

# MDM Internal Number Range Setup



## Applies to:

SAP NetWeaver Master Data Management (MDM) SP5. For more information, visit the [Master Data Management homepage](#).

## Summary

This article focuses on limitations, workaround solutions and configuration set-up to generate internal numbers for Material Master specific to Material Type in MDM.

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## Executive Summary

Organizations prefer to maintain Master Data centrally to ensure companywide quality standards, to establish central data ownership resulting in substantial quality improvements. Central Master-data Management is a key capability of NetWeaver MDM.

Most common requirement with MDM as Central Master Data Management is the capability to generate internal numbers for the master data records created.

Standard approach is to define number ranges specific to Material Types, Vendor account group or Customer account groups respectively for master data objects Material, Vendor or Customer. MDM is flexible enough to adapt to different number range strategy and can be configured to generate internal number for master data records specific to Material Types, Account Groups or any other key parameters.

This article focuses on,

- Configuration set-up to generate internal numbers for Material Master specific to Material Type in MDM.
- Limitations and
- Workaround Solutions

## Scenario

MDM as a central master data management, master data is centrally created in MDM and syndicated to target system (e.g. SAP).

Let us consider a scenario to maintain Materials centrally in MDM and number range strategy is to generate material numbers specific to one of the key parameters Material Type. To handle this requirement number ranges are to be configured in MDM and SAP system should be configured in such a way that the numbers generated in MDM are acceptable as external numbers.

Snapshot of number ranges defined for Material Types is shown below,

Material Type (Enter Key)	Material Type Description	Number Range	MDM	ECC
HAWA	Trading Goods	1-9999999	Internal	External
DIEN	Service	70000000 - 79999999	Internal	External
HIBE	Operating Supplies	80000000 - 85000000	Internal	External

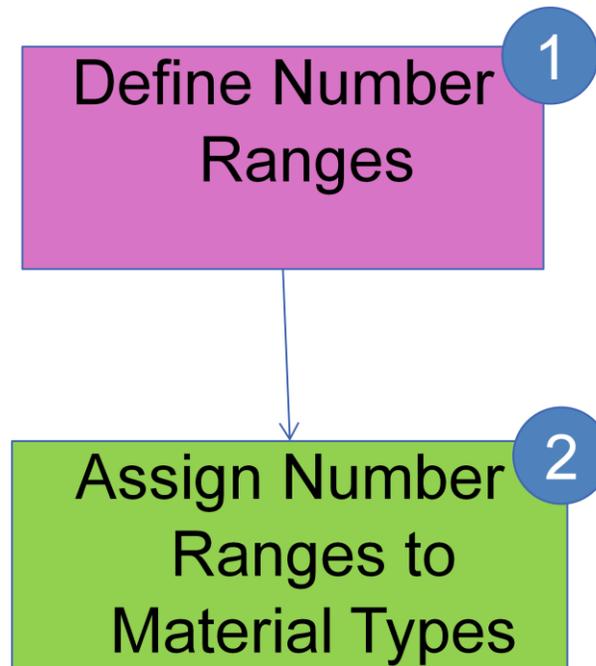
## Number Range Set-up in SAP ECC

In SAP Material number ranges are defined specific to Material Types. When creating a Material master record a unique material number need to be assigned.

There are two ways of doing this,

1. Internal Number Assignment - In this case, a number within the number range interval allowed is assigned by the SAP system.
2. External Number Assignment - Here, the user assigns a number within the number range interval allowed. You can define the intervals for external number assignment numerically and alphanumerically

In SAP ECC number range setup for the material master is a two step process.



Define Number Ranges: Number ranges can be configured to be generated External or Internal. For the current scenario we need to set number ranges to be External.

Number range object Edit Goto Interval System Help

Display Number Range Intervals

NR Object

Intervals			
From number	To number	Current number	Ext
000000000009900000	000000000099999999		<input checked="" type="checkbox"/>
000000000030000000	000000000039999999		<input checked="" type="checkbox"/>
000000000070000000	000000000079999999		<input checked="" type="checkbox"/>
000000000080000000	000000000099999999		<input checked="" type="checkbox"/>
000000000040000000	000000000059999999		<input checked="" type="checkbox"/>
000000000000000001	000000000098999999		<input checked="" type="checkbox"/>

