Warehouse - Count Execution

DELMIA Apriso 2016 Business Process Flow Guide

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1 Introduction

This document describes in detail the Warehouse - Count Execution scenario responsible for the execution of physical counting in a warehouse.

1.1 Installation

To install Count Execution Business Process Flows (BPFs), please locate the GPM package on the DELMIA Apriso DVD in the BPF directory and deploy it using GPM. The package name is: **BPF - Warehouse - Inventory Count 2 Execute - 10.0.gpm**. Once deployed, an additional Menu Item will appear: **Execute Counting**. For details about deploying packages, please refer to Global Process Manager Online Help.

2 General

2.1 Description

The Standard Operation **APR_WH_IC.InventoryCount_Execute** is dedicated for warehouse operators who are responsible for the process of physical inventory counting. This Operation invokes several Sub-Operations, which are described in the sections below. The Operation is meant to be used with a new model of counting (Inventory 2).

2.2 Assumptions

1 This Standard Operation only **works** with Inventory tracked by the following parameters:
- Product
- Warehouse Location
- Serial
- Lot
- Container
- Parent Container

It **does not work** if Inventory is tracked by:
- Partner ID
- GradeID
- ERPMaterialStockID
- InventoryStatus
- InventoryClassID

If Inventory is to be tracked by different parameters than those listed above, the Operation must be extended to support it.

2 This Standard Operation assumes that Count Disposition Lines are created only against Warehouse Location. If Lines should be created against something more (e.g., Warehouse Location and Product), then the Operation must be extended to support it.

3 Warehouse Locations created in the system should have unique names so that the Operation can recognize the Location that is scanned.

4 This Standard Operation assumes that some items can be scanned. As a generic rule, everything which is contained in the scanned entity will be registered. The following items can be scanned:
- Warehouse Location – counting in the scanned Warehouse Location will be started and/or confirmed.
- Container (with no sub-Containers) – a Container with an expected quantity will be registered, which means that if a Container is scanned, the system assumes all Inventory in this Container is present.

- Parent Container – all child Containers and their expected quantities will be registered (this applies to two-level Containers only, which means that if child Containers contain other Containers, these other Containers and their contents will not be counted).
- Serial Number.
- Lot Number.
- Product Number – the scanned Product should only have one revision. If Product is revision tracked, an error will be displayed. To support the scenario where revision tracked Products are counted, the Standard Operation must be modified.

ⓘ Entities that do not exist in the system should not be scanned.

2.3 Prerequisites

In order to perform counting with the use of the **APR_WH_IC.InventoryCount_Execute** Standard Operation (as described in 3 Scenario Flow), the following conditions must be met:

1. Count Procedure must be defined:
   a. The Operation set as Count Execution Operation must be APR_WH_IC.CountDisposition_Execute.
   a. Warehouse must be linked to Count Procedure.
   b. Create Snapshot flag must be selected (for more information on the definition of snapshot, please refer to Inventory Count Implementation Guide).
2. Count Disposition must be defined and it must have the defined Count Procedure linked.

For information on how to set Count Procedure and Count Disposition, please refer to **Warehouse** section in DELMIA Apriso Desktop Client Online Help.

2.4 Count Process Flow

The entire count process starts with the definition of Count Procedures, and continues with the creation of Count Disposition, the creation of Count Disposition Lines, and the **execution of actual counting**. It finishes with the analysis of the count results, approval, and reconciliation, and the posting of these results to external systems. This document describes the BPF that can be used for the **count execution phase**, while the remaining phases of the count process are described in Inventory Count Implementation Guide.

3 Scenario Flow

The count process is started by an employee user (in this example, a shop floor operator) who receives the task to perform the actual counting of Inventory according to specified requirements.

