MD.050 Application Extensions Functional Design

Forecasting Project - Demantra

AT&T

PLN-F05-Loader Program for Forecast Load to Demantra Staging Table

Author: Ashutosh Mishra

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## Topical Essay

New Horizon platform has been built over the years to support Supply Chain strategies and goals in alignment with One AT&T solution approach. As part of this effort, several Oracle EBS Suite of applications (Demantra, ASCP, IO, Purchasing and other ERP modules) along with CATS/ALC and WMS were implemented in SE (February 2011) and MW (Sept 2011) that replaced several legacy systems in these regions.

In the current effort, AT&T has engaged SCM Development team to design, develop, and implement enhancements in Demantra to generate statistical forecast for stock and non-stock items, thereby improving productivity of forecasting teams and making the process more efficient by sharing the forecast with suppliers in real time basis.

This effort covers the business processes and systems enhancements to support the following business functions:

* Ability to generate statistical forecast in Demantra for non-stock material based on purchase history for both Wireline and Wireless
* Ability to generate statistical forecast in Demantra for stock items for Wireless
* The ability to share the purchase forecast with Supplier online using Demantra
* The ability to receive supply commit from vendors online using Demantra
* The ability to collaborate internally to generate a consensus forecast using Demantra

## Business Requirements

The Business requirement for the Loader Program is as follows:

* The ability to provide user with the facility to load following forecast data in Demantra on a monthly basis –
* Customer 1 Demand
* Customer 2 Demand
* Customer 3 Demand
* Purchase Forecast
* The ability to load above data streams in respective Demantra staging table from the data files placed on unix server

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **BR ID** | **Requirement Description** | **Business Requirement Type** | **BR Status** | **Impacted Applications** | **BA Comments** |
| BR6.0 | For each of the Customer series in Demantra, provide ability to upload forecast from a spreadsheet. The upload feature shall be flexible enough to upload forecast spreadsheets into designated series. | Functional / Usability | Approved | Demantra/ Demand Management |  |

## High Level Solution

The high level solution is to run a loader program through a request set which gets triggered as soon as a new file gets loaded onto the Unix Server by any user.

The following are the main features of the loader program -

1. Loader program should pick the file loaded by user on the Unix Server and validate the file data for file formatting and data in file
2. If loader program finds any error with file formatting or any record in the file gets error out, the loader program should get terminated after sending the notification to the user along with error report as an attachment
3. If the file passes through the error validation phase, loader program should load the file data in Demantra respective BIIO\_(Table Name).
4. After loading the data in BIIO tables, loader program should end and to be followed by initiation of Demantra integration interface workflow

The process flow for loader program will be as follows –



## Assumptions­­

The followings are the assumptions for the Forecast Loader Program:­­

1. The data upload file should be in the format as per the templates provided to the users
2. Naming conventions for file will be same as standard naming convention communicated to users
3. Items listed in the file exist in Demantra Item master
4. Items listed in the file are Prime Items only in both the Customer x Demand as well as Purchase Forecast file.
5. Regions listed in the file exist in Demantra Location master
6. OEMs listed in the file exist in Demantra Item master
7. There is only one OEM linked to one item
8. Forecast is only for future 12 months starting from current month + 1
9. Purchase history is only for past 3 months starting from current month – 3
10. Other transaction data and notes should be present only for current month
11. Loader program will be part of Forecast Load request set and will be initiated as part of request set
12. In Customer x Demand file, a wireline stock item can only be loaded at a one region level or at ‘Blank’ (national) region level but not at both levels.

## Detail Design

**Picking-up Forecast Files –**

Completion of forecast file upload to Unix server through GUI form (RICE Object – F03) should initiate the loader program to load the file data in Demantra. The loader program should pick only that file which has been loaded to Unix server through previous step.

For example, if user am047f loads a file customer\_1\_fcst.csv on 04/01/2015 (12:00:01 PM), the file thus loaded onto Unix server customer\_1\_fcst\_am047f\_04012015\_120001 should only be picked by loader program for loading into Demantra.

