1/6/2020	Operations	
12	11	Lane, Tamara	7/20/2020	Human Resources	
13	12	Lopez, Maya	4/10/2020	Accounting	
14	13	Miller, Raymond	7/20/2020	Information Technology	
15	14	Patel, Priya	1/6/2020	Accounting	
16	15	Sanchez, Gabriella	7/20/2020	Information Technology	
17	16	Singh, Aditya	4/10/2020	Human Resources	
18	17	Smith, Carolyn	1/6/2020	Accounting	
19	18	Smith, John	7/20/2020	Human Resources	
20	19	Williams, Jane	4/10/2020	Information Technology	
21	20	Young, Alyssa	1/6/2020	Accounting	

Figure 7-24. *Displays the New Hires List before the automation is executed*

Source Code: Chapter_7_ExcelColumnActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the Use Excel File activity and configure with the C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx file as demonstrated in the first exercise.
2. Then, drag the Insert Column activity in the body of Use Excel File activity in the Designer panel.
3. Next, click the Plus icon in the Range field, and select the Indicate in Excel option for the EmployeeOnboarding workbook. Once Excel is open, select range A1:E21 in the New Hires List sheet.
4. Next, click Where dropdown and select After.
5. Next, click the Plus icon in the Relative to column field, and hover over Range to select the Full Name column header.
6. Next, click the Plus icon in the Add header field, select the Text option, and type in Last Name.
7. Leave the default options of Has headers and Format data as type as is.
8. Add a second Insert Column activity under the first Insert Column activity.
9. The Range configuration will be the same as step 3.
10. Next, click the Plus icon in the Relative to column field, and navigate through the Range option to select the Start Date column header.
11. Leave the default options of Has headers, Where, and Format data as type as is.

12. Next, click the `Plus` icon in the `Add header` field, select the `Text` option, and type in `First Name`.

Note Before you can integrate with Microsoft Excel to use the Indicate in Excel functionality, you will need to install the relevant extension from Home ➤ `Tools` ➤ `Excel Add-in`.

Once you have completed the exercise, the final configuration of the **Insert Column** activity should resemble Figure 7-25.

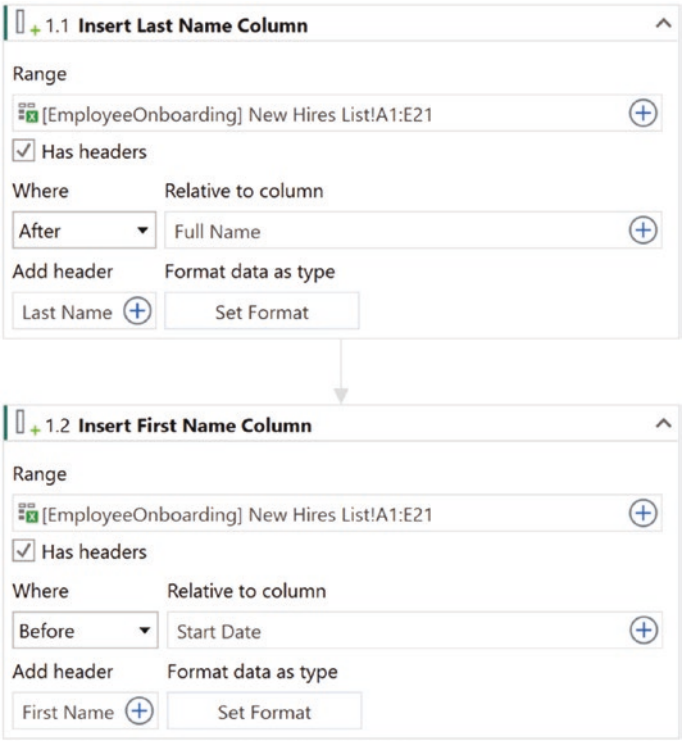


Figure 7-25. *Displays the final configuration for the Insert Column activity*

Figure 7-26 shows the output of the Insert Column activity that has added a Last Name and First Name column after Full Name in the New Hires List sheet.

	A	B	C	D	E	F	G
1	ID	Full Name	Last Name	First Name	Start Date	Department	Status
2	1	Brown, Sylvia			1/6/2020	Operations	
3	2	Carter, Samantha			4/10/2020	Accounting	
4	3	Clark, Jacob			7/20/2020	Human Resources	
5	4	Davis, Samuel			1/6/2020	Operations	
6	5	Davis, Sasha			7/20/2020	Information Technology	
7	6	Hill, Karen			1/6/2020	Operations	
8	7	Johnson, Elijah			7/20/2020	Information Technology	
9	8	Johnson, Adam			4/10/2020	Human Resources	
10	9	Jones, Daniel			7/20/2020	Information Technology	
11	10	Khan, Zain			1/6/2020	Operations	
12	11	Lane, Tamara			7/20/2020	Human Resources	
13	12	Lopez, Maya			4/10/2020	Accounting	
14	13	Miller, Raymond			7/20/2020	Information Technology	
15	14	Patel, Priya			1/6/2020	Accounting	
16	15	Sanchez, Gabriella			7/20/2020	Information Technology	
17	16	Singh, Aditya			4/10/2020	Human Resources	
18	17	Smith, Carolyn			1/6/2020	Accounting	
19	18	Smith, John			7/20/2020	Human Resources	
20	19	Williams, Jane			4/10/2020	Information Technology	
21	20	Young, Alyssa			1/6/2020	Accounting	

Figure 7-26. *The Last Name and First Name columns added after Insert Column activities are executed*

Text To Columns

The **Text To Columns** activity allows you to split the text in a given cell, sheet, or range to separate columns.

Common examples for this activity include splitting first and last names from a single row to separate columns or separating a cell with a list of supplies into multiple columns.

Configuration

This section provides instructions on how to configure a **Text To Columns** activity, shown in Figure 7-27.

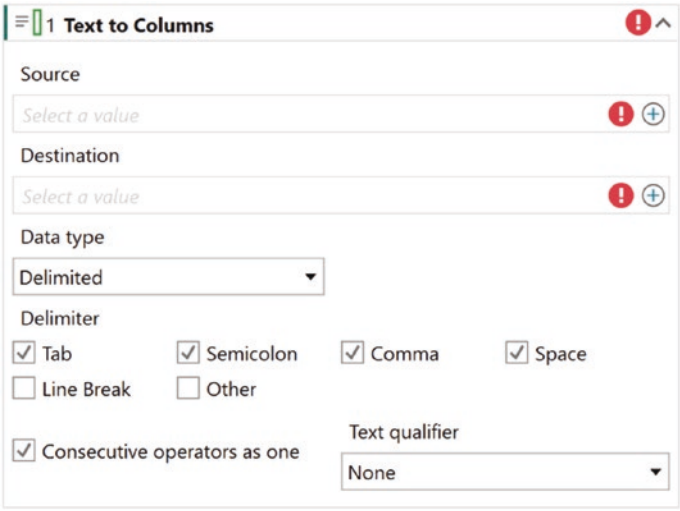


Figure 7-27. *Text to Columns activity card*

Source: This is a required configuration available on the activity card. This configuration identifies which cell, range, or table contains the data that needs to be split into columns.

Destination: This is a required configuration available on the activity card. This configuration provides the location of the columns where the split data should be added.

Note The Destination for the Text To Columns activity must be in the same worksheet as the Source.

Data type: This is a required configuration available on the activity card. This configuration indicates what type of data the source range is separated by in order to split. The default selection for this field is `Delimited`, meaning that the data in the source is separated by a certain character. Data type can be changed to `Fixed width` if the source data needs to be separated based on a certain number of characters.

Delimiter: This is a required configuration available on the activity card. This configuration is only available when the `Data type` is `Delimited`. This configuration identifies what character to use as the separator for the source range data. By default, the `Tab`, `Semicolon`, `Comma`, and `Space` options are checked. `Line break` and `Other` are left unchecked and, if checked, will open a text field to specify the delimiter character.

Consecutive operators as one: This is a required configuration available on the activity card. This configuration is only available when the `Data type` is `Delimited`. This configuration allows you to specify if multiple characters are separating the data. By default, this option is checked.

For example, if the source cell has `notebooks;, clipboards` text, then the `;,` are going to function as a single delimiter. In this case, `notebooks` will be added to the first column and `clipboards` to the second.

Text qualifier: This is a required configuration available on the activity card. This configuration is only available when the `Data type` is `Delimited`. By default, this option is set to `none`, meaning that enclosed text qualifiers do not define the data being split. This option can be changed to a `single quote` or `double quote`.

For example, if the `Delimiter` is a comma and the `Text qualifier` is double quotes, the text `notebooks, pens", clipboards` will be separated as `notebooks, pens` in the first and `clipboards` in the second column.

Number of characters per column: This is a required configuration available on the activity card. This configuration is required only when the `Data type` is `Fixed width`. This field provides the length of how many characters to group for splitting into columns.

EXERCISE

Goal: Building on our previous exercise, use the `Text To Columns` activity to split the First and Last Names in the `Full Name` column on the `New Hires List` sheet. Figure 7-26 displays the `New Hires List` sheet before the exercise.

Source Code: Chapter_7_ExcelColumnActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Text To Columns` activity in the body of `Use Excel File` activity after the `Insert Column` activity from the previous exercise.
2. Next, click the `Plus` icon in the `Source` field, and select the `Indicate in Excel` option for the `EmployeeOnboarding` workbook. Once Excel is open, select range `B2:B21` in the `New Hires List` sheet.
3. Next, click the `Plus` icon in the `Destination` field, and select the `Indicate in Excel` option for the `EmployeeOnboarding` workbook. Once Excel is open, select range `C2:D21` in the `New Hires List` sheet.
4. Then, leave all of the default configurations as is for the `Data type`, `Delimiter`, `Consecutive operations as one`, and `Text qualifier` fields.

Once you have completed the exercise, the final configuration of the **Text To Columns** activity should resemble Figure 7-28.

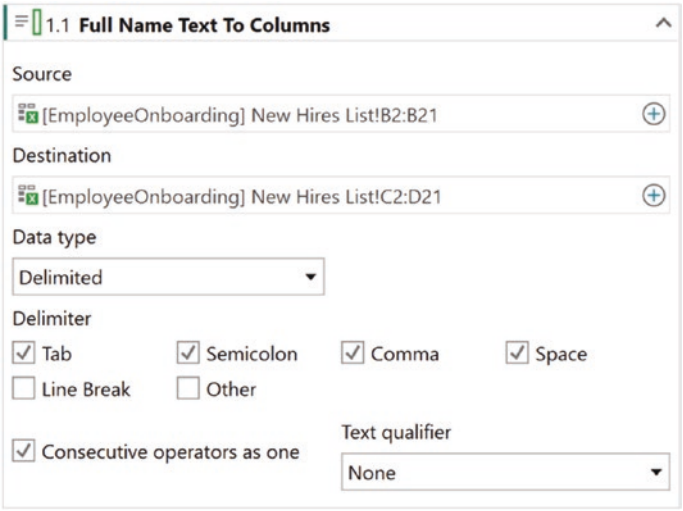


Figure 7-28. *Displays the final configuration for the Text To Columns activity*

Figure 7-29 shows the output of the Text To Columns activity that has separated the Full Names into First and Last Name columns.

	A	B	C	D	E	F	G
1	ID	Full Name	Last Name	First Name	Start Date	Department	Status
2	1	Brown, Sylvia	Brown	Sylvia	1/6/2020	Operations	
3	2	Carter, Samantha	Carter	Samantha	4/10/2020	Accounting	
4	3	Clark, Jacob	Clark	Jacob	7/20/2020	Human Resources	
5	4	Davis, Samuel	Davis	Samuel	1/6/2020	Operations	
6	5	Davis, Sasha	Davis	Sasha	7/20/2020	Information Technology	
7	6	Hill, Karen	Hill	Karen	1/6/2020	Operations	
8	7	Johnson, Elijah	Johnson	Elijah	7/20/2020	Information Technology	
9	8	Johnson, Adam	Johnson	Adam	4/10/2020	Human Resources	
10	9	Jones, Daniel	Jones	Daniel	7/20/2020	Information Technology	
11	10	Khan, Zain	Khan	Zain	1/6/2020	Operations	
12	11	Lane, Tamara	Lane	Tamara	7/20/2020	Human Resources	
13	12	Lopez, Maya	Lopez	Maya	4/10/2020	Accounting	
14	13	Miller, Raymond	Miller	Raymond	7/20/2020	Information Technology	
15	14	Patel, Priya	Patel	Priya	1/6/2020	Accounting	
16	15	Sanchez, Gabriella	Sanchez	Gabriella	7/20/2020	Information Technology	
17	16	Singh, Aditya	Singh	Aditya	4/10/2020	Human Resources	
18	17	Smith, Carolyn	Smith	Carolyn	1/6/2020	Accounting	
19	18	Smith, John	Smith	John	7/20/2020	Human Resources	
20	19	Williams, Jane	Williams	Jane	4/10/2020	Information Technology	
21	20	Young, Alyssa	Young	Alyssa	1/6/2020	Accounting	

Figure 7-29. *Displays the output of the Text To Columns activity*

Delete Column

The **Delete Column** activity allows you to delete a column in a sheet, range, or table from a workbook.

Configuration

This section provides instructions on how to configure a **Delete Column** activity, as shown in Figure 7-30.

Figure 7-30. *Delete Column activity card*

Source: This is a required configuration available on the activity card. This configuration provides StudioX with the range, sheet, or table that a column needs to be deleted from.

Column name: This is a required configuration available on the activity card. This configuration provides the column(s) that need to be deleted from the specified range, sheet, or table configured in the `Source` field. The most common ways to configure the Column name for this activity are by selecting a column header from the `Range` selector or using `Indicate in Excel` to select the desired column header. Alternatively, if the goal is to delete multiple columns, then you can use the `Text Builder` to identify the range or comma-delimited list of columns to delete.

Has headers: This is an optional configuration available on the activity card. This configuration is selected as a default so that StudioX identifies the column being deleted as having a header and identifies the column(s) based on the name in the first row rather than Excel column identifiers like A, B, C, and so on.

EXERCISE

Goal: Building on our previous exercise, use the `Delete Column` activity to delete the `Full Name` column from the `New Hires List` sheet in the `EmployeeOnboarding.xlsx` file. Figure 7-29 displays the `New Hires List` before the automation has been executed.

Source Code: Chapter_7_ExcelColumnActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Delete Column` activity in the body of `Use Excel File` activity after `Text to Columns` activity.
2. Next, click the `Plus` icon in the `Source` field, and navigate to the `EmployeeOnboarding` and select the `New Hires List` sheet.
3. Next, click the `Plus` icon in the `Column name` field and select `Range` ➤ `Full Name` option.
4. Leave the default configurations for `Has headers` as is for this example.

Once you have completed the exercise, the final configuration of the **Delete Column** activity should resemble Figure 7-31.

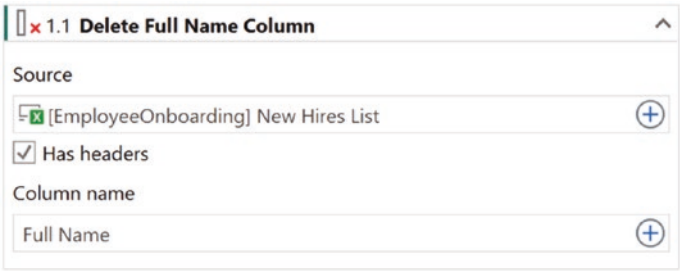


Figure 7-31. *Displays the final configuration for the Delete Column activity*

The output of this example deletes the Full Name column from the New Hires List sheet as displayed in Figure 7-32.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Operations	
3	2	Carter	Samantha	4/10/2020	Accounting	
4	3	Clark	Jacob	7/20/2020	Human Resources	
5	4	Davis	Samuel	1/6/2020	Operations	
6	5	Davis	Sasha	7/20/2020	Information Technology	
7	6	Hill	Karen	1/6/2020	Operations	
8	7	Johnson	Elijah	7/20/2020	Information Technology	
9	8	Johnson	Adam	4/10/2020	Human Resources	
10	9	Jones	Daniel	7/20/2020	Information Technology	
11	10	Khan	Zain	1/6/2020	Operations	
12	11	Lane	Tamara	7/20/2020	Human Resources	
13	12	Lopez	Maya	4/10/2020	Accounting	
14	13	Miller	Raymond	7/20/2020	Information Technology	
15	14	Patel	Priya	1/6/2020	Accounting	
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	
17	16	Singh	Aditya	4/10/2020	Human Resources	
18	17	Smith	Carolyn	1/6/2020	Accounting	
19	18	Smith	John	7/20/2020	Human Resources	
20	19	Williams	Jane	4/10/2020	Information Technology	
21	20	Young	Alyssa	1/6/2020	Accounting	

Figure 7-32. *Full Name column deleted after the Delete Column activity is executed*

Insert Rows

The **Insert Rows** activity allows you to add one or multiple rows to a defined range, sheet, or table.

Configuration

This section provides instructions on how to configure an **Insert Rows** activity, as shown in Figure 7-33.

