

Basics of Global Data Synchronization (GDS)



Applies to:

SAP GDS 2.0 with MDM 7.1. For more information, visit the [Master Data Management homepage](#).

Summary

This document provides Basic understanding on SAP GDS, Global Data Synchronization usage and its functionality.

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Created on: 18 January 2010

Updated on: 26 May 2011

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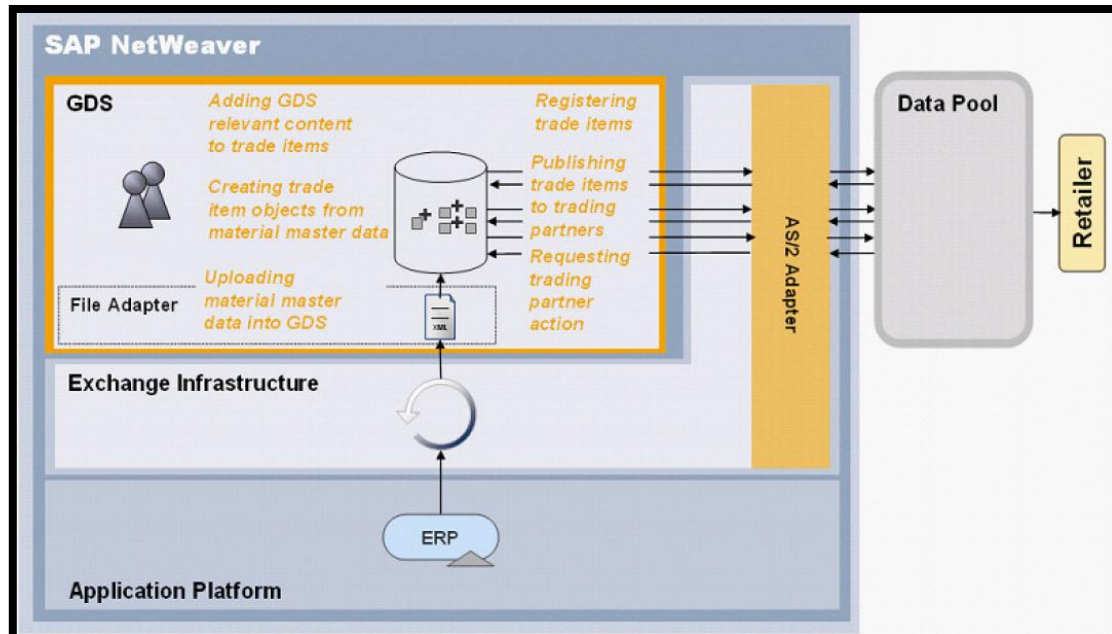
Table of Contents

GDS: Global Data Synchronization	3
Data Flow	4
GDS Console	6
GDS Console – Navigation Menu	6
Item Management	6
1. Workflow	6
2. Item Maintenance	7
3. Add Item	9
4. Item History	9
Publish Item	10
1. Publish by Item	10
2. Publish by Partner	10
Trade Partner Management	11
1. Trade Partner List	11
2. Trade Partner Groups	11
Application Administration	11
1. UI Configuration	11
2. User & Role Management	13
3. Process Log	14
4. Metadata Configuration	14
Related Content	15
Disclaimer and Liability Notice	16

GDS: Global Data Synchronization

Global data synchronization (GDS) is a process of exchanging of trade items data between CPG (consumer Packaged Groups) manufacturers and retailers using GDSN standards where GDSN means Global Data Synchronization Network.

Manufacturers publish their data as product catalogues to data pools. Retailers connect to these data pools and synchronize their data automatically.



