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WORKFLOW PHASES

RELEASE 8.4

FUNCTIONAL REQUIREMENT SPECIFICATION

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Allen-Bradley • Rockwell Software

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Chapter 1

Introduction

This document details the requirements of the functions implemented by the phases specific to shop floor-defined order workflows. The phases are executed as a workflow in the Production Execution Client of PharmaSuite.

Each requirement is composed of a name and a unique identifier (e.g. Instruction (SR0600.8.1)). If a requirement's meaning is for requirement grouping only, the identifier is appended by a plus sign (e.g. Process parameters (SR0600.8+)).
For requirements with **Framework capability** as identifier, see "Functional Requirement Specification Execution Framework" for their unique identifier, [A1].

The revision history (page 61) lists the changes made to the document with PharmaSuite 8.3 as the comparison baseline. Changes related to a requirement are marked as "Editorial", "Update", "New", or "Deleted", changes to the additional context information are marked as "Context information-related".

Typographical Conventions

This documentation uses typographical conventions to enhance the readability of the information it presents. The following kinds of formatting indicate specific information:

Bold typeface — Designates user interface texts, such as

- window and dialog titles
- menu functions
- panel, tab, and button names
- box labels
- object properties and their values (e.g. status).

`Monospaced typeface` — Designates code examples.

Chapter 2

Shop Floor-defined Order Workflow

The shop floor-defined order workflow is designed to support shop floor-defined dispensing use cases, e.g. cost center-related dispensing, experimental batch dispensing.

PharmaSuite provides the **Cost center-related dispensing** use case (page 9). Other use cases can be added by extending PharmaSuite. For details, please refer to section "Extension Use Case: Adding a Recipe-related Usage Type for Shop floor-defined Dispensing", chapter "Configuration and Extension" in "Technical Manual Phases of the Dispense Package" [A2] (page 59).

The typical structure of a shop floor-defined order operation includes the following workflow phases (page 4) in a workflow graph.

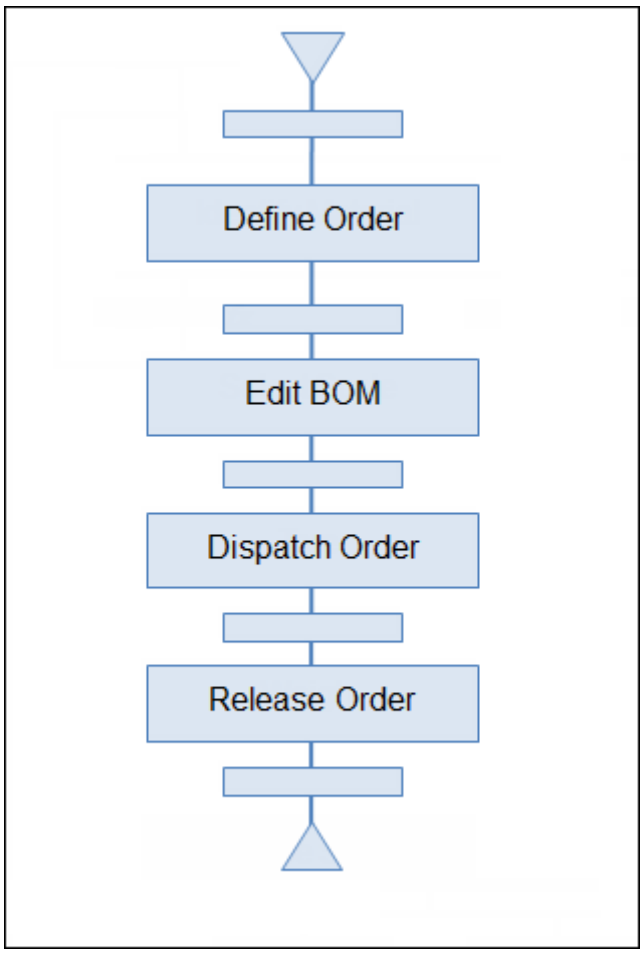

Figure 1: Typical shop floor-defined order workflow

The behavior of the phases is defined by the phase parameter configuration.

Please note that individual phases of the shop floor-defined order workflow can only display their full functional scope if they are used to interact with each other in the sequence as outlined in the graph structure. They are not intended for stand-alone use.

Workflow Phases

The following phases are available for shop floor-defined orders:

- Define order (page 11)
  The **Define order** phase (D Define Order) allows an operator to create an order based on a pre-defined master recipe.
- Edit BOM (page 25)
  The **Edit BOM** phase (D Edit BOM) allows an operator to manage the BOM items of a shop floor-defined order.
- Dispatch order (page 45)
  The **Dispatch order** phase (D Dispatch Order) allows an operator to dispatch the order to one or more work centers out of a pre-defined set of work centers in the master recipe. If no work center is assigned, the order can be processed at all work centers.
- Release order (page 53)
  The **Release order** phase (D Release Order) allows an operator to change the order's status to **Released** and thereby make it available for processing.

Use Cases

The phases that are available for shop floor-defined orders support different use cases based on their configuration and the setup of the workflow.
Some use cases with alternative workflow designs are outlined in the subsequent sections.

Supervisor-specific Use Cases

Flexible order creation

This workflow setup provides the full flexibility to define an ad-hoc order on the shop floor.

Use case characteristics:

- Master recipe template: mandatory
- Cost center: optional
- BOM item(s): mandatory
- Work centers: pre-configured, modifiable

Master recipe configuration:

- Material parameters: not defined on recipe level
- Work centers: pre-configured set of work centers is assigned

Phase's process parameters:

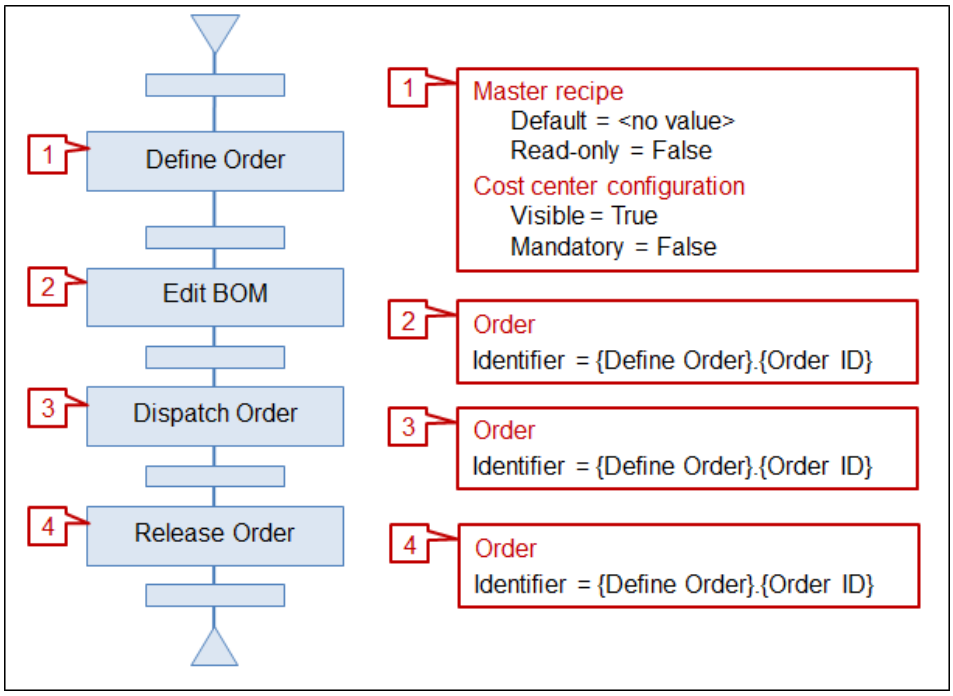

Figure 2: Flexible order creation

Flexible order creation without cost center definition or work center dispatching

This workflow setup provides the full flexibility to define an ad-hoc order on the shop floor without an assignment to a cost center.

