



ERP-359 Restrict changes to the shipping condition from Ocean to Any other mode of transport

Status	Approved
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Jira Development ID	 ERP-359 - Jira project doesn't exist or you don't have permission to view it.

High- Level Specification

Parameter	Value
Application System	Application System (Source)S/4Hana ROW, S/4Hana China
Business Process Reference	02.04.02.01. Manage Standard Sales Order

Functional Overview

1. Business Requirement

To ensure robust and stable integration between **Sales & Distribution (SD)** and **Transportation Management (TM)**, the business requires control over changes to the **Shipping Condition** once Transportation planning has commenced.

When a **Freight Unit (FU)** has already been planned and assigned to a **Freight Order** or **Freight Booking**, changing the Shipping Condition—specifically from **Ocean to anything else** (for example Air)—creates a mismatch between the sales document and the transportation execution. This can result in automatic **de-assignment of the Freight Unit**, leading to disruption of downstream logistics processes, replanning efforts, and potential delivery delays.

This WRICEF introduces controlled validation logic to **prevent Shipping Condition changes from Ocean to any other shipping condition** when the related Freight Unit is already planned, while still allowing flexibility for other mode changes where operationally valid.

The solution supports:

- Protection of TM planning integrity
- Prevention of Freight Unit de-assignment
- Consistent SD–TM integration behavior
- Controlled flexibility based on Freight Unit planning status

Scope and Objectives

This WRICEF covers a targeted enhancement applicable to:

- **Sales Orders (Document Category C)**
- **Change processing only**

The enhancement applies at **sales order header level**, evaluated against **item-level Freight Unit planning status**, and is enforced during **Save**.

Applications in Scope

- SAP Fiori
- Manage Sales Orders – Version 2
- Change Sales Orders

Why Standard SAP Is Not Sufficient

SAP standard does not include a validation mechanism to:

- Check Freight Unit planning status in TM when a Shipping Condition is changed in Sales Orders
- Prevent mode-of-transport mismatches once a Freight Unit is Planned or Partially Planned
- Distinguish between allowed and disallowed Shipping Condition changes based on TM execution status

Without such validation:

- Users can change the Shipping Condition from **Ocean to any other shipping condition** after TM planning has occurred
- Freight Units may be automatically de-assigned due to transport mode inconsistencies
- Freight Orders or Freight Bookings can be disrupted or invalidated
- Downstream logistics processes require manual correction and replanning

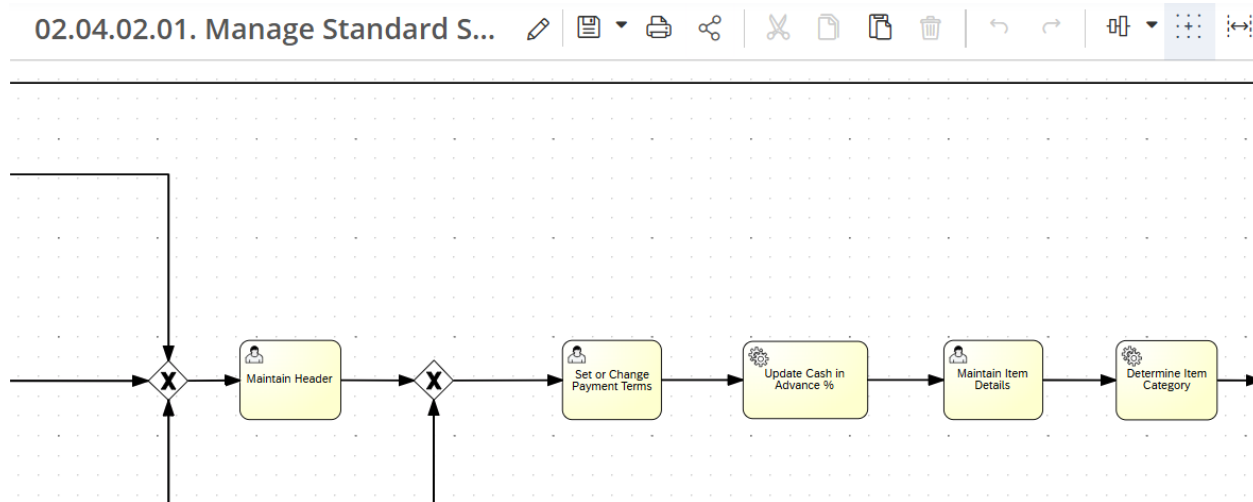
Limited Control in SAP Fiori Sales Order Processing

