Critical manufacturing
an ASM PT company

Tutorial: Material Serialization

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Tutorial: Material Serialization

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Estimated time to read: 3 minutes

Objective

Learn how to configure and execute material serialization to generate hierarchical materials (e.g., Lot, then Panel, then Board) and ensure full traceability throughout the process.

Step 0: Validate Preconditions

Before configuring serialization, ensure:

- Feature is enabled:
  - `/SMT/MaterialSerialization/IsEnabled = True`
- The following Smart Tables are configured:
  - `SMTMaterialExpandContext`
  - `SMTMaterialNameGenerationContext`
  - `SMTMaterialPrintableDocumentContext` (optional)

Step 1: Configure Expansion Rules

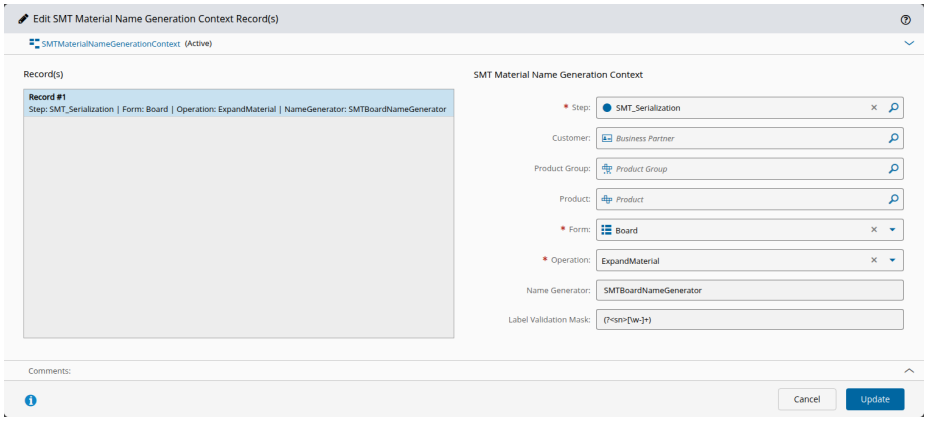
- Navigate to **Administration > Tables > Smart Tables** and Open `SMTMaterialExpandContext`.
- Configure:
  - Step where serialization occurs
  - Parent Form (e.g., Lot)
  - Child Form (e.g., Panel)
  - Sub Child Form (e.g., Board)
  - Expand Operation (Track-In or Track-Out)

- Expansion Factor(s)
- External/Internal naming
- Special Mode (True/False)

> This configuration defines when and how materials expand.

Step 2: Configure Naming Rules

- Open:
  - `SMTMaterialNameGenerationContext`
- Configure:
  - Step
  - Material Form
  - Operation = ExpandMaterial
  - Name Generator
  - Optional validation mask (for scanning/format enforcement)

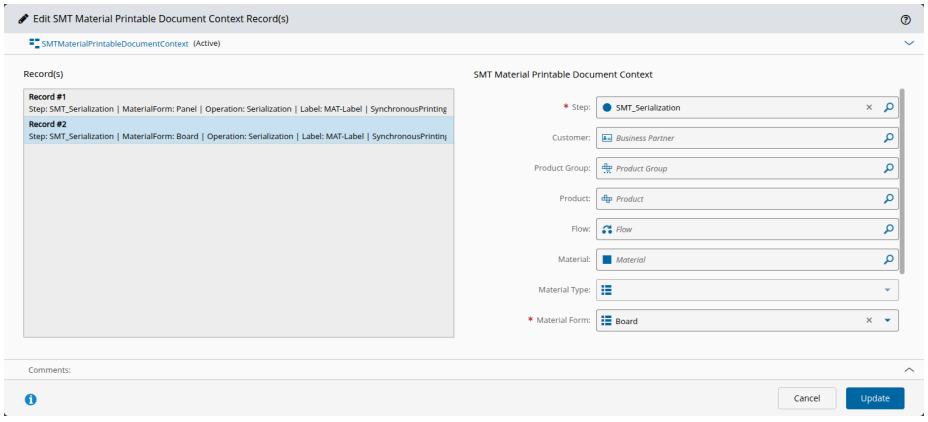


Step 3: Configure Label Printing (Optional)

- Open:
  - `SMTMaterialPrintableDocumentContext`
- Configure:

    - Step
    - Material Form
    - Operation
    - Label template
    - Synchronous printing option
- Make sure a printer is available for the label, either:
    - through the `PrinterTypePrintersContext` Smart Table, or
    - through the **Default Printer** of the Printable Document

> If no printer is available, the serialization fails with the message *"There's no configured printer for the printable document <>."*



