



Global Microsoft 365
Developer Bootcamp

Power Automation: Best practices, tips and tricks

Sandro Pereira



Extending SharePoint spaces
Rodrigo Pinto

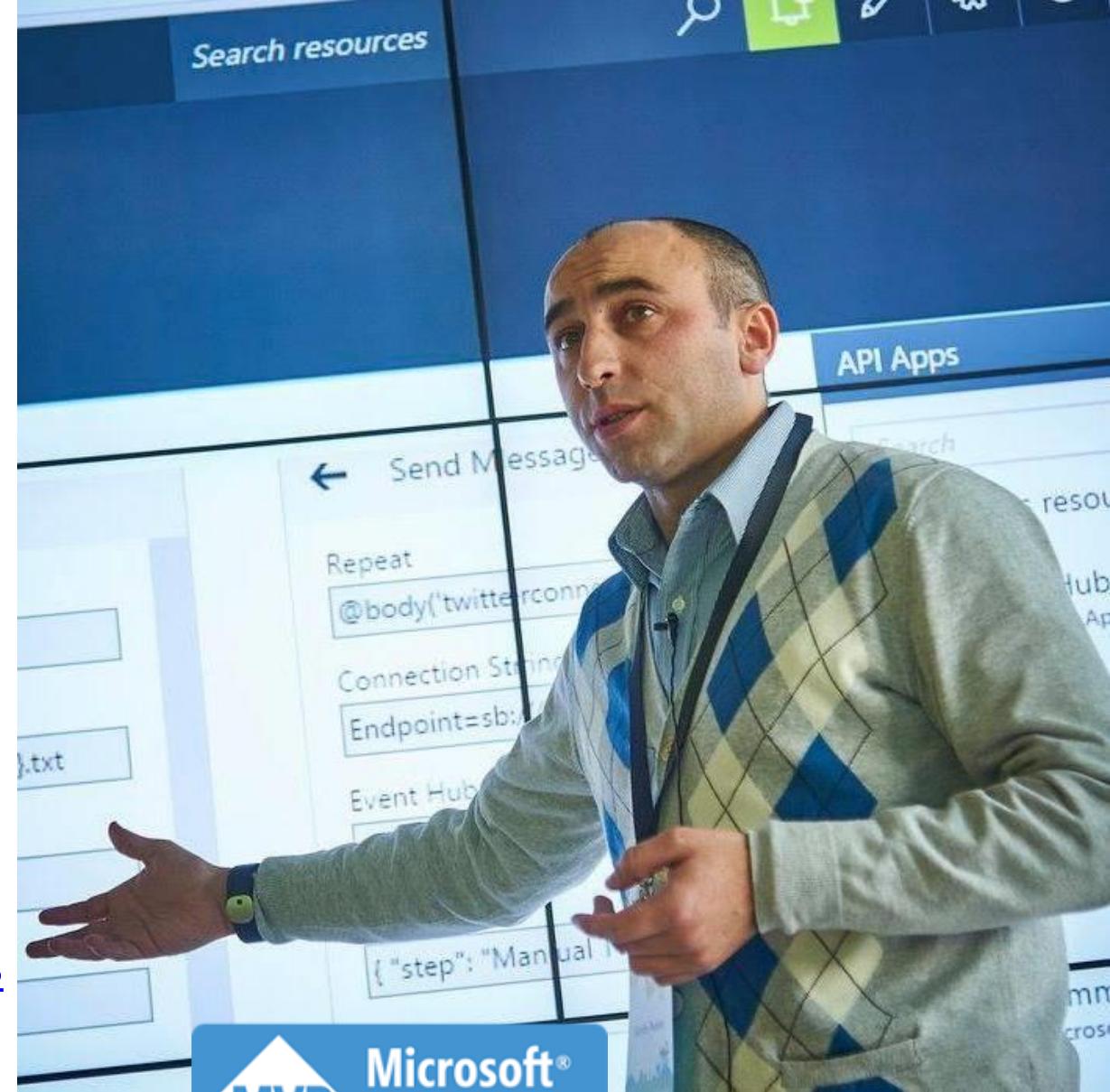


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- Public speaker
- Father
- Book author: "[BizTalk Mapping Patterns and Best Practices](#)"

dev>scope

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www.devscope.net

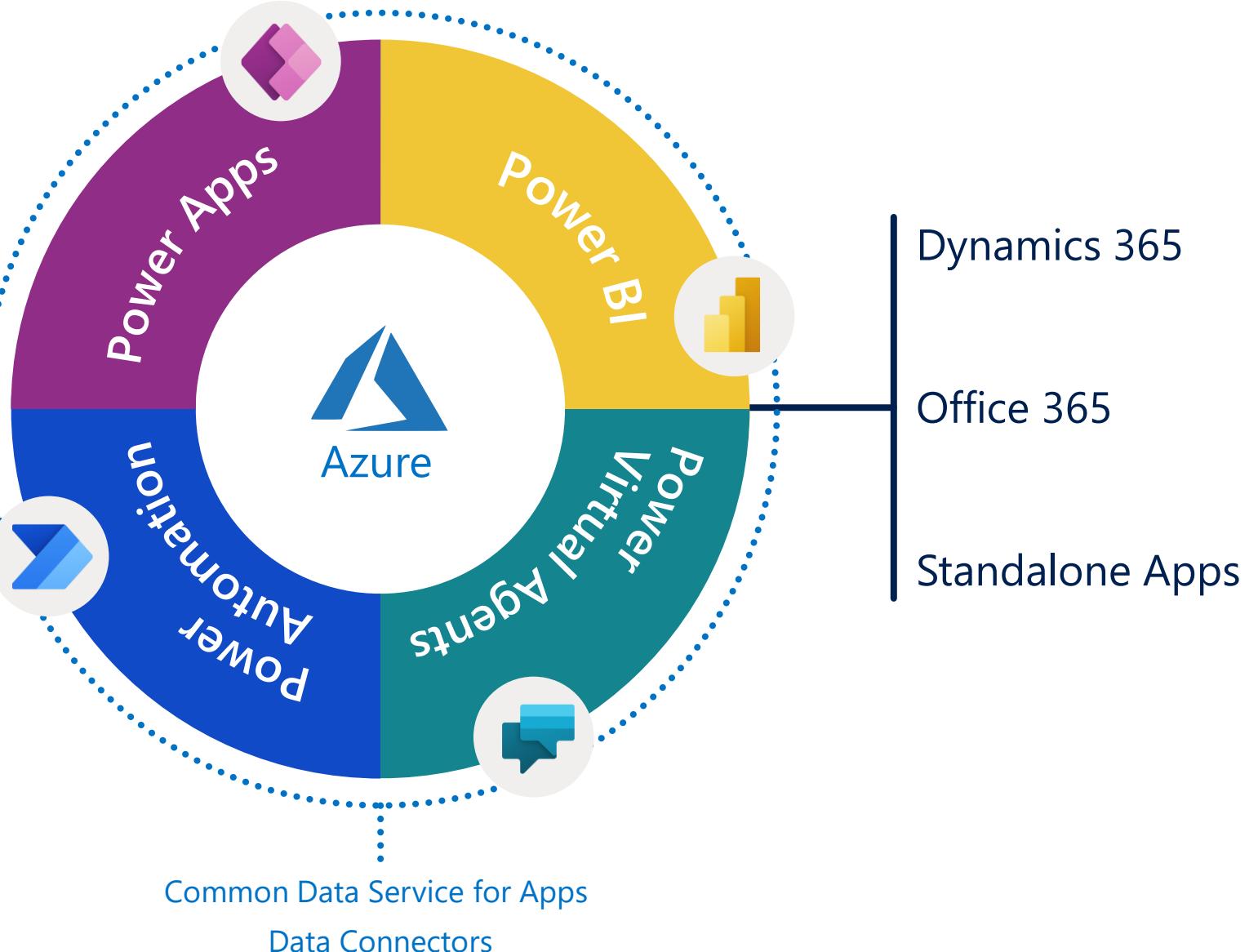




this house has **kids'**...

fast **development**....