In the **Manage Sales Orders – Version 2** Fiori app:

- Shipping Condition changes are allowed without awareness of TM planning status
- No standard error handling exists to block incompatible changes at Save
- Users receive no immediate feedback on the impact of changes to TM execution

Process Flow Diagram

The scope of this enhancement is depicted in process step **Maintain item details** below. For the full Signavio, please go to [02.04.02.01. Manage Standard Sales Order](#)



Step	Description	Comment
1.	Create sales order	Shipping condition is 01 - ocean.
2.	Change Sales order	Change sales order with shipping condition for ocean (01) to air (03) or any other condition.
3.	Freight Unit is created and linked to the order	Freight Until status is set to planned.
4.	Save Sales Order	The system should not allow the change and issue error message.

Assumptions

- Sales Orders are integrated with **SAP Transportation Management (TM)** and generate **Freight Units (FUs)** as part of standard SD–TM integration.
- Freight Unit planning status maintained in TM (/SCMTMS/D_TORROT-PLAN_STATUS_ROOT) is considered the **single source of truth** for determining whether Transportation planning has commenced.
- The Shipping Condition field (VBAK–VSBED) is used consistently to derive the **mode of transport** for TM planning.
- The restriction applies only when a Shipping Condition change would result in a **mode-of-transport conflict** (Ocean Air) with an already **Planned or Partially Planned** Freight Unit.
- When a Freight Unit is in **Not Planned (“01”)** status, the system assumes that no TM execution commitments exist and Shipping Condition changes may proceed.
- The validation logic assumes a **direct and reliable link** between Sales Order items and Freight Units via standard TM integration tables.
- Error handling is implemented as a hard validation (blocking error) to prevent inconsistent data from being saved.

Dependencies

Not Applicable.

Security, Integrity and Controls

The enhancement will follow the SAP standard security and authorization framework.

The authorization to maintain these this field should be included in the Customer Representative Role as part of the **Manage Sales Orders v2 - F3893, VA02 Change Sales order.**

Configuration Requirements

Not Applicable

Language Requirements

Not Applicable

Special Requirements

Not Applicable

Design Rationale

Functional Requirements

Shipping Condition Change Restriction

Applicability

The restriction requirements apply to **sales document header changes** for:

- **Sales Orders (Document Category C)**

The validation behavior shall be enforced in:

- **SAP Fiori – Manage Sales Orders – Version 2 (F3893)**

1. Shipping Condition Field (VBAK-VSBED)

Field Usage

The system shall use the standard SAP **Shipping Condition** field (VBAK-VSBED) to derive the Mode of Transport for downstream Transportation Management (TM) planning.

2. Freight Unit Planning Status Evaluation

TM Integration Dependency

The system shall evaluate the **Freight Unit (FU) planning status** in SAP Transportation Management before allowing certain Shipping Condition changes.

TM Tables in Scope

- **Sales Order Item** Freight Unit link: /SCMTMS/D_TORITE
- **Freight Unit Root**: /SCMTMS/D_TORROT
- **Planning Status Field**: /SCMTMS/D_TORROT-PLAN_STATUS_ROOT

Relevant Planning Status Values

Value	Description
01	Not Planned
02	Partially Planned
03	Planned

Shipping Condition Restriction Logic

Standard Field Usage

The system shall restrict changes to the **Shipping Condition (VBAK-VSBED)** based on the Freight Unit planning status in TM.

