

Linked Lines

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medical

Linked Lines

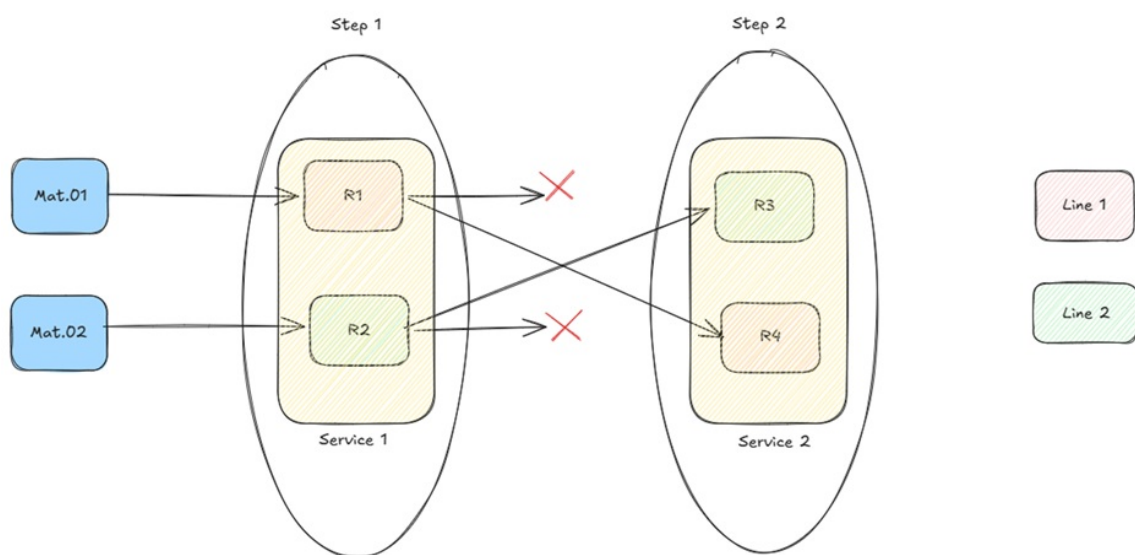
Estimated time to read: 8 minutes

Overview

The Linked Lines feature provides a logical way to associate Resources that belong to the same production line, and to prevent Materials from being dispatched to Resources on a different line once processing has begun.

Without this feature, when multiple lines share the same service at a given Step, the system allows dispatch to any eligible Resource regardless of which line the Material started on. The Linked Lines feature enforces line continuity by:

- Storing the line the Material was last processed on.
- Validating the target Resource line at Dispatch & Track-In.
- Filtering the Resource selection list to show only Resources that belong to the Material's current line.
- Handling line assignment when Materials enter or return from Rework and Off-Flow.
- Allowing operators with the appropriate permission to manually change a Material's current line.



Topics

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Concept

The feature introduces a line-tracking concept based on the following attributes:

- **MedDevResourceLine** – defined on a **Resource**, identifies which line the Resource belongs to.
- **MedDevCurrentLine** – defined on the **Material**, stores the line the Material was last processed on.
- **MedDevOriginalLine** – defined on the **Material**, temporarily stores the current line when the Material enters a Rework or Off-Flow, and is cleared when the Material returns.
- **MedDevReturnToOriginalLineOnReworkExit** – defined on a **Flow**, it will determine if the value of the Material's **MedDevCurrentLine** attribute is saved in its **MedDevOriginalLine** once it enters the Flow in the context of a Rework or Off-Flow action.
- **MedDevClearCurrentLineOnReworkEnter** – defined on a **Flow**, it will determine if the Material's **MedDevCurrentLine** attribute is cleared once it enters the Flow in the context of a Rework or Off-Flow action.

Line Assignment

A Material's line is established at Track-Out. When the Material completes processing at a Resource:

- If the Resource has a `MedDevResourceLine` value, it is stored in the Material's `MedDevCurrentLine` attribute.
- If the Resource has no `MedDevResourceLine` value, the Material's `MedDevCurrentLine` attribute is cleared.

Materials created via Partial Track-Out inherit the same line assignment logic, ensuring split Materials follow the same line as their source Resource.

