

# Effective Hierarchy Management Using SAP NetWeaver MDM for Retail

## Applies to:

SAP NetWeaver MDM 5.5

## Summary

It is often necessary in manufacturing and retail industry to create and maintain multiple hierarchies effectively. These multiple hierarchies provide users to view at the same set of products with different view/window. This whitepaper discusses the capabilities of the SAP MDM in creating and maintaining multiple hierarchies.

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## Author Bio

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## Hierarchy Management Business Case

The hierarchy management is a very important requirement for product master data elements. It is the very core functionality that is necessary in any manufacturing or retail industry. The product data is maintained by Master Data Management Hub by using data quality and governance framework and rules. But apart from that it is required to provide a mechanism to view at the product information as per the requirement/need of different business units/function within and outside the organization. It is very likely be the case that the products are viewed in a different way internally as compared to how customer would view at the same set of products. The formal is generally known as Manufacturer/Merchandising Hierarchy and later as consumer or customer hierarchy. Apart from these two there could be other number of hierarchies required to be maintained for sales, marketing departments or even for GDSN purpose. It is always the requirement for MDM tools to be able to create and maintain these different hierarchies.

Consider the following scenario of retail consumer electronics store. Store provides various products to its customers to be purchased within store or on the website. The store wants to maintain two basic hierarchies i) internal and ii) customer. The details of these two hierarchies are shown in the diagram below. The internal hierarchy provides store view to look at the set of products. The details of internal hierarchy are generally provided by the ERP system or imported from suppliers. It is primarily used for supply-chain and costing purposes.

The following figure shows the customer hierarchy for the typical retail store. On the left pane it shows the high level category headings that customer would like to see various products listed under those.

Figure 1 : Typical store sales site with customer product hierarchy shown in the left pane



Further the root elements in the left pane are expanded with subcategories. For example "Cameras/Camcoders", you will see following sub categories.

**Figure 2 : Typical store site showing subcategory of product**

Similarly the suppliers of the retailers would use different hierarchies to synchronize data with the retailer. Often the retailer would want to import manufacturer hierarchy directly into their PIM system. This would also include the mapping of internal product hierarchies to GDSN hierarchy. Retailer would also want to maintain other multiple hierarchies for sales, seasonal, promotional purposes.

Therefore it is very important for the MDM tools to be able to create and maintain multiple hierarchies and also be able to map those to the product catalogs as per the requirement of business.

We will see as how multiple hierarchies can be created and maintained effectively in SAP MDM.

## SAP MDM Implementation

Hierarchy management involves two primary activities. i) Multiple Hierarchy creation and storage ii) Maintenance hierarchies. We will see scenarios as how both of these can be done in SAP MDM.

### Quick view of hierarchy creation feature of other product

Before we go into details of SAP MDM, let us take a quick look as how it is done in other major competitive product.

The other product allows maintaining multiple hierarchies; one primary hierarchy and multiple secondary hierarchies. Product can belong to both of the hierarchies and can be associated with corresponding categories or subcategories. For maintenance of hierarchies, it uses workflow management or can also be done directly by authorized users.

SAP MDM takes the stand and strongly suggests maintaining only one primary taxonomy table covering all necessary fields and attributes that may be required for product search by various stakeholders/departments. The multiple hierarchies can be maintained through hierarchy lookup tables.

### Hierarchy Creation

SAP MDM defines following key aspects of hierarchy creation.

1. Product records

2. Catalog
3. Hierarchy lookup tables.
4. Taxonomy
5. Taxonomy hierarchy
6. Category and category specific attributes

**Product records:** Product records are maintained in the main primary products table of the catalog. It is the plain records table and does not indicate any hierarchy or relationship. When you create a catalog in MDM console, the products primary table gets automatically created. To define categories, hierarchies and their attributes you need to add taxonomy and hierarchies lookup tables and use them as the lookup fields of the primary product table.