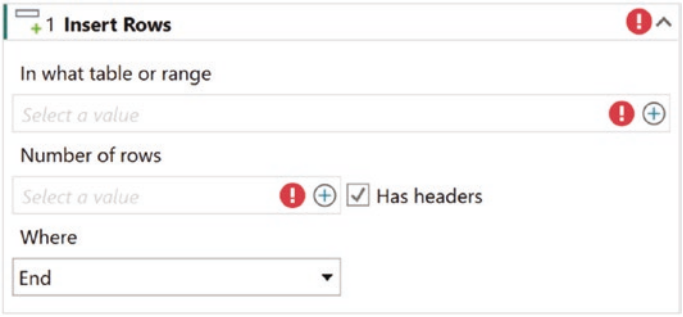


Figure 7-33. *Insert Rows activity card*

In what table or range: This is a required configuration available on the activity card. This configuration provides StudioX with the range that the new row(s) will be added to.

Number of rows: This is a required configuration available on the activity card. This configuration determines how many rows should be added to the selected range.

Where: This is a required configuration available on the activity card. This configuration is default selected as `End`, meaning that newly inserted rows will be added to the end of the range selected in the `In what table or range` field. This field configuration can be changed to `Start` or `Specific Index`.

Row number: This is a required configuration available on the activity card. This configuration is required only when `Specific Index` is selected in the `Where` dropdown. This configuration allows you to specify an exact row number where the new row(s) should be inserted.

Has headers: This is an optional configuration available on the activity card. This configuration is selected by default, that is, the first row in the range will be counted as a header. For example, if you are inserting three rows at the start of a table and Has headers is selected, then the three rows will be inserted after the header row in the table.

EXERCISE

Goal: Use the `Use Excel File` and the `Insert Rows` activities to add two rows in the `New Hires List` sheet at cell. Figure 7-32 shows the `New Hires List` with `20` rows of data prior to the exercise.

Source Code: Chapter_7_ExcelRowActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Use Excel File` activity and configure with the `C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx` file as demonstrated in the first exercise.
2. Then, drag the `Insert Rows` activity in the body of `Use Excel File` activity in the `Designer` panel.
3. Next, click the `Plus` icon in the `In what table or range` field, and navigate to the `EmployeeOnboarding` and select the `New Hires List` sheet.

4. Next, click the `Plus` icon in the `Number of rows` field, select `Number` option, and type in `2`.
5. Next, click the `Where` dropdown and select `Specific index`.
6. Next, click the `Plus` icon in the `Row Number` field, select `Number` option, and type in `5`.
7. Leave the default option of `Has headers` checked.

Once you have completed the exercise, the final configuration of the **Insert Rows** activity should resemble Figure 7-34.

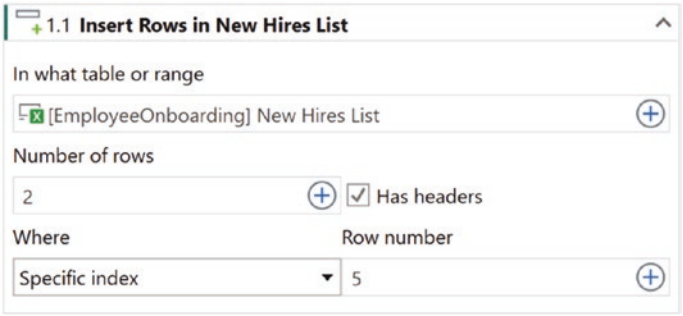


Figure 7-34. *Displays the final configuration for the Insert Rows activity*

Figure 7-35 shows the output of the Insert Rows activity that has added two rows to the New Hires List sheet now extending from A1:F21 to A1:F23.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Operations	
3	2	Carter	Samantha	4/10/2020	Accounting	
4	3	Clark	Jacob	7/20/2020	Human Resources	
5	4	Davis	Samuel	1/6/2020	Operations	
6						
7						
8	5	Davis	Sasha	7/20/2020	Information Technology	
9	6	Hill	Karen	1/6/2020	Operations	
10	7	Johnson	Elijah	7/20/2020	Information Technology	
11	8	Johnson	Adam	4/10/2020	Human Resources	
12	9	Jones	Daniel	7/20/2020	Information Technology	
13	10	Khan	Zain	1/6/2020	Operations	
14	11	Lane	Tamara	7/20/2020	Human Resources	
15	12	Lopez	Maya	4/10/2020	Accounting	
16	13	Miller	Raymond	7/20/2020	Information Technology	
17	14	Patel	Priya	1/6/2020	Accounting	
18	15	Sanchez	Gabriella	7/20/2020	Information Technology	
19	16	Singh	Aditya	4/10/2020	Human Resources	
20	17	Smith	Carolyn	1/6/2020	Accounting	
21	18	Smith	John	7/20/2020	Human Resources	
22	19	Williams	Jane	4/10/2020	Information Technology	
23	20	Young	Alyssa	1/6/2020	Accounting	

Figure 7-35. *New rows inserted in rows 6 and 7 of the New Hires List*

Delete Rows

The **Delete Rows** activity deletes one or multiple rows identified in a sheet, range, or table from a workbook.

Tip You can use a Filter activity to hide rows and then choose to delete all hidden rows in the Delete Rows activity.

Configuration

This section provides instructions on how to configure a **Delete Rows** activity, as shown in Figure 7-36.

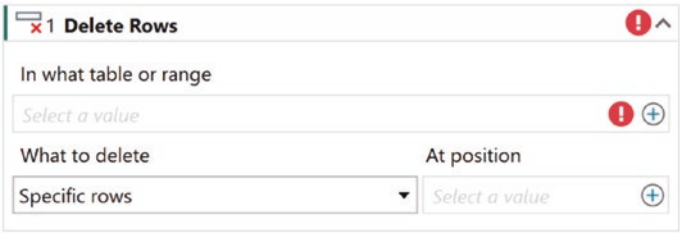


Figure 7-36. *Delete Rows activity card*

In what table or range: This is a required configuration available on the activity card. This configuration provides StudioX with the range, sheet, or table that contains the row(s) that need to be deleted.

What to delete: This is a required configuration available on the activity card. This configuration provides the type of row(s) that need to be deleted. The dropdown selection options are `Specify row`, `All visible rows`, `All hidden rows`, and `All duplicate rows`. For example, if there is a table where you have hidden three rows and you select the `All hidden rows` option, then those three hidden rows in the table are deleted.

At position: This is a required configuration available on the activity card. This configuration is required only when the `Specify rows` option is selected in `What to delete`. The most common way to configure the `At position` field is by using the `Text Builder` to enter the row numbers being deleted.

Has headers: This is an optional configuration available on the Properties panel. By default, this is selected, that is, the first row in the range will be considered as a header and will not be deleted.

EXERCISE

Goal: Building on our previous exercise, use the `Delete Rows` activity to delete rows 6 and 7 in the `New Hires List` which were added in the `Insert Rows` exercise, displayed in Figure 7-35.

Source Code: Chapter_7_ExcelRowActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Delete Rows` activity in the body of `Use Excel File` activity after `Insert Rows` activity.
2. Next, click the `Plus` icon in the `In what table or range` field, and navigate to the `EmployeeOnboarding` and select the `New Hires List` sheet.
3. Leave the `What to delete` dropdown with the default selection of `Specific rows`.
4. Next, click the `Plus` menu in the `At position` field, select the `Text` option, and type `6, 7`.

Once you have completed the exercise, the final configuration of the **Delete Rows** activity should resemble Figure 7-37.

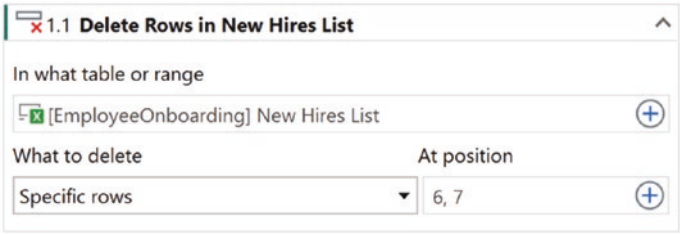


Figure 7-37. *Displays the final configuration for the Delete Rows activity*

The output of this example, displayed in Figure 7-38, deletes the two blank rows at row numbers 6 and 7 in the New Hires List sheet.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Operations	
3	2	Carter	Samantha	4/10/2020	Accounting	
4	3	Clark	Jacob	7/20/2020	Human Resources	
5	4	Davis	Samuel	1/6/2020	Operations	
6	5	Davis	Sasha	7/20/2020	Information Technology	
7	6	Hill	Karen	1/6/2020	Operations	
8	7	Johnson	Elijah	7/20/2020	Information Technology	
9	8	Johnson	Adam	4/10/2020	Human Resources	
10	9	Jones	Daniel	7/20/2020	Information Technology	
11	10	Khan	Zain	1/6/2020	Operations	
12	11	Lane	Tamara	7/20/2020	Human Resources	
13	12	Lopez	Maya	4/10/2020	Accounting	
14	13	Miller	Raymond	7/20/2020	Information Technology	
15	14	Patel	Priya	1/6/2020	Accounting	
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	
17	16	Singh	Aditya	4/10/2020	Human Resources	
18	17	Smith	Carolyn	1/6/2020	Accounting	
19	18	Smith	John	7/20/2020	Human Resources	
20	19	Williams	Jane	4/10/2020	Information Technology	
21	20	Young	Alyssa	1/6/2020	Accounting	

Figure 7-38. *Rows 6 and 7 are deleted after the Delete Rows activity is executed*

Find First/Last Data Row

The **Find First/Last Data Row** activity allows you to find the first and last row number containing data in a sheet, table, or range in a workbook.

Tip This activity can be helpful when needing to know what the last row of data is to know where to append or write data to.

Configuration

This section provides instructions on how to configure a **Find First/Last Data Row** activity, shown in Figure 7-39.

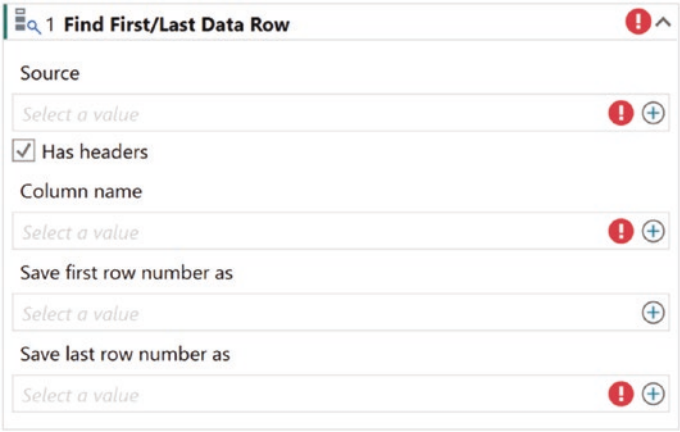


Figure 7-39. *Find First/Last Data Row activity card*

Source: This is a required configuration available on the activity card. This configuration provides the sheet, range, or table containing the data that needs to be searched for the first and/or last row number.

Has headers: This is an optional configuration available on the activity card. This configuration indicates that the first row for the `Source` is a header row that will not be counted in the output. For example, if there is a table in range A1:B20 and the `Has headers` option is checked, then the last data row count will be 19. By default, this option is checked, meaning that the first row will not be counted when calculating the output. If unselected, the first row will be counted the same as any other row in the identified range.

Column name: This is a required configuration available on the activity card. This configuration specifies the name of the column where the first and last row data needs to be searched. Commonly, this field is configured by selecting the column header name populated in the `Range` menu.

Save first row number as: This is an optional configuration available on the activity card. This configuration specifies where to store the number index of the first row containing data in the source range. Commonly this value can be saved in an Excel cell, saved for later use, or copied to the clipboard.

Save last row number as: This is a required configuration available on the activity card. This configuration specifies where to store the number index of the last row containing data in the source range. Commonly this value can be saved in an Excel cell, saved for later use, or copied to the clipboard.

Blank rows to skip: This is an optional configuration through the Properties panel under Input. This configuration specifies how many consecutive blank rows the automation should encounter before determining that the end of the range has been reached. This configuration is defaulted to 1.

First row offset: This is an optional configuration through the Properties panel under Input. This configuration allows the user to add a specified number of rows to offset the first row containing data for the activity output. For example, you could enter the number 5; then the activity will search for the number of the fifth row containing data. This configuration is defaulted to 0.

Last row offset: This is an optional configuration through the Properties panel under Input. This configuration allows the user to subtract a specified number of rows to offset the last row containing data for the activity output. For example, you could enter the number 5; then the activity will search for the fifth row from the bottom of the range that contains data. This configuration is defaulted to 0.

EXERCISE

Goal: Building on our previous exercise, use the `Find First/Last Data Row` activity to find the last row containing data in the ID column for the `New Hire Checklist`. Figure 7-40 displays the data that will be searched.

	A	B	C	D	E	F	G	H	I
1	ID	Last Name	First Name	Orientation	Employee Handbook	Policy Training	Benefits Packag	Direct Deposit Setup	Technology Setup
2	1	Brown	Sylvia	Complete	Complete	Complete	Complete	Complete	Complete
3	2	Carter	Samantha	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
4	3	Clark	Jacob	Not Started	Not Started	In Progress	In Progress	Not Started	In Progress
5	4	Davis	Samuel	Complete	Complete	Complete	Complete	Complete	Complete
6	5	Davis	Sasha	Complete	Complete	Complete	Complete	Complete	Complete
7	6	Hill	Karen	Complete	Complete	Complete	Complete	Complete	Complete
8	7	Johnson	Elijah	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
9	8	Johnson	Adam	Complete	Complete	Complete	Complete	Complete	Complete
10	9	Jones	Daniel	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
11	10	Khan	Zain	Complete	Complete	Complete	Complete	Complete	Complete
12	11	Lane	Tamara	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
13	12	Lopez	Maya	Complete	Complete	Complete	Complete	Complete	Complete
14	13	Miller	Raymond	Not Started	In Progress	Not Started	In Progress	Not Started	Not Started
15	14	Patel	Priya	Complete	Complete	Complete	Complete	Complete	Complete
16	15	Sanchez	Gabriella	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
17	16	Singh	Aditya	Complete	Complete	Complete	Complete	Complete	Complete
18	17	Smith	Carolyn	Complete	Complete	Complete	Complete	Complete	Complete
19	18	Smith	John	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started
20	19	Williams	Jane	Complete	Complete	Complete	Complete	Complete	Complete
21	20	Young	Alyssa	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started

Figure 7-40. *New Hire Checklist data that will be searched*

Source Code: Chapter_7_ExcelRowActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Find First/Last Data Row` activity in the body of `Use Excel File` activity after `Delete Rows` activity.
2. Next, click the `Plus` icon in the `Source` field, and navigate to the `EmployeeOnboarding` and select the `New Hire Checklist` sheet.
3. Next, click the `Plus` icon in the `Column Name` field, and navigate to the `Range` and select the `ID` column header.
4. Next, click the `Plus` icon in the `Save last row number as` field, and select the `Copy to clipboard` option.

5. Leave the `Has headers` option checked.
6. Leave the `Save first row number as` field blank.
7. Next, add the `Write Line` activity to the body of `Use Excel File` activity after the `Find First/Last Data Row` activity.
8. In the `Text` field, click the `Plus` icon and select `Paste from clipboard` option.

Once you have completed the exercise, the final configuration of the **Find First/Last Data Row** activity should resemble Figure 7-41.

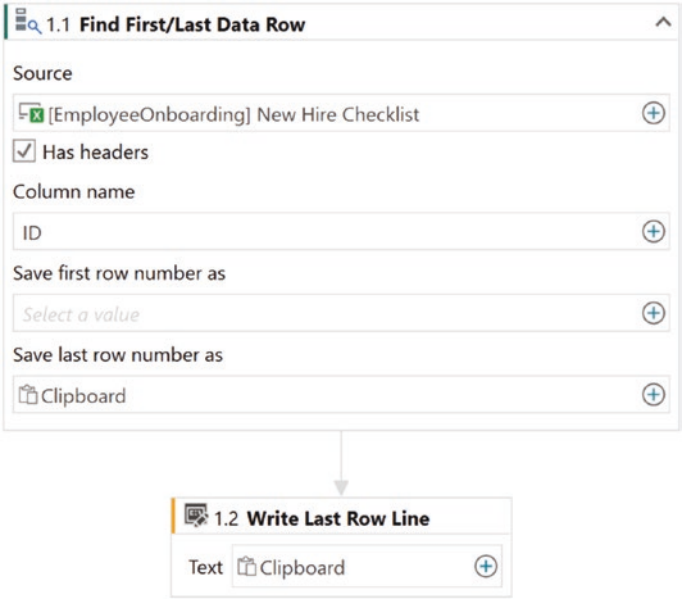


Figure 7-41. *Displays the configuration for the Find First/Last Data Row activity*

This example will output 21 as the last row for the New Hire Checklist as there are 20 new employees total. This can be seen in Figure 7-42.

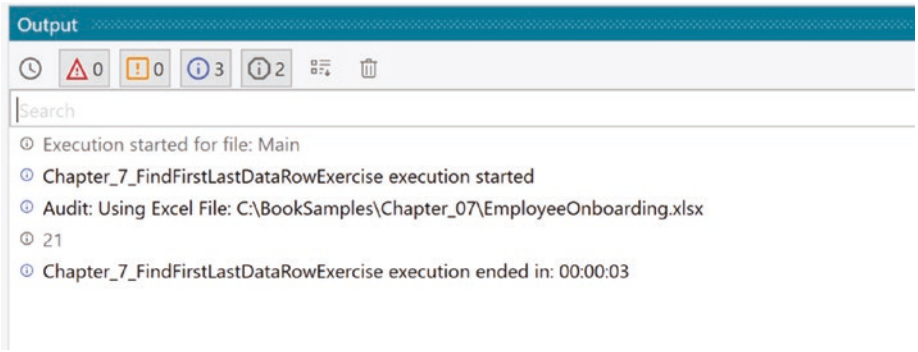


Figure 7-42. *Output of Find First/Last Data Row exercise*

For Each Excel Row

The **For Each Excel Row** activity allows you to execute one or more activities against each row in a sheet, table, or range within the same workbook.