Restriction Logic

When a user attempts to change the Shipping Condition, the system shall apply the following rules:

Restricted Scenario

The system shall **prevent saving the Sales Order** if all of the following conditions are met:

- Existing Shipping Condition = **Ocean (01)**
- New Shipping Condition = **anything not equal to Ocean (01)**
- A Freight Unit exists for at least one Sales Order item
- Freight Unit Planning Status is:
 - **Planned ("03")**, or
 - **Partially Planned ("02")**

Allowed Scenarios

The system shall allow the Sales Order to be saved when:

- Freight Unit Planning Status = **Not Planned ("01")**
- No Freight Unit exists for the Sales Order

Restriction Lift Logic

Applicability

The restriction shall be **dynamically lifted** based on the Freight Unit planning state.

Restriction Lift Rules

If the Freight Unit Planning Status changes to:

- **Not Planned (“01”)**

Then:

- The Shipping Condition change from **Ocean** **any other value** shall be permitted
- The Sales Order may be saved successfully

Error Handling

Blocking Behavior

If the restriction conditions are met, the system shall:

- Prevent the Sales Order from being saved

Error Messaging

The system shall display a clear and meaningful error message indicating that:

- The Shipping Condition change from Ocean to any other condition is not permitted
- The related Freight Unit is already Planned or Partially Planned in Transportation Management

Example (illustrative):

“Shipping Condition change from Ocean to Air is not permitted. Related Freight Unit is already planned in Transportation Management.”

Proposed Technology to Use

An implementation of BADI is required and put a validation in **SD_SLS_CHECK_HEAD / SD_SLS_CHECK_BEFORE_SAVE** to check, before saving a Sales Document, that when the **Route Type is OCEAN**, the associated **Freight Unit Planning Status** meets the required condition suggested below; otherwise the system should block the save with an appropriate message.

Data Source Considerations

Table	Field Name	Comments/Calculation/Field Manipulation
VBAK	VSBED	Shipping Condition
SCMTMS	D_TORITE	Sales order item - Freight Unit link
SCMTMS	D_TORROT- PLAN_STATUS_ROOT	Planning status field

Data Validation Considerations

Not Required

Table	Field Name	Comments/Calculation/Field Manipulation

Custom Tables

Not Required

Master Data

Field	Description	Data Type/Length	Validation rule/ Value Help

Configuration Table

Field	Description	Data Type/Length	Validation rule/ Value Help

Selection Screen Enhancement

Field Name	Description	Select:	Data Type/Length	Default Value/ Validation rule/ Value Help	Selection Logic

Processing Logic

Shipping Condition Change Restriction (Sales Order Header)

Applicability

The restriction applies to:

- **Sales Orders** (Document Category **C**)
- Header-level changes to **Shipping Condition (VBAK-VSBED)**
- Enforced in:
 - **SAP Fiori – Manage Sales Orders – Version 2 (F3893)**

1. Standard Field Usage

The system shall use the standard SAP field:

- **Shipping Condition (VBAK-VSBED)**

This field is used to derive the **Mode of Transport** for downstream **Transportation Management (TM)** planning.

The system shall restrict changes to **VBAK-VSBED** based on the related Freight Unit planning status in TM.