Use case characteristics:

- Master recipe template: mandatory
- Cost center: no assignment
- BOM item(s): mandatory
- Work centers: pre-configured, not modifiable

Master recipe configuration:

- Material parameters: not defined on recipe level
- Work centers: pre-configured set of work centers is assigned

Phase's process parameters:

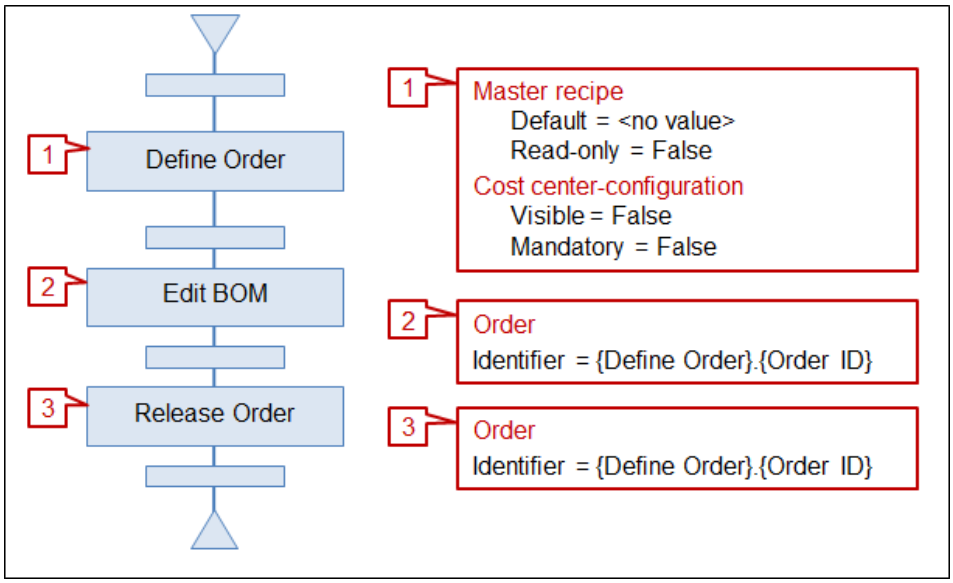

Figure 3: Flexible order creation without cost center - dispatching pre-defined

Operator-specific Use Cases

Order creation for a specific master recipe with pre-defined BOM

This workflow setup allows to create an ad-hoc order on the shop floor with a pre-defined master recipe that can be adjusted with regard to materials and work centers.

Use case characteristics:

- Master recipe template: pre-configured, not modifiable
- Cost center: optional
- BOM item(s): pre-configured, modifiable
- Work centers: pre-configured, modifiable

Master recipe configuration:

- Material parameters: pre-configured, includes material flow control settings
- Work centers: pre-configured set of work centers is assigned

Phase's process parameters:

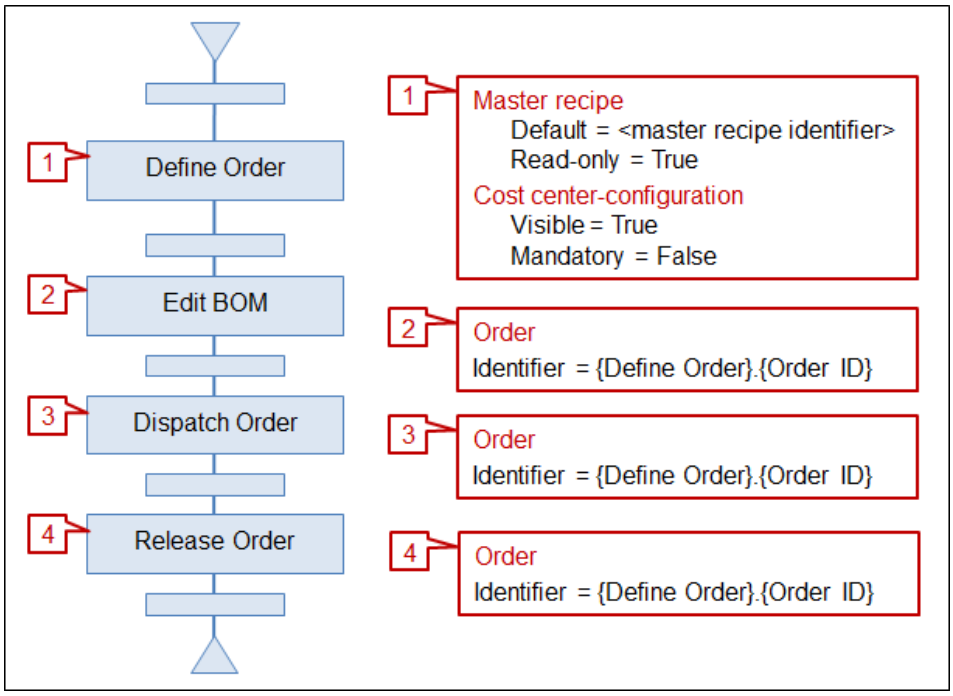

Figure 4: Order creation for a specific master recipe with pre-defined BOM

Quick order creation for a specific master recipe with pre-defined BOM, pre-defined work centers, and mandatory cost center assignment

This workflow setup allows to create an ad-hoc order on the shop floor with a pre-defined master recipe that cannot be adjusted with regard to material or work center.

Use case characteristics:

- Master recipe template: pre-configured, not modifiable
- Cost center: mandatory
- BOM item(s): pre-configured, not modifiable
- Work centers: pre-configured, not modifiable

Master recipe configuration:

- Material parameters: pre-configured, includes material flow control settings
- Work centers: pre-configured set of work centers is assigned

Phase's process parameters:

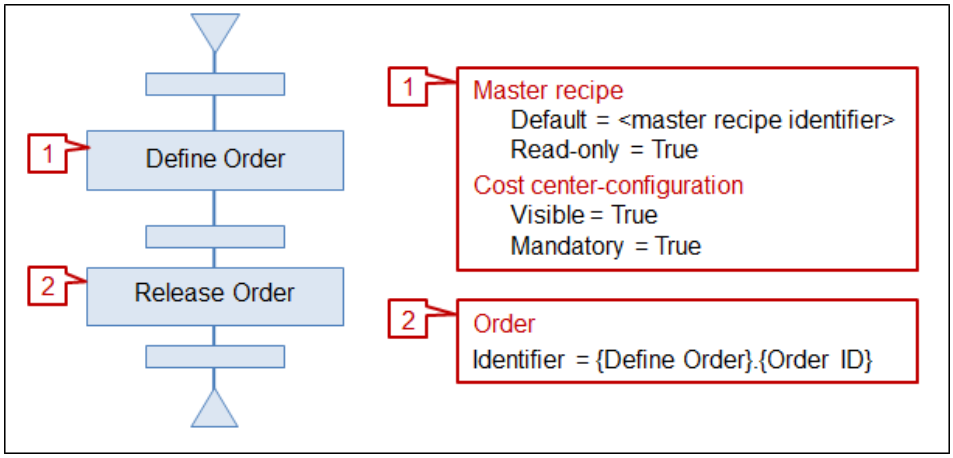

Figure 5: Quick order creation - cost center is mandatory

Cost Center-related Dispensing

The usage of a shop floor-defined order workflow for cost center-related dispensing requires to consider the adaptation of PharmaSuite configuration settings.

The following areas are affected:

- Cost center
  The available cost centers are configured in Process Designer using the **List** object.
  For details, please refer to section "Configuring Cost Center-related Dispensing", chapter "Administration" in "Technical Manual Phases of the Dispense Package" [A2] (page 59).
- Master recipe's usage type
  The creation of shop floor-defined orders is only allowed for master recipes with a usage type other than **Production**. The usage type for shop floor-defined cost center-related orders delivered by PharmaSuite is **Cost center**.
  A unit procedure in a master recipe with the **Cost center** usage type must contain exactly one operation.
- Product batch
  The **Define order** phase creates a batch with the default batch prefix if the operator has not defined a batch.
  The default batch prefix depends on the system configuration.
  For details, please refer to chapter "Configuration Keys of PharmaSuite" in Volume 4 of the "Technical Manual Configuration and Extension" [A3] (page 59).
- Batch report and dispensing label
  The processing of shop floor-defined cost center-related dispensing orders relies on the configuration of dedicated batch report and label designs. Application configuration settings are available for:
  - Batch report
  - Dispensing label
  - Pallet or container sublot label
  - Number of labels to be printed for the target sublot

  For details, please refer to chapter "Configuration Keys of PharmaSuite" in Volume 4 of the "Technical Manual Configuration and Extension" [A3] (page 59).

Chapter 3

Define Order Phase (SR0600+)

The **Define order** phase (D Define Order) allows an operator to create an order based on a pre-defined master recipe.

An example use case is:

- Create an order for cost center-related weighing.

The order-specific data is stored in the batch record, thereby becoming available for documentation purposes in the sub-report and batch report (page 13).

Anomalies that occur during processing are covered by the phase exception handling (page 18) (e.g. adding a user-defined exception).

After completion the phase displays the identifiers of the master recipe, order, batch, and product and the selected cost center in the Execution Window.

The Navigator displays the identifier of the order.

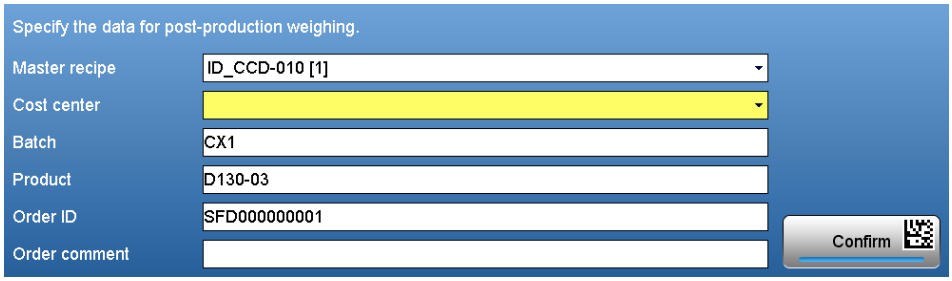

Figure 6: Define order during execution

Layout

The phase provides individual layouts for its representation during execution (page 11), in the Navigator (page 13), and in the sub-report (page 13).