Note Configuring at least one child activity within the For Each Excel Row activity is required to perform the iterative actions on multiple Excel rows.

Configuration

This section provides instructions on how to configure a **For Each Excel Row** activity, as shown in Figure 7-43.

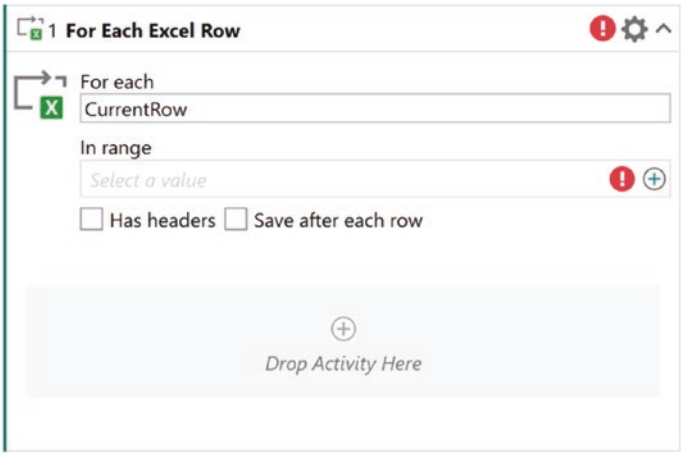


Figure 7-43. *For Each Excel Row activity card*

For each: This is a required configuration available on the activity card. This configuration allows you to provide a name to reference the current row which is being iterated through; this is especially important for referencing in the child activities. The default text is entered as `CurrentRow` and can be changed based on what data you are iterating through. For example, you can choose to name the current row as Employees when you are executing the same actions through a list of multiple employees. You can simply type in the desired name to configure this field or leave the default.

In range: This is a required configuration available on the activity card. This configuration provides the sheet, range, or table containing the rows of data that need to be iterated through.

Has headers: This is an optional configuration available on the activity card. This configuration indicates that the first row for the `In range` is a header row. Selecting this option will ease in referencing specific column names for the `CurrentRow` data in child activities. This option is unselected at default.

Save after each row: This is an optional configuration available on the activity card. This configuration specifies if the Excel file should be saved after each row iteration. This option is left unselected by default, meaning that the Excel file will save based on the save configurations set in the parent `Use Excel File` activity or by using the `Save Excel File` activity.

EmptyRowBehavior: This is an optional configuration available on the `Properties` panel. This configuration indicates how the automation will behave if it encounters an empty row while iterating through data. The default option is set to `Stop`, meaning that the activity will simply stop iterating through the next rows. This option can be changed to `Skip` so that the empty row is skipped and the next one in the iteration is processed, or `Process` so the empty row is included in the iteration data processing.

EXERCISE

Goal: Building on our previous exercise, use the `For Each Excel Row` activity to iterate through each employee row in the New Hires List data range. This activity will be executed with the `Write Cell` activity exercise.

Source Code: Chapter_7_ExcelRowActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `For Each Excel Row` activity in the body of `Use Excel File` activity after `Find First/Last Data Row` activity from the previous exercise.
2. Next, in the `For each` field, type in the text `Employee`.
3. Next, click the `Plus` icon in the `In range` field, and navigate to the `EmployeeOnboarding` and select the `New Hires List` sheet.
4. Next, check the `Has headers` option.

5. Check the `Save after each row` option.
6. Then, click the `Properties` panel and select the `EmptyRowBehavior` option to change it to `Skip`. This step is optional.

Once you have completed the exercise, the final configuration of the **For Each Excel Row** activity should resemble Figure 7-44.

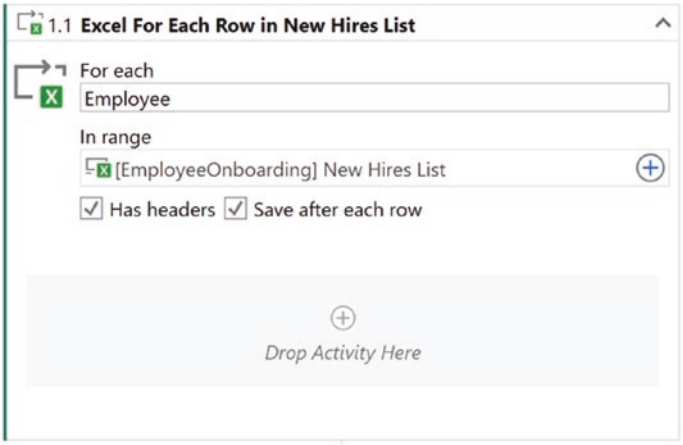


Figure 7-44. *Displays the configuration for the For Each Excel Row activity*

In the upcoming Activity section, the automation will iterate through each Employee row in the New Hire List sheet and perform the Write Cell.

Write Cell

The **Write Cell** activity allows you to write a value or a formula into a given cell in a worksheet.

Common examples for this activity include writing to a single cell or using a **For Each** activity to write text or formulas into multiple cells incrementing with each row.

Configuration

This section provides instructions on how to configure a **Write Cell** activity, shown in Figure 7-45.

Figure 7-45. *Write Cell activity card*

What to write: This is a required configuration available on the activity card. This configuration identifies what text or formula value needs to be entered into the cell.

Where to write: This is a required configuration available on the activity card. This configuration provides the location of the cell where the `What to write` value will be entered.

Auto increment row: This is an optional configuration available on the activity card. This configuration, if checked, will automatically increase the row number for each iteration and write the cell value into multiple cells in the range. By default, this field is unchecked, meaning the value will only be entered into the single cell indicated in the `Where to write` field.

Note The Auto increment row option should be utilized with the For Each Excel Row, For Each Email, For Each File In Folder, or Repeat Number Of Times activities if writing to more than one cell.

EXERCISE

Goal: Building on our previous exercise, use the `Write Cell` activity with the `For Each Excel Row` activity to write the text `Active` as the status for each employee in the `New Hires List`. Figure 7-38 shows the `New Hires List` before the exercise.

Source Code: Chapter_7_ExcelRowActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Write Cell` activity to the body of `For Each Excel Row` activity from the previous exercise.
2. Next, select the `Plus` icon in `What to write` field, select `Text` option, and type `Active`.
3. Next, select the `Plus` icon in the `Where to write` field and hover over `Employee` option to select the `Status` field.
4. Next, check the box for the `Auto increment row` field.

Once you have completed the exercise, the final configuration of the **Write Cell** activity should resemble Figure 7-46.

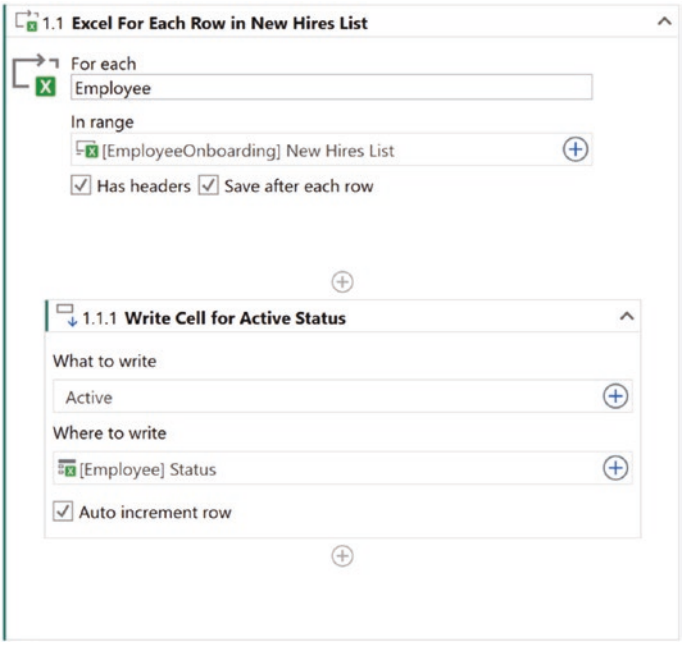


Figure 7-46. *Displays the final configuration for the Write Cell activity*

Figure 7-47 shows the output of the Write Cell and For Each Excel Row activity that has added Active to the Status column for all employees.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Operations	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	6	Hill	Karen	1/6/2020	Operations	Active
8	7	Johnson	Elijah	7/20/2020	Information Technology	Active
9	8	Johnson	Adam	4/10/2020	Human Resources	Active
10	9	Jones	Daniel	7/20/2020	Information Technology	Active
11	10	Khan	Zain	1/6/2020	Operations	Active
12	11	Lane	Tamara	7/20/2020	Human Resources	Active
13	12	Lopez	Maya	4/10/2020	Accounting	Active
14	13	Miller	Raymond	7/20/2020	Information Technology	Active
15	14	Patel	Priya	1/6/2020	Accounting	Active
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
17	16	Singh	Aditya	4/10/2020	Human Resources	Active
18	17	Smith	Carolyn	1/6/2020	Accounting	Active
19	18	Smith	John	7/20/2020	Human Resources	Active
20	19	Williams	Jane	4/10/2020	Information Technology	Active
21	20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-47. *Displays the text Active added for all the employees' Statuses*

Create Pivot Table

The **Create Pivot Table** activity creates a pivot table that helps you organize, analyze, and summarize data. Additionally, the **Create Pivot Table** activity is accompanied by the **Add Pivot Field** child activity allowing you to add rows, columns, filters, or values to the new pivot table.

Configuration

This section provides instructions on how to configure a **Create Pivot Table** activity, shown in Figure 7-48.

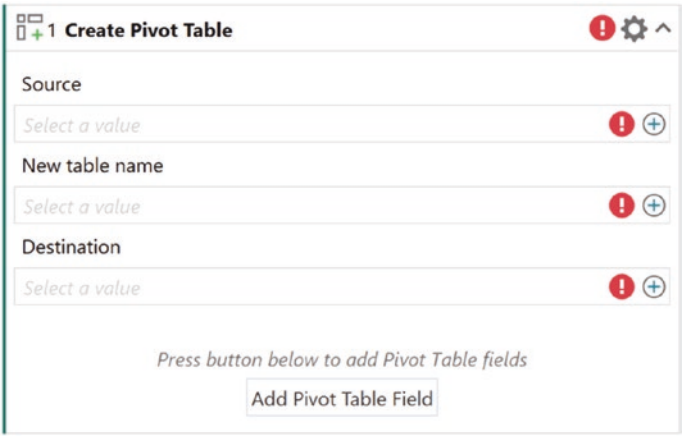


Figure 7-48. *Create Pivot Table activity card*

Source: This is a required configuration available on the activity card. This configuration provides the source range or table that provides the data for the new pivot table. The common method to configure this field is by choosing a named table as the source.

New table name: This is a required configuration available on the activity card. This configuration provides the name for the pivot table. The most common way to configure this field is by selecting the `Text Builder` option to type in the desired name manually.

Destination: This is a required configuration available on the activity card. This field identifies the sheet, table, or range where the new pivot table should be created. This field is commonly configured by selecting a named sheet or table or by using the `Indicate in Excel` option.

Pivot Field: The child activity allows you to add rows, columns, values, and filters for the new pivot table being created in the parent `Create Pivot Table` activity.

Field: The `Field` value is required for the `Add Pivot Field` child activity configuration. This configuration specifies what field from the `Source` should be added to the new pivot table. You can configure this by selecting a `column header` from the `Range` selector or using `Indicate in Excel` to select the desired column header.

Is a: This is a required configuration available on the activity card of `Pivot Field` child activity. This field allows you to select if the field being added to the new pivot table is a `row`, `column`, `filter`, or `value`.

Function: This is an optional configuration available on the activity card. This configuration only appears if the `Is a` field is set to the option `Value`. The `Function` field specifies what function is used to determine the value, with the following dropdown options seen in Figure 7-49.

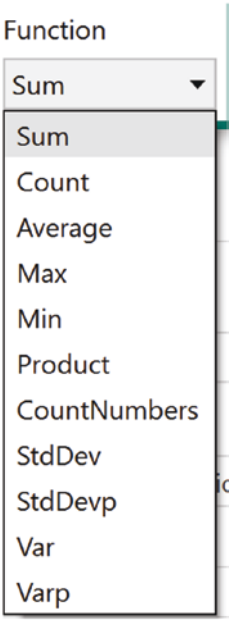


Figure 7-49. *Dropdown options for Function field*

EXERCISE

Goal: Use the Use Excel File and the Create Pivot Table activities to create a pivot table in the EmployeeOnboarding Excel file to add the count of employee ID by job function for the first ten new hires in the New Hires List.

Source Code: Chapter_7_ExcelTableActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the Use Excel File activity and configure with the C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx file as demonstrated in the first exercise.
2. Then, drag the Create Pivot Table activity card in the body of Use Excel File activity in the Designer panel.
3. Next, click the Plus icon in the Source field and select the Indicate in Excel option for the EmployeeOnboarding file. Once Excel is open, select the range A1:F11 in the New Hires List sheet.
4. Next, click the Plus icon in the New table name field, select the Text option, and type NewHireStats_PivotTable.
5. Next, click the Plus icon in the Destination field and navigate to the EmployeeOnboarding Excel file and select the New Hire Statistics sheet.
6. Next, click the Add Pivot Field button to add the first field.
7. Next, click the Plus icon in the Field option, navigate to the Range option, and select Department.
8. Next, leave the Is a option set to the default value of Row.

9. Next, click the `Add Pivot Field` button to add the second field.
10. Next, click the `Plus` icon in the `Field` option, navigate to the `Range` option, and select `ID`.
11. Next, click the dropdown for the `Is a` option and select the value `Value`.
12. Next, click the dropdown for the `Function` option and select the value `Count`.

Once you have completed the exercise, the final configuration of the Create Pivot Table activity should resemble Figure 7-50.

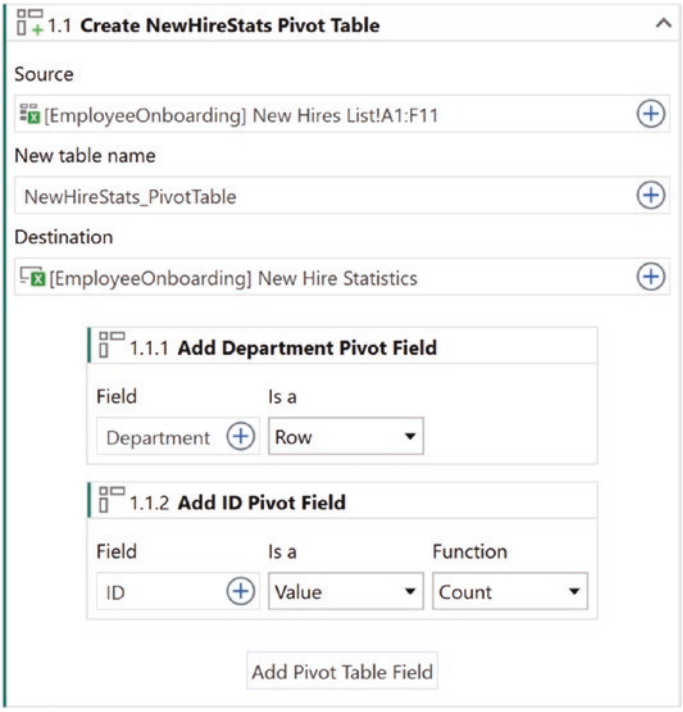


Figure 7-50. *Create Pivot Table activity final configuration*

The output of this example will create a NewHireStats pivot table with the Department and ID columns displaying how many employees were hired by department. Figure 7-51 displays the new pivot table in the EmployeeOnboarding Excel file.

	A	B	C
1	**Row Labels**	**Count of ID**	
2	Accounting	1	
3	Human Resources	2	
4	Information Technology	3	
5	Operations	4	
6	**Grand Total**	**10**	
7			

Figure 7-51. *NewHireStats_PivotTable for the first ten employees*

Format as Table

The **Format as Table** activity formats a specified range as a new table with a given name.

Configuration

This section provides instructions on how to configure a **Format as Table** activity, shown in Figure 7-52.

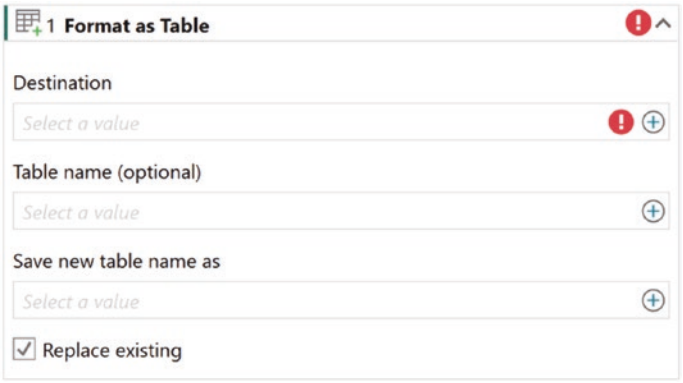


Figure 7-52. *Format as Table activity card*

Destination: This is a required configuration available on the activity card. This configuration identifies the range of cells that need to be converted from a range to a table. This field is commonly configured by utilizing the `Indicate in Excel` option.

Table name (optional): This is an optional configuration available on the activity card. This configuration provides the name for the table. The most common way to configure this field is by selecting the `Text Builder` option to type in the desired name manually. If left blank, the first available name such as "Table1" will automatically be assigned to the table.