Process flow in GDS

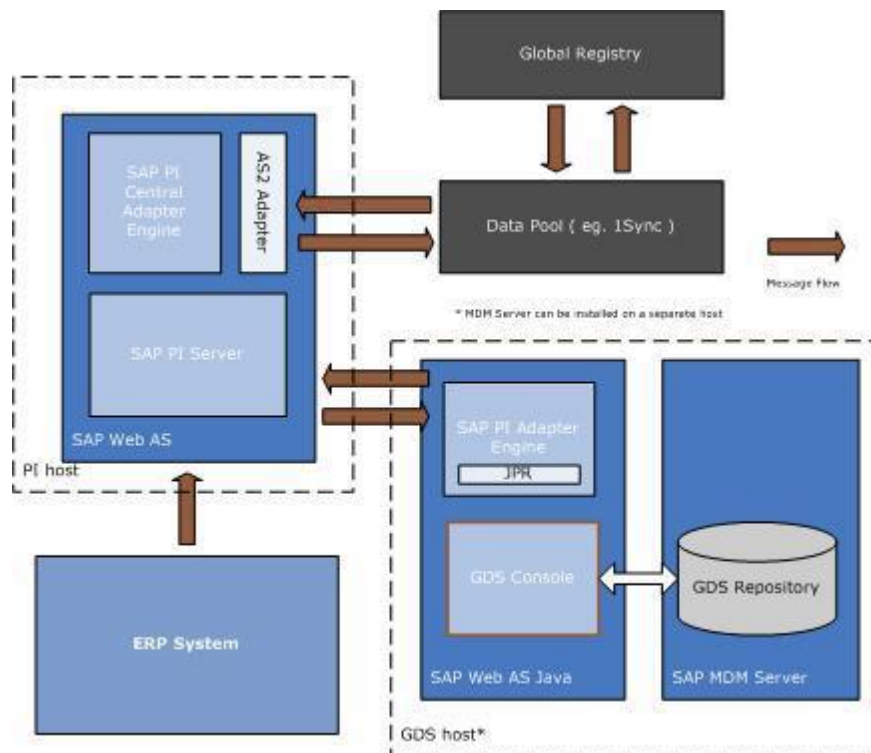
- Product data is extracted from the ERP
- Trade Item objects are derived from the extracted data
- Trade Items are enhanced with GDS relevant attributes
- Trade Items message is created and sent to an AS2 adaptor
- The message is transformed into data pool specific format and forwarded to data pool
- A Confirmation message is sent back from data pool
- A Confirmation/Rejection messages are sent back from the trading partners

Technically Global Data Synchronization has below components

- SAP ERP (4.6C as of SP 50, 4.7 as of SP 24)
- or SAP ECC (5.0 as of SP 7)
- SAP MDM 7.1
- GDS Console 2.0
- SAP NetWeaver® Process Integration 7.0
- AS2 Adapter (provided by See burger)

Data Flow

Source data is sent from MDM or ECC to GDS repository of SAP MDM server using XI interface like SAP Netweaver Process Integration Engine.



1. Materials from (SAP R/3) or SAP MDM.

Materials are selected based on specified filter criteria. These are the Materials from which trade items are derived System can be SAP R3 or SAP MDM.

2. Distribution from SAP R/3 or SAP MDM

In case of SAP R3, Application Link Enabling (ALE) is used to distribute your selected materials

If the system is SAP MDM, Send the data through XI/PI

3. System executes mapping (PI Process Integration)

SAP Exchange Infrastructure (SAP PI) maps the IDoc XML format to the XML format of the GDS 2.0 Console and initializes the proxy.

4. System checks if trade items exist (GDS 2.0 Console)

5. System imports trade items (GDS 2.0 Console)

If the trade items do not exist in the GDS 2.0 Console, the system creates new trade items.

6. Enrich trade items (GDS 2.0 Console)

Additional attributes are added to trade items so that they comply with data pool requirements.

7. Select trading partners (GDS 2.0 Console)

Trading partners are selected to which trade items are intended to be distributed

Trading partners can be created either before or after you creation of trade items.

Both the trade items and the trading partners should exist in the GDS 2.0 Console.

8. Validate and Register trade items (GDS 2.0 Console)

Trade items are registered automatically after satisfying the data pool validations or requirements

9. System maps XML format of GDS Console to XML format of data pool (PI Process Integration).

SAP Exchange Infrastructure (SAP PI) maps the data from the SAP-internal XML format to the data pool-specific XML format.

10. System converts message to AS2 protocol (PI Process Integration)

11. System validates registration data (Data Pool)

The data pool checks if the registration message complies with the data pool standards.

12. System stores registration (Data Pool)

13. System processes acknowledgement (GDS 2.0 Console)

The GDS 2.0 Console receives an acknowledgement from the data pool and processes it.

14. System sets synchronization status (GDS 2.0 Console)

Depending on the acknowledgement received from the data pool, the GDS 2.0 Console sets a synchronization status for the corresponding trade item(s).

15. Publish trade item (GDS 2.0 Console)

After trade items are registered, they can be changed or published.

16. System maps XML format of GDS Console to XML format of data pool (PI Process Integration).

SAP PI maps the data from the SAP-internal XML format to the data pool-specific XMLformat.