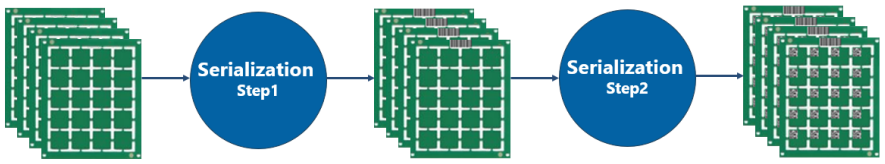
Step 4: Choose Serialization Mode

Option A: Without Special Mode

- `Is Special Mode = False`

Behavior:

- Expansion occurs across multiple steps



Option B: With Special Mode

- `Is Special Mode = True`

Behavior:

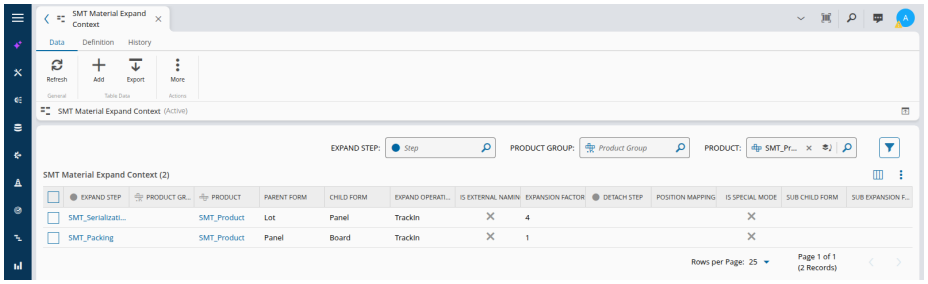
- Multiple levels (e.g., Panel + Board) are created in a single step