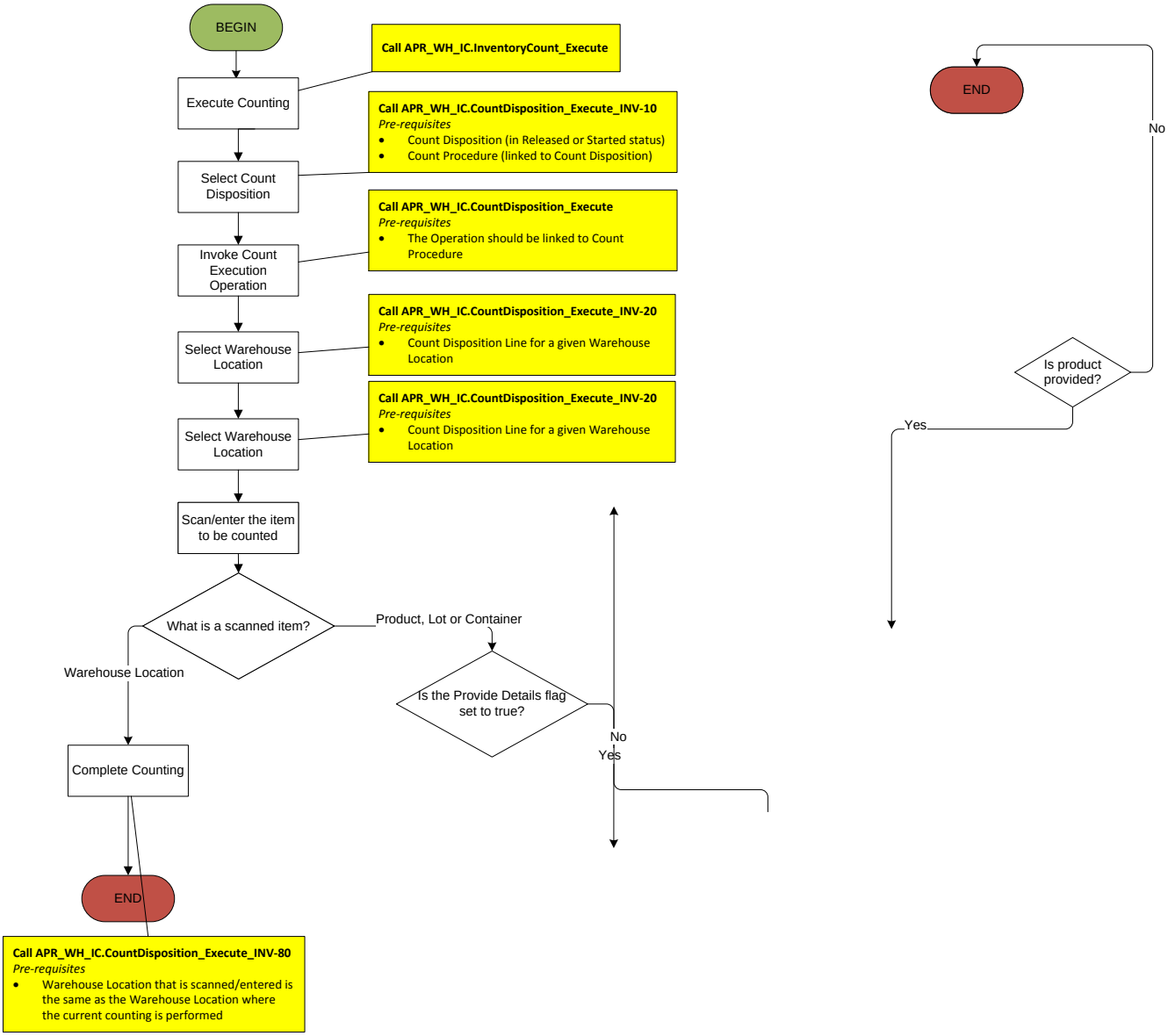

Figure 1 Count Execution Design

3.1 Count Execution

3.1.1 Standard Operation

Standard Operation	Description
APR_WH_IC.InventoryCount_Execute	This is the main Operation responsible for the count execution. It is split into several sub-operations described in the sections below.