Representation during Execution (SR0600.1+)

The representation during execution depends on the phase mode.

Preview mode (SR0600.1.1)

1. <Instruction text>
   (taken from **Instruction (SR0600.8.1)** process parameter)

2. Master recipe
   (taken from **Master recipe (SR0600.8.3)** process parameter (page 17))
3. Cost center
   (visibility depends on **Cost center configuration (SR0600.8.2)** process parameter (page 17))
4. Batch
5. Product
   (taken from **Master recipe (SR0600.8.3)** process parameter (page 17) or empty if **S88DefaultMaterial01** is the master recipe product)
6. Order ID
7. Order comment
8. **Confirm** button (disabled).

Active mode (SR0600.1.2)

1. <Instruction text>
   (taken from **Instruction (SR0600.8.1)** process parameter)
2. Master recipe
   (taken from **Master recipe (SR0600.8.3)** process parameter (page 17))
3. Cost center
   (visibility depends on **Cost center configuration (SR0600.8.2)** process parameter (page 17))
4. Batch
5. Product
   (initially taken from **Master recipe (SR0600.8.3)** process parameter (page 17) or empty if **S88DefaultMaterial01** is the master recipe product)
6. Order ID
   (initially system-generated)
7. Order comment
8. **Confirm** button.

Completed mode (SR0600.1.3)

1. <Instruction text>
   (taken from **Instruction (SR0600.8.1)** process parameter)
2. Master recipe

3. Cost center
   (visibility depends on **Cost center configuration (SR0600.8.2)** process parameter (page 17))
4. Batch
5. Product
6. Order ID
7. Order comment
8. **Confirm** button (completed).

Representation in Navigator (SR0600.4+)

The Navigator provides the following details:

Phase column (Framework capability)

- <Phase name>
  - Example:
    Cost center Order

Information column (SR0600.4.1)

- <Identifier of order>
  - Example: CC1234

Action column

- There are no actions available.

Representation in Sub-report (SR0600.5+)

The sub-report contains the following information:

Common sub-report elements (Framework capability)

- <Start time>
- <Completion time>
- <Unit procedure> / <operation> / <phase>
- <Work center> / <station> / <device> - <phase completion user>

Sub-report elements (SR0600.5.1)

- Master recipe ID
- Cost center
  (visibility depends on **Cost center configuration (SR0600.8.2)** process parameter (page 17))
- Batch ID
- Product ID
- Order ID
- Order comment

Business Logic (SR0600.2+)

The phase implements the following business logic.

Initialize phase (SR0600.2.1)

- Function: Initializing the phase
- Trigger: Phase becomes active
- Postcondition: Phase displays pre-defined data

Step	#	Description
Phase activation	10.1	Phase displays its user interface according to the **Active mode (SR0600.1.2)** layout (page 12).
	10.2	Phase generates a default order ID.
	10.3	Phase verifies the default master recipe defined by the **Master recipe (SR0600.8.3)** process parameter (page 17). ■ If the **Read-only** attribute is set to **True**, no master recipe can be selected. ■ If the product of the default master recipe is not the **S88DefaultMaterial01** material, phase updates the product data with the material data. ■ If there is no valid version of the master recipe, phase displays the **No valid version of defined master recipe available (SR0600.3.6.7)** error message (page 19) and clears the option list.

Specify order (SR0600.2.2)

- Function: Specifying an order of a usage type other than **Production**
- Trigger: Operator provides data (via scan or manually)
- Postcondition: Order is completely specified.

Step	#	Description
Operator scans or selects master recipe	10	If the product of the default master recipe is not the **S88DefaultMaterial01** material, phase updates the product data with the material data.
Operator scans or selects cost center ID	20	If the **Visible** attribute of the **Cost center configuration (SR0600.8.2)** process parameter (page 17) is set to **True**, phase displays cost center option list for the selection of a cost center. If the scanned cost center does not exist, phase clears the option list.
Operator scans or types batch ID	30	The batch identifier is taken over.
Operator scans or types product ID	40	The material identifier of the product is taken over. If the batch identifier has not been defined so far, a new batch identifier is created.
Operator scans or types order ID	50	The order identifier is taken over. Phase checks if the order identifier is unique. Uniqueness of order identifier includes purged orders. If the check fails, phase displays the **Duplicate order number not allowed (SR0600.3.6.6)** error message (page 21).
Operator types order comment	60	The order comment is taken over.

Confirm phase (SR0600.2.3)

- Function: Completion of phase
- Trigger: Operator confirms phase
- Postcondition: Phase is completed. Order is created and in the **Exploded** status.

Step	#	Description
Operator confirms phase	10	Operator confirms the order specification.
	20.1	If the batch ID has been deleted accidentally, phase generates a new batch ID (only if a product has been provided) and updates its user interface accordingly. If no product has been provided, see check 3 of step 30.

Step	#	Description
	20.2	If a batch ID has been provided, phase creates a new batch based on the provided data and if one of the following conditions are met: ■ Batch IDs are unique (**LibraryHolder/services-inventory-impl.jar/AreBatchIdentifiersUnique** configuration key is set to **True**) and the batch does not exist yet. OR ■ Batch IDs are not unique (**LibraryHolder/services-inventory-impl.jar/AreBatchIdentifiersUnique** configuration key is set to **False**) and the compound batch does not exist yet.
	20.3	If no order ID has been provided, phase generates a new order ID and updates its user interface accordingly.
Phase creates and explodes order	30	If one of the following checks is violated, phase displays an error message: 1. Master recipe must be provided, **No master recipe selected (SR0600.3.6.1)** error message (page 19). 2. Cost center must be provided (only if **Mandatory** attribute of **Cost center configuration (SR0600.8.2)** process parameter (page 17) set to **True**), **No cost center selected (SR0600.3.6.2)** error message (page 19). 3. Product must be provided, **No product defined (SR0600.3.6.3)** error message (page 20). 4. Order (identifier) already exists, **Duplicate order number not allowed (SR0600.3.6.6)** error message (page 21). 5. Batch must not be in use, **Batch identifier already used (SR0600.3.6.4)** error message (page 21).
		If all checks are passed successfully, the order is created and exploded. If an error occurs during the order explosion, phase displays the **Error during order explosion (SR0600.3.6.8)** error message (page 22).
Phase completion	40	Phase is completed.

Process Parameters (SR0600.8+)

The following process parameters define the behavior of the phase.

BASIC PARAMETERS

Instruction (SR0600.8.1)

➢ For recent changes, see revision history (page 61).

Attribute	Type	Comment
Column 1	HTML text	Instruction text to be displayed. **Restriction**: Maximum length is 2000 characters (including HTML tags).
Column 2	HTML text	Not used.
Column 3	HTML text	

ORDER PARAMETERS

Cost center configuration (SR0600.8.2)

Attribute	Type	Comment
Visible	Boolean	Controls if the parameter is available for the phase. Default setting: **True**.
Mandatory	Boolean	Controls if the selected value must be valid when the phase is completed with the **Confirm** button. Do not set the attribute to **True** if the **Visible** attribute is set to **False**. Default setting: **False**.

Master recipe (SR0600.8.3)

➢ For recent changes, see revision history (page 61).

The system allows to define an access privilege for the protection of master recipes from unauthorized access. Subsequently, it shall only allow to select a master recipe whose access privilege matches the access privilege of the logged-in user.

Attribute	Type	Comment
Default	Reference	Reference to the master recipe to be pre-selected when the phase is executed. Only master recipes in the **Scheduled** or **Valid** status can be selected. If no master recipe has been selected, do not set the **Read-only** attribute to **True**.

Attribute	Type	Comment
		Default setting: No master recipe is selected.
Read-only	Boolean	Controls if the master recipe can be selected when the phase is executed. Default setting: **False**.

Exceptions (SR0600.3+)

The phase supports user-defined, user-triggered (page 18), system-triggered (page 18), and post-completion exceptions (page 18) and their configuration by means of process parameters (page 16).

User-defined exceptions cannot be configured by process parameters since they are provided by the framework and independent of phases.

System-triggered Exceptions

There are no system-triggered exceptions available.

User-triggered Exceptions

There are no user-triggered exceptions available.

Post-completion Exceptions

There are no post-completion exceptions available.

Information Messages

There are no information messages available.

Questions

There are no questions available.

Decisions

There are no decisions available.

Error Messages (SR0600.3.6+)

Error messages are represented in an error message dialog containing a message type-specific icon, the error message, and an **OK** button.

They are composed of up to two levels:

1. header and
2. details (not always used).

The following error messages are available to inform the operator about error conditions.

Initialization-specific Error Messages

No valid version of defined master recipe available (SR0600.3.6.7)

UI text	Comment
The default master recipe (identifier) is not available in a valid version.	Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_DefaultMasterRecipeNotValid_Error Potential error cause: There is no valid version of the defined master recipe available at the time of order definition. This can only happen if the pre-defined master recipe is not available in the **Valid** status.

