

PUBLIC

How-To: Enhance the Material Enterprise Search

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Document History

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1.2	First official release of this guide
1.3	Chapter 8, 9 and 10
1.4	Small corrections
1.5	New chapter 9.3
1.6	Small corrections, new chapter 9.2.1 Change Search Criteria from MDG7.0 on
1.7	New chapters 4 and 10.4; Updates to chapters 5.5.2.3 and 8
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1.9	Small corrections
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1. BUSINESS SCENARIO

SAP Master Data Governance provides business processes to find, create, change, and mark master data for deletion. It supports the governance of master data in a central hub and the distribution to connected operational and business intelligence systems.

The processes are workflow-driven and can include several approval and revision phases, and the collaboration of all users participating in the master data maintenance.

This How To Guide describes the solution to extend the enterprise search with custom fields. With MDG for material master data domain it is possible to extend the data model. If you want to search with these new fields you must also extend the search.

2. BACKGROUND INFORMATION

There are 5 possible scenarios how you can extend the standard MDG Material data model.

- **Extend with existing attributes (reuse):** Extend the data model with existing fields of the reuse table. An example can be found in Chapter 5: Fields FORMT, MSTAE of MARA table.
- **Extend with custom attributes (reuse):** Extend the data model with custom fields that are in reuse. An example can be found in Chapter 6: Two new fields ZZBRAND and ZZPRODTYPE defined by customer in backend MARA table.
- **Extend with existing entities (reuse):** Extend the data model with existing entities in reuse. An example can be found in Chapter 7: Plant Entity – YMARC.
- **Extend with custom entities (reuse):** Extend the data model with a custom entity that is defined in reuse. An example can be found in Chapter 8: A new table ZMDG_BUPA defined in reuse.
- **Extend with existing entities (based on flexible entities):** The data model is extended with a new entity (as in scenario D) but the data for this resides not in the underlying SAP database tables but in the MDG-generated tables. An example can be found in Chapter 9.

For all the scenarios mentioned above, you have to enhance the standard data model either with additional attributes or with additional entities. Also, the search must be extended, so that you are able to search with these fields. You have 2 search connectors for Enterprise Search of Material: MATERIAL (for the active area) and MDG_MATERIAL (for the staging area). The detailed steps on how to extend the data model and the enterprise search are covered from chapter 5 onwards.

If the ES is unavailable because the data and search model enhancement is not finished, you can do the following to mitigate the ES dependencies:

In the MDG IMG (General Settings -> Data Quality and Search -> Business Add-Ins -> BAdI: Search for Data in Reuse Active Area), deactivate temporarily the implementation MDG_BS_MAT_PP_SEARCH.

Result:

The QUERY method of the access class can search for materials by ID and description. That means, that the standard value help for materials still works, but Material search doesn't work. After you finished your data and search model enhancements don't forget to activate the implementation again.

3. MORE INFORMATION ON ENTERPRISE SEARCH

More information about enterprise search can be found here:

- Enterprise search background jobs and reports
<https://wiki.scn.sap.com/wiki/display/BI/Enterprise+Search+background+jobs+and+reports>
- [Link to the Document](#) The guide describes Enterprise Search in general and its use in Master Data Governance for Material (MDG-M). Other features are explained in the SAP Help Portal. Links to the most important Enterprise Search documentation are provided here, based on SAP NetWeaver 7.5.

4. STEP BY STEP EXPLANATION

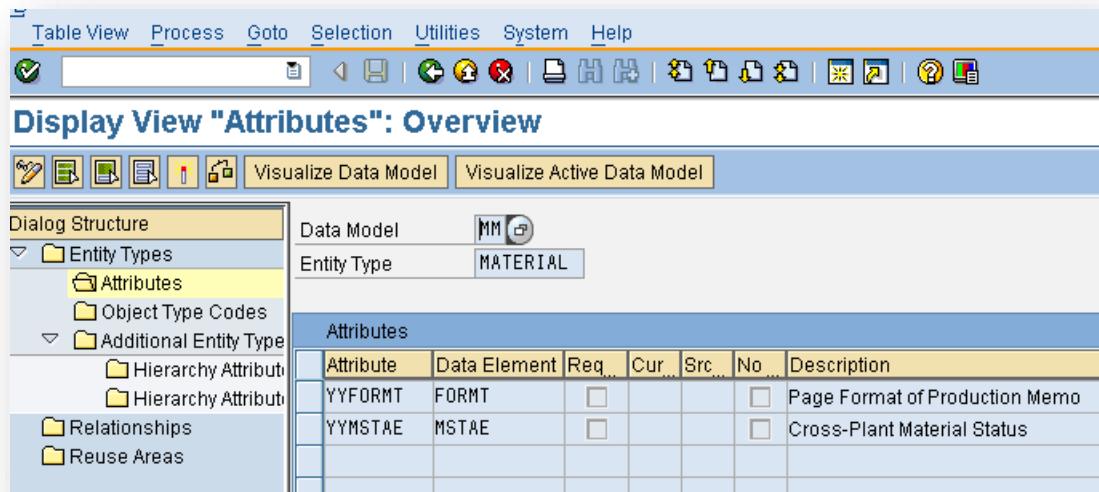
Scenario:

You have extended the standard MDG Material data model MM with additional attributes that already exist on the underlying SAP reuse table MARA (For example, FORMT for Page Format or MSTAE for Cross Plant Material Status, which were not available in the data model MM in EHP5) and you want to search for materials based on these attributes.

4.1 Extend Model MM: Entity Material

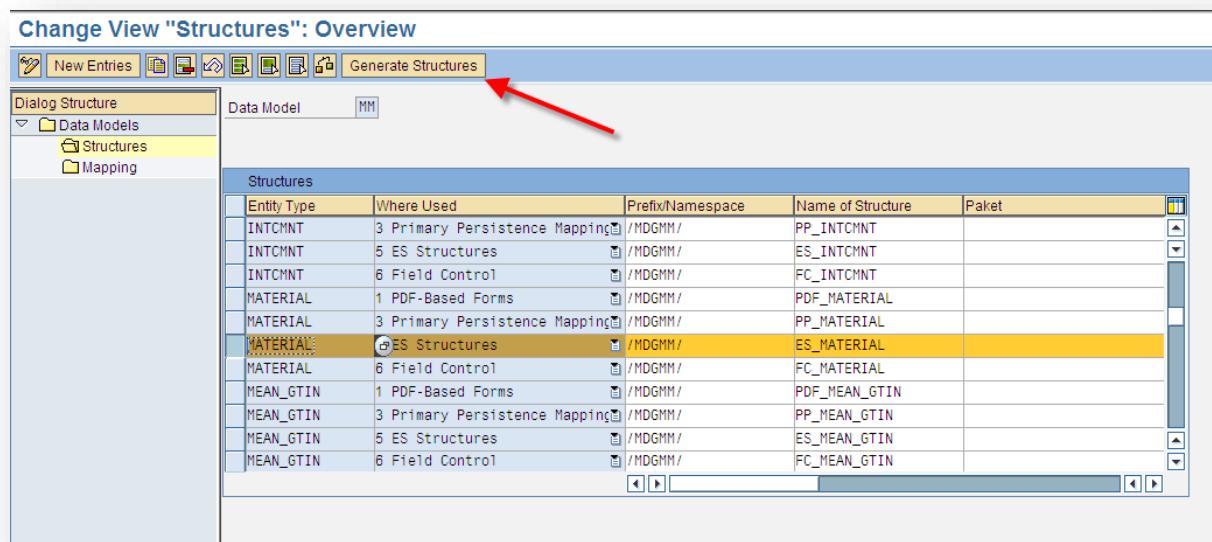
Refer the standard extensibility guide on how to enhance/extend the data model.

The screen shot below illustrates this.



Include Search Helps for the new attributes. Then also F4 Helps on the fields are available in the Search screen.

4.2 Extend Structures for Data Model MM



Important for Search in staging area: Ensure that the generated ES structure **/MDGMM/_S_MM_ES_MATERIAL** has the new attributes added to the model.

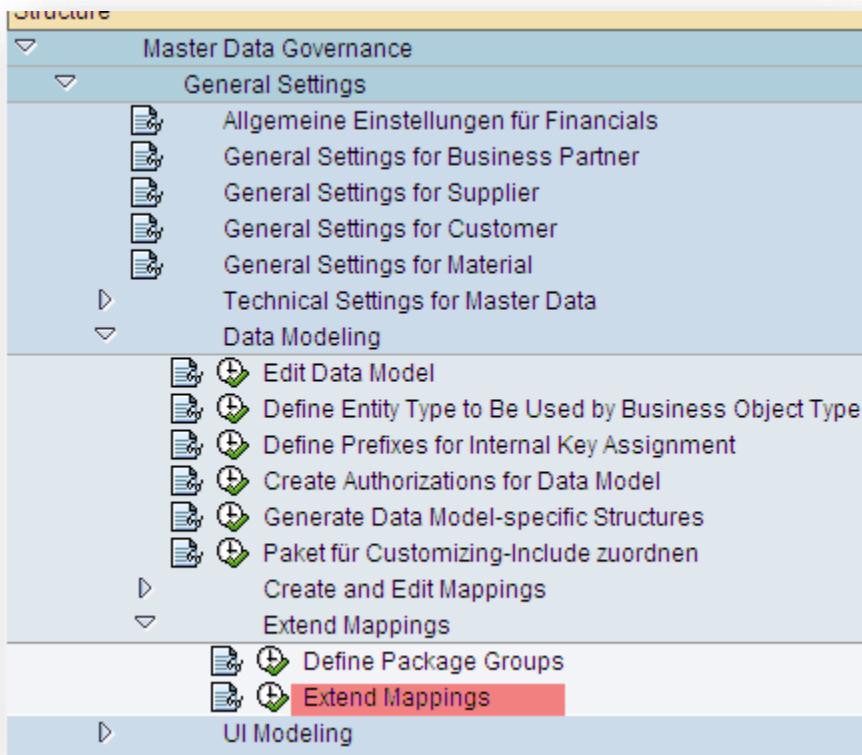
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Dictionary: Display Structure																
Hierarchy Display Append Structure...																
Structure	/MDGMM/_S_MM_ES_MATERIAL		Active													
Short Description	Structure for Enterprise Search															
Attributes Components Entry help/check Currency/quantity fields																
Predefined Type																
1 / 26																
Component	Reference Type	Komponententyp	Data Type	Length	Decim	Short Description										
USMD_ACTIVE	Types	USMD_ACTIVE	CHAR	1	0	Active/Inactive Data Record										
MATERIAL	Types	MATNR	CHAR	18	0	Material Number										
BEGRU	Types	BEGRU	CHAR	4	0	Authorization Group										
BISMT	Types	BISMT	CHAR	18	0	Old material number										
EXTWG	Types	EXTWG	CHAR	18	0	External Material Group										
FERTH	Types	FERTH	CHAR	18	0	Production/Inspection memo										
GEWEI_MAT	Types	GEWEI	UNIT	3	0	Weight Unit										
GROES	Types	GROES	CHAR	32	0	Size/dimensions										
LABOR	Types	LABOR	CHAR	3	0	Laboratory/design office										
LVORM_MAT	Types	LVOMA	CHAR	1	0	Flag Material for Deletion at Client Level										
MATKL	Types	MATKL	CHAR	9	0	Material Group										
MATNR_EXT	Types	MATNR_EXT	CHAR	40	0	External Long Material Number										
MBRSH	Types	MBRSH	CHAR	1	0	Industry sector										
MEINS	Types	MEINS	UNIT	3	0	Base Unit of Measure										
MTART	Types	MTART	CHAR	4	0	Material Type										
NORMT	Types	NORMT	CHAR	18	0	Industry Standard Description (such as ANSI or ISO)										
NTGEW	Types	NTGEW	QUAN	13	3	Net Weight										
PRDHA	Types	PRODH_D	CHAR	18	0	Product hierarchy										
SATNR	Types	SATNR	CHAR	18	0	Cross-Plant Configurable Material										
WRKST	Types	WRKST	CHAR	48	0	Basic Material										
_INCLUDE	Types	CI_MDG_S_EMM_MATE	...	0	0	Customizing Include for Enterprise Search										
YYFORMAT	Types	FORMT	CHAR	4	0	Page Format of Production Memo										
YYMSTA	Types	MSTA	CHAR	2	0	Cross-Plant Material Status										
ZZBRAND	Types	ZZBRAND	CHAR	3	0	EM: Data element ZZBRAND										
ZZPRODTYP	Types	ZZPRODTYPE	CHAR	1	0	EM: Data element ZZPRODTYPE										
MAGRV	Types	MAGRV	CHAR	4	0	Material Group: Packaging Materials										

4.3 SMT Mapping

If the data model is already enhanced and mappings have been defined, then this chapter can be skipped. If not, then you need to extend the mappings for the fields by editing each of the existing mappings MDG_BS_MAT_MAP_2PP and MDG_BS_MAT_MAP_2STA by mapping the corresponding fields in source and target structures.

The screenshot below illustrates how to extend the mappings from MDG Customizing.



4.4 Active Area: Connector for MATERIAL

Note: For this scenario (extension by existing standard SAP attributes of reuse), the attributes will already be part of the Enterprise Search 'MATERIAL' template. However, if the fields are not yet part of the standard search template 'MATERIAL' of SAP_APPL SWC, then the following steps must be performed.

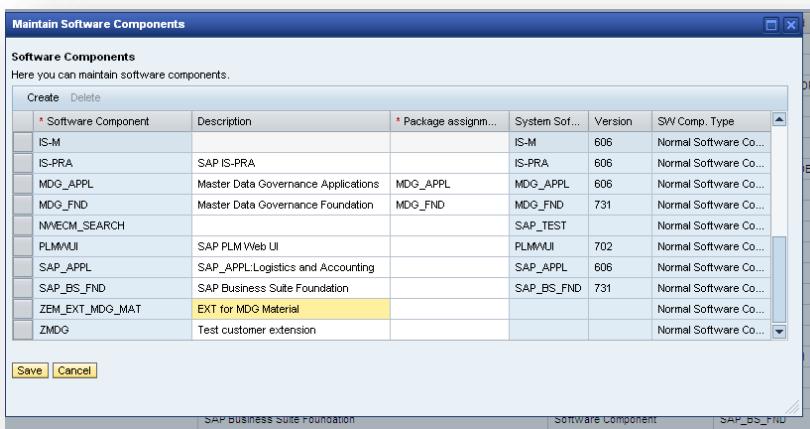
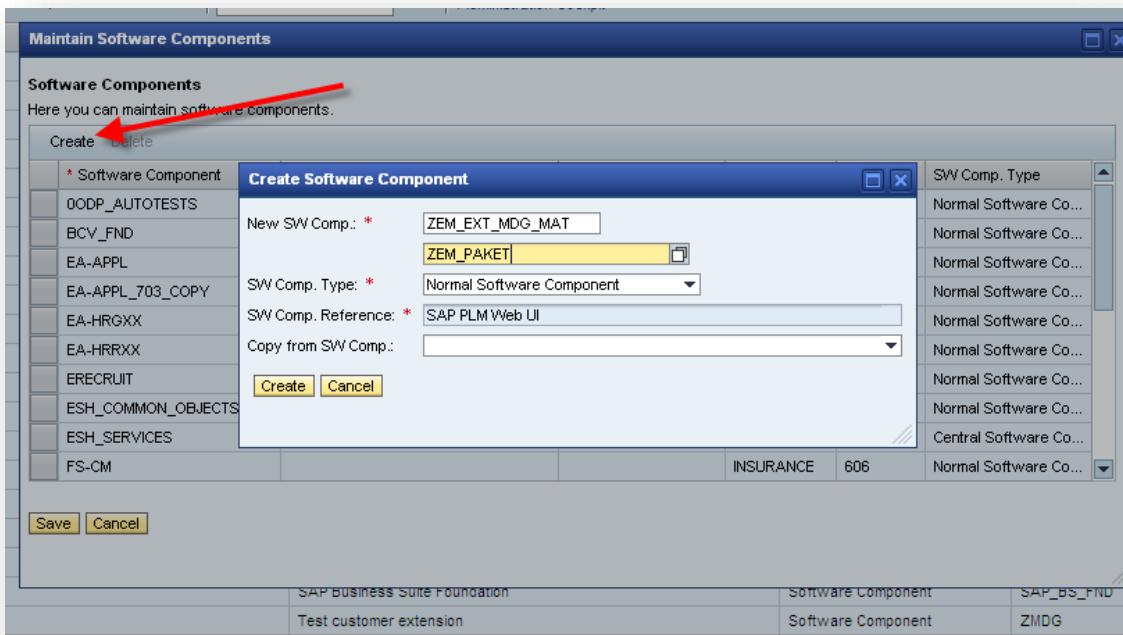
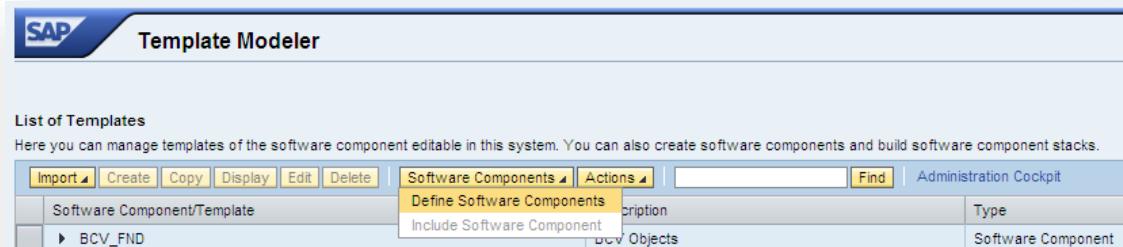
4.4.1 Template Modeler for active area

If the fields are not yet part of the standard search template 'MATERIAL' please refer to [5.6.1 Template Modeler](#) and perform the mentioned steps [5.6.1.1](#) to [5.6.1.4](#).