**Catalog:** Catalog is primarily the collection of product structured in hierarchy by using taxonomy and hierarchy tables. Catalog can be created using MDM console.

**Hierarchy lookup table:** This table defines the hierarchy relationship for the given business unit/scenario. For instance, you can create Hierarchy lookup table for manufacturer hierarchy and use it in the main product record table as look up fields. Similarly you can create multiple lookup hierarchy tables for sales, marketing, promotional users and use them in the main product table. This allows the users to do the search based on the values of these lookup fields. With this users can view at the same product master with different views (hierarchy).

**Taxonomy:** Taxonomy is the hierarchy lookup table with addition of category specific attributes. There are the attributes that are applicable to that specific category rather than entire set of products. You can create category attributes in Taxonomy mode of the MDM client and assign them to the various categories. You can add subcategories as well through MDM client. For instance, you can consider the customer product hierarchy (as shows above in Figure 1 : Typical store sales site with customer product hierarchy shown in the left pane) as the primary taxonomy and implement that in the taxonomy table.

**Taxonomy Hierarchy:** Taxonomy table is a type of hierarchy table where you can define hierarchy of categories. You can define hierarchies in MDM client for taxonomy as described above.

**Category and category specific attributes:** In taxonomy mode of the MDM client, you can define pool of attributes and link them to the various categories in the hierarchy. You can role them up or down in the hierarchy as per the requirement of business.

Figure 3 : MDM Console: Defining Catalog and hierarchy/taxonomy tables

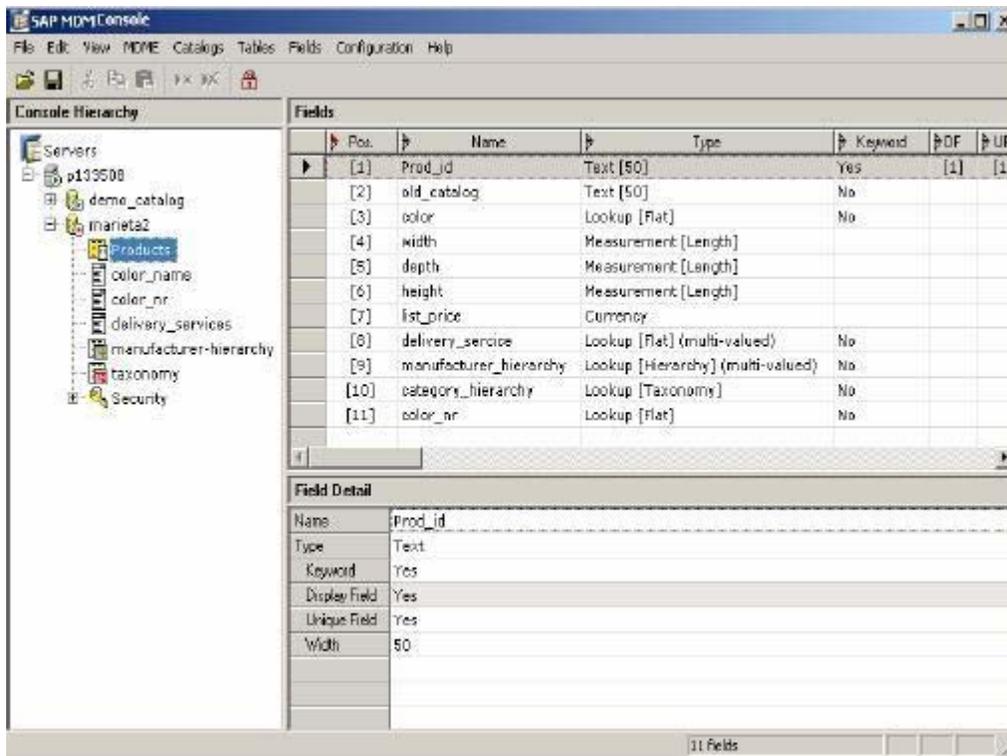
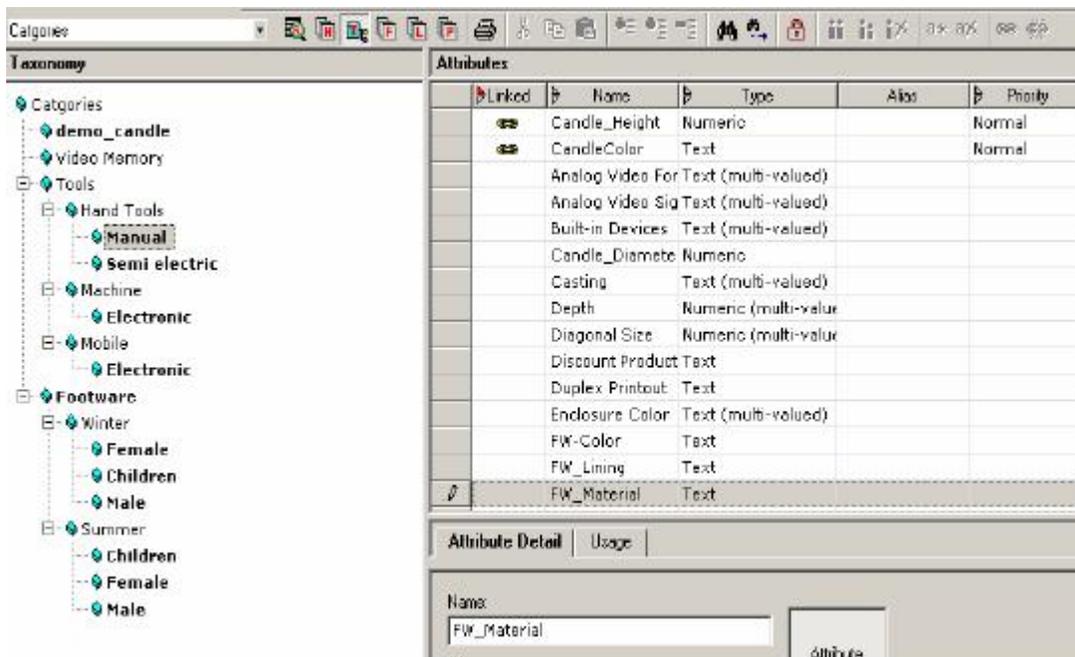


