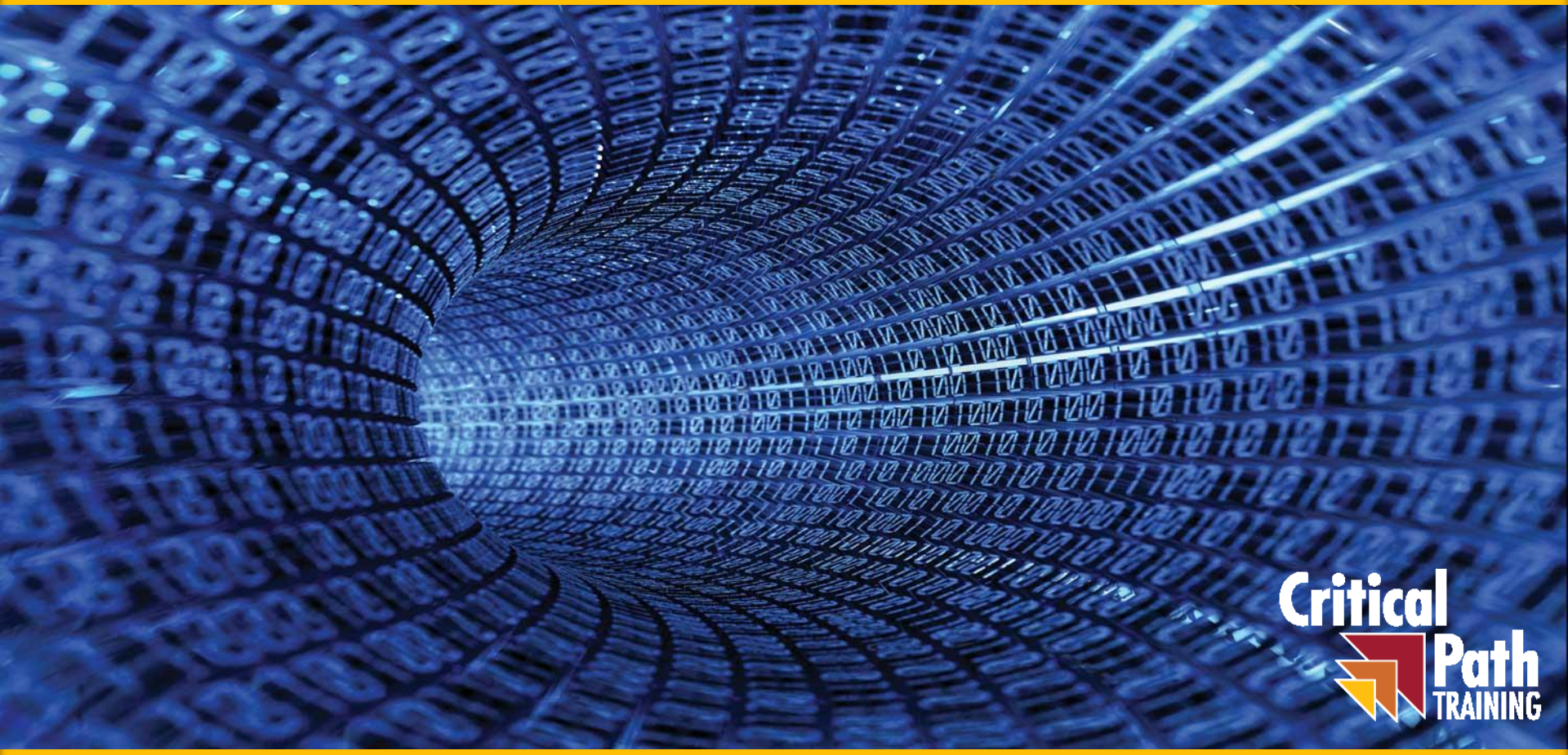
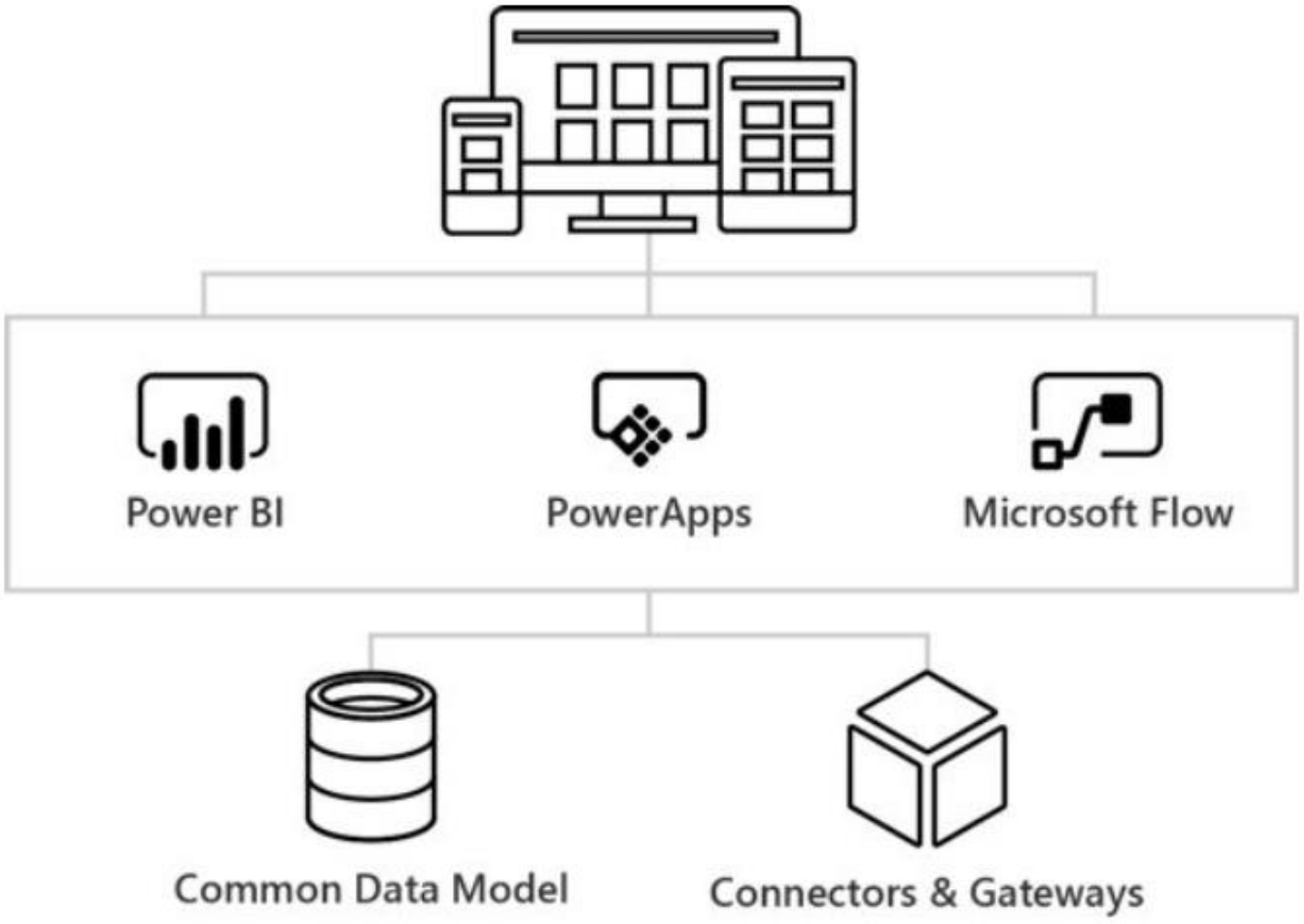
Getting Started with Microsoft Flow



Agenda

- Setting Up a PowerApps Environment
- Understanding Flow Fundamentals
- Creating and Testing Flows
- Using Control-of-Flow Actions
- Writing Flow Expressions
- Automating Document Generation

What is the Power Platform?

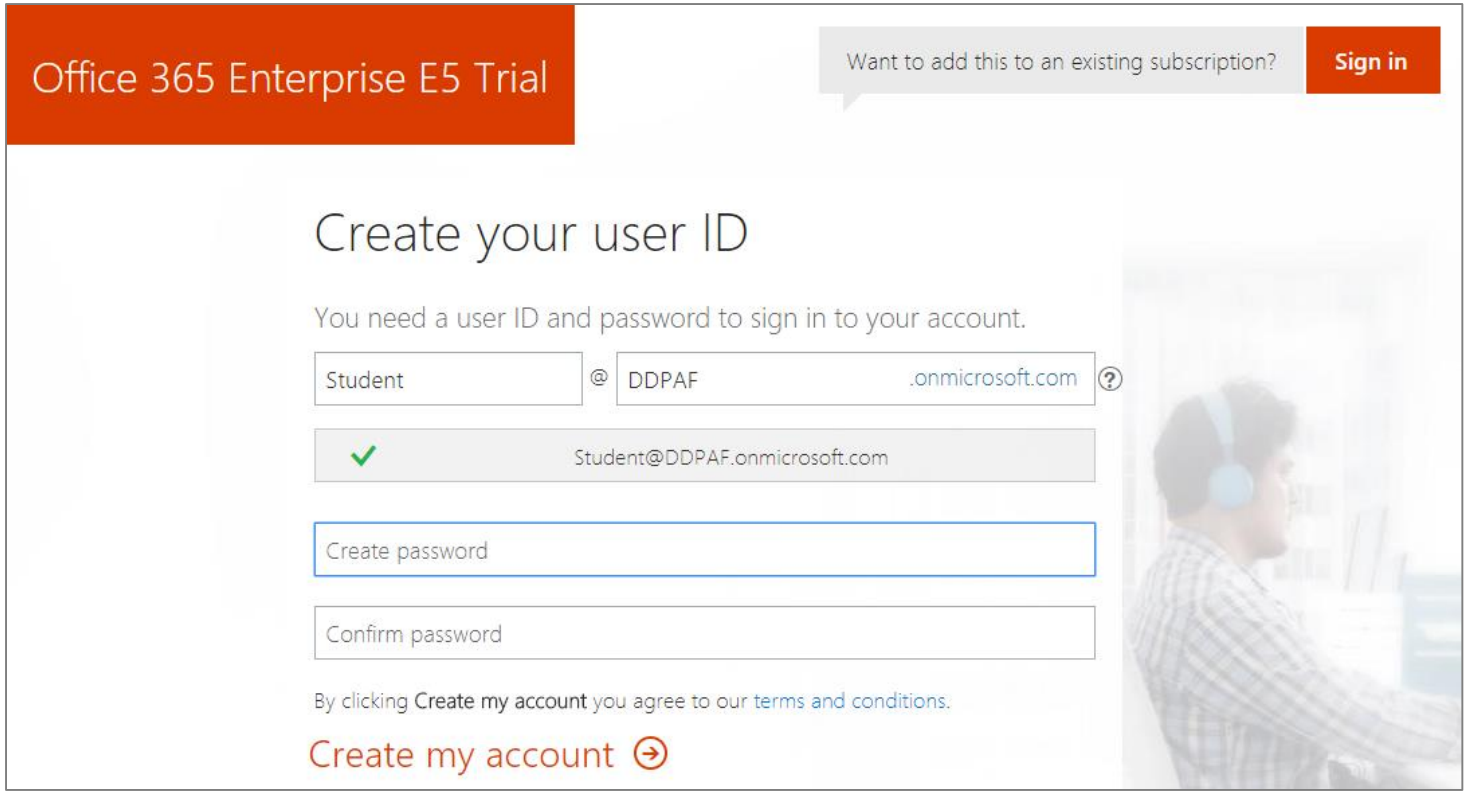


What Can You Build with PowerApps?

- Canvas Apps
  - Built using PowerApps Studio
- Connections
  - Used to connect Canvas apps to external data
- Flows
  - Used to process data and run workflows
- Common Data Service for Apps (CDS for Apps)
  - Used to create business-centric data solutions
- Model-driven Apps
  - Application platform built on top of CDS for Apps

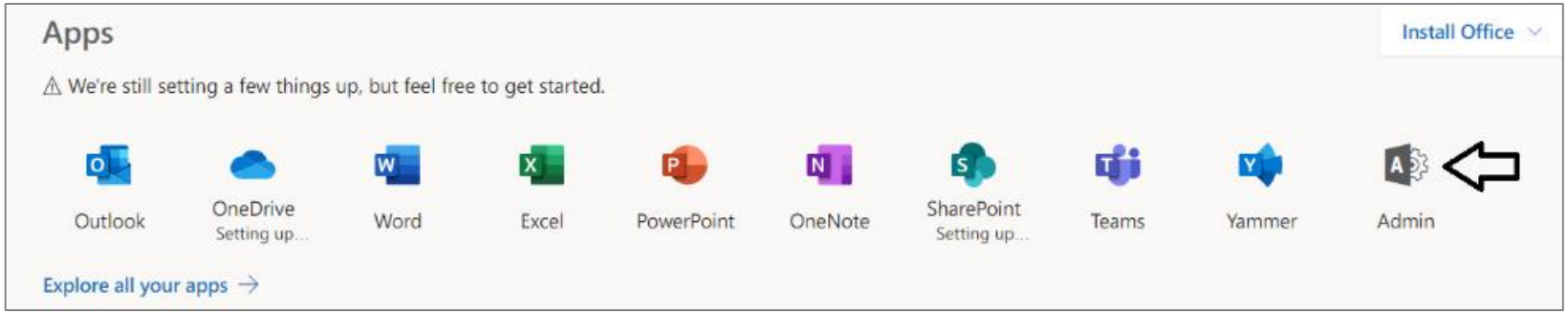
Creating an Office 365 E5 Trial Tenant

- All students will create an Office 365 trial tenant
  - Provides an isolated development environment for lab exercises
  - Trial accounts will last for 30 days