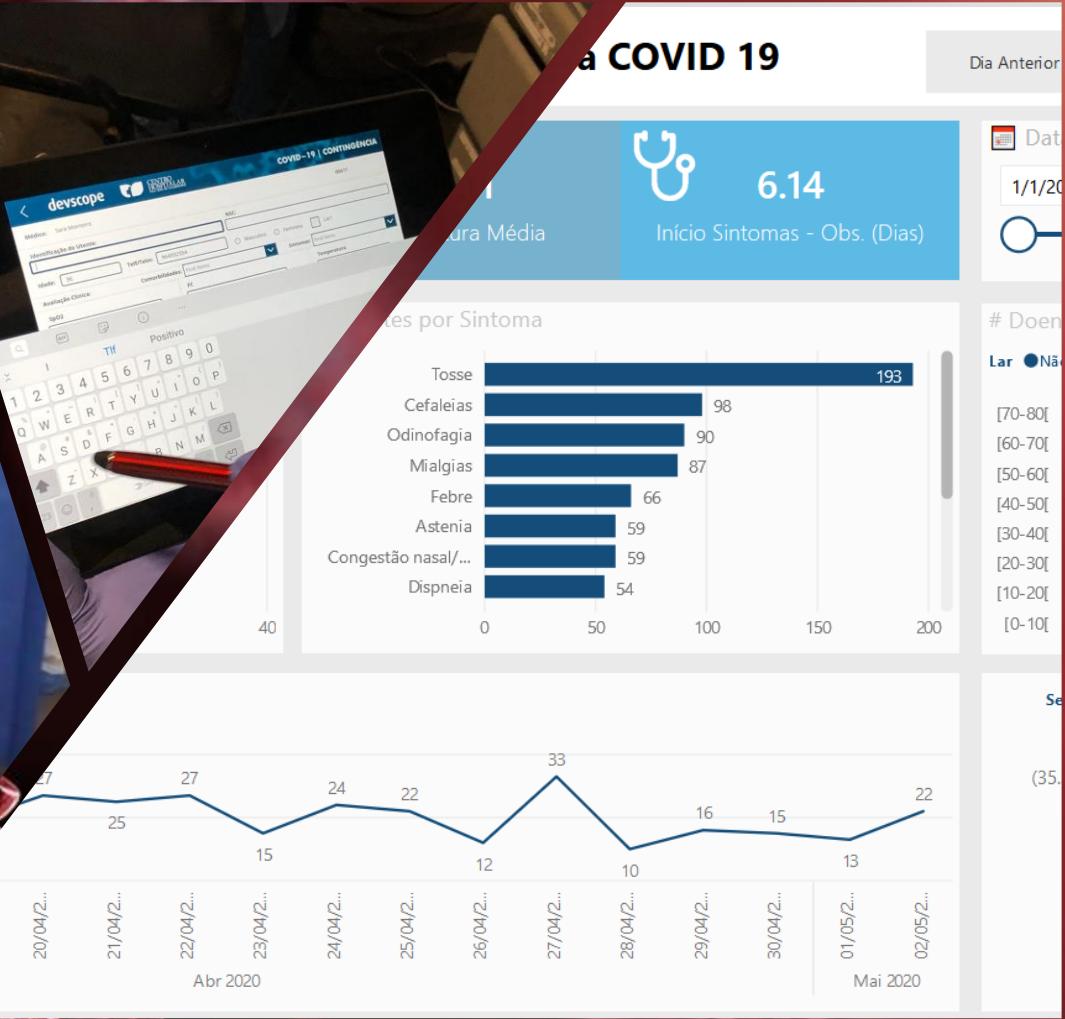
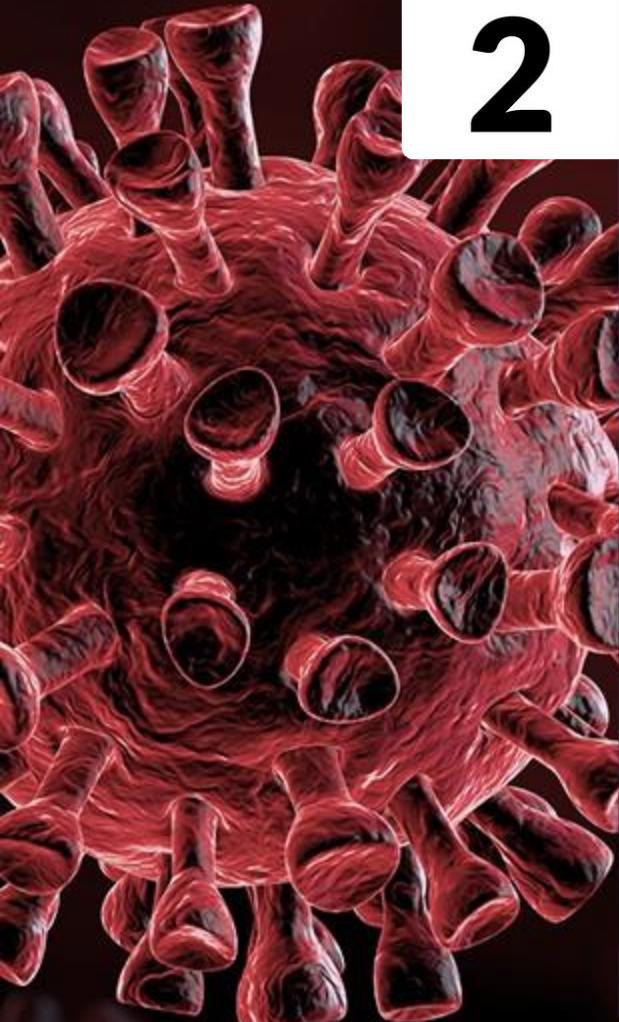
Microsoft
Power Platform



this is our fight #tech4covid19



DAYS
TO GO



CHVNGE

how are my **flows**?
are they **reliable**?
what may be **wrong**?



1

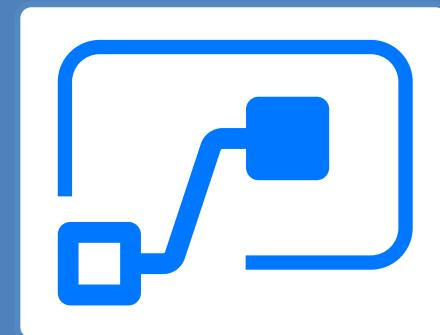


Power Automate
was **rebrand...**

Microsoft
Flow



**Power
Automate**



Power Automate flow **naming** convention...

Use descriptive names

- Improves readability
- Transfer knowledge

You can always rename your flows without impacting what is running

You can use all types of characters

2





Trocar Agua Piso 4



DVS ADM – Inventory – Change water bottle 4 Floor



SQL_CheckUser



POC CLIENT_NAME – Check if user exists



Trocar Agua Piso 3



DVS ADM – Inventory – Change water bottle 3 Floor



Sharepoint_SaveSurvey



DVS CSI – Survey Process



PBI Meetup Feedback Flow



DVS TimeReport App – Create Time Report



PROD - CRM API CreateTimeReport



DVS TimeReport App – Get Budgets by project



PROD - CRM Get Budget



DVS TimeReport App – Get Project by name



PROD - CRM Get Project



3



actions **naming** convention...