Dispatch Validation

When a Dispatch or Dispatch & Track-In operation is performed, the system validates the Material's current line against the target Resource's line:

Material <code>MedDevCurrentLine</code>	Resource <code>MedDevResourceLine</code>	Result
Empty	Any	No error
Any	Empty	No error
Line 1	Line 1	No error
Line 1	Line 2	Validation error

Track-Out Behavior

At Track-Out :

- If `MedDevResourceLine` is not empty, then `MedDevCurrentLine` is updated to that value.
- If `MedDevResourceLine` is empty and `MedDevCurrentLine` is not empty, then `MedDevCurrentLine` is cleared.
- Materials created via Partial Track-Out follow the same rules and have their `MedDevCurrentLine` set accordingly.

Rework and Off-Flow Handling

When a Material is sent to a Rework or Off-Flow, the behavior is controlled by the two Flow-level attributes:

Flow Attribute	Effect when <code>true</code>
<code>MedDevClearCurrentLineOnReworkEnter</code>	Clears <code>MedDevCurrentLine</code> on entry
<code>MedDevReturnToOriginalLineOnReworkExit</code>	Stores <code>MedDevCurrentLine</code> into <code>MedDevOriginalLine</code> before any clearing

When the Material returns from Rework or Off-Flow:

- If `MedDevOriginalLine` is not empty, then `MedDevCurrentLine` is restored from `MedDevOriginalLine`, and `MedDevOriginalLine` is cleared.
- If `MedDevOriginalLine` is empty, then `MedDevCurrentLine` is cleared.

GUI Resource Filtering

When the user opens the Dispatch or Dispatch & Track-In Resource selection list:

- If the Material's `MedDevCurrentLine` is empty, no filtering takes place.
- If the Material's `MedDevCurrentLine` is not empty, only Resources with a matching `MedDevResourceLine` value and/or no `MedDevResourceLine` value at all are shown.

This filtering is implemented via the `MedDevDispatchLinkedLineResourceFilter` DEE.

Change Material Line

Operators with the appropriate permission can manually update a Material's current line directly from the Material Details, Step View, or Resource View pages.

The **Change Line** button is visible only to users who have been granted the `MedDev.ChangeLine` feature permission. When clicked, a single-Step wizard is displayed that shows the Material's current line and allows the operator to select a new line from a drop-down list populated from the `MedDevProcessLines` Lookup table.

Note

Confirming the wizard without selecting a new line is not permitted. A validation message is displayed and the operation is blocked until a valid selection is made.

Assumptions

To use the Linked Lines feature, the process should follow these assumptions:

- Resources that belong to the same line are assigned the same `MedDevResourceLine` value.
 - Resources that are shared across lines, or not part of any line, should have `MedDevResourceLine` left empty.
 - A Material with an empty `MedDevCurrentLine` is not subject to any line restriction at dispatch.
-

Scenario

Configuration

To assess how this feature is addressed, consider a simplified two-line assembly model:

Basic entities like **Step**, **Resource**, **Flow**, **Product**, and **Material** can be configured as detailed below:

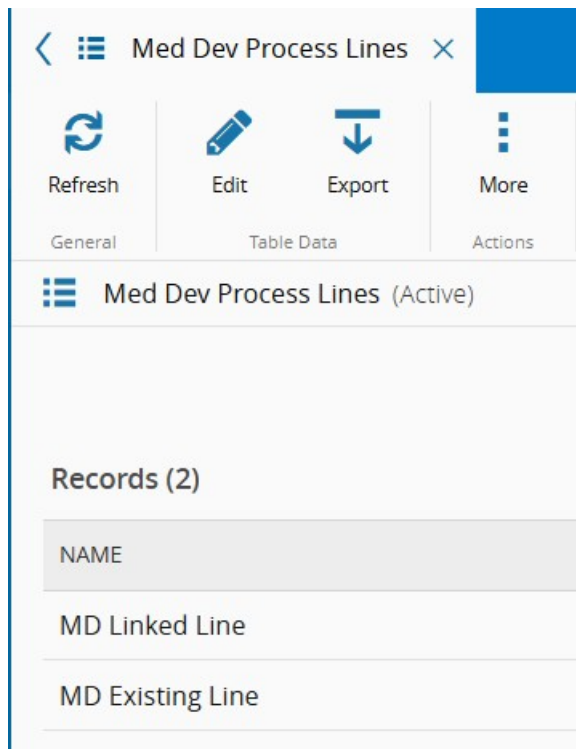
- Steps:
 - Step1
 - Step2
 - Step3
 - Step4
- Resource:
 - Resource001
 - Resource002
 - Resource003
- Flow – Flow 1
- Product – Product 1
- Material – Material001

