

Oracle® Transportation Management

Integrating with Oracle Integration Cloud

Release 6.5.1

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Oracle® Transportation Management Integrating with Oracle Integration Cloud, Release 6.5.1

Part No. F48330-01

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Preface

This document describes configuring *Transportation Management* and *Global Trade Management* to integrate with another product using the *Oracle Integration Cloud* (OIC).

Change History

Date	Document Revision	Summary of Changes
10/2021	-01	6.5.1 Release.

1. Overview

The Logistics adapter included with OIC can be used to create an OIC Connection to a specific OTM instance of version 6.4.2 or later. The OIC Connection can then be used to create an Integration which calls OTM web services, as well as exposes a web service that OTM can call. For more information on *Integration Cloud Service*, please refer to <https://cloud.oracle.com/integration>.

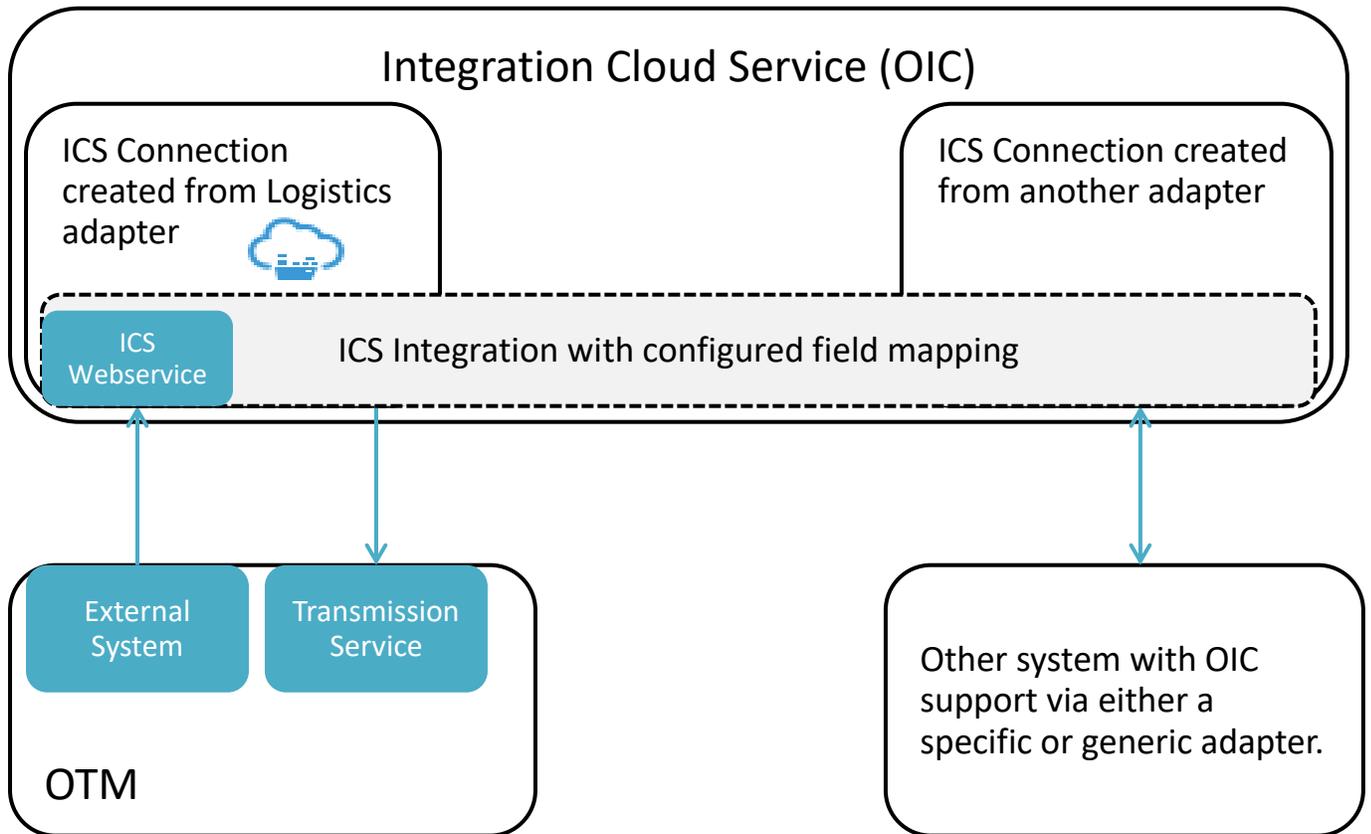


Figure 1-1: Overview

Also included in this document is a description of a sample integration between OTM and Supply Chain Cloud using OIC. The sample integration can be obtained from My Oracle Support Note 2209248.1. OTM also includes an FA domain (named for Fusion Applications) which accompanies the sample flow and provides examples of possible data setup and automation.

2. Configuring OTM

Authentication

OTM requires authentication in order to call its web services. In general, a user should be created in OTM with the INTEGRATION role. Please refer to the *Security Guide* and “Integrating with Other Systems” chapter of the *OTM Getting Started Guide* for more information on configuring web service security and authentication. This user must then be configured on the Connection created in OIC.

Domain

