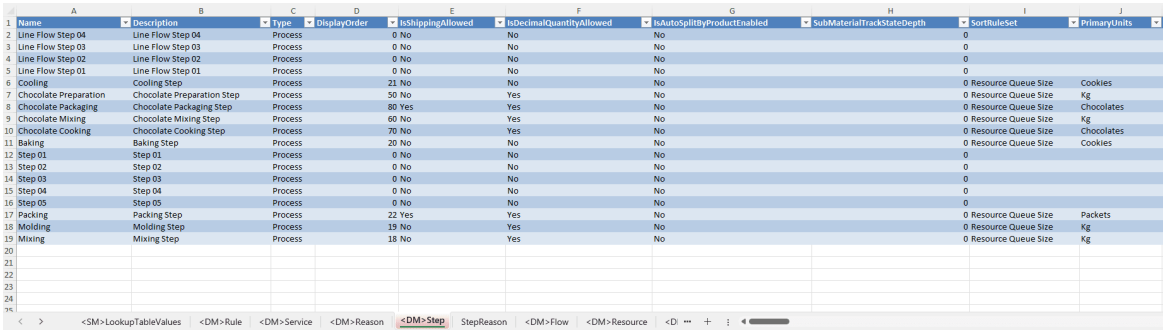
Creating a Master Data Model

Estimated time to read: 2 minutes

This tutorial provides step-by-step guidance for filling in an Excel template to import all the necessary data required to create a **Flow** in your MES system.

Creating Steps

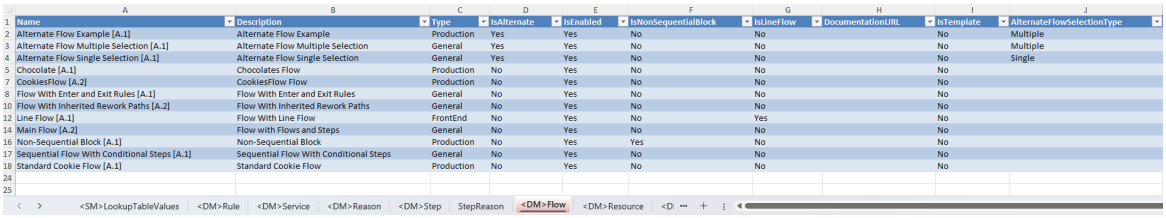
Begin by filling in the information for the Steps you need to create. Each Step must be linked to a Service through the ServiceContext smart table. For more information, see How to: Associate a Step to a Service.



Name	Description	Type	DisplayOrder	IsShippingAllowed	IsDecimalQuantityAllowed	IsAutoSplitByProductEnabled	SubMaterialTrackStateDepth	SortRuleSet	PrimaryUnits
Line Flow Step 04	Line Flow Step 04	Process	0	No	No	No		0	
Line Flow Step 03	Line Flow Step 03	Process	0	No	No	No		0	
Line Flow Step 02	Line Flow Step 02	Process	0	No	No	No		0	
Line Flow Step 01	Line Flow Step 01	Process	0	No	No	No		0	
Cooling	Cooling Step	Process	21	No	No	No		0 Resource Queue Size	Cookies
Chocolate Preparation	Chocolate Preparation Step	Process	50	No	Yes	No		0 Resource Queue Size	Kg
Chocolate Packaging	Chocolate Packaging Step	Process	80	Yes	Yes	No		0 Resource Queue Size	Chocolates
Chocolate Mixing	Chocolate Mixing Step	Process	60	No	Yes	No		0 Resource Queue Size	Kg
Chocolate Cooking	Chocolate Cooking Step	Process	70	No	Yes	No		0 Resource Queue Size	Chocolates
Baking	Baking Step	Process	20	No	No	No		0 Resource Queue Size	Cookies
Step 01	Step 01	Process	0	No	No	No		0	
Step 02	Step 02	Process	0	No	No	No		0	
Step 03	Step 03	Process	0	No	No	No		0	
Step 04	Step 04	Process	0	No	No	No		0	
Step 05	Step 05	Process	0	No	No	No		0	
Packing	Packing Step	Process	22	Yes	Yes	No		0 Resource Queue Size	Packets
Molding	Molding Step	Process	19	No	Yes	No		0 Resource Queue Size	Kg
Mixing	Mixing Step	Process	18	No	Yes	No		0 Resource Queue Size	Kg