**Program Parameter**

1. The file name should be passed as parameter to the loader program to pick the right file
2. Apart from it the loader program should identify which data type it needs to load into Demantra from the ‘Forecast Type’ parameter passed by user in Forecast Upload GUI. Based on that parameter, loader program should initiate the loading process.

If it is Customer 1 Demand, it will run the request set to load the Customer 1 Demand

If it is Customer 2 Demand, it will run the request set to load the Customer 2 Demand

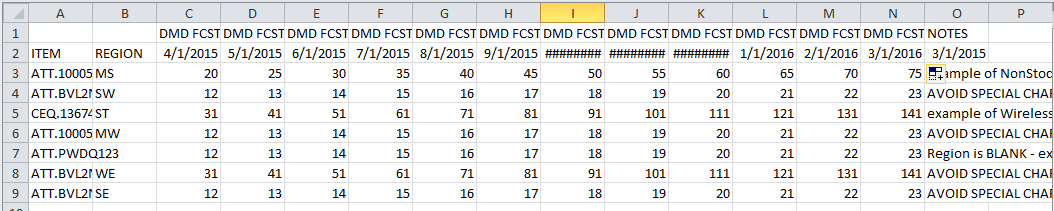
If it is Customer 3 Demand, it will run the request set to load the Customer 3 Demand

If it is Purchase Forecast, it will run the request set to load the Purchase Forecast

The above Forecast Type values will be maintained as values set – ‘CUST Forecast Type Values’.

**Error Validation -**

1. Customer X Demand
2. File Formatting



* Items should be listed in column and should have following format – ABC.XXXXXX
* Region should be listed against each item in column, and should have just two text characters and it can have null values.
* Dates will be horizontally placed and should be in format mm/dd/yyyy.
* Customer Demand (DMD FCST) data should be placed against item-region-time horizontally spanning across 12 months starting from Current month + 1.
* Notes will be placed vertically in a separate column against each item. Notes should be available for current month and it can have null values.

1. Data Validation

* Item field can not have null values in it
* Items listed in the file should only be prime items. Prime items can be validated as detailed out in technical overview section.
* Date field can not have null values in it
* Customer x Demand (DMD FCST) data should only have numbers or null values in them.

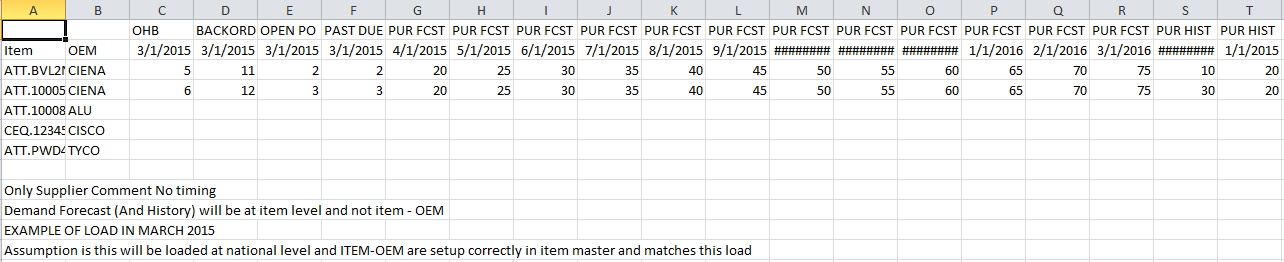
**Error Report –**

If the validation process identifies errors in the file, the load process should get terminated and it should send the notification to the user who has uploaded the file along with the error details.