4.4.1.1 Create new Software Component

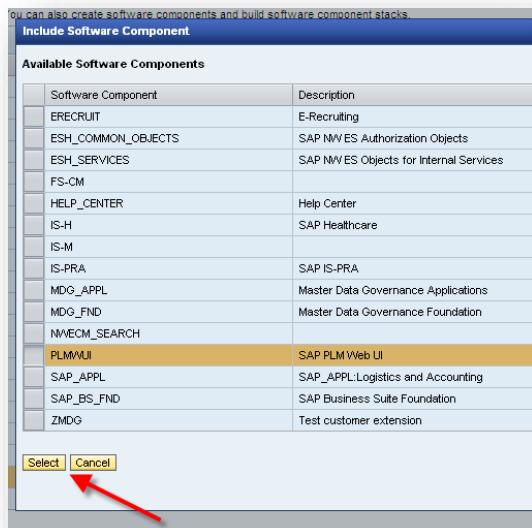
To open the Modeler, select the Modeler hyperlink. In the Software Component menu choose Maintain Software Components and choose Create. Enter the name for the new software component and assign a package. The software component type is Normal Software Component. Choose Create. Enter a description for the new software component and choose Save. Select a workbench request.

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Include software components, here for example PLMWUI.

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ZEM_EXT_MDG_MAT	EXT for MDG Material	Software Component	ZEM_EXT_MDG_MAT
► MDG_APPL	Master Data Governance Applications	Software Component	MDG_APPL
► PLMWUI	SAP PLM Web UI	Software Component	PLMWUI

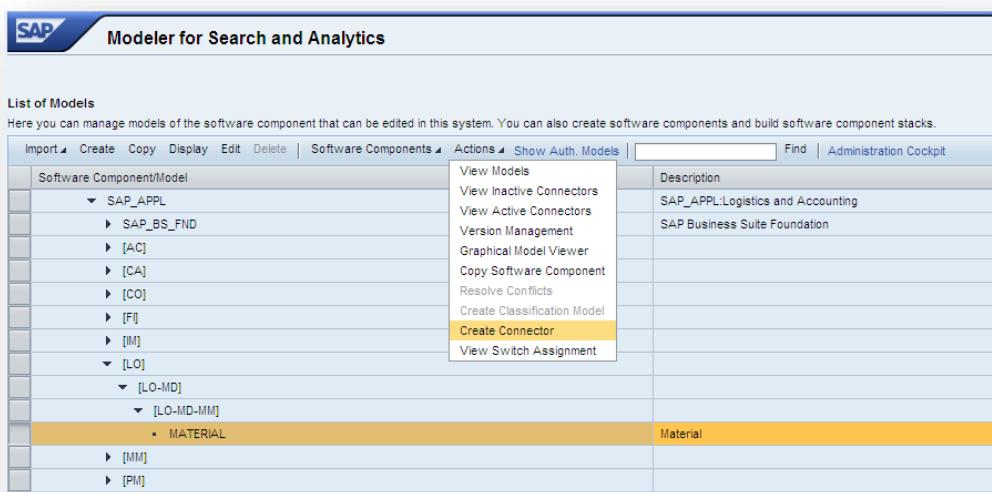
Note:

To transport the new software component and the new template to other systems please refer to SAP note 1483890.

4.4.1.2 Create Connector for Material

Mark your new software component and from the Software Component menu select Include Software Components. Include the highest software component for connector MATERIAL. You need to create the connector for MATERIAL in the highest software layer. If software layer hierarchy is PLMWUI / EA-APPL / SAP-APPL then use SW Component PLMWUI. If software layer hierarchy is EA-APPL / SAP-APPL then use SW Component EA-APPL. The template MATERIAL is part of the software hierarchy (For example, PLMWUI/EA_APPL/SAP_APPL/LO/LO-MD/LO_MD_MM/MATERIAL).

Once you have located the template, create the connector for the Enterprise Search. To create a search connector for the corresponding template, from the Actions menu select Create Connector.



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4.4.2 Administration Cockpit

4.4.2.1 Update Connector Material (optional)

The update is only necessary if the fields are not yet part of the standard search template MATERIAL.
Please refer to [5.6.2.1 Update Connector Material](#)

4.4.2.2 Schedule Indexing

The screenshot shows two SAP application windows. The top window is the 'Connector Administration Cockpit' titled 'Connector Admin'. It displays a list of connectors under the 'Material' category, with 'EV5405-MATERIAL~' selected. The bottom window is a detailed view of the 'Material' connector, showing its technical properties like Connector Name, ID, Type, and Component. A red arrow points to the 'Copy Settings' button in the indexing mode section of the second window.

Schedule Indexing for "Material"

Define indexing schedules for the object types of this connector and its dependent connectors. Enter values directly in the table or use the input form.

Start Time

Start Immediately Start Date: [] Start Time: [00:00:00]

Recurrence Period

Real-Time Indexing Months: [00] Weeks: [00] Days: [000] Hours: [00]

Indexing Mode

Full Indexing Mode: []

Copy Settings (highlighted with a red arrow)

Object	Type	Status	Start Immed...	Start Date	Start Time	Full Indexing M...	Real-Time I...	Months	Weeks	Days	Hours
ACCESS_CONTROL...	Business Object	Prepared	<input type="checkbox"/>	02.11.2010	11:09:02	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
BUKRS	Technical Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:44	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
EKORG	Technical Object	Active	<input type="checkbox"/>	02.11.2010	09:59:44	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
DOCUM_KPRO_ORI...	Technical Object	Active	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
LAND1	Technical Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
DOCUM_KPRO_ORI...	Technical Object	Active	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
PLANT	Technical Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
ACC_USER_GROUP	Authorization Object	Active	<input type="checkbox"/>	02.11.2010	11:09:02	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
PRODUCTION_MBOM	Business Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:51	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
ACC_SID	Authorization Object	Active	<input type="checkbox"/>	02.11.2010	11:09:03	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00

OK Cancel

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The screenshot shows the SAP Connector Administration Cockpit. In the top navigation bar, under 'Search Object Connectors', the status is set to 'All (10)'. The table lists various connectors, with one row for 'Material' expanded to show three sub-connectors: 'Physical Indices', 'Logical Indices', and 'Shared Indices'. The 'Physical Indices' connector is selected and highlighted in orange. The details for this connector are shown in the lower pane, including its name (Material), connector ID (EV5405-MATERIAL~), type (Embedded Search), technical object type (MATERIAL), node name, software component (ZEM_EXT_MDG_MAT), search provider (EV5CLNT405), status (Active), enhanced status (unchecked), package (MGA), and application component (LO-MD-MM).

4.4.3 Test Connector Material

Execute report ESH_TEST_SEARCH: choose the connector for MATERIAL. Search based on any attribute by checking the Request Attribute-Based Search check box as shown in the screenshot below.

The screenshot shows the SAP Enterprise Search Test report. In the search parameters section, the 'From' field is set to 1 and the 'To' field is set to 500. The 'Connector ID' is specified as EV5405-MATERIAL~. The 'Request' field contains the value ZZBRAND1. The 'Request Attribute-Based Search' checkbox is checked. The search results table on the right shows 243 entries found, with columns for Request, Request Field, Type, Length, Semantic Classification, and Description. The results include various fields such as VTWEG, VTWEG1, VTWEG_TEXT, VTWEG_TEXT1, WBKLA, WEKGR, WERKS, WERKS1, WGBEZ, WGBEZ60, WHERL, WHERR, WHIMATGR1, WHSTC1, WLADG, WPSTA, WRKST1, WSTAW, ZEIAR1, ZEIFO, ZEINR1, ZEIVR1, ZZBRAND1, ZZPRODTYPE1, and \$ESH_IDS.

4.5 Staging Area: Connector for MDG

4.5.1 Template Modeler

4.5.1.1 Software component

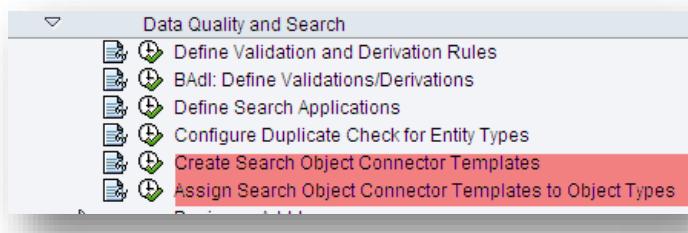
Delete all the existing connectors for the MDG_MATERIAL template. Execute the transaction ESH_MODELER and select the software component that you created in Chapter [4.4.1.1 Create new Software Component](#).

Mark your new software component and in the Software Component menu select Include Software Components. Include the software component MDG_APPL (for connector MDG_MATERIAL). Choose Save and select a Workbench Transport.

To transport the new software component and the new template to other systems please refer to SAP note 1483890.

4.5.1.2 Create new search connector template for MDG

Create a new Enterprise Search connector template by using transaction MDG_ES_TEMPL or in the implementation guide under General Settings > Data Quality and Search > Create Search Object Connector Templates. Once the Enterprise Search template is generated, a relationship has to be maintained between the Object Type Code (OTC) and the Enterprise Search Template in the implementation guide under General Settings > Data Quality and Search > Assign Search Object Connector Templates to Object Types.

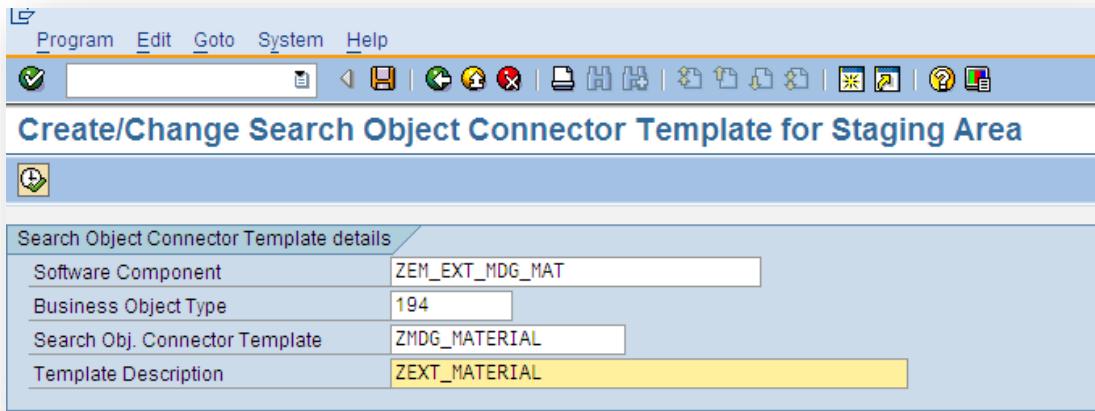


Create new search connector template for MDG under the new software component and assign the new connector to object type 194.

The screenshot shows the 'Assign Search Object Connector Template to Object Type' dialog. The title bar says 'Change View "Assign Search Object Connector Template to Object Type":'. Below it is a toolbar with various icons. The main area is a table titled 'Assign Search Object Connector Template to Object Type'. The table has four columns: 'BO Type', 'Object Type', 'Software Component', and 'Root'. There are two rows in the table. The first row has 'BO Type' value 147, 'Object Type' value 'MDG_BUSINESS_PARTNER', 'Software Component' value 'SAP_BS_FND', and 'Root' checked. The second row has 'BO Type' value 194, 'Object Type' value 'ZMDG_MATERIAL', 'Software Component' value 'ZEM_EXT_MDG_MAT', and 'Root' checked. The 'Root' column contains a checked checkbox for each row.

BO Type	Object Type	Software Component	Root
147	MDG_BUSINESS_PARTNER	SAP_BS_FND	<input checked="" type="checkbox"/>
194	ZMDG_MATERIAL	ZEM_EXT_MDG_MAT	<input checked="" type="checkbox"/>

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If you have already created a ZMDG_MATERIAL and you want to override the existing template then you have to delete all existing associations (example: to CLES_CLASSIFICATION), authorizations, and relevant request, and response attributes to allow for regeneration (please refer to chapter [4.5.2.1 Re-create the associations, authorizations, request and response attributes](#)). Otherwise it is not possible to update the template.

The screenshot shows the SAP Modeler for Search and Analytics interface. The title bar says 'Modeler for Search and Analytics'. The main window shows 'Define Model ZMDG_MATERIAL of Software Component ZEM_EXT_MDG_MATERIAL'. The top navigation bar has tabs 1 through 6: Model Properties, Model Nodes, Node Relations (highlighted in yellow), Model Requests, Node Response, and Operational Data Provider. Below the tabs are buttons for Previous, Next, Cancel, Finish, and Save. The main content area is titled 'Structure of 'ZMDG_MATERIAL''. It shows a list of nodes: ZBUPA01, ZBUPA12, ZKMMBEW, ZKMRSP, ZMVKE1, ZMVKE2, ZMVFELFLEX, ZZMKAL, MDG_CLF_MATERIAL_CLES_CLASSIFICATION, and MTART_BASIC_MTART. A table below lists associations between nodes. One association is highlighted with a yellow background: 'MDG_CLF_MATERIAL_CLES_CLASSIFICATION' (Classification) to 'Enterprise Search: material type' (Enterprise Search: material type). The table columns include 'Node', 'Node Description', 'Association', 'Cardinality', 'Reverse Cardinality', and 'Subquery'. The 'Association' column for the highlighted row shows 'MATERIAL2CLES_CLASSIFICATION'. The 'Cardinality' column shows 'Exactly One' for both sides. The 'Reverse Cardinality' column shows 'Arbitrary' for both sides. The 'Subquery' column shows 'Equal' for both sides. Below the table, there is a section titled 'Details: Foreign Keys of Node 'MDG_CLF_MATERIAL_CLES_CLASSIFICATION''. It shows a table with columns 'Attributes of Parent Node 'MATERIAL'', 'Value', 'Attributes of Child Node 'MDG_CLF_MATERIAL_CLES_CLA...', 'Value', and 'Join Operator'. The 'Join Operator' column shows 'Equal'.

Alternative: Generate another new template with this transaction.

Note: If you have problems with TXTMI updates please refer to note 1728230.

4.5.2 Administration Cockpit

4.5.2.1 Re-create the associations, authorizations, request and response attributes (optional)

Note: This step is only necessary if you had overridden the template ZMDG_MATERIAL.

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The screenshot shows the SAP Modeler for Search and Analytics interface. The title bar reads "SAP Modeler for Search and Analytics". The top menu includes "Import", "Create", "Copy", "Display", "Edit", "Delete", "Software Components", "Actions", "Show Auth. Models", and a search field "Find". The status bar says "Logged on as: Ritter". The main area is titled "List of Models" with the sub-instruction "Here you can manage models of the software component that can be edited in this system. You can also create software components and build software component stacks." A table lists various software components:

Software Component/Model	Description	Type	Name In Back End	Swl...
MDG_APPL	Master Data Governa...	Software...	MDG_APPL	<input type="checkbox"/>
MDG_FND	Master Data Governa...	Software...	MDG_FND	<input type="checkbox"/>
NWECM_SEARCH		Software...	NWECM_SEAR...	<input type="checkbox"/>
PLMWUI	SAP PLM Web UI	Software...	PLMWUI	<input type="checkbox"/>
SAP_APPL	SAP_APPL Logistics ...	Software...	SAP_APPL	<input type="checkbox"/>
SAP_BASIS	SAP_BASIS Content	Software...	SAP_BASIS	<input type="checkbox"/>
SAP_BS_FND	SAP Business Suite F...	Software...	SAP_BS_FND	<input type="checkbox"/>
ZEM_EXT_MDG_MAT	EXT for MDG Material	Software...	ZEM_EXT_MDG...	<input type="checkbox"/>
MDG_APPL	Master Data Governa...	Software...	MDG_APPL	<input type="checkbox"/>
PLMWUI	SAP PLM Web UI	Software...	PLMWUI	<input type="checkbox"/>
ZMDG_MATERIAL	ZMDG_MATERIAL	Application...	ZMDG_MATERIAL	<input checked="" type="checkbox"/>
ZMDG_MATERIAL_1	ZEXT_MATERIAL_1	Application...	ZEXT_MATERIAL_1	<input type="checkbox"/>

The screenshot shows the "Define Model ZMDG_MATERIAL of Software Component ZEM_EXT_MDG_MAT" dialog. The title bar reads "SAP Modeler for Search and Analytics". The top menu includes "Import", "Create", "Copy", "Display", "Edit", "Delete", "Software Components", "Actions", "Show Auth. Models", and a search field "Find". The status bar says "Logged on as: Ritter". The main area shows a progress bar with five steps: 1. Model Properties (highlighted), 2. Model Nodes, 3. Node Relations, 4. Model Requests, 5. Node Response. Below the progress bar are buttons: "Previous", "Next", "Cancel", "Finish", and "Save". The "Model Properties" tab is active, displaying the following information:

Name In Back End: ZMDG_MATERIAL
Runtime Model ID: ZEM_EXT_MDG_MAT-STANDARD-ZMDG_MATERIAL

Selection:

Model Usage:

- Application Model
- Technical Model
- Authorization Model
- Virtual Model

Properties Tab (selected):

Created by: [empty]

Package: Package Description: Temporary Objects (never transported)

Application Component: System Software Component: LOCAL

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SAP Modeler for Search and Analytics

Define Model ZMDG_MATERIAL of Software Component ZEM_EXT_MDG_MAT Model Language: English

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response

Previous Next Cancel Finish Save

List of Nodes of 'ZMDG_MATERIAL'

Here you can maintain the properties of the model nodes and their attributes.