Creating Flows

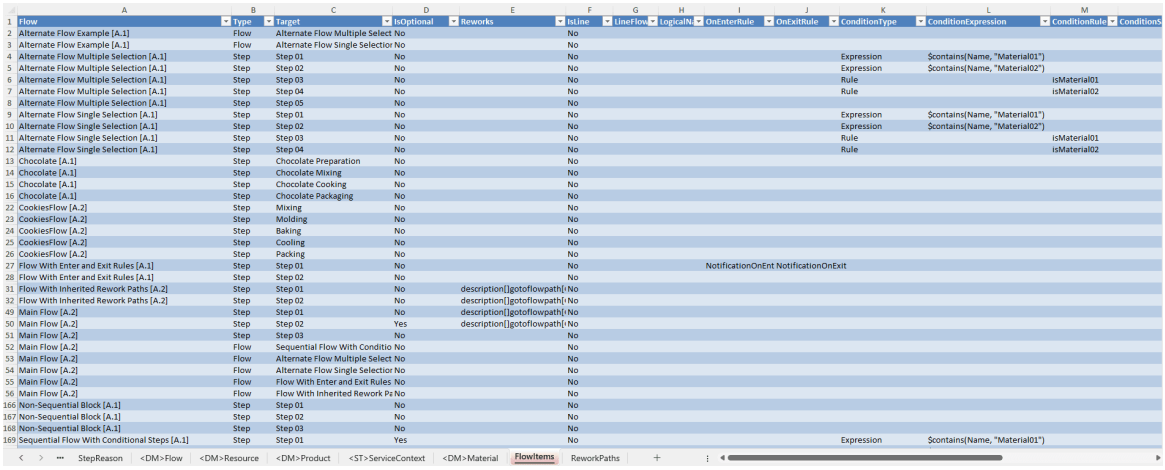
Next, proceed to create the Flows using the information you've gathered. Begin by defining the Child Flows, which you will later integrate into the Parent Flow. Determine the type of Flow to use, whether it's an Alternate Flow with single or multiple selection, a Non-Sequential Flow, or a Line Flow.



Name	Description	Type	IsAlternate	IsEnabled	IsNonSequentialBlock	IsLineFlow	DocumentationURL	IsTemplate	AlternateFlowSelectionType
Alternate Flow Example [A.1]	Alternate Flow Example	Production	Yes	Yes	No	No		No	Multiple
Alternate Flow Multiple Selection [A.1]	Alternate Flow Multiple Selection	General	Yes	Yes	No	No		No	Multiple
Alternate Flow Single Selection [A.1]	Alternate Flow Single Selection	General	Yes	Yes	No	No		No	Single
Chocolate [A.1]	Chocolates Flow	Production	No	Yes	No	No		No	
CookiesFlow [A.2]	CookiesFlow Flow	Production	No	Yes	No	No		No	
Flow With Enter and Exit Rules [A.1]	Flow With Enter and Exit Rules	General	No	Yes	No	No		No	
Flow With Inherited Rework Paths [A.2]	Flow With Inherited Rework Paths	General	No	Yes	No	No		No	
Line Flow [A.1]	Flow With Line Flow	FrontEnd	No	Yes	No	Yes		No	
Main Flow [A.2]	Flow with Flows and Steps	General	No	Yes	No	No		No	
Non-Sequential Block [A.1]	Non-Sequential Block	Production	No	Yes	Yes	No		No	
Sequential Flow With Conditional Steps [A.1]	Sequential Flow With Conditional Steps	General	No	Yes	No	No		No	
Standard Cookie Flow [A.1]	Standard Cookie Flow	Production	No	Yes	No	No		No	

Flow Structure

To define the Flow structure, go to the Flow Items sheet. There, you can set various attributes such as whether a Flow Item is optional, define Rework Paths, and set Rules for entering or exiting a Step. You can also define conditions based on expressions, rules, sampling steps, or sampling plans.