17. System converts message to AS2 protocol (PI Process Integration)

18. System validates publication data (Data Pool)

The data pool checks if the publication message complies with the data pool standards.

19. System stores publication (Data Pool)

20. System processes acknowledgement (GDS 2.0 Console)

The GDS 2.0 Console receives an acknowledgement from the data pool and processes it.

21. System sets synchronization status (GDS 2.0 Console)

Depending on the acknowledgement received from the data pool, the GDS 2.0 Console sets a synchronization status for the corresponding trade item(s).

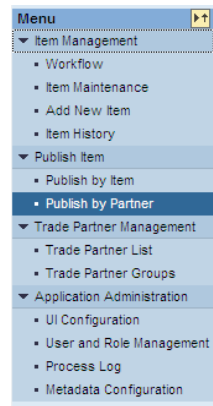
GDS Console

GDS Console is a standard WebDynpro application which is provided by SAP in GDS Package. GDS Console is a standalone application for performing administrative and GDS specific tasks in GDS. It can also be accessed through GDS Netweaver Portal.

It's a JAVA-based application running on SAP Web application server (SAP Web AS).

GDS Console – Navigation Menu

GDS Console has 4 different links shown in Left Navigation Panel. Different functions can be performed in each Menu. Click on the Menu in left navigation panel to see the functions under each Menu.



To hide the functions under the menu, again click on the Menu Name.

Item Management

Item Management is related to Trade Item maintenance in which user can create, modify, delete trade items, and launch workflow for a particular trade item. Change tracking history can be viewed under this.

1. Workflow

When user first logs into the GDS Application, the first screen that is visible to user is Workflow screen.

Workflow management allows user to manage and execute workflows.

With the help of workflows, it is possible to start a predefined sequence of actions on a set of Global Trade Item Number (GTIN) items. Each action to be performed can be assigned to the user who is responsible for performing that action. Actions are assigned while designing the Master Data Management (MDM) workflow.

Under the Workflow tab, user can do all the activities related to workflows other than launching the workflow for a Trade Item.

In this tab, only those workflows are there which are launched for a certain record from Item Maintenance Screen. It means this tab doesn't show the list of Workflows in MDM but it shows the MDM workflows which are launched for a Trade Item. It also shows the stage in which the workflow is

Following workflows are part of SAP Standard Repository.

Name	Description
GDS Correct Authorization	Correct trade item after sync error
GDS Correct GDSN	Correct trade item after sync error
GDS Correct Item	Correct trade item
GDS Correct Sync	Correct trade item after sync error
GDS Link Item	Link trade item
GDS Publish Item	Publish trade item

GDS Register Item	Register trade item
GDS Republish Item	Republish trade item
GDS Review Item	Review trade item
GDS Unlink Item	Unlink trade item
GDS Unpublish Item	Unpublish trade item

2. Item Maintenance

The screenshot displays the SAP NetWeaver MDM GDS - Trade Item Maintenance interface. On the left is a navigation menu with options like 'Item Management', 'Workflow', 'Item Maintenance', 'Add New Item', 'Item History', 'Publish Item', 'Trade Partner Management', and 'Application Administration'. The main area is divided into search and data sections. The search section includes filters for 'Unregistered(5,724)', 'Registered(18)', 'Register_Error(1)', 'Pending_Registration(2)', 'Modified(11)', 'Published(7)', and 'Publication_error(1)'. Below this are fields for 'Drilldown', 'Information Provider', 'Product Type (Global)', 'Registration Status', and 'Target Market'. The bottom section is a table titled 'GTN Items' with columns for 'GTN', 'GTN Name (Global)', 'Last Change Date/Time', 'Product Type (Global)', 'Target Market', and 'Is Publishable'. The table contains several rows of data with expandable arrows.

Search Screen:

Item maintenance Screen has two types of search in it – Drilldown Search & Basic Search.

In the above screenshot, Drill Down search is displayed. To navigate to Basic Search Screen, click on ‘Switch to Basic’ search link at upper right corner of screen.

Drilldown search field’s options can be changed. To change these options click on ‘Search Field Options’ Button. Following window will pop up where you can add and remove the search options.

The 'Select Search Fields' dialog box is shown with two panes. The 'Available' pane on the left contains a search box and a list of search fields: 'Brand Owner (Global)', 'Composition Depth UOM (Global)', 'Composition Width UOM (Global)', 'Depth UOM', and 'Diameter UOM'. The 'Selected' pane on the right contains a search box and a list of selected fields: 'Information Provider', 'Registration Status', and 'Target Market'. Navigation arrows between the panes allow for adding and removing fields. At the bottom, there are 'Save' and 'Cancel' buttons.