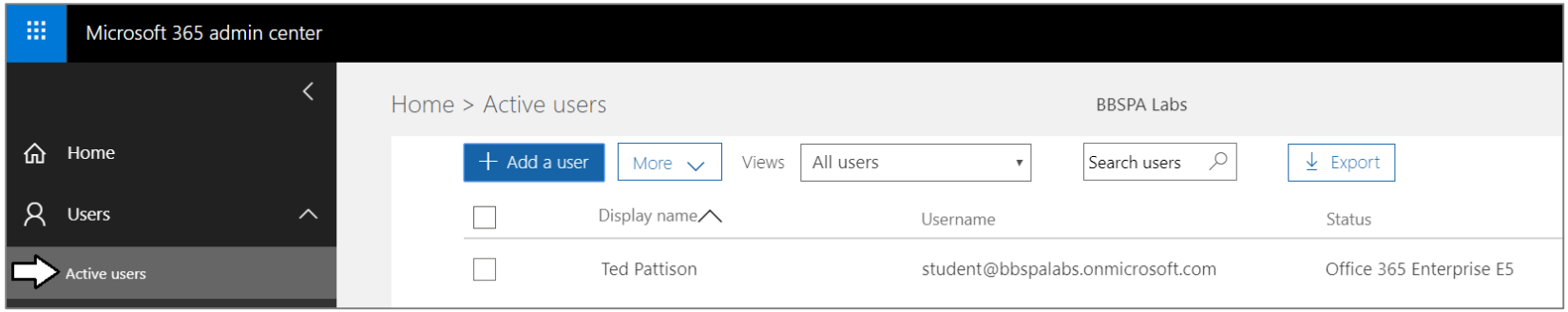


Microsoft 365 Admin Center

- Navigate to the Microsoft 365 Admin center

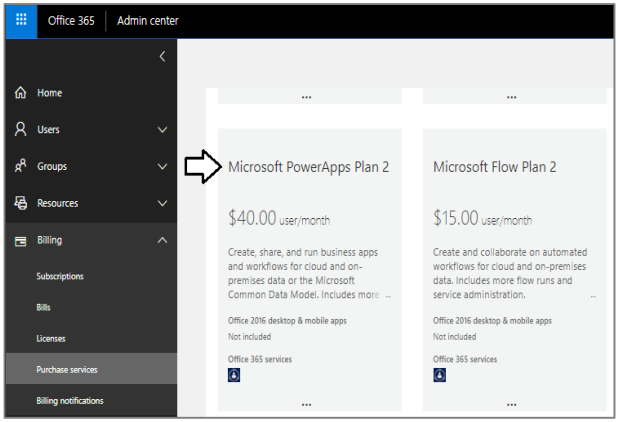


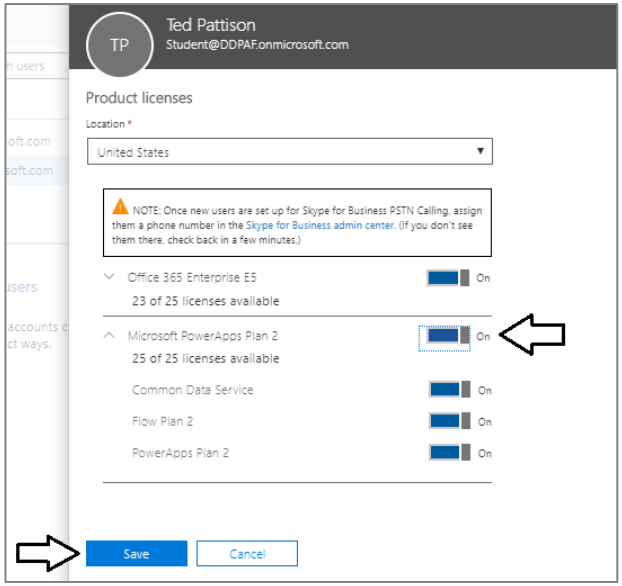
- Allows for management of users accounts and licensing



Configuring a PowerApps Plan 2 License

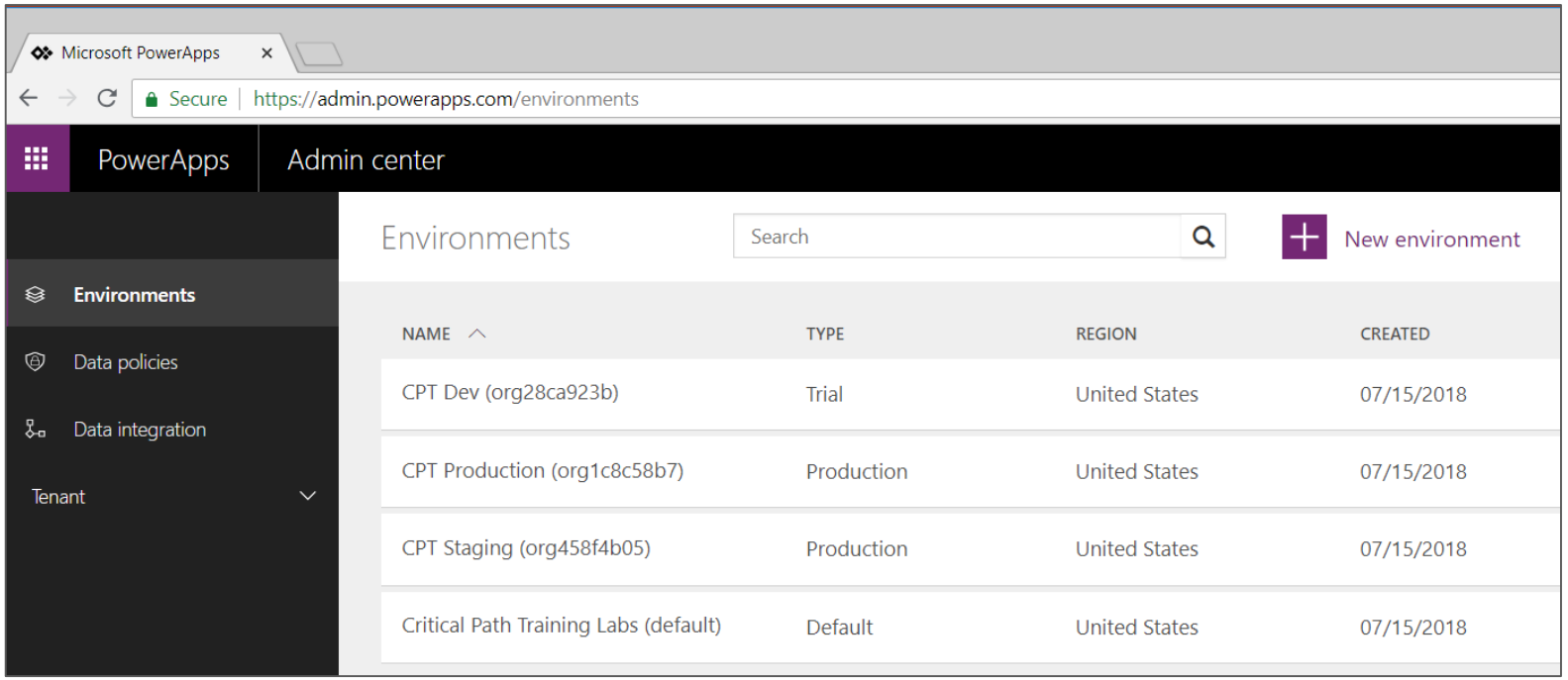
- Certain design tasks require PowerApps Plan 2
  - You can start a 30-day trial for PowerApps Plan 2
  - License must be assigned to individual user accounts





PowerApps Admin Center & Environments

- PowerApps architecture based on environments
  - Environment provides context for creating apps and flows
  - Every tenant is automatically created with default environment
  - Organization can create multiple environments for dev & staging
  - PowerApps Plan 2 license required to manage environments




DEMO
Configuring PowerApps Plan 2 Licenses

Agenda

- ✓ Setting Up a PowerApps Environment
- ➢ Understanding Flow Fundamentals
- Creating and Testing Flows
- Using Control-of-Flow Actions
- Writing Flow Expressions
- Automating Document Generation

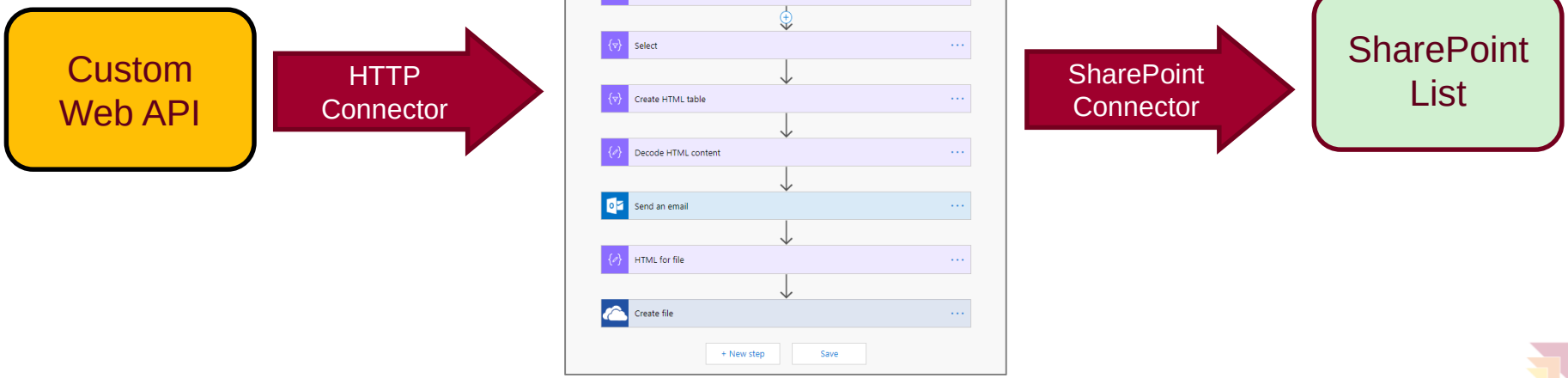
What is Flow?

- Service for automating workflows across other services
  - Designed by Microsoft for business users more than developers

- What can you do with Flow?
  - Get notifications
  - Copy files
  - Collect data
  - Automate approvals

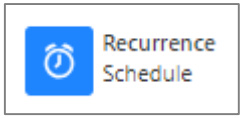
Building Blocks of Flow

- **Triggers** - events that start a flow
- **Actions** - tasks and operation executed by flow
- **Services** - sources and destinations for data
- **Connectors** - wrappers to communicate with service APIs

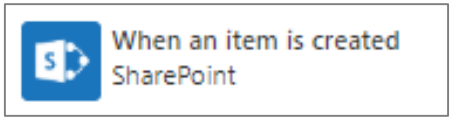


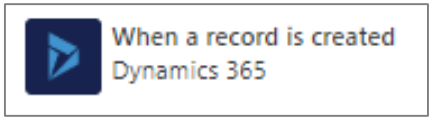
Flow Trigger Types

- Scheduled Flow Triggers
  - Runs periodically based on an interval

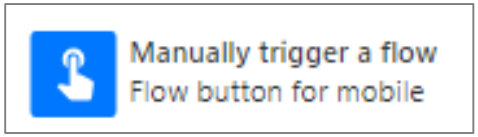


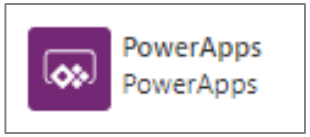
- Automated Flow Triggers
  - Runs when something happens





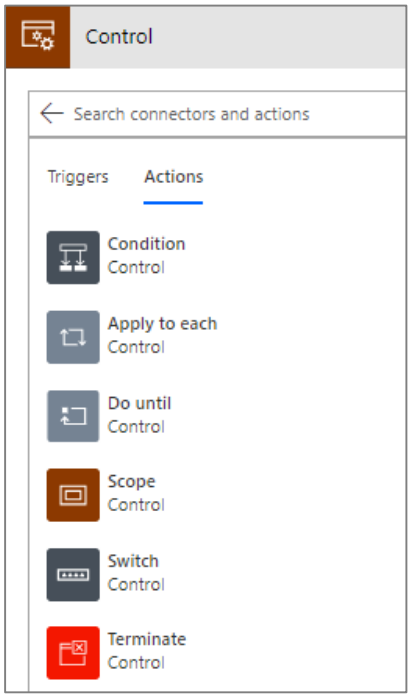
- On-demand Flow Triggers
  - Runs when a user clicks a button

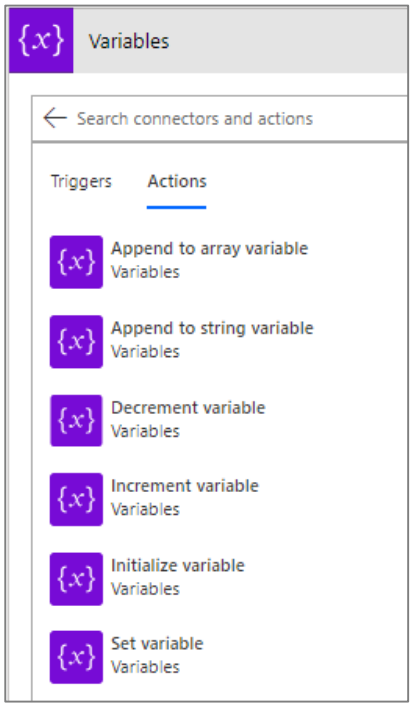


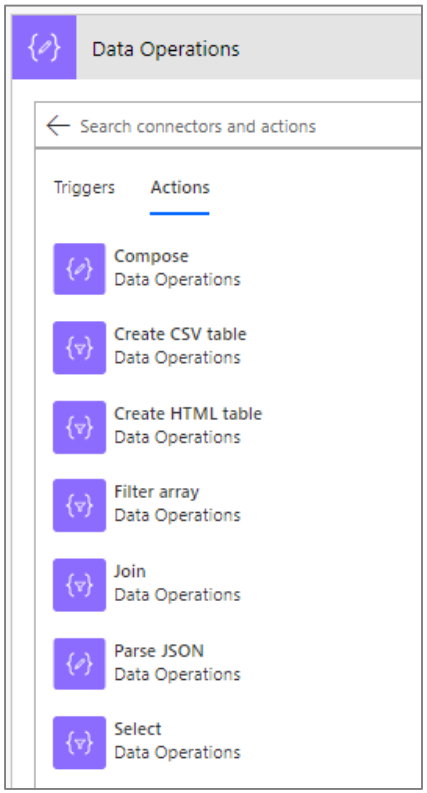


Core Action Categories

- **Control**: actions to provide control-of-flow
- **Variables**: actions to manage state within flow lifetime
- **Data operations**: action to process data & prepare content