Flow	Type	Target	IsOptional	Reworks	IsLine	LineFlow	LogicalN	OnEnterRule	OnExitRule	ConditionType	ConditionExpression	ConditionRule	ConditionS
Alternate Flow Example [A.1]	Flow	Alternate Flow Multiple Select	No		No								
Alternate Flow Example [A.1]	Flow	Alternate Flow Single Selectior	No		No								
Alternate Flow Multiple Selection [A.1]	Step	Step 01	No		No					Expression	$contains(Name, "Material01")		
Alternate Flow Multiple Selection [A.1]	Step	Step 02	No		No					Expression	$contains(Name, "Material02")		
Alternate Flow Multiple Selection [A.1]	Step	Step 03	No		No					Rule		isMaterial01	
Alternate Flow Multiple Selection [A.1]	Step	Step 04	No		No					Rule		isMaterial02	
Alternate Flow Multiple Selection [A.1]	Step	Step 05	No		No								
Alternate Flow Single Selection [A.1]	Step	Step 01	No		No					Expression	$contains(Name, "Material01")		
Alternate Flow Single Selection [A.1]	Step	Step 02	No		No					Expression	$contains(Name, "Material02")		
Alternate Flow Single Selection [A.1]	Step	Step 03	No		No					Rule		isMaterial01	
Alternate Flow Single Selection [A.1]	Step	Step 04	No		No					Rule		isMaterial02	
Chocolate [A.1]	Step	Chocolate Preparation	No		No								
Chocolate [A.1]	Step	Chocolate Mixing	No		No								
Chocolate [A.1]	Step	Chocolate Cooking	No		No								
Chocolate [A.1]	Step	Chocolate Packaging	No		No								
CookiesFlow [A.2]	Step	Mixing	No		No								
CookiesFlow [A.2]	Step	Molding	No		No								
CookiesFlow [A.2]	Step	Baking	No		No								
CookiesFlow [A.2]	Step	Cooling	No		No								
CookiesFlow [A.2]	Step	Packing	No		No								
Flow With Enter and Exit Rules [A.1]	Step	Step 01	No		No			NotificationOnEnt	NotificationOnExit				
Flow With Enter and Exit Rules [A.1]	Step	Step 02	No		No								
Flow With Inherited Rework Paths [A.2]	Step	Step 01	No	description[]gotoflowpath[	No								
Flow With Inherited Rework Paths [A.2]	Step	Step 02	No	description[]gotoflowpath[	No								
Main Flow [A.2]	Step	Step 01	No	description[]gotoflowpath[	No								
Main Flow [A.2]	Step	Step 02	Yes	description[]gotoflowpath[	No								
Main Flow [A.2]	Step	Step 03	No		No								
Main Flow [A.2]	Flow	Sequential Flow With Conditio	No		No								
Main Flow [A.2]	Flow	Alternate Flow Multiple Select	No		No								
Main Flow [A.2]	Flow	Alternate Flow Single Selectior	No		No								
Main Flow [A.2]	Flow	Flow With Enter and Exit Rules	No		No								
Main Flow [A.2]	Flow	Flow With Inherited Rework Pa	No		No								
Non-Sequential Block [A.1]	Step	Step 01	No		No								
Non-Sequential Block [A.1]	Step	Step 02	No		No								
Non-Sequential Block [A.1]	Step	Step 03	No		No								
Sequential Flow With Conditional Steps [A.1]	Step	Step 01	Yes		No					Expression	$contains(Name, "Material01")		

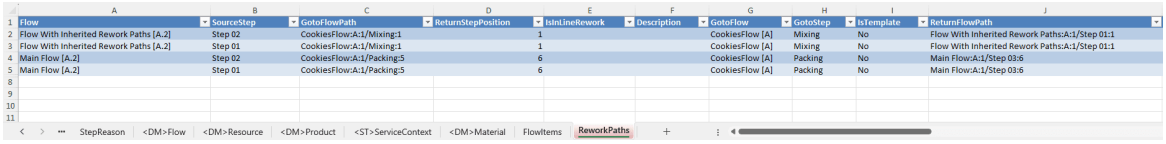
StepReason | <DM>Flow | <DM>Resource | <DM>Product | <ST>ServiceContext | <DM>Material | FlowItems | ReworkPaths