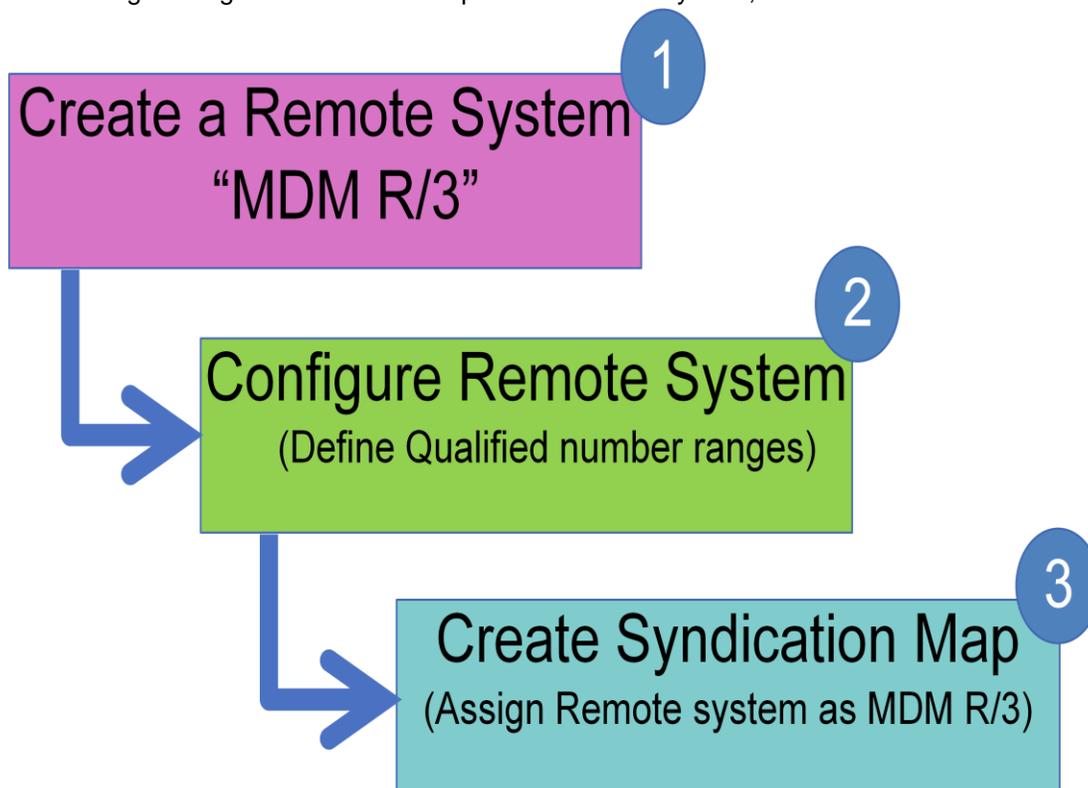
## Assign Number Ranges to Material Types

## Number Range Object Material master: Overview

Group	Element	Elem. Text	From No.	To No.	NR Status	Ext.
<b>HAWA-Trading Goods</b>						
HAWA		Trading Goods	1	99999999		X
<b>DIEN-Service</b>						
DIEN		Service	70000000	79999999		X
<b>HIBE-Operating Supplies</b>						
HIBE		Operating supplies	80000000	85000000		X

## Number Range Setup in MDM

Number range configuration in MDM is specific to remote system,



1. Login to MDM Console and create Remote System "MDM R/3".

Remote Systems				
Name	Code	Type	Key Generation	
MDC BW	BW	Inbound/Outbound	None	
MDC R/3	R3_ERP	Inbound/Outbound	None	
MDM	MDM	Inbound/Outbound	None	
MDM R/3	R3	Inbound/Outbound	Qualified Range	

Remote System Detail	
Name	MDM R/3
Code	R3
Type	Inbound/Outbound
Key Generation	Qualified Range
From	
To	
Lookup Field	Material Type
Qualified Range	[, ] [1000, 2000] [2001, 3000] [3001, 4000] [4001, 5000] [5001, 6000] [6001, 9999999] [9900000, 9929999] [9

Set Key Properties:

- Key Generation to Qualified Range
  - Lookup Field – Assign Lookup table Material Type
2. Set number ranges in Qualified Ranges field – Note that Lookup filed is Material Type, number ranges defined are specific to Material Types.

The screenshot shows the SAP MDM console interface. On the left is a navigation tree with 'Remote Systems' highlighted. The main window displays the 'Remote System Detail' for 'MDM R/3'. The 'Key Generation' is set to 'Qualified Range' and the 'Lookup Field' is 'Material Type'. A dialog box titled 'Qualified Range Key Generation' is open, showing a table with the following data:

Value	From	To
[NULL]		
Trading Goods	1	9999999
Service	70000000	79999999
Operating Supplies	80000000	85000000

Prerequisite: Ensure that Material Type data is maintained so that number ranges can be setup accordingly.