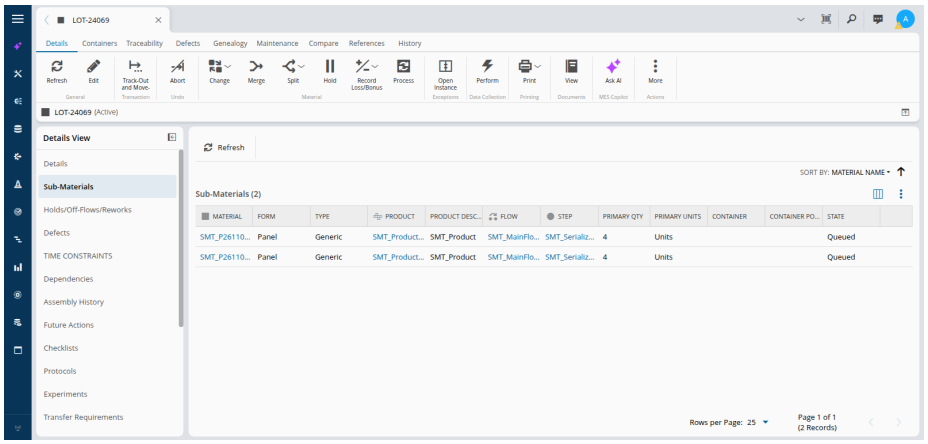


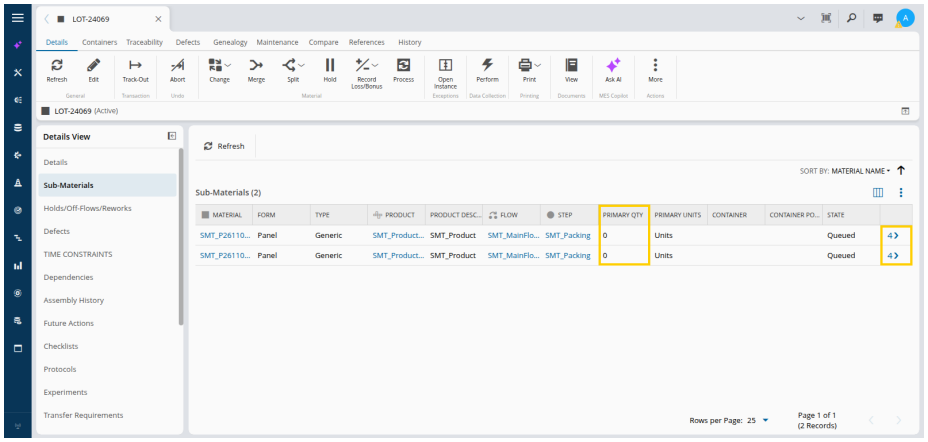
Step 5: Execute Serialization

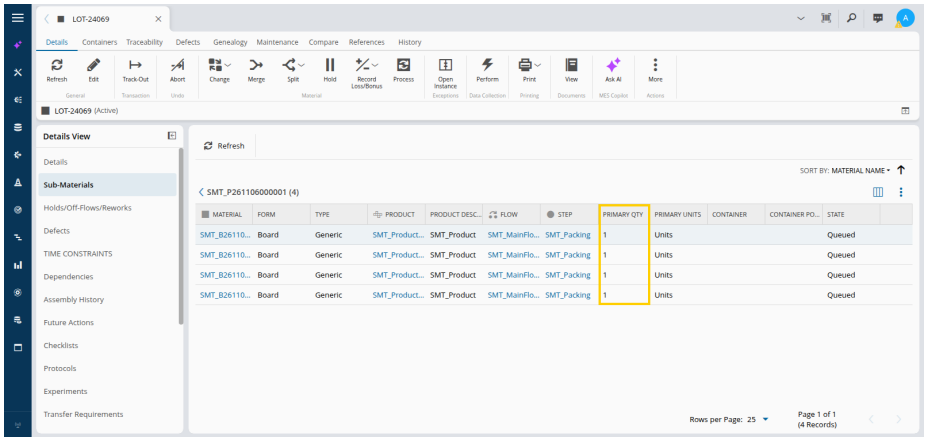
- Start with a parent material (e.g., Lot)
- Move the material through the configured step
- Perform the configured operation:
  - Track-In or Track-Out
- The system automatically generates child materials

Example:


SMT Material Expand Context
Data
Definition
History
Refresh
Add
Export
More
SMT Material Expand Context (Active)
EXPAND STEP:
PRODUCT GROUP:
PRODUCT:
SMT Material Expand Context (2)
EXPAND STEP
PRODUCT GR...
PRODUCT
PARENT FORM
CHILD FORM
EXPAND OPERATI...
IS EXTERNAL NAMIN
EXPANSION FACTOR
DETACH STEP
POSITION MAPPING
IS SPECIAL MODE
SUB CHILD FORM
SUB EXPANSION F...
SMT_Serializati...
SMT_Product
Lot
Panel
Trackin
4
SMT_Packing
SMT_Product
Panel
Board
Trackin
1
Rows per Page: 25
Page 1 of 1
(2 Records)


LOT-24069
Details
Containers
Traceability
Defects
Genealogy
Maintenance
Compare
References
History
Refresh
Edit
Track-Out and Move-
Abort
Change
Merge
Split
Hold
Record Loss/Bonus
Process
Open Instance
Perform
Print
View
Ask AI
More
LOT-24069 (Active)
Details View
Details
Sub-Materials
Holds/Off-Flows/Reworks
Defects
TIME CONSTRAINTS
Dependencies
Assembly History
Future Actions
Checklists
Protocols
Experiments
Transfer Requirements
Refresh
SORT BY: MATERIAL NAME
Sub-Materials (2)
MATERIAL
FORM
TYPE
PRODUCT
PRODUCT DESC...
FLOW
STEP
PRIMARY QTY
PRIMARY UNITS
CONTAINER
CONTAINER PO...
STATE
SMT_P26110...
Panel
Generic
SMT_Product...
SMT_Product
SMT_MainFlo...
SMT_Serializ...
4
Units
Queued
SMT_P26110...
Panel
Generic
SMT_Product...
SMT_Product
SMT_MainFlo...
SMT_Serializ...
4
Units
Queued
Rows per Page: 25
Page 1 of 1
(2 Records)





Expected structure:

- Lot, then Panel, then Board

Expected Result

- Materials are expanded based on configured rules
- Material hierarchy is created automatically
- Each level (Lot, Panel, Board) is uniquely identified
- Full traceability is established

Frequent Configuration Questions

Why are no materials being created?

Check that the `SMTMaterialExpandContext` configuration is correctly defined and enabled.

Why are the generated quantities incorrect?

Validate the following configuration values:

- Expansion Factor
- Sub Expansion Factor

Why are there issues with material naming?

Verify that the Name Generator configuration is correctly set up and associated with the process.

Why is the expansion process not being triggered?

Verify that the operation is configured to execute at the correct step and event:

- Track-In
- Track-Out

Why are labels not being generated?

Validate that the `SMTMaterialPrintableDocumentContext` configuration is properly set up.

Why does the serialization fail with "There's no configured printer for the printable document"?

No printer was found for the label. Configure a printer for the Printable Document in the `PrinterTypePrintersContext` Smart Table, or set a **Default Printer** on the Printable Document.

Why is the generated material hierarchy incorrect?

Confirm that the Special Mode configuration is correctly defined for the intended expansion scenario.

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