

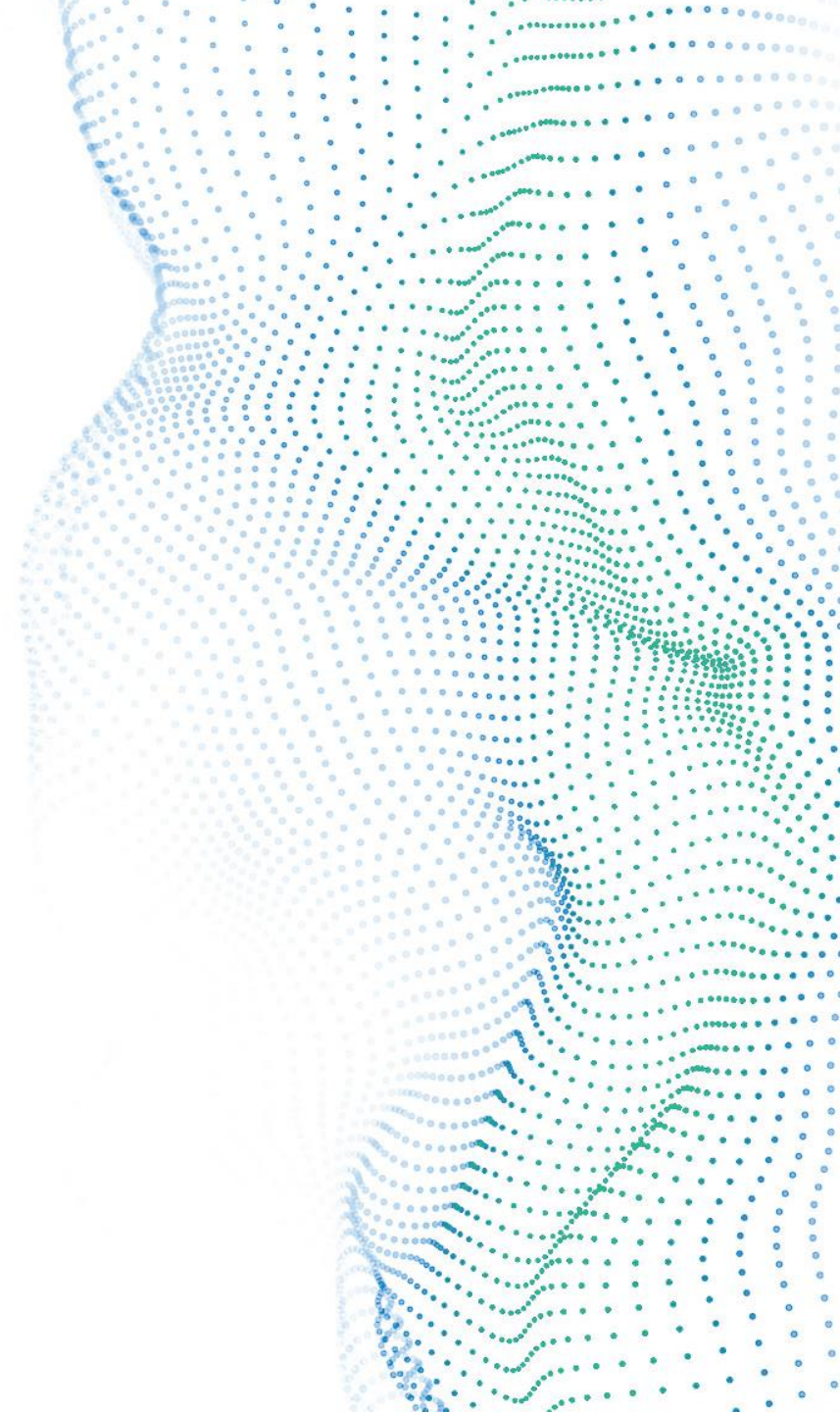


alteryx

# Iterative Macros

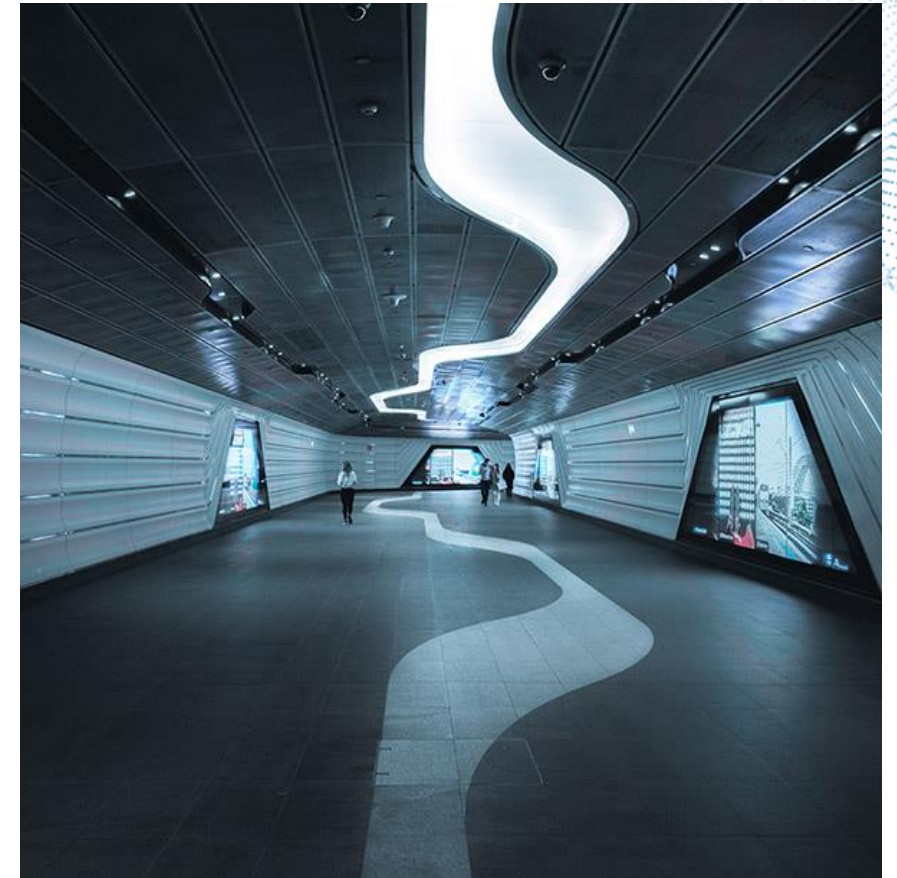
First Last | Your Job Title

January 2021



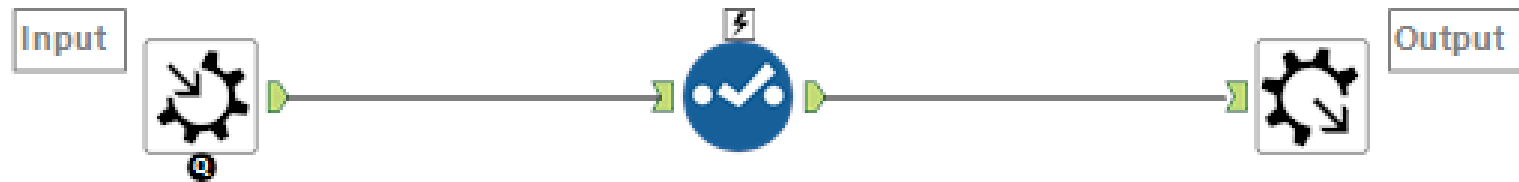
# Agenda

- 1 Macro Behavior
- 2 Iterative Macro Use Cases
- 3 Setting a Macro Type
- 4 Configuring the Interface Designer
- 5 Building an Iterative Macro