Save new table name as: This is an optional configuration available on the activity card. This configuration provides the name to reference the table for later use and is helpful if the `Table name` configuration is left blank, so you can retrieve the name that was assigned by the automation. The common way to configure this field is by selecting the `Save for later` option and assign a variable name to output for future activities.

Replace existing: This is an optional configuration available on the activity card. This configuration deletes and replaces an existing table if one exists with the same name that is configured in `Save new table name as`. By default, this configuration is checked.

EXERCISE

Goal: Building on our previous exercise, use the `Format as Table` activity to format the `New Hires List` range as a table in the `EmployeeOnboarding.xlsx` file.

Source Code: Chapter_7_ExcelTableActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Format as Table` activity in the body of `Use Excel File` activity after `Change Pivot Table` activity from the previous exercise.
2. Click the `Plus` icon in the `Destination` field. Navigate to the `EmployeeOnboarding` workbook option, and select `Indicate in Excel`. Once Excel is open, select the range `A1:F21` in the `New Hires List` sheet.
3. Next, click the `Plus` icon in the `New table name` field, select the `Text` option, and type `NewHiresList_Table`.
4. Leave the `Save reference name as` blank.

Once you have completed the exercise, the final configuration of the **Format as Table** activity should resemble Figure 7-53.

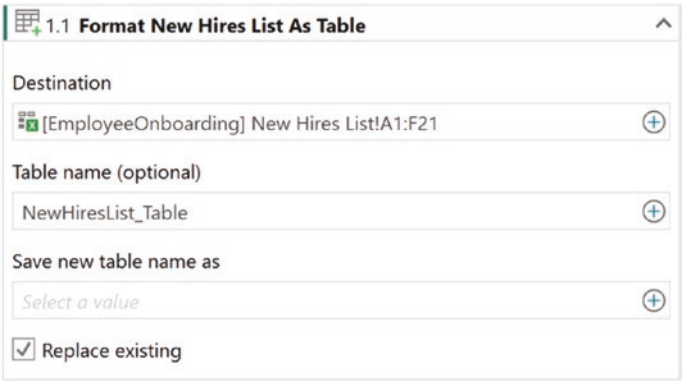


Figure 7-53. *Configuration for Format as Table activity*

Figure 7-54 shows the range A1:F21 which is now converted to the new table.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Operations	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	6	Hill	Karen	1/6/2020	Operations	Active
8	7	Johnson	Elijah	7/20/2020	Information Technology	Active
9	8	Johnson	Adam	4/10/2020	Human Resources	Active
10	9	Jones	Daniel	7/20/2020	Information Technology	Active
11	10	Khan	Zain	1/6/2020	Operations	Active
12	11	Lane	Tamara	7/20/2020	Human Resources	Active
13	12	Lopez	Maya	4/10/2020	Accounting	Active
14	13	Miller	Raymond	7/20/2020	Information Technology	Active
15	14	Patel	Priya	1/6/2020	Accounting	Active
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
17	16	Singh	Aditya	4/10/2020	Human Resources	Active
18	17	Smith	Carolyn	1/6/2020	Accounting	Active
19	18	Smith	John	7/20/2020	Human Resources	Active
20	19	Williams	Jane	4/10/2020	Information Technology	Active
21	20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-54. *Range A1:F21 converted from Range to Table*

Change Pivot Data Source

The **Change Pivot Data Source** activity allows you to change the source range data for an existing pivot table.

Configuration

This section provides instructions on how to configure a **Change Pivot Data Source** activity, shown in Figure 7-55.

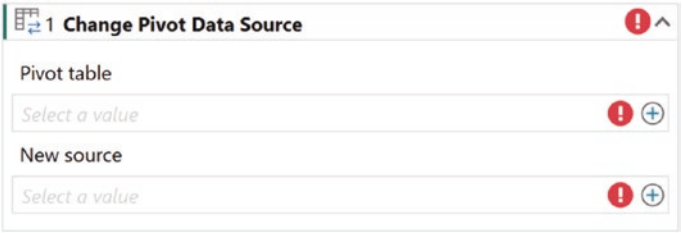


Figure 7-55. *Change Pivot Data Source activity card*

Pivot table: This is a required configuration available on the activity card. This configuration is used to identify the pivot table from the Excel file that will be updated with the new source data.

New source: This is a required configuration available on the activity card. This configuration is used to identify the new source table or range that will update the data in the pivot table.

EXERCISE

Goal: Building on our previous exercise, use the `Change Pivot Data Source` activity to change the `NewHireStats_PivotTable` from the range `A1:F11` to the `NewHiresList_Table` added in the `Format as Table` activity exercise. Figure 7-51 displays the `pivot table` prior to the exercise.

Source Code: Chapter_7_ExcelTableActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Change Pivot Data Source` activity in the body of `Use Excel File` activity after `Format as Table` activity from the previous exercise.
2. Click the `Plus` icon in the `Pivot table` field. Navigate through the `EmployeeOnboarding` workbook, `New Hire Statistics` sheet, and select the `NewHireStats_PivotTable [Pivot Table]`.
3. Click the `Plus` icon in the `New source` field. Navigate through the `EmployeeOnboarding` workbook, `New Hires List` sheet, and select the `NewHiresList_Table [Table]`.

Once you have completed the exercise, the final configuration of the **Change Pivot Data Source** activity should resemble Figure 7-56.

Figure 7-56. *Change Pivot Data Source configuration*

Once the Change Pivot Data Source activity is executed, Figure 7-57 shows the output of the updated data for the NewHireStats_PivotTable now accounting for all 20 employees.

	A	B	C
1	**Row Labels**	**Count of ID**	
2	Accounting	5	
3	Human Resources	5	
4	Information Technology	6	
5	Operations	4	
6	**Grand Total**	**20**	
7			

Figure 7-57. *Change Pivot Data Source activity output*

Refresh Pivot Table

The **Refresh Pivot Table** activity utilizes the Refresh feature in Excel to allow you to update the pivot table with any data changes that have occurred in the source data range.

Configuration

This section provides instructions on how to configure a **Refresh Pivot Table** activity, shown in 7-58.

Figure 7-58. *Refresh Pivot Table activity card*

Pivot table to refresh: This is a required configuration available on the activity card. This configuration provides StudioX with the pivot table that needs to be updated due to changes in its source data table or range. You can configure this field by selecting a named pivot table by clicking the `Plus` icon.

EXERCISE

Goal: Building on our previous exercise, use the `Refresh Pivot Table` activity to update the count of New Hires in the `NewHireStats_PivotTable`. This will be based on a `Write Cell` activity that updates the Department of the first employee from `Operations` to `Accounting`. Figure 7-57 shows the `NewHireStats_PivotTable` prior to the exercise.

Source Code: Chapter_7_ExcelTableActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Write Cell` activity in the body of `Use Excel File` activity after `Change Pivot Data Source` activity.
2. Next, in the `What to write` field, click `Plus` icon, select `Text` option, and type `Accounting`.
3. Next, in the `Where to write` field, select cell `E2` in the `New Hires List` sheet.
4. Next, drag the `Refresh Pivot Table` activity in the body of `Use Excel File` activity after the `Write Cell` activity in the `Designer` panel.
5. Next, click the `Plus` icon in the `Pivot table to refresh` field, and navigate to the `EmployeeOnboarding` workbook, the `New Hire Statistics` sheet, and select `NewHireStats_PivotTable`.

Once you have completed the exercise, the final configuration of the **Write Cell** and **Refresh Pivot Table** activities should resemble Figure 7-59.

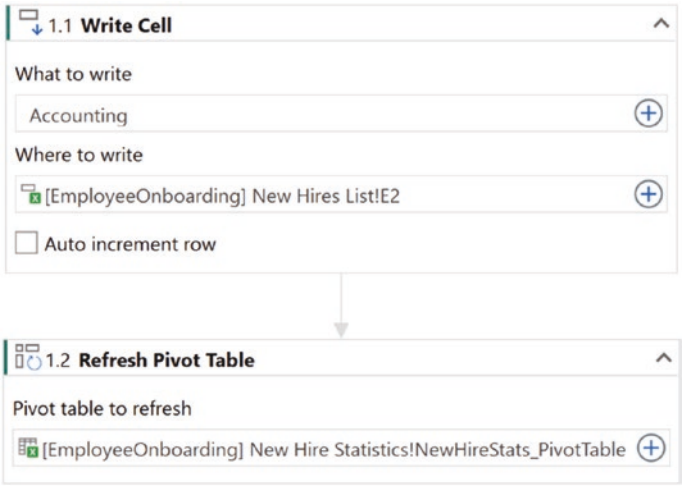


Figure 7-59. *Displays the final configuration for the Refresh Pivot Table activity*

Figure 7-60 shows the output of the Refresh Pivot Table activity that has updated the counts for new employees in Accounting and Operations departments.

	A	B	C
1	**Row Labels**	**Count of ID**	
2	Accounting	6	
3	Human Resources	5	
4	Information Technology	6	
5	Operations	3	
6	**Grand Total**	**20**	
7			

Figure 7-60. *Displays the refreshed pivot table*

Append Range

The **Append Range** activity copies data from a specific sheet, range, or table and pastes/appends it after data in another sheet range or table.

Configuration

This section provides instructions on how to configure an **Append Range** activity, shown in Figure 7-61.

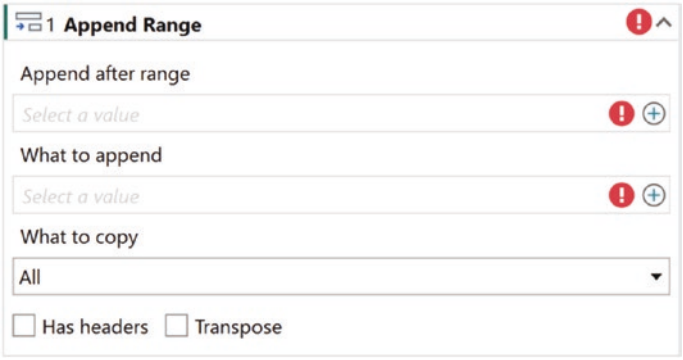


Figure 7-61. *Append Range activity card*

Append after range: This is a required configuration available on the activity card. This configuration provides the location of the sheet, range, or table that the data will be appended after.

What to append: This is a required configuration available on the activity card. This configuration provides the location of the sheet, range, or table that the data will be appended after.

What to copy: This is an optional configuration available on the activity card. This field determines how to paste the data during this activity, for example, selecting `All` copies values, formatting, and any formulas from the data selected in `What to append`. This field is defaulted to the option `All` and can be changed to `Values`, `Formulas`, or `Formats`.

Has headers: This is an optional configuration available on the activity card. If selected, it will consider the first row in the `What to append` range a header and not copy it. This is unselected at default.

Transpose: This is an optional configuration available on the activity card. `Transpose` will rotate the data being copied from columns to rows or vice versa. By default, this option is unselected.

EXERCISE

Goal: Use the `Use Excel File` and the `Append Range` activity to append the data for the `5` new hires from the `EmployeeOnboardingInput` Excel file and add it to the `NewHiresList_Table` in the `Employee Onboarding` parent file. Figure 7-62 displays the EmployeeOnboardingInput file with the `5` employee rows that need to be appended.

	A	B	C	D	E
1	ID	Last Name	First Name	Start Date	Department
2	21	George	Lana	7/7/2020	Accounting
3	22	Evans	Chad	7/8/2020	Human Resources
4	23	Nguyen	Linda	7/9/2020	Information Technology
5	24	Martin	Frank	7/10/2020	Operations
6	25	Lee	Aera	7/11/2020	Operations

Figure 7-62. *Displays the Employee Onboarding Input data that needs to get appended*

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Use Excel File` activity and configure with the `C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx` file as demonstrated in the first exercise.

2. Then, drag a second `Use Excel File` activity in the body of the first one for the `C:\BookSamples\Chapter_07\EmployeeOnboardingInput.xlsx` file path and `EmployeeOnboardingInput` for `Reference as`.
3. Next, add the `Append Range` activity card to the body of the nested `Use Excel File` activity.
4. Click the `Plus` icon in the `Append after range` field. Navigate to the `EmployeeOnboarding` workbook option, and select the `NewHiresList_Table`.
5. Click the `Plus` icon in the `What to append` field. Navigate to the `EmployeeOnboardingInput` workbook option, and select the range `New Employees Input sheet`.
6. Check the `Has headers` option.

Once you have completed the exercise, the final configuration of the **Append Range** activity should resemble Figure 7-63.

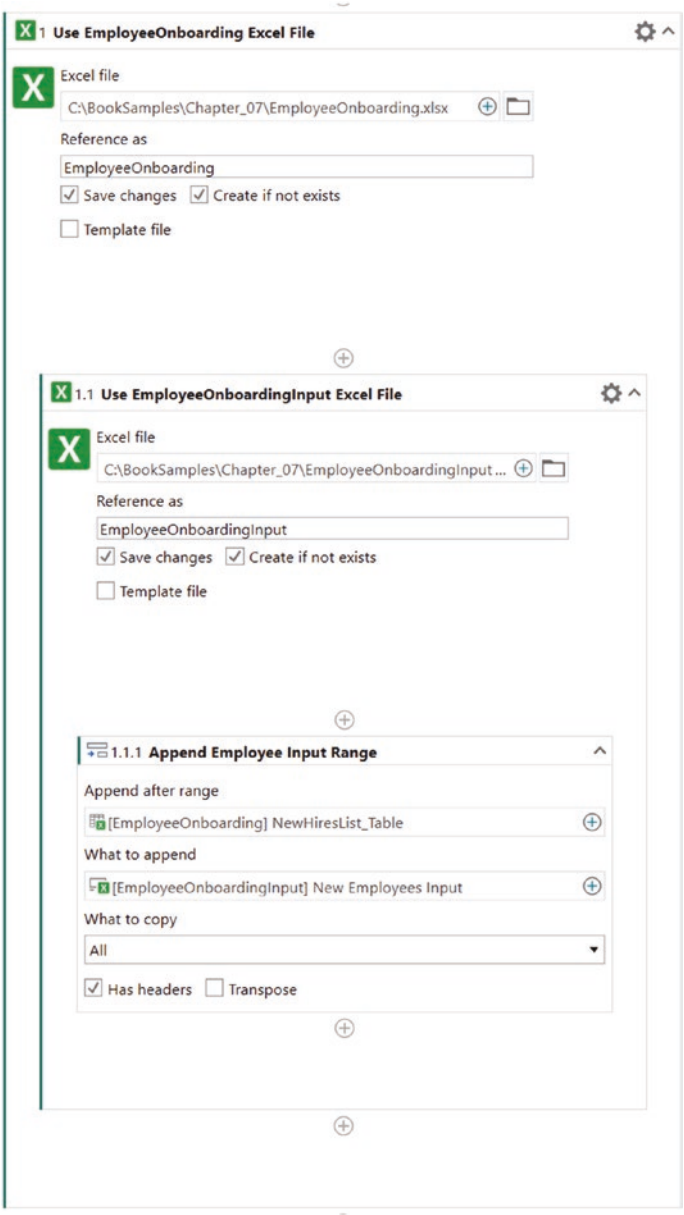


Figure 7-63. *Final configuration for Append Range activity card*

The output of this activity, shown in Figure 7-64, has appended the five new rows from the input file to the NewHiresList_Table in the EmployeeOnboarding.xlsx file.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	6	Hill	Karen	1/6/2020	Operations	Active
8	7	Johnson	Elijah	7/20/2020	Information Technology	Active
9	8	Johnson	Adam	4/10/2020	Human Resources	Active
10	9	Jones	Daniel	7/20/2020	Information Technology	Active
11	10	Khan	Zain	1/6/2020	Operations	Active
12	11	Lane	Tamara	7/20/2020	Human Resources	Active
13	12	Lopez	Maya	4/10/2020	Accounting	Active
14	13	Miller	Raymond	7/20/2020	Information Technology	Active
15	14	Patel	Priya	1/6/2020	Accounting	Active
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
17	16	Singh	Aditya	4/10/2020	Human Resources	Active
18	17	Smith	Carolyn	1/6/2020	Accounting	Active
19	18	Smith	John	7/20/2020	Human Resources	Active
20	19	Williams	Jane	4/10/2020	Information Technology	Active
21	20	Young	Alyssa	1/6/2020	Accounting	Active
22	21	George	Lana	7/7/2020	Accounting	
23	22	Evans	Chad	7/8/2020	Human Resources	
24	23	Nguyen	Linda	7/9/2020	Information Technology	
25	24	Martin	Frank	7/10/2020	Operations	
26	25	Lee	Aera	7/11/2020	Operations	

Figure 7-64. *NewHiresList_Table with the appended range in A22:F26*

Copy Range

The **Copy Range** activity allows you to copy and paste a range, sheet, or table from one location to another in the Excel workbooks available to the automation.

Configuration

This section provides instructions on how to configure a **Copy Range** activity, shown in Figure 7-65.

Figure 7-65. *Copy Range activity card*

Note Unlike the Append Range activity that pastes data starting at the first empty row, the Copy Range activity will overwrite data when it is pasted.

Source: This is a required configuration available on the activity card. This field identifies the sheet, table, or range source data that needs to be copied. This field is commonly configured by selecting a named sheet or table or by using the `Indicate in Excel` option.

Destination: This is a required configuration available on the activity card. This field identifies the sheet, table, or range where the `Source` data should be pasted. This field is commonly configured by selecting a named sheet or table or by using the `Indicate in Excel` option.