Data in OTM generally resides in a “domain.” This could be a single domain for an entire implementation, or multiple domains segregated by business unit, customer, or other criteria. OTM domains may not correlate to the upstream system, so the domain will need to be specified in the OIC Mapping inbound to OTM. For example, *ORDER123* in Supply Chain Cloud could come into OTM as *MY_DOMAIN.ORDER123*.

External Systems and Web Services (Outbound from OTM)

Sending data from OTM to another system via OIC can be done by calling the OIC Web Service for the desired integration in OIC. An External System should be created in OTM pointing to the OIC endpoint, which can be obtained from an activated integration in OIC. It is also highly advisable to use Out XML Profiles to limit the amount of data sent to OIC to improve performance. The OTM FA domain includes two sample External System Records, OM OIC SERVICE and WSH OIC SERVICE as examples. Also included are sample out xml profiles, OM_ORDER, WSH_SHIPMENT, GTM_OM_RESPONSE, and GTM_SHIPPING_RESPONSE.

3. Sample Integration between OTM and Supply Chain Cloud

Overview

Sample OIC integrations can be obtained from [Oracle Marketplace](#) or from My Oracle Support Note 2209248.1 that show one possible way an integration might be built among OTM, Product Hub Cloud, Order Management Cloud, and Inventory Management Cloud (Shipping). After importing the sample integrations, implementers will have to configure:

1. Connection information in OIC for the source and target systems (i.e. WSDL)
2. Authentication as described above for OIC to call OTM Web services
3. External Systems and Web services as described above for OTM to call OIC

Implementers will also have to configure automation as described below. This chapter outlines the automation in OTM that could be used with this flow as well as the sample data (i.e Automation Agents) in the FA domain that should be copied to the implementation domain.

The diagram below illustrates the flow of the sample integration (details below).