Create Node	Delete Node	Update Node	Generate Tech. Model	Enable GOS attachments	View Switch Assignment			
<input type="checkbox"/> MATERIAL	<input type="button" value="Update"/>	<input type="text" value="Material"/>	<input type="radio"/> Data Source	<input type="radio"/> Data Source Description	<input checked="" type="checkbox"/> R...	<input checked="" type="checkbox"/> Attr...	<input type="checkbox"/> Name In...	<input type="checkbox"/> Swl...
<input type="checkbox"/> BSCDATTXT	<input type="checkbox"/> Basic Data Text	<input type="checkbox"/> BSCDATTXT	<input type="radio"/> Basic Data Text	<input checked="" type="checkbox"/> Material	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> BSCDA...	<input type="checkbox"/>
<input type="checkbox"/> CLASSASGN	<input type="checkbox"/> Class Assignment	<input type="checkbox"/> CLASSASGN	<input type="radio"/> Class Assignment	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> CLASSA...	<input type="checkbox"/>
<input type="checkbox"/> INTCMNT	<input type="checkbox"/> Internal Comment	<input type="checkbox"/> INTCMNT	<input type="radio"/> Internal Comment	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> INTCMNT	<input type="checkbox"/>
<input type="checkbox"/> MEAN_GTIN	<input type="checkbox"/> International Article Nu	<input type="checkbox"/> MEAN_GTIN	<input type="radio"/> International Article Nu	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> MEAN_...	<input type="checkbox"/>
<input type="checkbox"/> T_MATERIAL	<input type="checkbox"/> T_MATERIAL	<input type="checkbox"/> T_MATERIAL	<input type="radio"/> T_MATERIAL	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> T_MAT...	<input type="checkbox"/>
<input type="checkbox"/> UNITOFMSR	<input type="checkbox"/> Units of Measure for M	<input type="checkbox"/> UNITOFMSR	<input type="radio"/> Units of Measure for M	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> UNITOF...	<input type="checkbox"/>
<input type="checkbox"/> VALUATION	<input type="checkbox"/> Characteristic Valuatio	<input type="checkbox"/> VALUATION	<input type="radio"/> Characteristic Valuatio	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> VALUAT...	<input type="checkbox"/>
<input type="checkbox"/> YMARC	<input type="checkbox"/> Plant Data for Material	<input type="checkbox"/> YMARC	<input type="radio"/> Plant Data for Material	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> YMARC	<input type="checkbox"/>
<input type="checkbox"/> ZMDG_BUPA	<input type="checkbox"/> BUPA Nickname for M	<input type="checkbox"/> ZMDG_BUPA	<input type="radio"/> BUPA Nickname for M	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> ZMDG_...	<input type="checkbox"/>

Details: Attributes of Node 'MATERIAL'

Select All	Deselect All	Add	Remove	Where-Used	View Switch Assignment			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/> Attribute Group/Att...	<input type="checkbox"/> Description	<input type="checkbox"/> Type	<input type="checkbox"/> Name In Bac...	<input type="checkbox"/> Cont...	<input type="checkbox"/> Conversion	<input type="checkbox"/> Semantics	<input type="checkbox"/> No ...	<input type="checkbox"/> Swl...
<input type="checkbox"/> USMD_ACT...	<input checked="" type="checkbox"/> Aktiver/Inaktiver Date	<input checked="" type="checkbox"/> CHAR(1)	<input checked="" type="checkbox"/> USMD_ACT...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> MATERIAL	<input checked="" type="checkbox"/> Material Number	<input checked="" type="checkbox"/> CHAR...	<input checked="" type="checkbox"/> MATERIAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAP Modeler for Search and Analytics

Define Model ZMDG_MATERIAL of Software Component ZEM_EXT_MDG_MAT Model Language: English

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response

Previous Next Cancel Finish Save

List of Nodes of 'ZMDG_MATERIAL'

Here you can maintain the properties of the model nodes and their attributes.

Create Node	Delete Node	Update Node	Generate Tech. Model	Enable GOS attachments	View Switch Assignment			
<input type="checkbox"/> MATERIAL	<input type="button" value="Update"/>	<input type="text" value="Material"/>	<input type="radio"/> Data Source	<input type="radio"/> Data Source Description	<input checked="" type="checkbox"/> R...	<input checked="" type="checkbox"/> Attr...	<input type="checkbox"/> Name In...	<input type="checkbox"/> Swl...
<input type="checkbox"/> BSCDATTXT	<input type="checkbox"/> Basic Data Text	<input type="checkbox"/> BSCDATTXT	<input type="radio"/> Basic Data Text	<input checked="" type="checkbox"/> Material	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> BSCDA...	<input type="checkbox"/>
<input type="checkbox"/> CLASSASGN	<input type="checkbox"/> Class Assignment	<input type="checkbox"/> CLASSASGN	<input type="radio"/> Class Assignment	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> CLASSA...	<input type="checkbox"/>
<input type="checkbox"/> INTCMNT	<input type="checkbox"/> Internal Comment	<input type="checkbox"/> INTCMNT	<input type="radio"/> Internal Comment	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> INTCMNT	<input type="checkbox"/>
<input type="checkbox"/> MEAN_GTIN	<input type="checkbox"/> International Article Nu	<input type="checkbox"/> MEAN_GTIN	<input type="radio"/> International Article Nu	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> MEAN_...	<input type="checkbox"/>
<input type="checkbox"/> T_MATERIAL	<input type="checkbox"/> T_MATERIAL	<input type="checkbox"/> T_MATERIAL	<input type="radio"/> T_MATERIAL	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> T_MAT...	<input type="checkbox"/>
<input type="checkbox"/> UNITOFMSR	<input type="checkbox"/> Units of Measure for M	<input type="checkbox"/> UNITOFMSR	<input type="radio"/> Units of Measure for M	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> UNITOF...	<input type="checkbox"/>
<input type="checkbox"/> VALUATION	<input type="checkbox"/> Characteristic Valuatio	<input type="checkbox"/> VALUATION	<input type="radio"/> Characteristic Valuatio	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> VALUAT...	<input type="checkbox"/>
<input type="checkbox"/> YMARC	<input type="checkbox"/> Plant Data for Material	<input type="checkbox"/> YMARC	<input type="radio"/> Plant Data for Material	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> YMARC	<input type="checkbox"/>
<input type="checkbox"/> ZMDG_BUPA	<input type="checkbox"/> BUPA Nickname for M	<input type="checkbox"/> ZMDG_BUPA	<input type="radio"/> BUPA Nickname for M	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> ZMDG_...	<input type="checkbox"/>

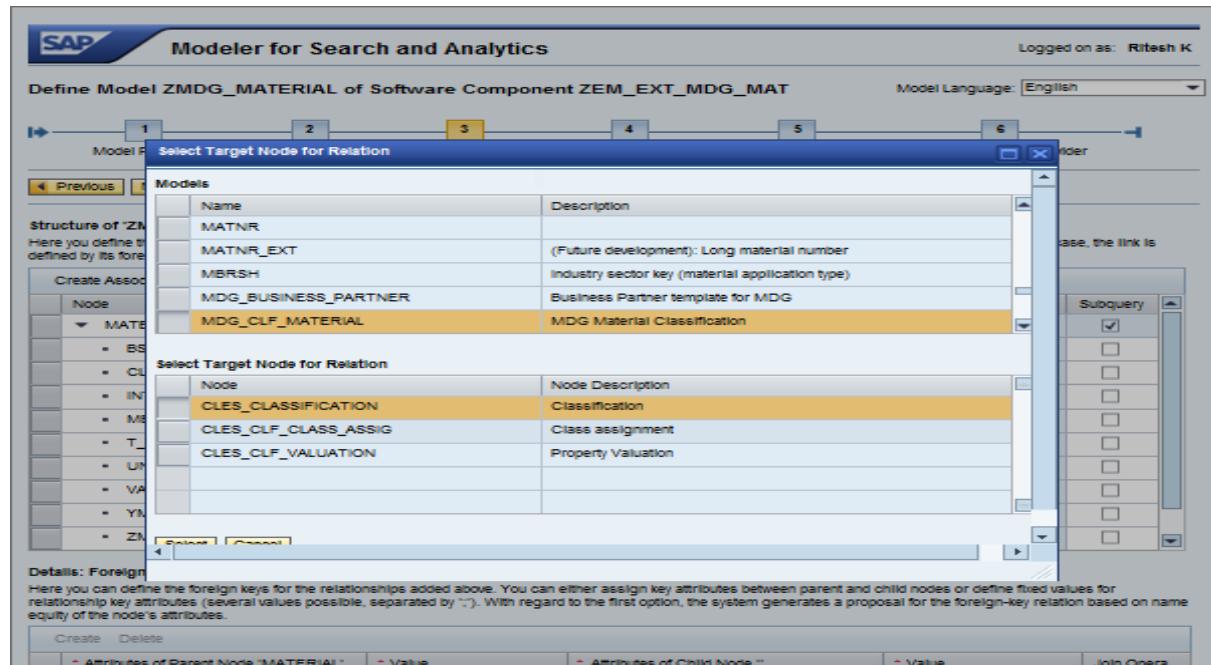
Details: Attributes of Node 'MATERIAL'

Select All	Deselect All	Add	Remove	Where-Used	View Switch Assignment			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/> Attribute Group/Att...	<input type="checkbox"/> Description	<input type="checkbox"/> Type	<input type="checkbox"/> Name In Bac...	<input type="checkbox"/> Cont...	<input type="checkbox"/> Conversion	<input type="checkbox"/> Semantics	<input type="checkbox"/> No ...	<input type="checkbox"/> Swl...
<input type="checkbox"/> PRDHA	<input checked="" type="checkbox"/> Product hierarchy	<input checked="" type="checkbox"/> CHAR...	<input checked="" type="checkbox"/> PRDHA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SATNR	<input checked="" type="checkbox"/> Cross-Plant Configu	<input checked="" type="checkbox"/> CHAR...	<input checked="" type="checkbox"/> SATNR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> WRKST	<input checked="" type="checkbox"/> Basic Material	<input checked="" type="checkbox"/> CHAR...	<input checked="" type="checkbox"/> WRKST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> YYFORMAT	<input checked="" type="checkbox"/> Page Format of Prod	<input checked="" type="checkbox"/> CHAR(4)	<input checked="" type="checkbox"/> YYFORMAT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> YYMSTAET	<input checked="" type="checkbox"/> Cross-Plant Materi	<input checked="" type="checkbox"/> CHAR(2)	<input checked="" type="checkbox"/> YYMSTAET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> YYSPART	<input checked="" type="checkbox"/> Division	<input checked="" type="checkbox"/> CHAR(2)	<input checked="" type="checkbox"/> YYSPART	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> ZZBRAND	<input checked="" type="checkbox"/> EM: Data element Z2	<input checked="" type="checkbox"/> CHAR(3)	<input checked="" type="checkbox"/> ZZBRAND	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> ZZDATE	<input checked="" type="checkbox"/> date	<input checked="" type="checkbox"/> NUM...	<input checked="" type="checkbox"/> ZZDATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> ZZPRODTYP	<input checked="" type="checkbox"/> EM: Data element Z2	<input checked="" type="checkbox"/> CHAR(1)	<input checked="" type="checkbox"/> ZZPRODTYP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

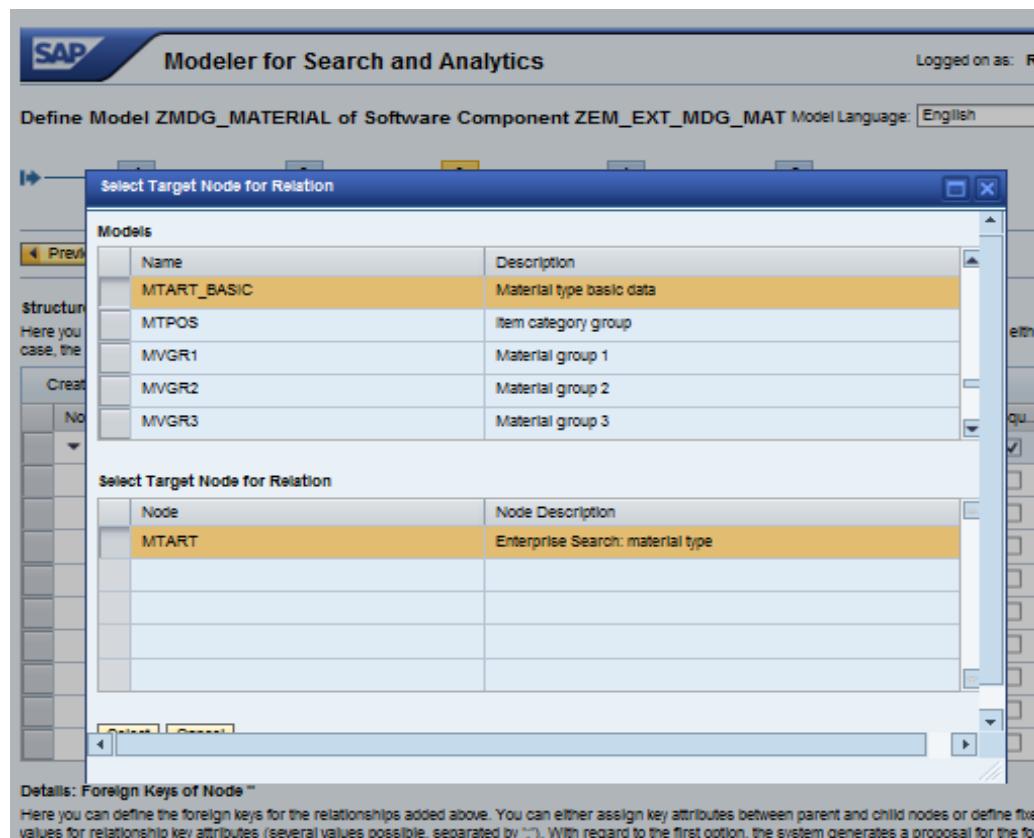
Go to node Relations, Choose the row Material and click on Create Association.

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Create an association from the material node to MDG_CLF_MATERIAL and choose the target node CLES_CLASSIFICATION in the pop-up.



Create another association from Material to MTART_BASIC. Choose the target node MTART.



Choose the newly created association (MDG_CLF_MATERIAL) and create a foreign key relationship as shown in the screen shot.

Choose Cardinality as Exactly One and Reverse Cardinality as Arbitrary.

How-To: Enhance the Material Enterprise Search

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response

[Previous](#) [Next](#) [Cancel](#) [Finish](#) [Save](#)

Structure of 'ZMDG_MATERIAL'
Here you define the structure of the model based on its nodes (composition). You can also add relationships to other model nodes (associations). In either case, the link is defined by its foreign keys.

Create Association Delete					
Node	Node Description	Association	Cardinality	Reverse Cardinality	Subquery
- CLASSASGN	Class Assignment	Arbitrary	Exactly	<input type="checkbox"/>	
- INTCMNT	Internal Comment	Arbitrary	Exactly	<input type="checkbox"/>	
- MEAN_GTN	International Article Numbers (EAN)	Arbitrary	Exactly	<input type="checkbox"/>	
- T_MATERIA		Arbitrary	Exactly	<input type="checkbox"/>	
- UNITOFMSR	Units of Measure for Material	Arbitrary	Exactly	<input type="checkbox"/>	
- VALUATION	Characteristic Valuation	Arbitrary	Exactly	<input type="checkbox"/>	
- YMARC	Plant Data for Material	Arbitrary	Exactly	<input type="checkbox"/>	
- ZMDG_BUPA	BUPA Nickname for Material	Arbitrary	Exactly	<input type="checkbox"/>	
- MDG_CLF_MATERIAL.CLES_CLAS	Classification	MATERIAL2CLES_C	Exactly	Arbitrary	<input type="checkbox"/>
- MTART_BASIC.MTART	Enterprise Search: material type	MATERIAL2MTART	Arbitrary	Exactly	<input type="checkbox"/>

Details: Foreign Keys of Node 'MDG_CLF_MATERIAL.CLES_CLASSIFICATION'
Here you can define the foreign keys for the relationships added above. You can either assign key attributes between parent and child nodes or define fixed values for relationship key attributes (several values possible, separated by '|'). With regard to the first option, the system generates a proposal for the foreign key relation based on name equity of the node's attributes.

Create Delete					
Attributes of Parent Node 'MATERIAL'	Value	Attributes of Child Node 'MDG_CLF_MATERIAL.CLES_CLASSIFICATION'	Value	Join Operation	
MATERIAL		OBJECT_ID		Equal	

Choose the newly created association (MTART_BASIC) and create a foreign key relationship as shown in the screen shot.

Choose the Cardinality as Exactly One and Reverse Cardinality as Arbitrary.

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response

[Previous](#) [Next](#) [Cancel](#) [Finish](#) [Save](#)

Structure of 'ZMDG_MATERIAL'
Here you define the structure of the model based on its nodes (composition). You can also add relationships to other model nodes (associations). In either case, the link is defined by its foreign keys.