Order Creation Failed-specific Error Messages

No master recipe selected (SR0600.3.6.1)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. No master recipe selected.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_NoMasterRecipe_Error

No cost center selected (SR0600.3.6.2)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. No cost center selected.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_NoMandatoryCostCenter_Error

No product defined (SR0600.3.6.3)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. No product defined.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_NoPart_Error

Product does not exist (SR0600.3.6.12)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. Defined product does not exist.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_NonExistentPart_Error

Batch cannot be created (SR0600.3.6.10)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. Batch creation failed. Please check the batch identifier.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_ExceptionOnCreateBatch_Category Potential error cause: Creation of the batch failed due to a too long identifier or wrong expiry or retest dates.

Batch identifier already used (SR0600.3.6.4)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. Batch is already in use with another order.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_BatchInUse_Error

Batch material does not match product (SR0600.3.6.5)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. Batch and product material are not identical.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_BatchPartVsPart_Error Potential error cause: Batch-related material is not identical with product material.

Duplicate order number not allowed (SR0600.3.6.6)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. Order identifier is not unique.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_OrderNumberExists_Error
1. <Header as defined in **Error message grouping (SR0600.3.6.9)** error message (page 22)> 2. Cannot create the <order identifier> order, since an order with same identifier existed before.	1. Message pack: See **Error message grouping (SR0600.3.6.9)** error message (page 22) Message ID: See **Error message grouping (SR0600.3.6.9)** error message (page 22) 2. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_OrderWasPurged_Error

Order Explosion Failed-specific Error Messages

Error during order explosion (SR0600.3.6.8)

UI text	Comment
1. Cannot explode the order. 2. <System error message>	1. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_ExceptionOnDefineOrder_Category 2. <System error message> Potential error cause: Order explosion failed due to an internal error.

Error message grouping (SR0600.3.6.9)

If several errors occur during the execution of the **Confirm** action, the error messages are combined and displayed in a single error dialog. The two error levels specified in the **Error Messages (SR0600.3.6+)** description (page 18) are used as follows.
The combined error message consists of:

1. One header message and
2. one or more detail messages.

UI text	Comment
1. Cannot create the order, since some data has not been defined correctly. 2. <List of detail messages>	1. Message pack: PhaseWDDefineOrder<version> Message ID: defineOrder_SomeDataNotDefined_Category 2. Error message detail as defined for each individual error message above. Potential error cause: If several errors related to the execution of the **Confirm** button exist, the displayed error message contains all error details that apply. The following error messages are subject to message grouping: ■ No master recipe selected (SR0600.3.6.1) (page 19) ■ No cost center selected (SR0600.3.6.2) (page 19) ■ No product defined (SR0600.3.6.3) (page 20) ■ Batch identifier already used (SR0600.3.6.4) (page 21) ■ Batch material does not match product (SR0600.3.6.5) (page 21) ■ Duplicate order number not allowed (SR0600.3.6.6) (page 21)

UI text	Comment
	■ No valid version of defined master recipe available (SR0600.3.6.7) (page 19) ■ Batch cannot be created (SR0600.3.6.10) (page 20)

Output Variables (SR0600.9+)

The following output variables are available to reference the phase's output.

Instance count (Framework capability)

- Data type: Long
- Usage: The output variable provides the count of the number of instances the phase has been processed, for example in a loop. The count is also increased when the phase is skipped from an operator's perspective, since the phase is still executed, but as a hidden phase.
  The count variable of a phase that has not been executed provides 0 as output value.

Start time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the start time of the phase.

Completion time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the completion time of the phase.

Identifier (Framework capability)

- Data type: String
- Usage: The output variable provides the identifier of the phase.

Cost center ID (SR0600.9.2)

- Data type: String
- Usage: The output variable provides the cost center identifier.

Order ID (SR0600.9.1)

- Data type: String
- Usage: The output variable provides the order identifier.

Batch ID (SR0600.9.3)

- Data type: String
- Usage: The output variable provides the product batch identifier.

Product ID (SR0600.9.4)

- Data type: String
- Usage: The output variable provides the product identifier.

Edit BOM Phase (SR0605+)

The **Edit BOM** phase (D Edit BOM) allows an operator to manage the BOM items of a shop floor-defined order.

An example use case is:

- Define a BOM for a cost center-related weighing order that was previously defined on the shop floor.

Only the default sub-report elements are available for documentation purposes in the sub-report (page 28).

Anomalies that occur during processing are covered by the phase exception handling (page 35) (e.g. adding a user-defined exception).

After completion the phase displays the defined BOM items with the following data in the Execution Window:

- position
- material identifier
- short description
- planned quantity
- lower tolerance (abs./rel.)
- upper tolerance (abs./rel.),
- weighing material type.

The Navigator displays the identifier of the order.

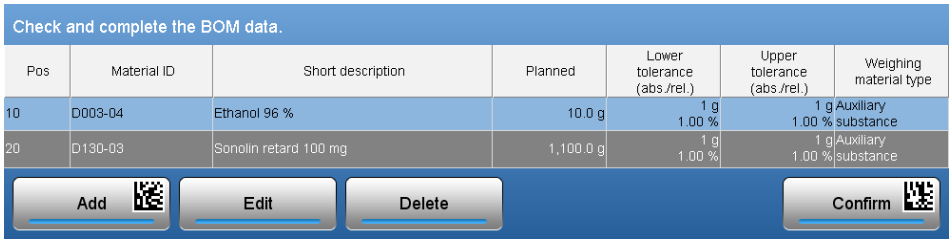

Figure 7: Edit BOM during execution

Layout

The phase provides individual layouts for its representation during execution (page 26), in the Navigator (page 28), and in the sub-report (page 28).

Representation during Execution (SR0605.1+)

The representation during execution depends on the phase mode.

Preview mode (SR0605.1.1)

1. <Instruction text>
   (taken from **Instruction (SR0605.8.1)** process parameter (page 34))
2. Header of the **Table of materials (SR0605.1.4)** presentation (page 26)
3. **Add** button (disabled).
4. **Edit** button (disabled).
5. **Delete** button (disabled).
6. **Confirm** button (disabled).

Table of materials (SR0605.1.4)

Data available per BOM item:

- Position
- Material identifier
- Material short description
- Planned quantity
- Lower tolerance (abs./rel.)
  N/A in case one of the values is not defined.
- Upper tolerance (abs./rel.)
  N/A in case one of the values is not defined.
- Weighing material type

The entries are sorted according to the position column by default.
If only numeric positions are used, the entries are sorted numerically, otherwise alphanumerically in ascending order.

Active mode (SR0605.1.2)

1. <Instruction text>
   (taken from **Instruction (SR0605.8.1)** process parameter (page 34))

2. List of materials available for dispensing (**Table of materials (SR0605.1.4)** presentation (page 26))
   (taken from the order step inputs of the order referenced by the **Order (SR0605.8.2)** process parameter (page 34))
   - If the order has no order step inputs, the phase displays only the header of the table.
3. **Add** button (**BOM item details (SR0605.1.5)** form (page 27)).
   - Only enabled, if a suitable order can be loaded.
4. **Edit** button (**BOM item details (SR0605.1.5)** form (page 27)).
   - Only enabled, if a BOM item is selected.
5. **Delete** button.
   - Only enabled, if a BOM item is selected.
6. **Confirm** button.

BOM item details (SR0605.1.5)

Data available per BOM item:

- **Position** (preset by the phase)
- **Material identifier**
- **Material short description** (read-only)
- **Weighing material type** (read-only)
- **Planned quantity** and **UoM** toggle button
- **Lower tolerance (absolute)** and **UoM** toggle button
- **Upper tolerance (absolute)** and **UoM** toggle button
- **Lower tolerance (relative)**
- **Upper tolerance (relative)**
- **Comment on label**
- **Save** button
- **Cancel** button

Completed mode (SR0605.1.3)

1. <Instruction text>
   (taken from **Instruction (SR0605.8.1)** process parameter (page 34))

2. List of materials available for dispensing (**Table of materials (SR0605.1.4)** presentation (page 26))
   (taken from the order step inputs of the order referenced by the **Order (SR0605.8.2)** process parameter (page 34))
3. **Add** button (completed).
4. **Edit** button (completed).
5. **Delete** button (completed).
6. **Confirm** button (completed).

Representation in Navigator (SR0605.4+)

The Navigator provides the following details:

Phase column (Framework capability)

- <Phase name>
  - Example:
    Cost center BOM

Information column (SR0605.4.1)

- <Identifier of order>
  - Example: CC1234

Action column

- There are no actions available.

Representation in Sub-report (SR0605.5+)

The sub-report contains the following information:

Common sub-report elements (Framework capability)

- <Start time>
- <Completion time>
- <Unit procedure> / <operation> / <phase>
- <Work center> / <station> / <device> - <phase completion user>

Sub-report elements (SR0605.5.1)

There are no phase-specific sub-report elements.

Business Logic (SR0605.2+)

The phase implements the following business logic.