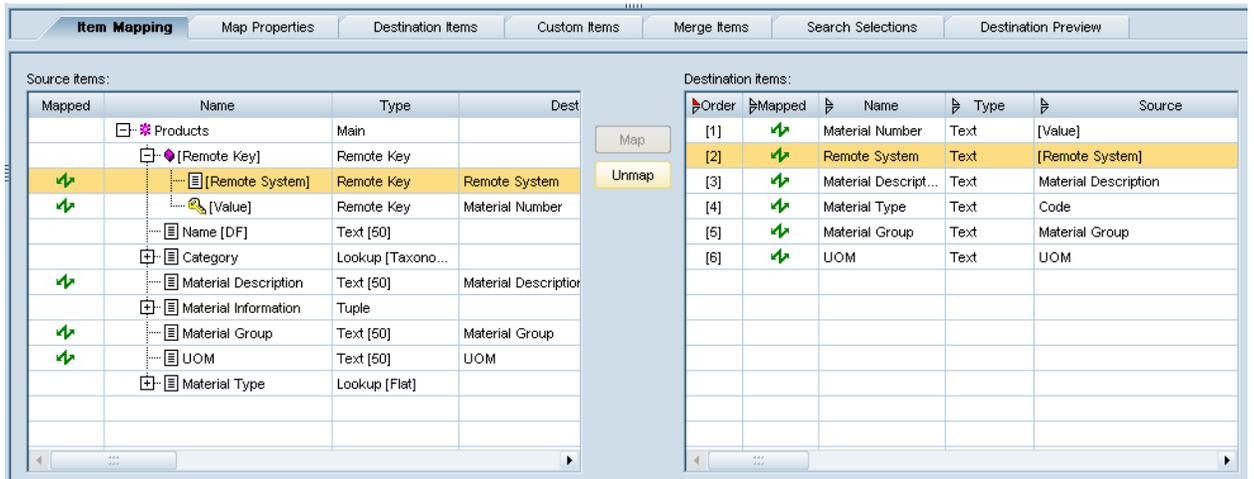
## Syndication and Key Mapping

Let us closely look at the setup in MDM Syndicator,

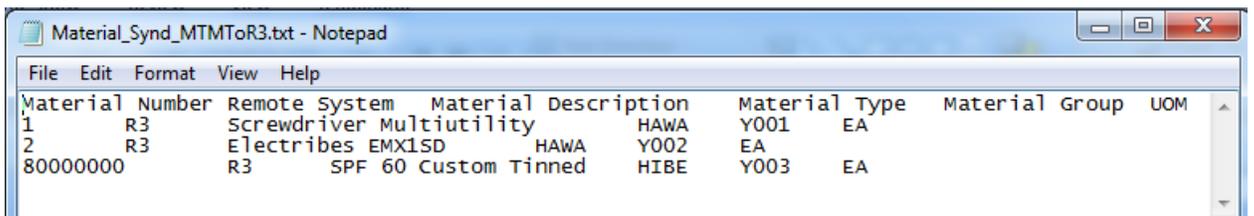
1. **Map Properties:** Set the syndicator map properties to generate a text file and specify remote system as MDM R/3

Item Mapping		Map Properties	Destination Items	Custom Items	M
Name	Reset				
Namespace	<input type="checkbox"/>				
XML File Output	<input type="checkbox"/>		One output record per file		
Repeating Record Node	<input type="checkbox"/>		<none>		
Max Records Per Output File	<input checked="" type="checkbox"/>		0		
Include UNICODE Byte Order Mark	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
Include Item Names	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Item Format	<input checked="" type="checkbox"/>		Variable Width		
Item Delimiter	<input checked="" type="checkbox"/>		Tab		
Custom Delimiter	<input checked="" type="checkbox"/>				
Name/Value Separator	<input checked="" type="checkbox"/>		Tab		
Custom Separator	<input checked="" type="checkbox"/>				
Name/Value Terminator	<input checked="" type="checkbox"/>		Tab		
Custom Terminator	<input checked="" type="checkbox"/>				
Language Format	<input type="checkbox"/>		2-Letter Language Code		
Date Format	<input checked="" type="checkbox"/>		YYYYMMDD		
Time Stamp Format	<input checked="" type="checkbox"/>		Internal		
Numeric Decimal Symbol	<input checked="" type="checkbox"/>		.		
Numeric Thousand Separator	<input checked="" type="checkbox"/>		,		
Use Currency Symbol	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
Suppress Unchanged Records	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
Suppress Records Without Key	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
Remote Key Override	<input type="checkbox"/>		MDM R/3		
Filter Multi-valued Lookup Fields	<input checked="" type="checkbox"/>		<input type="checkbox"/>		
Filter Qualified Links	<input checked="" type="checkbox"/>		<input type="checkbox"/>		