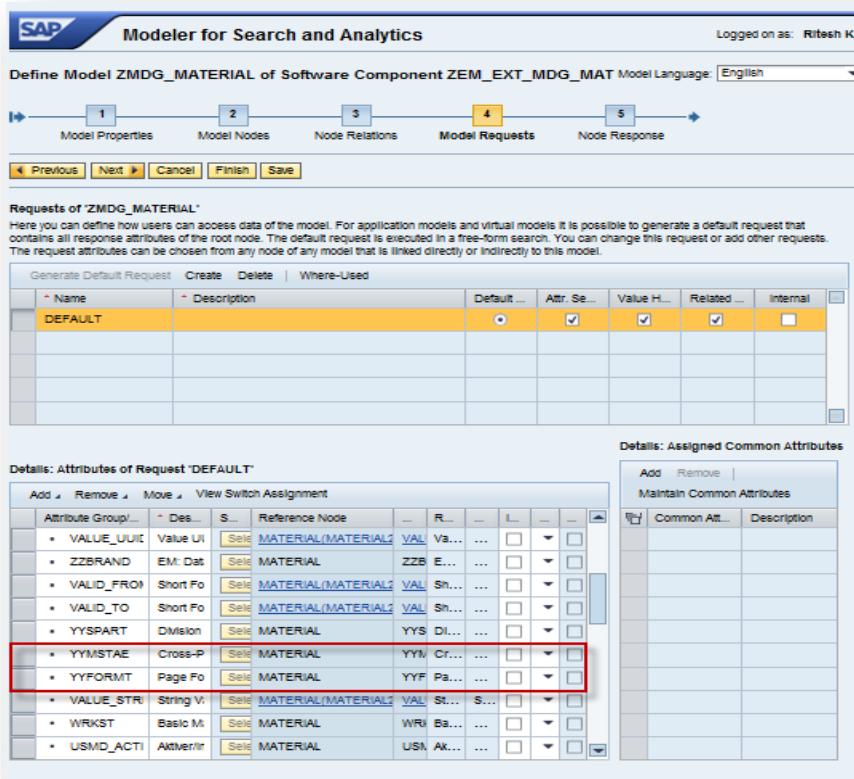
Create Association Delete					
Node	Node Description	Association	Cardinality	Reverse Cardinality	Subquery
- CLASSASGN	Class Assignment	Arbitrary	Exactly	<input type="checkbox"/>	
- INTCMNT	Internal Comment	Arbitrary	Exactly	<input type="checkbox"/>	
- MEAN_GTN	International Article Numbers (EAN)	Arbitrary	Exactly	<input type="checkbox"/>	
- T_MATERIA		Arbitrary	Exactly	<input type="checkbox"/>	
- UNITOFMSR	Units of Measure for Material	Arbitrary	Exactly	<input type="checkbox"/>	
- VALUATION	Characteristic Valuation	Arbitrary	Exactly	<input type="checkbox"/>	
- YMARC	Plant Data for Material	Arbitrary	Exactly	<input type="checkbox"/>	
- ZMDG_BUPA	BUPA Nickname for Material	Arbitrary	Exactly	<input type="checkbox"/>	
- MDG_CLF_MATERIAL.CLES_CLAS	Classification	MATERIAL2CLES_C	Arbitrary	Exactly	<input type="checkbox"/>
- MTART_BASIC.MTART	Enterprise Search: material type	MATERIAL2MTART	Arbitrary	Exactly	<input type="checkbox"/>

Details: Foreign Keys of Node 'MTART_BASIC.MTART'
Here you can define the foreign keys for the relationships added above. You can either assign key attributes between parent and child nodes or define fixed values for relationship key attributes (several values possible, separated by '|'). With regard to the first option, the system generates a proposal for the foreign key relation based on name equity of the node's attributes.

Create Delete					
Attributes of Parent Node 'MATERIAL'	Value	Attributes of Child Node 'MTART_BASIC.MTART'	Value	Join Operation	
MTART		MTART		Equal	

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4.5.2.2 Add the new attributes to ZMDG_MATERIAL template request fields



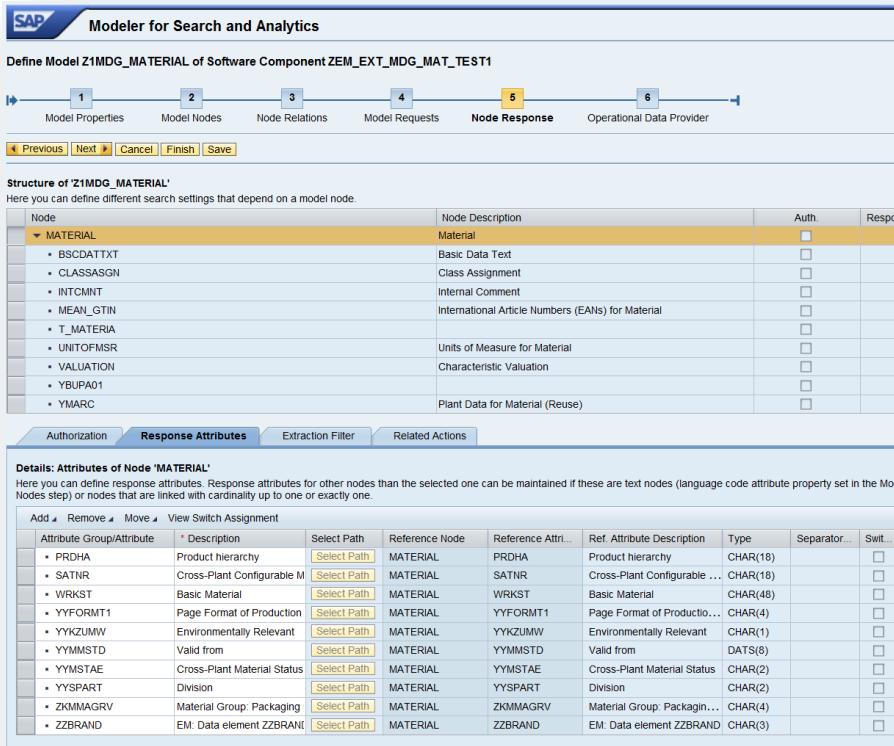
The request fields determine the fields which you could see as search criteria. With the customizing in chapter [4.6](#) you also change the Field Properties, so that the fields are not shown as search criteria.

4.5.2.3 Add the new attributes to the ZMDG_MATERIAL template response fields

The response fields determine the fields you can see in the results list. With the customizing shown in chapter [4.6](#) you can also change the Field Properties, so that the fields are not used in the selection or in the search results list. You can only add fields to the response structure where the cardinality is 1:1 to the material. That means, for example, that MARC fields are not supported.

From MDG 7.0 onwards you do not need to enhance the response attributes. The fields which are available for the configuration are only defined with the customizing shown in chapter [4.6](#). For enhancing the UI, see also chapter 9.1 Enhance UIBB MDG_BS_MAT_SEARCH_RESULT_LIST.

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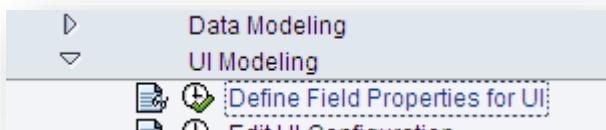
4.5.2.4 Schedule Indexing

Refer to chapter [4.4.2.2 Schedule Indexing](#) and use your new template ZMDG_MATERIAL

4.5.3 Test Connector: ZMDG_MATERIAL

Refer to chapter [4.4.3 Test Connector Material](#) and use the new template ZMDG_MATERIAL

4.6 Customizing



You can customize the fields in the drop down of the search attributes and the fields in the search result list using "Field Properties". Check that the new fields are not disabled for search and result list in this customizing; the check boxes for No Selection and No Results List should be unchecked.

Change View "Hide Field Names": Overview

Entity Type	Field Name	No Selection	No Results List	No Mass Change
MATERIAL	NTGEW	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MATERIAL	SATNR	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MATERIAL	YYFORMT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MATERIAL	YYKZUMW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL	YYMSTAET	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MATERIAL	ZZBRAND	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

Ensure that an entity attribute is at least one time not flagged as 'No Selection' that this attribute is contained in the list of the material search criteria.

Prerequisite: SAP note 2147531 - SEARCH: Support entity attributes defined in more than one entity type.

After having implemented this note, you need to flag an entity attribute as non-selectable in all entity types to define it as non-selectable in the search UI.

All Fields, which are relevant and selected for the search, have to be defined as Request Fields in the active and staging connector. Otherwise, a 'technical error' is displayed when executing the search.

5. STEP-BY-STEP PROCEDURE: EXTEND BY CUSTOM ATTRIBUTES (FROM REUSE)

Scenario:

You have extended the standard Material data model MM with custom attributes that are defined on the underlying SAP reuse table.

Example:

Backend table MARA is extended with two fields (Brand ZZBRAND and Product Type ZZPRODTYPE) and search for materials should be done with these attributes.

Note:

This is also valid if you extended other material tables like MARC, MARD. Then you have to extend the corresponding structures (like ESO_S_MAKT_LTX, ESO_S_MARC, ESO_S_MARD, ESO_S_MARM, ESO_S_MEAN, ESO_S_MVKE, and ESO_S_MVKE_LONGTEXT).

5.1 Extend Backend: MARA with Append

Refer to SAP note 44410 that describe the steps that have to be carried out to integrate customer specific fields into the Material Master.

Field	Key	Init.	Data element	Data Type	Length	Decim.	Short Description
FASHGRD			FASHGRD	CHAR	4	0	Fashion Grade
_APPEND			ZIBTEST2	CHAR	0	0	Ingos Test
_INCLUDE			ZEM_MDG_MARA	STRU	0	0	ZEM_MDG_MARA
ZZBRAND			ZBRAND	CHAR	3	0	ZEM Brand
ZZPRODTYPE			ZPRODTYPE	CHAR	1	0	EM: Data element ZPRODTYPE

5.2 Extend ES Structure for Material: ESO_S_MARA_MAW1

ESO_S_MARA_MAW1 is used in the ES Template for Material (MARA). Therefore it must be extended with the Z*Fields.

Object Name	Status	Short text
IPLMIS_MAT_ESO_ACC_OBU	Active	Access control object id
ISM_ESO_S_MARA_MAW1	New	ISM Append for ESO_S_MARA_MAW1

Use the include from MARA:

Dictionary: Change Append Structure

The screenshot shows the SAP Dictionary interface for changing append structures. The title bar says "Dictionary: Change Append Structure". The toolbar includes standard SAP icons like back, forward, search, and help. The main area has fields for "Append Structure" (ZEMTEST2) and "Short Description" (ZEMTEST2). Below these are tabs for "Attributes", "Components", "Entry help/check", and "Currency/quantity fields". A sub-toolbar with icons for creating, deleting, and modifying components is visible. The "Components" tab is selected, showing a table with one row. The table columns are: Component, Reference Type, Komponententyp, Data Type, Length, Decim., and Short Description. The row contains: .INCLUDE, 1, ZEM_MDG_MARA, CHAR, 0, 0, ZEM_MDG_MARA.

Dictionary: Display Structure

The screenshot shows the SAP Dictionary interface for displaying structure details. The title bar says "Dictionary: Display Structure". The toolbar includes standard SAP icons. The main area has fields for "Structure" (ESO_S_MARA_MAW1) and "Short Description" (ES Node structure for Material head). Below these are tabs for "Attributes", "Components", "Entry help/check", and "Currency/quantity fields". A sub-toolbar with icons for creating, deleting, and modifying components is visible. The "Components" tab is selected, showing a table with 279 rows. The table columns are: Component, Reference Type, Komponententyp, Data Type, Length, Decim., and Short Description. The table lists various components such as DOOLINK_OBJKY, AELINK_AETYP, AELINK_OBJKT, CHANGED_BY, CHANGED_ON, .APPEND, .INCLUDE, ACC_OBJECT_TYPE, ACC_OBJECT_ID, ACC_REL_TYPE_OWNJ1, .APPEND, .INCLUDE, ZZBRAND, and ZZPRODTYPE.

5.3 Extend Model MM: Entity Material

Refer chapter [4.1 Extend Model MM: Entity Material](#)

Change View "Attributes": Overview

The screenshot shows the SAP Change View "Attributes": Overview dialog. The left sidebar shows a tree structure with "Dialog Structure", "Data Models", "Entity Types" (selected), "Attributes", "Business Object", "Additional Entity T", "Relationships", and "Reuse Active Areas". Under "Entity Types", "MATERIAL" is selected. The main area shows a table of attributes. The table columns are: Attribute, Data Element, Required Field, Currency/Unit, Srch help, No Existence Check, and Description. The table lists attributes like MTART, NORIT, NTGEW, PRDHA, SATNR, WRKST, YYBISMT, YYFORMAT, ZZBRAND, and ZZPRODTPY. Some attributes have descriptions in the "Description" column, such as "Material Type" for MTART and "Basic Material" for WRKST.

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Include Search Helps for the new attributes. Then also F4 Helps on the fields are available in the Search screen.

5.4 Extend Structures for Model MM

Refer chapter 4.2 and ensure that the custom attributes are part of the generated search structure for staging /MDGMM/_S_MM_ES_MATERIAL.

5.5 SMT Mapping

Refer chapter [4.3](#) and proceed similarly for the current custom attributes (ZZBRAND & ZZPRODTYPE) if the mapping is not already maintained.

5.6 Active Area: Connector for MATERIAL

5.6.1 *Template Modeler*

Check if a new Software Component and connector already exist for the MATERIAL template. If yes, then directly proceed.

Otherwise refer to Chapter 4.4.1_Template Modeler for active area and create a new software component and template.

5.6.1.1 Enhance Template MATERIAL

Enhance the template MATERIAL

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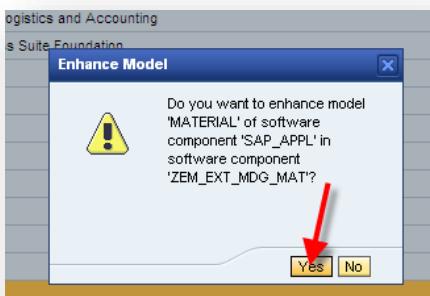
List of Models

Here you can manage models of the software component that can be edited in this system. You can also create software components and build software component stacks.

Software Component/Model	Description	Type
PLMUI	SAP PLM Web UI	Software Component
SAP_APPL	SAP_APPL Logistics and Accounting	Software Component
SAP_BS_FND	SAP Business Suite Foundation	Software Component
ZEM_EXT_MDG_MAT	EXT for MDG Material	Software Component
PLMUI	SAP PLM Web UI	Software Component
EA_APPL	SAP Enterprise Extension PLM, SCM, Finan	Software Component
SAP_BS_FND	SAP_APPL Logistics and Accounting	Software Component
[AC]	SAP Business Suite Foundation	Application Component
[CA]	Application Component	Application Component
[CO]	Application Component	Application Component
[F]	Application Component	Application Component
[IM]	Application Component	Application Component
[LO]	Application Component	Application Component
[LO-MD]	Application Component	Application Component
[LO-MD-MM]	Application Model	Application Model
MATERIAL	Material	Application Component
[IMM]	Application Component	Application Component
[PMI]	Application Component	Application Component
[PS]	Application Component	Application Component

Details: Structure of 'MATERIAL' of software component 'ZEM_EXT_MDG_MAT'

Node	Node Description
MATERIAL	Material
MATERIAL_DESCRIPTION	Material Basic Texts
QUALITY_INFO_RECORD_QMINFO_RECORD	QM-Info record attributes for enterprise search
PRODUCTION_MBOM.PRODUCTION_MBOM_ITEM	Enterprise Search Node: MBOM Item
FORMULA_FORMULA_ITEMS_SECOUT	Enterprise Search: Formula Item Data
FORMULA_FORMULA_ITEMS_PRROUT	Enterprise Search: Formula Item Data
FORMULA_FORMULA_ITEMS_INPUT	Enterprise Search: Formula Item Data
MATERIAL_PLANT	Material Plant specific data
MATERIAL_STORAGE_LOC	Storage Location Data for Material



SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component SAP_APPL

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response 6 Operations

Previous Next Cancel Finish Save

Name in Back End: ZEM_EXT_MDG_MAT-STANDARD~MATERIAL~

Select Icon [2]

Model Usage

(Application Model Technical Model Authorization Model Virtual Model)

Properties Keywords Categories Extraction Schedule

Created by:

Package: IMA
Package Description: Application development R/3 material master from 3.0

Application Component: LO-MD-MM
System Software Component: SAP_APPL

How-To: Enhance the Material Enterprise Search

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT

1 2 3 4 5

Model Properties Model Nodes Node Relations Model Requests Node Response Operation

Previous Next Cancel Finish Save

Here you decide which data provider forms the basis for the import of node metadata and data extraction for connectors of this model. Examples are "BW DataSource", "DDIC" and "XML Schema (XSD)". The list of providers depends on the model type of the software component. For "SAP BO Search", providers such as "BW DataSource" and "DDIC" are available. For model type "Data Provider Service", only file upload providers such as "XML Schema (XSD)" are available. Based on your selection, a value help is available for the "Data Provider" column. For data providers that support file upload, the value help contains a button to upload files. If "BW DataSource" is selected, BW data sources are provided in the value help. For "DDIC", you can enter table names, view names, and structure names as data providers (value help is not supported). All nodes of a model must use the same extraction technology; therefore, only set the metadata provider type before the model contains any nodes.