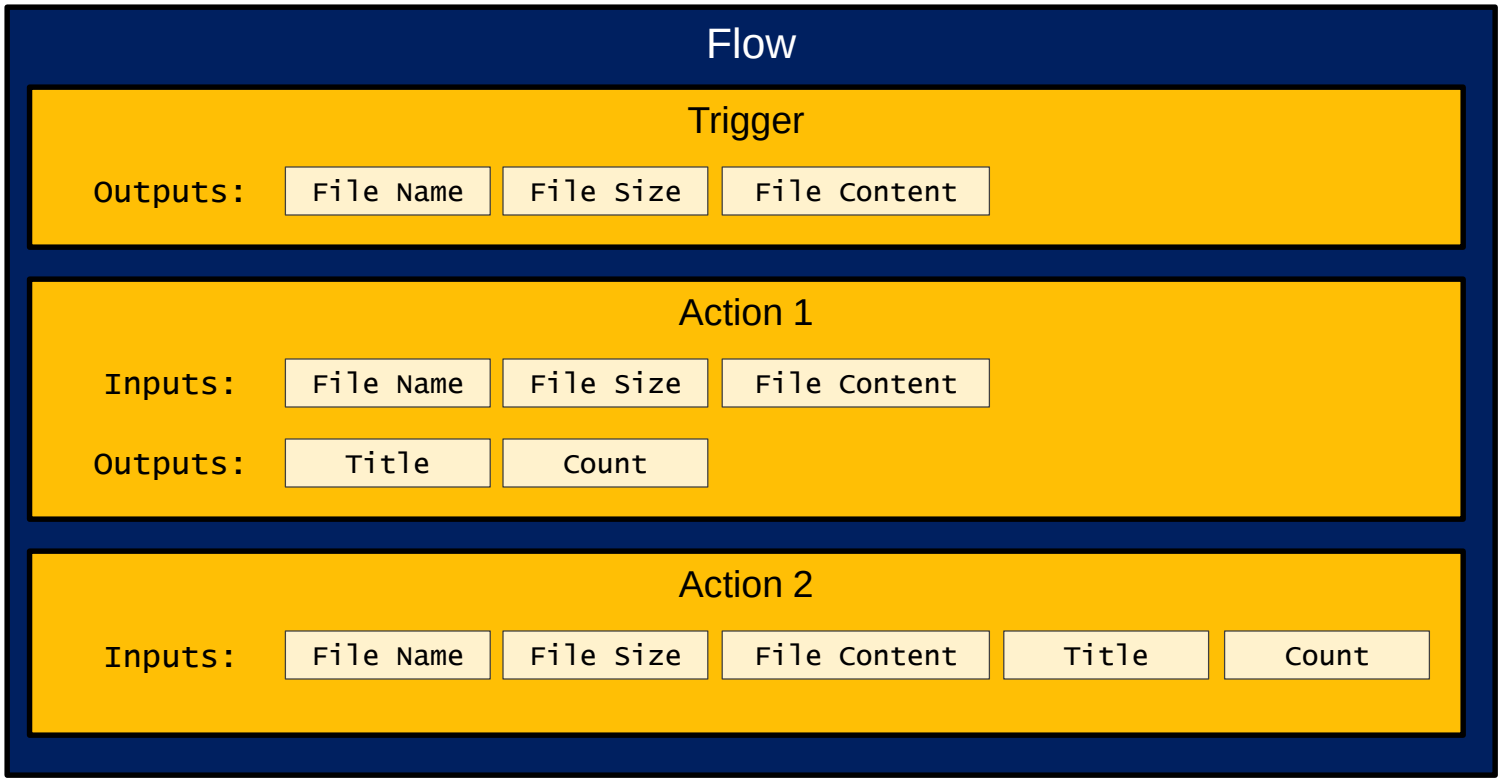






Data Automatically Flows from Step to Step

- Data in flows added by step outputs
  - Data added in step output is available in later steps
  - It's easy to configure step input data using output data in previous steps
  - Certain outputs displayed/hidden based on types of input and output



Agenda

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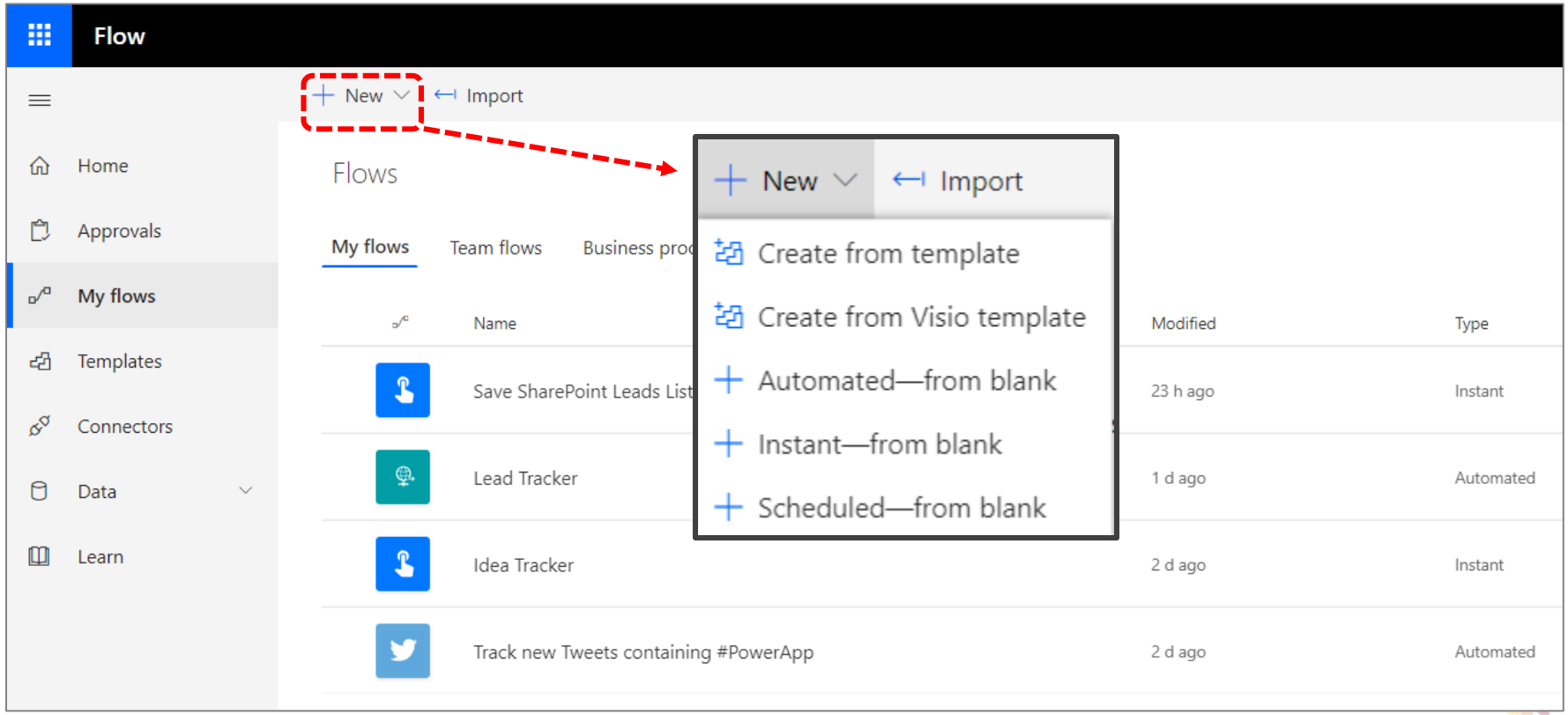
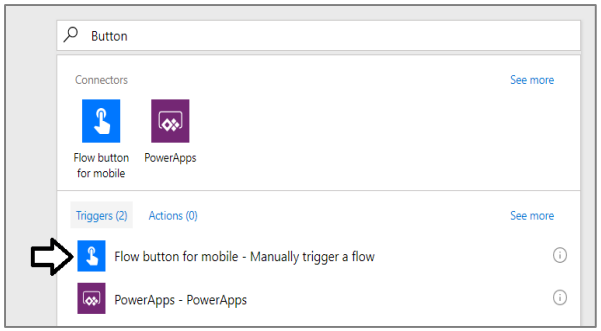
Creating and Managing Flows

- Flow user portal allows users to manage and edit flows
  - Accessible through https://flow.microsoft.com
  - Flow can be created from blank or from template

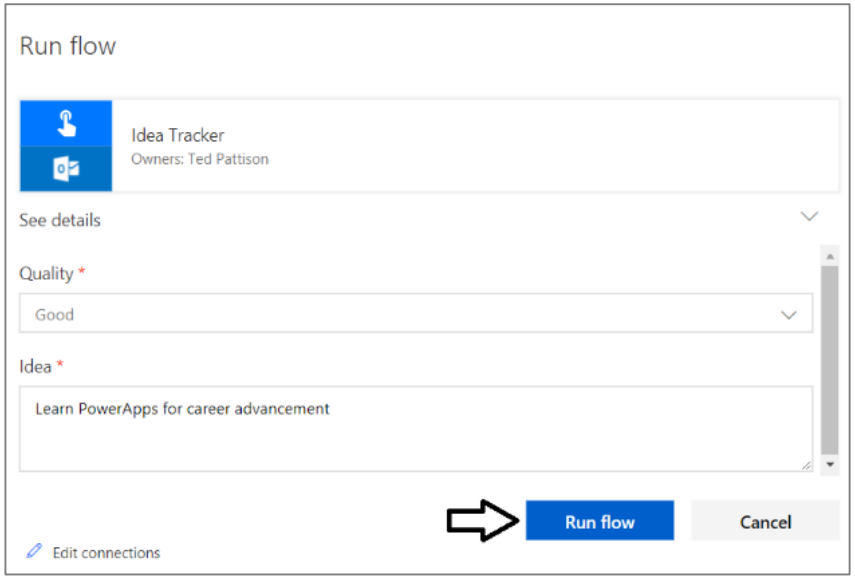


Creating a Flow Trigger by Manual Button

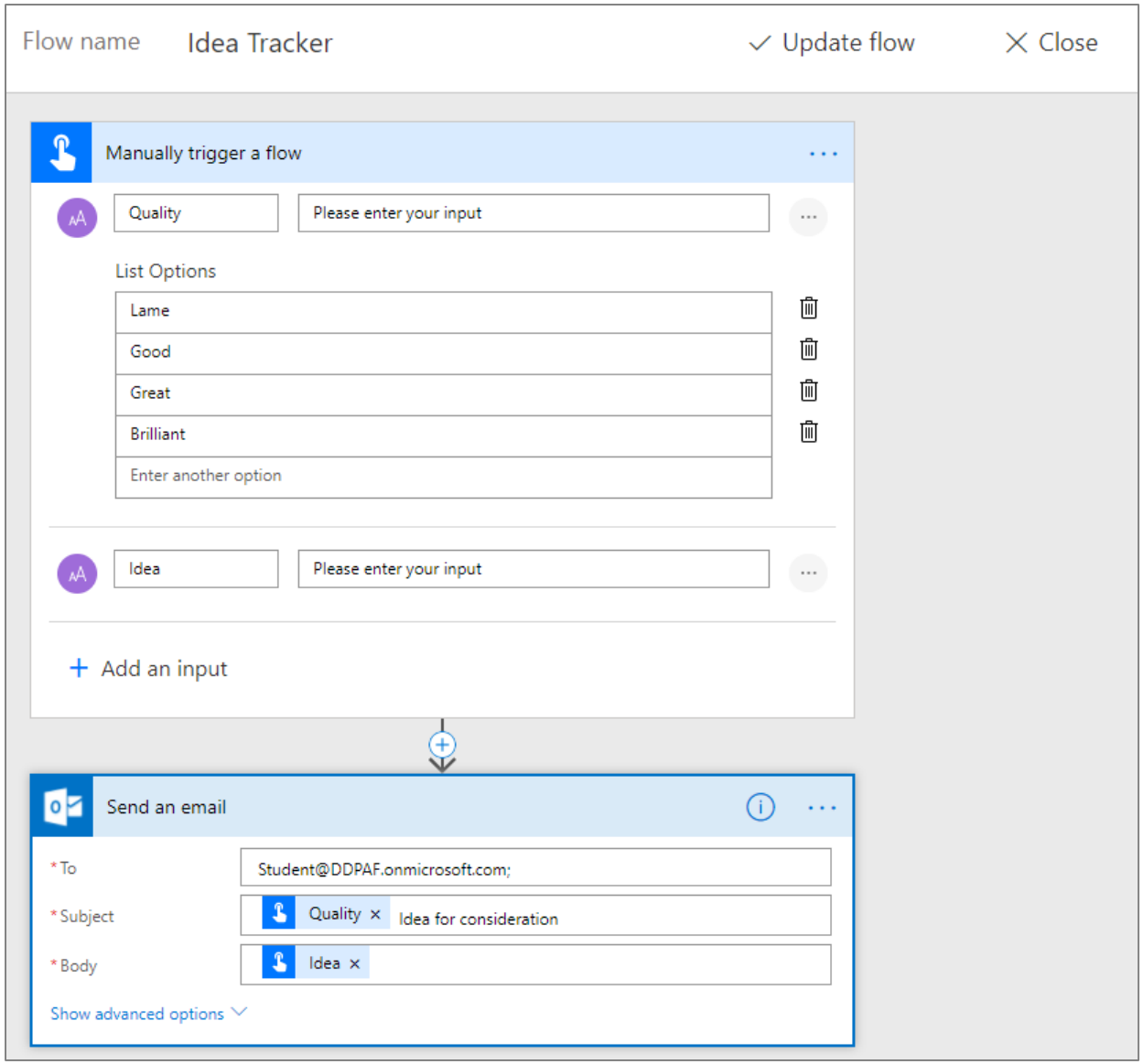
- Use Run button for Mobile as flow trigger