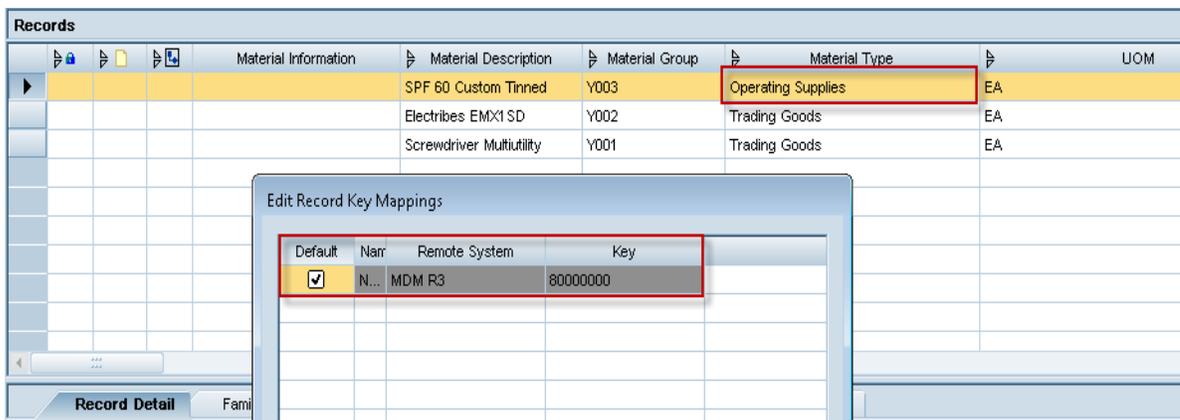
2. **Item Mapping:** Source Item Remote Key fields Remote System and Value fields are mapped to Destination Items Remote System and Material Number respectively.



3. Maintain Material data in MDM and perform Syndication with the above mapping. Find below Text File generated as a result of executing Syndication.



4. **Key Mapping:** Key mapping is a set of remote keys that maps object in MDM repository (for example, record or attribute value) to equivalent object in remote system. Since the number ranges defined are target system specific the material number is generated only when the master data records are syndicated, the material number generated is available as part of Key Mapping. Log into MDM Data Manager and edit Key Mapping on the records syndicated.



With this approach though we are able to define number ranges specific to material data key parameter i.e. Material Type and we are able to generate numbers internally the main disadvantage is that the material number is only available as Key Mapping but not as part of actual master record.