Use descriptive names

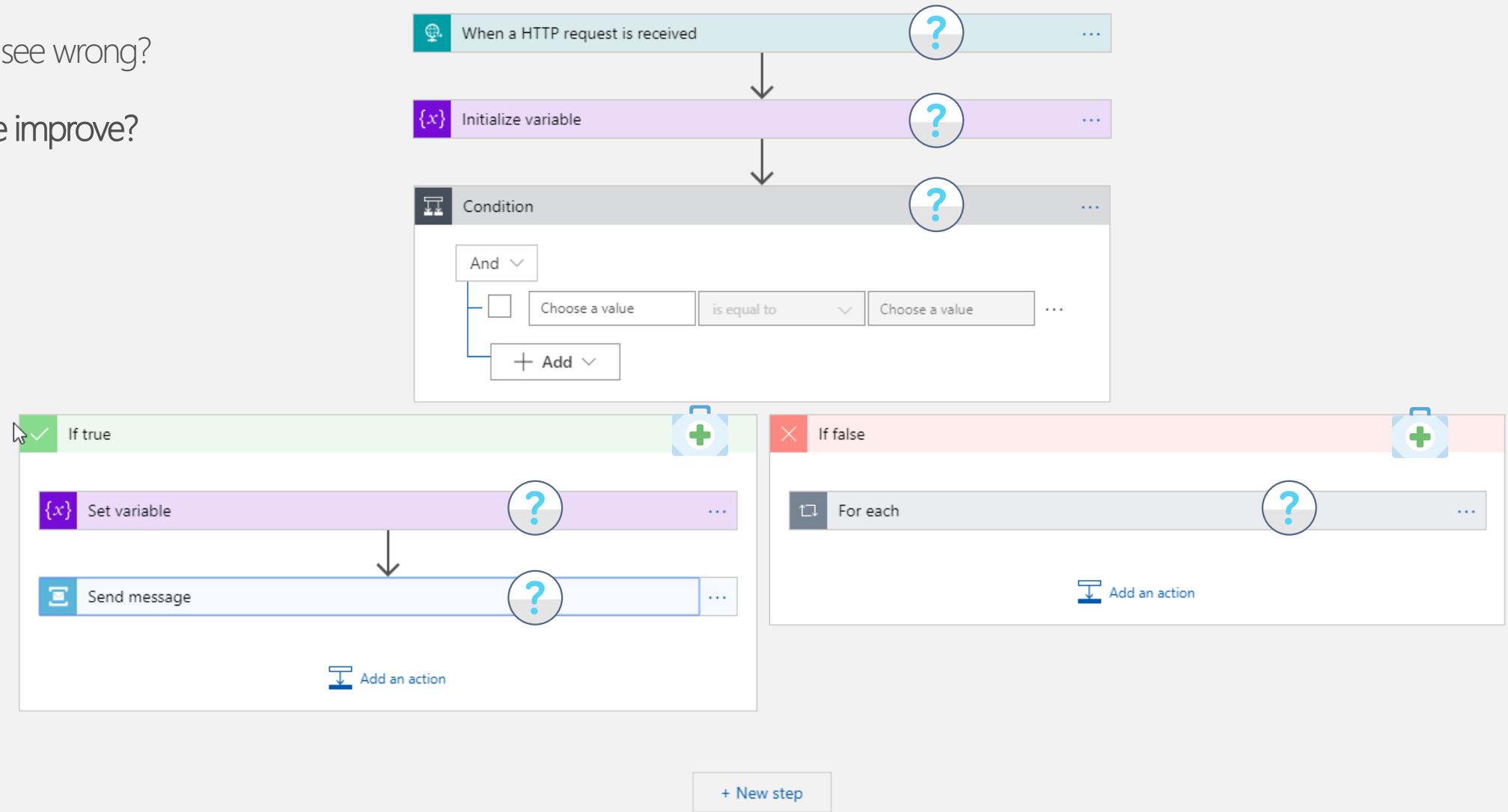
- Improves readability
- Transfer knowledge

You can now rename actions that have dependencies... directly

The name cannot contain any control characters or any of the following symbols: "<", ">", "%", "&", "\", "?", "/".

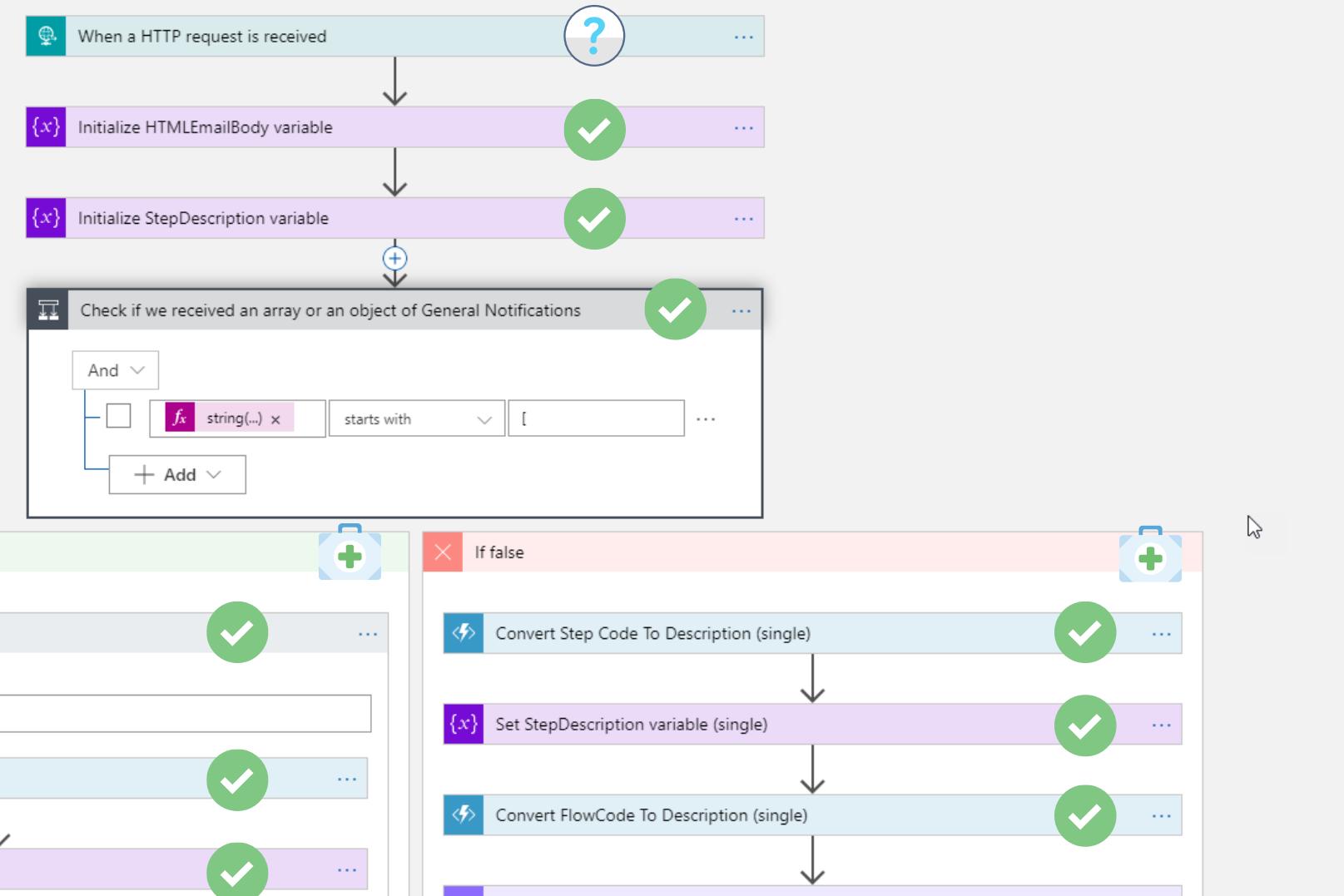
What do you see wrong?