GTIN Item Table:

Trade Items are displayed in *GTIN Items Table* as per search criteria. Select any trade item from the table, the trade item will get highlighted.

GTIN (Global)	GTIN Name (Global)	Product Type (Global)	Registration Status
00021000642731		Each	Unregistered
00021000642731		Each	Unregistered
00021000642731		Each	Pending Registration
00021000733026		Case	Pending Registration
20019582000159	BULL'S-EYE 16 OZ	Pallet	Pending Registration
00019582000155		Case	Pending Registration
00019582000049		Each	Registered
00021000685668		Case	Unregistered
00021000002795		Each	Unregistered
00087684001141		Each	Unregistered
00087684001134		Each	Unregistered
10087684001148		Case	Unregistered
20087684001145		Pallet	Unregistered
00021000685668		Case	Unregistered
00021000065394	TEST PRODUCT	Case	Unregistered

Trade Item Details Screen:

After selecting Trade Item, and then clicking on 'Details' button, Trade Item Details screen gets popped up.

Registration Status: Pending Registration
 Registration Error Message: -
 Registration Date: -
 GDSN Registration Status: -
 GDSN Registration Date: -
 Last Changed: 6/26/09 9:03:41 AM CDT
 Trade Item Registered by: Admin
 Global Data Registered by: Admin
 Created by: Admin
 Last Changed by: Admin

Publication Partners
 Trade item has not been published

Hide Quick Help

Hide hierarchy

GTIN	Product Type	Material Number	Quantity	Link Status	Registration Status (Global)	Registration Status (TM)	Link Owner
00021000733026	Case		1		Pending Registration	Pending Registration	
00021000642731	Each		6	Waiting Link	Pending Registration	Pending Registration	Admin

Trade item details are categorized in a number of tabs. Select the tab where the change is required and choose Edit. Make the changes and then choose Save.

3. Add Item

From this screen new Trade Item can be added.

To add trade item enter the value of GTIN, Information Provider and Target Market.

GTIN(Global Trade Item Number) - This must comply with the Global Trade Item Number (GTIN) rules (14 digits with a valid check digit).

For more information about GTINs and check digit calculation, refer

http://www.gs1.org/productssolutions/idkeys/support/check_digit_calculator.html

4. Item History

Change Tracking: For a repository, 2 databases are created. One for repository and other is used for change tracking data.

The name under which an MDM repository is created in DBMS uses the following naming convention:

Repository - <repository_name>_m000

Change Tracking Database - <repository_name>_Z001

Under the change tracking database, A2i_CM_History table is created. This table has standard fields which can't be modified.

To have more information on Change Tracking, please refer Change Tracking Documentation on SAP ServiceMarket Place.

Item History tab is related to Change Tracking in MDM. We can enable or disable Change tracking for a table, field in GDS Console. Whenever there are changes to the particular field or table, for which change tracking is enabled, will create an entry in MDM A2i_CM_History table.

Change history is reflected in Item History Tab.

Due to performance issues, SAP has restricted the search result to 5000 records. If the search criteria give more than 5000 records, no data will be displayed. User needs to refine his search to limit output of search results to 5000.

Publish Item

In order to distribute trade items to trade partners, the content owner publishes the trade item through the source data pool. Information about published trade items is available through the source data pool to dedicated trade partners.

1. Publish by Item

Publish of trade items is done by content owners

SAP NetWeaver MDM GDS - Publication By Trade Item

Welcome Admin * (English) [Help](#) [About](#) [Log Off](#)

Menu: Item Management, Publish Item, Publish by Item, Publish by Partner, Trade Partner Management, Application Administration

1 Select Item | 2 Select Partner | 3 Review | 4 Confirmation

Publication Action: * Publish

Select a trade item from the list for publication. You can filter values using a keyword. The filter function is not case sensitive. You can also use one of the following symbols before the keyword: # (exclude), (=) include, (-) range.

GTIN	Name	Product Type	Material Number	Information Provider	Target Market
No entries					

Navigation: Previous, Next, Submit, Cancel

2. Publish by Partner

SAP NetWeaver MDM GDS - Publication by Trade Partner

Welcome Admin * (English) [Help](#) [About](#)

Menu: Item Management, Publish Item, Publish by Item, Publish by Partner, Trade Partner Management, Application Administration

1 Select Partner | 2 Select Item | 3 Review | 4 Confirmation

Publication Action: * Publish

Select at least one trade partner for the publication action you want to execute.