Figure 4 : MDM Client: Defining category specific attributes and linking them to products

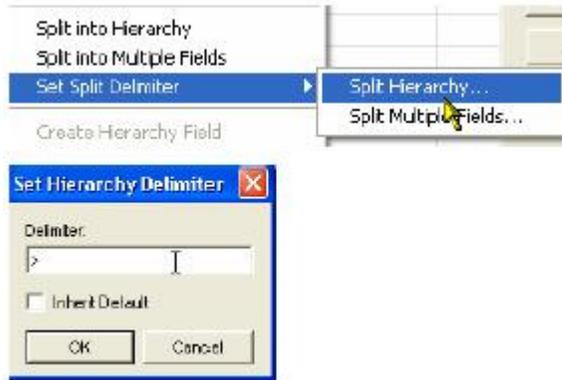


Hierarchy can be created either manually or by importing it. Typically the manufacturing hierarchies are imported that are supplied by manufacturers or ERP system.

The product hierarchy import has to be done before importing the actual product records in hierarchy. Once the hierarchy table is imported, the associated product data can be imported and mapped easily.

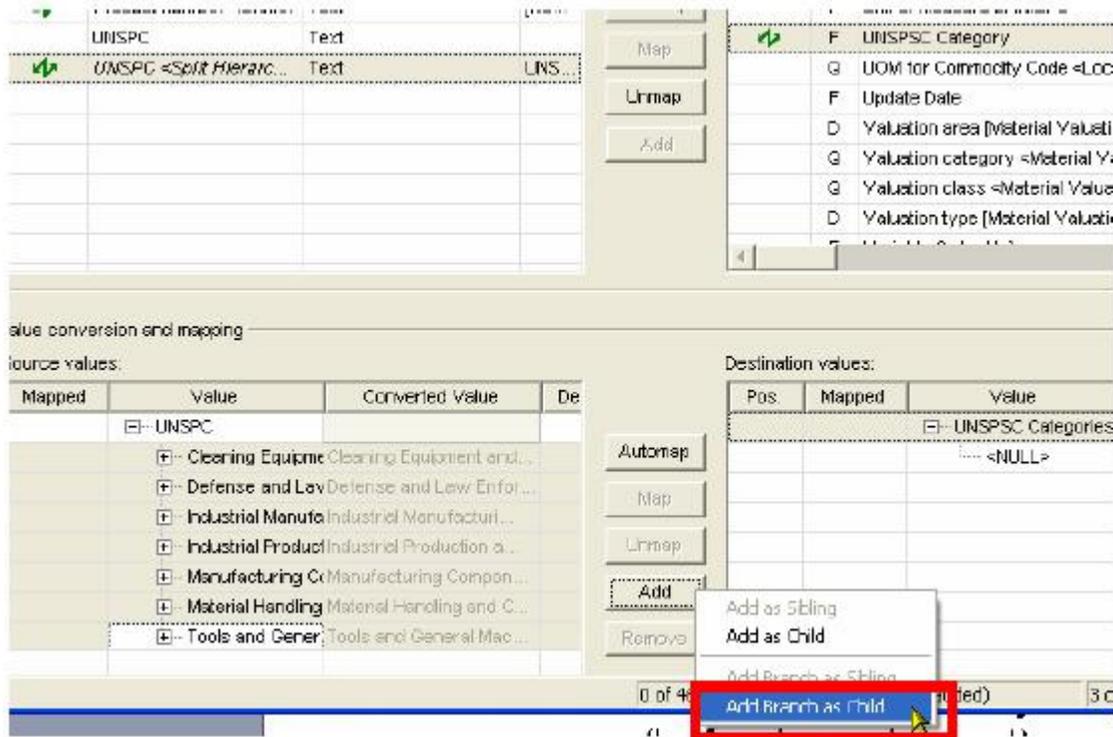
The import file format should be carefully drafted to ensure that the full hierarchy path is included even for leaf node. Delimiters like ">" can be used to separate hierarchy levels in the import file. In MDM Import manager, do the mapping of the fields from hierarchy source file to destination. At least map the display fields of the main table. Right click on the source field with hierarchy information and select "split hierarchy" option and set the delimiter value as shown in the following figure.

**Figure 5 : Using delimiters in hierarchy import.**



Again right click on the same hierarchy source field and select "split into Hierarchy" option. Now map the created source hierarchy fields to the main table hierarchy lookup field. Further select all nodes except root in "value conversion and mapping" pane and do "Add branch as child".