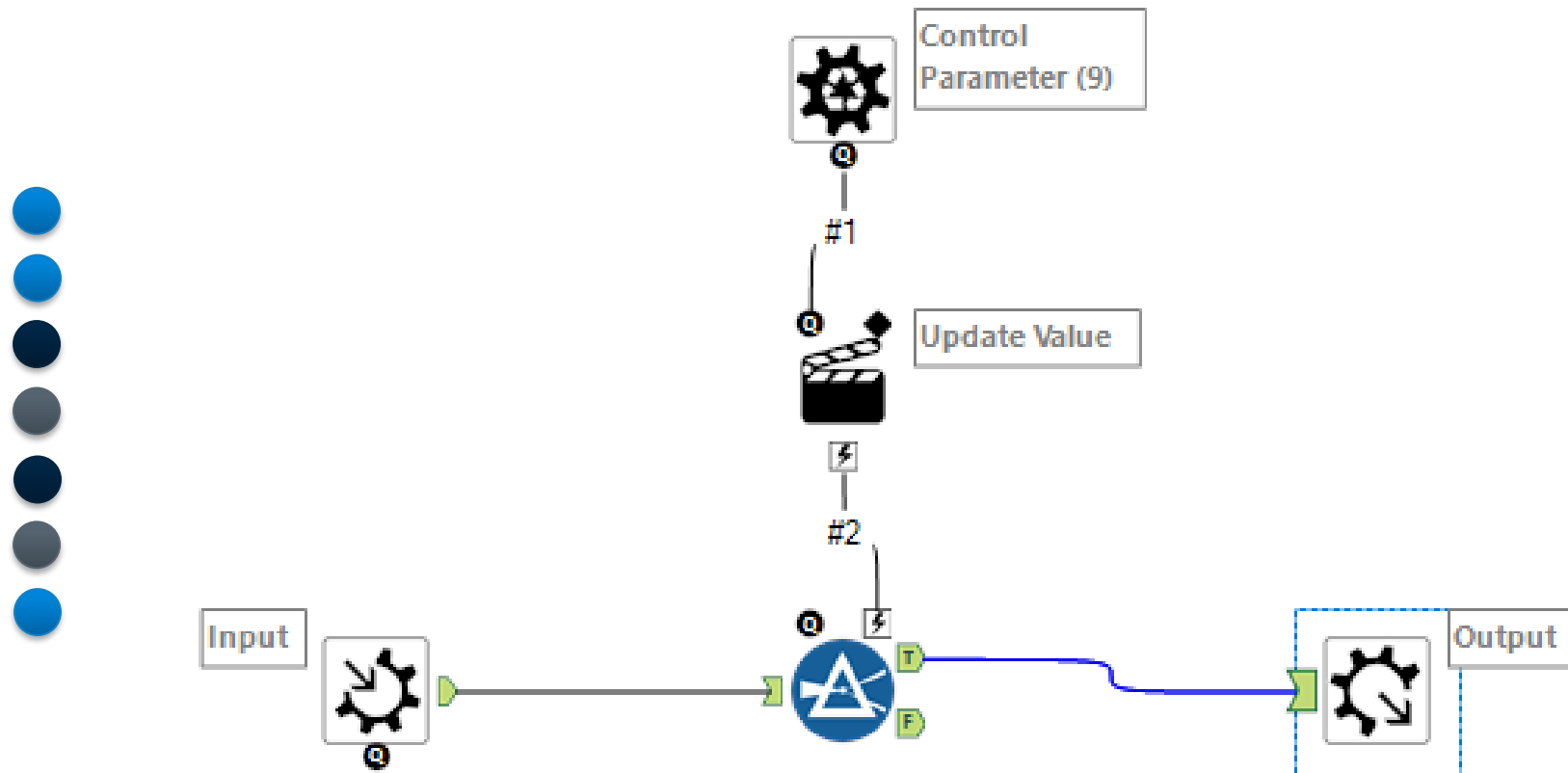
# Macro Behavior

## Standard



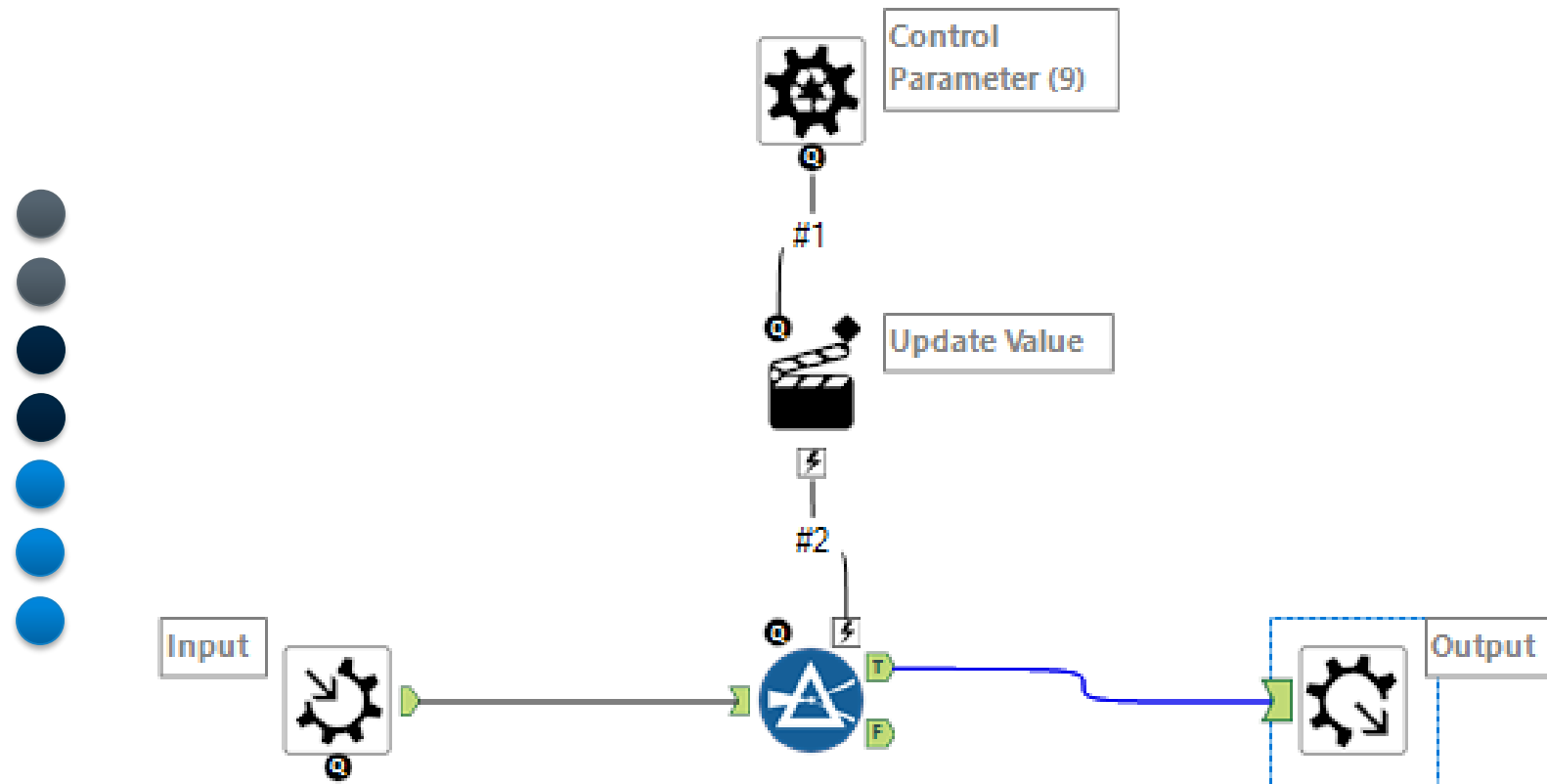
# Macro Behavior

## Batch



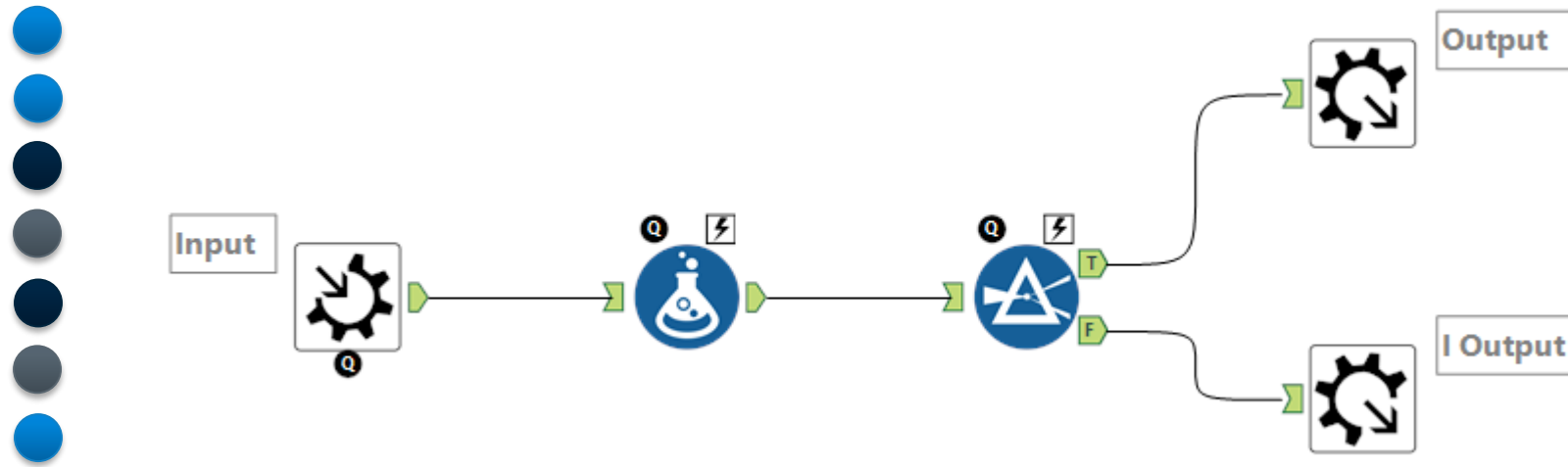
# Macro Behavior

## Batch



# Macro Behavior

## Iterative

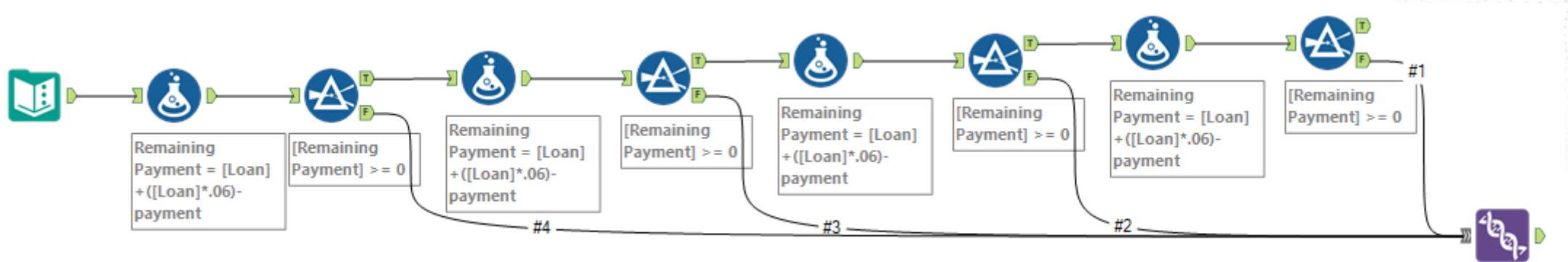


# Iterative macro types

- 1) Run by a certain iteration count
  - "Run this data through our macro 1000x"
  - "What does 100 years of our growth projection look like?"
- 2) Run until a True/False Condition is met
  - **This method is used far more frequently**
  - Typically need to keep running an iterations until an answer is discovered.