Table 1 APR_WH_IC.InventoryCount_Execute

3.1.2 User Actions

The shop floor operator user goes to a Warehouse Location that is supposed to be counted and, using a mobile device (or any other device) and invokes the **APR_WH_IC.InventoryCount_Execute** Standard Operation by choosing one of the following methods:

- Navigate to the operation in DELMIA Apriso Portal using the search field
- Navigate to the operation in DELMIA Apriso Desktop Client using the search field
- Open Execute Counting Menu Item in Apriso Classic Portal.

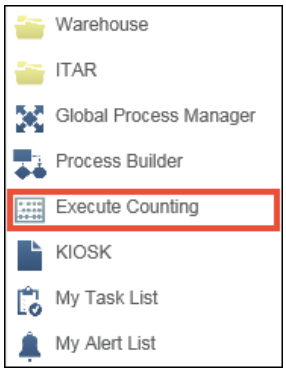

Figure 2 Execute Counting Menu Item

3.2 Count Disposition Selection

3.2.1 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-10	This Operation allows the user to choose the Count Disposition number. It returns the FUID of the Operation, which is defined in Count Procedure of the Count Disposition. In this Business Process Flow, this Operation is APR_WH_IC.CountDisposition_Execute**.**

Table 2 APR_WH_IC.CountDisposition_Execute_INV-10

3.2.2 User Actions

The operator selects the appropriate **Count Disposition** from the drop-down list. Only Count Dispositions in Released and Started statuses can be selected. If the Count Disposition status was Released, it now changes to **Started**.

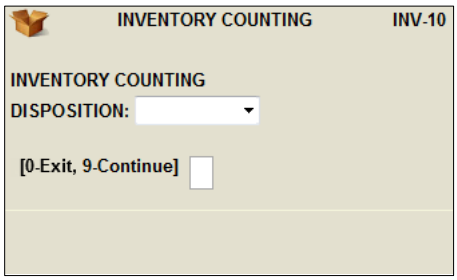

Figure 3 Count Disposition Selection

3.3 Count Disposition Execution

3.3.1 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute	This Operation is to be used as a Count Execution Operation. It should be linked to Count Procedure.

Table 3 APR_WH_IC.CountDisposition_Execute

3.3.2 User Actions

No user action is required at this step. **APR_WH_IC.CountDisposition_Execute** is invoked, as described in 3.2 Count Disposition Selection section. This Operation invokes sub-operations described in the following sections.

3.4 Warehouse Location Selection

3.4.1 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-20	This Operation accepts the Warehouse Location and validates that it exists.

Table 4 APR_WH_IC.CountDisposition_Execute_INV-20

3.4.2 User Actions

The operator scans or manually enters the Warehouse Location that will be counted. After a Warehouse Location is scanned, the status of the corresponding Count Disposition Line is changed to **Started**. This might involve holding the scanned Warehouse Location and creating a snapshot, depending on the Count Procedure configuration.

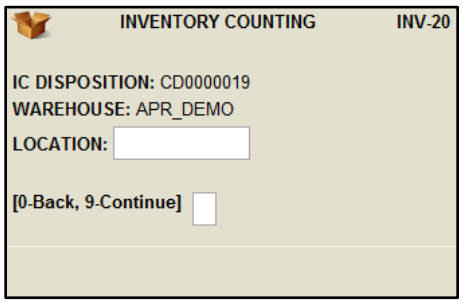

Figure 4 Warehouse Location Selection

3.5 Item Selection

3.5.1 Standard Operation

Sub-operation	Description
APR_WH_IC.CountDisposition_Execute_INV-30	This Operation can accept any of these items: ▶ Product Number ▶ Serial Number ▶ Lot Number ▶ Container ▶ Warehouse Location It also validates that the given item exists in the snapshot of the current Warehouse Location. The item will only be recognized if it exists in the snapshot.