What can we improve?



Most of the triggers don't allow you to change the name

Outlook or Forms triggers allows



The screenshot shows a Microsoft Power Automate interface with two main sections. The top section displays a workflow starting with a 'Parse JSON' step, followed by a 'Connections' step, and ending with a 'Save' button. A context menu is open over the 'Parse JSON' step, listing options: 'Copy to my clipboard (Preview)', 'Rename' (which is highlighted with a mouse cursor), 'Add a comment', 'Static result (Preview)', and 'Settings'. The bottom section shows a detailed view of the 'Parse JSON A' step, which is part of an 'Add rows to a dataset (Preview)' action. This view includes fields for 'Workspace' (My Workspace), 'Dataset' (TUGAIEvaluation), 'Table' (RealTimeData), and 'Content' (containing JSON path expressions). A red arrow points to the 'Content' field, specifically highlighting the expression 'body('Parse_JSON')?['MsgEval']?['SpeakerName']'. The entire 'Content' field row is also enclosed in a red box.

You can always rename the actions even the ones that have dependencies directly without any impact.

Never rename action names without fixing all the connectors...

especially if they have a dependency on the action, you are renaming

add **comments...**

Everyone can read the comments

- Improves readability
- Transfer knowledge

Save yourself and teammates from future frustration

Every expression should have a comment

4



When a HTTP request is received

Receive a JSON with the Evaluation form OCR metadata from SmartDocumentor

HTTP POST URL
https://prod-31.westeurope.logic.azure.com:443/workflows/6e64327e...

Request Body JSON Schema

Check if we received an array or an object of General Notifications

string(triggerBody()?'GeneralNotifications')

And

string(...) starts with [

Try - Load BusinessRules CORE

Section contains actions to retrieve all the necessary parameters to execute the named process, from KeyVault and Database.

Exec SP - GetAppConfigSection

Parse JSON - Exec SP - GetAppConfigSection CORE

Parse JSON - GetTokenBody CORE

EmailBody variable

HTMLEmailBody

String

Enter initial value

Add an action



5

**copy to my
clipboard...**

Easy way to Duplicate Actions or Scope

Avoid reproducing settings over and over again

Copy once, paste many times

The screenshot shows a Power Automate flow with two main sections: 'If yes' (green) and 'If no' (pink). The 'If yes' section contains a 'Set speaker Variables Info Scope' action and two 'Set Ricardo Torre' actions ('Picture' and 'Name'). A red box highlights the three-dot menu icon next to the 'Scope' action. A context menu is open, with 'Copy to my clipboard (Preview)' also highlighted with a red box. Other options in the menu include Rename, Add a comment, Static result (Preview), Settings, Configure run after, Peek code, and Delete. Below the 'If yes' section is a button labeled 'Add an action'. To the right of the 'If no' section is a 'Choose an action' dialog box. The 'My clipboard' tab is selected, showing a list of actions. The 'Set speaker Variables Info Scope' action is listed, with a cursor icon over its thumbnail and a blue info icon to its right.

If yes

If no

Set speaker Variables Info Scope

{x} Set Ricardo Torre Picture

{x} Set Ricardo Torre Name

Add an action

Copy to my clipboard (Preview)

Rename

Add a comment

Static result (Preview)

Settings

Configure run after

Peek code

Delete

If no

Choose an action

All Built-in Standard Premium Custom My clipboard

Set speaker Variables Info Scope

The clipboard content is available during
the lifetime of your browser session...

...you can even copy and paste into
different Power Automate flows.

If you refresh the browser (F5) your
clipboard content will go away!

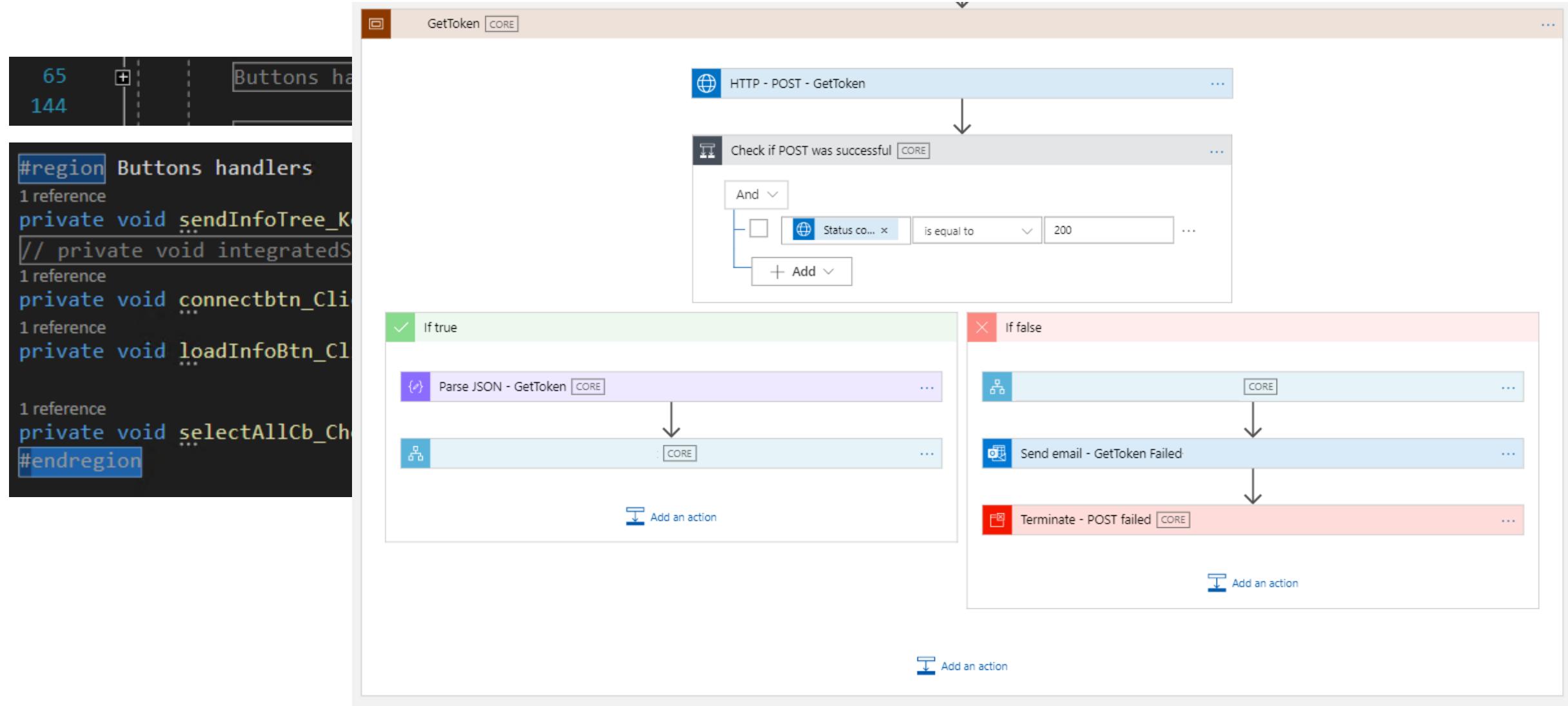
using **scopes**...