Metadata Provider Type: DDIC

List of Nodes of 'MATERIAL'

Here you can maintain the properties of the model nodes and their attributes.

Create Node	Delete Node	Update Node	Generate Tech. Model	Enable GOS attachments	View Switch Assignment
Node		Update Reset	* Node Description		
▪ MATERIAL			Material		
▪ MATERIAL_DESCRIPTION			Material Basic Texts		
▪ MATERIAL_GTN			International Article number for Material		
▪ MATERIAL_GTN_VENDOR			Vendor Specific EAN		
▪ MATERIAL_PLANT			Material Plant specific data		
▪ MATERIAL_PURCH_LTXT			Material Purchasing Longtext for Enterprise Search		
▪ MATERIAL_RETAIL			Material Retail and Pos Control data		
▪ MATERIAL_SALES			sales data for material		
▪ MATERIAL_SALES_LTXT			Longtext for material sales data		
▪ MATERIAL_STORAGE_LOC			Storage Location Data for Material		

Details: Attributes of Node 'MATERIAL'

Select All	Deselect All	Add ▾	Remove ▾	Where-Used	View Switch Assignment
Attribute Group/Attribute	Description	Sel.	Type		
▪ MATNR	Material Number	<input checked="" type="checkbox"/>	CHAR(18)		
▪ ERSDA	Created On	<input checked="" type="checkbox"/>	DATS(8)		
▪ ERNAM	Created By	<input checked="" type="checkbox"/>	CHAR(12)		
▪ LAEDA	Last Changed On	<input checked="" type="checkbox"/>	DATS(8)		
▪ AENAM	Changed by	<input checked="" type="checkbox"/>	CHAR(12)		

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT

Model Language: English

1 2 3 4 5 6

Model Properties Model Nodes Node Relations Model Requests Node Response Operational Data Provider

Previous Next Cancel Finish Save

Here you decide which data provider forms the basis for the import of node metadata and data extraction for connectors of this model. Examples are "BW DataSource", "DDIC" and "XML Schema (XSD)". The list of providers depends on the model type of the software component. For "SAP BO Search", providers such as "BW DataSource" and "DDIC" are available. For model type "Data Provider Service", only file upload providers such as "XML Schema (XSD)" are available. Based on your selection, a value help is available for the "Data Provider" column. For data providers that support file upload, the value help contains a button to upload files. If "BW DataSource" is selected, BW data sources are provided in the value help. For "DDIC", you can enter table names, view names, and structure names as data providers (value help is not supported). All nodes of a model must use the same extraction technology; therefore, only set the metadata provider type before the model contains any nodes.

Metadata Provider Type: DDIC

List of Nodes of 'MATERIAL'

Here you can maintain the properties of the model nodes and their attributes.

Create Node	Delete Node	Update Node	Generate Tech. Model	Enable GOS attachments	View Switch Assignment			
Node		* Node Description	* Data Source	Data Source Description	Root	Attributes	Name in Back End	
▪ MATERIAL		ES Node structure for Material head	ESO_S_MARA_MAWI	ES node structure for Material head	<input checked="" type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_DESCRIPTION		Material Basic Texts	ESO_S_MAKT_LTX	ES node structure for material short and long...	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_GTN		International Article number for Material	ESO_S_MEAN	International Article Numbers (EANs) for Mat...	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_GTN_VENDOR		Vendor Specific EAN	ESO_S_MLEA	Vendor-Specific EANs	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_PLANT		Material Plant specific data	ESO_S_MARC	Plant specific data for material	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_PURCH_LTXT		Material Purchasing Longtext for Enterprise Search	ESO_S_PURCH_LONGTEXT	Material Purchasing Longtext for Enterprise S...	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_RETAIL		Material Retail and Pos Control data	ESO_S_WLK2	Retail/Pos control data	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_SALES		sales data for material	ESO_S_MVKE	sales data for material	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_SALES_LTXT		Longtext for material sales data	ESO_S_MVKE_LONGTEXT	Longtext for material sales data	<input type="radio"/>	<input checked="" type="checkbox"/>		
▪ MATERIAL_STORAGE_LOC		Storage Location Data for Material	ESO_S_MIARD	Storage Location Data for Material	<input type="radio"/>	<input checked="" type="checkbox"/>		

Details: Attributes of Node 'MATERIAL'

Select All	Deselect All	Add ▾	Remove ▾	Where-Used	View Switch Assignment					
Attribute Group/Attribute	Description	Sel.	Type	Key	Name in Back End	Cont. Text	Conversion	Semantics	No Extraction	Switch
▪ VDBFL	To	<input type="checkbox"/>	DATS(8)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ VDBZL	From	<input type="checkbox"/>	DATS(8)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ WBWSP	Val/margin	<input type="checkbox"/>	DEC(8)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ WEXPM	Un	<input type="checkbox"/>	UNIT(3)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ KWDHT	NRK	<input type="checkbox"/>	CHAR(1)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ PRERF	r	<input type="checkbox"/>	CHAR(1)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ R8ZUL	D	<input type="checkbox"/>	CHAR(1)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ ZZBRAIND	ZEM Brand	<input type="checkbox"/>	CHAR(3)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
▪ ZZPRODTYPE	Prod Type	<input type="checkbox"/>	CHAR(1)	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>

How-To: Enhance the Material Enterprise Search

Details: Attributes of Node 'MATERIAL'					
Attribute Group/Attribute		* Description	Sel.	Type	Key
▪ ACC_OBJECT_ID		Internal Key	<input checked="" type="checkbox"/>	CHAR(90)	<input type="checkbox"/>
▪ ACC_REL_TYPE_OWNING		Relationship Type	<input checked="" type="checkbox"/>	CHAR(1)	<input type="checkbox"/>
▪ ZZBRAND		ZEM Brand	<input checked="" type="checkbox"/>	CHAR(3)	<input type="checkbox"/>
▪ ZZPRODTYPE		Prod Type	<input checked="" type="checkbox"/>	CHAR(1)	<input type="checkbox"/>

5.6.1.2 Add attributes to the Request Fields

The screenshot shows the SAP Modeler for Search and Analytics interface. The main window displays a model named 'MATERIAL' for 'Software Component ZEM_EXT_MDG_MAT'. The 'Model Requests' tab is selected. A red arrow points to the 'Select Request Attributes' dialog box, which is overlaid on the main window. This dialog lists various attributes for the 'MATERIAL' node, such as 'MATERIAL_DESCRIPTION', 'MATERIAL_PLANT', and 'ZZBRAND'. The 'ZZBRAND' and 'ZZPRODTYPE' attributes are highlighted in yellow, indicating they are being selected for inclusion in the request fields.

5.6.1.3 Add attributes to the Response Fields

- Until MDG6.1

The search result list only contains attributes defined in the entities MATERIAL, MARAPURCH or MARASALES. Attributes defined in other entities are not mapped between active and staging format. However, you can define an overwrite exit for method CL_MDG_BS_MAT_PP_SEARCH->IF_BADI_SDQ_PP_SEARCH~SEARCH_PP to consider attributes in custom defined entities having a 1:1 relationship to MATERIAL. Only in this case you have to add the attributes to the response fields (see [5.6.1.3](#)). Then you have to do the customizing (see chapter [4.6](#)) and the enhancement of the result list (see chapter [9.1](#)).

- From MDG7.0

Make sure that SAP Notes 2110371, 2106708, 2095659, 2098606, 2106680, 2108051 are implemented. Then there is no need for the overwrite exit anymore. Also, you don't need to enhance the response fields in the template. Only customizing (see chapter [4.6](#)) and the enhancement of the result list (see chapter [9.1](#)) is necessary.

How-To: Enhance the Material Enterprise Search

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT

Structure of 'MATERIAL'

Here you can define different search settings that depend on a model node.

Model Properties **Model Nodes** **Node Relations** **Model Requests** **Node Response** **Operational Data Provider**

Authorization **Response Attributes** **Extraction Filter**

Details: Attributes of Node 'MATERIAL'

Here you can define response attributes. Response attributes for exactly one node can be maintained if these are text nodes (language code attribute property set in the Model Nodes step) or nodes that are linked with cardinality up to one or exactly one.

Add ▾ Remove ▾ Move ▾ View Switch Assignment

Attribute Group/Attribute	Description
MATERIAL_EXT	Material Number Ext
ACC_D_EXTERNAL	Context
MATX	Material Type Description
MTBEZ	Material Type Description
ERSDA	Created On
ERNAM	Created By
CHANGED_BY	Changed By
STATUS_DESC1	Status Description
CHANGED_ON	Changed On
PRDHA	Material Type Description

Select Response Attribute(s)

Models and Nodes

Node	Description	Model	Cardinality	Association
MATERIAL	ES Node structure for Material head	MATERIAL	0..n	
MATERIAL_DESCRIPTION	Material Basic Texts	MATERIAL	0..n	
MATERIAL_PURCH_LTXT	Material Purchasing Longtext for Enterprise Search	MATERIAL	0..n	
MATERIAL_TEXT_UOM	Material Master Texts per Unit of Measure and Text ID	MATERIAL	0..n	
MTART_MTART	Material type	MTART	0..1	ESO_S_MARA_MA...
MERSH_MERSH	Industry sector key (material a...)	MERSH	0..1	ESO_S_MARA_MA...
MATKL_MATKL	Material class	MATKL	0..1	ESO_S_MARA_MA...
MEINS_MEINS	Units of Measurement of Vario...	MEINS	0..1	ESO_S_MARA_MA...
TRAOR_TRAOR	Transport group	TRAOR	0..1	ESO_S_MARA_MA...
SAISO_SAISO	Season indicator (season ext.)	SAISO	0..1	ESO_S_MARA_MA...

Details: Attributes of Node 'MATERIAL'

Attribute Group/Attribute	Description	Type
DOCLINK_DOKOB	Material Object	CHAR(10)
CHANGED_ON	Changed On	DAT(S8)
AELINK_OBJKEY	Linked Material Number	CHAR(50)
AELINK_OBJCAT	Material Link Object Category	NUMC(2)
ACC_OBJECT_TYPE	Object Type	CHAR(10)
ACC_OBJECT_ID	Internal Key	CHAR(90)
ACC_REL_TYPE_OWNING	Relationship Type	CHAR(1)
ZZBRAND	ZEM Brand	CHAR(3)
ZZPRODTYPE	Prod Type	CHAR(1)

Details: Attributes of Node 'MATERIAL'

Attribute Group/Attribute	Description	Type
SELECTED	Selected Path	MATERIAL

Legend | **View**

Description

Details

Summary

Thumbnail

Title

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT

Structure of 'MATERIAL'

Here you can define different search settings that depend on a model node.

Model Properties **Model Nodes** **Node Relations** **Model Requests** **Node Response** **Operational Data Provider**

Authorization **Response Attributes** **Extraction Filter** **Related Actions**

Details: Attributes of Node 'MATERIAL'

Here you can define response attributes. Response attributes for other nodes than the selected one can be maintained if these are text nodes (language code attribute property set in the Model Nodes step) or nodes that are linked with cardinality up to one or exactly one.

Add ▾ Remove ▾ Move ▾ View Switch Assignment

Attribute Group/Attribute	Description	Select Path	Reference Node	Reference Attribute Na...	Ref. Attribute Description	Type	Hide label	Separator sign	Switched
ILOOS	Indicator: In Bulk/Liquid	Select Path	MATERIAL	ILOOS	Indicator: In Bulk/Liquid	CHAR(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MTROS_MARA	General item category group	Select Path	MATERIAL	MTROS_MARA	General item category group	CHAR(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
WHSTC	Warehouse Storage Condition	Select Path	MATERIAL	WHSTC	Warehouse Storage Condition	CHAR(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
WHMATGR	Warehouse Material Group	Select Path	MATERIAL	WHMATGR	Warehouse Material Group	CHAR(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HNDLCODE	Handling Indicator	Select Path	MATERIAL	HNDLCODE	Handling Indicator	CHAR(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HAZIMAT	Relevant for Hazardous Substa...	Select Path	MATERIAL	HAZIMAT	Relevant for Hazardous Substa...	CHAR(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BRAND_ID	Brand	Select Path	MATERIAL	BRAND_ID	Brand	CHAR(4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ZZBRAND	ZEM Brand	Select Path	MATERIAL	ZZBRAND	ZEM Brand	CHAR(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ZZPRODTYPE	Prod Type	Select Path	MATERIAL	ZZPRODTYPE	Prod Type	CHAR(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MFRPN	Manufacturer Part Number	Select Path	MATERIAL	MFRPN	Manufacturer Part Number	CHAR(40)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

How-To: Enhance the Material Enterprise Search

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT

Structure of 'MATERIAL'

Node	Node Description	Response Attributes	Auth.
MATERIAL	ES Node structure for Material head	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MATERIAL_DESCRIPTION	Material Basic Texts	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MATERIAL_PLANT	Material Plant specific data	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MATERIAL_STORAGE_LOC	Storage Location Data for Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MATERIAL_PURCH_LTXT	Material Purchasing Longtext for Enterprise Search	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL_RETAIL	Material Retail and Pos Control data	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL_SALES	sales data for material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MATERIAL_SALES_LTXT	Longtext for material sales data	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL_TEXT_UOM	Material Master Texts per Unit of Measure and Text ID	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL_UOM	Units of Measure for Material	<input type="checkbox"/>	<input type="checkbox"/>

Details: Attributes of Node 'MATERIAL'

Description	Select Path	Reference Node	Reference Attribute Name	Ref. Attribute Description	Type	Hide label	Separator sign	Switched
Material Number Ext	Select Path	MATERIAL	MATNR_EXT	Material Number Ext	CHAR(40)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Context	Select Path	MATERIAL(MAT_OWNING)	ACC_ID_EXT	Context	CHAR(24)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Description	Select Path	MATERIAL->MATERIAL_DE	MAKTX	Material Description	CHAR(40)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Type Description	Select Path	MATERIAL(MATERIAL_TYPE)	MTBEZ	Material Type Description	CHAR(25)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Created On	Select Path	MATERIAL	ERSDA	Created On	DAT(S8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Created By	Select Path	MATERIAL	ERINAM	Created By	CHAR(12)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Changed By	Select Path	MATERIAL	CHANGED_BY	Changed By	CHAR(12)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Save and Finish.

5.6.1.4 Create Connector for Material

List of Models

Here you can manage models of the software component that can be edited in this system. You can also create software components and build software component stacks.

Actions	Description
View Models	SAP_APPL:Logistics and Accounting
View Inactive Connectors	SAP Business Suite Foundation
View Active Connectors	
Version Management	
Graphical Model Viewer	
Copy Software Component	
Resolve Conflicts	
Create Classification Model	
Create Connector	
View Switch Assignment	

How-To: Enhance the Material Enterprise Search

5.6.2 Administration Cockpit

5.6.2.1 Update Connector Material

The screenshot shows the SAP Connector Administration Cockpit interface. The main table lists various connectors, and the 'Material' connector is selected. In the 'Details of "Material"' panel, the 'Software Component' field is highlighted with a red box, showing the value 'ZEM_EXT_MDG_MAT'. Other fields include Connector Name (Material), Connector ID (EV5405-MATERIAL~), Connector Type (Embedded Search), Technical Object Type (MATERIAL), Node Name (empty), Status (Active), Enhanced (unchecked), Package (MGA), and Application Component (LO-MD-MM).

5.6.2.2 Schedule Indexing

The screenshot shows the SAP Connector Administration Cockpit interface. The main table lists various connectors, and the 'Material' connector is selected. In the 'Details of "Material"' panel, the 'Status' field is highlighted with a red box, showing the value 'Prepared'. Other fields are identical to the previous screenshot.

How-To: Enhance the Material Enterprise Search

Schedule Indexing for "Material"

Define indexing schedules for the object types of this connector and its dependent connectors. Enter values directly in the table or use the input form.

Start Time
 Start Immediately Start Date: Start Time: 00:00:00

Recurrence Period
 Real-Time Indexing Months: 00 Weeks: 00 Days: 000 Hours: 00

Indexing Mode
 Full Indexing Mode:

Copy Settings 

Object	Object Type	Status	Start Immed...	Start Date	Start Time	Full Indexing M...	Real-Time I...	Months	Weeks	Days	Hours
ACCESS_CONTROL...	Business Object	Prepared	<input type="checkbox"/>	02.11.2010	11:09:02	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
BUKRS	Technical Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:44	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
EKORG	Technical Object	Active	<input type="checkbox"/>	02.11.2010	09:59:44	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
DOCUM_KPRO_ORI...	Technical Object	Active	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
LAND1	Technical Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
DOCUM_KPRO_ORI...	Technical Object	Active	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
PLANT	Technical Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:45	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
ACC_USER_GROUP	Authorization Object	Active	<input type="checkbox"/>	02.11.2010	11:09:02	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
PRODUCTION_MBOM	Business Object	Prepared	<input type="checkbox"/>	02.11.2010	09:59:51	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00
ACC_SID	Authorization Object	Active	<input type="checkbox"/>	02.11.2010	11:09:03	<input type="checkbox"/>	<input type="checkbox"/>	00	00	000	00

OK **Cancel**

Connector Administration Cockpit

Here you can monitor and administrate search object connectors.

