



# **SAP Logistics Business Network, Global Track and Trace Option** **Track PO Fulfillment Template App**

SAP Business Network  
March 2021

PUBLIC

# About **GTT Template Apps**

**GTT template apps\*** stand for codes, scripts, and associated documentation published by SAP to show GTT customers and partners how to use the global track and trace option of SAP Logistics Business Network. They can also accelerate customers' and partners' development of applications that are intended to work with the option.

## **GTT template apps include:**

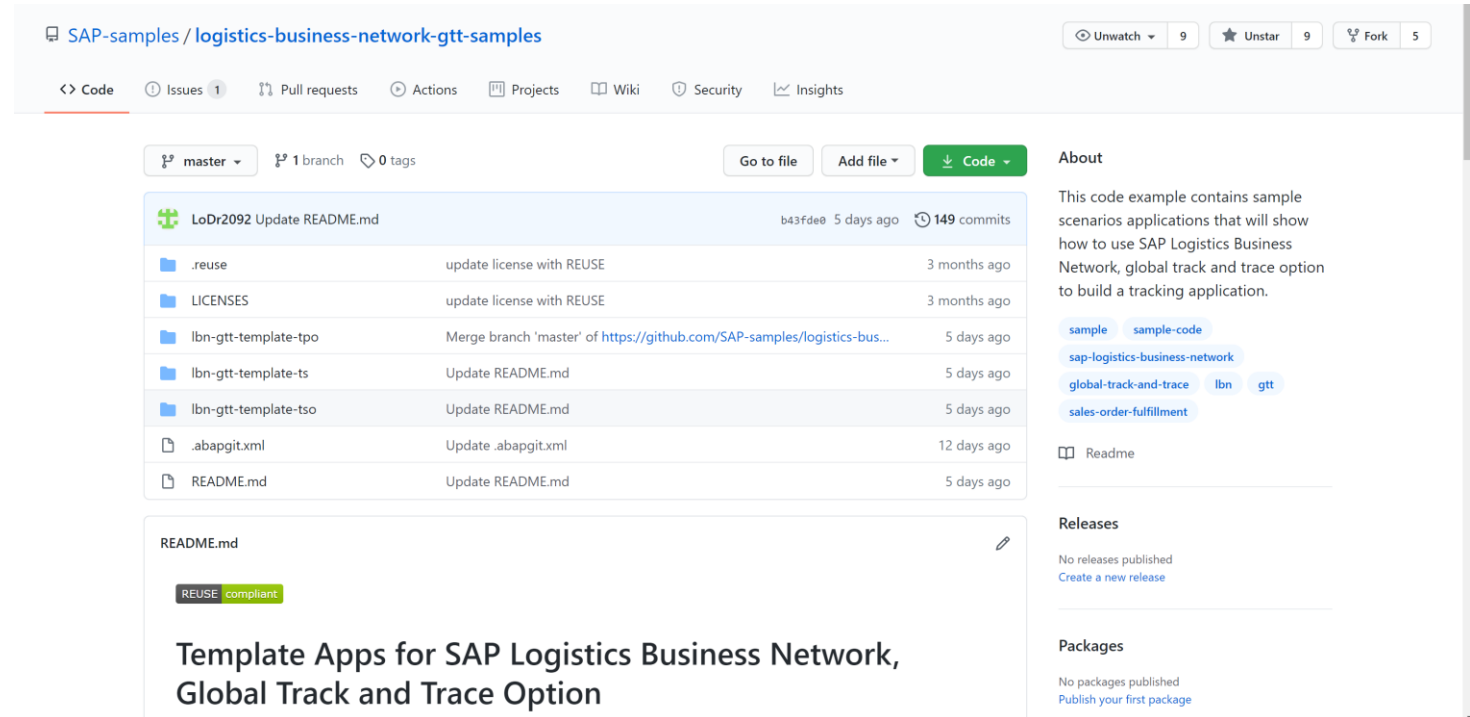
- **Track PO Fulfillment**
- **Track SO Fulfillment**
- **Track Shipments**



# Delivery Channel and Contents

The following contents are provided in SAP Samples GitHub for users to build template apps or do the customization:

- **GTT Model**
  - Processes / events modeling
  - ERP integration / VP integration mapping
  - Event to Action script
- **Fiori App Code (Java and JavaScript)**
- **ERP Extractor (ABAP)**
  - Processes
  - Actual events



Template apps for global track and trace option:

<https://github.com/SAP-samples/logistics-business-network-gtt-samples>



# Implementation Steps

The following describes how to use the delivered contents in SAP Sample GitHub. For detailed steps, refer to the document link on this page:

## ■ Environment Configuration

- Enable cloud foundry and create space
- Maintain roles and users
- Maintain technical users

## ■ Implement Template App

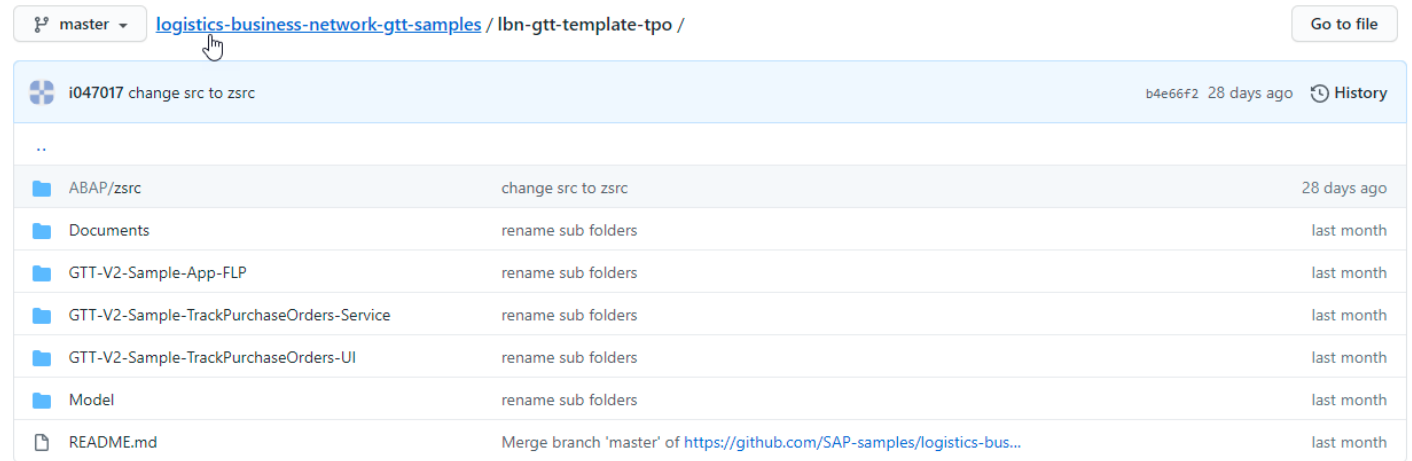
- Deploy model
- Package and deploy
- Maintain destination

## ■ Implement ERP Extractor

- Activate SAP Event Manager Integration
- Configuration and Implementation - Basic
- Download and implement ABAP Code from GitHub