What to copy: This is an optional configuration available on the activity card. `What to copy` field determines how to paste the data during this activity, for example, selecting All copies values, formatting, and any formulas from the data selected in What to append. This field is defaulted to the option `All` and can be changed to `Values`, `Formulas`, or `Formats`.

Transpose: This is an optional configuration available on the activity card. `Transpose` will rotate the data being copied from columns to rows or vice versa. By default, this option is unselected.

EXERCISE

Goal: Building on our previous exercise, use the `Copy Range` activity to copy the employee `ID`, `Last Name`, and `First Name` from `NewHiresList_Table` rows `22–26` to the `NewHireChecklist Table`. New Hire Checklist table prior to the Copy Range exercise is displayed in Figure 7-66.

	A	B	C	D	E	F	G	H	I
1	ID	Last Name	First Name	Orientation	Employee Handbook	Policy Training	Benefits Package	Direct Deposit Setup	Technology Setup
2	1	Brown	Sylvia	Complete	Complete	Complete	Complete	Complete	Complete
3	2	Carter	Samantha	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
4	3	Clark	Jacob	Not Started	Not Started	In Progress	In Progress	Not Started	In Progress
5	4	Davis	Samuel	Complete	Complete	Complete	Complete	Complete	Complete
6	5	Davis	Sasha	Complete	Complete	Complete	Complete	Complete	Complete
7	6	Hill	Karen	Complete	Complete	Complete	Complete	Complete	Complete
8	7	Johnson	Elijah	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
9	8	Johnson	Adam	Complete	Complete	Complete	Complete	Complete	Complete
10	9	Jones	Daniel	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
11	10	Khan	Zain	Complete	Complete	Complete	Complete	Complete	Complete
12	11	Lane	Tamara	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
13	12	Lopez	Maya	Complete	Complete	Complete	Complete	Complete	Complete
14	13	Miller	Raymond	Not Started	In Progress	Not Started	In Progress	Not Started	Not Started
15	14	Patel	Priya	Complete	Complete	Complete	Complete	Complete	Complete
16	15	Sanchez	Gabriella	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
17	16	Singh	Aditya	Complete	Complete	Complete	Complete	Complete	Complete
18	17	Smith	Carolyn	Complete	Complete	Complete	Complete	Complete	Complete
19	18	Smith	John	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started
20	19	Williams	Jane	Complete	Complete	Complete	Complete	Complete	Complete
21	20	Young	Alyssa	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started

Figure 7-66. *New Hire Checklist, prior to the Copy Range activity*

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the Copy Range activity in the body of the nested Use Excel File activity after the Append Range activity from the previous exercise.
2. Next, click the Plus icon in the Source field, navigate to the EmployeeOnboarding file, and select Indicate in Excel. Once Excel is open, select the range A22:C26 in the New Hires List sheet.
3. Next, click the Plus icon in the Destination field, navigate to the EmployeeOnboarding file, and select Indicate in Excel. Once Excel is open, select cell A22:C26 in the New Hire Checklist sheet.
4. Leave the What to copy and Transpose options with their default selections.

Once you have completed the exercise, the final configuration of the **Copy Range** activity should resemble Figure 7-67.

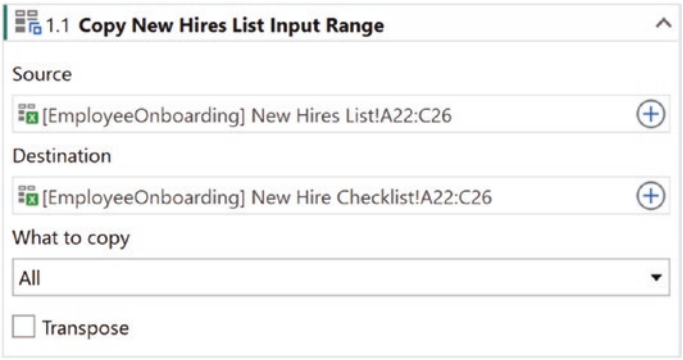


Figure 7-67. *Copy Range activity configuration*

The output of this example will copy range A22:C26 from the New Hires List and paste it to range A22:C26 in the New Hire Checklist as shown in Figure 7-68.

	A	B	C	D	E	F	G	H	I
1	ID	Last Name	First Name	Orientation	Employee Handbook	Policy Training	Benefits Package	Direct Deposit Setup	Technology Setup
2	1	Brown	Sylvia	Complete	Complete	Complete	Complete	Complete	Complete
3	2	Carter	Samantha	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
4	3	Clark	Jacob	Not Started	Not Started	In Progress	In Progress	Not Started	In Progress
5	4	Davis	Samuel	Complete	Complete	Complete	Complete	Complete	Complete
6	5	Davis	Sasha	Complete	Complete	Complete	Complete	Complete	Complete
7	6	Hill	Karen	Complete	Complete	Complete	Complete	Complete	Complete
8	7	Johnson	Elijah	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
9	8	Johnson	Adam	Complete	Complete	Complete	Complete	Complete	Complete
10	9	Jones	Daniel	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
11	10	Khan	Zain	Complete	Complete	Complete	Complete	Complete	Complete
12	11	Lane	Tamara	Not Started	Not Started	In Progress	Not Started	Not Started	Not Started
13	12	Lopez	Maya	Complete	Complete	Complete	Complete	Complete	Complete
14	13	Miller	Raymond	Not Started	In Progress	Not Started	In Progress	Not Started	Not Started
15	14	Patel	Priya	Complete	Complete	Complete	Complete	Complete	Complete
16	15	Sanchez	Gabriella	Not Started	In Progress	In Progress	Not Started	In Progress	Not Started
17	16	Singh	Aditya	Complete	Complete	Complete	Complete	Complete	Complete
18	17	Smith	Carolyn	Complete	Complete	Complete	Complete	Complete	Complete
19	18	Smith	John	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started
20	19	Williams	Jane	Complete	Complete	Complete	Complete	Complete	Complete
21	20	Young	Alyssa	Not Started	Not Started	Not Started	In Progress	Not Started	Not Started
22	21	George	Lana						
23	22	Evans	Chad						
24	23	Nguyen	Linda						
25	24	Martin	Frank						
26	25	Lee	Aera						

Figure 7-68. *Copy Range activity output*

Clear Sheet/Range/Table

The **Clear Sheet/Range/Table** activity allows you to clear data for a specified sheet, range, or table in the Excel workbooks available to the automation.

Configuration

This section provides instructions on how to configure a **Clear Sheet/Range/Table** activity, shown in Figure 7-69.

Figure 7-69. *Clear Sheet/Range/Table activity card*

Range to clear: This is a required configuration available on the activity card. This field identifies the sheet, table, or range source data that needs to be cleared. This field is commonly configured by selecting a named sheet or table or by using the `Indicate in Excel` option.

Has headers: This is an optional configuration available on the activity card. This configuration is unselected at default, meaning that all the data will be cleared. If selected, then the header row will not be cleared in the identified range.

EXERCISE

Goal: Building on our previous exercise, use the `Clear Sheet/Range/Table` activity to clear the InputTable data from the `EmployeeOnboardingInput` Excel file. Figure 7-62 displays this data prior to being cleared.

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Clear Sheet/Range/Table` activity in the body of the inner `Use Excel File` activity after the `Copy Range` activity.
2. Next, click the `Plus` icon in the `Range to clear` field, navigate to the `EmployeeOnboardingInput` file, the `New Employees Input [Sheet]`, and select the `InputTable [Table]`.
3. Then, check the `Has headers` option so that the header row is not cleared.

Once you have completed the exercise, the final configuration of the **Clear Sheet/Range/Table** activity should resemble Figure 7-70.

Figure 7-70. *Clear Sheet/Range/Table activity configuration*

The output of this example will clear the InputTable from the EmployeeOnboardingInput file and leave the header row as is; this is shown in Figure 7-71.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	
2						
3						
4						
5						
6						
7						

Figure 7-71. *InputTable data cleared*

Sort Range

The **Sort Range** activity allows you to sort the data in a sheet, range, or table by one or multiple columns in Excel.

Configuration

This section provides instructions on how to configure a **Sort Range** activity, shown in Figure 7-72.

Figure 7-72. *Sort Range activity card*

Range: This is a required configuration available on the activity card. The Range field identifies which sheet, table, or range contains the column(s) that need to be sorted or the target location.

Sort By Column: At least one `Sort By Column` child activity is required to be configured for the `Sort Range` activity. A `Sort By Column` child activity can be added by clicking `Add Sort Column` button on the activity card of `Sort Range` activity. The `Add Sort Column` option can be done multiple times against the same range to sort by as many columns as required based on requirements. The `Sort By Column` child activity requires that `Column` and `Direction` fields be configured.

Note If multiple columns are indicated through the Add Sort Column option, then the automation will sort the data in the order the columns are placed in the parent Sort Range activity.

Column: This is a required field on the `Sort By Column` child activity card. This field identifies which column in the range to sort the data by. Commonly, this field is identified through the Range option by selecting the column header name automatically populated from the Range field or `Indicate in Excel` to select any cell in the target column. Figure 7-73 displays additional options to configure this field.

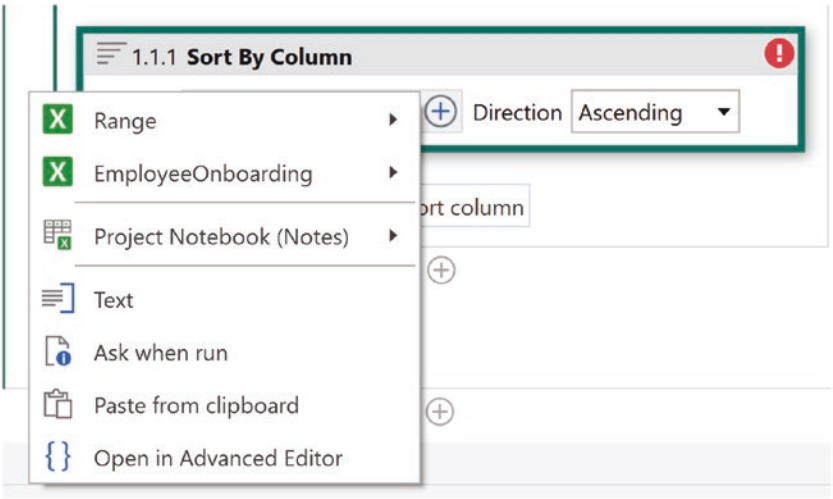


Figure 7-73. *Displays the Column field configuration options*

Direction: This is a required field on the `Sort By Column` child activity card. The `Direction` field provides the direction to sort the identified column. The default selection for this field is `Ascending` and can be changed to `Descending` through the dropdown menu.

EXERCISE

Goal: Building on our previous exercise, use the `Sort Range` activity to sort the Employees in alphabetical order by `Last Name`. Figure 7-74 displays the `NewHiresList_Table` prior to the `Sort Range` activity.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	6	Hill	Karen	1/6/2020	Operations	Active
8	7	Johnson	Elijah	7/20/2020	Information Technology	Active
9	8	Johnson	Adam	4/10/2020	Human Resources	Active
10	9	Jones	Daniel	7/20/2020	Information Technology	Active
11	10	Khan	Zain	1/6/2020	Operations	Active
12	11	Lane	Tamara	7/20/2020	Human Resources	Active
13	12	Lopez	Maya	4/10/2020	Accounting	Active
14	13	Miller	Raymond	7/20/2020	Information Technology	Active
15	14	Patel	Priya	1/6/2020	Accounting	Active
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
17	16	Singh	Aditya	4/10/2020	Human Resources	Active
18	17	Smith	Carolyn	1/6/2020	Accounting	Active
19	18	Smith	John	7/20/2020	Human Resources	Active
20	19	Williams	Jane	4/10/2020	Information Technology	Active
21	20	Young	Alyssa	1/6/2020	Accounting	Active
22	21	George	Lana	7/7/2020	Accounting	
23	22	Evans	Chad	7/8/2020	Human Resources	
24	23	Nguyen	Linda	7/9/2020	Information Technology	
25	24	Martin	Frank	7/10/2020	Operations	
26	25	Lee	Aera	7/11/2020	Operations	

Figure 7-74. *New Hires List Table before the Sort Range activity exercise*

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Sort Range` activity in the body of the inner `Use Excel File` activity after the `Clear Sheet/Range/Table` activity from the previous exercise.

2. Next, select the `Plus` icon in the `Range` field and navigate to the `EmployeeOnboarding` Excel file to select the `New Hires List` ➤ `NewHiresList_Table`.

3. Then, click the `Add sort column` button to add the `Sort By Column` child activity.
4. Next, select the `Plus` icon in the `Column` field, and navigate to the `Range` option to select `Last Name` as the column header.
5. Leave the `Direction` field as the default option of `Ascending`.

Once you have completed the exercise, the final configuration of the **Sort Range** activity should resemble Figure 7-75.

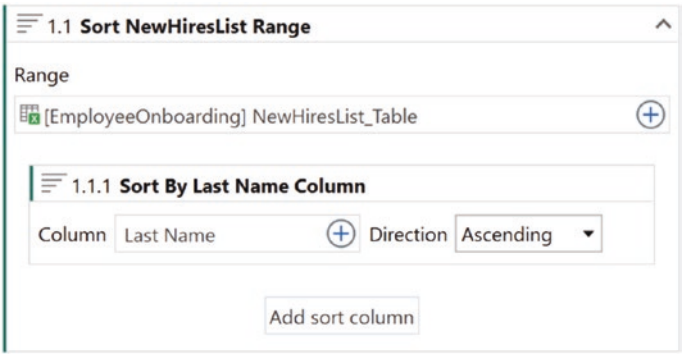


Figure 7-75. *Displays the final configuration for the Sort Range activity*

Figure 7-76 shows the output of the Sort Range activity that has sorted the New Hires List in alphabetical order of Last Names.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	22	Evans	Chad	7/8/2020	Human Resources	
8	21	George	Lana	7/7/2020	Accounting	
9	6	Hill	Karen	1/6/2020	Operations	Active
10	7	Johnson	Elijah	7/20/2020	Information Technology	Active
11	8	Johnson	Adam	4/10/2020	Human Resources	Active
12	9	Jones	Daniel	7/20/2020	Information Technology	Active
13	10	Khan	Zain	1/6/2020	Operations	Active
14	11	Lane	Tamara	7/20/2020	Human Resources	Active
15	25	Lee	Aera	7/11/2020	Operations	
16	12	Lopez	Maya	4/10/2020	Accounting	Active
17	24	Martin	Frank	7/10/2020	Operations	
18	13	Miller	Raymond	7/20/2020	Information Technology	Active
19	23	Nguyen	Linda	7/9/2020	Information Technology	
20	14	Patel	Priya	1/6/2020	Accounting	Active
21	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
22	16	Singh	Aditya	4/10/2020	Human Resources	Active
23	17	Smith	Carolyn	1/6/2020	Accounting	Active
24	18	Smith	John	7/20/2020	Human Resources	Active
25	19	Williams	Jane	4/10/2020	Information Technology	Active
26	20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-76. *New Hires List sorted by Last Name*

Auto Fill

The **Auto Fill** activity utilizes the auto fill feature in Excel to fill data in adjacent cells (cells in the same column) based on existing data, similar to using the Fill option in Excel or dragging the `Plus` icon on the corner of a cell to other surrounding cells.

Popular use cases for automatically filling data include date, text, number, or formula fields that need to be automatically filled into their adjacent fields in Excel.

Configuration

This section provides instructions on how to configure an **Auto Fill** activity, shown in Figure 7-77.

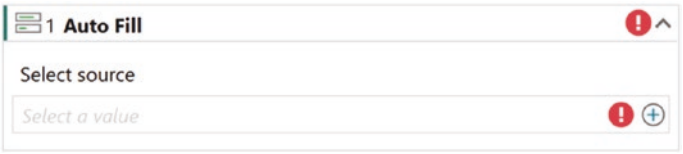


Figure 7-77. *Auto Fill activity card*

Select source: This is a required configuration available on the activity card. This field identifies the reference cell or range field(s) that will be used to fill in data in the adjacent fields. For example, if the date 1/1/2020 is in cell A1 and needs to be auto filled in the cells below with the date 1/2/2020 and so on, then cell A1 will be the source.

EXERCISE

Goal: Building on our previous exercise, use the `Auto Fill` activity to automatically fill in the `Active` status in the blank `Status` fields in the `New Hires List` sheet.

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Auto Fill` activity in the body of the inner `Use Excel File` activity after the `Sort Range` activity from the previous exercise.

2. In the `Select source` field, click the `Plus` icon, navigate to the `EmployeeOnboarding` workbook, and select the `Indicate in Excel` option. Once Excel is open, select the cell `F2` in the `New Hires List` sheet and press `Confirm` to populate.

Once you have completed the exercise, the final configuration of the **Auto Fill** activity should resemble Figure 7-78.