Search Object Connectors

Connector Name	Connector ID	Modified	Search	Analytics	Status	Index ID	Last Indexing
Access Control Context	EV5405-ACCESS_CONTROL_CTX~	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active		07.03.2011 12:43:41
Characteristic - Property	EV5405-CLES_PROPERTY~	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active		02.11.2010 10:22:51
Class and Class Characteristic assignment	EV5405-CLES_CLASS~	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active		07.03.2011 12:48:44
Document Info Record	EV5405-DOCUM_INFO_REC~	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active		07.03.2011 12:48:56
Engineering Change Order	EV5405-ENGIN_CHANGE_ORDER~	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active		07.03.2011 12:49:11
MDG Material	EV5405-MDG_MATERIAL~	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prepared		08.11.2010 18:12:30
Material	EV5405-MATERIAL~	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active		07.03.2011 12:45:48
Physical Indices	EV5405-MATERIAL~						
Logical Indices	EV5405-MATERIAL~						
Shared Indices	EV5405-MATERIAL~						

Details of "Material"

General **Schedules** **Job Log** **Categories**

Connector Name: Material

Connector ID: EV5405-MATERIAL~

Connector Type: Embedded Search

Technical Object Type: MATERIAL

Node Name:

Software Component: ZEM_EXT_MDG_MAT

Search Provider: EV5CLNT405

Status: Active

Enhanced:

Package: IMA

Application Component: LO-MD-MM

5.6.3 Test Connector Material

Report ESH_TEST_SEARCH:

The screenshot shows the SAP Enterprise Search Test interface. On the left, there are search parameters: From (1), To (500), Object type (selected), Category, Template ID, Connector ID (EV5405-MATERIAL~), and Request. Below these are sections for Search Language (optional) and Freestyle Search (Search Term: *). A checked checkbox indicates Request Attribute-Based Search. Under this, there is an Attribute-Based Search section with Attribute 1 (ZZBRAND1), Value 1 (Value 1 field), AND Attribute 2, and Value 2 (Value 2 field). There is also an unchecked checkbox for Add Constraints, and a Constraints section with Semantic Type and Semantic Value fields. At the bottom are checkboxes for Log Search Request and Suppress Screen Output.

Restrictions

Request	Request Field	Type	Length	Semantic Classificati...	Description
DEFAULT	WTWEG	CHAR	2	Retail:Distribut...	
DEFAULT	WTWEG1	CHAR	2	Sales:Retail:Di...	
DEFAULT	WTWEG_TEXT	CHAR	60	Retail:Distribut...	
DEFAULT	WTWEG_TEXT1	CHAR	60	Text Field of Le...	
DEFAULT	WBKLA	CHAR	4	Valuation Class...	
DEFAULT	WEKGR	CHAR	3	Purchasing Gro...	
DEFAULT	WERKS	CHAR	4	Plant	
DEFAULT	WERKS1	CHAR	4	Plant	
DEFAULT	WGBEZ	CHAR	20	Material Group	
DEFAULT	WGBEZ60	CHAR	60	Material Group	
DEFAULT	WHERL	CHAR	3	Country of origi...	
DEFAULT	WHERR	CHAR	3	Region of origin	
DEFAULT	WHMATGR1	CHAR	4	Warehouse Ma...	
DEFAULT	WHSTC1	CHAR	2	Warehouse Sto...	
DEFAULT	WLADG	CHAR	4	Loading Group	
DEFAULT	WPSTA	CHAR	15	Retail maintena...	
DEFAULT	WRKST1	CHAR	48	Basic Material	
DEFAULT	WSTAW	CHAR	17	Commodity Co...	
DEFAULT	ZEIAR1	CHAR	3	Document type	
DEFAULT	ZEIIFO	CHAR	4	Page format of	
DEFAULT	ZEINR1	CHAR	22	Document num...	
DEFAULT	ZEIVR1	CHAR	2	Document vers...	
DEFAULT	ZZBRAND1	CHAR	3	ZEM Brand	
DEFAULT	ZZPRODTYPE1	CHAR	1	Prod Type	
Generic	SESH_IDS	STRING	000000	Enterprise Sea...	

243 Entries found

5.7 Staging Area: Connector for MDG

Refer chapters [4.5.1](#) Template Modeler to [4.5.3](#) Test Connector: ZMDG_MATERIAL

5.8 Customizing

Refer chapter [4.6](#) Customizing.

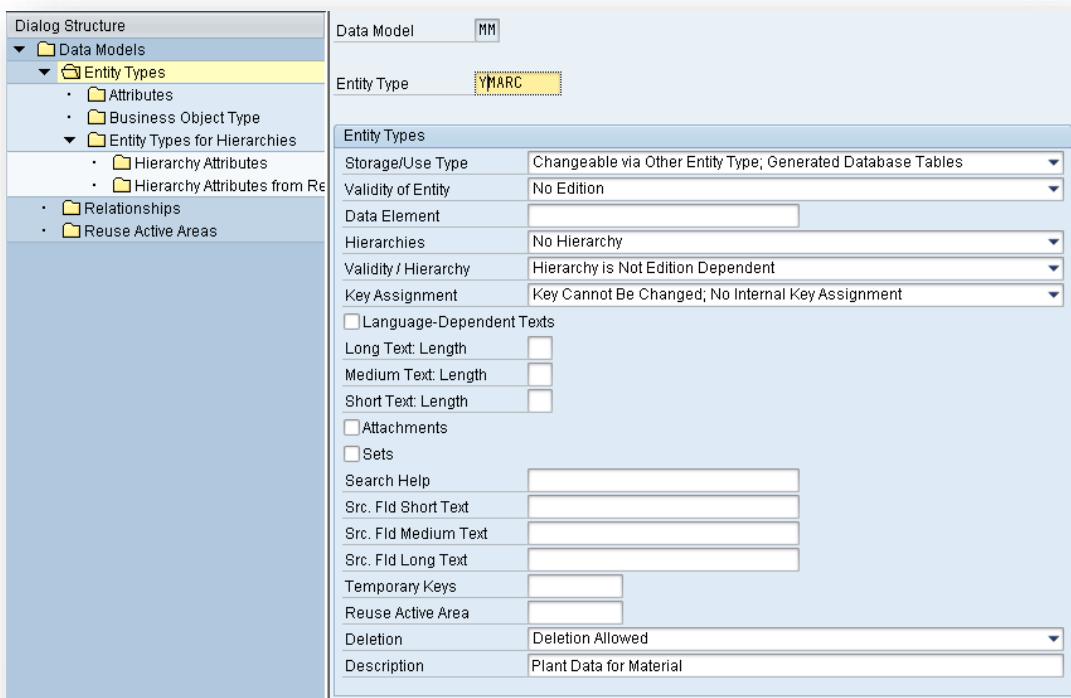
6. STEP-BY-STEP PROCEDURE: EXTEND WITH EXISTING ENTITY (REUSE)

Scenario:

You have extended the standard Material Data model MM with an existing underlying SAP reuse table like MARC. For example, you created a Plant Entity (YMARC) with attributes of the Plant and you want to perform searches based on these entity attributes.

6.1 Extend Model: Entity Plant (YMARC)

Refer to the standard extensibility guide on how to extend data model by additional entities. Screenshot below shows an example.



6.2 Extend Structures for Model

Refer chapter [4.2 Extend Structures for Data Model](#) and follow it for the YMARC entity.

6.3 SMT Mapping

Refer chapter [4.3 SMT Mapping](#) and maintain the mapping if it is not already maintained.

6.4 Active Area: Connector for MATERIAL

Check if the connector exists for the MATERIAL template. The search MATERIAL template will also have the Plant node delivered as standard. If it does not exist, then refer chapters [5.6.1.1 Enhance Template MATERIAL](#) and [5.6.1.2 Add attributes to the Request Fields](#) to create a connector for MATERIAL that includes the PLANT node.

Next, refer to chapters [5.6.1.3](#) to [5.6.3](#) to add Plant attributes to the MATERIAL search template request and response fields, create and update connectors, schedule indexing, and test the connector.

6.5 Staging Area: Connector for MDG

Refer chapters [4.5.1](#) Template Modeler to [4.5.3](#) Test Connector: ZMDG_MATERIAL and follow the process for the Plant attributes.

6.6 Customizing

Refer chapter [4.6 Customizing](#).

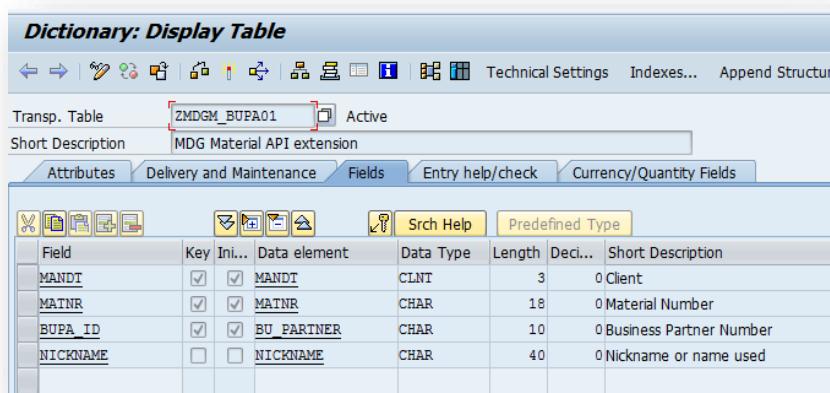
7. STEP-BY-STEP PROCEDURE: EXTEND WITH CUSTOM ENTITY (REUSE)

Scenario:

You have introduced a new table (ZMDGM_BUPA01) to the reuse area (ECC) to maintain nicknames for materials. The table uses the fields MATNR (that refers to MATNR of MARA) and BUPA_ID (a unique Business Partner ID) as key fields, and a non-key field NICKNAME that contains a nickname for the material. You also may have extended the standard material views with an additional view to maintain this information.

To govern this data with MDG for Material, you have extended the standard MDG Material data model (MM) with the new custom entity and its corresponding attributes. Now you want to perform searches for materials based on the new attributes.

7.1 Backend: New Table ZMDGM_BUPA01

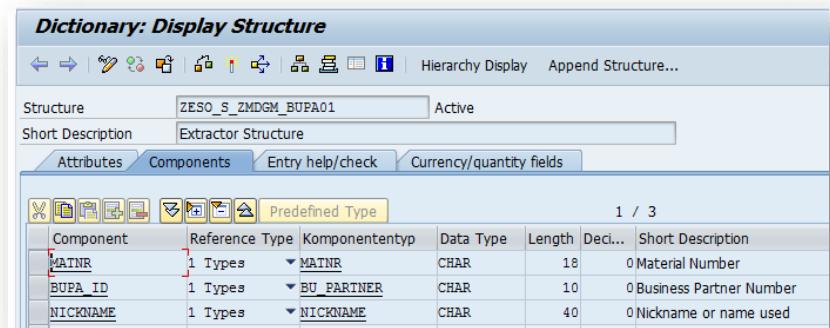


The screenshot shows the SAP Dictionary: Display Table interface. The table structure is as follows:

Field	Key	Ini...	Data element	Data Type	Length	Deci...	Short Description
MANDT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MANDT	CLNT	3	0	Client
MATNR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MATNR	CHAR	18	0	Material Number
BUPA_ID	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BU_PARTNER	CHAR	10	0	Business Partner Number
NICKNAME	<input type="checkbox"/>	<input type="checkbox"/>	NICKNAME	CHAR	40	0	Nickname or name used

7.2 Create ES Structure for ZMDGM_BUPA01: ZESO_S_ZMDGM_BUPA01

You must create a new Enterprise Search structure, ZESO_S_ZMDGM_BUPA01 because there is a 1: n relationship between MARA and ZMDGM_BUPA01.



The screenshot shows the SAP Dictionary: Display Structure interface. The structure components are as follows:

Component	Reference Type	Komponententyp	Data Type	Length	Deci...	Short Description
MATNR	1 Types	▼ MATNR	CHAR	18	0	Material Number
BUPA_ID	1 Types	▼ BU_PARTNER	CHAR	10	0	Business Partner Number
NICKNAME	1 Types	▼ NICKNAME	CHAR	40	0	Nickname or name used

Note:

If there is a 1:1 relationship between the backend table and the <NEW_TABLE>, then the attributes can be added to the existing structures (such as ESO_S_MARA_MAW1, ESO_S_MARC, ESO_S_MARD, ESO_S_MARM, and ESO_S_MEAN, ESO_S_MVKE). Refer to chapter [5.2](#) and follow the process to extend the existing structure.

7.3 Extend the Extraction Logic for the new ES node

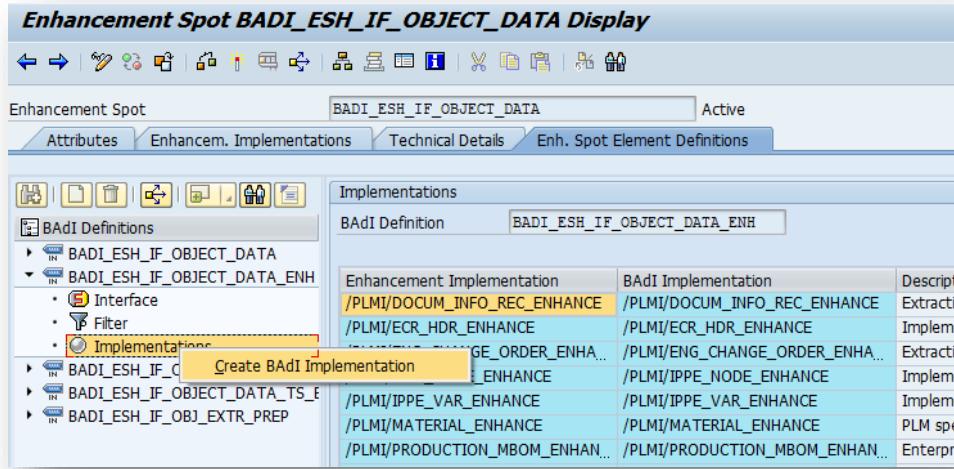
You need to enhance the extraction logic to get the data for the new Enterprise Search node created for ZMDGM_BUPA01 from the database into enterprise search.

Create a BADI implementation for BADI_ESH_IF_OBJECT_DATA_ENH (enhancement spot BADI_ESH_IF_OBJECT_DATA).

How-To: Enhance the Material Enterprise Search

Use the following filter values:

- IV_OBJECT_TYPE_ID = 'MATERIAL'
- IV_SOFTWARE_COMPONENT = 'Your new software component' (see chapter [4.4.1.1 Create new Software Component](#)).



How-To: Enhance the Material Enterprise Search

Provide implementation for the method GET_DATA. See sample code below.

Class Builder: Class ZCL_CUSTOM_TABLE Change

Method IF_BADI_ESH_IF_OBJECT_DATA_ENH-GET_DATA Active (Revised)

```
1 METHOD if_badi_esh_if_object_data_enh~get_data.
2
3   DATA lt_bupa TYPE TABLE OF zmdgm_bupa01.
4   DATA ls_bupa TYPE zmdgm_bupa01.
5   DATA lt_bupa_tmp TYPE TABLE OF zmdgm_bupa01.
6
7   DATA lr_node_data TYPE REF TO data.
8   FIELD-SYMBOLS <ls_extraction> TYPE esh_s_if_extract_node.
9   FIELD-SYMBOLS <ls_object_id> TYPE any.
10  FIELD-SYMBOLS <lt_node_material> TYPE STANDARD TABLE.
11  FIELD-SYMBOLS <ls_node_material> TYPE any.
12  FIELD-SYMBOLS <lv_matnr> TYPE matnr.
13  FIELD-SYMBOLS <ls_bupa> TYPE zmdgm_bupa01.
14
15  CLEAR et_messages.
16
17  READ TABLE it_object_extraction ASSIGNING <ls_extraction> WITH TABLE KEY
18    node_type_id = cl_material_extract=>gc_node_material.
19  IF sy-subrc <> 0.
20    RETURN.
21  ENDIF.
22
23  ASSIGN <ls_extraction>-modify_table_ref->* TO <lt_node_material>.
24
25  LOOP AT it_object_ids ASSIGNING <ls_object_id>.
26    ASSIGN COMPONENT 'MATNR' OF STRUCTURE <ls_object_id> TO <lv_matnr>.
27    ls_bupa-matnr = <lv_matnr>.
28    INSERT ls_bupa INTO TABLE lt_bupa_tmp.
29  ENDLOOP.
30
31  SELECT * INTO TABLE lt_bupa FROM zmdgm_bupa01 FOR ALL ENTRIES IN lt_bupa_tmp
32  WHERE matnr = lt_bupa_tmp-matnr.
33
34  CREATE DATA lr_node_data LIKE LINE OF <lt_node_material>.
35  ASSIGN lr_node_data->* TO <ls_node_material>.
36
37  LOOP AT lt_bupa ASSIGNING <ls_bupa>.
38    MOVE-CORRESPONDING <ls_bupa> TO <ls_node_material>.
39    APPEND <ls_node_material> TO <lt_node_material>.
40  ENDLOOP.
41  ENDMETHOD.
```

How-To: Enhance the Material Enterprise Search

Provide implementation for the method NEXT. See sample code below.