Managing individual actions introduces complexity

- Scopes allow us to group actions together
- Manage actions as a single unit instead of disparate items

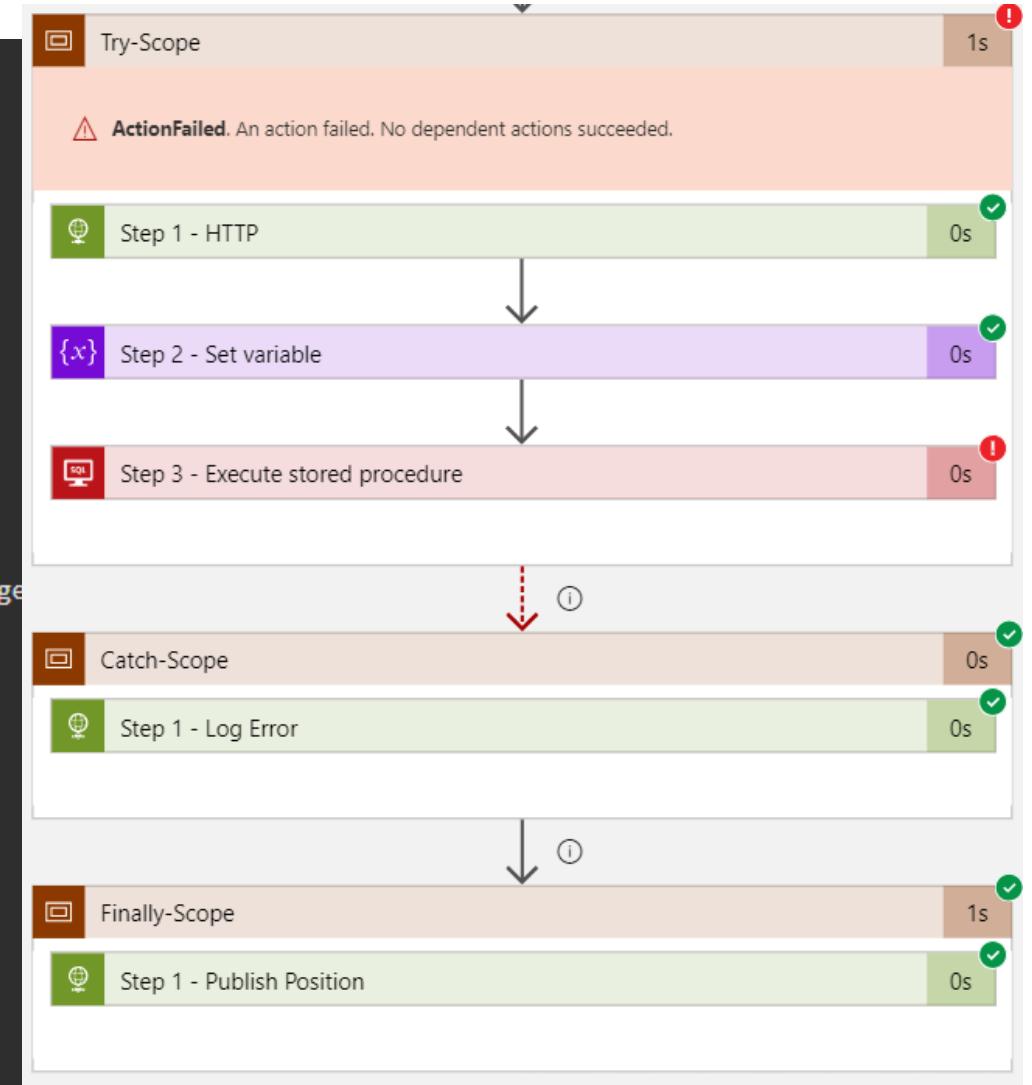


scope... is a region



scope... is a try-catch-finally

```
public class EHClass
{
    void ReadFile(int index)
    {
        // To run this code, substitute a valid path from your local machine
        string path = @"c:\users\public\test.txt";
        System.IO.StreamReader file = new System.IO.StreamReader(path);
        char[] buffer = new char[10];
        try
        {
            file.ReadBlock(buffer, index, buffer.Length);
        }
        catch (System.IO.IOException e)
        {
            Console.WriteLine("Error reading from {0}. Message = {1}", path, e.Message);
        }
        finally
        {
            if (file != null)
            {
                file.Close();
            }
        }
        // Do something with buffer...
    }
}
```





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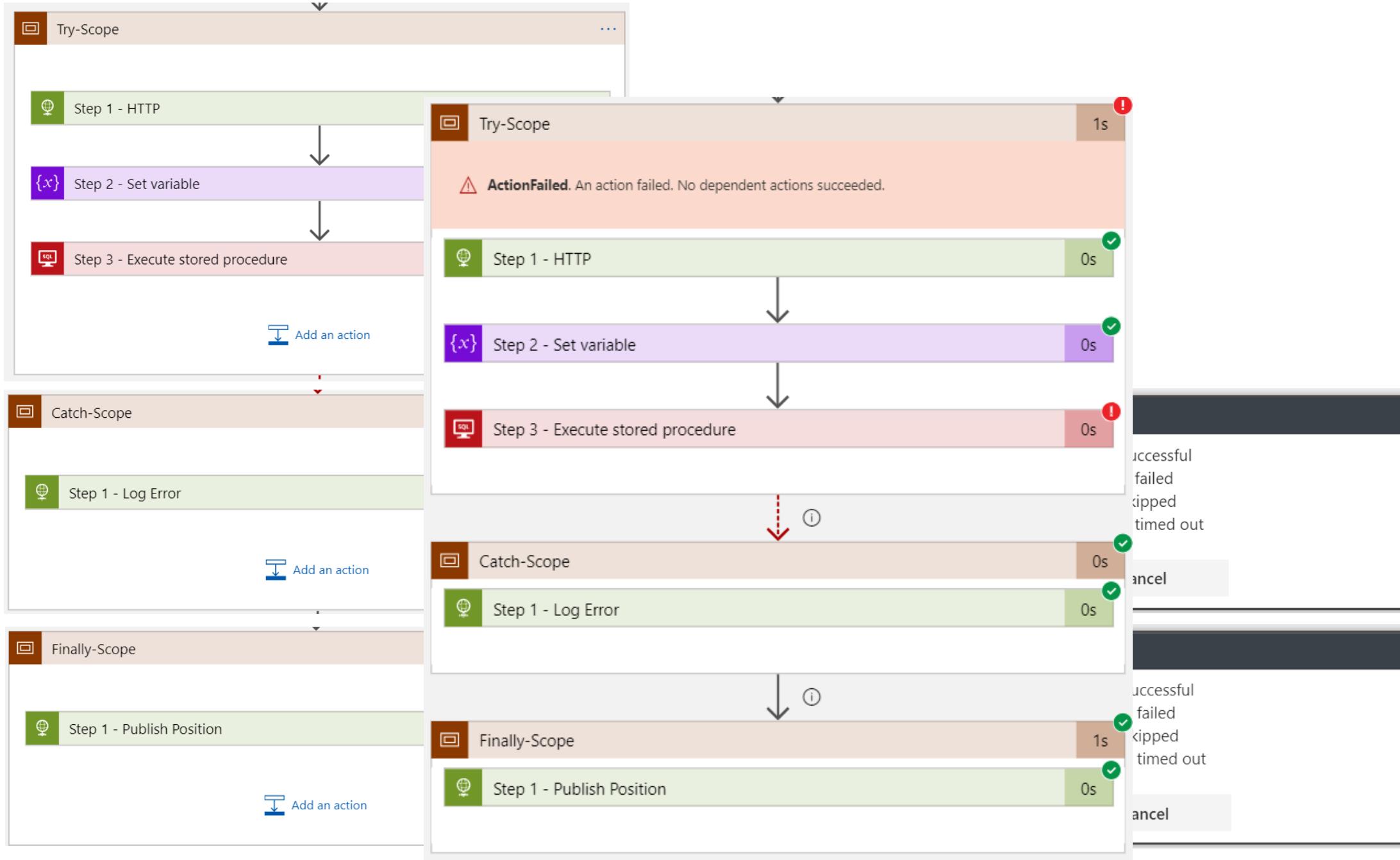
Jobs + Tasks

