



# FREE TRADE ZONE INVENTORY TRACKING SYSTEM

ORACLE-BASED SOLUTION FOR DUBAI FREE ZONE MATERIAL TRACKING FROM INFOSYS



## Abstract

Companies operating under free zones (FZ) must follow local compliance rules and regulations with respect to inventory management and reporting, besides other regulatory aspects such as documentation and reporting. Businesses may need to track and trace their incoming and outgoing materials and reconcile with the corresponding free zone authority's tracking system. These requirements may not be fulfilled by the main enterprise resource planning (ERP) system used by companies, thereby necessitating the use of other tools or systems.

This white paper presents a business scenario of companies operating in a free zone. It discusses a custom inventory management solution developed within the main ERP (Oracle EBS, in this case) to follow free zone rules and regulations and reconcile with the authorities concerned any time.

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## Business Case

As per Dubai Customs, companies working in Jebel Ali Free Zone (JAFZA) are required to maintain an accountable and auditable inventory control system. The system should record, maintain, and track all approved incoming goods with Customs-issued bill of entry details declaration and all outgoing deliveries with the corresponding bill of entry details issued by customs when brought in, and bill of exit issued by Customs.

The primary objective of this system is to ensure that goods that enter JAFZA are traceable at any point in time and should either be with the company or have exited out of JAFZA as per the tracking documents.

To achieve this objective, all items entering and leaving JAFZA must be traced by an inventory management system. The inventory management system must have the capability to tag each imported item/quantity in the tracking system and reference the tag when the corresponding item/quantity is exported. The tracking and reconciliation should include other relevant parameters such as weight and HTS code.