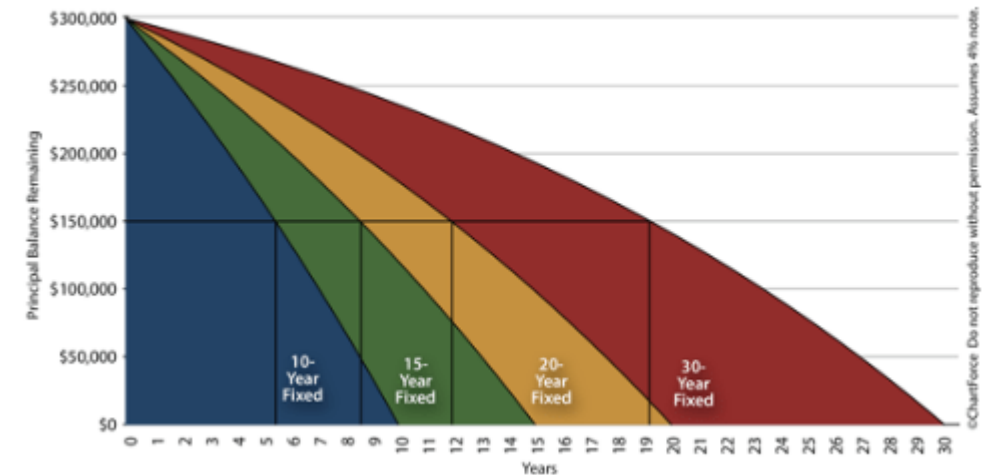
# When should I use it?



Whenever you find a repeating sub process, you may have an excellent use case for the iterative macro!

In the above workflow, amortization of loans are being calculated. The workflow calculates how many 'rounds' of payments it will take until the loans are paid off. This is an excellent example of an iterative macro, because the remaining principle must be recalculated at the end of every month. The amortization curve is not linear!

How Many Years To Payoff Half Of Your Mortgage Balance



# Setting up the Macro Type

What is an iterative macro?

- Repeating process
- Typically ends at a threshold

Iterative is the only macro that is not automatically detected

- Macro input – standard macro
- Control Parameter – batch macro

Variables for Iterative

- Iteration number = 0
- Each iteration = pervious iteration + 1

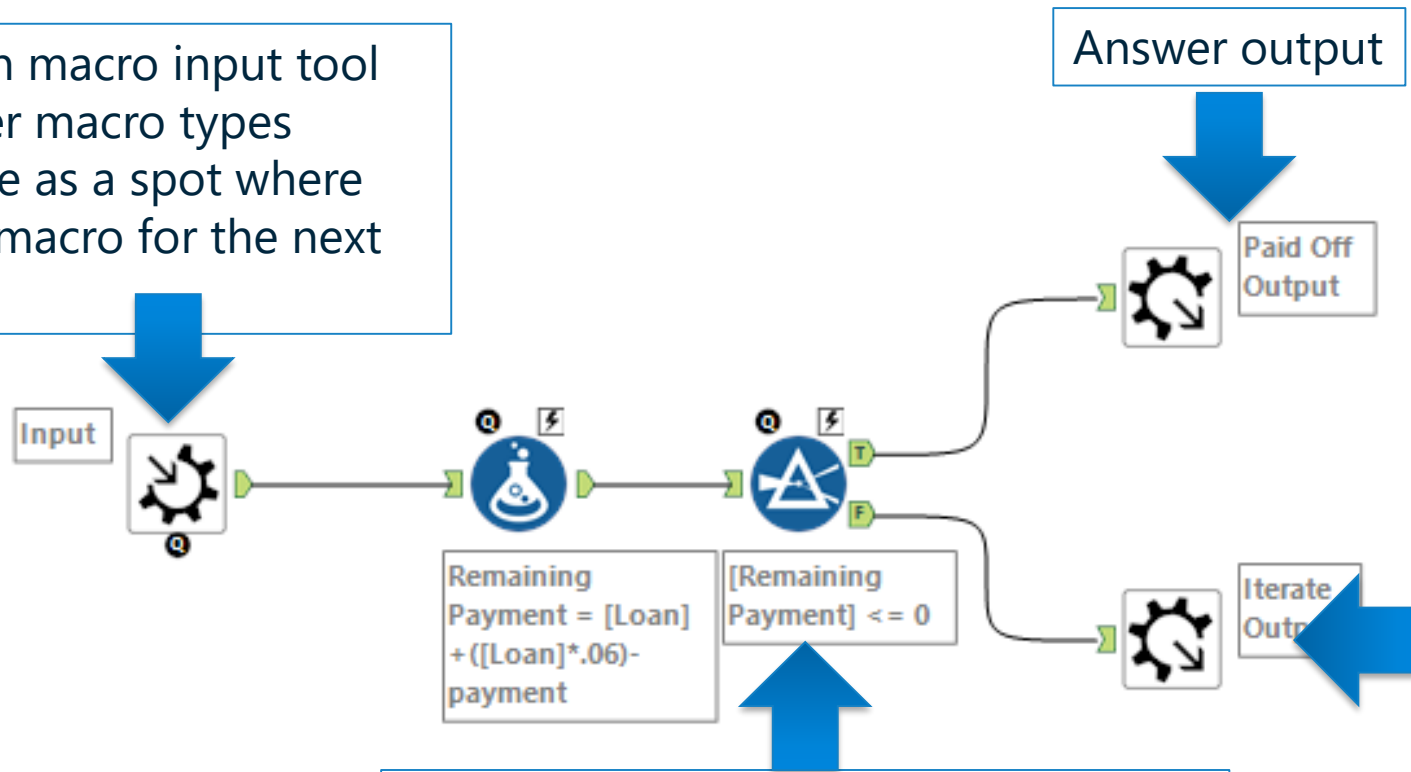
The screenshot shows the 'Workflow - Configuration' window with the 'Workflow' tab selected. The 'Path' field is set to 'C:\Macros\02 Iterative\_Supply\_Demand\_Macro.yxmc'. Under the 'Type' section, the 'Macro' radio button is selected, and the 'Iterative Macro' dropdown is visible. Below this, the 'Constants' table is displayed with the following data:

	Type	Name	Value	#
▶	Engine	TempFilePath	C:\ProgramData\Alteryx\Engine	<input type="checkbox"/>
	Engine	Version	2020.4.5.12471	<input type="checkbox"/>
	Engine	WorkflowDirectory	C:\Macros	<input type="checkbox"/>
	Engine	WorkflowFileName	02 Iterative_Supply_Demand_Macro.yxmc	<input type="checkbox"/>
	Engine	GuiInteraction	True	<input type="checkbox"/>
	Engine	IterationNumber	0	<input checked="" type="checkbox"/>

# Iterative macro key points

Always requires an macro input tool

- Unlike the other macro types
- Inputs will serve as a spot where data re-enters macro for the next iteration