## Limitations

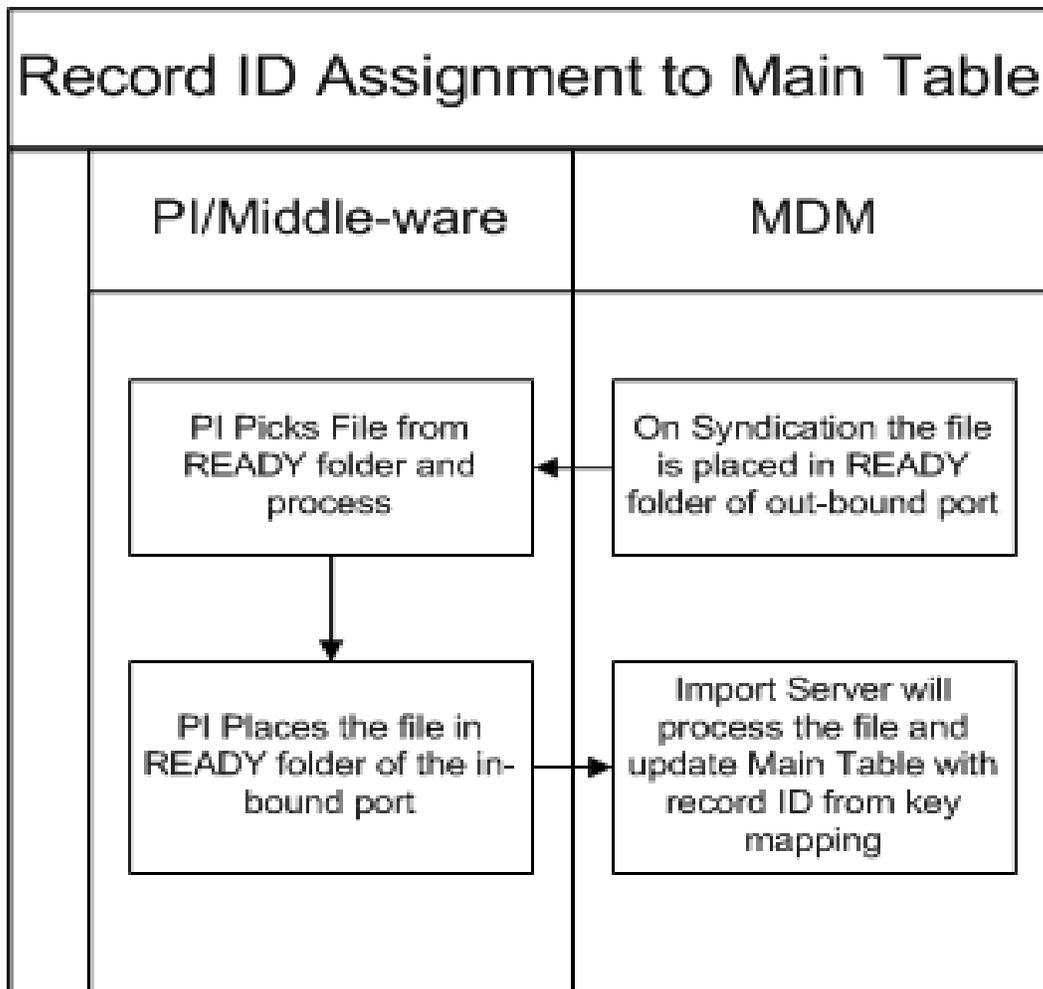
Internal number generation in MDM has following limitations,

1. As the number ranges are remote system specific, Material numbers will not be generated till the master data record is syndicated.
2. Numbers generated can be viewed as key mapping for each record.
3. Material numbers will not be visible as part of main table record.
4. Number ranges can only be numeric, we cannot have alphanumeric