## ■ Other Configurations

- Obtain Here Map license
- Maintain location master
- Maintain business partner

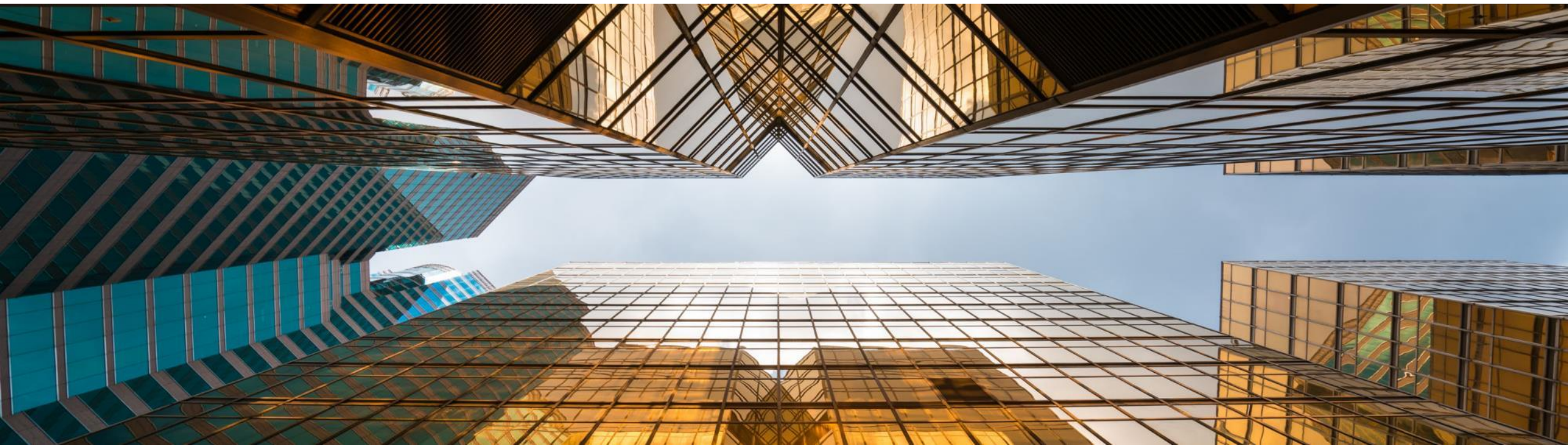


master		logistics-business-network-gtt-samples / lbn-gtt-template-tpo /		Go to file
i047017	change src to zsrc	b4e66f2	28 days ago	History
..				
ABAP/zsrc	change src to zsrc		28 days ago	
Documents	rename sub folders		last month	
GTT-V2-Sample-App-FLP	rename sub folders		last month	
GTT-V2-Sample-TrackPurchaseOrders-Service	rename sub folders		last month	
GTT-V2-Sample-TrackPurchaseOrders-UI	rename sub folders		last month	
Model	rename sub folders		last month	
README.md	Merge branch 'master' of https://github.com/SAP-samples/logistics-bus...		last month	

Implementation guide for *Track PO Fulfillment* template app:

[https://github.com/SAP-samples/logistics-business-network-gtt-samples/blob/master/lbn-gtt-template-tpo/Documents/01\\_Implementation\\_Guide-TPOF.pdf](https://github.com/SAP-samples/logistics-business-network-gtt-samples/blob/master/lbn-gtt-template-tpo/Documents/01_Implementation_Guide-TPOF.pdf)

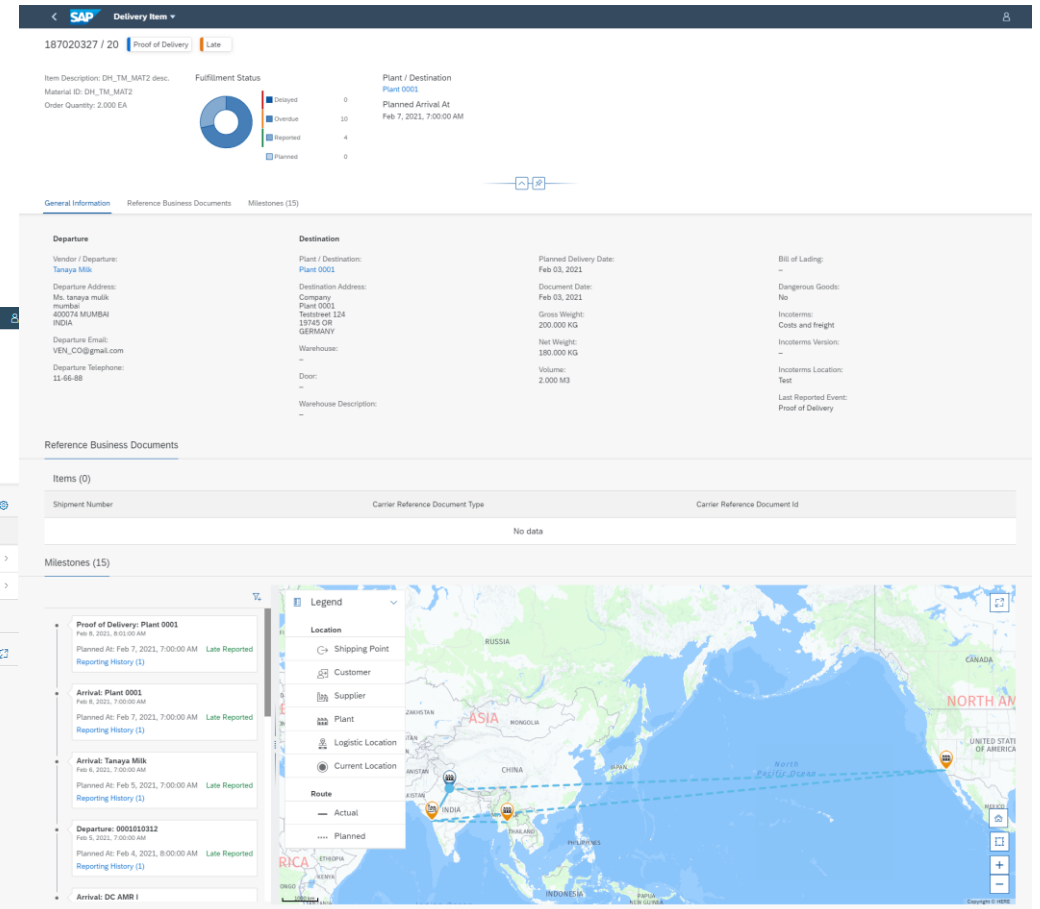
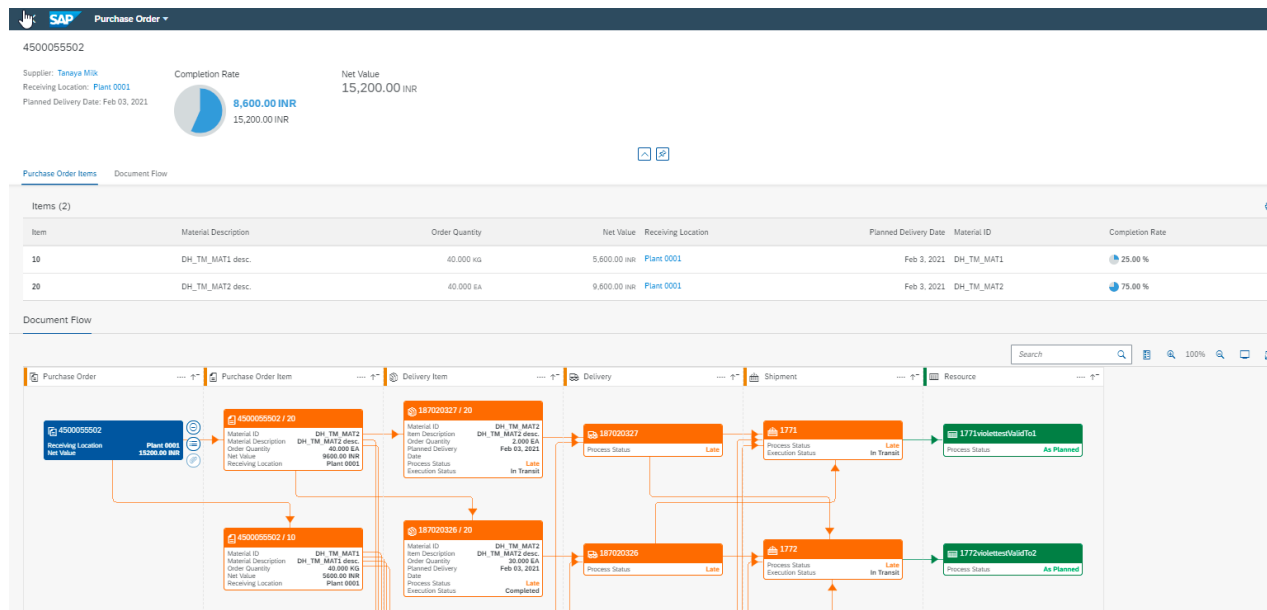
# Track PO Fulfillment Template App