Initialize phase (SR0605.2.1)

- Function: Initializing the phase
- Trigger: Phase becomes active
- Postcondition: List of BOM items reflects order step inputs

Step	#	Description
Phase activation	10	Phase displays its user interface according to the **Active mode (SR0605.1.2)** layout (page 26).
	20	Phase verifies the order defined by the **Order (SR0605.8.2)** process parameter (page 34). 1. If the order does not exist, phase displays the **Unknown order (SR0605.3.6.1)** error message (page 36). 2. If the order exists, but is not in the **Exploded** status, phase displays the **Invalid order status (SR0605.3.6.2)** error message (page 36).
	30	If all checks are passed successfully, phase displays all order step inputs of the order in the **Table of materials (SR0605.1.4)** presentation (page 26) and enables the **Add** button (see **Add BOM item (SR0605.2.2)** function (page 29)). Otherwise the **Add** button is disabled.

Add BOM item (SR0605.2.2)

- Function: Adding a BOM item
- Trigger: Operator starts adding a BOM item
- Postcondition: BOM item is added

Step	#	Description
Operator scans material ID or taps **Add** button	10	Phase checks if the BOM of the order was modified by an administrative action. If so, phase displays the **Modified BOM (SR0605.3.6.19)** error message (page 41). Otherwise, phase displays **BOM item details (SR0605.1.5)** form (page 27), initializes the position, and generates the position number according to the following rules: ■ Start with the next 10th step after highest number. ■ If this item is the first item, start with 10. ■ Use a step width of 10.

Step	#	Description
		If the material has a weighing material type other than **Auxiliary substance**, the phase displays the **Adding material with weighing material type different from to auxiliary (SR0605.3.4.1)** information message (page 35) before the material identifier is taken over. The scanned material ID is taken over.
	10.1	If the scanned material does not exist, phase displays the **Material invalid (SR0605.3.6.4)** error message (page 37).
	10.2	If the scanned material exists, phase initializes the **UoM** toggle button for the planned quantity and absolute tolerances with the material's unit of measure and displays the material's short description. If a material-specific unit conversion has been defined for the material, the **UoM** toggle button also displays the target unit of measure of the conversion. The lower tolerance (abs.) is set to the material's lower absolute tolerance value and the upper tolerance (abs.) is set to the material's upper absolute tolerance value. The lower tolerance (rel.) is set to the material's lower relative tolerance value and the upper tolerance (rel.) is set to the material's upper relative tolerance value. The focus moves to the **Planned quantity** box.
Operator scans or types planned quantity	20	The planned quantity is taken over. If the planned quantity does not fit, phase displays the **Planned quantity invalid (SR0605.3.6.7)** error message (page 39). The focus moves to the **Comment on label** box.
Operator scans or types lower absolute tolerance	30	The lower absolute tolerance is taken over.
Operator scans or types upper absolute tolerance	40	The upper absolute tolerance is taken over.
Operator scans or types lower relative tolerance	50	The lower relative tolerance is taken over.
Operator scans or enters upper relative tolerance	60	The upper relative tolerance is taken over.

Step	#	Description
Operator scans or types data related to **Comment on label**	70	The comment on label data is taken over.
Operator saves data	80.1	Phase checks if the BOM of the order was modified by an administrative action. If so, phase displays the **Modified BOM (SR0605.3.6.19)** error message (page 41). Otherwise phase continues. If one of the following checks is violated, phase displays an error message: 1. Material must exist, **Material invalid (SR0605.3.6.4)** error message (page 37). 2. Lower tolerance (abs.) must be a positive numeric value, **Lower tolerance (abs.) invalid (SR0605.3.6.14)** error message (page 38). 3. Upper tolerance (abs.) must be a positive numeric value, **Upper tolerance (abs.) invalid (SR0605.3.6.15)** error message (page 38). 4. Lower tolerance (rel.) must be a positive percentage value, **Lower tolerance (rel.) invalid (SR0605.3.6.5)** error message (page 37). 5. Upper tolerance (rel.) must be a positive percentage value, **Upper tolerance (rel.) invalid (SR0605.3.6.6)** error message (page 38). 6. Either absolute or relative tolerances must be defined, **No tolerances defined invalid (SR0605.3.6.18)** error message (page 39). 7. Either absolute or relative lower tolerance must be defined, **Lower tolerance undefined (SR0605.3.6.16)** error message (page 39). 8. Either absolute or relative upper tolerance must be defined, **Upper tolerance undefined (SR0605.3.6.17)** error message (page 39). 9. Planned quantity must fit, **Planned quantity invalid (SR0605.3.6.7)** error message (page 39). 10. Position contains filler material, but current position is alphanumeric, **BOM position invalid (SR0605.3.6.8)** error message (page 40). 11. Position must be unique, **Duplicate position not allowed (SR0605.3.6.11)** error message (page 40). 12. Data related to **Comment on label** consists of more than 30 characters, **Comment exceeds maximum length (SR0605.3.6.12)** error message (page 41).
	80.2	If all checks are passed successfully, phase creates an order step input of the **Auxiliary substance** weighing material type and updates the **Table of materials (SR0605.1.4)** presentation (page 26).

Edit BOM item (SR0605.2.3)

- Function: Editing a BOM item
- Trigger: Operator starts editing a BOM item
- Postcondition: BOM item is modified

Step	#	Description
Operator taps **Edit** button	10	Phase checks if the BOM of the order was modified by an administrative action. If so, phase displays the **Modified BOM (SR0605.3.6.19)** error message (page 41). Otherwise, phase displays **BOM item details (SR0605.1.5)** form (page 27).
Operator edits BOM item data (in any order)	20	Data is taken over.
	20.1	If the operator scans a planned quantity, phase checks if the planned quantity fits. If the check is violated, phase displays the **Planned quantity invalid (SR0605.3.6.7)** error message (page 39).
	20.2	If the operator changes the BOM item's material, phase performs the following actions. If the original material's unit of measure is **not** convertible to the unit of measure of the new material: ■ the **UoM** toggle buttons also display the target unit of measure of the conversion, ■ lower tolerance (abs.) value is cleared, ■ the upper tolerance (abs.) value is cleared, ■ the lower tolerance (rel.) value is cleared, ■ the upper tolerance (rel.) value is cleared, and ■ the planned quantity is cleared. Otherwise the values of all tolerances and the planned quantity remain unchanged. The focus moves to the **Planned quantity** box.
Operator saves data	30.1	Phase checks if the BOM of the order was modified by an administrative action. If so, phase displays the **Modified BOM (SR0605.3.6.19)** error message (page 41). Otherwise, phase continues. If one of the following checks is violated, phase displays an error message: 1. Material must exist, **Material invalid (SR0605.3.6.4)** error message (page 37). 2. Lower tolerance (abs.) must be a positive numeric value, **Lower tolerance (abs.) invalid (SR0605.3.6.14)** error message (page 38).

Step	#	Description
		3. Upper tolerance (abs.) must be a positive numeric value, **Upper tolerance (abs.) invalid (SR0605.3.6.15)** error message (page 38). 4. Lower tolerance (rel.) must be a positive percentage value, **Lower tolerance (rel.) invalid (SR0605.3.6.5)** error message (page 37). 5. Upper tolerance (rel.) must be a positive percentage value, **Upper tolerance (rel.) invalid (SR0605.3.6.6)** error message (page 38). 6. Either absolute or relative tolerances must be defined, **No tolerances defined invalid (SR0605.3.6.18)** error message (page 39). 7. Either absolute or relative lower tolerance must be defined, **Lower tolerance undefined (SR0605.3.6.16)** error message (page 39). 8. Either absolute or relative upper tolerance must be defined, **Upper tolerance undefined (SR0605.3.6.17)** error message (page 39). 9. Planned quantity must fit, **Planned quantity invalid (SR0605.3.6.7)** error message (page 39). 10. Position contains filler material, but current position is alphanumeric, **BOM position invalid (SR0605.3.6.8)** error message (page 40). 11. Position must be unique, **Duplicate position not allowed (SR0605.3.6.11)** error message (page 40). 12. Data related to **Comment on label** consists of more than 30 characters, **Comment exceeds maximum length (SR0605.3.6.12)** error message (page 41).
	30.2	If all checks are passed successfully, phase updates the order step input without changing the original weighing material type and updates the **Table of materials (SR0605.1.4)** presentation (page 26).

Delete BOM item (SR0605.2.4)

- Function: Deleting a BOM item
- Trigger: Operator starts deleting a BOM item
- Postcondition: BOM item is deleted

Step	#	Description
Operator taps **Delete** button	10	Phase checks if the BOM of the order was modified by an administrative action. If so, phase displays the **Modified BOM (SR0605.3.6.19)** error message (page 41). Otherwise, phase displays the **Delete BOM item (SR0605.3.5.1)** question (page 36).

Confirm phase (SR0605.2.5)

- Function: Completion of phase
- Trigger: Operator confirms phase
- Postcondition: Phase is completed

Step	#	Description
Operator confirms phase to confirm the BOM	10	Phase checks if the BOM of the order was modified by an administrative action. If so, phase displays the **Modified BOM (SR0605.3.6.19)** error message (page 41).
	20	If no BOM item has been defined, phase displays the **At least one BOM item required (SR0605.3.6.3)** error message (page 37).
Phase completion	30	Phase is completed.