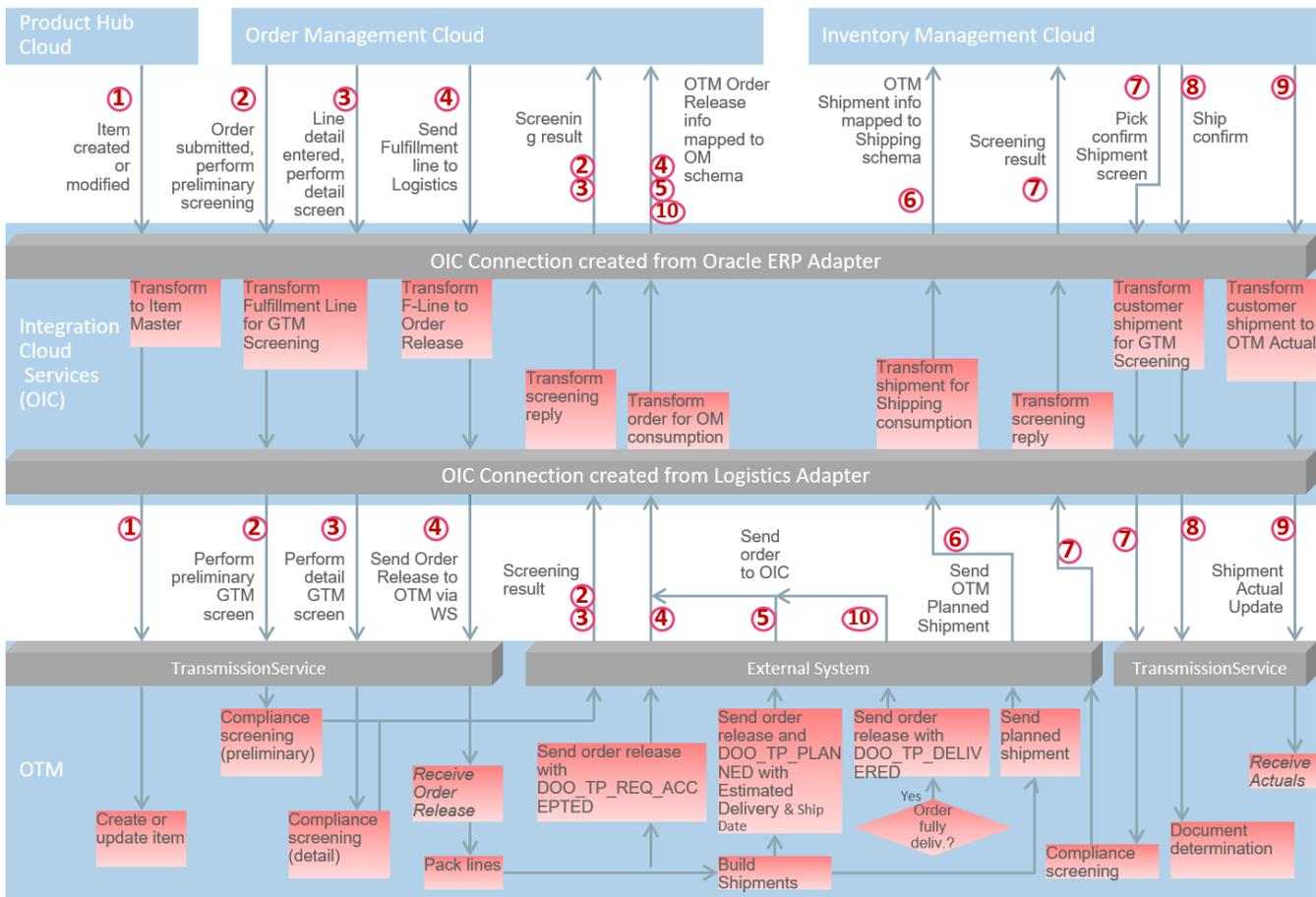


Figure 3-1: Sample Flow for an Integration

OTM includes a domain named *FA* (named for *Fusion Applications (Supply Chain Cloud)*) which is designed to work with this flow and includes the data and automation configuration.

Static Data Assumptions

The sample integration assumes certain implementation specific data will reside in OTM. This may include:

Units of Measure

The above sample flow (Figure 3-1: Sample Flow for an Integration) assumes unit of measure codes match one-to-one between Supply Chain Cloud and OTM. If units of measure differ (i.e. LB vs. lbs), one option is to map them as a Lookup in OIC.

Qualifiers

The FA domain in OTM includes reference and remark qualifiers to store some of the information coming from Order Management Cloud. For example, there are Order Release Reference Qualifiers for FA.ORDER NUMBER, FA.ORDER LINE NUMBER, FA.FULFILLMENT LINE NUMBER and Remark Qualifiers for FA.PACKING INSTRUCTIONS and FA.SHIPPING INSTRUCTIONS.