Two parallel lines are defined:

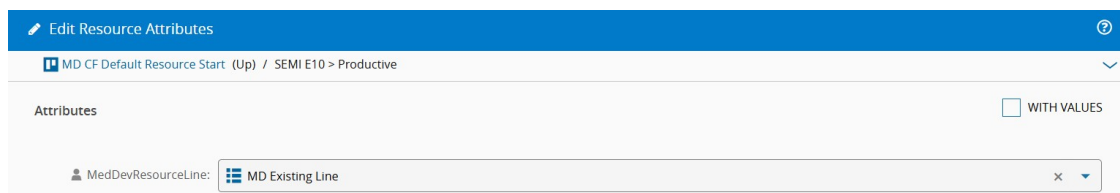
- **Line 1** – Resources: `Resource001`
- **Line 2** – Resources: `Resource002`

Lookup Tables

1. Create a **Lookup Table** `MedDevProcessLines` and add the line entries:



2. Assign the **Resource Attribute** `MedDevResourceLine` to each Resource using values from the Lookup table:



3. Assign the **Flow Attributes** to the Rework/Off-Flow Flows as required:

4. `MedDevClearCurrentLineOnReworkEnter`

5. `MedDevReturnToOriginalLineOnReworkExit`

 Edit Flow Attributes

REVISION

VERSION

 MD CF Default Rework Flow [A.1]

Attributes

 MedDevClearCurrentLineOnReworkEnter: ☒

 MedDevReturnToOriginalLineOnReworkExit: ☒

Executing Linked Lines

This section explores the Linked Lines operations. To test and execute this functionality, follow the use case outlined in a Step-by-Step scenario.

1. In **Step** `Step1`, perform a **Dispatch & Track-In** of **Material** `Material001` to **Resource** `Resource001`

MD CF Default Resource Start

Refresh Change State Change View Documents Manage Request Begin Perform Request More

General Resource Maintenance Setup Data Collection Material Transfer Actions

MD CF Default Resource Start Standby 0 1 0

STATE: ALL PRODUCT: Product FLOW: Flow STEP: Step Material Name ONLY

Materials at Resource (1)

ORDER	MATERIAL	QTY	UNITS	PRODUCT	FLOW	STEP	PRIORITY	STATE	IN OFF-FLOW
	Material0001	100	EA	Ester IV Catheti	MD CF Default	MD CF Default	5	In Process	No

Material0001 (Active)

ATTRIBUTES

Refresh Edit

InspectionAfterDRY:

MedDevCurrentHead:

MedDevCurrentLine:

- No validation error is raised because the Material's `MedDevCurrentLine` attribute is empty at this point.

2. Perform a **Track-Out** of **Material** `Material001` from **Resource** `Resource001`

- **Material** `Material001` is updated with:
- `MedDevCurrentLine = Line 1`

MD CF Default Resource Start

Refresh Change State Change View Documents Manage Request Begin Perform Request More

General Resource Maintenance Setup Data Collection Material Transfer Actions

MD CF Default Resource Start Standby 0 0 1

STATE: ALL PRODUCT: Product FLOW: Flow STEP: Step Material Name ONLY QUALI

Materials at Resource (1)

ORDER	MATERIAL	QTY	UNITS	PRODUCT	FLOW	STEP	PRIORITY	STATE	IN OFF-FLOW
	Material0001	100	EA	Ester IV Cathete	MD CF Default	MD CF Default	5	Processed	No

Attributes

Refresh

Edit

InspectionAfterDRY:
MedDevCurrentHead:
MedDevCurrentLine: MD Existing Line

- If all eligible Resources are assigned to lines different than the Material's from their `MedDevResourceLine` attribute value, an error message is displayed

Dispatch and Track-In Material

1 RESULTS

No eligible Resources associated with line (MD Existing Line) or no line at all were found. The error was reported by action MedDevDispatchLinkedLineResourceFilter.

- Otherwise, the action will be able to proceed.