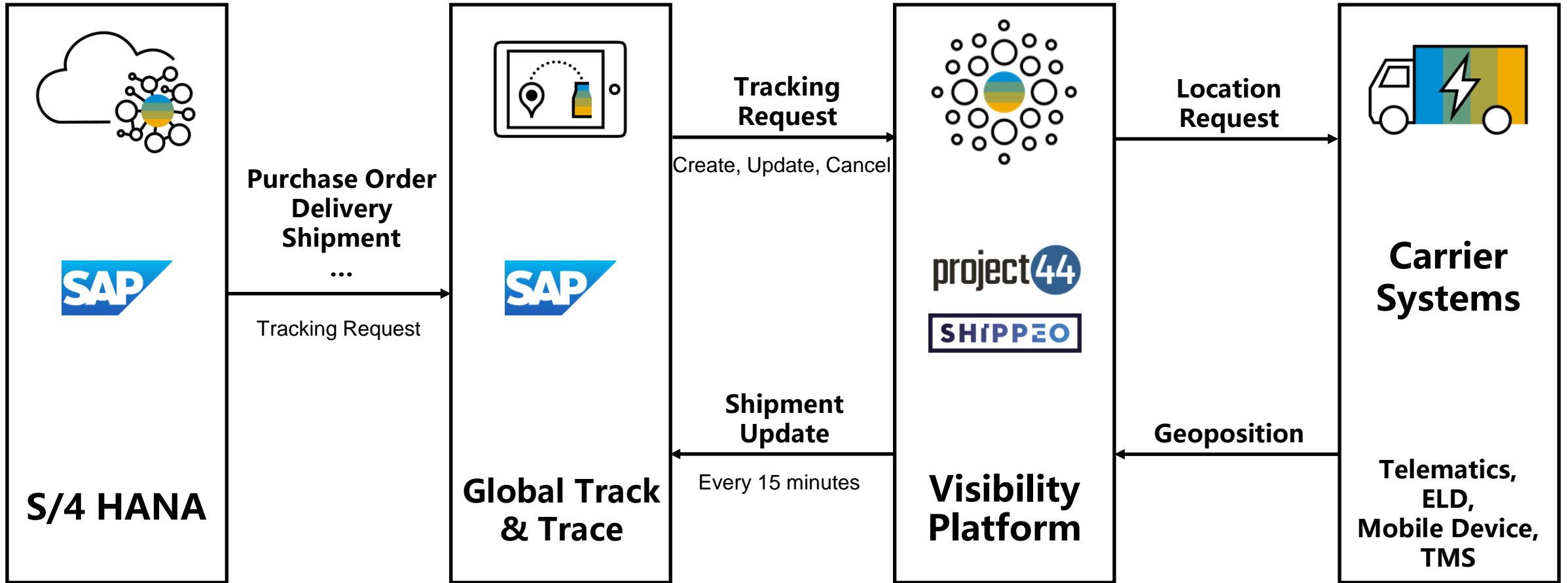
# Introduction

**Track PO Fulfillment** template app is one of the template apps for SAP Logistics Business Network, global track and trace option. It is designed for purchase representatives to monitor the purchase order fulfillment status when the procuring party manages the delivery transportation. It mainly answers the following questions:

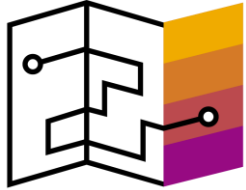
- How many deliveries in my purchase order are **delayed**?
- How many deliveries in my purchase order are **completed**?
- **Where** are my purchase orders?
- What is the **ETA** of my purchase orders?



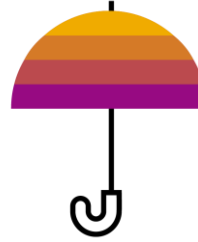
# System & Integration Overview



# Highlights



Standardized, easy-to-use app  
for status  
and milestone tracking



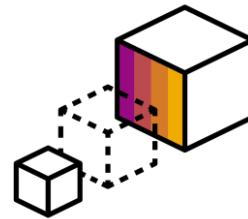
Comprehensive Overview &  
Event Aggregates



Graphical Milestone Visualization



Embedded Map



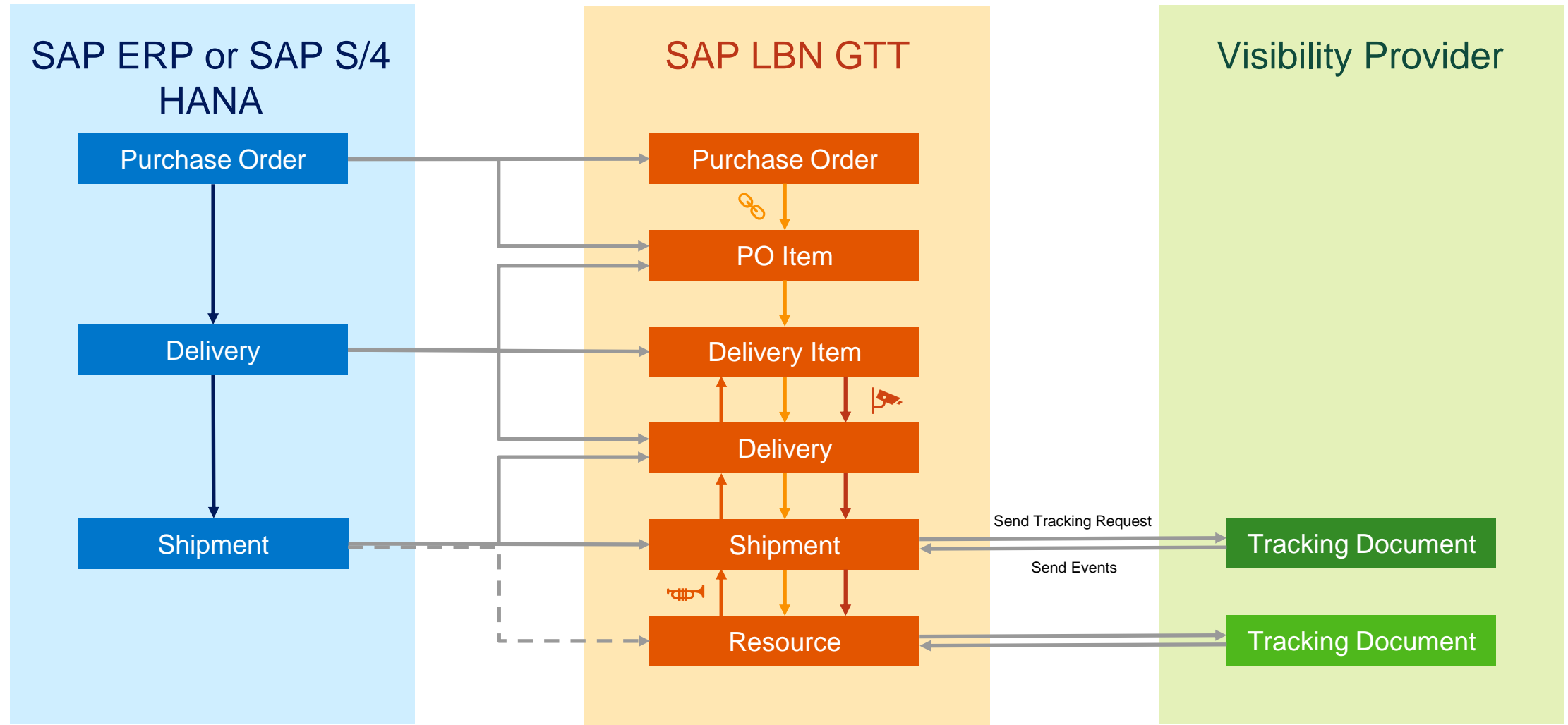
Out-of-the-box connectivity to  
Project44



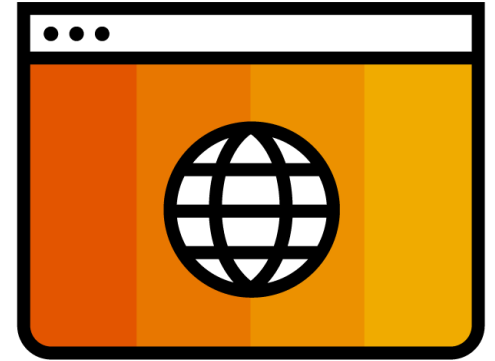
Allows for real-time geo location  
and ETA updates for full truck  
load shipments