Currency

The above sample flow assumes currency codes match one-to-one between Supply Chain Cloud and OTM. OTM includes both 2-character and 3-character country codes and can be configured to work with either. An OIC lookup table can also be used to translate one code to another.

Locations, Contacts, Service Providers

Locations, Contacts, and Service Providers should be pre-seeded in OTM, but Locations and Contacts will also be created and updated as part of the compliance screening.

IncoTerms

IncoTerms should be pre-seeded in GTM to sync FOB point coming from Order Management Cloud.

Internal Organization Structure

The Internal Legal Entity, Business Units and Inventory Organizations should be pre-seeded as parties in GTM to sync those coming from Order Management Cloud. Carriers need to be pre-seeded as parties in GTM too if the decision is to send them to GTM from Order Management Cloud. The FA domain includes a LEGAL ENTITY involved party qualifier.

Sample Integration

The number in parenthesis in each section below corresponds to the steps listed in Figure 3-1: Sample Flow for an Integration.

Item Master Synchronization (1)

An item is sent into OTM from Product Hub Cloud via OIC. GTM creates/updates the item. Sample integrations PIM_CREATE_GTM and PIM_UPDATE_GTM illustrate one example of how this could be done.

Receive, Acknowledge and Process Compliance Screening for Sales Order Pre-Booking (2)

An order is sent into OTM from Order Management Cloud via OIC. GTM acknowledges the receipt of the request. GTM creates the transaction in GTM and executes the screening based on the services configured by the user. Once the compliance screening execution is complete, the system will build the compliance status response structure and send it to OIC. The FA domain has a sample agent, DOO-GTM - PRE-BOOKING listening to the transaction creation in pre-booking stage of sales order and sends the response to OIC. This sample agent is where the desired configuration can be added. Sample integration OM_GTM illustrates one way that the screening could be performed, and GTM_OM illustrates an example of the corresponding response.

Receive, Acknowledge and Process Compliance Screening for Order Fulfillment Line (3)

An order fulfillment line is sent into OTM from Order Management Cloud via OIC. GTM acknowledges the receipt of the request. GTM creates/updates the trade transaction and performs the configured screening. Suggested screening services are Restricted Party List, Sanctioned Countries and Control Screening. The FA domain includes a sample agent, DOO-GTM - POST-BOOKING, which listens to the transaction creation/modification in post-booking stage of sales order and sends the response to OIC. Similar to (2) above, the OM_GTM and GTM_OM illustrate one way the screening and response might be accomplished.

Receive, Acknowledge and Process Pick Confirm Shipment Lines (4)

Orders are sent to OTM from Order Management Cloud (via OIC) and have to be processed into an order that can be planned. This can be done using the PUBLIC ORDER RELEASE – INSERT agent or another agent. See the *Order Management Guide* for more information.

When an order is created in OTM, an acknowledgement can be sent back to Order Management Cloud. The FA domain includes a SEND ORDER RECEIVED TO FA agent as an example. The Release interface is sent into OIC and its payload used to create the proper response to forward to Order Management Cloud. The OM_OTM integration illustrates one example of how the order release might be created, and OTM_OM illustrates one way the acknowledgement could be sent.

Send Pickup and Delivery Dates Back to Order Management Cloud for Fulfillment Lines (5)

Orders can be planned into shipments via an Automation Agent or a scheduled process to execute the *BuildBuySideShipments* process based on a saved query selecting the orders to be planned. The saved query might select orders with a new and unscheduled status. When an order is initially planned into a shipment, and as stop times are updated throughout its lifecycle, the estimated pickup and delivery dates can be updated on the order, if desired, to send back to Order Management Cloud. The sample flow assumes the following has been configured in OTM:

1. Parameters RECALC ORDER EARLIEST EST PICKUP DATES and RECALC ORDER LATEST EST DELIVERY DATES are set to True in order to enable calculating these fields on the Order Release. The FA domain includes a Parameter Set FA_DEFAULT with these set.
2. Properties: glog.workflow.topic.OrderLatestEstDeliveryDateSync.suppresslifetime=false and glog.workflow.topic.OrderEarliestEstPickupDateSync.suppresslifetime=false. These properties should be added to the CUSTOM property included with OTM.