- Trigger can be extended with one or more input fields

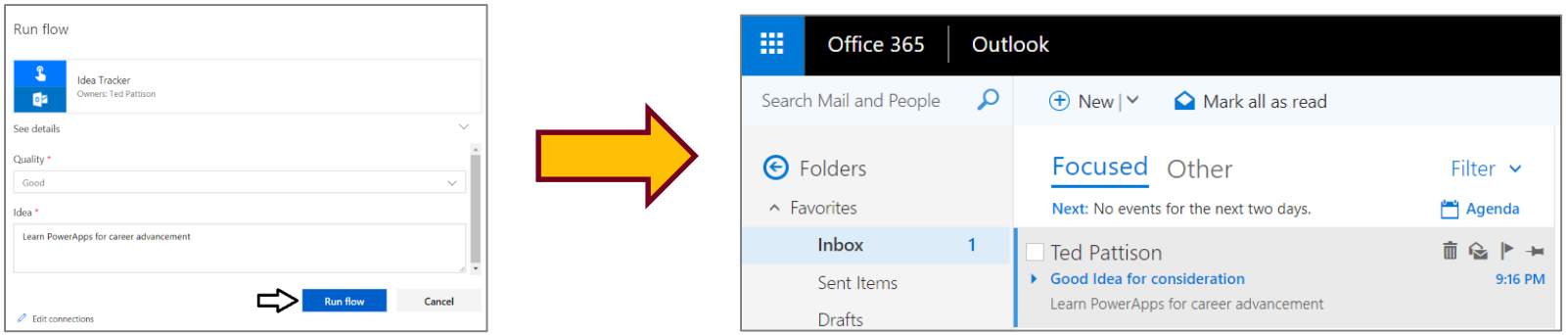


Building Out The Idea Tracker Flow

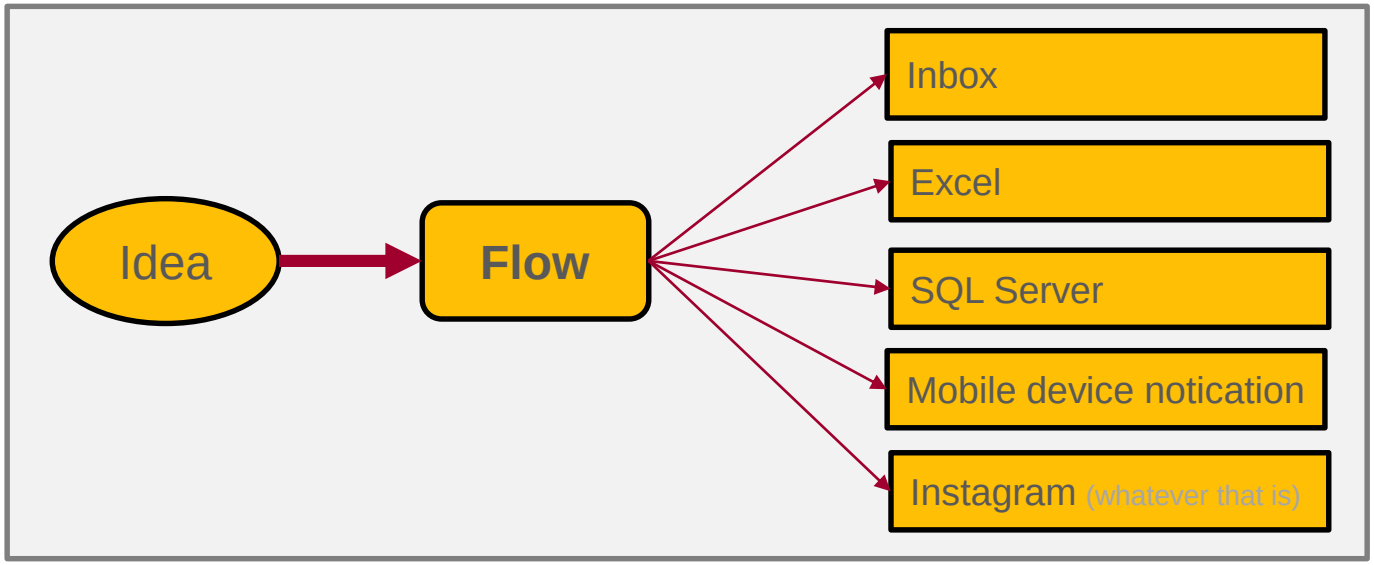


Where Should You Write the Idea?