|  |  |  |
| --- | --- | --- |
| Error Type | Error Code | Error Description |
| Item Format Error |  | ERROR\_ITEM\_FORMAT – ITEM FORMAT IS INCORRECT CORRECT FORMAT IS ABC.XXXXXXX |
| Item Data Error |  | ERROR\_ITEM\_DATA – ITEM DATA IS INCORRECT |
| Prime Item Error |  | ERROR\_PRIME\_ITM – ITEM IS NOT A PRIME ITEM |
| Region Format Error |  | ERROR\_REG\_FORMAT – REGION FORMAT IS INCORRECT. CORRECT FORMAT IS 2 CHARARCTER REGION CODE |
| Date Format Error |  | ERROR\_DATE\_FORMAT – DATE FORMAT IS INCORRECT. CORRECT FORMAT IS MM/DD/YYYY |
| Date Data Error |  | ERROR\_DATE\_DATA – DATE FIELD HAS NULL VALUE IN IT |
| Forecast Date Range Error |  | ERROR\_FCST\_DATE\_RANGE – FORCAST DATE RANGE IS INCORRECT |
| Forecast Data Error |  | ERROR\_FCST\_DATA – FORCAST DATA IS INCORRECT |
| Notes Date Range Error |  | ERROR\_NOTES\_DATE\_RANGE – NOTES DATE RANGE IS INCORRECT |

* The error description concatenated with error code should be populated in in each row where there is an error in err\_msg column of excel getting validate
* The records where there is no error, err\_msg should get populated with N/A.
* If there are more than one errors in one row, the error should be concatenated and should be placed against the row in err\_msg column
* The file name of the file to be send back to user should have following naming convention cust\_1\_fcst\_userid\_mmddyyyy\_hhmmss\_err.csv
* These error should also be logged in global error table in EPROD
* Use FND\_NEW\_MESSAGES for error handling

1. Purchase Forecast
   1. File Fomatting



* Items should be listed in column and should have following format – ABC.XXXXXX
* Dates will be horizontally placed and should be in format mm/dd/yyyy.
* Purchase Forecast (PUR FCST) data should be placed against item-OEM-time horizontally spanning across 12 months starting from current month + 1.
* Purchase History (PUR HIST) data should be placed against item-OEM-time horizontally spanning across 3 months starting from current month - 3.
* Purchase History Avg (PH AVG) data should be available only for the current month.
* Transaction Data – On Hand Balance (OHB), Back Order (BACKORD), Open PO and Past Due POs (Past Due) should be available only for the current month. Transaction data can have null values in them.
* Comment will be placed vertically in a separate column against each item. Comments should be available for current month and it can have null values.
  1. Data Validation
* Item field can not have null values in it
* Items listed in the file should only be prime items. Prime items can be validated as detailed out in technical overview section.
* OEM field can not have null values in it
* Date field can not have null values in it
* Purchase Forecast (PUR FCST), Purchase History (PUR HIST) and Purchase History Average (PH AVG) data should only have numbers or null values in them
* On Hand Balance (OHB), Back Order (BACKORD), Open PO and Past Due POs (Past Due) should only have numbers or null values in them

**Error Report –**

If the validation process identifies errors in the file, the load process should get terminated and it should send the notification to the user who has uploaded the file along with the error details.