- Perform a **Dispatch & Track-In** of **Material** **Material001** to the correct Resource **Resource002** (Line 1)

MD CF Default Resource Middle

Refresh

Change State

Change

View Documents

Manage

Request

Begin

Perform

Request

More

General

Resource

Maintenance

Setup

Data Collection

Material Transfer

Actions

MD CF Default Resource Middle

Productive

0

1

0

STATE: ALL

PRODUCT: Product

FLOW: Flow

STEP: Step

Material Name

Materials at Resource (1)

	ORDER	MATERIAL	QTY	UNITS	PRODUCT	FLOW	STEP	PRIORITY	STATE	IN OFF-FLOW
		Material0001	100	EA	Ester IV Catl	MD CF Defa	MD CF Defa	5	In Process	No

- No validation error is raised because both line values match. - **Material** Material001 remains with: -
MedDevCurrentLine = Line 1

- Track-out **Material** Material001 from **Step** Step2 and continue to **Step** Step3

- At Track-Out, `MedDevCurrentLine` remains `Line 1`.

MD CF Default Resource End

Refresh Change State Change View Documents Manage Request Begin Perform Request More

General Maintenance Setup Data Collection Material Transfer Actions

MD CF Default Resource End Productive 0 0 0

PRODUCT: Product FLOW: Flow STEP: Step Material Name SETUP M

Dispatch List (1)

ORDER	MATERIAL	QTY	UNITS	PRODUCT	FLOW	STEP	PRIORITY	STATE	IN OFF-FLOW
1	Material0001	100	EA	Ester IV Cathe	MD CF Default	MD CF Default	5	Queued	X

Material0001 (Active)

ATTRIBUTES

Refresh Edit

InspectionAfterDRY:

MedDevCurrentHead:

MedDevCurrentLine: MD Existing Line

6. In **Step** Step3, process the Material into **Resource** Resource003 until track-out **Material** Material001
- Resource** Resource003 has no **MedDevResourceLine** assigned.

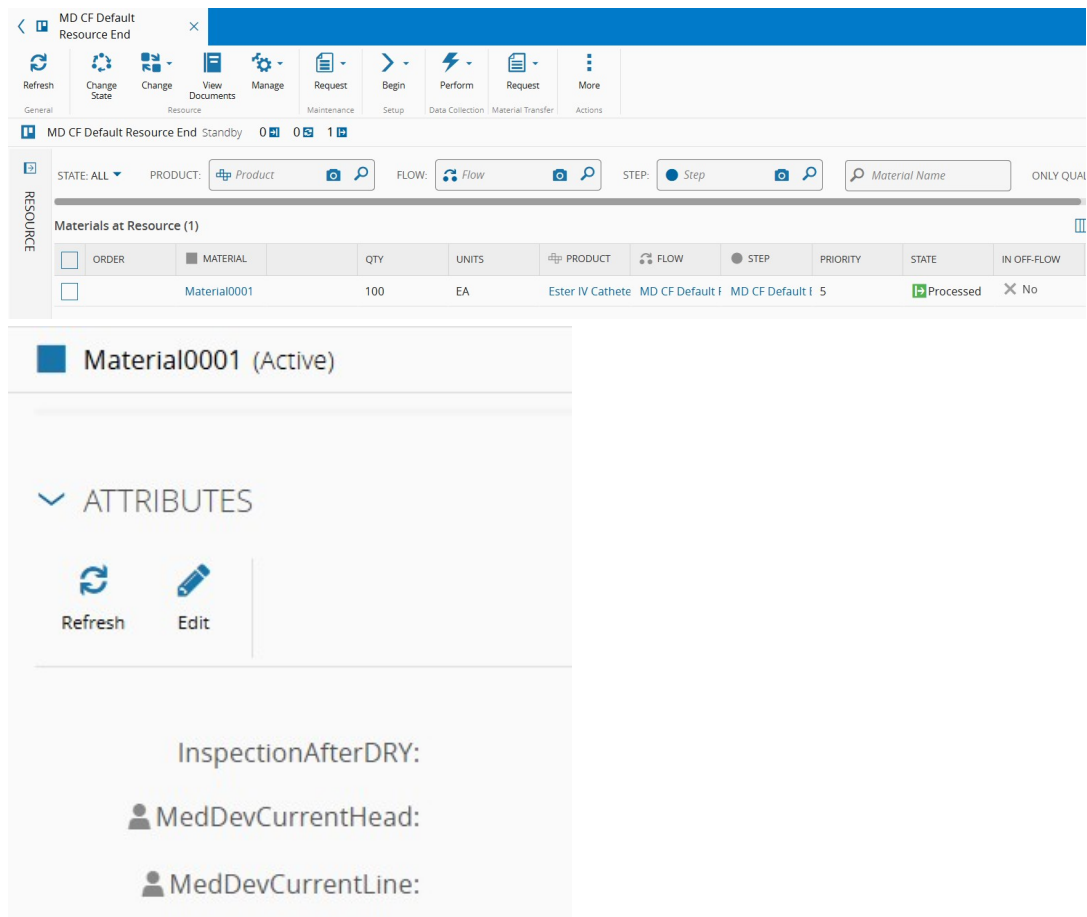
MD CF Default Resource End (Active)

ATTRIBUTES

Refresh Edit

MedDevResourceLine:

- At Track-Out, because the Resource line is empty, **MedDevCurrentLine** is cleared.