Trade Partner Groups
Name
No trade partner group found

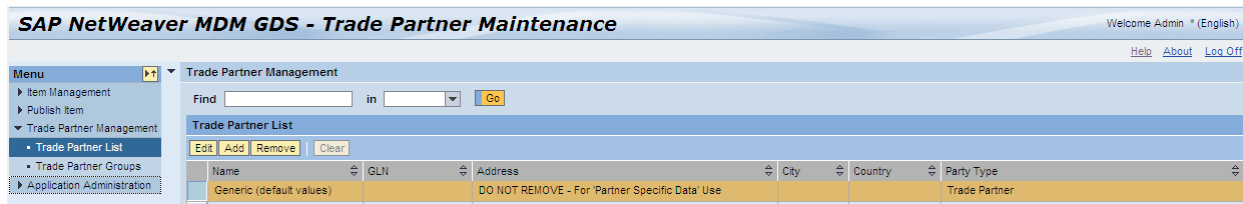
Row 0 of 0

Trade Partners			
GLN	Partner Name	Partner Type	Partner Status

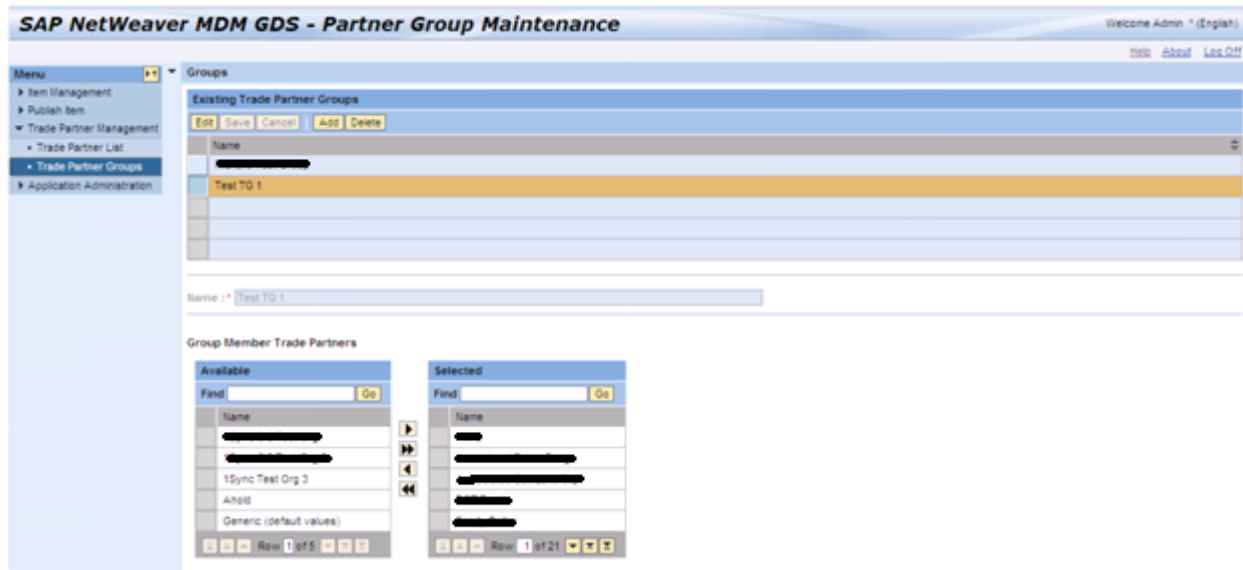
Navigation: Previous, Next, Submit, Reset