- You can track the idea by sending an email

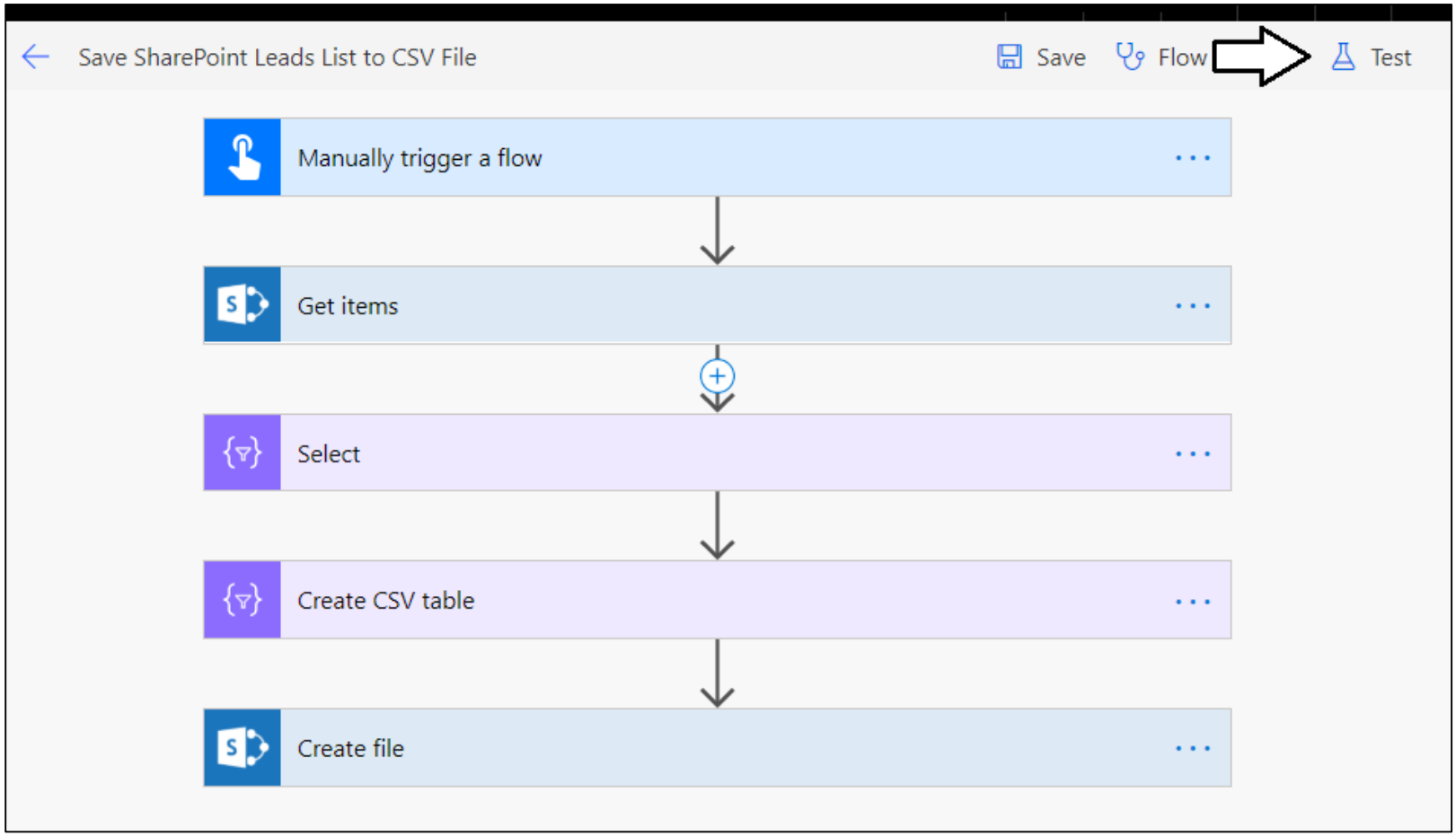


- Or get even more extravagant



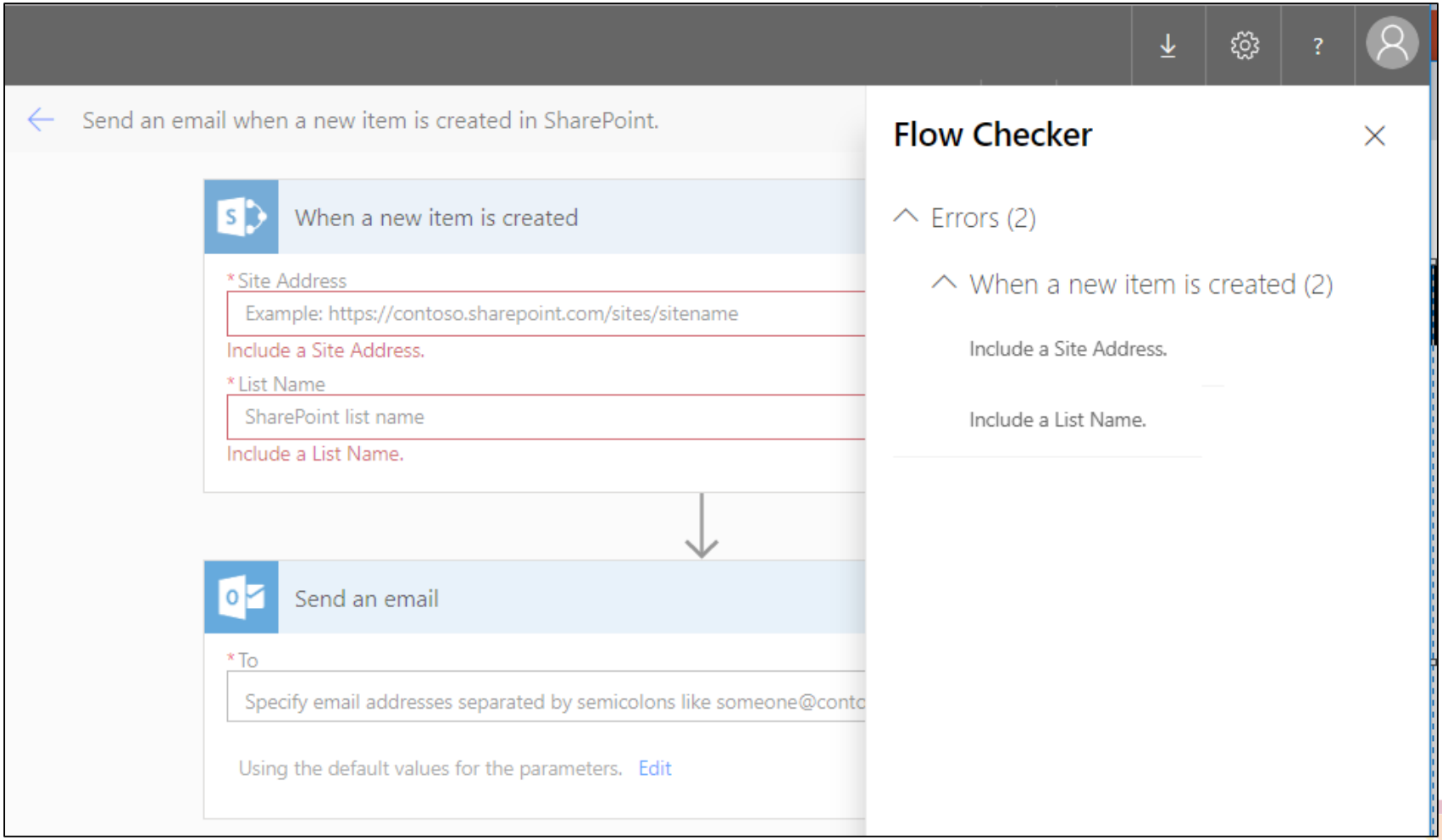
Testing a Flow

- Flow can be run/tested from edit mode



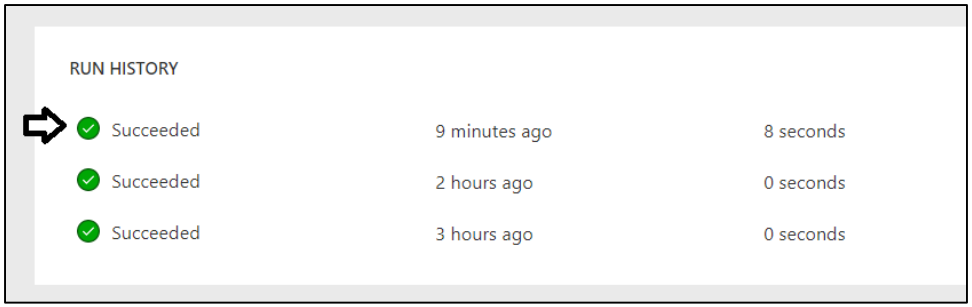
Flow Checker

- Automatically checks flows for errors and omissions

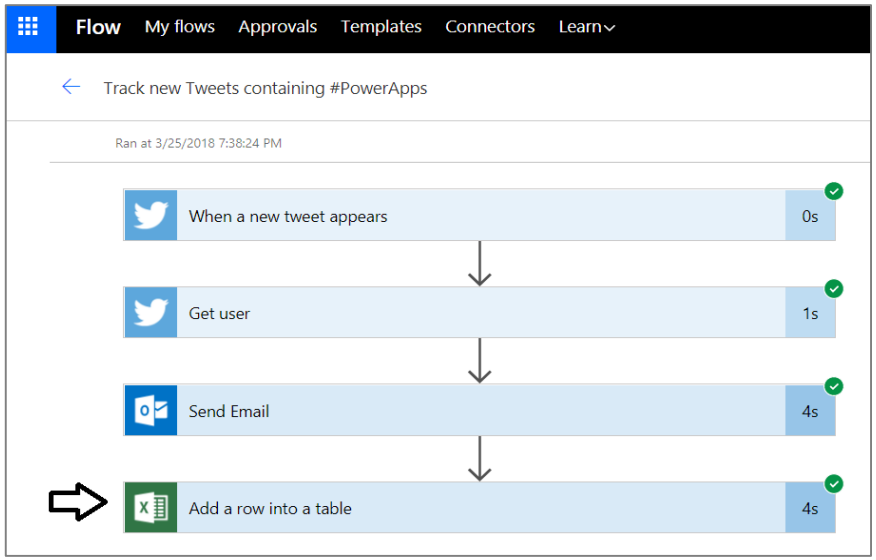


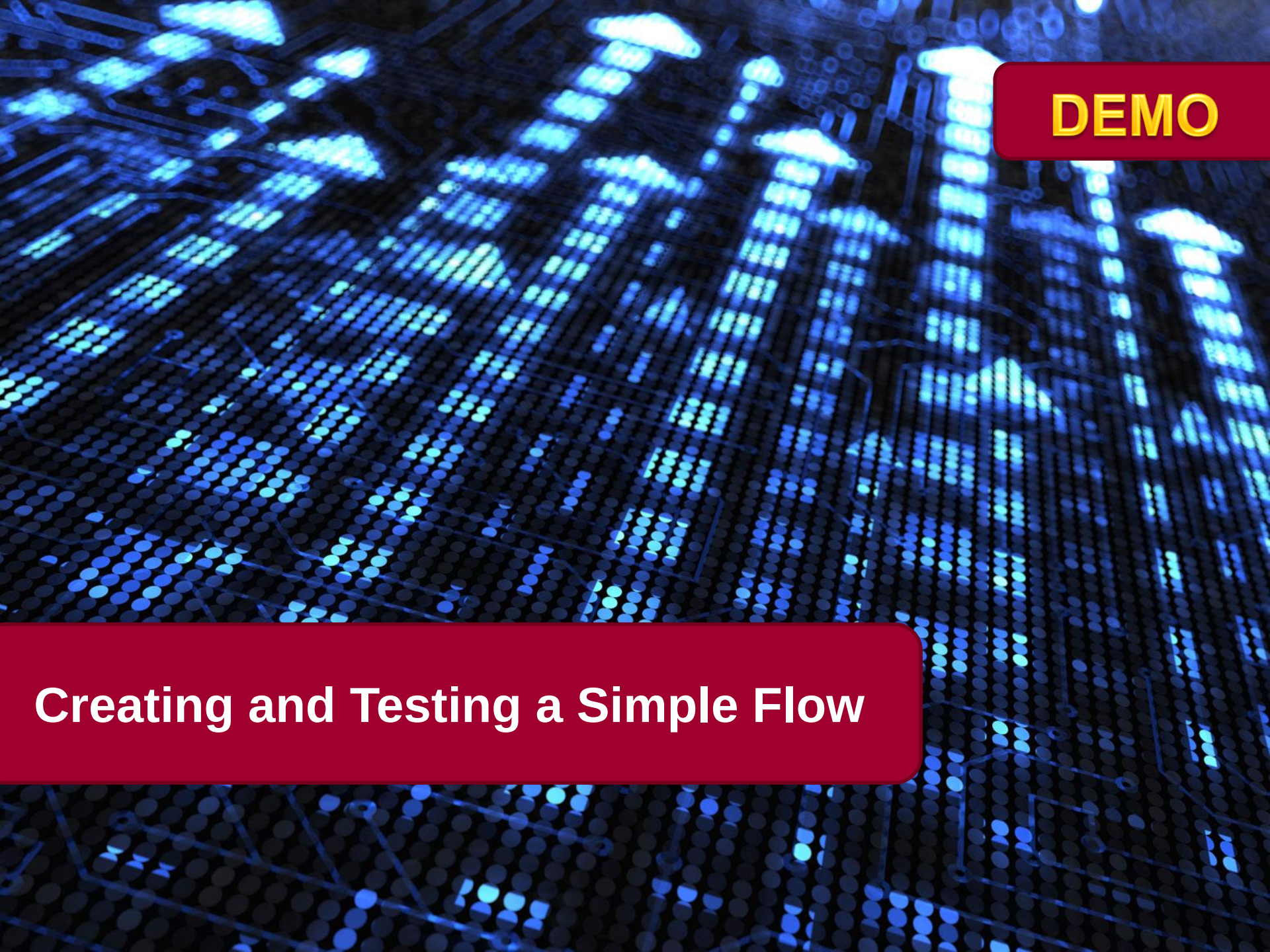
Run History

- Flow provides history flows that have run



- Provides read-only view of data for auditing & monitoring




DEMO
Creating and Testing a Simple Flow

Agenda

- ✓ Setting Up a PowerApps Environment
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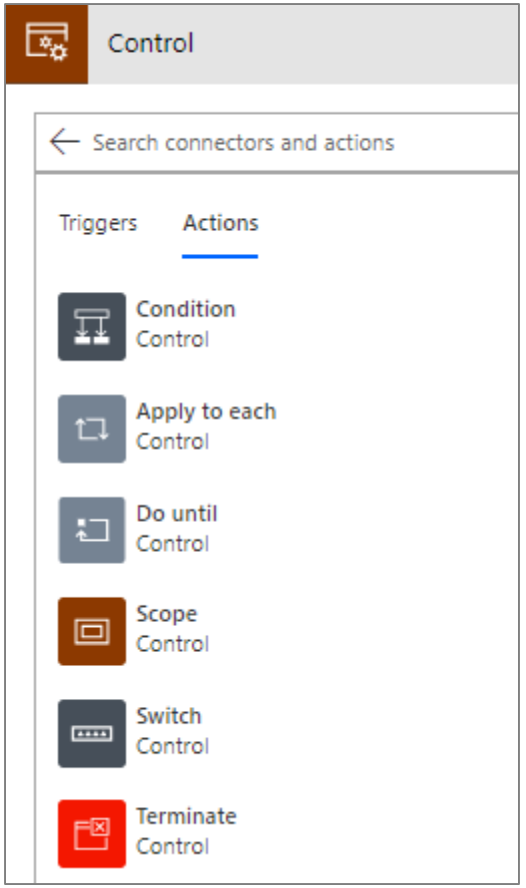
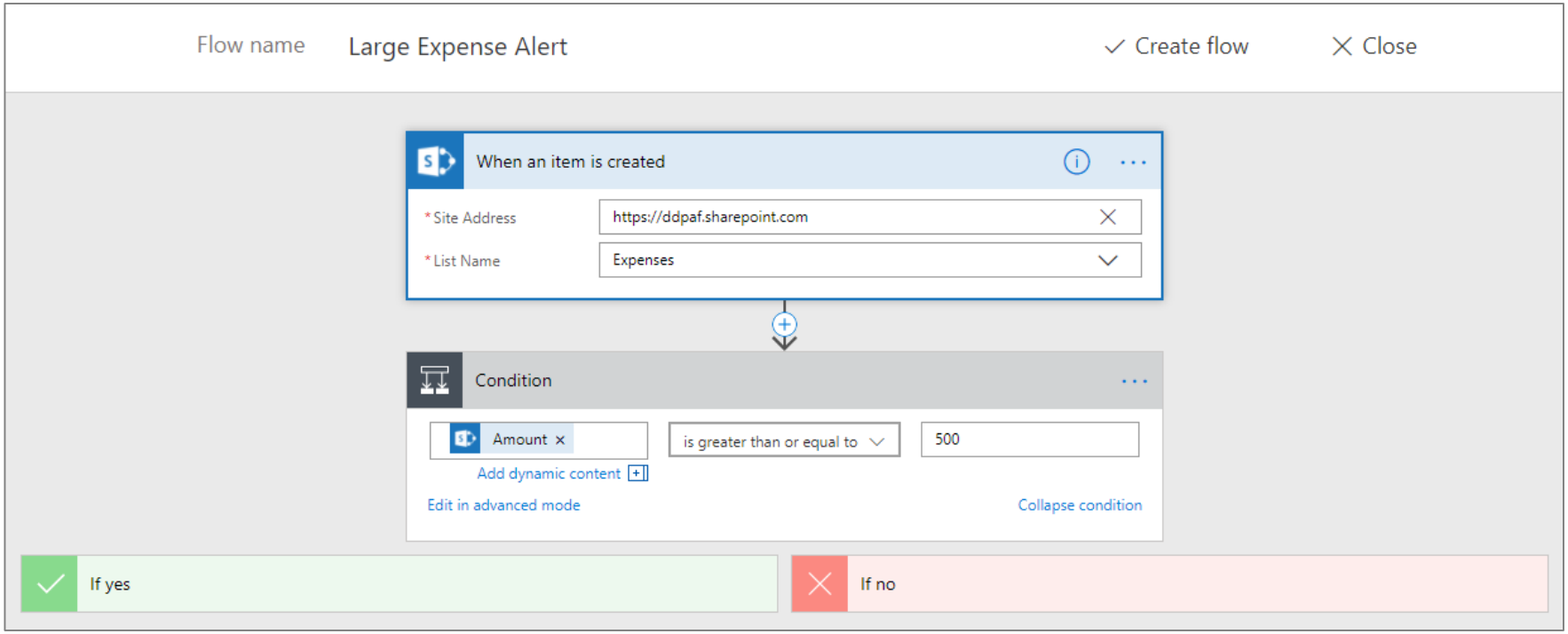
Control of Flow

- Condition
  - Provides logical structure for If Then Else
- Apply to each
  - Enumerate through collection (e.g. list items)
- Do until
  - Repeat until condition changes
- Scope
  - Create an action container with a private scope
- Switch
  - Select Case flow
- Terminate
  - Completes a flow



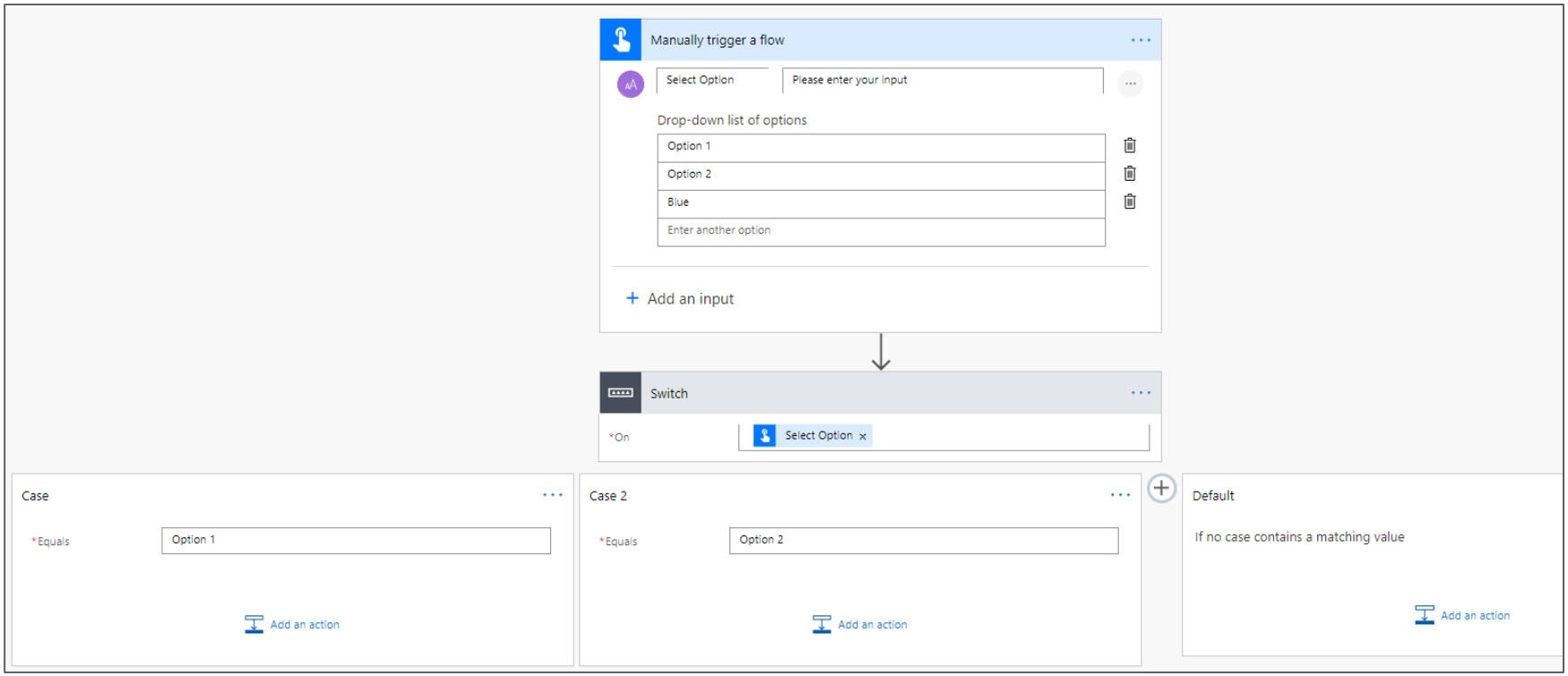
Using a Condition

- Send alert email if expense amount greater than $500
  - Condition runs test which returns true or false
  - Condition provide **If yes** branch and **If no** branch



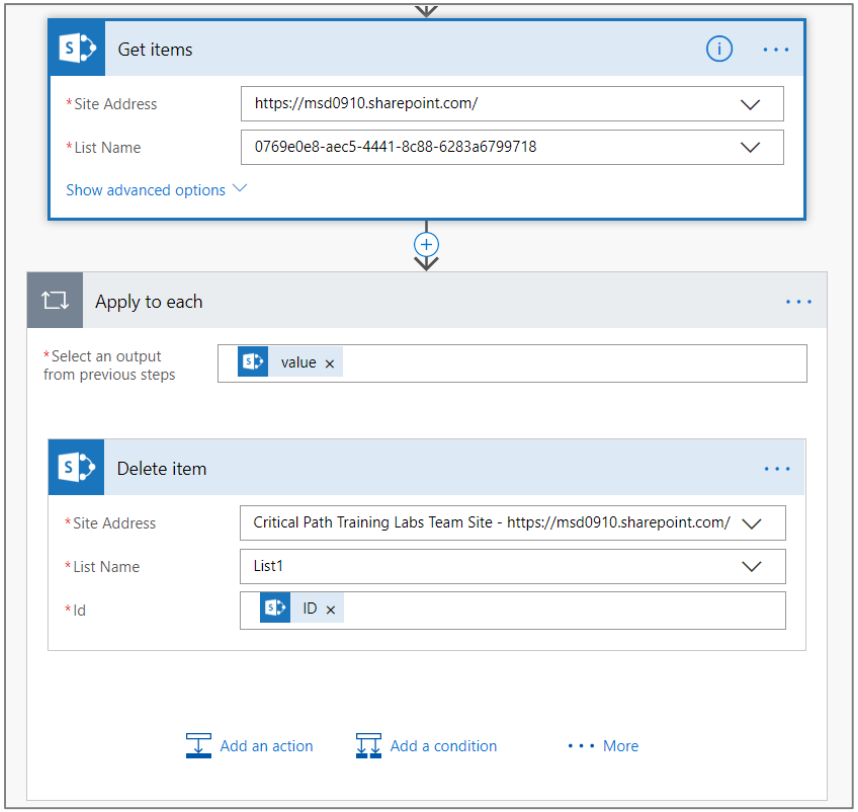
Switch Action

- Switch actions provides cases
  - Each case represents separate execution path
  - Only one execution path will execute
  - Default case executes when no other case is matched