3. Agent listening to ORDER - EARLIEST EST PICKUP DATE CHANGE and ORDER - LATEST EST DELIVERY DATE CHANGE (restrictions: INTERNAL) and send integration to OIC. The FA domain includes a SEND ORDER DATES TO FA to show one example on how this might be configured. Similar to the above, this sends the Release interface, which includes the estimated pickup and delivery dates.

The OTM_OM integration illustrates one example of how the the date estimates might be sent from OTM back to Order Management Cloud.

Sending Shipment Information to Inventory Management Cloud (Shipping) (6)

When shipments are created in OTM, the shipment information must be sent to Inventory Management Cloud (Shipping). The FA domain includes a SEND PLANNED SHIPMENT TO FA agent as an example of how this could be configured. The OTM_WSH integration illustrates one way the planned shipment might be mapped from OTM to Inventory Management Cloud.

Note: At the time of this publishing, the mapping of Order Release Destination to Initial Destination (Release/ShipToLocationRef/LocationRef/LocationGid/Gid/Xid to ShipmentRequestOrderLine/InitialDestinationLocationId) may cause the transmission to fail as the locations received from Order Management are actually Party Site IDs, and Inventory Management expects a Location ID here. This is slated to be fixed in a future version. In the meantime, this mapping can be removed (may affect pick release in Inventory Management), or could be configured with a lookup table to translate Party Site ID to a Location ID.

Receive, Acknowledge and Compliance Screening for Pick Confirm Shipment Line (7)

A pick confirm shipment line is sent into OTM from Inventory Management Cloud (Shipping) via OIC. GTM acknowledges the receipt of the request. GTM creates/updates the trade transaction and performs the screening configured by the user. Suggested screening services are Restricted Party List, Sanctioned Countries and Control Screening. The FA domain has a sample agent, WSH-GTM - READY-TO-SHIP listening to the transaction creation in ready-to-ship stage of shipment and sends the response to OIC. The WSH_SCREENING_GTM integration illustrates one example of how this screening might be performed, and the GTM_SCREENING_WSH integration illustrates an example of the corresponding response.

Receive, Acknowledge and Compliance Screening for Ship Confirm Customer Shipment (8)

A Ship Confirm Customer Shipment is sent into OTM from Inventory Management Cloud (Shipping) via OIC. GTM acknowledges the receipt of the request. GTM creates the trade transaction and performs the screening configured by the user. Suggested screening service is Documents Determination. GTM does not send back any screening results to Inventory Management Cloud. The FA domain has a sample agent, WSH-GTM - SHIPMENT-ADVICE listening to the transaction creation related to shipment advice where appropriate actions to generate documents can be added. The WSH_SA_GTM integration illustrates one example of how this might be accomplished.

Receive Shipment Actual (9)

The shipment as it was actually shipped in Inventory Management Cloud is sent into OTM. These are sent as individual ship units updating the shipment. The WSH_OTM integration illustrates one example of how actual updates might be mapped from Inventory Management Cloud into OTM.

The ship units sent from Inventory Management Cloud may differ significantly from those that were originally planned by OTM. Ship Units sent from Inventory Management Cloud will have a Received Ship Unit Count = 1. When all actual updates have been sent, Inventory Management Cloud will send

an update setting "Attribute 20" to 'Y' to indicate all actuals have been sent. The FA domain includes a sample agent SHIPMENT COMPLETE which listens for shipment modification events, and if the shipment is "complete" (Attribute 20='Y'), the WSH_SHIP_COMPLETE_OTM integration will be called. This integration immediately calls back into OTM with a transmission that deletes all of the original planned ship units, leaving only the actual ones sent from Inventory management Cloud.