2. TM Integration Dependency

When a Shipping Condition change is attempted, the system shall:

1. Identify Freight Units linked to the Sales Order items via:
 - **/SCMTMS/D_TORITE** (Sales Order Item Freight Unit link)
2. Read the Freight Unit root record:
 - **/SCMTMS/D_TORROT**

3. Evaluate Planning Status field:

- /SCMTMS/D_TORROT-PLAN_STATUS_ROOT

Planning Status values:

Code	Meaning
01	Not Planned
02	Partially Planned
03	Planned

Shipping Condition Restriction Logic

Step-by-step logic at Sales Order Save

FOR the Sales Order header being saved:

1. Read existing Shipping Condition = **VSBED_old**
2. Read new Shipping Condition = **VSBED_new**

Restricted Scenario (Ocean Non-Ocean)

The system shall prevent saving the Sales Order if **all** of the following conditions are met:

- Existing Shipping Condition = **Ocean (01)**
- New Shipping Condition **Ocean (01)**
- At least one Freight Unit exists for any Sales Order item
- Freight Unit Planning Status is:
 - **02 (Partially Planned)**, or
 - **03 (Planned)**

If all above conditions are met:

Prevent Sales Order save (transaction rollback)

Raise blocking error message

Set field focus to **Shipping Condition (VBAK-VSBED)**

Allowed Scenarios

The system shall allow the Sales Order to be saved when:

- Freight Unit Planning Status = **01 (Not Planned)**
OR
- No Freight Unit exists for the Sales Order

Restriction Lift Logic

Applicability

The restriction shall be dynamically evaluated at each save attempt.

Restriction Lift Rules

If the Freight Unit Planning Status changes to:

- **01 (Not Planned)**

Then:

- The Shipping Condition change from **Ocean (01)** any other value shall be permitted
- The Sales Order may be saved successfully

This ensures the restriction is not permanent and responds dynamically to TM planning status.

Error Handling

Blocking Behavior

If the restriction conditions are met, the system shall:

- Prevent the Sales Order from being saved
- Display a blocking error message

Suggested Error Text

Shipping Condition cannot be changed from Ocean because Freight Unit planning has already started in Transportation Management (Status: Planned or Partially Planned).

Expected Outcomes by Scenario

Existing	New	FU Exists	PLAN_STATUS	Result
Ocean	Air	Yes	03	Block
Ocean	Road	Yes	02	Block
Ocean	Air	Yes	01	Allow
Ocean	Air	No	N/A	Allow
Air	Road	Yes	03	Allow (not OceanNon-Ocean scenario)
Ocean	Ocean	Any	Any	Allow

Volumetrics

Monthly average 124 Sales orders are changed from Ocean to Air on Legacy System.

Performance Considerations

The enhancement is expected to support concurrent updates by a maximum of **two (2) users simultaneously**.

These updates would occur on **different sales orders** and potentially across **different Sales Organizations**.

No mass processing, background jobs, or high-volume parallel processing is expected. Therefore, no additional performance optimization beyond standard SAP transaction handling is required.

Error Handling

Blocking Behavior

If the restriction conditions are met, the system shall:

- Prevent the Sales Order from being saved

Error Messaging

The system shall display a clear and meaningful error message indicating that:

- The Shipping Condition change from Ocean to any other condition is not permitted

- The related Freight Unit is already Planned or Partially Planned in Transportation Management

Example (illustrative):

“Shipping Condition change from Ocean to Air is not permitted. Related Freight Unit is already planned in Transportation Management.”