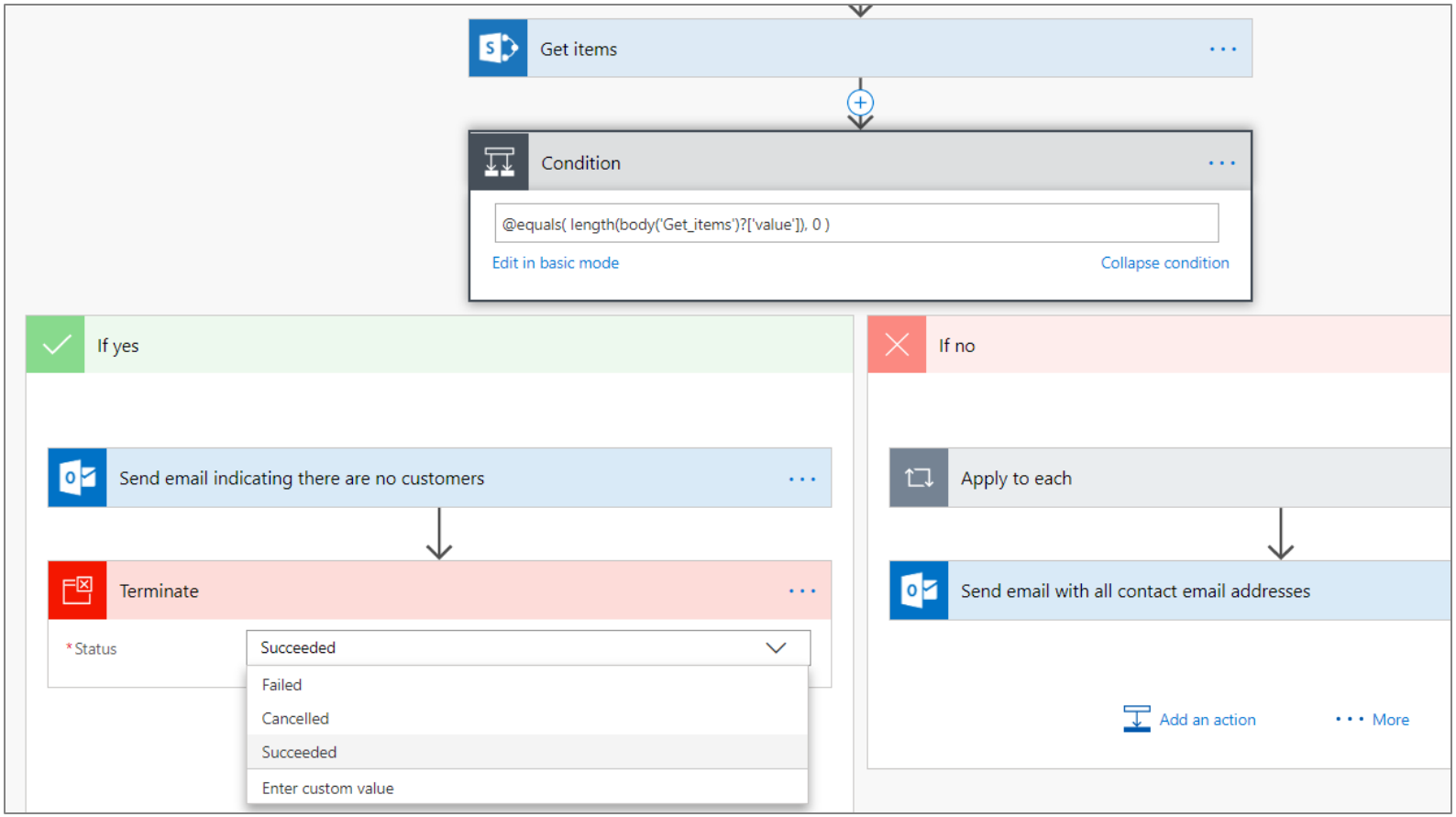
Using Apply to Each

- Automatically added when list is used from output
- Destination step enumerates over list items



Terminate action

- Used to stop a flow at any point
  - Terminate status can be set to Succeeded, Cancelled, Failed



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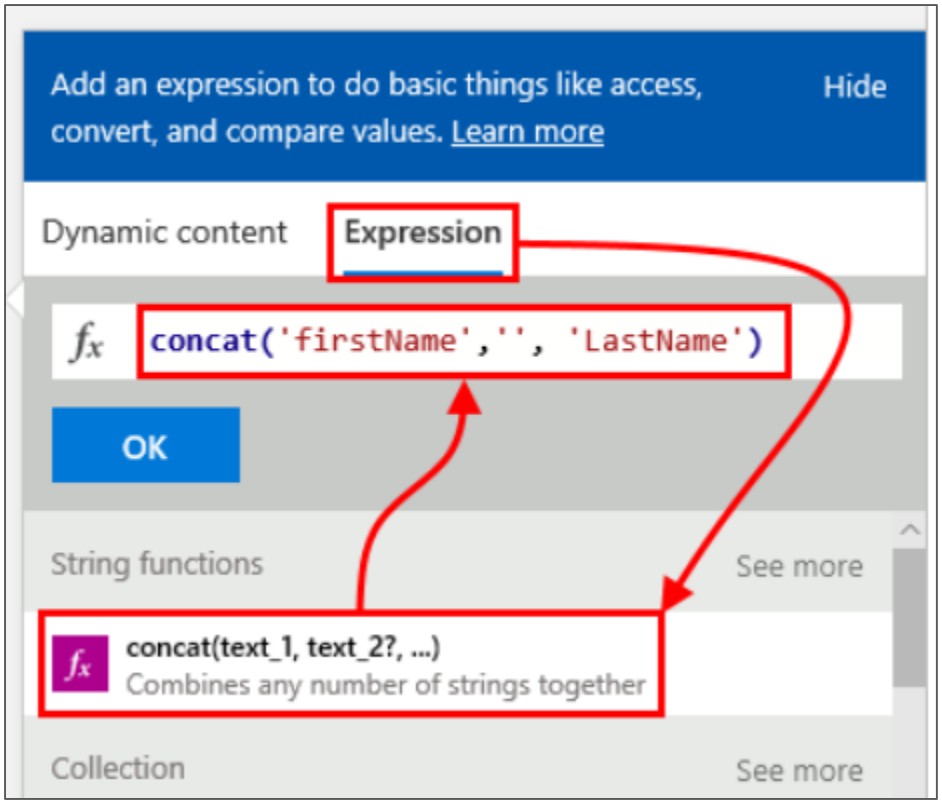
Writing Flow Expressions

- Scenarios for writing Flow expressions
  - Perform string manipulation
  - Generate a GUID or a random number
  - Convert types
  - Perform simple inline calculations
  - Handling optional values
  - Writing conditional statements using "If" statements
  - Working with arrays

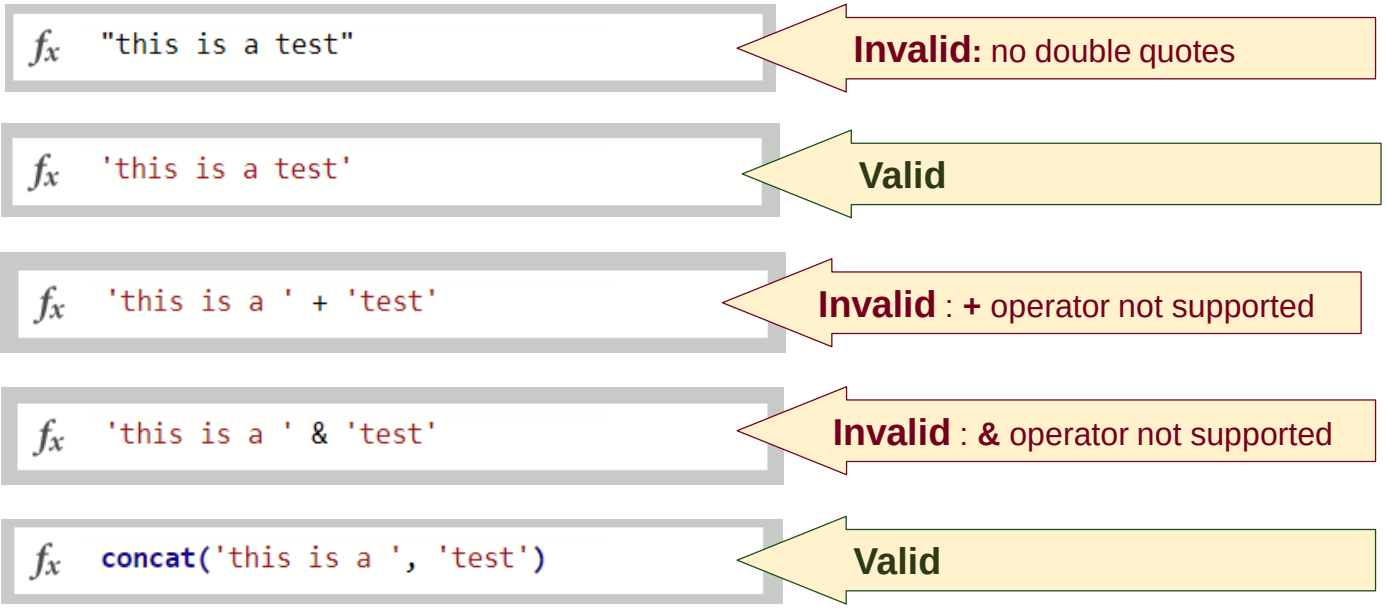
Writing Expressions

- Expressions written in fx textbox
- Click OK to enter expressions



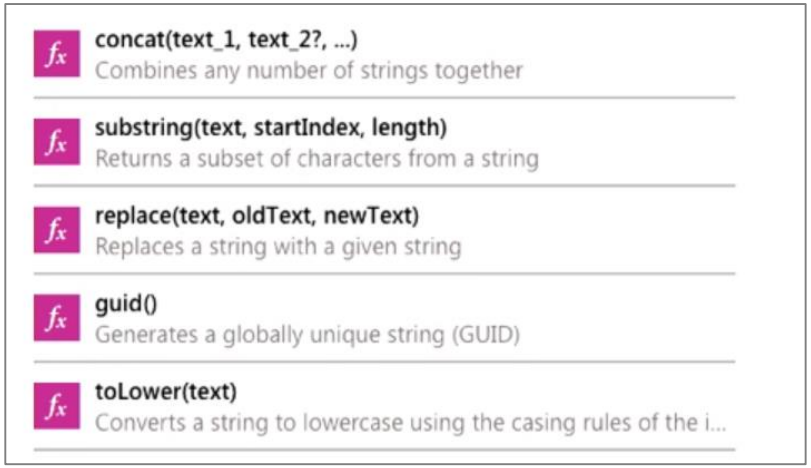
Workflow Definition Language (WDL)

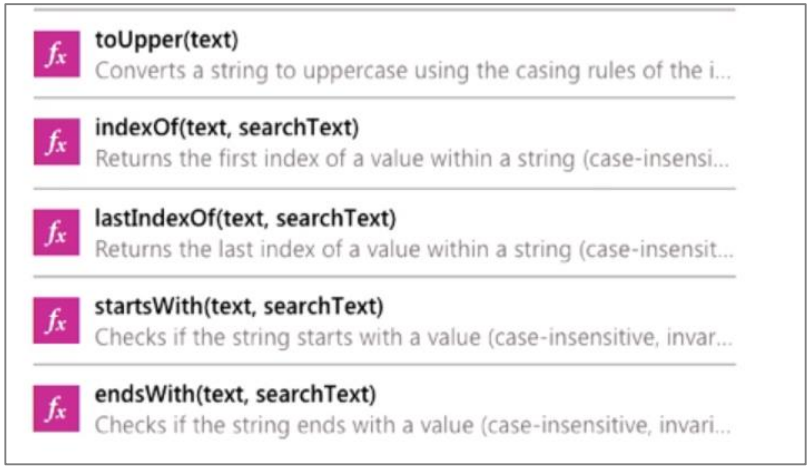
- Flow expressions written in Workflow Definition Language
  - Same language used in Azure Logic Apps
  - WDL is more powerful yet more complicated than PowerApps
  - WDL does not overload operators like PowerApps does
  - WDL requires single quotes instead of double quotes



Working with Strings

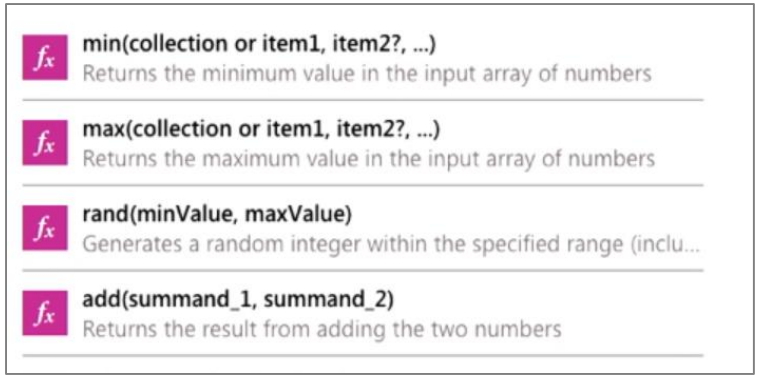
- Parse text together using **concat()**
- Parse out text using **substring()**
- Convert casing using **toLower()** and **toUpper()**
- Search string using **indexOf** and **startsWith()**
- Create new GUID identifier using **guid()**