Trade Partner Management

1. Trade Partner List



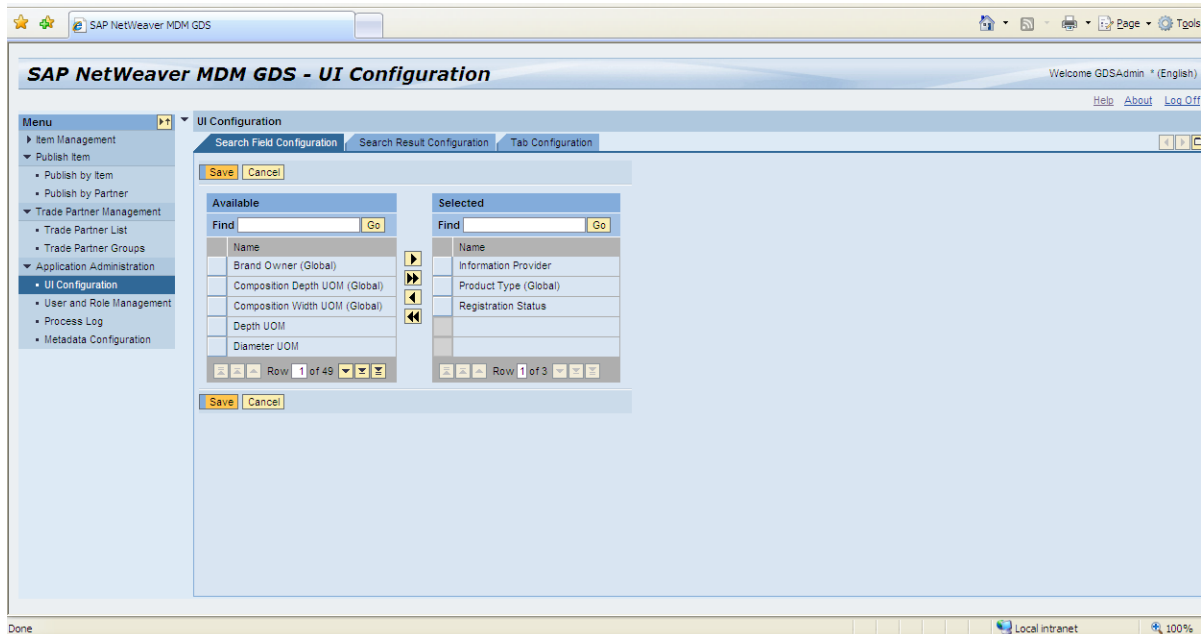
2. Trade Partner Groups



Application Administration

Under this tab, we have mainly application administration tasks.

1. UI Configuration

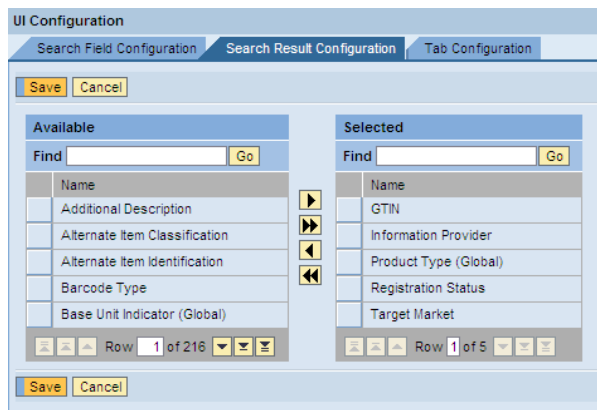


In UI Configuration, we can configure the GDS Console user interface according to the customer's requirements.

There are different tabs i.e. Search Field Configuration, Search Result Configuration & Tab Configuration, as shown in above screenshot,

Search Field Configuration: This functionality allows selecting the fields that need to be provided for drilldown search on Item Maintenance Screen. This functionality can also be achieved by 'Search Fields Options' button on Item Maintenance Screen.