## Implications of non-compliance of JAFZA requirements



**Example :** A purchased part can be shipped out or can be used in an assembly and shipped out.

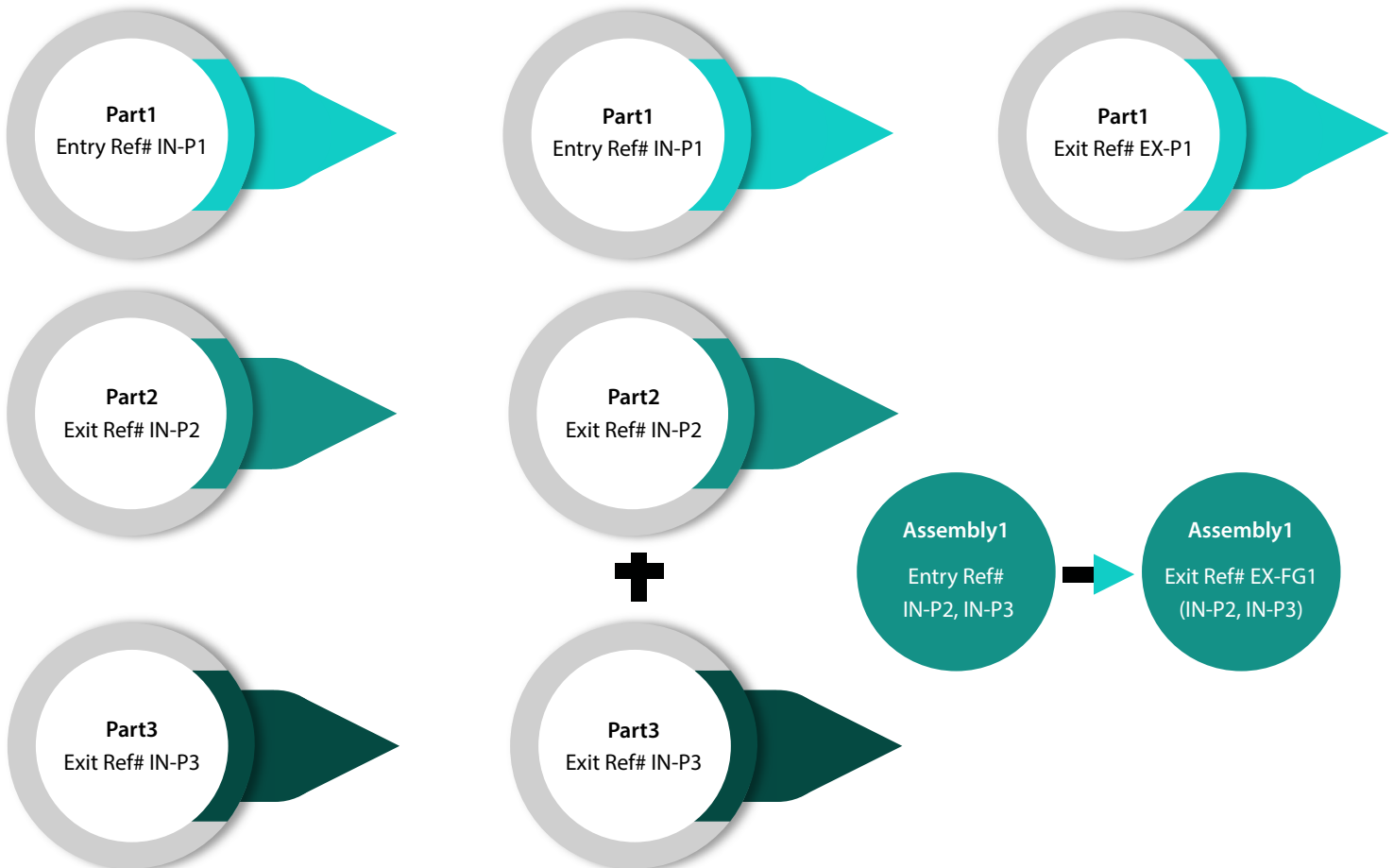


Figure 1: How a part travels in a free zone



## Gap in Oracle EBS R12 and Oracle Cloud

Oracle EBS R12 and Oracle Cloud do not provide a straightforward mechanism to fulfill JAFZA requirements. This can be achieved through workarounds by enabling the items as lot controlled and capturing entry data at a lot attribute level. However, this leads to overheads in maintaining the system because each item must be lot controlled and lot information must be captured during transactions. This is critical for reporting requirements for reconciliation.

It is a challenge to design a system that allows users to modify/correct data entry errors or make any manual changes that may be required to handle inventory adjustments.

To overcome these gaps and challenges, Infosys has designed an alternative solution for enterprises operating out of FZs.



## Infosys Solution

Infosys has designed a custom solution in Oracle Applications to fulfill the FZ Customs requirements. The solution addresses the local legal compliance requirements of MEA for inventory tracking in a tax-free zone.

Our custom solution can be extended to other companies and industries and can be implemented as a standalone deployment of the components on existing production environments.

Figure 2 shows the process flow implemented to capture the bill

of entry details corresponding to all incoming materials, maintain the data in Oracle, retrieve the corresponding data during shipment, and maintain the bill of exit.

1. Capture bill of entry details (BoE) at receiving Descriptive Flexfields
2. Maintain bill of entry details in a custom table
3. Retrieve bill of entry details and consume during shipment
4. Maintain bill of exit (BoX) number in a custom table
5. Retrieve/reconcile BoE and BoX

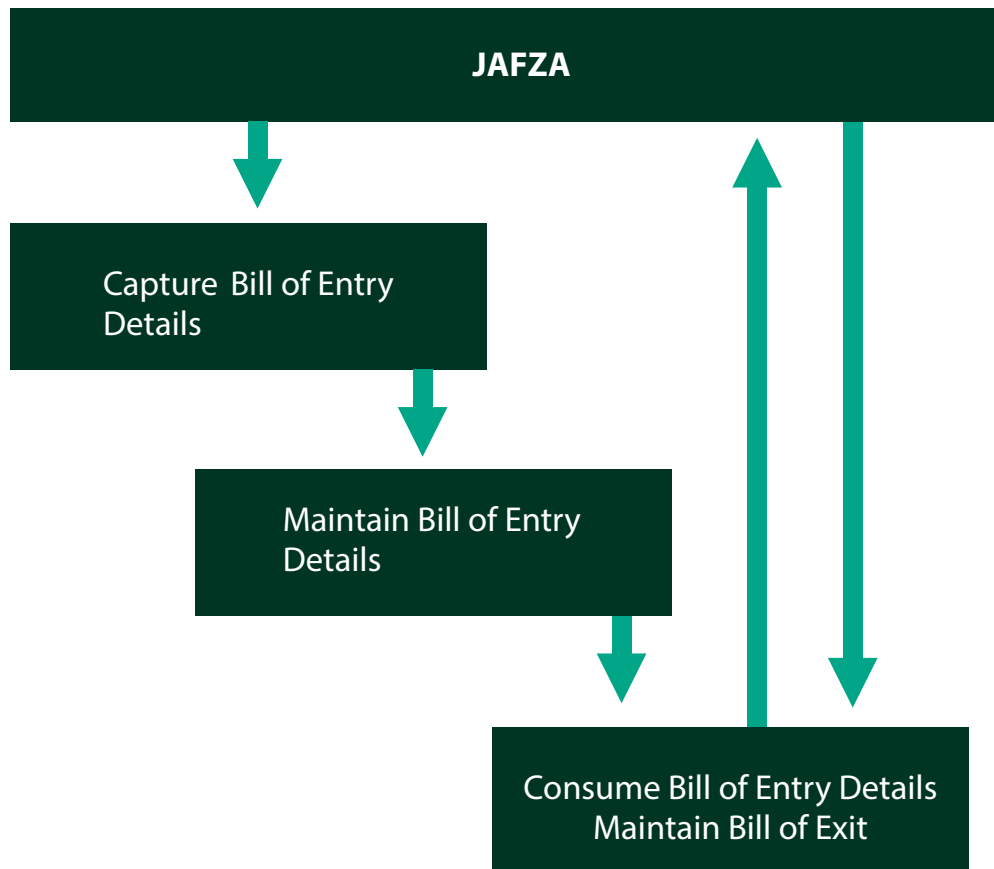


Figure 2 – Process flow of FZ tracking requirements solution

## Capture Bill of Entry Details

All incoming receipts are accompanied by the Customs-issued bill of entry details document which has the unique incoming material details along with the bill of entry details number. This information is captured through Receiving Descriptive Flexfields segments, and will be available in the respective receiving transactions base tables.