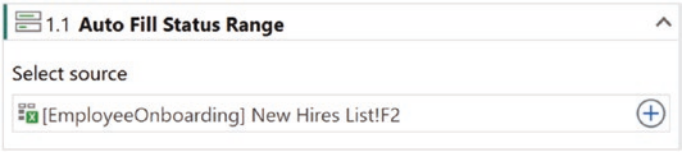


Figure 7-78. *Auto Fill activity final configuration*

After this automation has been executed, the missing status data is automatically populated with Active based on cell F2. Figure 7-79 displays the New Hires List sheet with the statuses auto filled.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	22	Evans	Chad	7/8/2020	Human Resources	Active
8	21	George	Lana	7/7/2020	Accounting	Active
9	6	Hill	Karen	1/6/2020	Operations	Active
10	7	Johnson	Elijah	7/20/2020	Information Technology	Active
11	8	Johnson	Adam	4/10/2020	Human Resources	Active
12	9	Jones	Daniel	7/20/2020	Information Technology	Active
13	10	Khan	Zain	1/6/2020	Operations	Active
14	11	Lane	Tamara	7/20/2020	Human Resources	Active
15	25	Lee	Aera	7/11/2020	Operations	Active
16	12	Lopez	Maya	4/10/2020	Accounting	Active
17	24	Martin	Frank	7/10/2020	Operations	Active
18	13	Miller	Raymond	7/20/2020	Information Technology	Active
19	23	Nguyen	Linda	7/9/2020	Information Technology	Active
20	14	Patel	Priya	1/6/2020	Accounting	Active
21	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
22	16	Singh	Aditya	4/10/2020	Human Resources	Active
23	17	Smith	Carolyn	1/6/2020	Accounting	Active
24	18	Smith	John	7/20/2020	Human Resources	Active
25	19	Williams	Jane	4/10/2020	Information Technology	Active
26	20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-79. *Status column auto filled with Active*

Fill Range

The **Fill Range** activity located allows you to insert text or formula into a specified range/table in the parent Use Excel File activity or Project Notebook.

Configuration

This section provides instructions on how to configure a **Fill Range** activity, shown in Figure 7-80.

Figure 7-80. *Fill Range activity card*

Where to write: This is a required configuration available on the activity card. This configuration provides StudioX with the range or table where data will be written. The common way to configure this field is to select a named table by clicking the `Plus` icon.

What to write: This is a required configuration available on the activity card. This configuration determines the value or formula that needs to be added to the cells in the range or table. The common way to configure this field is to type in the value using the `Text` or `Number` builder.

Note If you choose to write a formula in a range, then the cells being filled will use Excel's auto incrementation functionality.

EXERCISE

Goal: Building on our previous exercise, use the `Fill Range` activity to write in a formula in the Bonus column for `10%` of the `Salary` amount from cell `B2` in the `New Hire Salaries` sheet.

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Fill Range` activity in the body of the inner `Use Excel File` activity after the `Auto Fill` activity from the previous exercise.
2. Next, click the `Plus` icon in the `Where to write` field, and navigate to the `EmployeeOnboarding` workbook to select the `Indicate in Excel` option. Once Excel is open, click the `New Hire Salaries` sheet, and select the cell `C2`.
3. Next, click the `Plus` icon in the `What to write` field, select `Text` option, and type in the formula `=B2*0.10`.

Once you have completed the exercise, the final configuration of the **Fill Range** activity should resemble Figure 7-81.

Figure 7-81. *Displays the final configuration for the Fill Range activity*

	A	B	C
1	ID	Salary	Estimated Bonus
2	1	$45,000	$4,500.0
3	2	$100,000	$10,000.0
4	3	$75,000	$7,500.0
5	4	$50,000	$5,000.0
6	5	$65,000	$6,500.0
7	6	$125,000	$12,500.0
8	7	$80,000	$8,000.0
9	8	$30,000	$3,000.0
10	9	$85,000	$8,500.0
11	10	$40,000	$4,000.0
12	11	$105,000	$10,500.0
13	12	$55,000	$5,500.0
14	13	$60,000	$6,000.0
15	14	$45,000	$4,500.0
16	15	$70,000	$7,000.0
17	16	$110,000	$11,000.0
18	17	$80,000	$8,000.0
19	18	$30,000	$3,000.0
20	19	$85,000	$8,500.0
21	20	$60,000	$6,000.0

Figure 7-82. *Displays the New Hire Salaries with the Bonus column filled*

Figure 7-82 shows the output of this activity that has added the formula =B2*0.10 to cell C2:C21 in the New Hire Salaries sheet which shows the calculation of 10% of Salary.

Write Range

The **Write Range** activity allows you to write data values from a range, table, sheet, or saved in the automation to another specified range in the Excel workbooks available to the automation.

Note Unlike the Copy and Append Range activities that will only copy the specific range from Excel, the Write Range activity can write a range from other sources, such as saved values from data scraping.

Configuration

This section provides instructions on how to configure a **Write Range** activity, shown in Figure 7-83.

Figure 7-83. *Write Range activity card*

What to write: This is a required configuration available on the activity card. This field identifies the sheet, table, or range source data that needs to be written. This field is commonly configured by selecting a sheet, range, or table using the `Indicate in Excel` option. Alternatively, a saved value from Excel or any other compatible source can also be indicated.

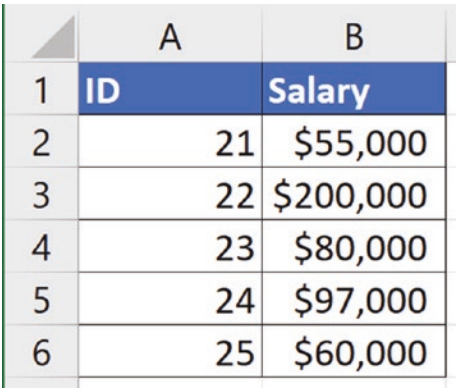
Destination: This is a required configuration available on the activity card. This field identifies the sheet, table, or range where the `What to write` data should be written. This field is commonly configured by selecting a named sheet or table or by using the `Indicate in Excel` option.

Append: This is an optional configuration available on the activity card. This field determines if the data being written should be appended to the destination range. If checked, the data will be written starting at the first empty cell in the range. If left unchecked, the data will be written to the destination range overwriting any data that is existing already. This option is unchecked at default.

Exclude headers: This is an optional configuration available on the activity card. This field determines if the source data being written should include or exclude headers. If checked, the headers from the `What to write` source data will not be written to the `Destination` range. If unchecked, the data being written will include the headers. This option is unchecked at default.

EXERCISE

Goal: Building on our previous exercise, use the `Write Range` activity to write the Salaries from the Input Excel file to the Employee Onboarding Excel file. Figure 7-84 displays the new employee salaries.



	A	B
1	ID	Salary
2	21	$55,000
3	22	$200,000
4	23	$80,000
5	24	$97,000
6	25	$60,000

Figure 7-84. *Input salaries Excel file that will be written to the Employee Onboarding Excel file*

Source Code: Chapter_7_ExcelRangeActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Write Range` activity in the body of the inner `Use Excel File` activity after the `Fill Range` activity from the previous exercise.
2. Next, click the `Plus` icon in the `What to write` field, navigate to the `EmployeeOnboardingInput` file, and select `Indicate in Excel`. Once Excel is open, select cell `A2` in the `New Employees Salary` sheet.
3. Next, click the `Plus` icon in the `Destination` field, navigate to the `EmployeeOnboarding` file, and select the `New Hire Salaries` sheet.
4. Then, check the `Append` and `Exclude headers` options.

Once you have completed the exercise, the final configuration of the **Write Range** activity should resemble Figure 7-85.

Figure 7-85. *Write Range activity configuration*

The output of this example will write range A2:B6 from the Salary Input Data to the New Hire Salaries data in the Employee Onboarding Excel file. This will result in extending the New Hire Salaries data to 25 employees as shown in Figure 7-86. The data for column C has also been auto-populated as this was a range filled with the bonus values in the previous exercise.

	A	B	C
1	ID	Salary	Estimated Bonus
2	1	$45,000	$4,500.0
3	2	$100,000	$10,000.0
4	3	$75,000	$7,500.0
5	4	$50,000	$5,000.0
6	5	$65,000	$6,500.0
7	6	$125,000	$12,500.0
8	7	$80,000	$8,000.0
9	8	$30,000	$3,000.0
10	9	$85,000	$8,500.0
11	10	$40,000	$4,000.0
12	11	$105,000	$10,500.0
13	12	$55,000	$5,500.0
14	13	$60,000	$6,000.0
15	14	$45,000	$4,500.0
16	15	$70,000	$7,000.0
17	16	$110,000	$11,000.0
18	17	$80,000	$8,000.0
19	18	$30,000	$3,000.0
20	19	$85,000	$8,500.0
21	20	$60,000	$6,000.0
22	21	$55,000	$5,500.0
23	22	$200,000	$20,000.0
24	23	$80,000	$8,000.0
25	24	$97,000	$9,700.0
26	25	$60,000	$6,000.0

Figure 7-86. *Write Range activity output*

Read Cell Formula

The **Read Cell Formula** activity allows you to read a formula from a specified cell in an Excel workbook used in the automation.

Configuration

This section provides instructions on how to configure a **Read Cell Formula** activity, shown in Figure 7-87.

Figure 7-87. *Read Cell Formula activity card*

Cell: This is a required configuration available on the activity card. This configuration provides the location of the cell to read the formula from. The common way to configure this field is through the `Indicate in Excel` option.

Save to: This is a required configuration available on the activity card. This configuration determines where the formula from the `Cell` will be saved.

EXERCISE

Goal: Use the `Use Excel File` and the `Read Cell Formula` activity to read and print the formula in cell C2 from the `New Hire Salaries` sheet.

Source Code: Chapter_7_ExcelCellActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Use Excel File` activity and configure with the `C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx` file as demonstrated in the first exercise.
2. Then add a `Read Cell Formula` activity to the body of the `Use Excel File` activity.
3. Next, click the `Plus` icon in the `Cell` field, and navigate to the `EmployeeOnboarding` workbook to select the `Indicate in Excel` option. Once Excel is open, click the `New Hire Salaries` sheet, and select the cell `C2`.
4. Next, click the `Plus` icon in the `Save to` field, select the `Save for later use` option, and name your value as `CellFormulaValue`.
5. Then add a `Write Line` activity after the `Read Cell Formula` activity.
6. Next, click the `Plus` icon in the `Text` field, hover over `Use Saved Value`, and select `CellFormulaValue`.

Once you have completed the exercise, the final configuration of the **Read Cell Formula** activity should resemble Figure 7-88.

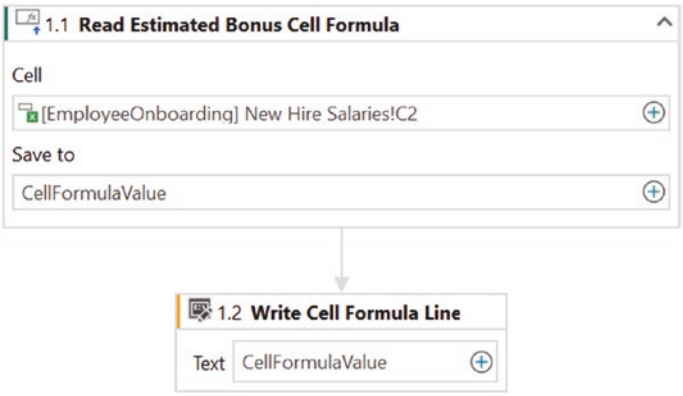


Figure 7-88. *Displays the final configuration for the Read Cell Formula activity*

Figure 7-91 shows the output of this activity that has returned the formula =B2*0.10 to the Output panel.

Read Cell Value

The **Read Cell Value** activity allows you to read the value from a specified cell in an Excel workbook used in the automation.

Configuration

This section provides instructions on how to configure a **Read Cell Value** activity, shown in Figure 7-89.

Figure 7-89. *Read Cell Value activity card*

Cell: This is a required configuration available on the activity card. This configuration provides the location of the cell to read the value from. The common way to configure this field is through the `Indicate in Excel` option.

Save to: This is a required configuration available on the activity card. This configuration determines where the value from the `Cell` will be saved.

Get formatted text: This is an optional configuration available on the activity card. This option is selected by default, meaning that the cell's value and number format will both be read, for example, date, currency, or percentage. If unselected, only the cell's value will be read.

EXERCISE

Goal: Building on our previous exercise, use the `Read Cell Value` activity to read and print the value in cell C2 from the `New Hire Salaries` sheet. This is similar to the exercise for Read Cell Formula, except instead of printing the formula B2*0.10, this exercise will print the cell value of $4,500.

Source Code: Chapter_7_ExcelCellActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Read Cell Value` activity in the body of `Use Excel File` activity after the `Read Cell Formula` activity from the previous exercise.
2. Next, click the `Plus` icon in the `Cell` field, and navigate to the `EmployeeOnboarding` workbook to select the `Indicate in Excel` option. Once Excel is open, click the `New Hire Salaries` sheet, and select the cell `C2`.
3. Next, click the `Plus` icon in the `Save to` field, select the `Save for later use` option, and name your value as `CellValue`.

4. Then add a `Write Line` activity after the `Read Cell Value` activity.
5. Next, click the `Plus` icon in the `Text` field, hover over `Use Saved Value`, and select `CellValue`.

Once you have completed the exercise, the final configuration of the **Read Cell Value** activity should resemble Figure 7-90.

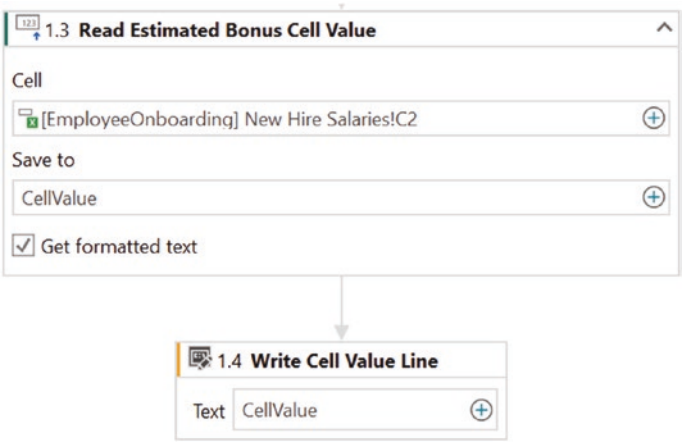


Figure 7-90. *Displays the final configuration for the Read Cell Value activity*

Figure 7-91 shows the output of this activity that has returned the value $4,500 from cell C2 to the Output panel.

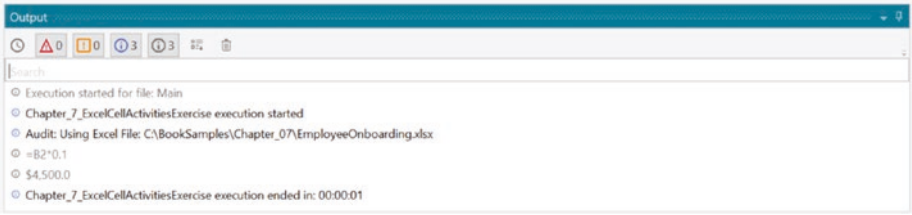


Figure 7-91. *Output of Read Cell Formula and Read Cell Value activities*

Format Cells

The **Format Cells** activity updates the format of cells in a specified range.

Note Format Cells activity will format all the cells in the specified range and override any existing formatting.

Configuration

This section provides instructions on how to configure a **Format Cells** activity, shown in Figure 7-92.

Figure 7-92. *Format Cells activity card*

Source: This is a required configuration available on the activity card. This configuration provides StudioX with the range that contains the cells that will be formatted.

Format data as type: This is a required configuration available on the activity card. This configuration determines the format of the fields in the `Source` range. You can provide this configuration by clicking the `Set Format` button and selecting the appropriate `Category`. The `Category` dropdown includes `General`, `Number`, `Date`, `Time`, `Percentage`, `Currency`, `Text`, and `Custom` options.

EXERCISE

Goal: Building on our previous exercise, use the `Format Cells` activity to format the `Salary` and `Estimated Bonus` column in the `New Hire Salaries` sheet to a `Currency` format.

Source Code: Chapter_7_ExcelCellActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Format Cells` activity in the body of `Use Excel File` activity after the `Read Cell Value` activity from the previous exercise.
2. Next, click the `Plus` icon in the `Source` field, navigate to the `EmployeeOnboarding` workbook, and select `Indicate in Excel` option. Once Excel opens, click the `New Hire Salaries` sheet, and select the range `B2:C21`.
3. Next, click the `Set Format` button in the `Format data as type` field.
4. Once the `Format data as type` dialog opens, select `Currency` from `Category` dropdown, type `2` in `Decimals` field, check `Use 1000 Separator`, type `$` in `Symbol` field, and uncheck `Set at the end`. Figure 7-93 shows this configuration.

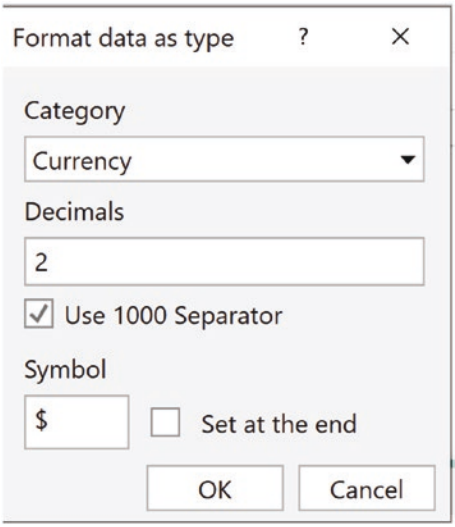


Figure 7-93. *Displays the Format data as type field configurations*

Once you have completed the exercise, the final configuration of the **Format Cells** activity should resemble Figure 7-94.

Figure 7-94. *Displays the final configuration for the Format Cells activity*

Figure 7-95 shows the output of the Format Cells activity that has updated the cells in the Salary and Estimated Bonus column range B2:C21 to a Currency format.