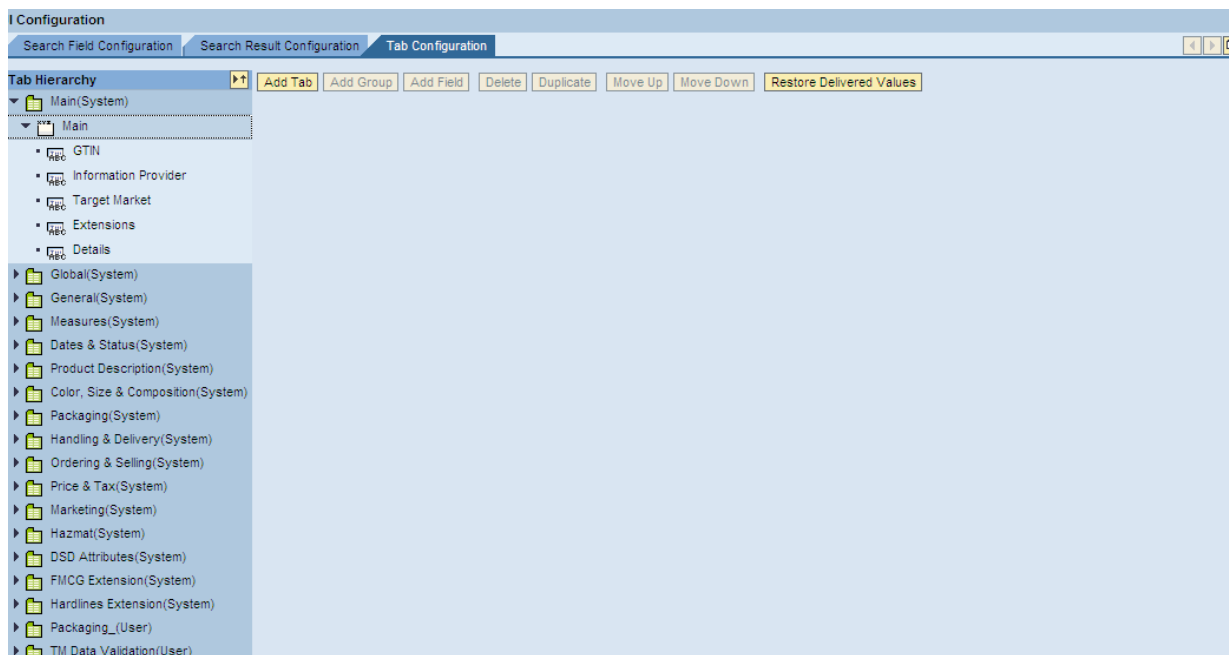
Search Result Configuration: When the user selects the tab 'Search Result Configuration' on UI Configuration screen then the following screen appears.



Under this tab, user can select the fields which should be displayed in GTIN Item table on Item Maintenance Screen.

Tab Configuration: Select Tab Configuration → Select Main (System) node from the tree structure → Select Main under the 'Main' Node

This will display the following screen.



Parent Nodes in the 'Tab Hierarchy' are the tabs on Trade Item Details Screen and child nodes are fields in that tab.

2. User & Role Management

Configuration of Role

The roles are created, modified or deleted in MDM Console. Those changes get reflected to GDS Console automatically.

There are 2 tabs on User and Role Management Screen. One is for User Management and other is for Role Management.

User Management

Whatever changes are made under this tab, get reflected in MDM Console Users and vice versa.

Tasks which can be performed under this tab are

New User Creation

Deletion

Password Change: Password can be changed for a user. This password is same as the MDM Console password. For Admin and GDSAdmin ID passwords can only be changed from MDM Console

Role Assignment: Multiple roles can be assigned to a user.

Role Management

Following are the Major configuration changes that can be performed under Role Management Tab:

Edit Role, Creation of new role and deletion can be done from the buttons available on Role Management Screen. Admin role can never be deleted.

Under the 'Role Management Tab', there are several tabs which help in configuring the Role settings.

Role Configuration tabs

Name – Role Description can be changed here.

Tabs – These are the tabs displayed on 'Trade Item Details' Screen. From this screen, tabs displayed on 'Trade Item Details' Screen can be configured for a particular role.

Validations – Validations added in Data manager can be assigned to a role from this tab.

Screens – Screens available in GDS Console (In left Navigation menu of GDS Console) can be assigned to a role from this tab.

Operations – Operations that can be performed in GDS Console by a role is configured under this Tab.