# Tracked Process Modeling in Track PO Fulfillment

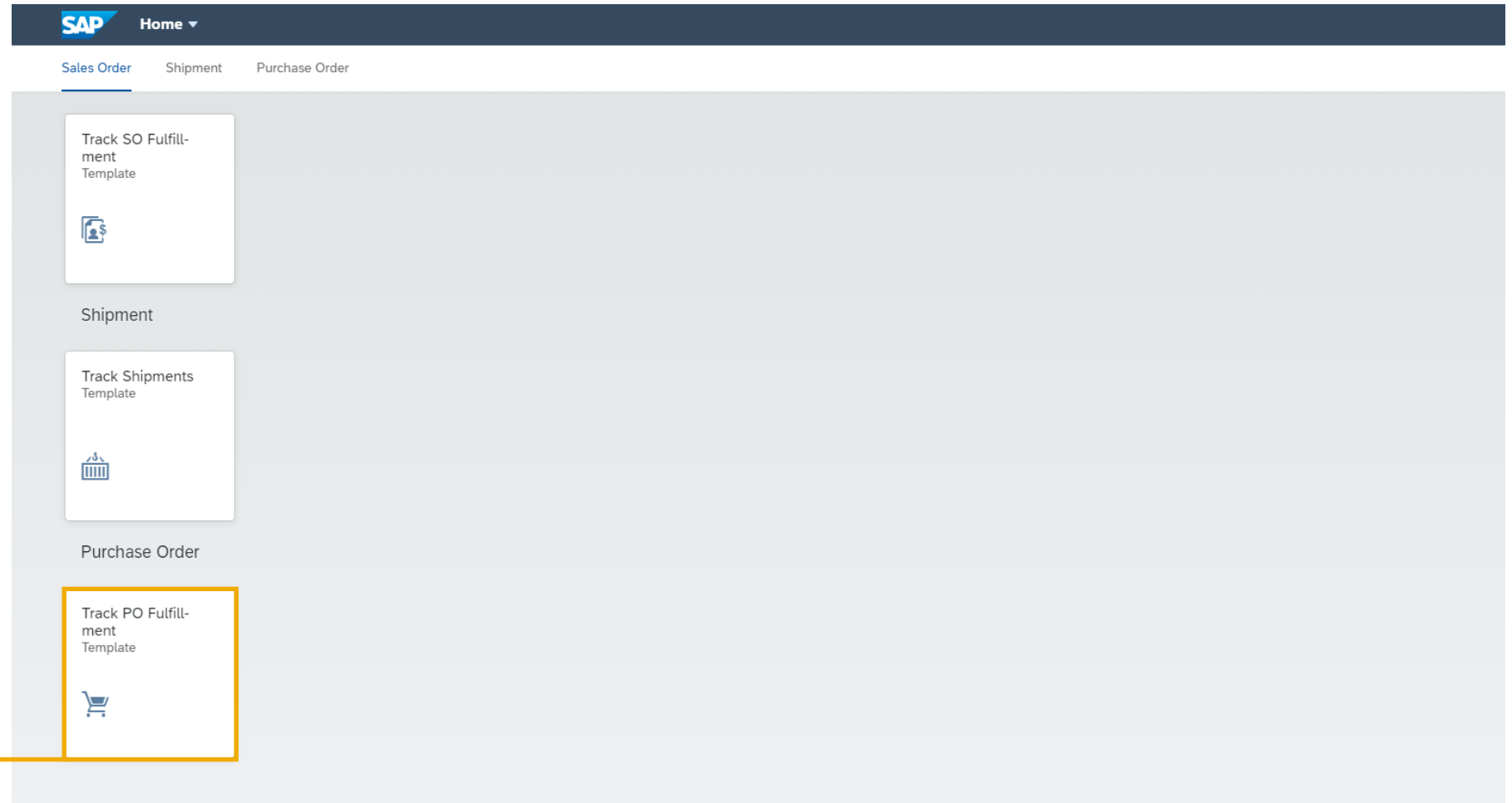


**Let's see the features**



# Fiori Launchpad

Enter the **Track PO Fulfillment** app on the Fiori Launchpad of GTT template apps



Store your **customized view** of the list

**Filter** your purchase orders by various criteria

## Customize your table, such as sorting logic or layout change



The column fields **Supplier** and **Receiving Location** are clickable. These easily provide the location information.




© 2022 SAP SE or an SAP affiliate company. All rights reserved. | PUBLIC

# Purchase Orders List **Completed and Late Value**

Completed and Late Value of the purchase order equals the sum of **PO Item Completed and Late Values**.

**PO Item Completed and Late Values** equals the:

Net Price / Price Unit \* sum of the order quantity of delivery items which process status are 'Delayed' or 'Late' and execution status are 'Completed'

Purchase Orders (3)							
Purchase Order No.	Supplier	Receiving Location	Planned Delivery Date	Net Value	Completion Rate	Is Delayed	Completed and Late Value
4500055582	Tanaya Milk	Plant 0001	Oct 19, 2020	11000.00 INR	 26.36 %	Yes	2,900.00 INR >
9900053098	VEN_CO	Plant 0001	Oct 19, 2020	110000.00 INR	 0.00 %	Yes	– >
9900099159	VEN_CO	Plant 0001	Oct 19, 2020	110000.00 INR	 0.00 %	Yes	– >

# Purchase Orders Details

Sum of the completion values of the undeleted PO items

<

SAP

Purchase Order ▾

4500055582

Delayed

Supplier Tanaya Milk

Receiving Location Plant 0001

Planned Delivery Date: Oct 19, 2020

Completion Rate

2,900.00 INR

11,000.00 INR

Net Value

11,000.00 INR

Overall Delay Impact

32.91 %

(3,620.00 INR)

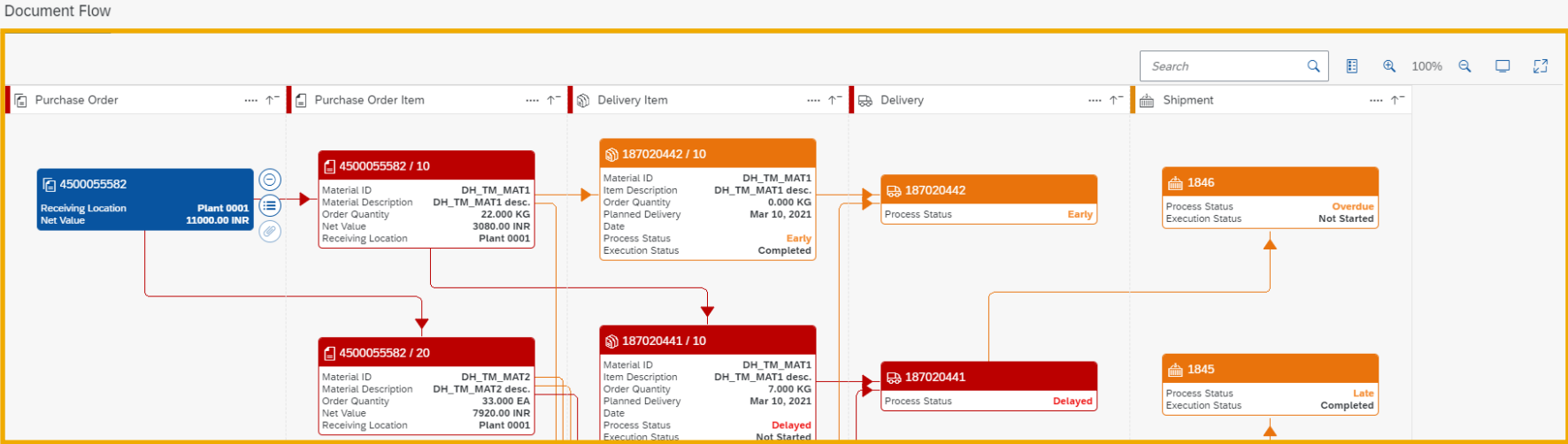
⏮

⏭

Table of the purchase order items with column fields that can be customized

Purchase Order Items Document Flow

Items (2)								
Item	Material Description	Order Quantity	Net Value	Receiving Location	Planned Delivery Date	Is Delayed	Incoterms Location	Material ID
10	DH_TM_MAT1 desc.	22.000 KG	3,080.00 INR	Plant 0001	Oct 19, 2020	Yes		DH_TM_MAT1
20	DH_TM_MAT2 desc.	33.000 EA	7,920.00 INR	Plant 0001	Oct 19, 2020	Yes		DH_TM_MAT2