	A	B	C
1	ID	Salary	Estimated Bonus
2	1	$45,000.00	$4,500.00
3	2	$100,000.00	$10,000.00
4	3	$75,000.00	$7,500.00
5	4	$50,000.00	$5,000.00
6	5	$65,000.00	$6,500.00
7	6	$125,000.00	$12,500.00
8	7	$80,000.00	$8,000.00
9	8	$30,000.00	$3,000.00
10	9	$85,000.00	$8,500.00
11	10	$40,000.00	$4,000.00
12	11	$105,000.00	$10,500.00
13	12	$55,000.00	$5,500.00
14	13	$60,000.00	$6,000.00
15	14	$45,000.00	$4,500.00
16	15	$70,000.00	$7,000.00
17	16	$110,000.00	$11,000.00
18	17	$80,000.00	$8,000.00
19	18	$30,000.00	$3,000.00
20	19	$85,000.00	$8,500.00
21	20	$60,000.00	$6,000.00

Figure 7-95. *The New Hire Salaries sheet, Salary column and Estimated Bonus column now formatted as currency*

Export to CSV

The **Export to CSV** activity allows you to export a range, sheet, or table from an Excel file to a CSV file.

Configuration

This section provides instructions on how to configure an **Export to CSV** activity, shown in Figure 7-96.

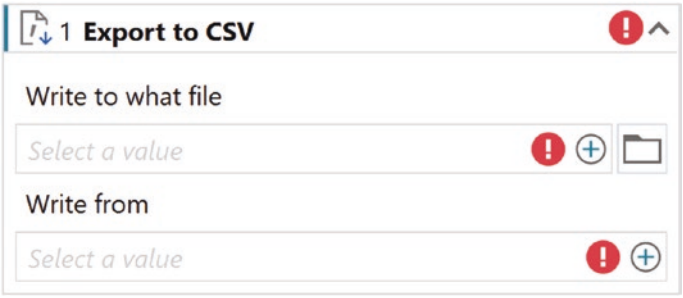


Figure 7-96. *Export to CSV activity card*

Write to what file: This is a required configuration available on the activity card. This configuration specifies the file path of the CSV that the range, sheet, or table will be exported to.

Write from: This is a required configuration available on the activity card. This configuration determines which range, table, or sheet will be exported from the Excel file to the CSV file.

EXERCISE

Goal: Use the `Use Excel File` and the `Export to CSV` activities to export the `New Hires List [Sheet]` from the `EmployeeOnboarding` Excel file to the `Employee Onboarding Summary.csv` file.

Source Code: Chapter_7_ExcelMiscActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Use Excel File` activity and configure with the `C:\BookSamples\Chapter_07\EmployeeOnboarding.xlsx` file as demonstrated in the first exercise.
2. Then, drag the `Export to CSV` activity card in the body of `Use Excel File` activity in the `Designer` panel.

3. Next, click the `Plus` icon in the `Write to what file` field, select the `Text` option, and type in the file path `C:\BookSamples\Chapter_07\Employee Onboarding CSV.csv`.

4. Next, click the `Plus` icon in the `Write from` field, navigate to the `EmployeeOnboarding` workbook, and select the `New Hires List` sheet.

Once you have completed the exercise, the final configuration of the **Export to CSV** activity should resemble Figure 7-97.

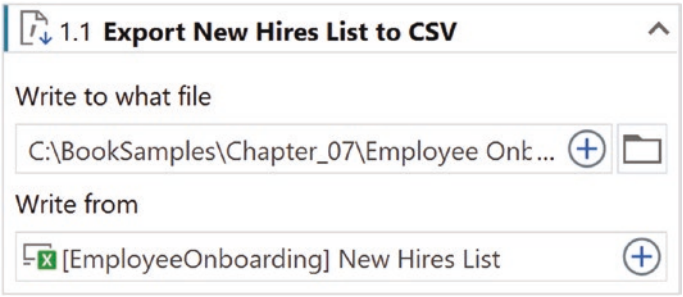


Figure 7-97. *Displays the final configuration for the Export to CSV activity*

The output of this example exports the New Hires List sheet from the EmployeeOnboarding Excel to the Employee Onboarding Summary CSV file as demonstrated in Figure 7-98.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	22	Evans	Chad	7/8/2020	Human Resources	Active
8	21	George	Lana	7/7/2020	Accounting	Active
9	6	Hill	Karen	1/6/2020	Operations	Active
10	7	Johnson	Elijah	7/20/2020	Information Technology	Active
11	8	Johnson	Adam	4/10/2020	Human Resources	Active
12	9	Jones	Daniel	7/20/2020	Information Technology	Active
13	10	Khan	Zain	1/6/2020	Operations	Active
14	11	Lane	Tamara	7/20/2020	Human Resources	Active
15	25	Lee	Aera	7/11/2020	Operations	Active
16	12	Lopez	Maya	4/10/2020	Accounting	Active
17	24	Martin	Frank	7/10/2020	Operations	Active
18	13	Miller	Raymond	7/20/2020	Information Technology	Active
19	23	Nguyen	Linda	7/9/2020	Information Technology	Active
20	14	Patel	Priya	1/6/2020	Accounting	Active
21	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
22	16	Singh	Aditya	4/10/2020	Human Resources	Active
23	17	Smith	Carolyn	1/6/2020	Accounting	Active
24	18	Smith	John	7/20/2020	Human Resources	Active
25	19	Williams	Jane	4/10/2020	Information Technology	Active
26	20	Young	Alyssa	1/6/2020	Accounting	Active

Employee Onboarding CSV

Figure 7-98. *Employee Onboarding CSV populated with New Hires List*

Save Excel File

The **Save Excel File** activity allows you to save the referenced Excel file after Excel automation activities have been executed in the UiPath project.

Configuration

This section provides instructions on how to configure a **Save Excel File** activity, shown in Figure 7-99.

Figure 7-99. *Save Excel File activity card*

File: This is a required configuration available on the activity card. This configuration identifies the workbook that needs to be saved. By default, this field is populated with the workbook from the parent `Use Excel File` activity.

Tip The Save Excel File activity is useful for incrementally saving changes in case of any errors that may occur.

EXERCISE

Goal: Building on our previous exercise, use the `Save Excel File` activity to save the `EmployeeOnboarding` Excel file.

Source Code: Chapter_7_ExcelMiscActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Save Excel File` activity in the body of `Use Excel File` activity after the `Export to CSV` activity from the previous exercise.
2. The `File` field will be pre-populated with the `EmployeeOnboarding` Excel file from the parent activity.

Once you have completed the exercise, the final configuration of the **Save Excel File** activity should resemble Figure 7-100.

Figure 7-100. *Displays the final configuration for the Save Excel File activity*

Save Excel File As

The **Save Excel File As** activity allows you to save the referenced Excel file as a different Excel file type including .xlsx, .xlsb, .xlsm, and .xls.

Configuration

This section provides instructions on how to configure a **Save Excel File As** activity, shown in Figure 7-101.

Figure 7-101. *Save Excel File As activity card*

Workbook: This is a required configuration available on the activity card. This field identifies the workbook that needs to be saved with a different Excel file type. This field is pre-populated with the workbook from the parent `Use Excel File` activity.

Note The Save Excel File As activity only saves an Excel file to another Excel file type extension limited to .xslx, .xls, .xlsm, and .xlsb.

Save as type: This is a required configuration available on the activity card. This field identifies the new Excel format that the workbook needs to be saved as through the activity. The following are the dropdown options available:

- `Excel Workbook (*.xlsx)`
- `Excel Binary Workbook (*.xlsb)`
- `Excel Macro-Enabled Workbook (*.xlsm)`
- `Excel 97-2003 Workbook (*.xls)`

Save as file: This is a required configuration available on the activity card. This field provides the name of the Excel file that will be saved as a new Excel format.

Replace existing: This is an optional configuration available on the activity card. If checked, this will replace the existing file of the same name in the target location. By default, this field is checked.

EXERCISE

Goal: Building on our previous exercise, use the `Save Excel File As` activity to save the `EmployeeOnboarding.xlsx` file as `Employee Onboarding Macro Enabled.xlsm` file.

Source Code: Chapter_7_ExcelMiscActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Save Excel File As` activity in the body of `Use Excel File` activity after the `Save Excel File` activity from the previous exercise.
2. The `Workbook` field will be pre-populated with the `EmployeeOnboarding` Excel file from the parent activity.
3. Next, click the `Save as type` dropdown to select `Excel Macro-Enabled Workbook (*.xlsm)` option.
4. Next, click the `Plus` icon in the `Save as file` field, select the `Text` option, and type in the file path `C:\BookSamples\Chapter_07\Employee Onboarding Macro Enabled.xlsm`.
5. Leave the `Replace existing` option checked.

Once you have completed the exercise, the final configuration of the **Save Excel File As** activity should resemble Figure 7-102.

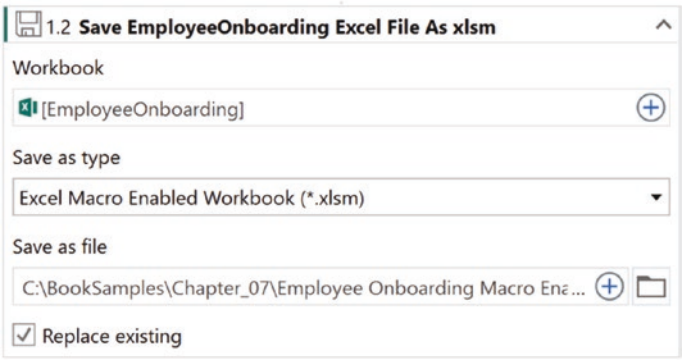


Figure 7-102. *Displays the final configuration for the Save Excel File As activity*

Figure 7-103 shows the output of the Save Excel File As activity that has added the .xlsm file to the Chapter_07 folder.

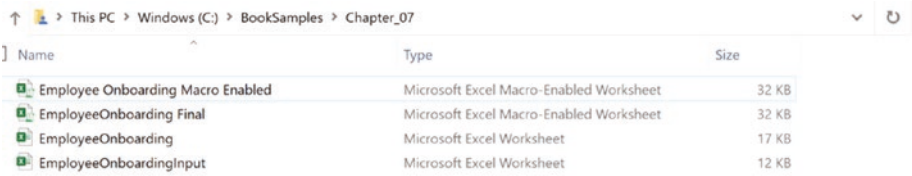


Figure 7-103. *Employee Onboarding Macro Enabled xlsm file added*

Save Excel File As PDF

The **Save Excel File As PDF** activity allows you to save the referenced Excel file or the Project Notebook as a PDF file.

Configuration

This section provides instructions on how to configure a **Save Excel File As PDF** activity, shown in Figure 7-104.

Figure 7-104. *Save Excel File As PDF activity card*

Workbook: This is a required configuration available on the activity card. This field identifies the workbook that needs to be saved as a PDF. This field is pre-populated with the workbook from the parent `Use Excel File` activity.

Save as file: This is a required configuration available on the activity card. This field provides the file path to save the new PDF file created from the activity.

Replace existing: This is an optional configuration available on the activity card. If checked, this will replace the existing file of the same name in the target location. By default, this field is checked.

EXERCISE

Goal: Building on our previous exercise, use the `Save Excel File As PDF` activity to save the `EmployeeOnboarding.xlsx` file as `Employee Onboarding.pdf` file.

Source Code: Chapter_7_ExcelMiscActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In `StudioX`, add the `Save Excel File As PDF` activity in the body of `Use Excel File` activity after the `Save Excel File As` activity from the previous exercise.

2. The `Workbook` field will be pre-populated with the `EmployeeOnboarding` Excel file from the parent activity.
3. Next, click the `Plus` icon in the `Save as file` field, select the `Text` option, and type in the file path `C:\BookSamples\Chapter_07\Employee Onboarding PDF.pdf`.
4. Leave the `Replace existing` option checked.

Once you have completed the exercise, the final configuration of the **Save Excel File As PDF** activity should resemble Figure 7-105.

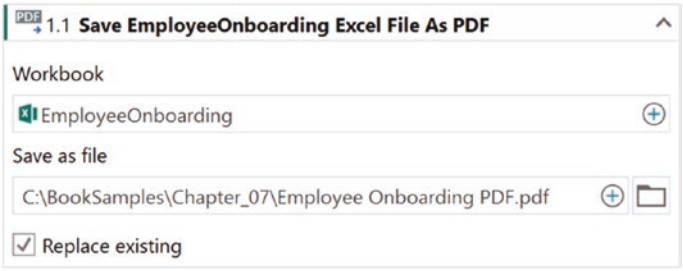
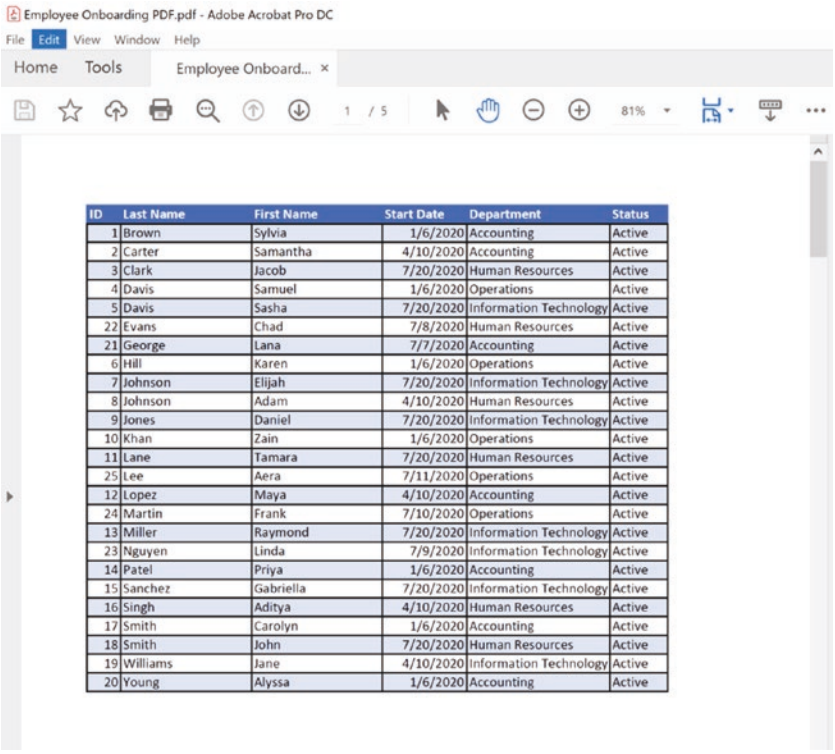


Figure 7-105. *Displays the final configuration for the Save Excel File As PDF activity*

Figure 7-106 shows the output of the Save Excel File As PDF activity that has saved the Employee Onboarding PDF file in the Chapter_07 folder.



ID	Last Name	First Name	Start Date	Department	Status
1	Brown	Sylvia	1/6/2020	Accounting	Active
2	Carter	Samantha	4/10/2020	Accounting	Active
3	Clark	Jacob	7/20/2020	Human Resources	Active
4	Davis	Samuel	1/6/2020	Operations	Active
5	Davis	Sasha	7/20/2020	Information Technology	Active
22	Evans	Chad	7/8/2020	Human Resources	Active
21	George	Lana	7/7/2020	Accounting	Active
6	Hill	Karen	1/6/2020	Operations	Active
7	Johnson	Elijah	7/20/2020	Information Technology	Active
8	Johnson	Adam	4/10/2020	Human Resources	Active
9	Jones	Daniel	7/20/2020	Information Technology	Active
10	Khan	Zain	1/6/2020	Operations	Active
11	Lane	Tamara	7/20/2020	Human Resources	Active
25	Lee	Aera	7/11/2020	Operations	Active
12	Lopez	Maya	4/10/2020	Accounting	Active
24	Martin	Frank	7/10/2020	Operations	Active
13	Miller	Raymond	7/20/2020	Information Technology	Active
23	Nguyen	Linda	7/9/2020	Information Technology	Active
14	Patel	Priya	1/6/2020	Accounting	Active
15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
16	Singh	Aditya	4/10/2020	Human Resources	Active
17	Smith	Carolyn	1/6/2020	Accounting	Active
18	Smith	John	7/20/2020	Human Resources	Active
19	Williams	Jane	4/10/2020	Information Technology	Active
20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-106. *Employee Onboarding PDF saved*

VLookup

The **VLookup** activity utilizes Excel's VLookup function to find data in a range, sheet, or table from the referenced Excel file.

Common examples for the **VLookup** activity include finding an inventory item and then locating and returning the exact price of the item or finding an employee and then locating the start date for the specific employee.

Configuration

This section provides instructions on how to configure a **VLookup** activity, shown in Figure 7-107.

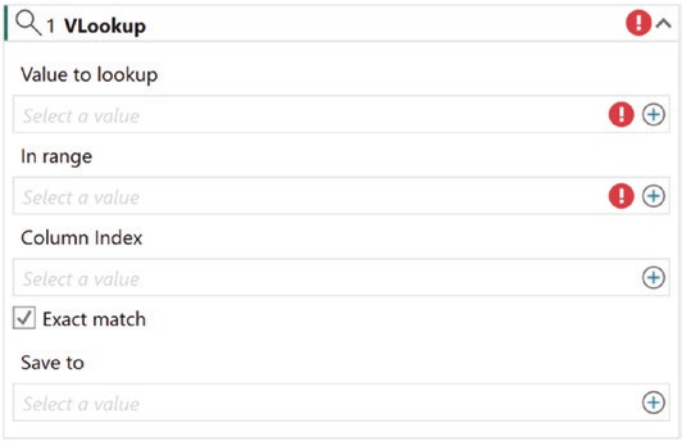


Figure 7-107. *VLookup activity card*

Value to lookup: This is a required configuration available on the activity card. The `Value to lookup` field identifies what value you are searching for in the target range. For example, to find the start date of John Smith, the Value to lookup field will be the cell address containing the last name Smith.