|  |  |  |
| --- | --- | --- |
| Error Type | Error Code | Error Description |
| Item Format Error |  | ERROR\_ITEM\_FORMAT – ITEM FORMAT IS INCORRECT. CORRECT FORMAT IS ABC.XXXXXXX |
| Prime Item Error |  | ERROR\_PRIME\_ITM – ITEM IS NOT A PRIME ITEM |
| Item Data Error |  | ERROR\_ITEM\_DATA – ITEM DATA IS INCORRECT |
| OEM Data Error |  | ERROR\_OEM\_DATA – OEM FIELD HAS NULL VALUE IN IT |
| Date Format Error |  | ERROR\_DATE\_FORMAT – DATE FORMAT IS INCORRECT. CORRECT FORMAT IS MM/DD/YYYY |
| Date Data Error |  | ERROR\_DATE\_DATA – DATE FIELD HAS NULL VALUE IN IT |
| History Date Range Error |  | ERROR\_HIST\_DATE\_RANGE – HISTORY DATE RANGE IS INCORRECT. |
| History Data Error |  | ERROR\_HIST\_DATA – HISTORY DATA IS INCORRECT |
| Forecast Date Range Error |  | ERROR\_FCST\_DATE\_RANGE – FORECAST DATE RANGE IS INCORRECT |
| Forecast Data Error |  | ERROR\_FCST\_DATA – FORECAST DATA IS NOT CORRECT |
| History Avg Date Range Error |  | ERROR\_HIST\_AVG\_DATE\_RANGE – HISTORY AVG DATE RANGE IS INCORRECT |
| History Avg Data Error |  | ERROR\_HIST\_AVG\_DATA – HISTORY AVG DATA IS INCORRECT |
| On Hand Balance Date Range Error |  | ERROR\_OHB\_DATE\_RANGE – ON HAND BALANCE DATE RANGE IS INCORRECT |
| On Hand Balance Data Error |  | ERROR\_OHB\_DATA – ON HAND BALANCE DATA IS INCORRECT |
| Back Order Date Range Error |  | ERROR\_BCKORD\_DATE\_RANGE – BACK ORDER DATE RANGE IS INCORRECT |
| Back Order Data Error |  | ERROR\_BCKORD\_DATA – BACK ORDER DATA IS INCORRECT |
| Open PO Date Range Error |  | ERROR\_OPENPO\_DATE\_RANGE – OPEN PO DATE RANGE IS INCORRECT |
| Open PO Data Error |  | ERROR\_OPENPO\_DATA – OPEN PO DATA IS INCORRECT |
| Past Due Order Date Range Error |  | ERROR\_PASTDUE\_DATE\_RANGE – PAST DUE DATE RANGE IS INCORRECT |
| Past Due Order Data Error |  | ERROR\_PASTDUE\_DATA – PAST DUE DATA IS INCORRECT |
| Comments Date Range Error |  | ERROR\_COMMENTS\_DATE\_RANGE – COMMENTS DATE RANGE IS INCORRECT |

* The error description concatenated with error code should be populated in in each row where there is an error in err\_msg column of excel getting validate
* The records where there is no error, err\_msg should get populated with N/A.
* If there are more than one errors in one row, the error should be concatenated and should be placed against the row in err\_msg column
* The file name of the file to be send back to user should have following naming convention purchase\_fcst\_userid\_mmddyyyy\_hhmmss\_err.csv
* These error should also be logged in global error table in EPROD
* Use FND\_NEW\_MESSAGES for error handling

**File Load to Demantra–**

If the loader program does not find any error in the file, it should load the data in Demantra staging table.

Customer x Demand -

A value set (Cust\_fcst\_value\_set) will be created for Customer Demand data, from where it should be identified as to which tables and table columns need to be populated with customer demand data.

Value set will have following fields and data –

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Forecast Type | BIIO Table - 1 | BIIO Table – 2 | Series – 1 | Series - 2 |
| Customer 1 Demand | BIIO\_ATT\_CUST1\_FCST | BIIO\_ATT\_CUST1\_FCST\_BLANK | *Cust1\_fcst* | *Cust1\_fcst\_notes* |
| Customer 2 Demand | BIIO\_ATT\_CUST2\_FCST | BIIO\_ATT\_CUST2\_FCST\_BLANK | *Cust2\_fcst* | *Cust2\_fcst\_notes* |
| Customer 3 Demand | BIIO\_ATT\_CUST3\_FCST | BIIO\_ATT\_CUST3\_FCST\_BLANK | *Cust3\_fcst* | *Cust3\_fcst\_notes* |
| Future Placeholders |  |  |  |  |

Forecast Type needs to be picked from the Forecat Type parameter mentioned in Program parameter section.