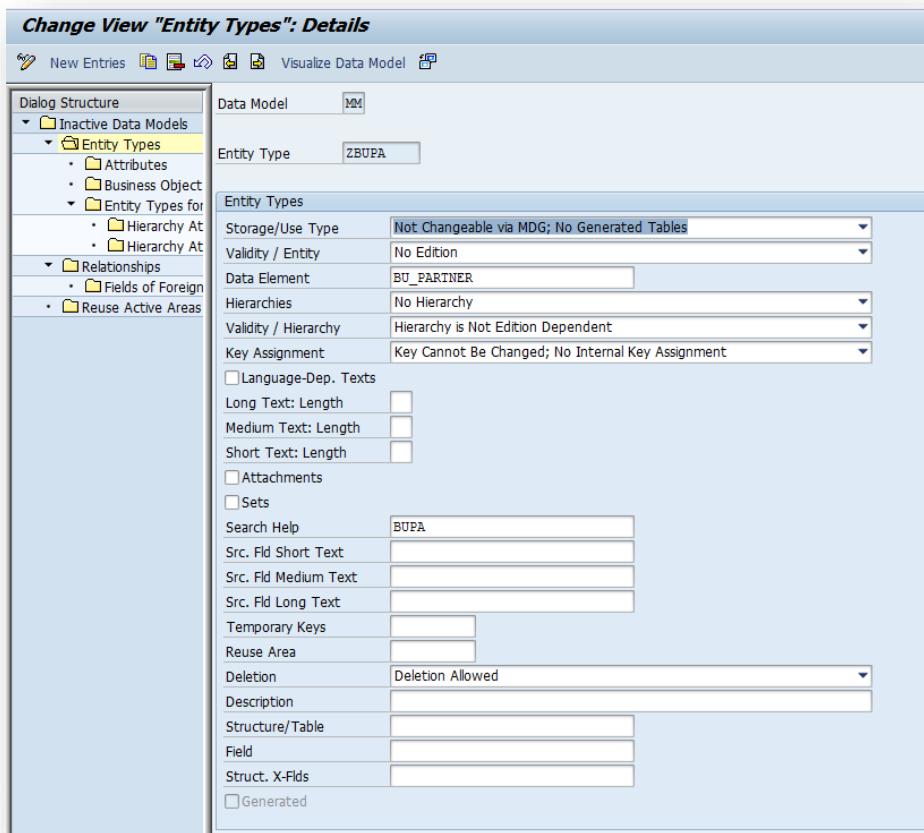
Class Builder: Class ZCL_CUSTOM_TABLE Change

Method IF_BADI_ESH_IF_OBJECT_DATA_ENH-NEXT Active (Revised)

```
1 METHOD if_badi_esh_if_object_data_enh-next.
2
3   CONSTANTS lc_fn_matnr TYPE fieldname VALUE 'MATNR'.
4
5   DATA ls_node_append    TYPE /plmi/s_mat_eso_acc_obj.
6   DATA ls_bupa TYPE zmdgm_bupa01.
7
8   FIELD-SYMBOLS <lt_node_material> TYPE STANDARD TABLE.
9   FIELD-SYMBOLS <ls_node_material> TYPE any.
10  FIELD-SYMBOLS <lv_matnr>      TYPE matnr.
11  FIELD-SYMBOLS <ls_extraction> TYPE esh_s_if_extract_node.
12
13  READ TABLE it_object_extraction ASSIGNING <ls_extraction> WITH TABLE KEY
14    node_type_id = cl_material_extract->gc_node_material.
15  IF sy-subrc = 0.
16    RETURN.
17  ENDIF.
18
19  ASSIGN <ls_extraction>-modify_table_ref->* TO <lt_node_material>.
20
21  LOOP AT <lt_node_material> ASSIGNING <ls_node_material>.
22    ASSIGN COMPONENT 'MATNR' OF STRUCTURE <ls_node_material> TO <lv_matnr>.
23
24    SELECT * INTO ls_bupa FROM zmdgm_bupa01 WHERE matnr = <lv_matnr>.
25    ENDSELECT.
26
27  IF sy-subrc <> 0.
28    RETURN.
29  ENDIF.
30  ENDLOOP.
31
32
33 ENDMETHOD.
```

7.4 Extend Model MM: Entity ZBUPA

Refer to the standard extensibility guide on how to extend data model with additional entities. Follow the process for the new entity ZBUPA.



7.5 Extend Structures for Model MM

Refer to chapter [4.2 Extend Structures for Data Model](#) and follow the process for the entity ZBUPA.

7.6 SMT Mapping

Refer to chapter [4.3 SMT Mapping](#) for general steps on how to extend the mappings and extend the mappings if not already done during data model extension.

7.7 Active Area: Connector for MATERIAL

The search MATERIAL template does not have the new custom entity/attributes by default. Extend the template for the MATERIAL with the node that corresponds to the new entity.

Refer to chapters [5.6.1.1 Enhance Template MATERIAL](#), [5.6.1.2 Add attributes to the Request Fields](#) and [5.6.1.3 Add attributes to the Response Fields](#) to first create the new software component and then the connector for MATERIAL that also includes the new custom node for ZMDGM_BUPA01.

Enhance the Template Material. Refer to chapter [5.6.1.1](#) and [5.6.1.2](#).

How-To: Enhance the Material Enterprise Search

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT_TEST1

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response 6 Operational Data Provider

Previous Next Cancel Finish Save

Here you decide which data provider forms the basis for the import of node metadata and data extraction for connectors of this model. Examples are "BW DataSource", "DDIC", and "XML Schema (XSD)". The list of providers available for the "Data Provider" column. For model type "Data Provider Service", only file upload providers such as "XML Schema (XSD)" are available. Below the table, you can enter table names, view names, and structure names as data providers (value help is not supported). All nodes of a model must use the same extraction technology; therefore, provider type before the model contains any nodes.

Metadata Provider Type: DDIC

List of Nodes of 'MATERIAL'

Create Node Delete Node Update Node | Generate Tech. Model Enable GOS attachments | View Switch Assignment

Node	Node Description	* Data Source	Data Source Description	* Root	Attributes
MATERIAL_PLANT	Material Plant specific data	ESO_S_MARC	Plant specific data for material	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_PLANT_FLEX	Flex entity	ZXX_S_MM_ES_YMARC3	Structure for Enterprise Search	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_PURCH_LTXT	Material Purchasing Longtext for Enterprise S...	ESO_S_PURCH_LONGTEXT	Material Purchasing Longtext for E...	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_RETAIL	Material Retail and Pos Control data	ESO_S_WLK2	Retail/Part POS control data	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_SALES	sales data for material	ESO_S_MVKE	sales data for material	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_SALES_LTXT	Longtext for material sales data	ESO_S_MVKE_LONGTEXT	Longtext for material sales data	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_STORAGE_LOC	Storage Location Data for Material	ESO_S_MARD	Storage Location Data for Material	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_TEXT_UOM	Material Master Texts per Unit of Measure an...	ESO_S_MAMT	Material Master Texts per Unit of M...	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_UOM	Units of Measure for Material	ESO_S_MARM	Units of Measure for Material	<input type="radio"/>	<input checked="" type="checkbox"/>
MATERIAL_ZMDGM_BUPA0	Material Business Partner	ZESO_S_ZMDGM_BUPA01	Extractor Structure	<input checked="" type="radio"/>	<input checked="" type="checkbox"/>

Details: Attributes of Node 'MATERIAL_ZMDGM_BUPA0'

Select All Deselect All Add ▾ Remove ▾ Where-Used View Switch Assignment

Attribute Group/Attribute	Description	Sel.	Type	Key	Name in Back End	Cont. Text	Conversion	Semantics
MATNR	Material Number	<input checked="" type="checkbox"/>	CHAR(18)	<input checked="" type="checkbox"/>	MATNR	<input type="checkbox"/>		
BUPA_ID	Business Partner ID	<input checked="" type="checkbox"/>	CHAR(10)	<input type="checkbox"/>	BUPA_ID	<input type="checkbox"/>	ALPHA (leading ze...	
NICKNAME	Nickname or name used	<input checked="" type="checkbox"/>	CHAR(40)	<input type="checkbox"/>	NICKNAME	<input type="checkbox"/>		

Provide the composition from the ROOT node (in this case MATERIAL) to the new node.

Go to the Node Relations step. Select the MATERIAL node and create a composition by choosing the Create button.

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT_TEST1

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response

Previous Next Cancel Finish Save

Structure of 'MATERIAL'

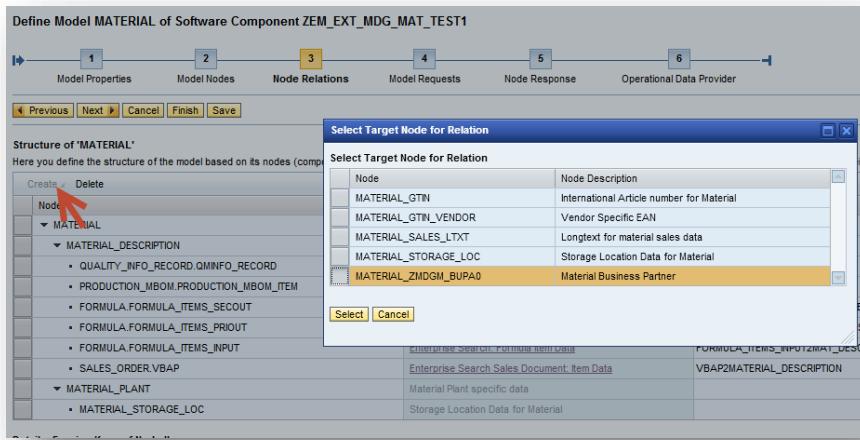
Here you define the structure of the model based on its nodes (composition). You can also add relationships to other model nodes.

Create ▾ Delete

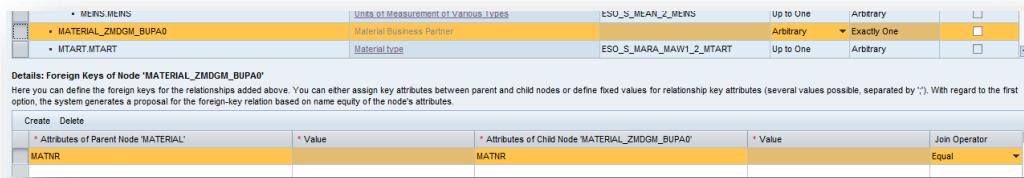
Composition	Node Description
Association	Material
Node	Material Basic Texts
MATERIAL_DESCRIPTION	QM-info record attributes for enterprise search
QUALITY_INFO_RECORD.QMINFO_RECORD	QM-Info record attributes for enterprise search
PRODUCTION_MBOM.PRODUCTION_MBOM_ITEM	Enterprise Search Node: MBOM Item

How-To: Enhance the Material Enterprise Search

Create a composition for the MATERIAL_ZMDGM_BUPA0 node.

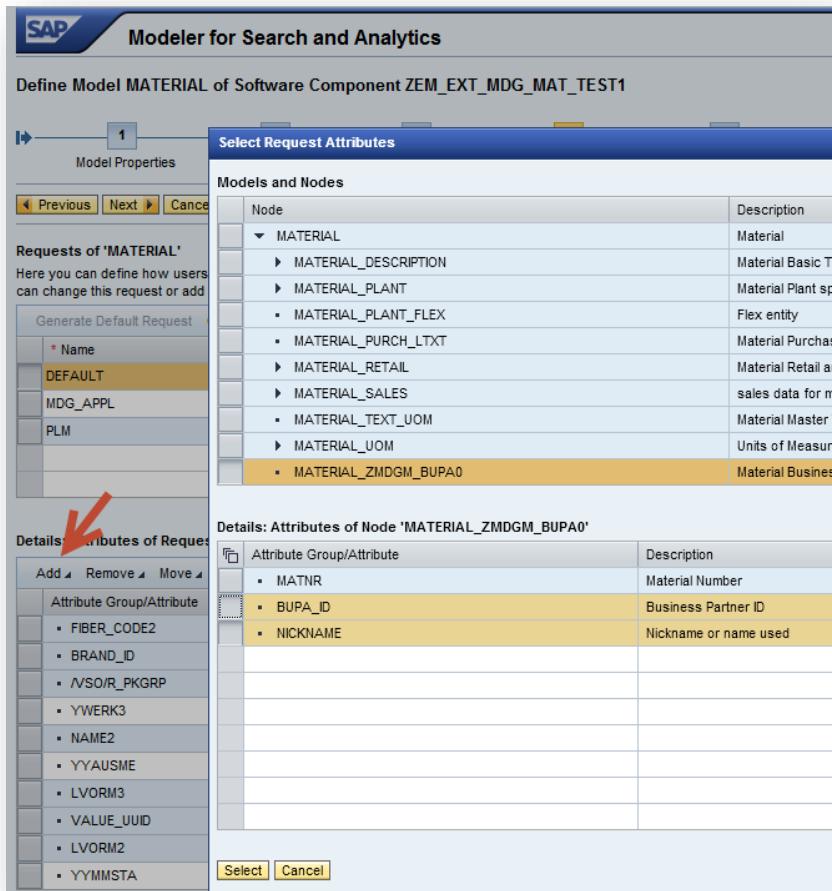


In the foreign keys section below, generate/maintain the foreign keys appropriately.

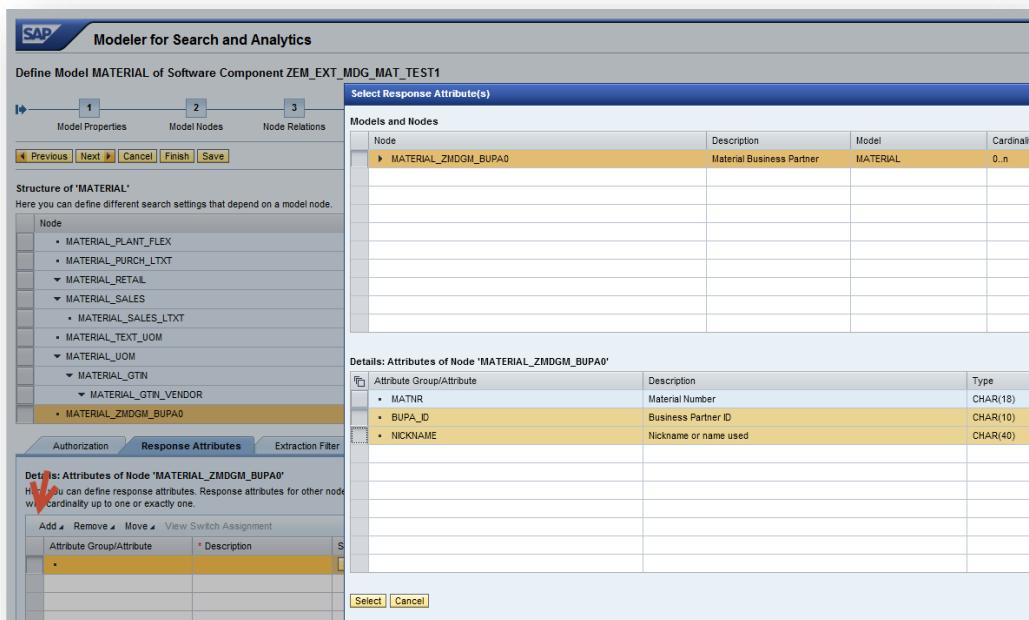


How-To: Enhance the Material Enterprise Search

Add attributes to the Request Attributes. Refer to chapter [5.6.1.2 Add attributes to the Request Fields](#)



Add to the Response Attributes. Refer to chapter [5.6.1.3 Add attributes to the Response Fields](#)



If necessary, update your existing connector and schedule it again. Refer to chapters [5.6.1.4](#) to [5.6.3](#) to create and update connectors, schedule indexing, and test the connector.

7.7.1 BAdI Implementation: GET_ES_NODEINFO Method

You only need to implement this method if you want to search with the custom attributes of this Custom node. A new enhancement implementation has to be provided for the enhancement spot MDG_BS_MAT_API_SEGMENTS_EXT. You can also find this in the customizing Master Data Governance for Material -> Business Add-Ins-> BAdI: Extension of the API with Customer-Specific Segments.

Implement method GET_ES_NODEINFO if you have extended the enterprise search model MATERIAL. See also extensibility guide <http://scn.sap.com/docs/DOC-27859>.

With this method, you get the node name in the Enterprise Search template for the given customer-defined database table with parameters ET_ES_NODENAME.

In case of Material Template extension (with new node) apart from the BADI the mapping should be based on SMT between Staging and Active.

```

METHOD if_mdg_bs_mat_api_segments_ext~get_es_nodeinfo.

DATA: lv_es_node      TYPE tbnam.

*Exports nodename of BUPA for Search Extension
lv_es_node = 'MATERIAL_ZMDGM_BUPA0'

APPEND lv_es_node TO et_es_nodename.
ENDMETHOD.

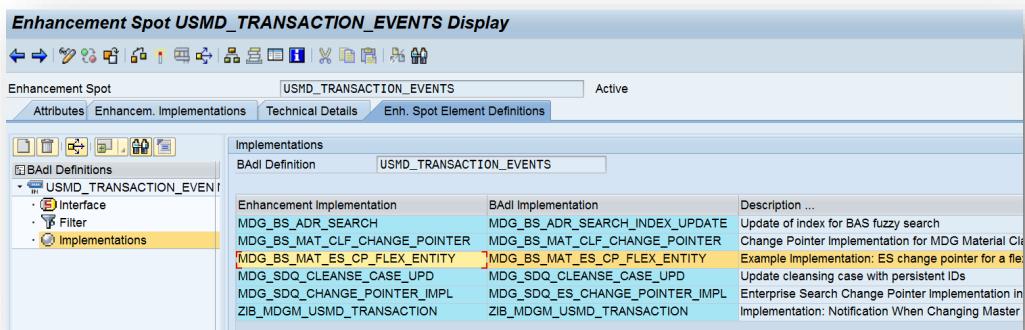
```

7.7.2 BADI Implementation for handling Change Pointers

To handle change pointers for custom node, a new enhancement implementation has to be provided for the enhancement spot USMD_TRANSACTION_EVENTS.