Note The Value to lookup field must always be from the first column in the identified range, the same as it is for the VLookup function in Excel.

In range: This is a required configuration available on the activity card. The `In range` selection provides the sheet, table, or range containing the value that needs to be looked up.

Column Index: This is a required configuration available on the activity card. This field identifies which column in the range contains the value that needs to be looked up and returned. For example, if the start date of John Smith is in column D of a table, the Column Index will be the number 4 to indicate that the value is in the fourth column of the range.

Exact match: This is an optional configuration available on the activity card. Checking this field means the VLookup activity will return only exact matches; if unchecked, the activity will return approximate matches. The default selection for this field is checked and is usually left as is.

Save to: This is an optional configuration available on the activity card; however, this is an output field that should be defined for the VLookup activity. The Save to field provides the cell where the returned value from the VLookup activity should be saved.

EXERCISE

Goal: Building on our previous exercise, use the VLookup activity to save and print the Department for Aera Lee from the NewHiresList_Table.

Source Code: Chapter_7_ExcelMiscActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the VLookup activity in the body of Use Excel File activity after the Save Excel File As PDF activity from the previous exercise.
2. Next, click the Plus icon in Value to lookup field and navigate to the EmployeeOnboarding Excel file to select the Indicate in Excel option. Once Excel is open, select cell A15 in the New Hires List sheet containing the ID number for Aera Lee.
3. Next, click the Plus icon in the In range field, navigate to the EmployeeOnboarding Excel file, New Hires List [Sheet], and select NewHiresList_Table [Table].

4. Next, click the `Plus` icon in the `Column Index` field and choose the `Number` option. Once the Number editor is open, type in the number `5`.
5. Leave the `Exact match` field checked, as default.
6. Next, click the `Plus` icon in the `Save to` field and select the `Save for later use` option. Once the dialog box opens, type in `Aera Lee- Department` as the saved value name.
7. Then, add a `Write Line` activity under the `VLookup` activity.
8. Next, click the `Plus` icon in the `Text` field, navigate to `Use Saved Value` option, and select `Aera Lee- Department`.

Once you have completed the exercise, the final configuration of the **VLookup** and Write Line activity should resemble Figure 7-108.

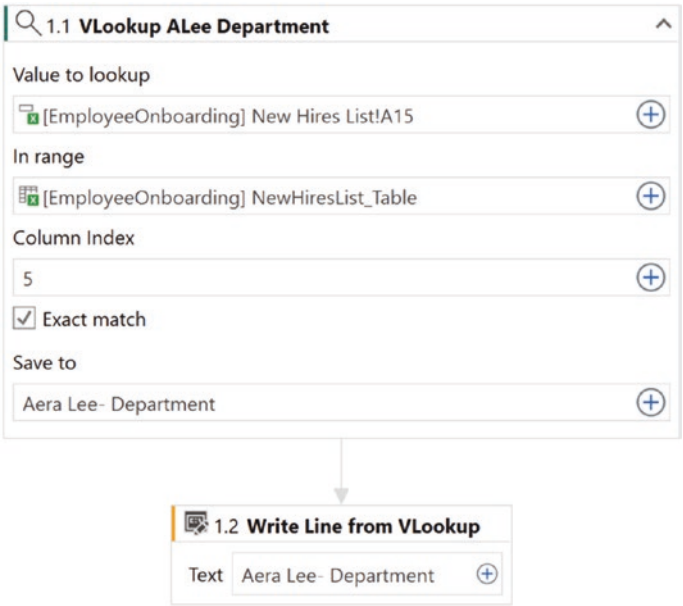


Figure 7-108. *Displays the final configuration for the VLookup and Write Line activity*

Figure 7-109 shows the output of the VLookup activity that has saved the department value of Operations into the Aera Lee- Department value.

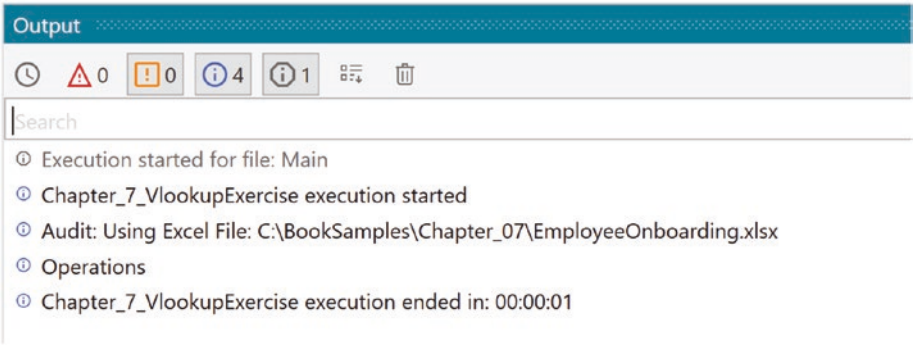


Figure 7-109. *Shows the new Saved Value from the VLookup activity*

Filter

The **Filter** activity utilizes the data filter option in Excel to allow you to filter a column in a range, sheet, or table based on a given value in the referenced Excel file.

Configuration

This section provides instructions on how to configure a **Filter** activity, shown in Figure 7-110.

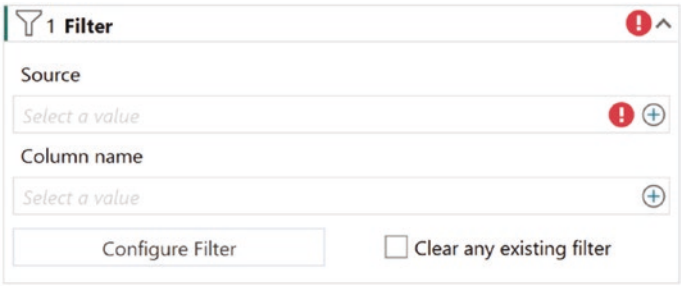


Figure 7-110. *Filter activity card*

Source: This is a required configuration available on the activity card. This configuration provides StudioX with the sheet, range, or table that needs to be filtered.

Column name: This is a required configuration available on the activity card. This configuration determines column header in the range, sheet, or table that needs to be filtered. For example, if you want to filter on Completed transactions, then you would select Transaction Status as the column header.

Configure Filter: This is a required configuration available on the activity card. This configuration provides value that the column should be filtered on. For example, for finding the Completed transactions in the preceding example for the Column name field, your `Configure Filter` value would be Completed.

To configure this field, use the `Basic filter` option which allows you to enter one or more values to filter on using the same configuration options mentioned in the `Column name` field. You can filter on one or multiple values using this option by pressing the `Add` to filter on a second value in the same column.

Additional options are available through the `Advanced filter` which lets you specify conditional filters like the Custom AutoFilter option in Excel. For example, you can utilize the `Advanced filter` to filter out values that are greater than 100 in a Quantity column.

Clear any existing filter: This is an optional configuration available on the activity card. This configuration allows you to clear any existing filters from the range, sheet, or table defined in the Source field. By default, this option is not checked.

EXERCISE

Goal: Building on our previous exercise, use the Filter activity to filter the NewHiresList table for Employees with the Department of Accounting or Human Resources.

Source Code: Chapter_7_ExcelMiscActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the Filter activity in the body of Use Excel File activity after the VLookup activity from the previous exercise.
2. Next, click the Plus icon in the Source field, and navigate to the EmployeeOnboarding workbook, New Hires List [Sheet], and select the NewHiresList_Table [Table].
3. Next, click the Plus icon in the Column name field, and hover over Range to select the Department column.
4. Next, click Configure Filter button, and with the Basic filter option selected, click the Plus icon in the Is equal to field in the Value section. Use the Text option to type Accounting.
5. Click the Add button to add another filter. Click the Plus icon, select Text option, and type in Human Resources for the second filter. Once completed, click OK. Your filters should resemble Figure 7-111.

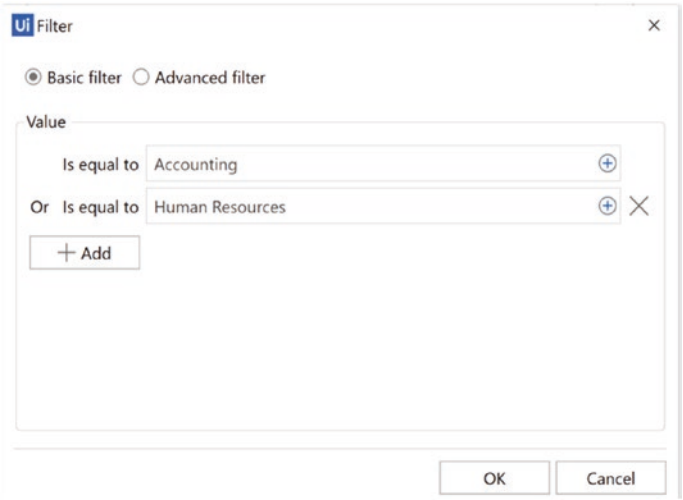


Figure 7-111. *Configure Filter selections*

Once you have completed the exercise, the final configuration of the **Filter** activity should resemble Figure 7-112.

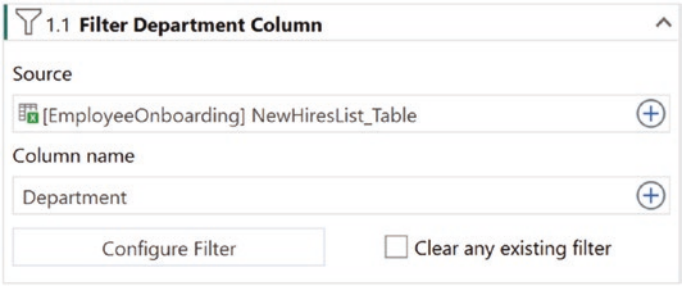


Figure 7-112. *Displays the final configuration for the Filter activity*

Figure 7-113 shows the output of the Output activity with the filtered down NewHiresList_Table, from 25 rows to 13 rows with only Accounting and Human Resources functions.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
7	22	Evans	Chad	7/8/2020	Human Resources	Active
8	21	George	Lana	7/7/2020	Accounting	Active
11	8	Johnson	Adam	4/10/2020	Human Resources	Active
14	11	Lane	Tamara	7/20/2020	Human Resources	Active
16	12	Lopez	Maya	4/10/2020	Accounting	Active
20	14	Patel	Priya	1/6/2020	Accounting	Active
22	16	Singh	Aditya	4/10/2020	Human Resources	Active
23	17	Smith	Carolyn	1/6/2020	Accounting	Active
24	18	Smith	John	7/20/2020	Human Resources	Active
26	20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-113. *The NewHiresList_Table filtered to only show the 13 rows with Accounting or Human Resources employees*

Run Spreadsheet Macro

The **Run Spreadsheet Macro** activity allows you to run a selected macro in the referenced Excel file.

Configuration

This section provides instructions on how to configure a **Run Spreadsheet Macro** activity, shown in Figure 7-114.

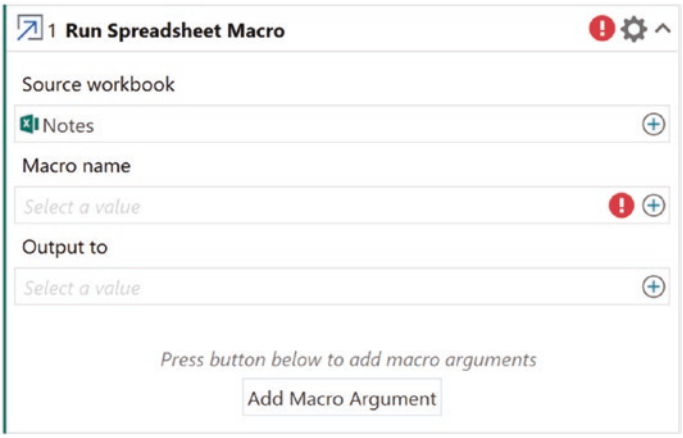


Figure 7-114. *Run Spreadsheet Macro activity card*

Source workbook: This is a required configuration available on the activity card. This configuration identifies the workbook where the macro needs to be executed. By default, this field is pre-populated with the workbook from the parent `Use Excel File` activity.

Note The Run Macro activity must be executed in a Macro Enabled Excel file.

Macro name: This is a required configuration available on the activity card. This configuration provides the name of the macro that will be executed through this activity. You can use `Text Builder` to type in the Macro name manually.

Output to: This is an optional configuration available on the activity card. This configuration provides the location to save any values returned by the Macro if required.

Add Macro Argument: This is an optional configuration available on the activity card. This configuration allows you to pass an input `Argument value` when the `Run Macro` activity is executed. Multiple argument values can be added through this child activity if required for the Macro.

EXERCISE

Goal: Use the `Use Excel File` and the `Run Spreadsheet Macro` activity to run the `NewHiresListMacro` macro in the EmployeeOnboarding for Run Macro Exercise.xlsm file. Figure 7-115 shows the New Hires List sheet prior to execution.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	22	Evans	Chad	7/8/2020	Human Resources	Active
8	21	George	Lana	7/7/2020	Accounting	Active
9	6	Hill	Karen	1/6/2020	Operations	Active
10	7	Johnson	Elijah	7/20/2020	Information Technology	Active
11	8	Johnson	Adam	4/10/2020	Human Resources	Active
12	9	Jones	Daniel	7/20/2020	Information Technology	Active
13	10	Khan	Zain	1/6/2020	Operations	Active
14	11	Lane	Tamara	7/20/2020	Human Resources	Active
15	25	Lee	Aera	7/11/2020	Operations	Active
16	12	Lopez	Maya	4/10/2020	Accounting	Active
17	24	Martin	Frank	7/10/2020	Operations	Active
18	13	Miller	Raymond	7/20/2020	Information Technology	Active
19	23	Nguyen	Linda	7/9/2020	Information Technology	Active
20	14	Patel	Priya	1/6/2020	Accounting	Active
21	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
22	16	Singh	Aditya	4/10/2020	Human Resources	Active
23	17	Smith	Carolyn	1/6/2020	Accounting	Active
24	18	Smith	John	7/20/2020	Human Resources	Active
25	19	Williams	Jane	4/10/2020	Information Technology	Active
26	20	Young	Alyssa	1/6/2020	Accounting	Active

Figure 7-115. *Displays the EmployeeOnboarding sheets before the automation is executed*

Source Code: Chapter_7_ExcelMacroActivitiesExercise

Setup: Here are step-by-step implementation instructions:

1. In StudioX, add the `Use Excel File` activity and configure with the `C:\BookSamples\Chapter_07\EmployeeOnboarding Final.xlsm` file and `Reference as` as `EmployeeOnboardingMacro`.
2. Then, drag the `Run Spreadsheet Macro` activity card in the body of `Use Excel File` activity.
3. The `Source workbook` field will be auto-populated with the `EmployeeOnboardingMacro` Excel file from the parent activity.
4. Next, click the `Text` option in the `Macro name` field, and type in `NewHiresListMacro` in the `Text` builder.

Once you are done, the final configuration for the **Run Macro** activity card is shown in Figure 7-116.

Figure 7-116. *Displays the final configuration for the Run Macro activity*

Figure 7-117 shows the output of the Run Macro activity that has executed the NewHiresListMacro in the EmployeeOnboarding Excel file. As a result, the font has been changed to Times New Roman, the sort is by ID, and the New Hire Statistics sheet has moved right after the New Hires List sheet.

	A	B	C	D	E	F
1	ID	Last Name	First Name	Start Date	Department	Status
2	1	Brown	Sylvia	1/6/2020	Accounting	Active
3	2	Carter	Samantha	4/10/2020	Accounting	Active
4	3	Clark	Jacob	7/20/2020	Human Resources	Active
5	4	Davis	Samuel	1/6/2020	Operations	Active
6	5	Davis	Sasha	7/20/2020	Information Technology	Active
7	6	Hill	Karen	1/6/2020	Operations	Active
8	7	Johnson	Elijah	7/20/2020	Information Technology	Active
9	8	Johnson	Adam	4/10/2020	Human Resources	Active
10	9	Jones	Daniel	7/20/2020	Information Technology	Active
11	10	Khan	Zain	1/6/2020	Operations	Active
12	11	Lane	Tamara	7/20/2020	Human Resources	Active
13	12	Lopez	Maya	4/10/2020	Accounting	Active
14	13	Miller	Raymond	7/20/2020	Information Technology	Active
15	14	Patel	Priya	1/6/2020	Accounting	Active
16	15	Sanchez	Gabriella	7/20/2020	Information Technology	Active
17	16	Singh	Aditya	4/10/2020	Human Resources	Active
18	17	Smith	Carolyn	1/6/2020	Accounting	Active
19	18	Smith	John	7/20/2020	Human Resources	Active
20	19	Williams	Jane	4/10/2020	Information Technology	Active
21	20	Young	Alyssa	1/6/2020	Accounting	Active
22	21	George	Lana	7/7/2020	Accounting	Active
23	22	Evans	Chad	7/8/2020	Human Resources	Active
24	23	Nguyen	Linda	7/9/2020	Information Technology	Active
25	24	Martin	Frank	7/10/2020	Operations	Active
26	25	Lee	Aera	7/11/2020	Operations	Active
27						

New Hires List | New Hire Statistics | New Hire Checklist | New Hire Salaries

Figure 7-117. *Displays the NewHiresListMacro executed*