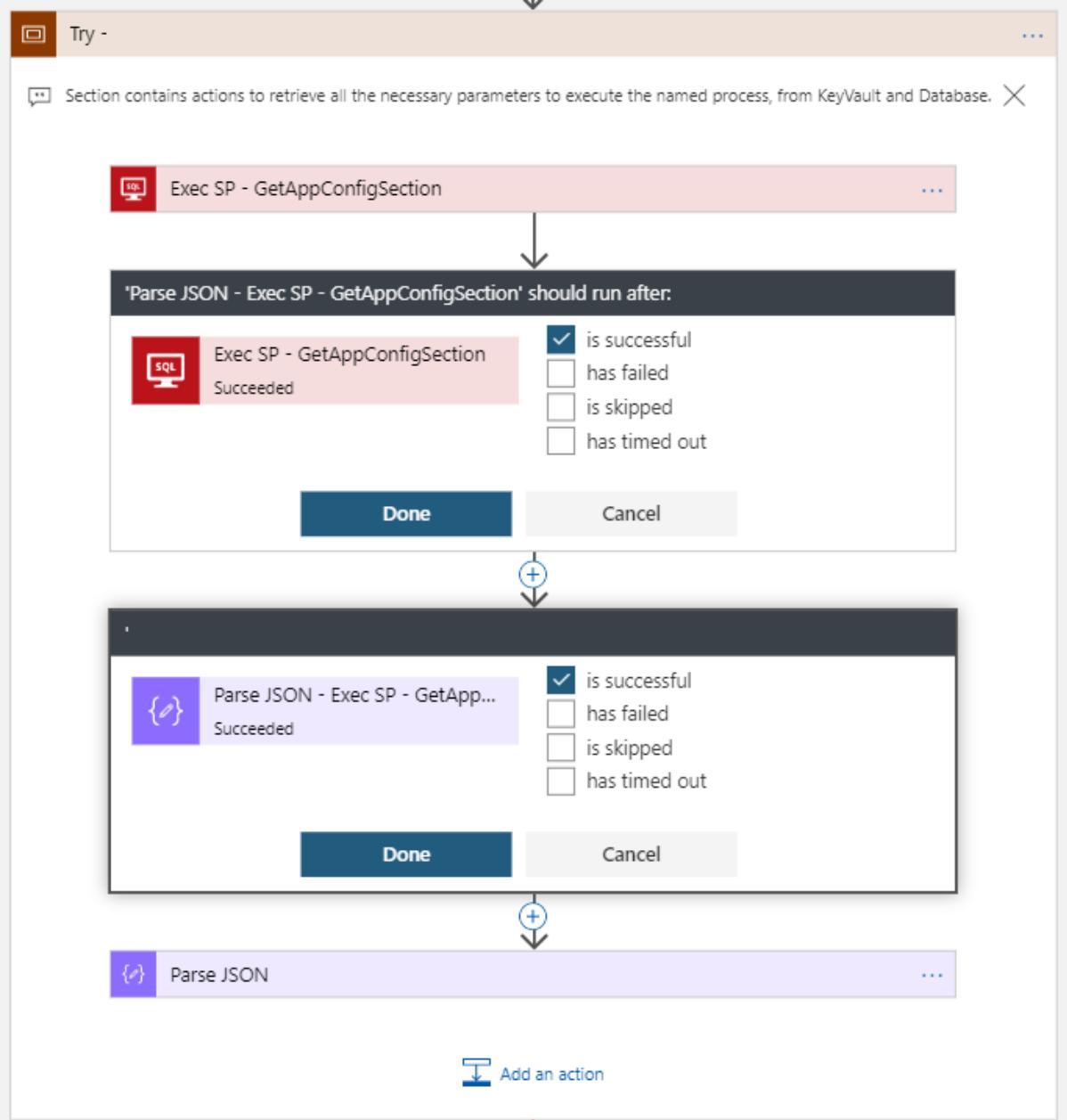
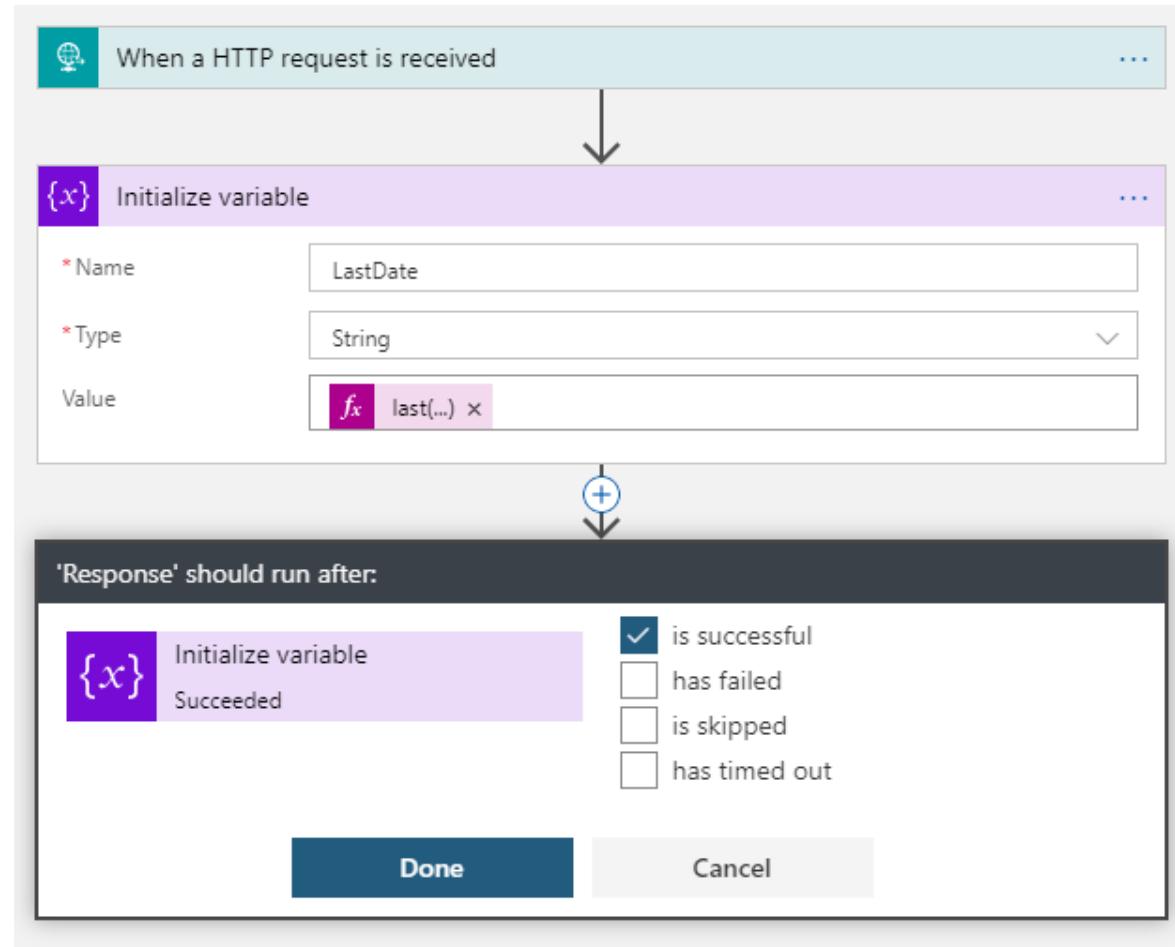
error handling...