A true/false condition

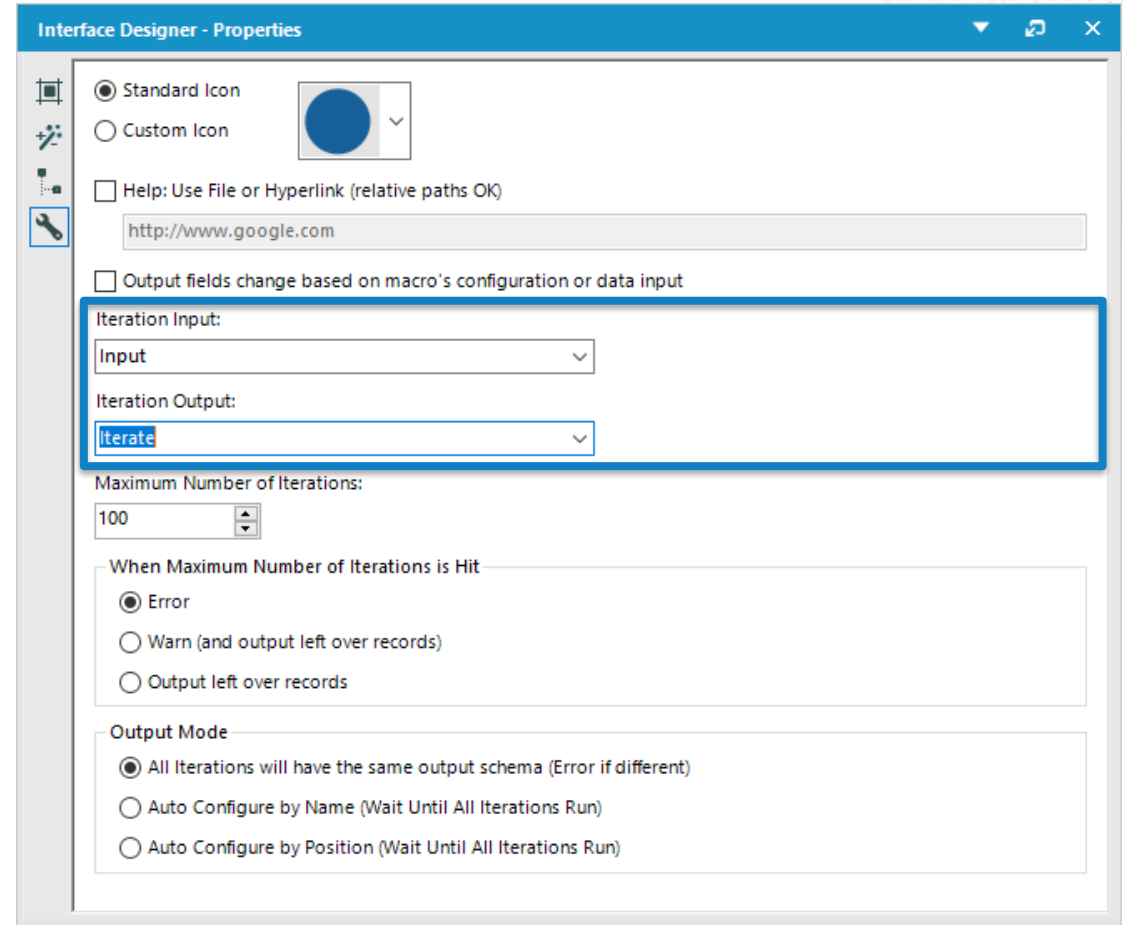
- Not always required, but certainly the easiest way to get started

Iterative Output  
- Records using this macro output will return back to the macro input for another iteration.

# Interface tool - properties

Time to assign what input/output goes where!

- Select the iteration input
- Select the iteration output
- PRO TIP: Name your inputs and outputs to make this process simpler
  - Choosing between Output17 and Output32 is not helpful



# Iterative Loop Input

Input Data (6) - Configuration

Template Input (For Test as a Standard Workflow)

☒ Text Input

Edit Data... [1 Row & 1 Column]

☐ File Input

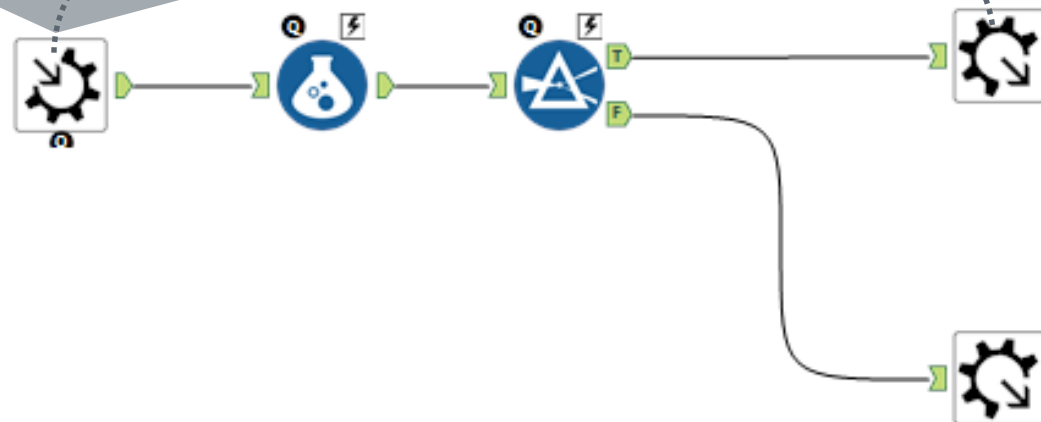
Configure...

Input Name:  
Iteration

Anchor Abbreviation:  
I

☒ Show Field Map

☐ Optional Incoming Connection



Interface Designer - Properties

☒ Standard Icon

☐ Custom Icon

☐ Help: Use File or Hyperlink (relative paths OK)

☐ Output fields change based on macro's configuration or data input

Iteration Input:  
Iteration

Iteration Output:  
Less than

Maximum Number of Iterations:  
10000000

When Maximum Number of Iterations is Hit

☐ Error

☒ Warn (and output left over records)