Table 5 APR_WH_IC.CountDisposition_Execute_INV-30

3.5.2 User Actions

The operator enters or scans the item that will be counted. After an item is scanned, the system navigates to the appropriate screen according to the item:

- **Warehouse Location** – if it matches the current Warehouse Location (i.e., the Warehouse Location in which the operator performed the counting process), the system navigates to APR_WH_IC.CountDisposition_Execute_INV-80 Standard Operation.
- **Serial Number** – if it exists in the snapshot, then the count record is registered.
- **Product or Lot**:
  - If the Provide Details flag is **enabled**, the system navigates to APR_WH_IC.CountDisposition_Execute_INV-40 Standard Operation.
  - If the Provide Details flag is **disabled**, the system navigates to APR_WH_IC.CountDisposition_Execute_INV-60 Standard Operation.
- **Container**:
  - If the Provide Details flag is **enabled**, the system navigates to APR_WH_IC.CountDisposition_Execute_INV-40 Standard Operation.
  - If the Provide Details flag is **disabled** and the Container is homogenous or multi-level, the system navigates to APR_WH_IC.CountDisposition_Execute_INV-60**.**

- **Unrecognized or ambiguous item** – the system navigates to APR_WH_IC.CountDisposition_Execute_INV-40. An ambiguous item can be an item for which more than one record exists in a snapshot (e.g., Product was scanned but the system holds 10 serial numbers for this Product and thus 10 records in the snapshot).

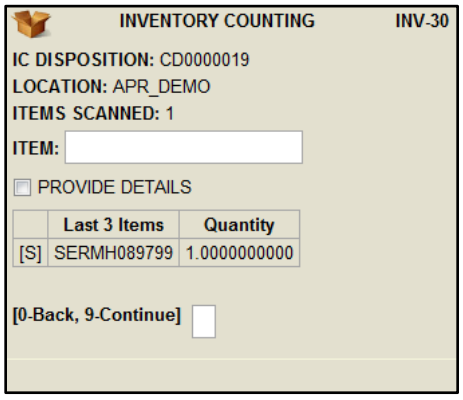

Figure 5 Select an Item

3.6 Inventory Details

3.6.1 Standard operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-40	This Operation is invoked when Serial Number, Product, Lot, Container is entered or scanned and the Provide Details check box is selected, or when an unrecognized or ambiguous item is entered (see 3.5 Item Selection).

Table 6 APR_WH_IC.CountDisposition_Execute_INV-40

3.6.2 User Actions

The operator can now provide more details regarding the item scanned:

- Container
- Parent Container
- Product Number
- Lot Number
- Serial Number
- Quantity
- Unit of Measure (Product's default)

Based on the entered information, the system does one of the following:

- Confirms the snapshot. This applies to all records present in the snapshot which agree with the set of provided parameters. The quantity entered must be equal to the quantity of the records in the snapshot.
- Updates a count record (when only one snapshot record exists).

- Registers a new count record (when the inventory snapshot does not exist and the inventory parameters are sufficient to determine the unique inventory record, or if the snapshot does not exist but the unique inventory for the given set of parameters exists).
- Navigates to APR_WH_IC.CountDisposition_Execute_INV-50 Standard Operation where a "phantom" record is registered.

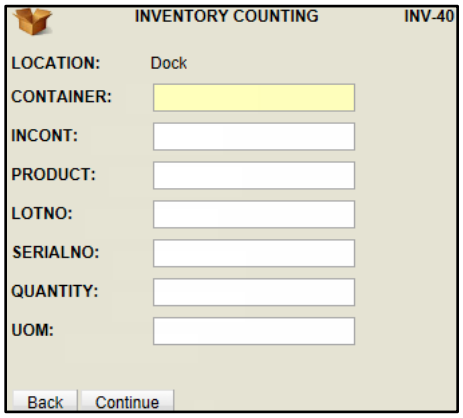

Figure 6 Provide Inventory Details

3.7 Ambiguous Data

3.7.1 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-50	This Operation informs the user that the counting parameters are ambiguous.