Testing

How to Test

Test Conditions and Expected Results

ID	Condition	Expected Result
TC-01	Fiori F3893 (Change SO): Change Shipping Condition 01 (Ocean) 03 (Air) and the related FU <code>PLAN_STATUS_ROOT = 03 (Planned)</code>	Save is blocked. Error message displayed. Shipping Condition remains unchanged.
TC-02	Fiori F3893 (Change SO): Change Shipping Condition 01 (Ocean) 03 (Air) and the related FU <code>PLAN_STATUS_ROOT = 02 (Partially Planned)</code>	Save is blocked. Error message displayed. Shipping Condition remains unchanged.
TC-03	Fiori F3893 (Change SO): Change Shipping Condition 01 (Ocean) 03 (Air) and the related FU <code>PLAN_STATUS_ROOT = 01 (Not Planned)</code>	Save succeeds. Shipping Condition updates to Air.
TC-04	Fiori F3893 (Change SO): Change Shipping Condition 01 (Ocean) 03 (Air) and no FU exists for the SO items	Save succeeds. Shipping Condition updates to Air.
TC-05	Fiori F3893 (Change SO): Change Shipping Condition 01 (Ocean) Road /Other non-Air (e.g., 02) while FU is Planned (03)	Save succeeds. Change is allowed (no restriction triggered).
TC-06	Fiori F3893 (Change SO): SO has multiple items; at least one linked FU is Planned (03); user changes 01 (Ocean) 03 (Air)	Save is blocked. Error message displayed (restriction triggered if any relevant FU is Planned/Partially Planned).
TC-07	Fiori F3893 (Change SO): SO has multiple items; all linked FUs are Not Planned (01); user changes 01 (Ocean) 03 (Air)	Save succeeds. Shipping Condition updates to Air.
TC-08	SAP GUI VA02 (Change SO): Change Shipping Condition 01 (Ocean) 03 (Air) and related FU is Planned (03)	Save is blocked with the same error-handling behavior as Fiori. Shipping Condition remains unchanged.
TC-09	Fiori F3893 / VA02: Attempt to save the SO without changing Shipping Condition (remains Ocean) while FU is Planned/Partially Planned	Save succeeds. No validation triggered (since no OceanAir change occurred).

Test Considerations/Dependencies

Other Information

Development Details

Package

Package Name	Parent Package

Enhancement Implementation

Enhancement Type	Standard Definition Name	Custom Implementation Name	Design Rationale Reference

Other Development Objects

Object Type	Object Name	Purpose/High Level Logic	Design Rationale Reference

Appendix

Custom Authorization Group Naming Convention

This table is based on the Syensqo development standards document. It provides the naming conventions for authorization groups to associated with custom reports and tables to comply with security requirements.

ABAP	ZFI	ZMM	ZPS	ZCO	ZSD	ZBC	ZFI	ZCA
TABLES	ZFIT	ZMMT	ZPST	ZCOT	ZSDT	ZBCT	ZFIT	ZCAT

See also

File **Modified**

No files shared here yet.





Change log

Version	Published	Changed By	Comment
CURRENT (v. 16)	Apr 29, 2026 13:18	VAN AARDE-ext, Tonya	
v. 15	Apr 29, 2026 12:54	VAN AARDE-ext, Tonya	
v. 14	Mar 10, 2026 09:29	VAN AARDE-ext, Tonya	
v. 13	Mar 10, 2026 09:02	VAN AARDE-ext, Tonya	
v. 12	Mar 02, 2026 12:22	VAN AARDE-ext, Tonya	
v. 11	Mar 02, 2026 12:14	WEINERT-ext, Patrick	
v. 10	Mar 02, 2026 12:03	VAN AARDE-ext, Tonya	
v. 9	Feb 17, 2026 15:52	VAN AARDE-ext, Tonya	
v. 8	Feb 17, 2026 15:18	VAN AARDE-ext, Tonya	
v. 7	Feb 12, 2026 12:51	VAN AARDE-ext, Tonya	

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Workflow history

This view shows the 5 most recent entries. The complete workflow log is available from the 'Document Activity' menu item.

Apr 29, 2026	Actor	Type	Activity	Version
Approved	 VAN AARDE-ext, Tonya	Edit	updated the page at 12:54 pm	
Apr 16, 2026				
	 FARIA-ext, Joana	State	changed state to Approved at 5:14 pm	v14
Lead Approval	 FARIA-ext, Joana	State	gave <i>POD Lead Review</i> approval at 5:14 pm	
Mar 10, 2026				
	 VAN AARDE-ext, Tonya	Edit	updated the page at 9:02 am	
	WEINERT-ext, Patrick	State	changed expiry date to '17 Mar, 2026 08:40 am' at 8:40 am	
		State	changed state to Lead Approval at 8:40 am	v14