configure run after settings

Power Automate default response to errors from connectors is pretty simple – exit the workflow with failure right there - but it also allows you to have the:

- The ability to set action(s) after a failure
- Or define retry policies





Create file

* Folder Path: /Demo/PowerApps

* File Name: Attachments N... x

* File Content: Attachments C... x

Add an action

+ New step Save

...

- Copy to my clipboard (Preview)
- Rename
- Add a comment
- Static result (Preview)
- Settings
- Configure run after
- Peek code

Timeout
Limit the maximum duration an asynchronous pattern may take. Note: this does not alter the request timeout of a single request.

Duration Example: P1D

Retry Policy
A retry policy applies to intermittent failures, characterized as HTTP status codes 408, 429, and 5xx, in addition to any connectivity exceptions. The default is an exponential interval policy set to retry 4 times.

Type Default

Specify interval in ISO 8601 format.

Examples:

- "PT20S" -- parses as "20 seconds"
- "PT15M" -- parses as "15 minutes" (where a minute is 60 seconds)
- "PT10H" -- parses as "10 hours" (where an hour is 3600 seconds)
- "P2D" -- parses as "2 days" (where a day is 24 hours or 86400 seconds)
- "P2DT3H4M" -- parses as "2 days, 3 hours and 4 minutes"

Retry Policy

A retry policy applies to intermittent failures, characterized as HTTP status codes 408, 429, and 5xx, in addition to any connectivity exceptions. The default is an exponential interval policy set to retry 4 times.

Type	Fixed Interval
* Count	6
* Interval	PT20S

Learn from failures...

You should analyze the run history from time to time and learn from failures... or mistakes

- Flow failure is **critical!**
- If it is failing due to expected behavior, then you must redesign your flow, so it doesn't end up in a failure status

8



C# developer's implement **defensive** code...

```
string connString = "";
string query = "select * from sysobjects where type='P' and name='MyStoredProcedureName'";
bool spExists = false;
using (SqlConnection conn = new SqlConnection(connString))
{
    conn.Open();
    using (SqlCommand command = new SqlCommand(query, conn))
    {
        using (SqlDataReader reader = command.ExecuteReader())
        {
            while (reader.Read())
            {
                spExists = true;
                break;
            }
        }
    }
}
```

... with not in Power Automate?

The screenshot illustrates a Power Automate flow with the following components:

- Run History:** Shows two recent runs. The first run (Oct 9, 01:54 PM) failed, while the second run (Sep 13, 10:39 PM) succeeded.
- Inputs:** Fields for Server name, Database name, Procedure name ([dbo].[usp_Monitor_GetErrorDetailsBZT]), and Body (JSON object: {"Flow": "8.1.17", "ID_RECORD": "AFL_8.1.17_0000000001540940_H"}).
- Outputs:** Fields for Body (JSON object: {"OutputParameters": {}, "ResultSets": {}}).
- Final Step:** A "Set ErrorDescription variable (BZT)" step, which is triggered by the failed run (indicated by a red exclamation mark). The step's body is empty: {}.

```
first(body('Exec_SP_-_GetLastExecutionTime')?['resultsets']?['Table1'])?['LastRun']  
empty(body('Exec_SP_-_GetLastExecutionTime')?['resultsets']?['Table1'])
```

Check If exists ImportConfigurations [CORE]

In here we check if the configs are properly set and available. If not, we can't process the files. -> If First record returned from SP is not empty - first(body('Exec_SP_-_GetLastExecutionTime')?['resultsets']?['Table1'])?['LastRun'] is empty

And

Or

+ Add

+ Add

If true

POST

Add an action

If false

Send email

Terminate - Missing configs [CORE]

Add an action

```
graph TD; A[Check If exists ImportConfigurations [CORE]] -- "If First record returned from SP is not empty - first(body('Exec_SP_-_GetLastExecutionTime')?['resultsets']?['Table1'])?['LastRun'] is empty" --> B{And}; B --> C{Or}; C --> D["fx first(...)" is not equal to Choose a value"]; C --> E["fx empty(...)" is equal to true"]; E --> F["+ Add"]; F --> G["+ Add"]; G --> H[If true]; H -- POST --> I[Add an action]; H --> J[If false]; J --> K[Send email]; J --> L[Terminate - Missing configs [CORE]]; L --> M[Add an action]
```



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expressions

nightmare...

Basic operations that you can use inside flow actions or conditions

- Like getting the current time, adding numbers together, manipulating strings or Parsing XML
- They are part of the engine

```
body( 'Execute_SP_-_Get_BZT_lock_error_details' )
```



Name of the actions with the space replace by underscore

{x} Set ErrorDescription variable (BZT)

Extract error details from SP - GET BZT lock error details

* Name: ErrorDescription

* Value: fx body(...)

Add dynamic content +

{x} Set NomeCentroLogistico variable (BZT)

{x} Set NomeUnidadelIndustrial variable (BZT)

Send an email BZT Notification

Dynamic content Expression

fx body('Execute_SP_-_Get_BZT_lock_error_details')

Update

String functions See more

fx concat(text_1, text_2?, ...)
Combines any number of strings together

Collection See more

fx contains(collection, value)
Returns true if a dictionary contains a key, if an array cont...

fx length(collection)
Returns the number of elements in an array or string

Logical functions See more

fx if(expression, valueIfTrue, valueIfFalse)

```
body('Execute_SP_-_Get_BZT_lock_error_details')?['ResultSets']?['Table1'][0]?['ErrorDescription']
```

```
concat(div(sub(ticks(utcNow()), ticks(item()?['Created'])), 10000000), ' segundo(s)')
```

```
int(div(add(add(int(variables('ContentClear'))), int(variables('GoodCommunicator'))),  
add(int(variables('EnjoySession'))), int(variables('MetExpectation'))),4))
```