Relevant processes based on the purchase order

# Purchase Orders Details **Overall Delay Impact**

- The percentage of Overall Delay Impact equals the:

**Overall Delayed Value** / Sum of the Undeleted PO Items' Net Values

- **Overall Delayed Value** equals the sum of the **PO Item Delayed Values**.
- **PO Item Delayed Values** equals the:

Net Price / Price Unit \* Item Delayed Quantity

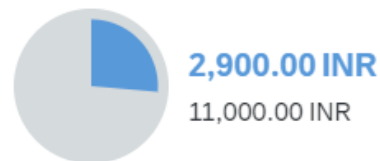
4500055582 Delayed

Supplier [Tanaya Milk](#)

Receiving Location [Plant 0001](#)

Planned Delivery Date: Oct 19, 2020

Completion Rate



Net Value  
11,000.00 INR

Overall Delay Impact  
**32.91 %**  
(3,620.00 INR)



# Purchase Orders Details Document Flow

There is a maximum of six milestones:

- Purchase Order \*
- Purchase Order Item \*
- Delivery Item \*
- Delivery
- Shipment
- Resource

\* You can navigate to the Details page by the box marked with \*.

# Purchase Orders Details Document Flow

## Coloring Logic by Process Status:

- Every milestone node in the document flow has its own process status, indicated by a box color. And each status has its own weight:
  - Delayed (Weight: 3)
  - Overdue (Weight: 2)
  - Early (Weight: 2)
  - Late (Weight: 2)
  - As planned (Weight: 1)
- To color each node, if the sub node's process status weight is LARGER than its own status weight, the node will be colored by the sub node's status color.
- Otherwise, the node's color is determined by its own process status.

# Purchase Order Items List **Completed and Late Quantity**

The Completed and Late Quantity of PO items equals the:

Sum of the order quantity of delivery items with process status being 'Delayed' or 'Late' and execution status being 'Completed'.

Purchase Order Items

Document Flow

Items (2)

Item	Material Description	Order Quantity	Net Value	Receiving Location	Planned Delivery Date	Is Delayed	Completed and Late Quantity
10	DH_TM_MAT1 desc.	22.000 KG	3,080.00 INR	Plant 0001	Oct 19, 2020	Yes	7.000 KG >
20	DH_TM_MAT2 desc.	33.000 EA	7,920.00 INR	Plant 0001	Oct 19, 2020	Yes	8.000 EA >

## Completion Rate

calculated by Completion  
Quantity and Order  
Quantity

**Last Reported Event**  
 fetched from the **Actual**  
**Event ID** with maximum  
 actual business datetime  
 for the process

**Delivery items** are relevant to the purchase order item





# Completion Rate of PO Header and PO Item

## PO Header

- Sum of the Completion Values of undeleted PO items

## PO Item

- If the PO item is deleted, both the Completion Value & the Net Value are set to zero (0)
- If the PO item is not deleted, both the Completion Value & the Net Value are calculated as below:
  - Net value always equals the Net Value of the undeleted PO items
  - Completion Value is calculated by the following logic...

## Completion Rate of PO Item

- If no inbound delivery exists, the Completion Value equals the:  
 $\text{Net Price} / \text{Price Unit} * \text{sum of the Goods Receipt quantity for this PO item}$
- If at least 1 subsequent inbound delivery item exists, the Completion Value equals the:  
 $\text{Net Price} / \text{Price Unit} * \text{Completion Quantity}$

**Completion Quantity** equals the:

1. Sum of the **Goods Receipt quantities** for not POD-relevant delivery items
2. Sum of the **item POD quantities** for the POD-relevant delivery items

TIP: POD-relevant means POD is a planned event for the inbound delivery item, which is fed by subsequent shipments for the delivery.

TIP: Item POD quantities mean all the subsequent shipments for this delivery item have all the planned POD events reported.

# Purchase Order Item Details **Delay Impact**

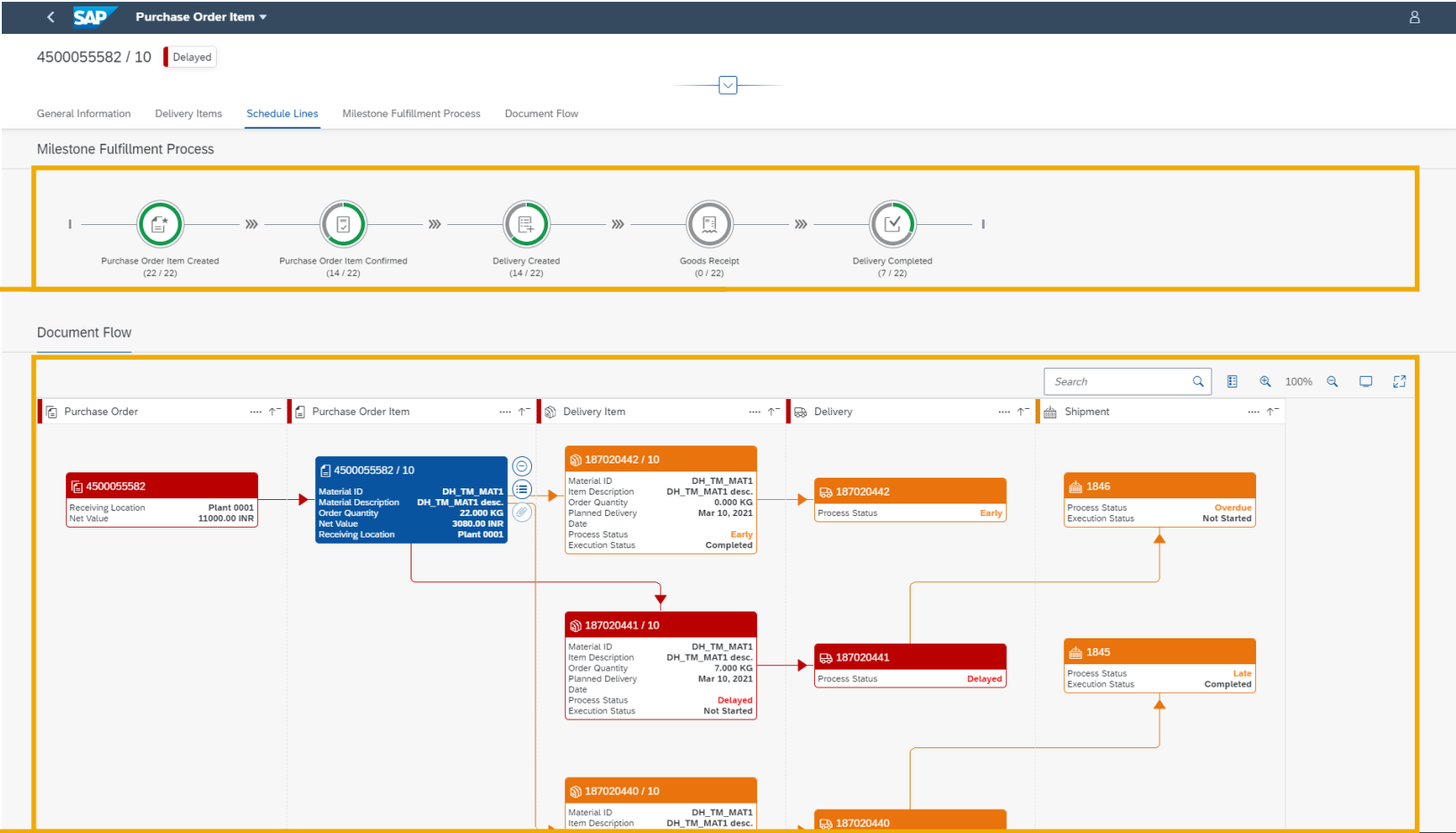
- The percentage of Delay Impact equals the **Delayed Quantity** / Order Quantity
- **Delayed Quantity** equals the:

Sum of the order quantity of the delivery items with process status being 'Delayed'.