☐ Output left over records

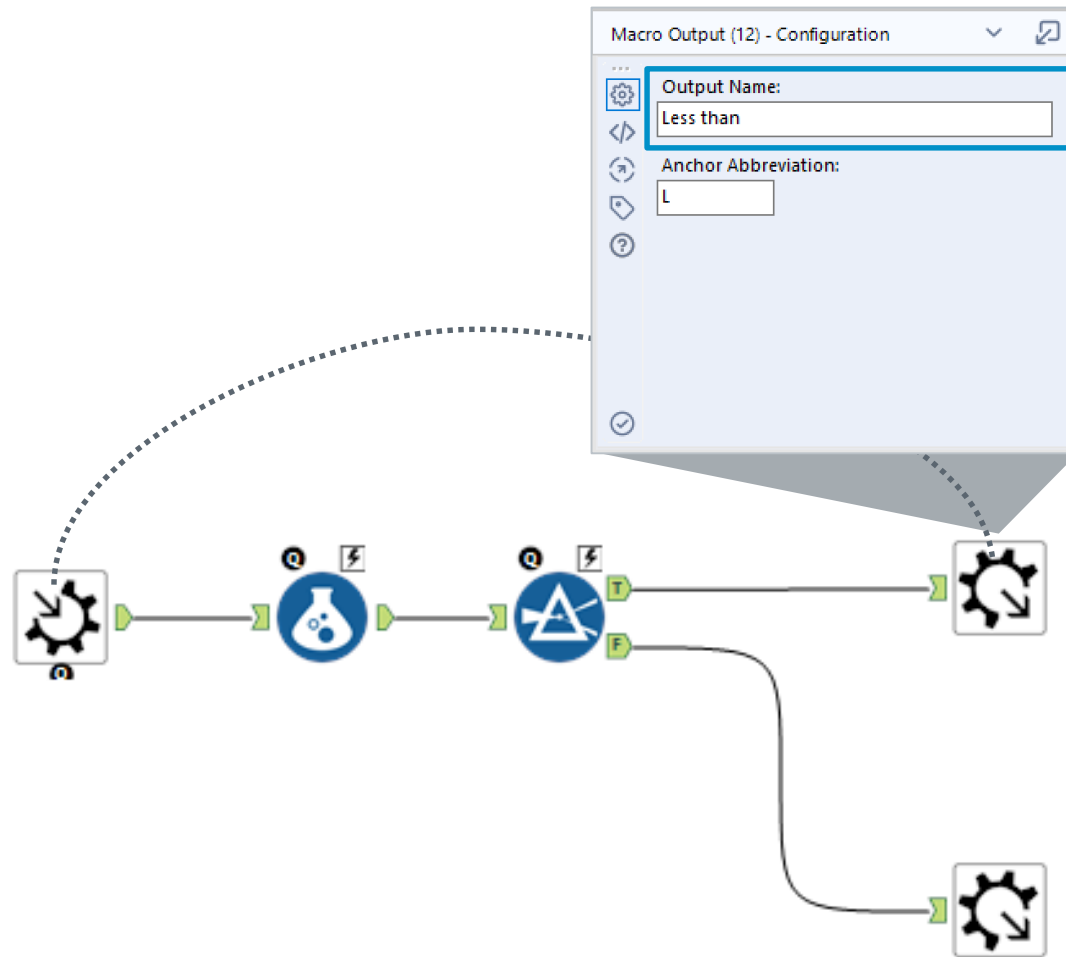
Output Mode

☒ All Iterations will have the same output schema (Error if different)


☐ Auto Configure by Name (Wait Until All Iterations Run)

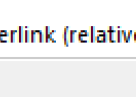
☐ Auto Configure by Position (Wait Until All Iterations Run)

# Iterative Loop Output



Interface Designer - Properties

☒ Standard Icon 

☐ Custom Icon 

☐ Help: Use File or Hyperlink (relative paths OK)

☐ Output fields change based on macro's configuration or data input

Iteration Input:

Iteration Output:

Maximum Number of Iterations:

When Maximum Number of Iterations is Hit

☐ Error

☒ Warn (and output left over records)

☐ Output left over records

Output Mode

☒ All Iterations will have the same output schema (Error if different)

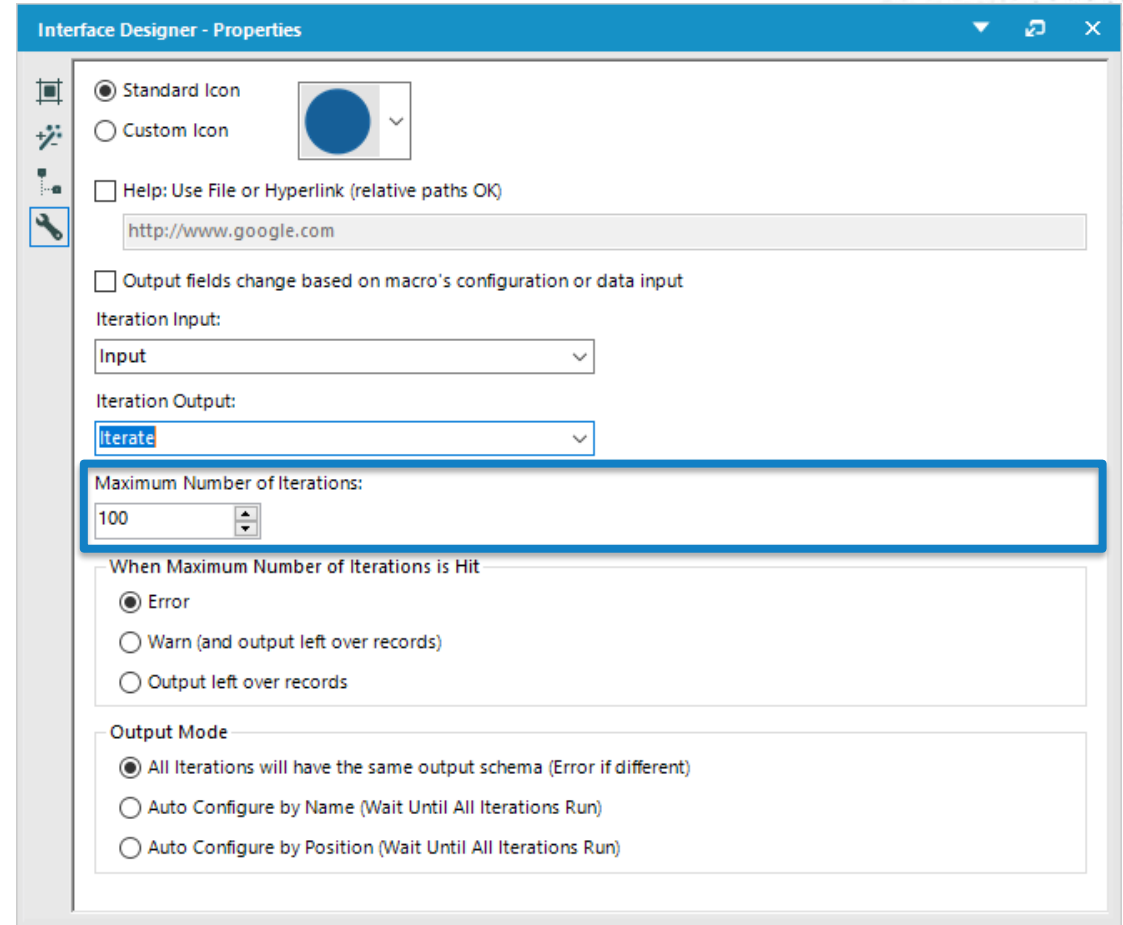
☐ Auto Configure by Name (Wait Until All Iterations Run)

☐ Auto Configure by Position (Wait Until All Iterations Run)

# Interface End - properties

## Maximum Iterations:

- Is there a maximum number of times you want the macro to run?
- If these limit hits, there are a few options...