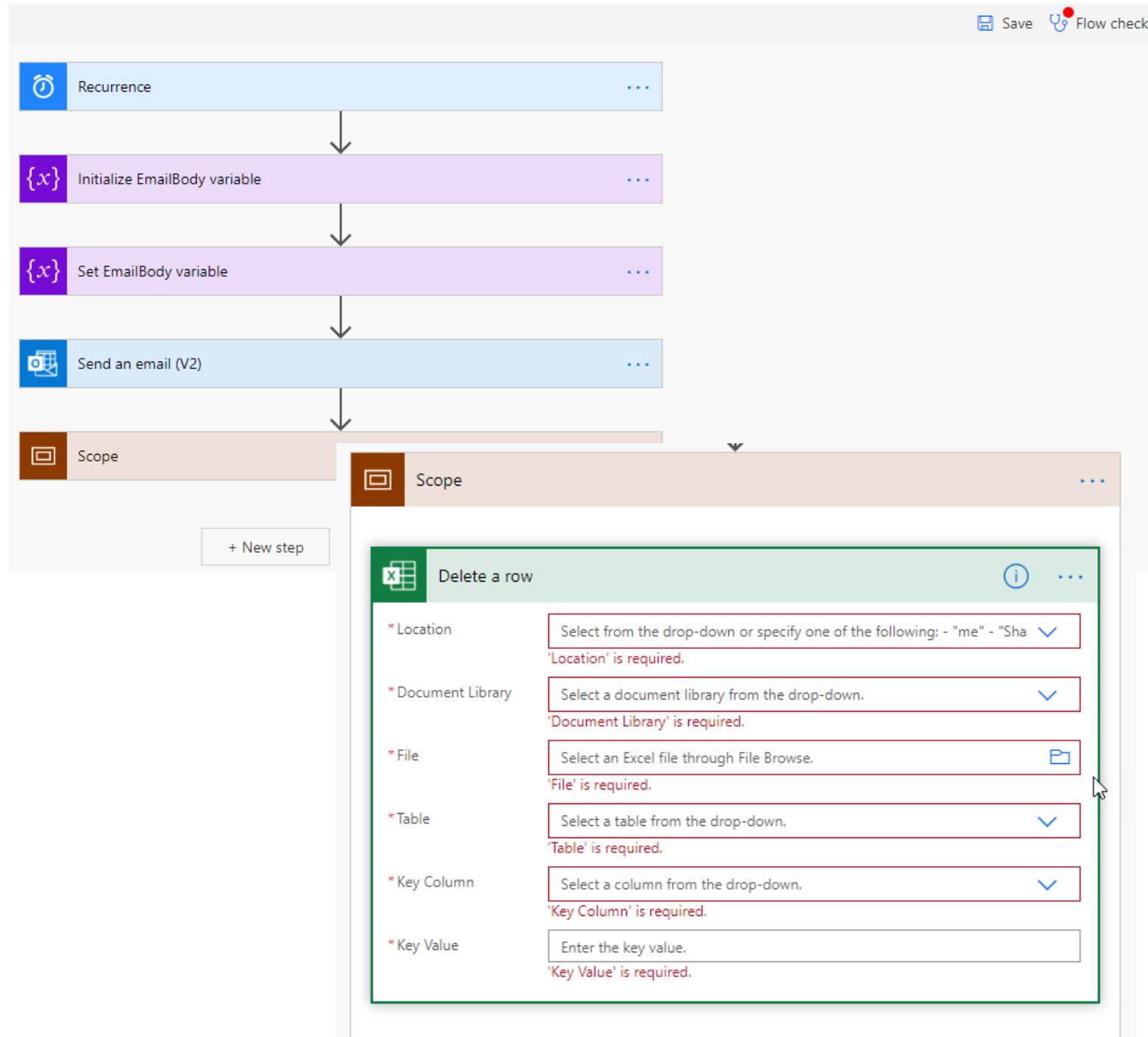
```
int(
    div(
        add(
            add(
                int(variables('ContentClear')),
                int(variables('GoodCommunicator'))
            ) ,
            add(
                int(variables('EnjoySession')),
                int(variables('MetExpectation'))
            )
        )
    ,4
)
)
```

flow checker...

Flow Designer performs design-time checks against your flow for design issues

- Prescriptive guidance on how to fix
- Errors put into focus to save your time and frustration





Flow checker

Errors (6)

Delete a row (6)

'Location' is required.

'Document Library' is required.

'File' is required.

'Table' is required.

'Key Column' is required.

'Key Value' is required.

Warnings (0)



11

send a **copy...**

Share a flow, without sharing a connection

- Avoid connection/data leakage
- Copy becomes disconnected from the original
- Efficient and effective

You are sharing the flow template

Flows

My flows Team flows Business process flows UI flows

Name	Modified
Casa Sr. José Guests	27 min ago
Recurrence -> Send an email (V2)	
Button -> Create a task.Update task details	
Button -> HTTP	
V1 - Process Event Evaluations Forms Business User ...	
Demo My Button	
Demo Email Notification	

- [Edit](#)
- [Share](#)
- [Save As](#)
- [Send a copy](#)
- [Export](#)
- [Run history](#)
- [Analytics](#)
- [Turn off](#)
- [Repair tips off](#)
- [Delete](#)
- [Details](#)

Send a copy

Flow contains one or more email addresses.
Remove any personal content from flow before sending copy.

Title *

Casa Sr. José Guests

Description *

This is a copy of my AIRBNB flow template



Send to *

sandro-pereira@live.com.pt

People in your organization will be able to create a copy of this flow.
There is no way to recall this flow once copied.

Send

Cancel

Send a copy



- Last run was unsuccessful.
- Flow has been modified since last successful run.
- Flow contains one or more email addresses. Remove any personal content from flow before sending copy.

Title *

Casa Sr. José Guests

Description *

Add details here about how your flow works

Send to *

Enter names, email addresses, or user groups

People in your organization will be able to create a copy of this flow.

There is no way to recall this flow once copied.

Send

Cancel

Share with other users or security groups...

Share a flow between your team or company

- Be aware of connection/data leakage
- Work as a team

You are sharing the flow process



SmartDocumentor Send Expense

Run Edit Share Save As

SmartDocumentor Send Expense Edit

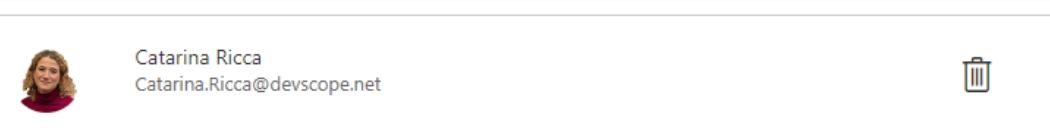
Owners

Adding another owner allows others to edit, update and delete this flow. All owners can also access the run history and add or remove other owners.

[Learn more](#)

Add a user or group as owner

Enter names, email addresses, or user groups



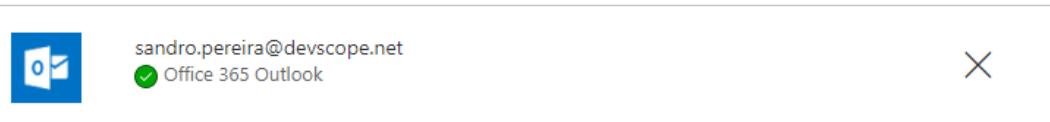
Embedded connections

Everyone listed as an owner will have access to all these connections and will only be able to use them in this flow.

[Learn more](#)

Connections in use

Connections listed are actively being used in this flow. [Manage connections](#)



Details

Flow
SmartDocumentor Send Expense

Owner
Sandro Pereira

Manage run-only permissions

Invite users or groups
Let others run this flow and see the results, but not edit in any way.

Enter names, email addresses, or user groups

Pedro Almeida
pedro.almeida@devscope.net

Currently shared with
This flow has not been shared with any users. Add a person and see their name here.

Connections Used
These connections will provide the users listed here to have run-only access to this flow. Unless providing their own connection, run-only users will not have access to these connections outside this flow.

Office 365 Outlook
Run-only users will be asked to provide their own connection to this connector.

Provided by run-only user

Connections

Office 365 Outlook Permissions
sandro.pereira@devscope.net

Owners

Sandro Pereira, Pedro Almeida

Run only users

Your flow hasn't been shared with anyone.

Edit

Edit

Edit

Save **Cancel**

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Thanks!

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Survey

<https://aka.ms/Microsoft365DevBootcampSurvey2020>



Global Microsoft 365 Developer Bootcamp