Table 7 APR_WH_IC.CountDisposition_Execute_INV-50

3.7.2 User Actions

If the operator provides details of the counted Inventory that are ambiguous (e.g., the Lot Number is provided but the Product is not provided while the Warehouse Location contains the same Lots but different Products), this Standard Operation is invoked. This allows the user to create a "phantom" record by continuing or to navigate back to the screen where more details of the counted Inventory will be provided. For a detailed definition of "phantom," please refer to Inventory Count Implementation Guide.

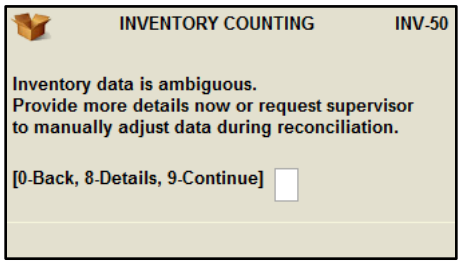

Figure 7 Ambiguous Inventory Data

3.8 Inventory Quantity

3.8.1 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-60	This Operation allows the user to provide the quantity of the counted Inventory or the child containers present in a parent container.

Table 8 APR_WH_IC.CountDisposition_Execute_INV-60

3.8.2 User Actions

If the operator entered or scanned a Product, Lot, or Container while providing an item to be counted (see 3.5 Item Selection) and this item matches an item that exists in the given Warehouse Location, this screen allows the user to provide the quantity of the item. If the quantity matches the existing inventory snapshot, then the snapshot is confirmed. Otherwise the system navigates to APR_WH_IC.CountDisposition_Execute_INV-70**.**

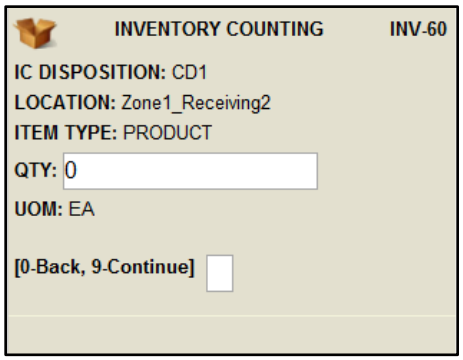

Figure 8 Provide Inventory Quantity

3.9 Incorrect Quantity

3.9.1 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-70	This Operation informs the user that the entered quantity or the number of child containers is not correct.

Table 9 APR_WH_IC.CountDisposition_Execute_INV-70

3.9.2 User Actions

If the scanned quantity of the counted Inventory or the child containers does not match the Inventory present in the system, the Operation enforces the second counting and requires the user to provide more detail about the Inventory. This is done to make sure that no mistake was made while counting.

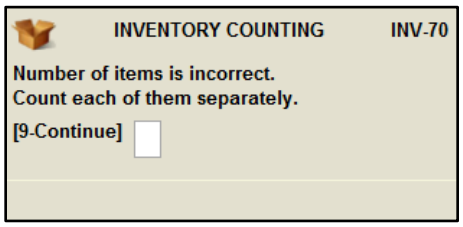

Figure 9 Incorrect Quantity

3.9.3 Complete Counting

3.9.4 Standard Operation

Sub-Operation	Description
APR_WH_IC.CountDisposition_Execute_INV-80	This Operation is displayed when counting is completed.

Table 10 APR_WH_IC.CountDisposition_Execute_INV-80

3.9.5 User Actions

The operator continues counting item after item. When finished, the operator scans the Warehouse Location once again, or types Warehouse Location in the Item field. The system recognizes that the counting of this Location is complete and invokes this Standard Operation with a summary of the results (a list of scanned items). The operator can now confirm that counting is finished and move to the next Warehouse Location. At this point the status of the Count Disposition Line changes to **Counted**. Inventory Accuracy is calculated for Count Disposition lines and updated by invoking the **UpdateCountDispositionLineAccuracyRatio** Business Component method. Lines that are 100% accurate will not be reconciled which improves the performance of the execution Operation. For more information on count Accuracy Ratio, please refer to Inventory Count Implementation Guide.