Process Parameters (SR0605.8+)

The following process parameters define the behavior of the phase.

BASIC PARAMETERS

Instruction (SR0605.8.1)

➢ For recent changes, see revision history (page 61).

Attribute	Type	Comment
Column 1	HTML text	Instruction text to be displayed. **Restriction**: Maximum length is 2000 characters (including HTML tags).
Column 2	HTML text	Not used.
Column 3	HTML text	

Order (SR0605.8.2)

Attribute	Type	Comment
Identifier	String	Reference to the output of a preceding **Define order (SR0600+)** phase (page 11) that provides an order to define the shop floor-defined order context.

Exceptions (SR0605.3+)

The phase supports user-defined, user-triggered (page 35), system-triggered (page 35), and post-completion exceptions (page 35) and their configuration by means of process parameters (page 34).

User-defined exceptions cannot be configured by process parameters since they are provided by the framework and independent of phases.

System-triggered Exceptions

There are no system-triggered exceptions available.

User-triggered Exceptions

There are no user-triggered exceptions available.

Post-completion Exceptions

There are no post-completion exceptions available.

Information Messages (SR0605.3.4+)

Information messages are represented in an information dialog containing a message type-specific icon, the information message, and an **OK** button.

The following information messages are available to inform the operator about how to proceed.

Adding material with weighing material type different from auxiliary (SR0605.3.4.1)

UI text	Comment
The default weighing material type of the identified material is <weighing material type or "Not defined">. For the current BOM, its weighing material type is set to Auxiliary substance.	Message pack: PhaseWDEditBom<version> Message ID: WeighingTypeChange_InfoMsg

Questions (SR0605.3.5+)

Questions are represented in a question dialog containing a message type-specific icon, the question, a **Yes** button, and a **No** button.

The following questions are available to request a decision from the operator how to proceed.

Delete BOM item (SR0605.3.5.1)

UI text	Comment
Do you wish to delete BOM item <position> for <material ID>?	Message pack: PhaseWDEditBom<version> Message ID: DeleteBomItem_QuestionMsg

Decisions

There are no decisions available.

Error Messages (SR0605.3.6+)

Error messages are represented in an error message dialog containing a message type-specific icon, the error message, and an **OK** button.

They are composed of up to two levels:

1. header and
2. details (not always used).

The following error messages are available to inform the operator about error conditions.

Unknown order (SR0605.3.6.1)

➢ For recent changes, see revision history (page 61).

UI text	Comment
Cannot proceed, since the order is unknown.	Message pack: PhaseWDEditBom<version> Message ID: OrderUnknown_ErrorMsg Potential error cause: The used order ID is not available in the system.

Invalid order status (SR0605.3.6.2)

UI text	Comment
Cannot start the phase, since the status of the order is not Exploded.	Message pack: PhaseWDEditBom<version> Message ID: OrderInvalidStatus_ErrorMsg Potential error cause: At phase activation, the order is not in the **Exploded** status.

At least one BOM item required (SR0605.3.6.3)

UI text	Comment
Cannot confirm, since the BOM must hold at least one BOM item.	Message pack: PhaseWDEditBom<version> Message ID: BomItemRequired_ErrorMsg

Material invalid (SR0605.3.6.4)

UI text	Comment
Material must exist in the system and have all weighing-specific data defined.	Message pack: PhaseWDEditBom<version> Message ID: MaterialInvalid_ErrorMsg Potential error cause: The following information has not been defined for the material: ■ default weighing method, ■ allowed weighing method, ■ weighing material type, ■ planned potency, and ■ UoM or conversion that allows to weigh the material.

Lower tolerance (rel.) invalid (SR0605.3.6.5)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Lower tolerance (rel.) must be a positive percentage value.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: LowerToleranceInvalid_ErrorMsg

Upper tolerance (rel.) invalid (SR0605.3.6.6)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Upper tolerance (rel.) must be a positive percentage value.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: UpperToleranceInvalid_ErrorMsg

Lower tolerance (abs.) invalid (SR0605.3.6.14)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Lower tolerance (abs.) must be a positive number with a valid unit of measure.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: LowerToleranceAbsoluteInvalid_ErrorMsg

Upper tolerance (abs.) invalid (SR0605.3.6.15)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Upper tolerance (abs.) must be a positive number with valid unit of measure.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: UpperToleranceAbsoluteInvalid_ErrorMsg

Lower tolerance undefined (SR0605.3.6.16)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Lower tolerance is not defined.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: NoLowerTolerance_ErrorMsg

Upper tolerance undefined (SR0605.3.6.17)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Upper tolerance is not defined.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: NoUpperTolerance_ErrorMsg

No tolerances defined (SR0605.3.6.18)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Tolerances are not defined.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: NoTolerance_ErrorMsg

Planned quantity invalid (SR0605.3.6.7)

UI text	Comment
Planned quantity must be a positive number with a valid unit of measure.	Message pack: PhaseWDEditBom<version> Message ID: PlannedQtyInvalid_ErrorMsg Potential error cause: ■ The unit of measure is missing. ■ The planned quantity is not a positive numeric value.

UI text	Comment
	■ The unit of measure is not defined in the system. ■ The scanned unit of measure cannot be converted into the unit of measure of the material. ■ The UoM of the material does not allow to weigh the material. There is no conversion defined that allows to weigh the material. ■ The planned quantity is empty.

BOM position invalid (SR0605.3.6.8)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. The BOM position must be a positive integer value, since the BOM contains a filler material.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: BOMPositionInvalid_ErrorMsg

Duplicate position not allowed (SR0605.3.6.11)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. The <position> BOM position was assigned more than once. BOM positions must be unique.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: BOMPositionDuplicate_ErrorMsg

Comment exceeds maximum length (SR0605.3.6.12)

UI text	Comment
1. <Header as defined in **Error message grouping (SR0605.3.6.13)** error message (page 41)> 2. Comment on label exceeds the maximum length of 30 characters.	1. Message pack: See **Error message grouping (SR0605.3.6.13)** error message (page 41) Message ID: See **Error message grouping (SR0605.3.6.13)** error message (page 41) 2. Message pack: PhaseWDEditBom<version> Message ID: CommentLength_ErrorMsg

Modified BOM (SR0605.3.6.19)

UI text	Comment
The BOM of the order was modified by administrative action and can no longer be processed with the current phase. Please cancel the workflow.	Message pack: PhaseWDEditBom<version> Message ID: BomUpdatedExternally_ErrorMsg

Error message grouping (SR0605.3.6.13)

If several errors occur when the BOM is saved, the error messages are combined and displayed in a single error dialog. The two error levels specified in the **Error Messages (SR0605.3.6+)** description (page 36) are used as follows.
The combined error message consists of:

1. One header message and
2. one or more detail messages.

UI text	Comment
1. Cannot save the BOM item, since some data has not been defined correctly. 2. <List of detail messages>	1. Message pack: PhaseWDEditBom<version> Message ID: SaveBom_ErrorMsg 2. Error message detail as defined for each individual error message above. Potential error cause: If several errors related to the execution of the **Add BOM item (SR0605.2.2)** function (page 29) and the **Edit BOM item (SR0605.2.3)** function (page 32) button exist, the displayed error message contains all error details that apply.

UI text	Comment
	The following error messages are subject to message grouping: ■ Material invalid (SR0605.3.6.4) (page 37) ■ Lower tolerance (rel.) invalid (SR0605.3.6.5) (page 37) ■ Upper tolerance (rel.) invalid (SR0605.3.6.6) (page 38) ■ Lower tolerance (abs.) invalid (SR0605.3.6.14) (page 38) ■ Upper tolerance (abs.) invalid (SR0605.3.6.15) (page 38) ■ Lower tolerance undefined (SR0605.3.6.16) (page 39) ■ Upper tolerance undefined (SR0605.3.6.17) (page 39) ■ No tolerances defined (SR0605.3.6.18) (page 39) ■ Planned quantity invalid (SR0605.3.6.7) (page 39) ■ BOM position invalid (SR0605.3.6.8) (page 40) ■ Duplicate position not allowed (SR0605.3.6.11) (page 40) ■ Comment exceeds maximum length (SR0605.3.6.12) (page 41)

Output Variables (SR0605.9+)

The following output variables are available to reference the phase's output.

Instance count (Framework capability)

- Data type: Long
- Usage: The output variable provides the count of the number of instances the phase has been processed, for example in a loop. The count is also increased when the phase is skipped from an operator's perspective, since the phase is still executed, but as a hidden phase.
  The count variable of a phase that has not been executed provides 0 as output value.

Start time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the start time of the phase.

Completion time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the completion time of the phase.

Identifier (Framework capability)

- Data type: String
- Usage: The output variable provides the identifier of the phase.

Dispatch Order Phase (SR0610+)

The **Dispatch order** phase (D Dispatch Order) allows an operator to dispatch the order to one or more work centers out of a pre-defined set of work centers in the master recipe. If no work center is assigned, the order can be processed at all work centers.

An example use case is:

- Define the work center for a cost center-related weighing order that was previously defined on the shop floor.