# Purchase Order Item Details Milestone & Document Flow

**Milestone Fulfilment Process** of the purchase order item, depending on whether the inbound delivery process is required.



**Document Flow of the Purchase Order Item**



# Purchase Order Item Details **Milestone Fulfillment Process Case 1**

- **Purchase Order Item Created**
- **Purchase Order Item Confirmed:** Displayed when CONFIRMATION is of a planned event
- **Goods Receipt:** GR by Purchase Order, displayed when GR is of a planned event and no inbound delivery is created
- **Delivery Created:** Displayed when at least 1 inbound delivery is created
- **Goods Receipt:** GR by Inbound Delivery, displayed when at least 1 inbound delivery is created
- **Delivery Completed:** Displayed when at least 1 inbound delivery is created



# Purchase Order Item Details **Milestone Fulfillment Process Case 1**

## How to tell if the Purchase Order Item is confirmed:

- **Priority 1<sup>st</sup>:** If at least 1 inbound delivery is created, then use the sum of the delivery order item quantities as the confirmed quantity / purchase order item quantity.
- **Priority 2<sup>nd</sup>:** Regard it as ALL confirmed when the confirmation table is empty while confirmation control key is not initial. The same applies when the confirmation table is fully filled for the order quantity. When the confirmation table is partially filled, then regard it as PARTIALLY confirmed.

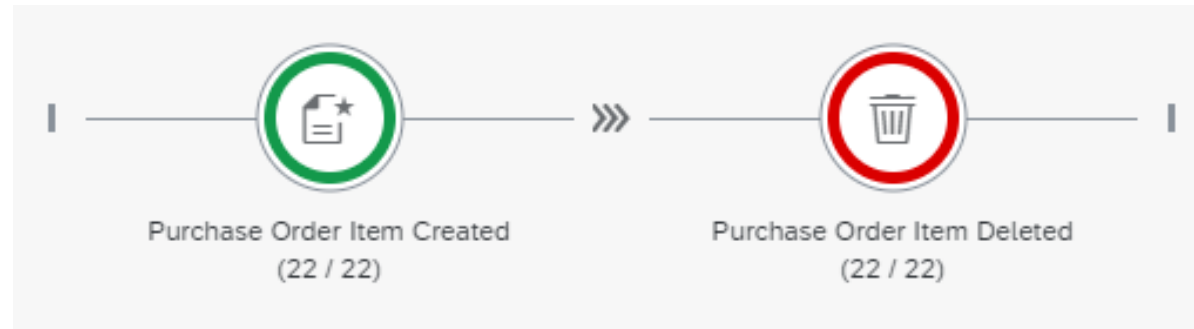
## How to tell if the Delivery is completed:

- **Not POD-relevant Deliveries:** Sum of the delivery received quantities / purchase order item quantity.
- **POD-relevant Deliveries:** Sum of the item POD quantities / purchase order item quantity.

# Purchase Order Item Details Milestone Fulfillment Process Case 2

## How to tell if the Purchase Order Item is deleted:

If the latest event reported is DELETION, then the Purchase Order Item is deleted. And the milestones are shown as follows:



If no DELETION event is reported or an actual event UNDELETION is reported later than the last event DELETION, then the milestone fulfillment process is as [Case 1](#).

# Delivery Items List **Planned vs Actual Arrival Time**

When the planned event ‘Arrival at Destination’ under the delivery item has been reported for the receiving plant with location type ‘Plant’, use the Actual Business Datetime to compare with the time window between the Early Business Datetime and Latest Business Datetime of the planned event:

If the Actual Business Datetime is out of the time window: color RED with time gap between the Actual Business Datetime and Planned Business Datetime.

If the Actual Business Datetime is in the time window: color GREEN with time gap between the Actual Business Datetime and Planned Business Datetime.

Delivery Items								
Items (2)								
Item No.	Initial Planned Delivery Date	Revised Planned Delivery Date	Vendor / Departure	Plant / Destination	Material ID	Process Status	Execution Status	Planned vs Actual Arrival Time
187020496 / 10	Mar 16, 2021	Mar 16, 2021	VEN_CO	0001	DH_TM_MAT1	Late	△ In Transit (Arrival: Plant 0001)	Δ23H 55M
187020497 / 10	Mar 16, 2021	Mar 16, 2021	VEN_CO	0001	DH_TM_MAT1	As Planned	△ In Transit (Arrival: Costoc)	

# Delivery Item Details

The delivery item's execution status and process status

Show **aggregated status** by planned events' status of the delivery item

Enable to trigger **refresh** and show **last refresh time**

<

SAP

Delivery Item ▾

187020441 / 20

Not Started

Delayed

Last Refreshed at Mar 16, 2021, 5:45:22 PM

Item Description: DH\_TM\_MAT2 desc.  
Material ID: DH\_TM\_MAT2  
Order Quantity: 11.000 EA

Fulfillment Status

Delayed1

Overdue4

Reported0

Planned0

Plant / Destination  
0001  
Planned Arrival At  
Mar 10, 2021, 7:00:00 AM

General Information

Reference Business Documents

Milestones (5)

Departure

Vendor / Departure:  
VEN\_CO  
  
Departure Address:  
Ms. tanaya mulik  
mumbai  
400074 MUMBAI  
INDIA  
  
Departure Email:  
VEN\_CO@gmail.com  
  
Departure Telephone:  
11-66-88

Destination

Plant / Destination:  
0001  
  
Destination Address:  
Company  
Plant 0001  
Teststreet 124  
19745 OR  
GERMANY  
  
Warehouse:  
—  
  
Door:  
—  
  
Warehouse Description:  
—

Initial Planned Delivery Date:  
  
Revised Planned Delivery Date:  
Mar 10, 2021  
  
Document Date:  
Mar 02, 2021  
  
Gross Weight:  
1,100.000 KG  
  
Net Weight:  
990.000 KG  
  
Volume:  
11.000 M3

Bill of Lading:  
—  
  
Dangerous Goods:  
No  
  
Incoterms:  
Costs and freight  
  
Incoterms Version:  
—  
  
Incoterms Location:  
Test  
  
Last Reported Event:  
—

Reference Business Documents

Items (1)

Shipment Number	Carrier Reference Document Type	Carrier Reference Document Id
0000001846	Consignment identifier, carrier assigned	TR202103021846

Milestones (5)