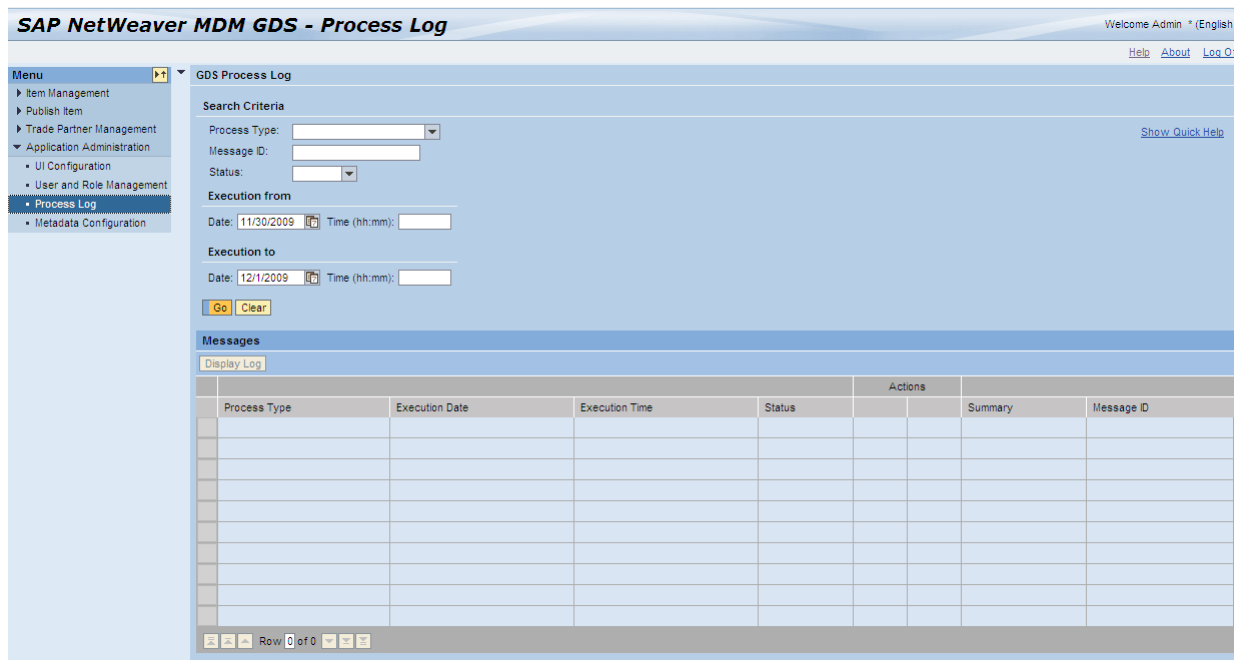
Read-Only Fields – Fields available in GDS Console can be made read only for a particular role from this tab.

3. Process Log

GDS Process log can be viewed to check the status of records processed. The process type can be Import process, Export process with statuses success, Error, Warning. After the records processed in GDS, would be sent to B2B and then to 1 sync.

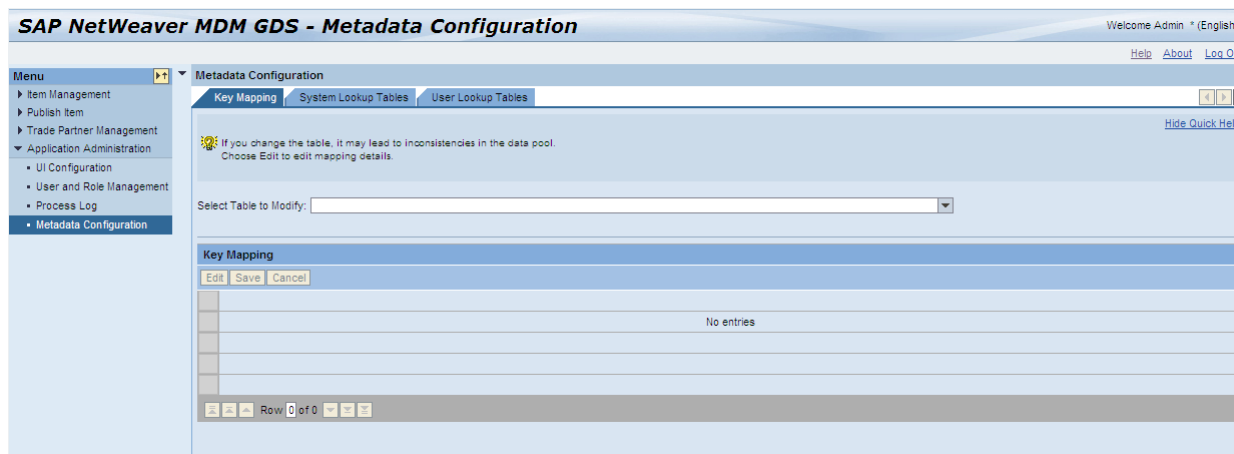
Status of the messages sent to B2B can be viewed in JPR log. Data that is sent out to B2B Hub can be viewed in XI and then by logging to B2B Hub for checking the xml files.

User can search from different search options.



4. Metadata Configuration

Metadata can be modified from Metadata Configuration Screen.



Metadata includes:

Key Mapping: Key mappings for a table can be modified from here

System Lookup Tables: System lookup tables can be modified under the System Lookup Tables Tab

User Lookup Tables: New User Lookup tables can be created or modified from this tab

Related Content

<http://help.sap.com>

<http://gs1.org>

<http://sdn.sap.com>

For more information, visit the [Master Data Management homepage](#)

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