Only the default sub-report elements are available for documentation purposes in the sub-report (page 47).

Anomalies that occur during processing are covered by the phase exception handling (page 50) (e.g. adding a user-defined exception).

After completion the phase displays the selected work centers or a message that all work centers are used in the Execution Window.

The Navigator displays the identifier of the order.

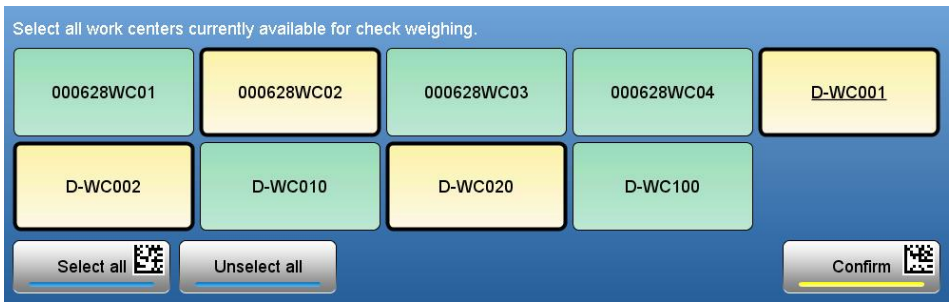

Figure 8: Dispatch order during execution

Layout

The phase provides individual layouts for its representation during execution (page 45), in the Navigator (page 47), and in the sub-report (page 47).

Representation during Execution (SR0610.1+)

The representation during execution depends on the phase mode.

Preview mode (SR0610.1.1)

1. <Instruction text>
   (taken from **Instruction (SR0610.8.1)** process parameter (page 50))
2. **Select all** button (disabled).
3. **Unselect all** button (disabled).
4. **Confirm** button (disabled).

Active mode (SR0610.1.2)

1. <Instruction text>
   (taken from **Instruction (SR0610.8.1)** process parameter (page 50))
2. If the master recipe of the selected order limits the work centers for dispatching:
   1. List of work centers available for selection, depends on work center data.

Content	UI text	Comment
Selectable work center (1)	Identifier	Phase truncates display of the identifier if required.
Selectable work center (2)	Identifier	Phase truncates display of the identifier if required.
…	…	…
Selectable work center (30)	Identifier	Phase truncates display of the identifier if required.

LEGEND
Yellow background: work center is selected.
Green background: work center is not selected.
Underlined text: current work center. The current work center is pre-selected by the phase. This is only possible if the current work center is one of the work centers pre-defined in the master recipe.

   2. **Select all** button.
   3. **Unselect all** button.
3. If the master recipe of the selected order does not limit the work centers for dispatching, the operator cannot restrict the selected work centers any further. The phase displays the following information:
   - As configured in the master recipe, the order is dispatched to all work centers.

   1. **Select all** button (disabled).
   2. **Unselect all** button (disabled).
4. **Confirm** button.

Completed mode (SR0610.1.3)

1. <Instruction text>
   (taken from **Instruction (SR0610.8.1)** process parameter (page 50))
2. If the master recipe of the selected order limits the work centers for dispatching:
   - Selected work centers.
3. If the master recipe of the selected order does not limit the work centers for dispatching, the operator cannot restrict the selected work centers any further. The phase displays the following information:
   - As configured in the master recipe, the order is dispatched to all work centers.
4. **Select all** button (disabled).
5. **Unselect all** button (disabled).
6. **Confirm** button (completed).

Representation in Navigator (SR0610.4+)

The Navigator provides the following details:

Phase column (Framework capability)

- <Phase name>
  - Example:
    Cost center Dispatch

Information column (SR0610.4.1)

- <Identifier of order>
  - Example: CC1234

Action column

- There are no actions available.

Representation in Sub-report (SR0610.5+)

The sub-report contains the following information:

Common sub-report elements (Framework capability)

- <Start time>
- <Completion time>

- <Unit procedure> / <operation> / <phase>
- <Work center> / <station> / <device> - <phase completion user>

Sub-report elements (SR0610.5.1)

There are no phase-specific sub-report elements.

Business Logic (SR0610.2+)

The phase implements the following business logic.

Initialize phase (SR0610.2.1)

- Function: Initializing the phase
- Trigger: Phase becomes active
- Postcondition: Phase displays pre-defined work centers or corresponding message

Step	#	Description
Phase activation	10	Phase displays its user interface according to the **Active mode (SR0610.1.2)** layout (page 46).
	20	Phase verifies the order defined by the **Order (SR0610.8.2)** process parameter (page 50). 1. If the order does not exist, phase displays the **Unknown order (SR0610.3.6.1)** error message (page 51). 2. If the order exists, but is not in the **Exploded** status, phase displays the **Invalid order status (SR0610.3.6.2)** error message (page 51).
	30	If all checks are passed successfully, phase updates the display depending on the work centers assigned to the exploded order step. The work centers have been defined in the master recipe; see also **Active mode (SR0610.1.2)** layout (page 46).

Toggle work center selection (SR0610.2.5)

- Function: Toggling the selection of a work center for dispatching
- Trigger: Operator taps a work center button
- Postcondition: Work center is selected or unselected

Step	#	Description
Operator taps work center button	10	Phase marks the affected work center as selected or unselected, respectively, in the **Active mode (SR0610.1.2)** layout (page 46). The underline marker remains unchanged.

Select all work centers (SR0610.2.2)

- Function: Selecting all work centers for dispatching
- Trigger: Operator taps **Select all** button
- Postcondition: All work centers are selected

Step	#	Description
Operator taps **Select all** button	10	Phase marks all work centers as selected in the **Active mode (SR0610.1.2)** layout (page 46).

Unselect all work centers (SR0610.2.3)

- Function: Unselecting all work centers for dispatching
- Trigger: Operator taps **Unselect all** button
- Postcondition: All work centers are unselected

Step	#	Description
Operator taps **Unselect all** button	10	Phase marks all work centers as unselected in the **Active mode (SR0610.1.2)** layout (page 46).

Confirm phase (SR0610.2.4)

- Function: Completion of phase
- Trigger: Operator confirms phase
- Postcondition: Phase is completed

Step	#	Description
Operator confirms phase	10	If the master recipe of the selected order limits the work centers for dispatching, phase checks that at least one work center is selected. Otherwise continue with step 20.
	10.1	If the check is violated, phase displays the **No work center selected (SR0610.3.6.3)** error message (page 51).
	10.2	If the check is not violated, phase updates the list of assigned work centers on order level.
Phase completion	20	The order is changed according to the work center selection, i.e. either the order is dispatched to all selected work centers in case the master recipe of the selected order limits the work centers for dispatching or it is dispatched to all work centers. Phase is completed.

Process Parameters (SR0610.8+)

The following process parameters define the behavior of the phase.

BASIC PARAMETERS

Instruction (SR0610.8.1)

➢ For recent changes, see revision history (page 61).

Attribute	Type	Comment
Column 1	HTML text	Instruction text to be displayed. **Restriction:** Maximum length is 2000 characters (including HTML tags).
Column 2	HTML text	Not used.
Column 3	HTML text	

Order (SR0610.8.2)

Attribute	Type	Comment
Identifier	String	Reference to the output of a preceding **Define order (SR0600+)** phase (page 11) that provides an order to define the shop floor-defined order context.

Exceptions (SR0610.3+)

The phase supports user-defined, user-triggered (page 50), system-triggered (page 50), and post-completion exceptions (page 50) and their configuration by means of process parameters (page 50).

User-defined exceptions cannot be configured by process parameters since they are provided by the framework and independent of phases.

System-triggered Exceptions

There are no system-triggered exceptions available.

User-triggered Exceptions

There are no user-triggered exceptions available.

Post-completion Exceptions

There are no post-completion exceptions available.

Information Messages

There are no information messages available.

Questions

There are no questions available.

Decisions

There are no decisions available.

Error Messages (SR0610.3.6+)

Error messages are represented in an error message dialog containing a message type-specific icon, the error message, and an **OK** button.

The following error messages are available to inform the operator about error conditions.

Unknown order (SR0610.3.6.1)

UI text	Comment
Cannot start the phase, since the order is unknown.	Message pack: PhaseWDDispatchOrd<version> Message ID: OrderUnknown_ErrorMsg Potential error cause: The used order ID is not available in the system.

Invalid order status (SR0610.3.6.2)

UI text	Comment
Cannot start the phase, since the status of the order is not Exploded.	Message pack: PhaseWDDispatchOrd<version> Message ID: OrderInvalidStatus_ErrorMsg Potential error cause: At phase activation, the order is not in the **Exploded** status.

No work center selected (SR0610.3.6.3)

UI text	Comment
Cannot confirm, since you have not selected a work center.	Message pack: PhaseWDDispatchOrd<version> Message ID: WorkCenterRequired_ErrorMsg

Output Variables (SR0610.9+)

The following output variables are available to reference the phase's output.

Instance count (Framework capability)

- Data type: Long
- Usage: The output variable provides the count of the number of instances the phase has been processed, for example in a loop. The count is also increased when the phase is skipped from an operator's perspective, since the phase is still executed, but as a hidden phase.
  The count variable of a phase that has not been executed provides 0 as output value.