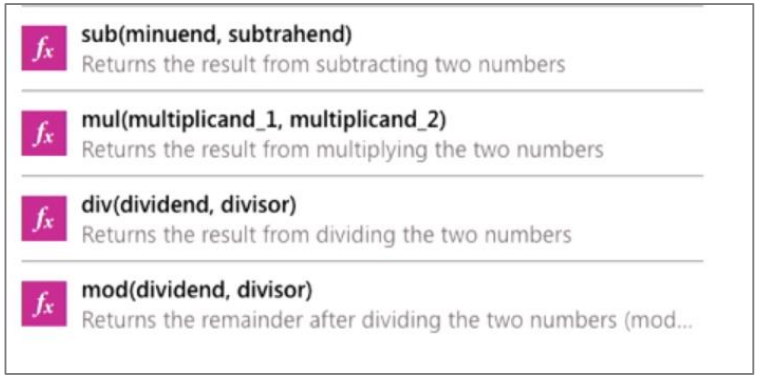




Performing Arithmetic Operations

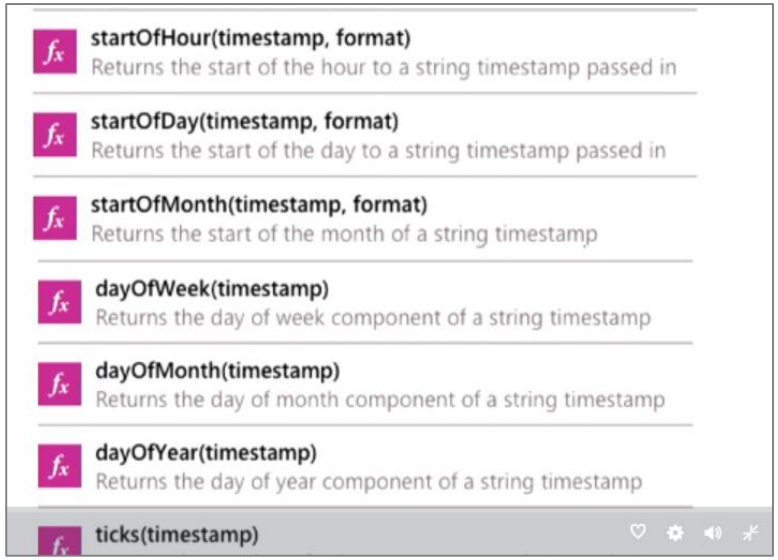
- You cannot use standard arithmetic operators
  - No support for familiar operators such as **+**, **-**, *******, **/**
  - This does not work: **2 + 2**
  - This works: **add(2, 2)**





Working with Dates and Time

- Get Greenwich Meantime using **utcnow()**
- Use **add*()** functions to move time back/forward
- **convertTimeZone()** used to handle local times
- **formatDateTime()** used to format



Understanding Arrays in Flow

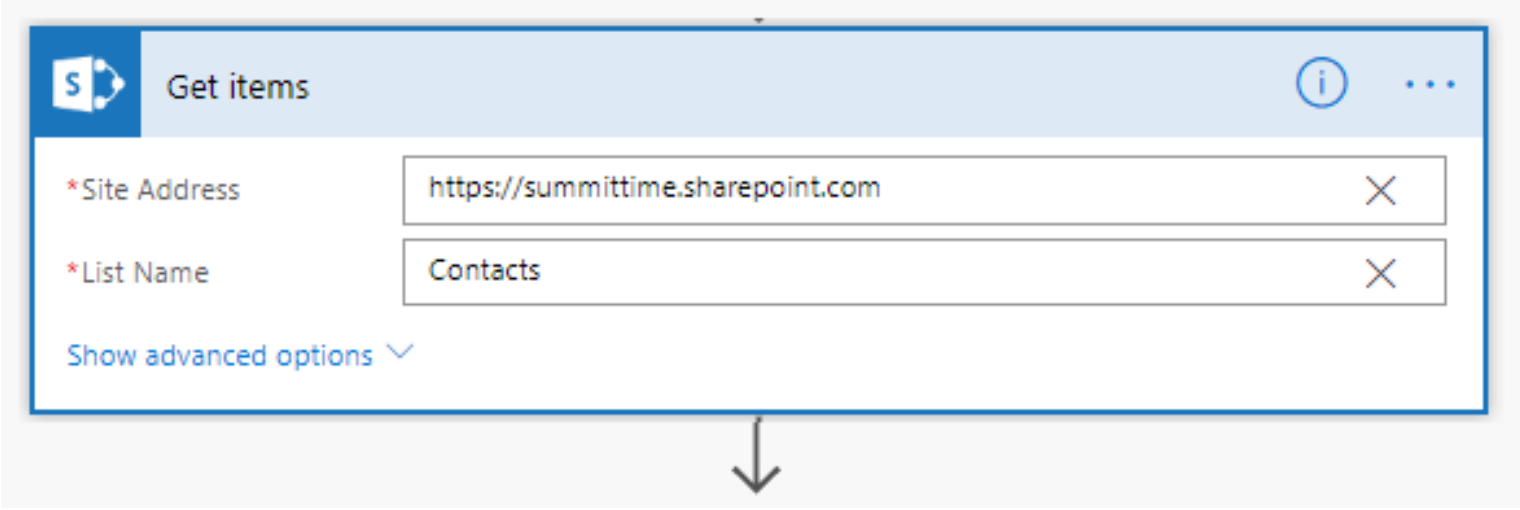
- Flow arrays are zero-based
  - Primitive value arrays

0	Daugherty
1	Hernandez
2	Mack
3	Wiley

  - Object arrays

	Last Name	First Name	Company	Business Phone	Home Phone
0	Daugherty	Cindy	Wonka Industries	1(337)111-4444	1(337)111-7777
1	Hernandez	Zane	Vandelay Industries	1(757)666-3333	1(757)777-1111
2	Mack	Chang	Wonka Industries	1(480)111-4444	1(480)777-0000
3	Wiley	Ramona	Ecumena	1(201)777-8888	1(201)777-2222

Accessing an Array using ['value']



body('Get_items')?['value']

	Last Name	First Name	Company	Business Phone	Home Phone
0	Daugherty	Cindy	Wonka Industries	1(337)111-4444	1(337)111-7777
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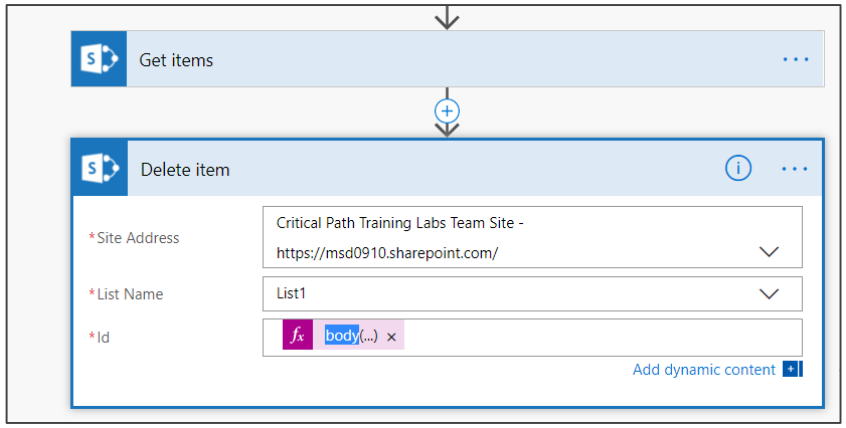
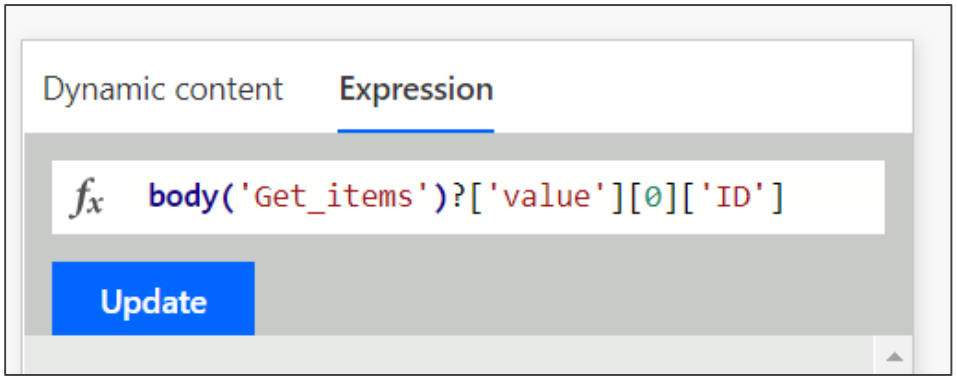
2	Mack	Chang	Wonka Industries	1(480)111-4444	1(480)777-0000
3	Wiley	Ramona	Ecumena	1(201)777-8888	1(201)777-2222

Retrieving List Items

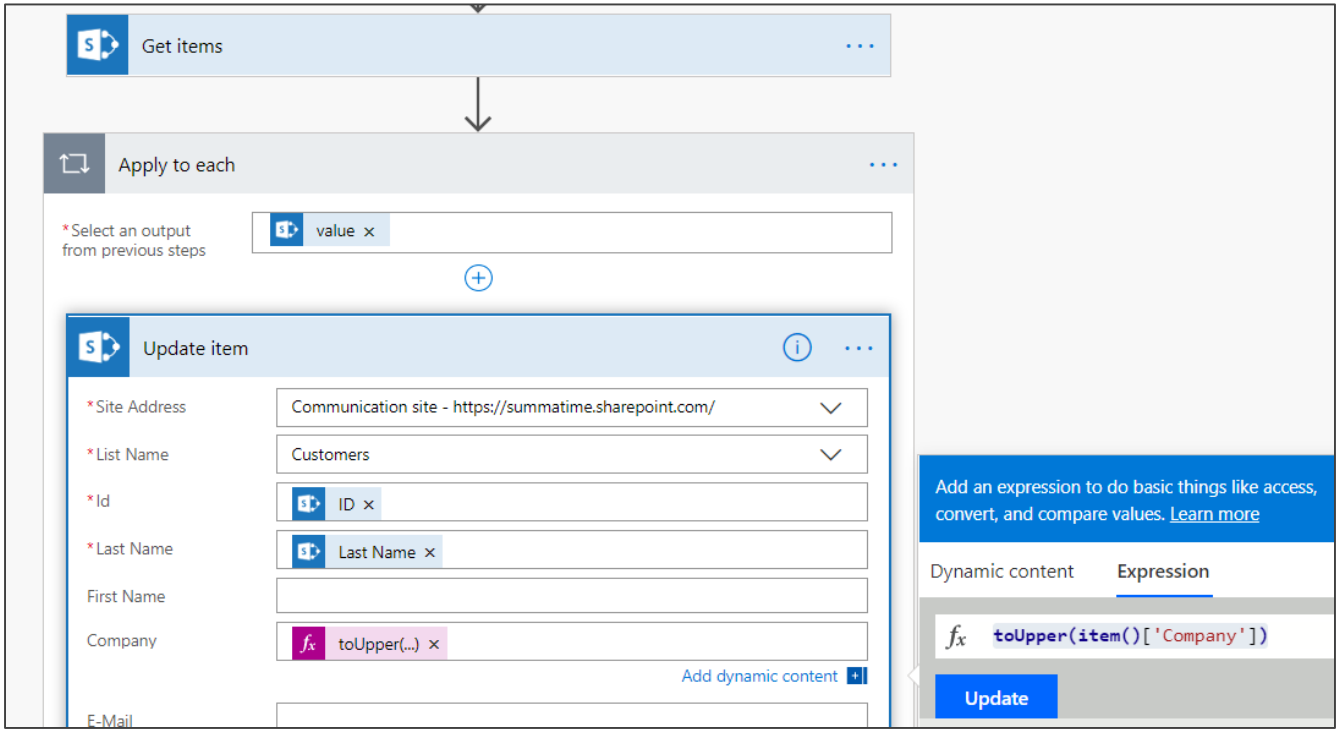
- Use **first()** and **last()** to get lead at head or tail
- Individual items retrieved using zero-based array syntax
  - SharePoint list item array - `body('Get_items')?['value']`
  - First list item in array - `body('Get_items')?['value'][0]`
  - Field value of first item - `body('Get_items')?['value'][0]['ID']`





Writing Expressions with item()

- You can access current item inside flow loops
  - Use `item()` function provided by WDL
  - Example below formats all company names in upper case
  - Requires using `toUpper(item()['Company'])` in Apply to each loop



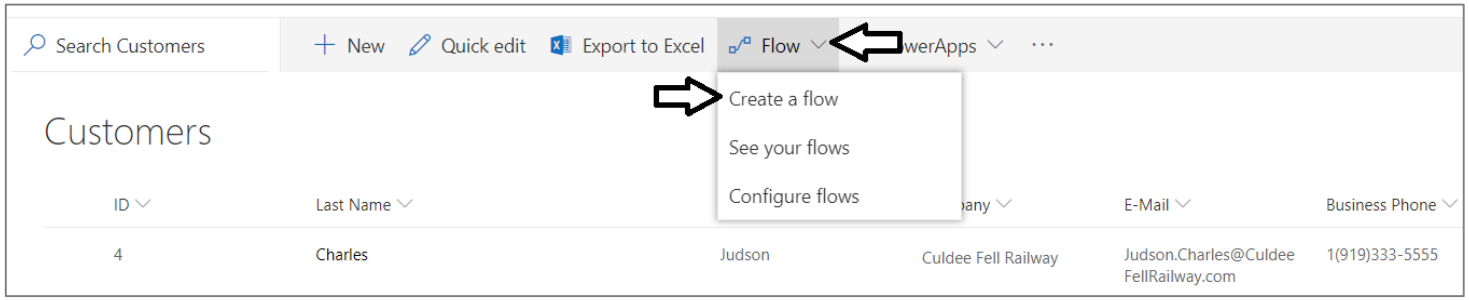

DEMO
Enumerating through SharePoint List Items to Perform Cleanup Operations

Agenda

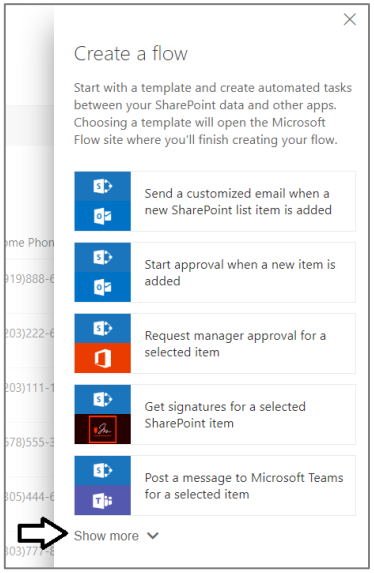
- ✓ Setting Up a PowerApps Environment
- ✓ Understanding Flow Fundamentals
- ✓ Creating and Testing Flows
- ✓ Using Control-of-Flow Actions
- ✓ Writing Flow Expressions
- ➢ Automating Document Generation