Column Mappings –

BIIO\_ATT\_CUSTx\_FCST(For records with non-null values in region field of excel)

|  |  |
| --- | --- |
| Excel Data | BIIO\_ATT\_CUSTx\_FCST |
| DATE | SDATE |
| Item | Level1 |
| Region | Level2 |
| Customer X Demand (DMD FCST) | *Cust1\_fcst* for Customer 1 Demand  *Cust2\_fcst* for Customer 2 Demand  *Cust3\_fcst* for Customer 3 Demand |
| Customer X Demand Notes (NOTES) | *Cust1\_fcst\_notes* for Customer 1 Demand Notes  *Cust2\_fcst\_notes* for Customer 2 Demand Notes  *Cust3\_fcst\_notes* for Customer 3 Demand Notes |

BIIO\_ATT\_CUSTx\_FCST\_BLANK(For records with Null Region Value)

|  |  |
| --- | --- |
| Excel Data | BIIO\_ATT\_CUSTx\_FCST\_BLANK |
| DATE | SDATE |
| Item | Level1 |
| Customer X Demand (DMD FCST) | *Cust1\_fcst* for Customer 1 Demand  *Cust2\_fcst* for Customer 2 Demand  *Cust3\_fcst* for Customer 3 Demand |
| Customer X Demand Notes (NOTES) | *Cust1\_fcst\_notes* for Customer 1 Demand Notes  *Cust2\_fcst\_notes* for Customer 2 Demand Notes  *Cust3\_fcst\_notes* for Customer 3 Demand Notes |

Purchase Forecast – BIIO\_ATT\_PUR\_FCST

Column Mapping

|  |  |
| --- | --- |
| Excel Data | BIIO\_ATT\_PUR\_FCST |
| DATE | SDATE |
| Item | Level1 |
| OEM | Level2 |
| Purchase Forecast (PUR FCST) | *Pur\_fcst* |
| Purchase History (PUR HIST) | *Pur\_hist* |
| Purchase History Average (PH AVG) | *Pur\_hist\_avg* |
| On Hand Balance (OHB) | *Pur\_fcst\_ohb* |
| Back Order (BACK ORD) | *Pur\_fcst\_bo* |
| Open PO (OPEN PO) | *Pur\_fcst\_po* |
| Past Due Orders (PAST DUE) | *Pur\_fcst\_due\_po* |
| Comment | *Pur\_fcst\_notes* |

* Comments or Notes while getting loaded in BIIO table should be limited to 100 characters, any thing beyond 100 characters should be truncated while loading to BIIO tables

**Job Queue**

If there are multiple uploads been run simultaneously by different planners, at a time loader program should run only for one file upload (from unix server to Demantra). Rest of the loader jobs should remain in waiting status and should be moved to running status on first come first serve basis.

## Program Name and Parameters:

### Program Parameters:

1. The file name should be passed as parameter to the loader program to pick the right file
2. Apart from it the loader program should identify which data type it needs to load into Demantra from the ‘Forecast Type’ parameter passed by user in Forecast Upload GUI. Based on that parameter, loader program should initiate the loading process.

Value user passes in the field ‘Forecast Type’

If it is Customer 1 Demand, it will run the request set to load the Customer 1 Demand

If it is Customer 2 Demand, it will run the request set to load the Customer 2 Demand

If it is Customer 3 Demand, it will run the request set to load the Customer 3 Demand

If it is Purchase Forecast, it will run the request set to load the Purchase Forecast

The above Forecast Type values will be maintained as values set – ‘CUST Forecast Type Values’.

## Technical Overview

Prime Item Identification –

If the planning FACTOR for ITEms in MSC.MSC\_BOM\_COMPonents = 100

Following query can be used for Fetching Prime Items -

select distinct ITEM\_NAME from msc.msc\_system\_items mi, msc.msc\_bom\_components mb

where mi.inventory\_item\_id = mb.inventory\_item\_id

and mb.planning\_factor = 100

If any of the items in the purchase forecast file does not match with the items from above select statement, the program should terminate and should send error report to planner.

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### Closed Issues

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## Appendix A

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