© 2022 SAP SE or an SAP affiliate company. All rights reserved. | PUBLIC

29

# Delivery Item Details Execution Status



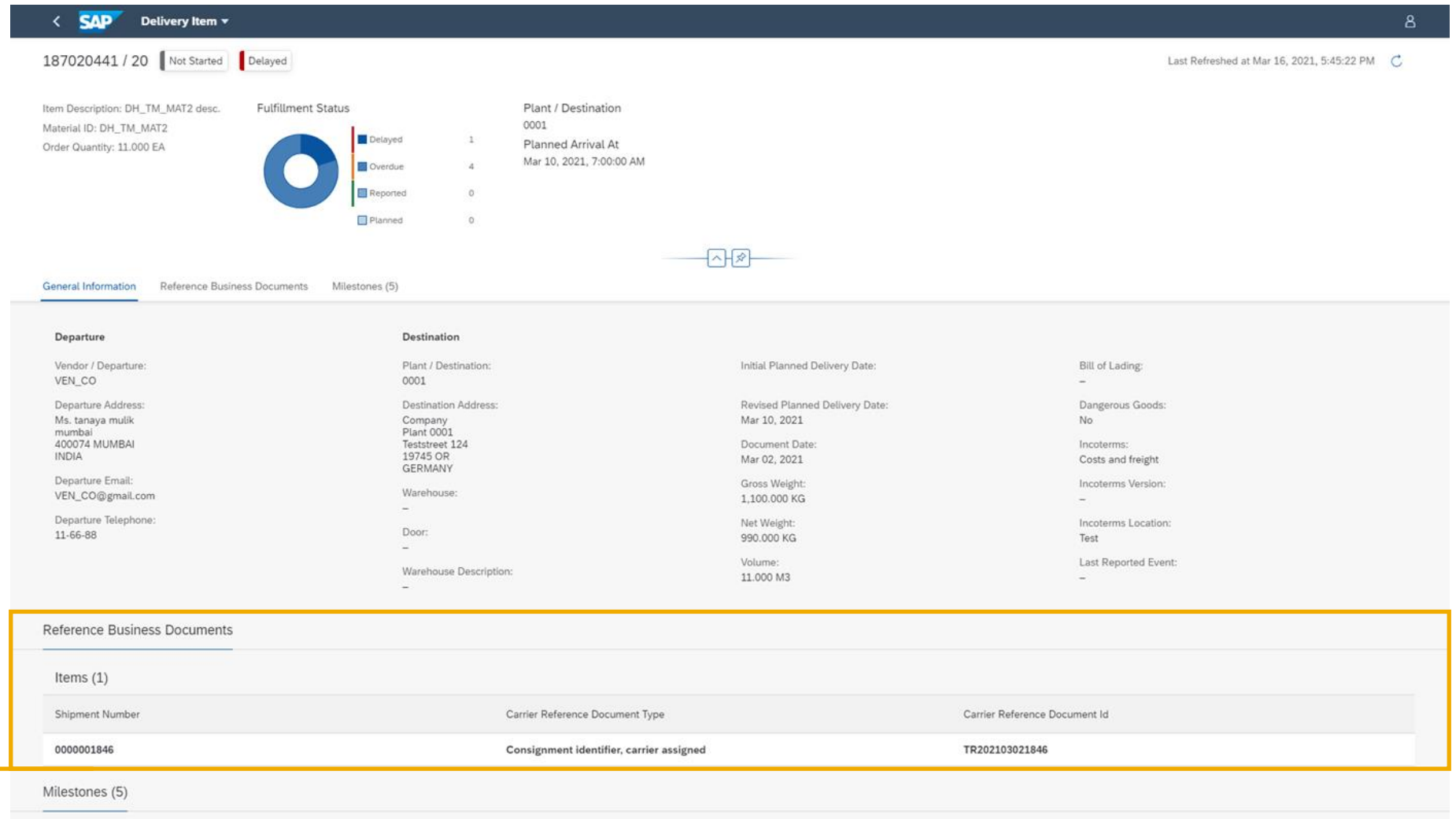
On the Delivery Item Details page, the delivery item's execution status is displayed. So the user can quickly see the latest change that happened to this delivery item.

Execution Status:

- Default status: 'Not Started' when the tracked process is created
- Change status to 'In Transit' when the delivery item's planned event has been reported
- Change status to 'Completed' when:
  - All planned PODs related to this delivery item are reported if POD is a planned event for the inbound delivery item
  - If POD is not a planned event for the inbound delivery item, then the sum of the Goods Receipt Quantity reported equals or is greater than the order quantity

*You can set your own logic in Event-to-Action script.*

## Delivery Item Details





# Delivery Item Details **Last Reported Event**

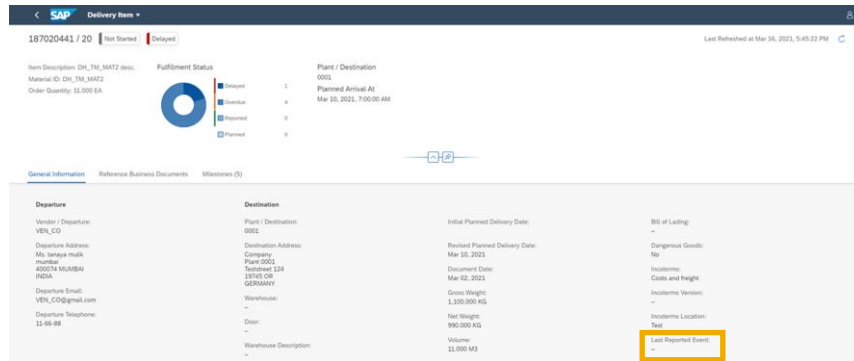
- Display the Event Description, fetched from the Actual event ID with maximum actual business datetime for the process (PO item or Inbound Delivery item).
- Only consider the following lists that need to be included in the admissible planned or unplanned event list of the process types in the model.

## PO item

- Deletion / Un-deletion
- Confirmation (cancelling)
- Goods Receipt (reversing)

## Inbound Delivery item

- Put-away
- Packing
- Goods Receipt
- Departure
- Arrival at Destination
- Load Begin
- Load End
- Proof of Delivery
- Gate In Start
- Gate In End
- Gate Out Start
- Gate Out End
- Unloading Start
- Unloading End
- Stuffing
- Unstuffing
- Return
- Proof of Pickup
- Check In
- Receive
- Delivered
- Coupling
- Decoupling
- Out For Delivery
- Flight Booked
- Manifest Ready
- Received from Shipper
- Consignee Notified