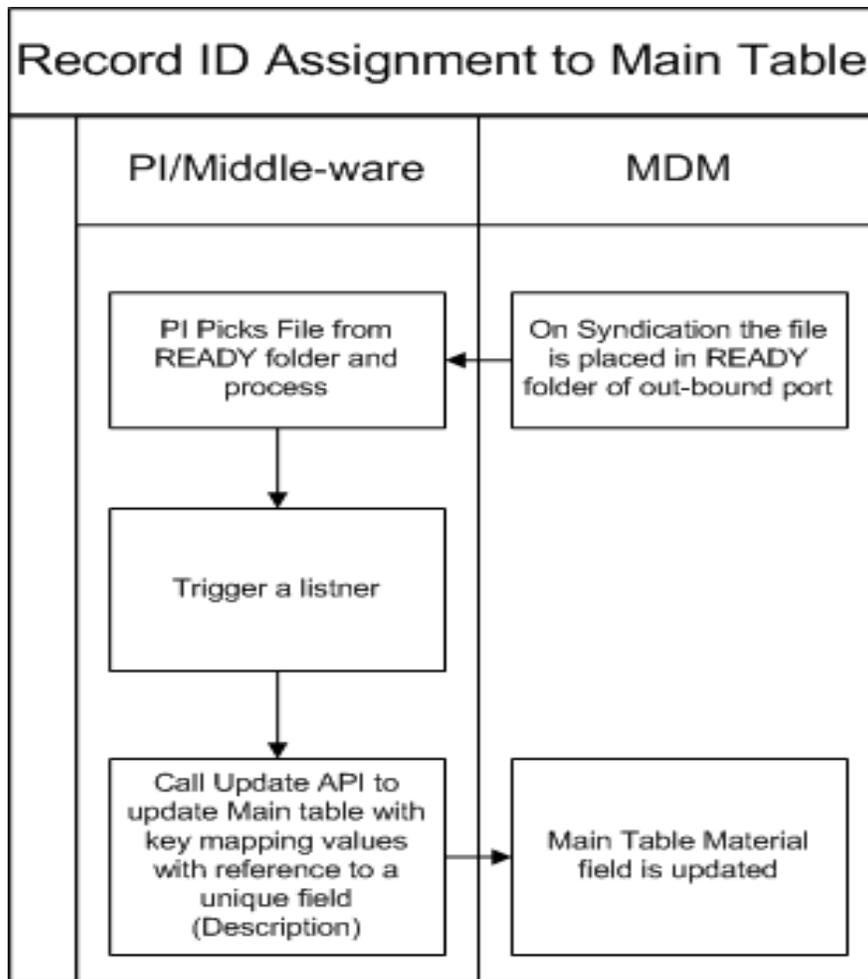
## Workaround Solutions

1. Target system specific numbers generated in MDM will be updated as a Key Mapping for the master data record after syndication. To view the number generated then user need to edit key mapping. To update Material Number generated at syndication to main table record we would have to build custom enhancements.

**Option 1: Inbound Interface** - Reuse the syndicated file in the inbound interface. This interface should update main table material number field from the syndicated file's key mapping based on unique identifier (e.g. Material Description).



**Option 2: API** - We can also use API to update the material number for a particular record in MDM. This API can be triggered from middleware or from the target system.



- Internal number generated in MDM will only be Numeric and cannot be alphanumeric. The workaround solution is to generate the numbers at the target system and import the alphanumeric number from target system.

## Design and Implementation of workaround solution

Let us consider workaround solution for option1, to implement this solution below is some of the data modeling and import mapping steps.

- a. Create a table “Material\_Info” of type Tuple and add two fields “Material Number” & “System Name”

The screenshot shows the SAP MDM Console interface. On the left, the 'Console Hierarchy' pane shows a tree structure with 'Tuples' selected and 'Material\_Info' highlighted. On the right, the 'Member Fields' table is displayed with the following data:

Pos.	Name	Type	Keyword	DF
[1]	Material Number	Text	None	[1]
[2]	System Name	Text	None	[2]

- b. Create a field “Material Information” of type Tuple (multi Valued) in the Main Table.

The screenshot shows the SAP MDM Console interface. On the left, the 'Console Hierarchy' pane shows a tree structure with 'ZVR\_SY\_MM' selected and 'Products' highlighted. On the right, the 'Fields' table is displayed with the following data:

Pos.	Name	Type
[1]	Id	Auto ID
[2]	Material Information	Tuple (multi-valued)
[3]	Material Number	Text
[4]	Description	Text

Below the 'Fields' table, the 'Field Detail' section is shown for the 'Material Information' field:

Name	Material Information
Code	MAT_INFO
Description	
Type	Tuple (multi-valued)
Required	No
Matrix	Normal
Multi-Lingual	
Keyword	None
Display Field	No
Unique Field	No
Sort Index	None
Calculated	
Calculation	
Search Tab	Yes
Multi-Valued	Yes
Tuple	Material_Info

- c. Design import map - Map the Key field values Material Number and the Remote System to the Material Information table fields Material Number and System Name.

Mapped	Pos.	Name	Type
	1	Text_Table	
✓	2	Material Description	Text
	3	Material Group	Text
✓	4	Material Number	Text
	5	Material Type	Text
✓	6	Remote System	Text
	7	UOM	Text
	8	[Match Level/Type]	Text

Mapped	F/D/Q/A	Pos.	Name	Type
		4	[Material Information]	English [
	F	5	Name	English [
✓	F	6	Remote System	English [
✓	F	7	Material Number	English [
	F	8	Material Group	English [
	F	9	UOM	English [
	F	10	Material Type	English [
	F	11	[Remote Key]	English [

Note: Material Description is used as Matching Record

- d. On Importing data with the defined import setup Material Information field gets updated with Material number as shown below

Material Information	Material Description	Material Group	Material Type	
	SPF 60 Custom Tinned	Y003	Operating Supplies	EA
	Electribes EMX1 SD	Y002	Trading Goods	EA
	Screwdriver Multiutility	Y001	Trading Goods	EA

Edit 'Material Information' Tuple Record	
<b>Tuple Record</b>	
Name	Remote System
	R3
<b>Tuple Detail</b>	
Name	
Remote System	R3
Material Number	80000000
<input type="button" value="Add"/> <input type="button" value="Delete"/> <input type="button" value="Duplicate"/> <input type="button" value="Merge"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/>	

## Related Content

[SAP NetWeaver Master Data Management](#)

[Thread: AUTO ID field](#)

[Thread: Material Number ranges](#)

[Thread: Number Ranges in MDM](#)

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

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