Send POD to Order Management Cloud for Fulfillment Lines (10)

When all shipments for an order have been delivered, notification of delivery can be sent back to Order Management Cloud. Agent action SET ORDER DELIVERED STATUS can be used to evaluate the ENROUTE status of the related shipment(s) and set the order release DELIVERED status. The FA domain includes a SHIPMENT DELIVERED agent to illustrate how this might be configured. This agent listens for shipment status ENROUTE to move to COMPLETED, and uses Data Type Association SHIPMENT TO ORDER RELEASE to call SET ORDER DELIVERED STATUS and set the order's DELIVERED status. Another sample agent, SEND ORDER DELIVERY STATUS TO FA has been included in the FA domain which shows an example of how an agent might be configured to send the order to Order Management Cloud when the order's status moves to DELIVERED. The OTM_OM integration illustrates one example of how the proof of delivery might be communicated from OTM to Order Management Cloud.

4. Additional Reference

- Sample Integrations can be downloaded from My Oracle Support:
<https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=2209248.1>
- Integration Cloud Service documentation: <https://cloud.oracle.com/integration>
- Detail help for Integration Cloud Service:
http://docs.oracle.com/cloud/latest/intcs_gs/docs.htm

5. Known Issues

Transmission with Different Transaction Types

At the time of this writing, a bug exists when multiple element types are selected for a transmission. Per the schema, a GLogXMLElement can only contain a single GLogXMLTransaction, however the OIC will list multiple GLogXMLTransactions under GLogXMLElement as shown below. In this case, right click on the icon to the left of GLogXMLElement and select Repeat Element. Then map to only one of the GLogXMLTransaction elements within each GLogXMLElement.

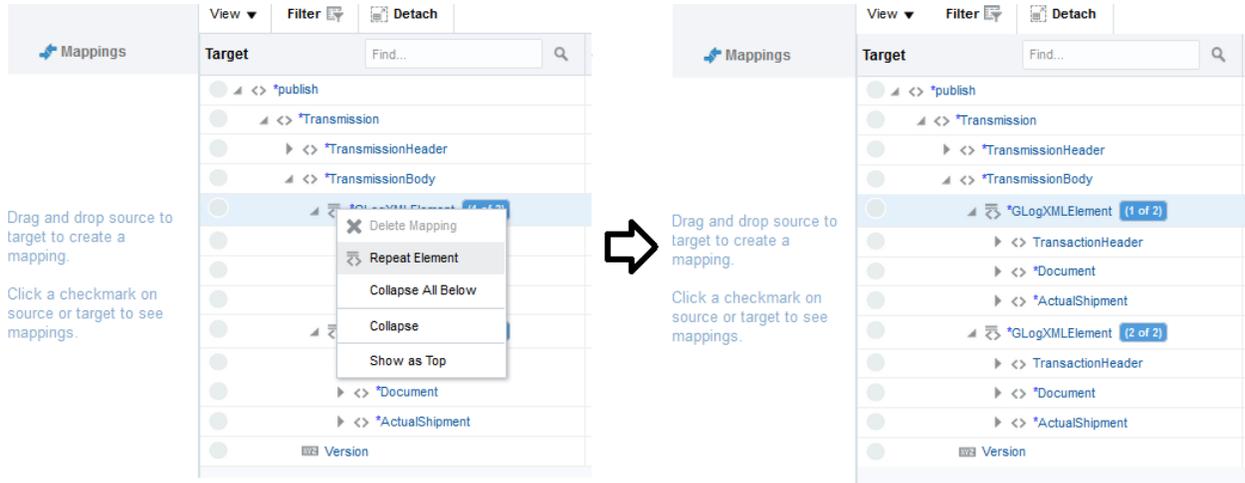


Figure 5-1: Known Issue Fix

Sending Shipment Information to Inventory Management Cloud

There is a potential issue with the OTM_WSH mapping to Initial Destination. Please see Sending Shipment Information to Inventory Management Cloud (Shipping) (6) section for more information.