The screenshot shows the 'Interface Designer - Properties' window. The 'Standard Icon' is selected. The 'Help: Use File or Hyperlink (relative paths OK)' checkbox is unchecked, and the text field contains 'http://www.google.com'. The 'Output fields change based on macro's configuration or data input' checkbox is unchecked. The 'Iteration Input' dropdown is set to 'Input'. The 'Iteration Output' dropdown is set to 'Iterate'. The 'Maximum Number of Iterations' is set to 100. The 'When Maximum Number of Iterations is Hit' section has 'Error' selected. The 'Output Mode' section has 'All Iterations will have the same output schema (Error if different)' selected.

Interface Designer - Properties

☒ Standard Icon ☐ Custom Icon

☐ Help: Use File or Hyperlink (relative paths OK)

☐ Output fields change based on macro's configuration or data input

Iteration Input:

Input

Iteration Output:

Iterate

Maximum Number of Iterations:

100

When Maximum Number of Iterations is Hit

☒ Error

☐ Warn (and output left over records)

☐ Output left over records

Output Mode

☒ All Iterations will have the same output schema (Error if different)

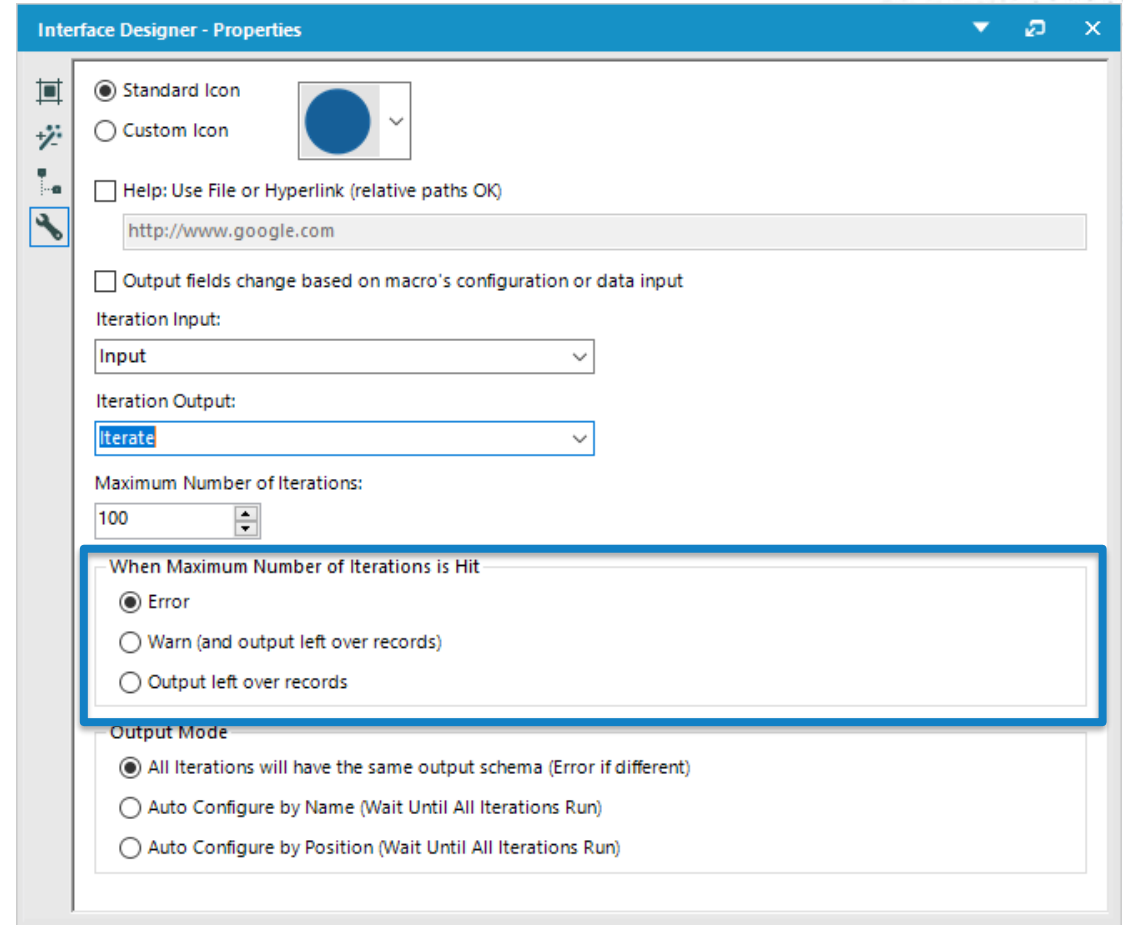
☐ Auto Configure by Name (Wait Until All Iterations Run)

☐ Auto Configure by Position (Wait Until All Iterations Run)