Start time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the start time of the phase.

Completion time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the completion time of the phase.

Identifier (Framework capability)

- Data type: String
- Usage: The output variable provides the identifier of the phase.

Chapter 6

Release Order Phase (SR0615+)

The **Release order** phase (D Release Order) allows an operator to change the order's status to **Released** and thereby make it available for processing.

An example use case is:

- Release an order for cost center-related weighing, thus making it available for order execution with the Production Execution Client.

Only the default sub-report elements are available for documentation purposes in the sub-report (page 54).

Anomalies that occur during processing are covered by the phase exception handling (page 56) (e.g. adding a user-defined exception).

After completion the phase displays the identifier of the released order in the Execution Window and in the Navigator.

Figure 9: Release order during execution

Layout

The phase provides individual layouts for its representation during execution (page 53), in the Navigator (page 54), and in the sub-report (page 54).

Representation during Execution (SR0615.1+)

The representation during execution depends on the phase mode.

Preview mode (SR0615.1.1)

1. <Instruction text>
   (taken from **Instruction (SR0615.8.1)** process parameter (page 56))
2. Release the order:
3. **Confirm** button (disabled).

Active mode (SR0615.1.2)

1. <Instruction text>
   (taken from **Instruction (SR0615.8.1)** process parameter (page 56))
2. Release the order: <order identifier>
   (taken from **Order (SR0615.8.2)** process parameter (page 56))
3. **Confirm** button.

Completed mode (SR0615.1.3)

1. <Instruction text>
   (taken from **Instruction (SR0615.8.1)** process parameter (page 56))
2. Release the order: <order identifier>
   (taken from **Order (SR0615.8.2)** process parameter (page 56))
3. **Confirm** button (completed).

Representation in Navigator (SR0615.4+)

The Navigator provides the following details:

Phase column (Framework capability)

- <Phase name>
  - Example:
    Cost center Release

Information column (SR0615.4.1)

- <Identifier of order>
  - Example: CC1234

Action column

- There are no actions available.

Representation in Sub-report (SR0615.5+)

The sub-report contains the following information:

Common sub-report elements (Framework capability)

- <Start time>
- <Completion time>

- <Unit procedure> / <operation> / <phase>
- <Work center> / <station> / <device> - <phase completion user>

Sub-report elements (SR0615.5.1)

There are no phase-specific sub-report elements.

Business Logic (SR0615.2+)

The phase implements the following business logic.

Initialize phase (SR0615.2.1)

- Function: Initializing the phase
- Trigger: Phase becomes active
- Postcondition: Phase is active

Step	#	Description
Phase activation	10	Phase verifies the order defined by the **Order (SR0615.8.2)** process parameter (page 56). 1. If the order does not exist, phase displays the **Unknown order (SR0615.3.6.1)** error message (page 57). 2. If the order exists, but is not in the **Exploded** status, phase displays the **Invalid order status (SR0615.3.6.2)** error message (page 57).
	20	Phase displays its user interface according to the **Active mode (SR0615.1.2)** layout (page 54).

Confirm phase (SR0615.2.2)

- Function: Completion of phase
- Trigger: Operator confirms phase
- Postcondition: Phase is completed. Order is in the **Release** status.

Step	#	Description
Operator confirms phase	10	Phase is completed. If the order cannot be release due to a technical error, phase displays the **Order release failed (SR0615.3.6.3)** error message (page 58).

Process Parameters (SR0615.8+)

The following process parameters define the behavior of the phase.

BASIC PARAMETERS

Instruction (SR0615.8.1)

➢ For recent changes, see revision history (page 61).

Attribute	Type	Comment
Column 1	HTML text	Instruction text to be displayed. **Restriction**: Maximum length is 2000 characters (including HTML tags).
Column 2	HTML text	Not used.
Column 3	HTML text	

Order (SR0615.8.2)

Attribute	Type	Comment
Identifier	String	Reference to the output of a preceding **Define order (SR0600+)** phase (page 11) that provides an order to define the shop floor-defined order context.

Exceptions (SR0615.3+)

The phase supports user-defined, user-triggered (page 56), system-triggered (page 56), and post-completion exceptions (page 56) and their configuration by means of process parameters (page 55).

User-defined exceptions cannot be configured by process parameters since they are provided by the framework and independent of phases.

System-triggered Exceptions

There are no system-triggered exceptions available.

User-triggered Exceptions

There are no user-triggered exceptions available.

Post-completion Exceptions

There are no post-completion exceptions available.

Information Messages

There are no information messages available.

Questions

There are no questions available.

Decisions

There are no decisions available.

Error Messages (SR0615.3.6+)

Error messages are represented in an error message dialog containing a message type-specific icon, the error message, and an **OK** button.

They are composed of up to two levels:

1. header and
2. details (not always used).

The following error messages are available to inform the operator about error conditions.

Unknown order (SR0615.3.6.1)

UI text	Comment
Cannot start the phase, since the order is unknown.	Message pack: PhaseWDReleaseOrder<version> Message ID: OrderUnknown_ErrorMsg Potential error cause: The used order ID is not available in the system.

Invalid order status (SR0615.3.6.2)

UI text	Comment
Cannot start the phase, since the status of the order is not Exploded.	Message pack: PhaseWDReleaseOrder<version> Message ID: OrderInvalidStatus_ErrorMsg Potential error cause: At phase activation, the order is not in the **Exploded** status.

Order release failed (SR0615.3.6.3)

UI text	Comment
1. Cannot release the order. 2. <System error message>	1. Message pack: PhaseWDReleaseOrder<version> Message ID: OrderReleaseFailed_ErrorMsg 2. <System error message> Potential error cause: Order release failed due to an internal error.

Output Variables (SR0615.9+)

The following output variables are available to reference the phase's output.

Instance count (Framework capability)

- Data type: Long
- Usage: The output variable provides the count of the number of instances the phase has been processed, for example in a loop. The count is also increased when the phase is skipped from an operator's perspective, since the phase is still executed, but as a hidden phase.
  The count variable of a phase that has not been executed provides 0 as output value.

Start time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the start time of the phase.

Completion time (Framework capability)

- Data type: Timestamp
- Usage: The output variable provides the completion time of the phase.

Identifier (Framework capability)

- Data type: String
- Usage: The output variable provides the identifier of the phase.

Reference Documents

The following documents are available from the Rockwell Automation Download Site.

No.	Document Title	Part Number
A1	PharmaSuite Functional Requirement Specification Execution Framework	PSFRSEF-RM004E-EN-E
A2	PharmaSuite Technical Manual Phases of the Dispense Package	PSDI-PM005E-EN-E
A3	PharmaSuite Technical Manual Configuration & Extension - Volume 3	PSCEV3-GR008E-EN-E

TIP

To access the Rockwell Automation Download Site, you need to acquire a user account from Rockwell Automation Sales or Support.

Appendix A

Document Information

The document information covers various data related to the document.

Approval

This document has been approved electronically via the Rockwell Automation Document Management System (DMS). The required approvers of this document include the following:

Name	Role
Martin Dittmer	Product Manager
Steffen Landes	Development Manager
Martin Irmisch	Test Manager

In addition, the electronic document approval via DMS is confirmed by a handwritten signature of all approvers in the Quality Document when the release is completed. The Quality Document summarizes the quality-related planning activities and results of a PharmaSuite release.

Version Information

Object	Version
PharmaSuite	8.4
Define order	2.0 MR2
Edit BOM	2.0 MR2
Dispatch order	2.0 MR2
Release order	2.0 MR2
Functional Requirement Specification	1.0

Revision History

The following table describes the history of this document.

Changes related to the document:

Object	Description	Document
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Changes related to "Shop Floor-Defined Order Workflow" (page 3):

Object	Description	Document
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Changes related to "Define Order Phase" (page 11):

Object	Description	Document
Instruction (SR0600.8.1) (page 17)	Update The maximum length of the **Instruction** process parameter is 2000 characters (including HTML tags). No change of code.	1.0
Master Recipe (SR0600.8.3) (page 17)	Update PharmaSuite supports the concept of confidential objects to protect the intellectual property of recipes, workflows, orders, and related data from unauthorized access.	1.0

Changes related to "Edit BOM Phase" (page 25):

Object	Description	Document
Unknown Order (SR0605.3.6.1) (page 36)	Update Message rephrased to cover all occurrences.	1.0
Instruction (SR0605.8.1) (page 34)	Update The maximum length of the **Instruction** process parameter is 2000 characters (including HTML tags). No change of code.	1.0

Changes related to "Dispatch Order Phase" (page 45):

Object	Description	Document
Instruction (SR0610.8.1) (page 50)	Update The maximum length of the **Instruction** process parameter is 2000 characters (including HTML tags). No change of code.	1.0

Changes related to "Release Order Phase" (page 53):

Object	Description	Document
Instruction (SR0615.8.1) (page 56)	Update The maximum length of the **Instruction** process parameter is 2000 characters (including HTML tags). No change of code.	1.0

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