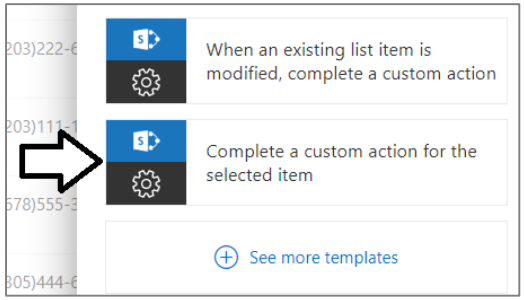
Adding Flows for SharePoint Selected Item

- You can create a flow for a specific SharePoint list



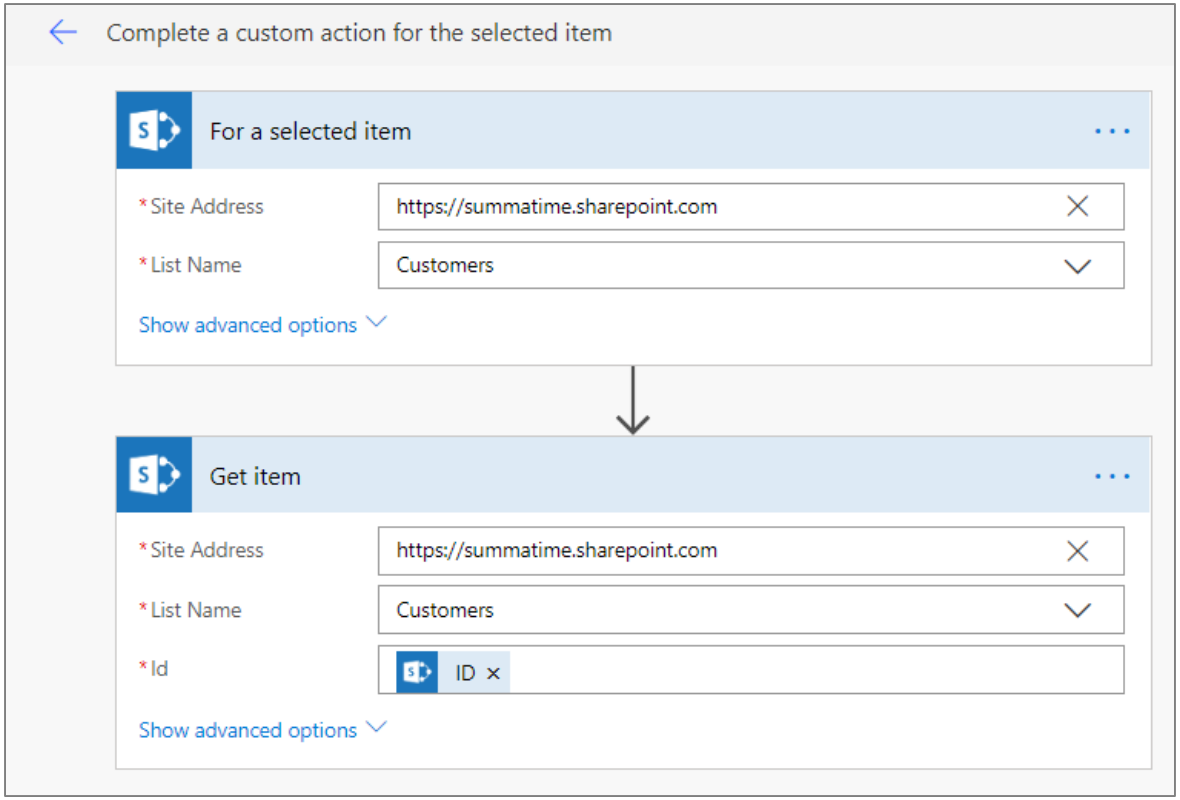
- Select option to Complete a custom action for the selected item





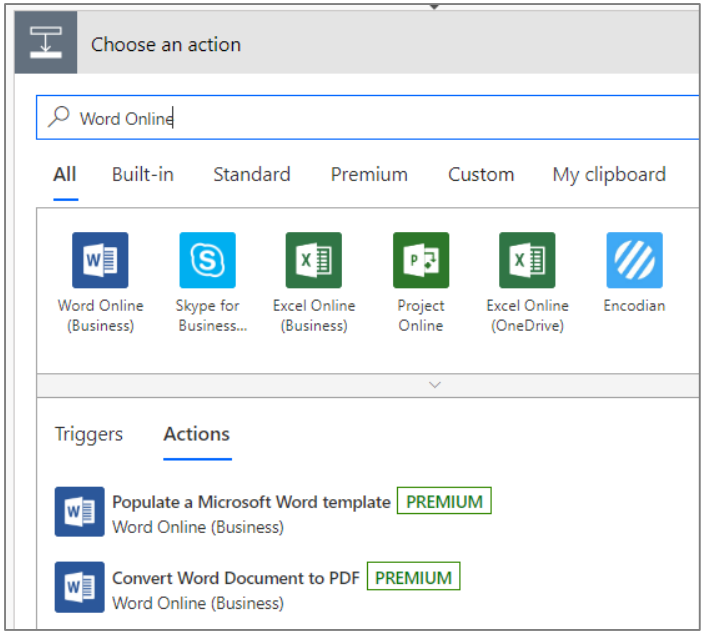
Custom Action for Selected Item Flow

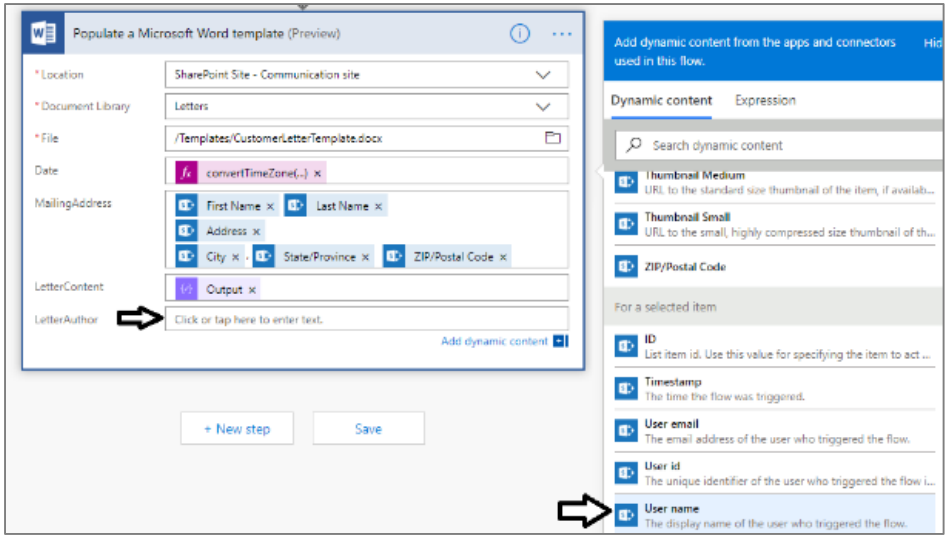
- Flow is initially created with a trigger and an action
  - Flow created with a **For a selected item** trigger
  - Flow also contain **Get item** action to get list item field values



Word Online Connector

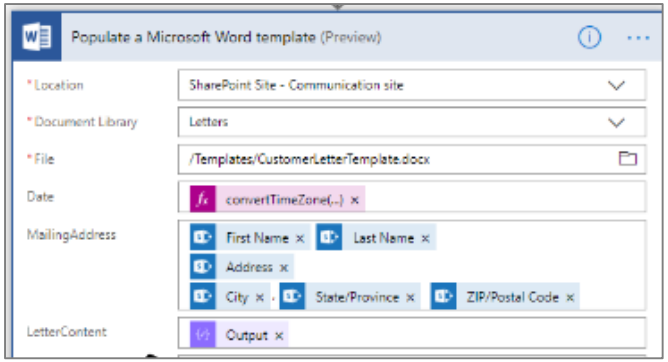
- Word Online connectors provides two valuable actions
  - Populate a Microsoft Word template
  - Convert Word Document to PDF



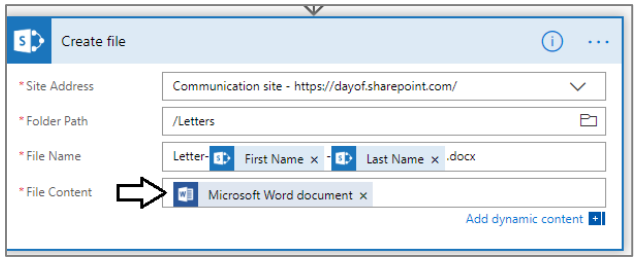


Populate a Microsoft Word template

- Using Populate a Microsoft Word template action
  - Select Word document template with named content controls
  - Dynamically add content into named content controls

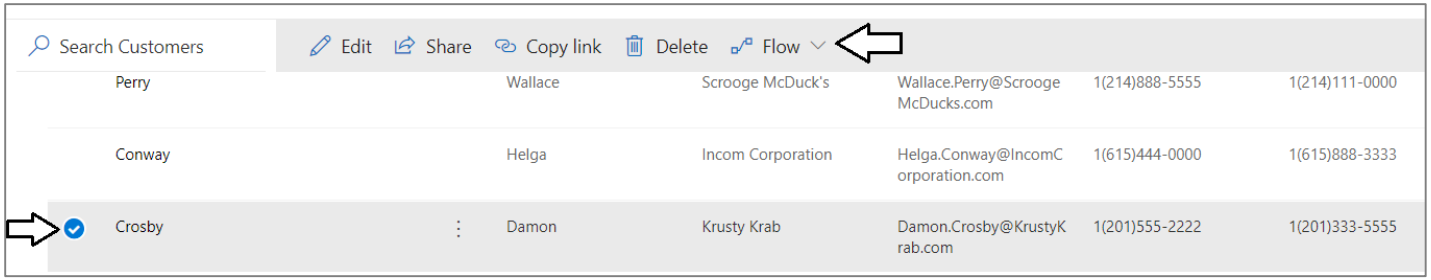


- Populate a Microsoft Word template doesn't create file
  - You must add another action to actually create the DOCX file

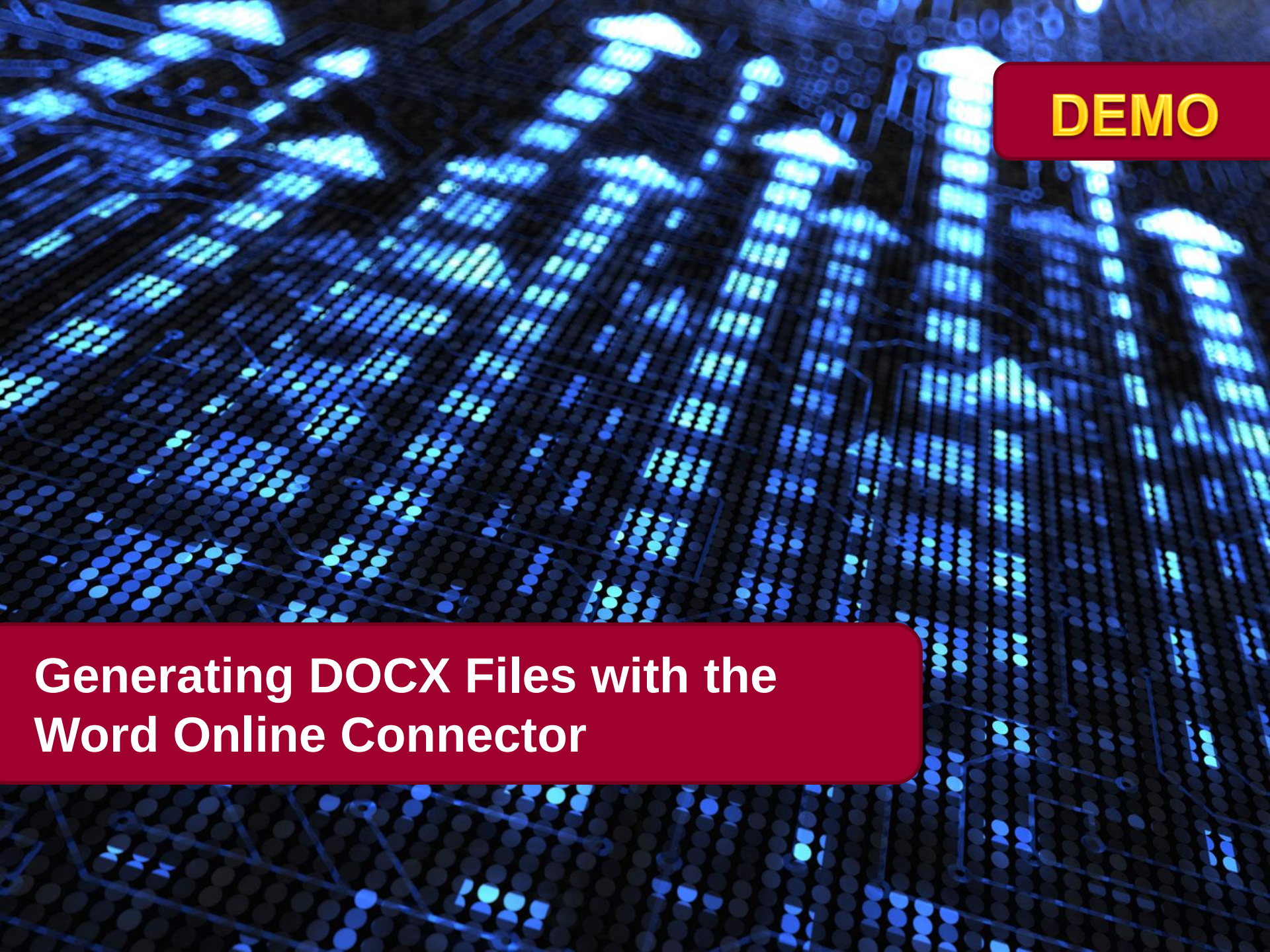


Running a For a Selected Item Flow

- For a selected item flow runs on one item at a time
  - Make sure just one item is selected then drop down Flow menu



  - For a select item flows should appear in dropdown menu


DEMO
Generating DOCX Files with the
Word Online Connector

Summary

- ✓ Setting Up a PowerApps Environment
- ✓ Understanding Flow Fundamentals
- ✓ Creating and Testing Flows
- ✓ Using Control-of-Flow Actions
- ✓ Writing Flow Expressions
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