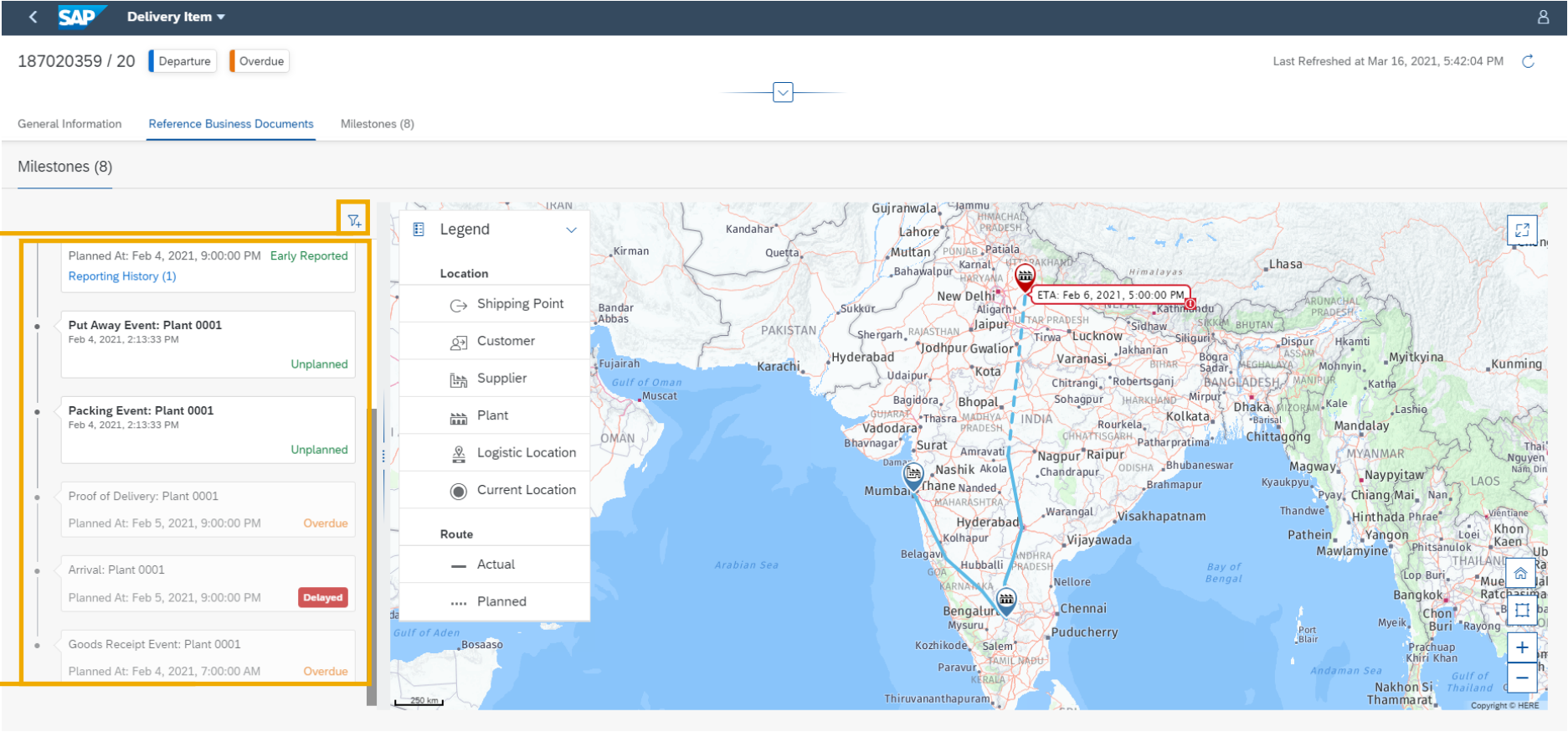


*You can set your own logic in Event-to-Action script.*

# Delivery Item Details Milestones

## Event Status Filter

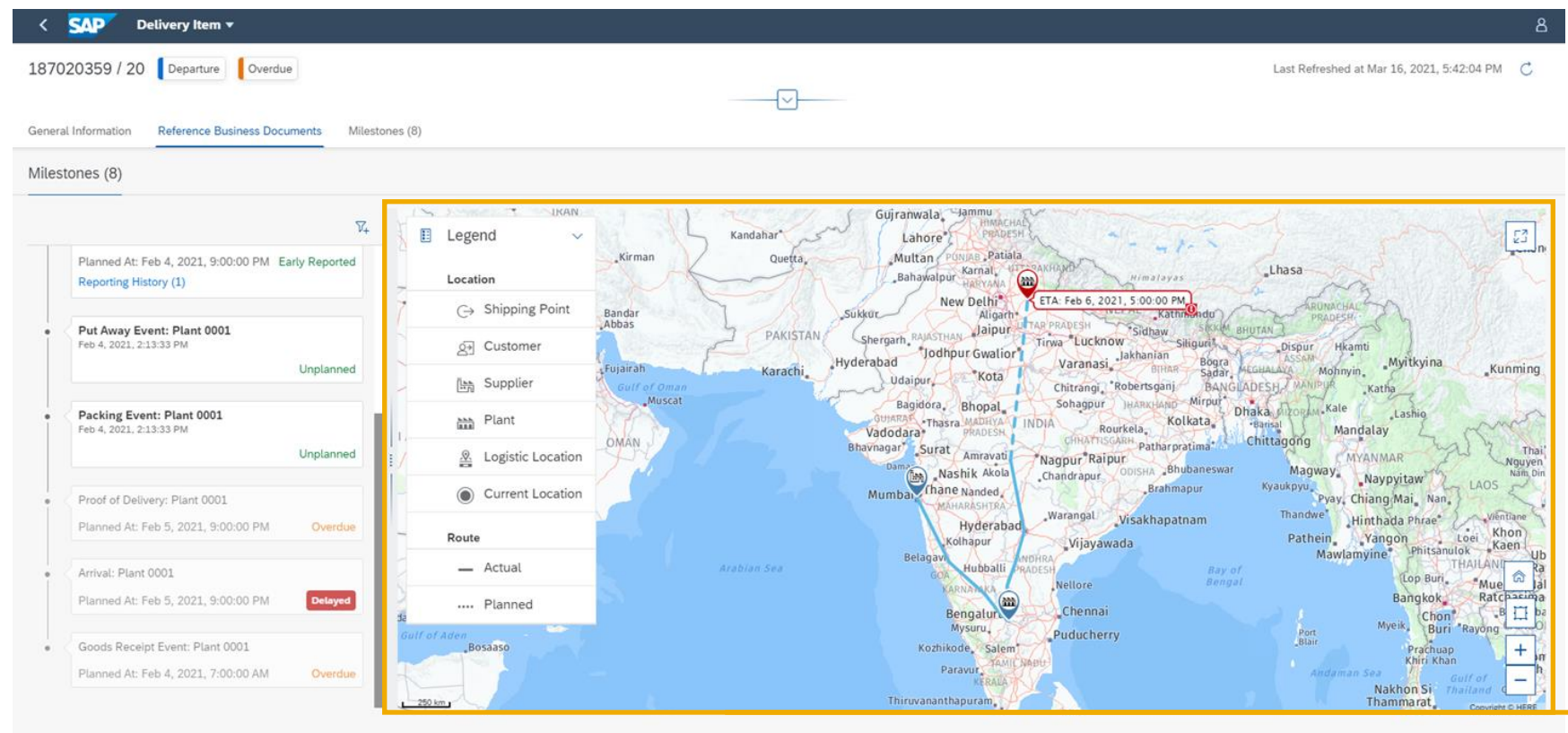
Show all the **planned** and **unplanned** events related to this delivery item and the relevant shipments



Show the **Reporting History** for planned events which have been reported.

© 2022 SAP SE or an SAP affiliate company. All rights reserved. | PUBLIC

# Delivery Item Details Map



Each **Route** indicates one shipment. It shows the planned route of each shipment with a dotted line and the actual route with a solid line.

Each **Spot** indicates one stop where there are planned events.

**Current Location** indicates the last position where the latest actual event was reported.

**ETA of next stop** is shown as the latest actual event was reported with ETA information.

# Planned & Unplanned Events

The following are predefined...



# Purchase Order Item Events

- Planned Event
  - Confirmation
  - Goods Receipt
- Unplanned Event
  - Deletion
  - Undeletion
  - Confirmation
  - Goods Receipt

# Delivery Events

- Planned Event
  - Goods Receipt
  - Departure
  - Arrival
  - POD
- Unplanned Event
  - Deletion
  - Undeletion
  - Confirmation
  - GoodsReceipt
  - Packing
  - Putaway
  - ExceptionalEvent
  - OtherEvent
  - OutForDelivery
  - FlightBooked
  - ManifestReady
  - ReceivedFromShipper
  - ConsigneeNotified
- Delivered
- Unstuffing
- Receive
- Decoupling
- Coupling
- POPU
- Return
- Stuffing
- Delay
- LocationUpdate
- LocationUpdateNew
- UnloadingEnd
- UnloadingStart
- GateOutEnd
- GateOutStart
- GateInEnd
- GateInStart
- CheckIn
- LoadingEnd
- Arrival
- Departure
- POD
- LoadingStart



# Delivery Item Events

- Planned Event
  - Departure
  - Arrival
  - POD
  - Put Away
  - Packing
  - Goods Receipt
- Unplanned Event
  - Deletion
  - Undeletion
  - Confirmation
  - GoodsReceipt
  - Packing
  - Putaway
  - ExceptionalEvent
  - OtherEvent
  - OutForDelivery
  - FlightBooked
  - ManifestReady
  - ReceivedFromShipper
  - ConsigneeNotified
- Delivered
- Unstuffing
- Receive
- Decoupling
- Coupling
- POPU
- Return
- Stuffing
- Delay
- LocationUpdate
- LocationUpdateNew
- UnloadingEnd
- UnloadingStart
- GateOutEnd
- GateOutStart
- GateInEnd
- GateInStart
- CheckIn
- LoadingEnd
- Arrival
- Departure
- POD
- LoadingStart

# Shipment Events

## ■ Planned Event

- Departure
- Arrival
- POD
- Check In
- LoadingStart
- LoadingEnd

## ■ Unplanned Event

- Deletion
- Undeletion
- Confirmation
- GoodsReceipt
- Packing
- Putaway
- ExceptionalEvent
- OtherEvent
- OutForDelivery
- FlightBooked
- ManifestReady
- ReceivedFromShipper
- ConsigneeNotified
- Delivered
- Unstuffing
- Receive
- Decoupling
- Coupling
- POPU
- Return
- Stuffing
- Delay
- LocationUpdate
- LocationUpdateNew
- UnloadingEnd
- UnloadingStart
- GateOutEnd
- GateOutStart
- GateInEnd
- GateInStart
- CheckIn
- LoadingEnd
- Arrival
- Departure
- POD
- LoadingStart

# Links You May Need

- Sample on GitHub

<https://github.com/SAP-samples/logistics-business-network-gtt-samples>



# Thank you.

# Disclaimer

The information in this presentation is confidential and proprietary to SAP and may not be disclosed without the permission of SAP. Except for your obligation to protect confidential information, this presentation is not subject to your license agreement or any other service or subscription agreement with SAP. SAP has no obligation to pursue any course of business outlined in this presentation or any related document, or to develop or release any functionality mentioned therein.

This presentation, or any related document and SAP's strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice. The information in this presentation is not a commitment, promise or legal obligation to deliver any material, code or functionality. This presentation is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. This presentation is for informational purposes and may not be incorporated into a contract. SAP assumes no responsibility for errors or omissions in this presentation, except if such damages were caused by SAP's intentional or gross negligence.

All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.