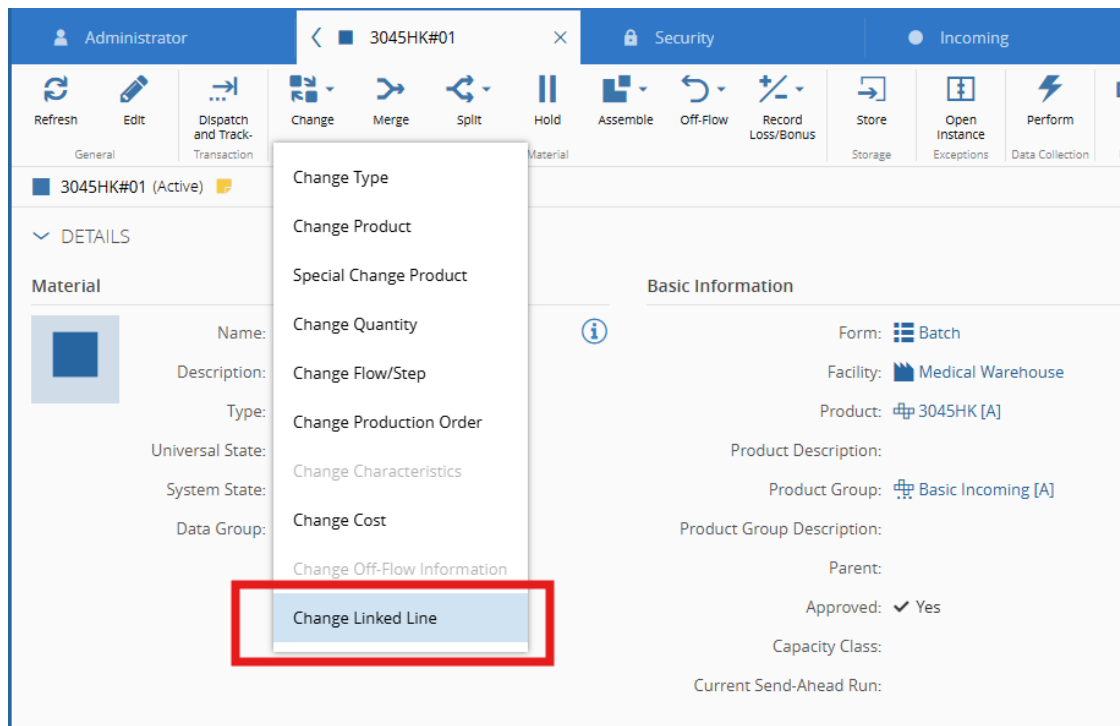
7. Manually update the line for **Material** `Material001` using the **Change Line** button

- From **Material Details**, click the **Change Line** button.

Note

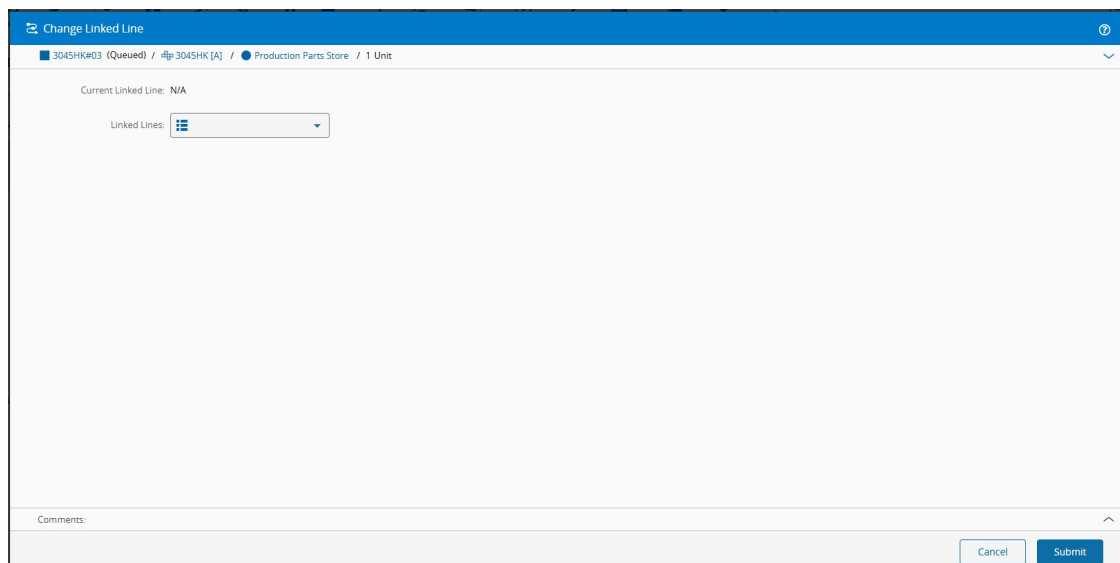
The **Change Line** button is only visible to users who have been granted the `MedDev.ChangeLine` feature permission.