Info

The correct syntax for the Reworks column in the Flow Items sheet is demonstrated below: description[]gotoflowpath[`CookiesFlow:A:1/Mixing:1`]sourceflowpath[`Flow With Inherited Rework Paths:A:1/Step 01:1`]returnflowpath[`Flow With Inherited Rework Paths:A:1/Step 01:1`]reason[`Deformed`]applicabletoprocessed[`Yes`]applicabletoqueued[`Yes`]isinlinerework[]onreworkrule[]

Rework Paths

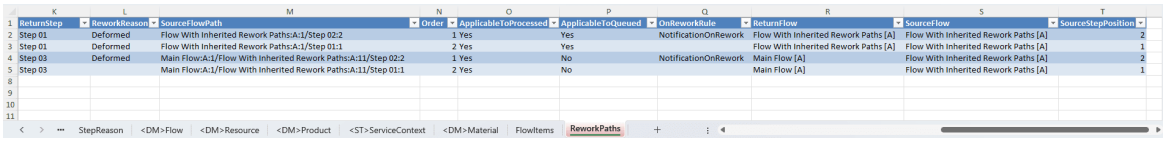
The Rework Paths sheet is where you define the reworking process. Fill in the Source Step, Go to Flow Path, Go to Flow, and Return Flow Path, as shown in the image below.



Flow	SourceStep	GotoFlowPath	ReturnStepPosition	IsInLineRework	Description	GotoFlow	GotoStep	IsTemplate	ReturnFlowPath
Flow With Inherited Rework Paths [A.2]	Step 02	CookiesFlow:A:1/Mixing:1	1			CookiesFlow [A]	Mixing	No	Flow With Inherited Rework Paths:A:1/Step 01:1
Flow With Inherited Rework Paths [A.2]	Step 01	CookiesFlow:A:1/Mixing:1	1			CookiesFlow [A]	Mixing	No	Flow With Inherited Rework Paths:A:1/Step 01:1
Main Flow [A.2]	Step 02	CookiesFlow:A:1/Packing:5	6			CookiesFlow [A]	Packing	No	Main Flow:A:1/Step 03:6
Main Flow [A.2]	Step 01	CookiesFlow:A:1/Packing:5	6			CookiesFlow [A]	Packing	No	Main Flow:A:1/Step 03:6

StepReason | <DM>Flow | <DM>Resource | <DM>Product | <ST>ServiceContext | <DM>Material | FlowItems | ReworkPaths

In addition to basic information, you can specify additional settings such as whether the Rework Path applies to Queued and Processed States, set On Rework Rules, define Return Flows, Source Flows, and more.



ReturnStep	ReworkReason	SourceFlowPath	Order	ApplicableToProcessed	ApplicableToQueued	OnReworkRule	ReturnFlow	SourceFlow	SourceStepPosition
Step 01	Deformed	Flow With Inherited Rework Paths:A:1/Step 02:2		1 Yes	Yes	NotificationOnRework	Flow With Inherited Rework Paths [A]	Flow With Inherited Rework Paths [A]	2
Step 01	Deformed	Flow With Inherited Rework Paths:A:1/Step 01:1		2 Yes	Yes		Flow With Inherited Rework Paths [A]	Flow With Inherited Rework Paths [A]	1
Step 03	Deformed	Main Flow:A:1/Flow With Inherited Rework Paths:A:11/Step 02:2		1 Yes	No	NotificationOnRework	Main Flow [A]	Flow With Inherited Rework Paths [A]	2
Step 03		Main Flow:A:1/Flow With Inherited Rework Paths:A:11/Step 01:1		2 Yes	No		Main Flow [A]	Flow With Inherited Rework Paths [A]	1

StepReason | <DM>Flow | <DM>Resource | <DM>Product | <ST>ServiceContext | <DM>Material | FlowItems | ReworkPaths

Following these steps will help ensure your Master Data Model is properly configured for your Flows. For a more comprehensive guide on setting up your Master Data Model, see Creating a Model.