ⓘ Count Disposition status is updated to Counted only when all of its Lines reach the status of Counted, or if some Lines are Cancelled and the remaining ones are Counted.

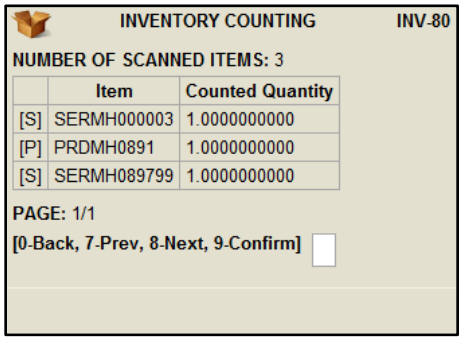

Figure 10 Finish Counting

4 User Interface Standard Operations

This section describes Standard Operations responsible for generating user interface on every screen of this Business Process Flow.

4.1 APR_WH_IC.UI_DisplayHeader

This Operation displays a screen header with a user-defined logo, a title and a screen code. Screen code and a screen title are defined for every screen when the Operation is called, while the logo is defined in the APR_WH_IC.UI_DisplayHeader Operation with the use of a Business Control.

Figure 11 APR_WH_IC.UI_DisplayHeader

4.2 APR_WH_IC.UI_DisplayFooter

This Operation displays a screen footer with navigation in form of buttons or text. Navigation mode is defined for every screen when the Operation is called, the modes are:

- TEXT DEVICE – navigation with numeric keypad.
- BUTTONS – navigation with regular buttons.

Rendering of navigation calls the APR_WH_IC_UI_GetButtonsByScreen screen Operation which defines the navigation.

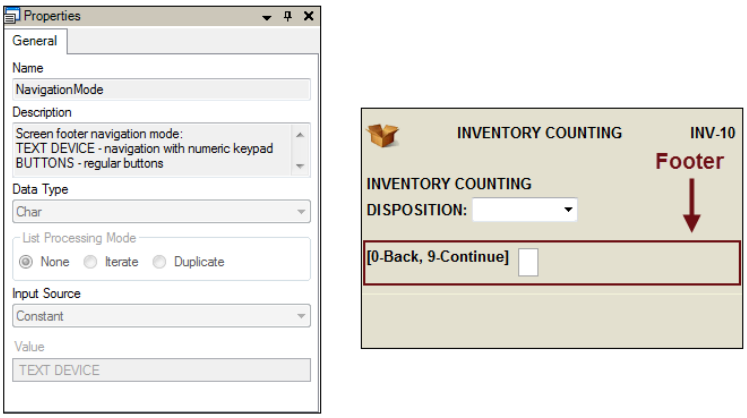

Figure 12 APR_WH_IC.UI_DisplayFooter

4.3 APR_WH_IC.UI_GetButtonsByScreen

This Operation returns a list of buttons that appear in the footer of a given screen. It calls **APR_WH_IC_BUTTON_CONFIG** determination containing definition of buttons. The labels of buttons are defined as System Parameters, and matched by the ButtonName output of this Determination.

5 References

All the documents referenced below are available from the DELMIA Apriso Start page, which can be accessed on your DELMIA Apriso server (`<server name>/apriso/start`). The newest versions of all the documents are available from the 3DS Support.

1 **Dassault Systèmes**, Global Process Manager Online Help

This help introduces users to Global Process Manager.

2 **Dassault Systèmes**, Inventory Count Implementation Guide

This Implementation Guide describes the preparation and implementation of Inventory Count solution.

3 **Dassault Systèmes**, DELMIA Apriso Desktop Client Online Help

This Help describes the DELMIA Apriso Desktop Client and all the maintenance and monitoring screens embedded in it.

4 **Dassault Systèmes**, Process Builder Online Help

This help introduces users to Process Builder.