For more information on feature access, refer to [Linked Lines](#) Feature Security section in the User Guide.



The screenshot shows the '3045HK#01' material details page. A context menu is open over the 'Material' section, listing various actions. The 'Change Linked Line' option at the bottom of the menu is highlighted with a red rectangular box. The background shows the 'Basic Information' tab with details like Form: Batch, Facility: Medical Warehouse, and Product: 3045HK [A].

- The **Change Line** wizard opens, showing the Material's current line (displayed as empty since it was cleared in the previous Step).



The 'Change Linked Line' wizard is displayed. It shows the breadcrumb '3045HK#03 (Queued) / 3045HK [A] / Production Parts Store / 1 Unit'. The 'Current Linked Line' is 'N/A'. There is a 'Linked Lines' dropdown menu. At the bottom, there is a 'Comments' field and 'Cancel' and 'Submit' buttons.

- Select **Line 1** from the dropdown list and confirm.

Change Linked Line

3045HK#03 (Queued) / #p 3045HK [A] / Production Parts Store / 1 Unit

Current Linked Line: N/A

Linked Lines:

MD Linked Line

No description

MD Existing Line

No description

Comments:

Cancel

Submit

- **Material** Material001 is updated with:
- MedDevCurrentLine = Line 1

Material0001 (Active)

ATTRIBUTES

Refresh

Edit

InspectionAfterDRY:

MedDevCurrentHead:

MedDevCurrentLine:

MD Existing Line

8. Send **Material** Material001 to the **Rework** Flow Rework

The Rework Flow is configured with: - MedDevReturnToOriginalLineOnReworkExit = true - MedDevClearCurrentLineOnReworkEnter = true

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 MD CF Default Rework Flow [A.1] A (Default)

 ATTRIBUTES

 Refresh

 Edit

REVISION

VERSION



MedDevClearCurrentLineOnRe ✓ Yes
 workEnter:



MedDevReturnToOriginalLineO ✓ Yes
 nReworkExit:

 Note

The store-original Step executes **before** the clear Step. `MedDevOriginalLine` captures the current line value prior to any clearing. - **Material** `Material001` is updated with: - `MedDevOriginalLine` = Line 1 - `MedDevCurrentLine` = Cleared

Material0001		
Refresh General	Edit	View Reports Reports
		Move-Next Transaction
		Change

Material0001 (Active) ↶1

▼ ATTRIBUTES

Refresh	Edit
---------	------

InspectionAfterDRY:

MedDevCurrentHead:

MedDevCurrentLine:

MedDevCurrentTail:

MedDevInProgressMaterialRank:

MedDevMaterialRank:

MedDevOriginalLine: MD Existing Line

9. Complete the rework process and return **Material** `Material001` to the main Flow
- **Material** `Material001` is updated with:
 - `MedDevCurrentLine` = `Line 1`
 - `MedDevOriginalLine` = `Cleared`

Material0001 (Active)

ATTRIBUTES

Refresh

Edit

InspectionAfterDRY:

MedDevCurrentHead:

MedDevCurrentLine:
MD Existing Line

MedDevCurrentTail:

MedDevInProcessMaterialRank:

MedDevMaterialRank:

MedDevOriginalLine:

- The Material resumes with its original line enforced, and dispatch validation will apply again from this point.

Info

For more information on Linked Lines, see [Linked Lines](#) in the User Guide.



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