## Maintain Bill of Entry Details

A custom program runs at scheduled intervals to scan all newly created receipts (delivery transaction), pick up the DFF segment values of the corresponding transactions, and store the information in a custom table. Users can view, edit, or update this information through a custom-designed page.

For each new record in the BoE table, BoE status is set to **Open**, and BoE open quantity is the same as the transaction quantity. The purpose of these two fields is explained in the bill of exit

process. Apart from BoE details, the table stores information related to the item and its corresponding transaction details.

As business need to maintain the bill of entry details quantities at the organization level, the solution needs to handle the BoE details for all other inventory transactions (apart from receipts) which increases the onhand such as miscellaneous receipt, cycle count/ physical count adjustments etc. The custom program considers all such inventory transactions and creates records in the BoE table.

As these transactions are internal, they do not have bill of entry details. Therefore, a lookup is maintained to indicate the corresponding BoE numbers for each type of transaction. The solution uses this information to indicate the case in the custom table (for example, 'Count Adj'). Business users will validate this

on a regular basis and take care of updating/maintaining the BoE details.

To ensure security in accessing the data, a custom lookup is maintained to store details of users with view-only or edit/update rights.



## Retrieve Bill of Entry and Consume

During shipment of goods, the business must submit all bill of entry details (corresponding to the outgoing material) to Customs and get the bill of exit number. This indicates that the material received under a BoE is going out and is not in the factory. Both incoming and outgoing materials should receive Customs clearance.

A custom program to retrieve bill of entry details during shipment (on a first in first out basis) is scheduled to run at regular intervals and consider the shipment transactions. Based on the Oracle SCM details at the business end, the custom program considers the Sales Order Pick Release transaction and its line item as the shipment transaction. Based on the retrieved line item, the program searches the BoE table for all records for

the corresponding item with BoE status as **Open** and enough quantity under 'BoE Open quantity.' Once the BoE record is retrieved, the program consumes/reduces the BoE open quantity field value corresponding to the consumed quantity. If the open quantity becomes zero, the BoE status is updated to **Closed**. For all such consumed BoE numbers, new records are created in the bill of exit table indicating the BoE number along with the item and its transaction details. The BoX number field is set to 'Update BoX' because the BoX number is not available at this stage.

Similar to the BoE program, the BoX program also considers other inventory transactions which decreases the on-hand such as account alias Issue and cycle count adj.

The program first considers the sales order line item and looks for the open BoE record in the BoE table. If it does not find the open BoE record, the program explodes the BOM further (standard/\* item BOM) and looks for the items at each level of the BOM till the end level.

For any item, if no BoE is found even at the end level, the BoE number in the BoX table is marked as 'No BoE Found' against that item.

As per the process, business users will search the BoX records with the sales order number and download data which indicates all the BoE numbers corresponding to that shipment. This information is submitted to Customs to receive the bill of exit with the corresponding BoX number details, after which physical shipment is initiated.

## Maintain Bill of Exit Number

When BoX records are first created with retrieved BoE numbers, the business does not have the actual BoX numbers and hence the program marks the field value as 'Update BoX'. Once the business gets the bill of exit document from Customs, the BoX table needs to be updated with the actual BoX number and other details.

The business user queries the page with the corresponding sales order number, the relevant records are retrieved, and the BoX details fields are updated in the retrieved records. This completes the life cycle of incoming BoE with the corresponding BoX number.

## Reports

With the custom solution developed by Infosys , complete BoE and BoX information is available in the system for reconciliation and reporting. Based on business requirements, a few reports are pre-packaged to retrieve details for reconciliation based on criteria such as item, BoE, BoX, and HTS code .



## Conclusion

The Infosys solution can be used with minor changes based on business processes or requirements in most free trade zones to maintain the entry and exit details corresponding to all receipts and shipments from organizations operating under free zones.

The solution can scale across different industry types and is also suitable for various manufacturing activities and processes such as configure-to-order, assemble-to-order, back-to-back, and other scenarios.

This solution can be implemented along with the Oracle EBS implementation or as a standalone solution even if companies are already using Oracle EBS. With the framework ready, the solution can also be deployed for the Oracle Cloud suite of products. Implementation time varies between 3 to 4 months based on the scope and local requirements.

Given the challenges in achieving JAFZA compliance in a straightforward way in Oracle EBS, Infosys' custom-built solution enables enterprises to effortlessly track, trace, and reconcile incoming and outgoing materials for compliance.

## About the Author



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Asif has 18+ years of experience in Oracle Practice with multiple end-to-end implementation, upgrade and support engagements across the Globe, besides 2 years of industry experience in Manufacturing domain. He is an Oracle Certified Specialist (EBS & Cloud) and has led solution design of several complex Oracle ERP implementations and designed multiple complex solutions spanning SCM/Manufacturing/Planning tracks

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