**Figure 6 : Importing hierarchy tree.**



## Maintaining Hierarchy

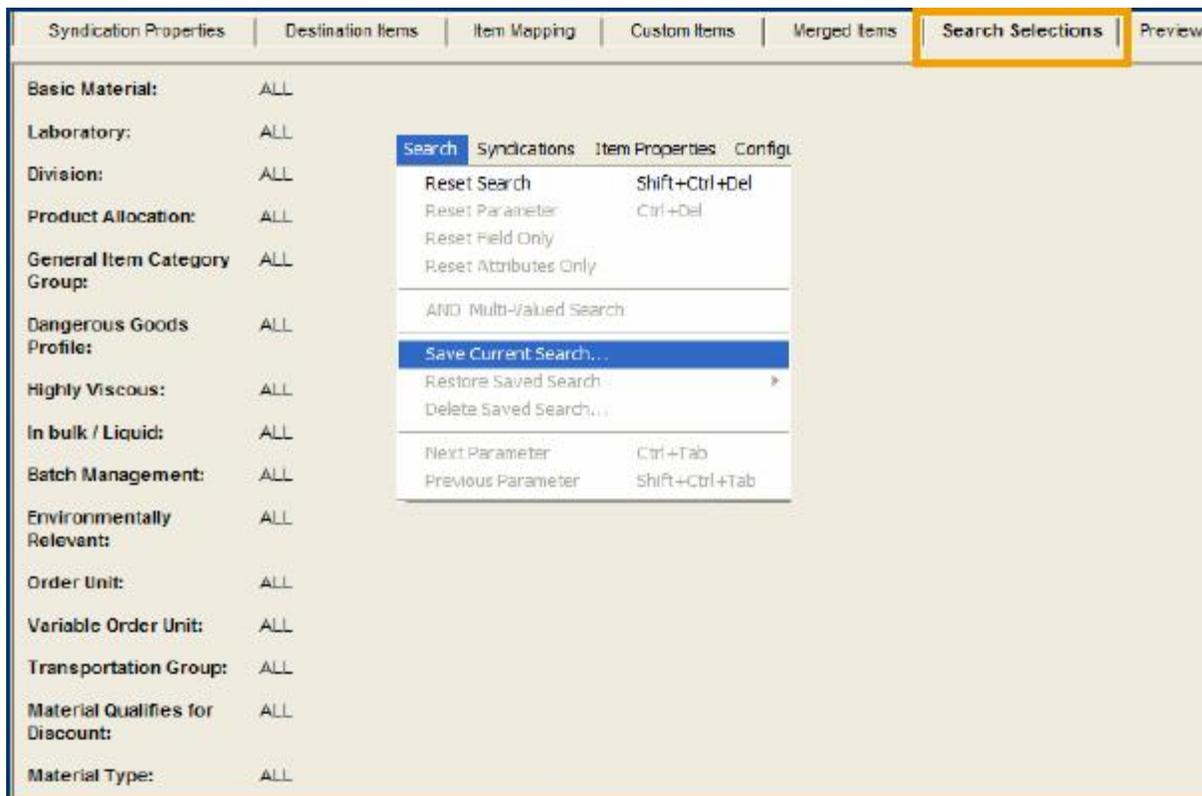
Hierarchy maintenance is a continuous activity that would happen over the time. For instance store may decide to change the customer hierarchy for promotional sales purpose. Also it may be required to change the manufacturing hierarchy as supplier changes hierarchy definition or internally store may decide to change it. Hierarchy maintenance can be done easily in MDM client in taxonomy mode. It allows the flexibility to update hierarchies as per the business requirement. The taxonomy attributes can be easily moved up or down the hierarchy path as per the requirement.

Hierarchy creation and maintenance can be attached to the workflow if necessary approvals are required before the hierarchy change takes place. The imported records can be associated with the workflow and thus allows them to go through the necessary approval enrichment process. The workflow definition and management is outside the scope of this whitepaper.

## Syndicating Product details based on hierarchy

SAP MDM provides very powerful syndication facilities. Though SAP MDM recommends maintaining single taxonomy but allows creating multiple hierarchies and using them in the main product table lookup fields. These lookup hierarchy fields can be used during syndication to export only the necessary product records as per the requirement of business/functional unit. For instance, sales department may want to publish products that are in the price range of \$10 to \$99 for capturing the gift market during thanksgiving season. In syndication, the appropriate hierarchy field can be included in the search criteria to select product records that are only in the specified price range.

**Figure 7 : Set search criteria to select specific set of records.**



The SAP MDM functionality of maintaining multiple lookup hierarchies provides tremendous potential for business users to quickly view/show selected products as per the business requirement.

## Related Content

- [How To proceed by Data Modeling within MDM 5.5](https://websmp207.sap-ag.de/~sapdownload/011000358700000444872005E/DataModelinginMDM55.pdf)  
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