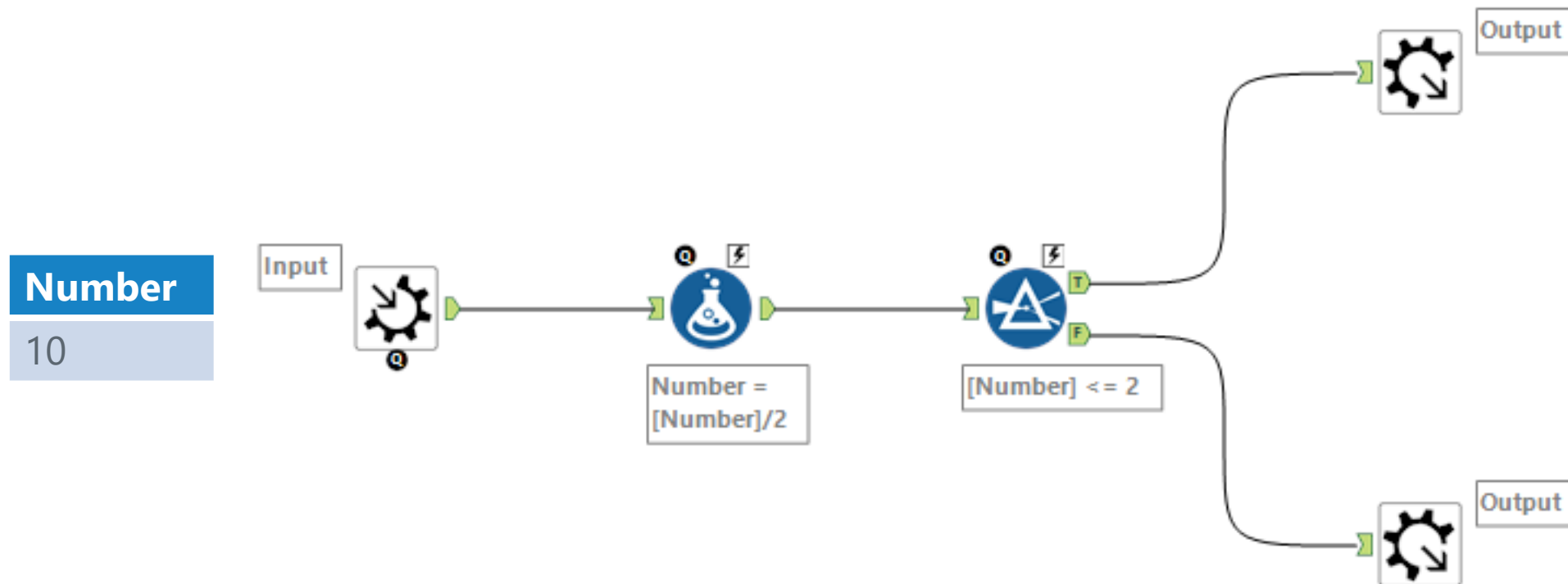
# Interface End - properties

In this case, you can choose to do a few things when 100 iterations are run:

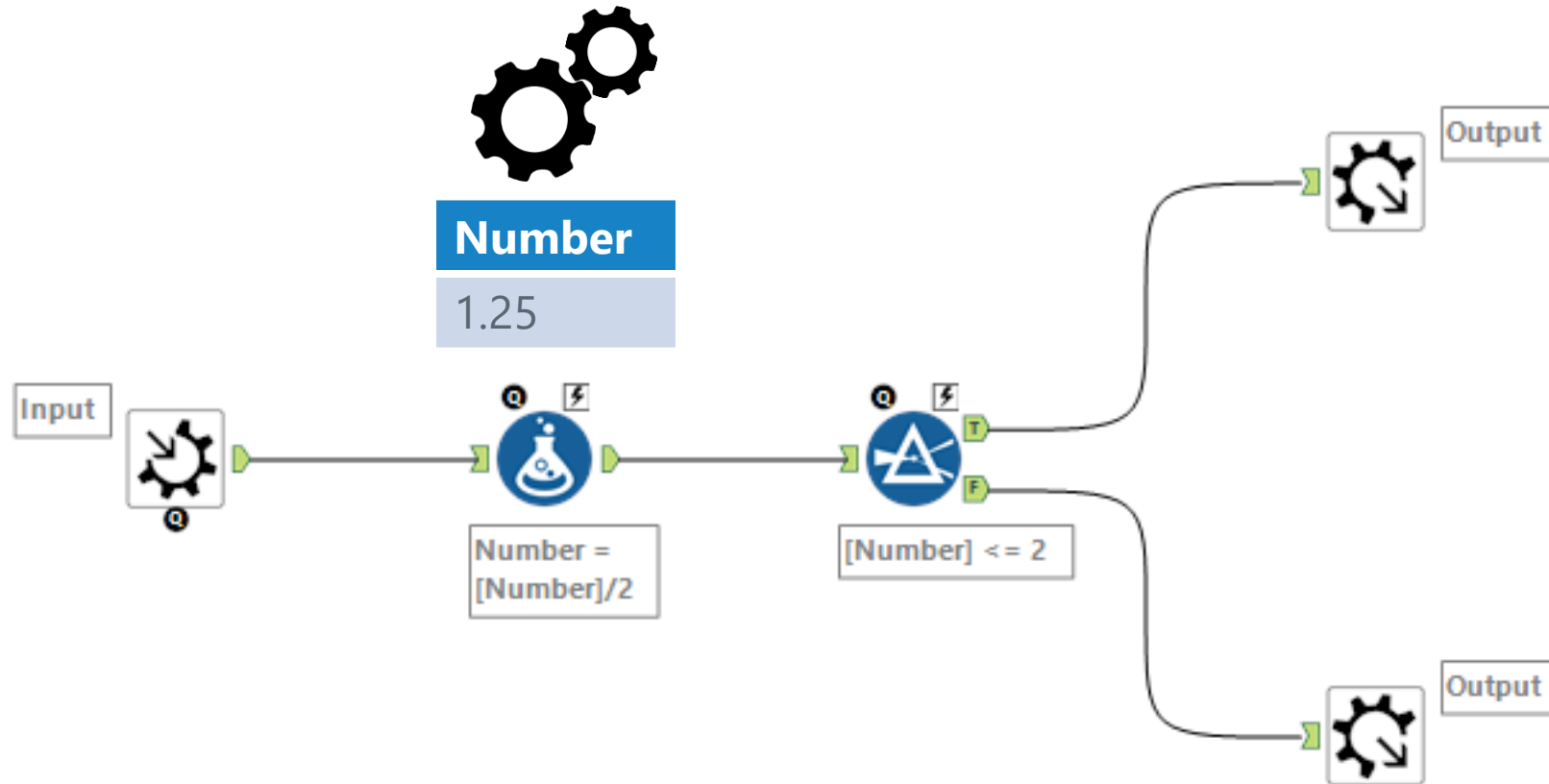
- 1) Fail the macro saying all data was not able to exit the macro before 100 iterations
- 2) Let the macro complete the warning and pass the remaining rows out the Iteration Output
- 3) Output records out iteration output without warning



# Visualizing iterative macros



# Visualizing iterative macros



# Use Case: Flight Legs

# Support Resources

# Support Resources

1

## ALTERYX COMMUNITY

Post your questions, search discussion forums, read Knowledge Base articles and contribute your knowledge at [community.alteryx.com](https://community.alteryx.com).

2

## ALTERYX ACADEMY

Complete interactive lessons, participate in the Weekly Challenge and learn about product certification at [academy.alteryx.com](https://academy.alteryx.com).

3

## TECHNICAL SUPPORT

The Alteryx Global Customer Support Team is available to provide Customers with Support assistance and guidance on various issues and questions regarding supported versions of Alteryx Products.

<https://community.alteryx.com/t5/Support/bd-p/SupportPage>



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Thank you

First Last | Your Job Title

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