SAP note 1669651 contains an example implementation (MDG_BS_MAT_ES_CP_FLEX_ENTITY) to create ES change pointers on activation. The example is for a flex entity, but will also work for custom node. You need to replace '<FlexET>' by your custom entity.

Create a new BAdI implementation and adapt the example implementation.



7.8 Staging Area: Connector for MDG

Refer to chapters from [4.5.1](#) Template Modeler to [4.5.3](#) Test Connector: ZMDG_MATERIAL and follow the process for the custom ZBUPA entity.

7.9 Customizing

Refer chapter [4.6](#) Customizing.

8. STEP-BY-STEP PROCEDURE: EXTEND WITH EXISTING ENTITY (FLEX)

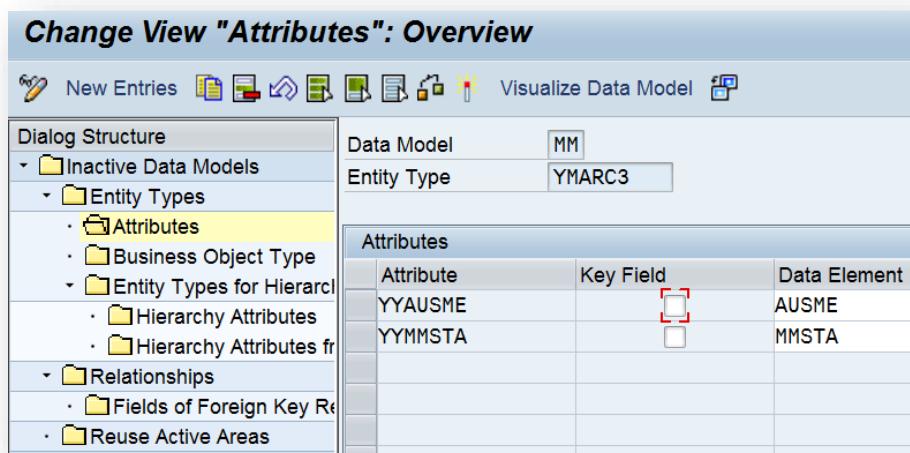
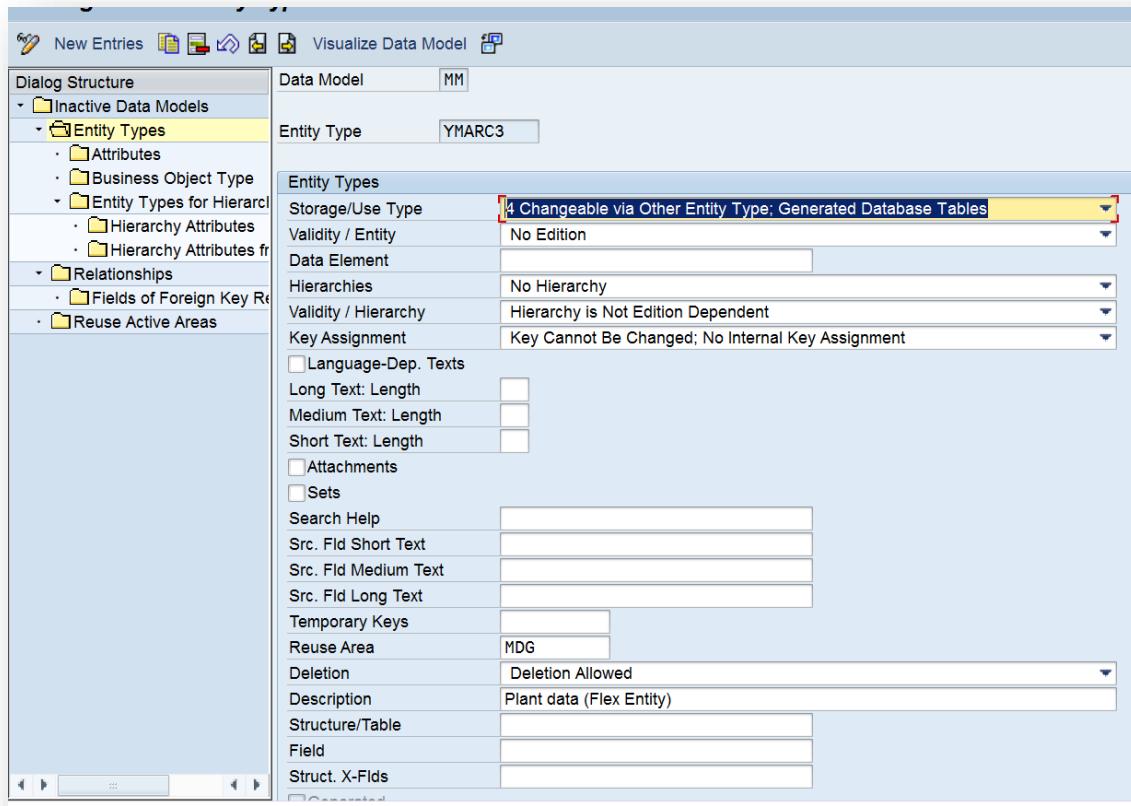
Scenario:

This scenario is like the scenario described in section (6) except that the entity for Plant is configured to be based on Flex than reuse.

8.1 Extend Model: Entity YMARC3

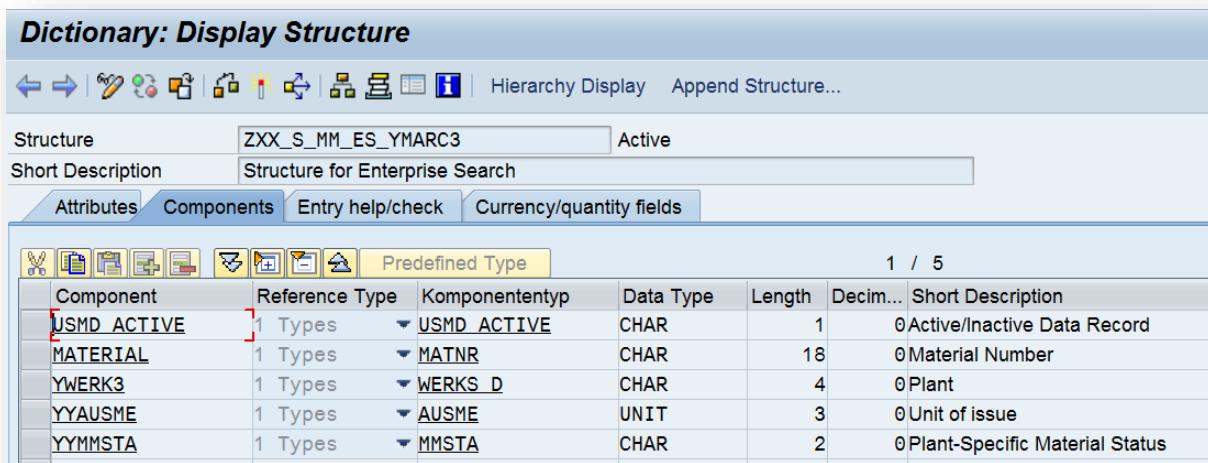
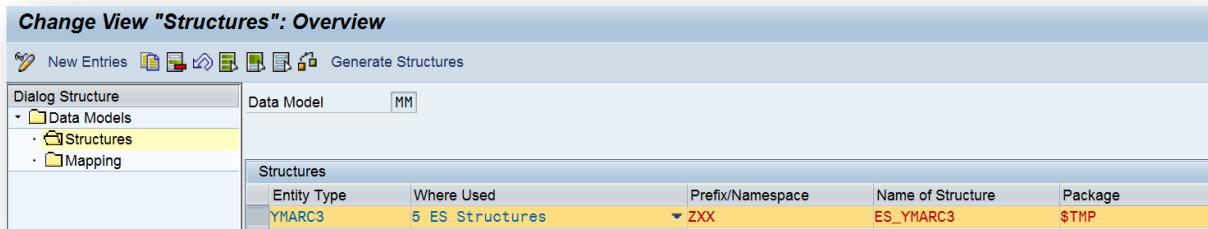
Refer the standard extensibility guide on how to extend data model by additional entities.

Note: Reuse area is specified as 'MDG' to indicate that this entity is a flex entity.



8.2 Extend Structures for Model

Refer to chapter [4.2 Extend Structures for Data Model](#)



8.3 SMT Mapping

No mapping is required for flex nodes.

8.4 Active Area: Connector for MATERIAL

Extend the template for the MATERIAL with the node that corresponds to the flex entity (in this case for YMARC).

8.4.1 Enhance Template Material for the Flex Node

Enhance Template Material. Refer to chapter [5.6.1.1](#) and [5.6.1.2](#).

How-To: Enhance the Material Enterprise Search

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT_TEST1

Model Language

1 2 3 4 5 6

Model Properties Model Nodes Node Relations Model Requests Node Response Operational Data Provider

Previous Next Cancel Finish Save

Here you decide which data provider forms the basis for the import of node metadata and data extraction for connectors of this model. Examples are "BW DataSource", "DDIC", and "XML Schema (XSD)". The list of providers depends on the model type of the software component. For "SAP BO Search", providers such as "BW DataSource" and "DDIC" are available. For model type "Data Provider Service", only file upload providers such as "XML Schema (XSD)" are available. If "BW DataSource" is selected, BW data sources are provided in the value help. For "DDIC", you can enter table names, view names, and structure names as data providers (value help is not supported). All nodes of a model must have a data provider assigned.

Metadata Provider Type: DDIC

List of Nodes of MATERIAL

Here you can maintain the properties of the model nodes and their attributes.

Create Node	Delete Node	Update Node	Generate Tech. Model	Enable GOS attachments	View Switch Assignment	
Node	Node Description	* Data Source	Data Source Description	* Root	Attributes	Name in Back End
MATERIAL_GTIN_VENDOR	Vendor Specific EAN	ESO_S_MLEA	Vendor-Specific EANS	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_PLANT	Material Plant specific data	ESO_S_MARC	Plant specific data for material	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_PLANT_FLEX	Material Plant specific data (flex)	ZXX_S_MM_ES_YMARC3	Structure for Enterprise Search	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_PURCH_LTXT	Material Purchasing Longtext for Enterprise	ESO_S_PURCH_LONGTEXT	Material Purchasing Longtext for...	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_RETAIL	Material Retail and Pos Control data	ESO_S_WLK2	Retail/Part POS control data	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_SALES	sales data for material	ESO_S_MVKE	sales data for material	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_SALES_LTXT	Longtext for material sales data	ESO_S_MVKE_LONGTEXT	Longtext for material sales data	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_STORAGE_LOC	Storage Location Data for Material	ESO_S_MARD	Storage Location Data for Material	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_TEXT_UOM	Material Master Texts per Unit of Measure	ESO_S_MAMT	Material Master Texts per Unit of...	<input type="radio"/>	<input checked="" type="checkbox"/>	
MATERIAL_UOM	Units of Measure for Material	ESO_S_MARM	Units of Measure for Material	<input type="radio"/>	<input checked="" type="checkbox"/>	

Details: Attributes of Node 'MATERIAL_PLANT_FLEX'

Select All	Deselect All	Add	Remove	Where-Used	View Switch Assignment				
Attribute Group/Attribute	* Description	Sel.	Type	Key	Name in Back End	Cont. Text	Conversion	Semantics	No Extra
USMD_ACTIVE	Aktiver/inaktiver Datensatz	<input checked="" type="checkbox"/>	CHAR(1)	<input checked="" type="checkbox"/>	USMD_ACTIVE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL	Material Number	<input checked="" type="checkbox"/>	CHAR(18)	<input checked="" type="checkbox"/>	MATERIAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
YWERK3	Print	<input checked="" type="checkbox"/>	CHAR(4)	<input checked="" type="checkbox"/>	YWERK3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
YYAUSME	Unit of issue	<input checked="" type="checkbox"/>	UNIT(3)	<input type="checkbox"/>	YYAUSME	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Provide the composition from ROOT node (in this case MATERIAL) to the flex node.

Go to Node Relations step. Click on the MATERIAL node and create a composition by clicking on the Create button. Create a composition to MATERIAL_PLANT_FLEX node. In the foreign keys section below, maintain the foreign keys appropriately.

SAP Modeler for Search and Analytics

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT_TEST1

1 Model Properties 2 Model Nodes 3 Node Relations 4 Model Requests 5 Node Response

Previous Next Cancel Finish Save

Structure of 'MATERIAL'

Here you define the structure of the model based on its nodes (composition). You can also add relationships to other model nodes.

Create Delete

Composition	Node Description
Association	Material
Node	Material Basic Texts
MATERIAL_DESCRIPTION	QM-info record attributes for enterprise search
▪ QUALITY_INFO_RECORD.QMINFO_RECORD	Enterprise Search Node: MBOM Item
▪ PRODUCTION_MBOM.PRODUCTION_MBOM_ITEM	

How-To: Enhance the Material Enterprise Search

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT_TEST1

Logged on as: Ms. Elke Menninger

Model Language: English

Structure of 'MATERIAL'

Here you define the structure of the model based on its nodes (composition). You can also add relationships to other model nodes (associations). In either case, the link is defined by its foreign keys.

Node	Node Description	* Association	* Cardinality	* Reverse Cardinality	Subquery
• PRODUCTION_MBOM.PRODUCTION_MBOM_ITEM	Enterprise Search Node: MBOM Item	BOM_ITEM_MATERIAL	Arbitrary	Up to One	<input type="checkbox"/>
• FORMULA_FORMULA_ITEMS_SECOUT	Enterprise Search: Formula Item Data	FORMULA_ITEMS_SECOUT2MAT_DESC	Exactly One	Up to One	<input type="checkbox"/>
• FORMULA_FORMULA_ITEMS_PROUT	Enterprise Search: Formula Item Data	FORMULA_ITEMS_PROUT2MAT_DESC	Exactly One	Up to One	<input type="checkbox"/>
• FORMULA_FORMULA_ITEMS_INPUT	Enterprise Search: Formula Item Data	FORMULA_ITEMS_INPUT2MAT_DESC	Exactly One	Up to One	<input type="checkbox"/>
• MATERIAL_PLANT	Material Plant specific data		Arbitrary	Exactly One	<input checked="" type="checkbox"/>
• MATERIAL_STORAGE_LOC	Storage Location Data for Material		Arbitrary	Exactly One	<input type="checkbox"/>
• PLANT_PLANT	Plant Names	MATERIAL_PLANT	Exactly One	Arbitrary	<input type="checkbox"/>
• MATERIAL_PLANT_MATERIAL_PLANT		MATERIAL_PLANT_VT	Exactly One	Exactly One	<input type="checkbox"/>
• MATERIAL_PLANT_FLEX	Flex entity		Arbitrary	Exactly One	<input type="checkbox"/>
• MATERIAL_PURCH_LTXT	Material Purchasing Longtext for Enterprise Search		Arbitrary	Exactly One	<input type="checkbox"/>

Details: Foreign Keys of Node 'MATERIAL_PLANT_FLEX'

Here you can define the foreign keys for the relationships added above. You can either assign key attributes between parent and child nodes or define fixed values for relationship key attributes (several values possible, separated by '|'). With regard to the first option, the system generates a proposal for the foreign-key relation based on name equality of the nodes' attributes.

* Attributes of Parent Node 'MATERIAL'	* Value	* Attributes of Child Node 'MATERIAL_PLANT_FLEX'	* Value	Join Operator
MATNR		MATERIAL		Equal

Add attributes to Request Attributes. Refer to chapter [5.6.1.2 Add attributes to the Request Fields](#)

Define Model MATERIAL of Software Component ZEM_EXT_MDG_MAT_TEST1

Logged on as: Ms. Elke Menninger

Model Language: English

Select Request Attributes

Models and Nodes

Node	Description	Model	Cardinality
MATERIAL	Material	MATERIAL	
► MATERIAL_DESCRIPTION	Material Basic Texts	MATERIAL	0..n
▼ MATERIAL_PLANT	Material Plant specific data	MATERIAL	0..n
▪ MATERIAL_STORAGE_LOC	Storage Location Data for Mat...	MATERIAL	0..n
► PLANT_PLANT	Plant Names	PLANT	1..1
► MATERIAL_PLANT_MATERIAL_PLANT		MATERIAL_PLANT	1..1
▪ MATERIAL_PLANT_FLEX	Flex entity	MATERIAL	0..n
▪ MATERIAL_PURCH_LTXT	Material Purchasing Longtext f...	MATERIAL	0..n
▼ MATERIAL_RETAIL	Material Retail and Pos Control...	MATERIAL	0..n
► VKORG.VKORG(1)		VKORG	0..n

Details: Attributes of Node 'MATERIAL_PLANT_FLEX'

Attribute Group/Attribute	Description	Type
▪ USMD_ACTIVE	Aktiver/Inaktiver Datensatz	CHAR(1)
▪ MATERIAL	Material Number	CHAR(18)
▪ YWERK3	Plnt	CHAR(4)
▪ YYAUSME	Unit of issue	UNIT(3)
▪ YYYMMSTA	MS	CHAR(2)

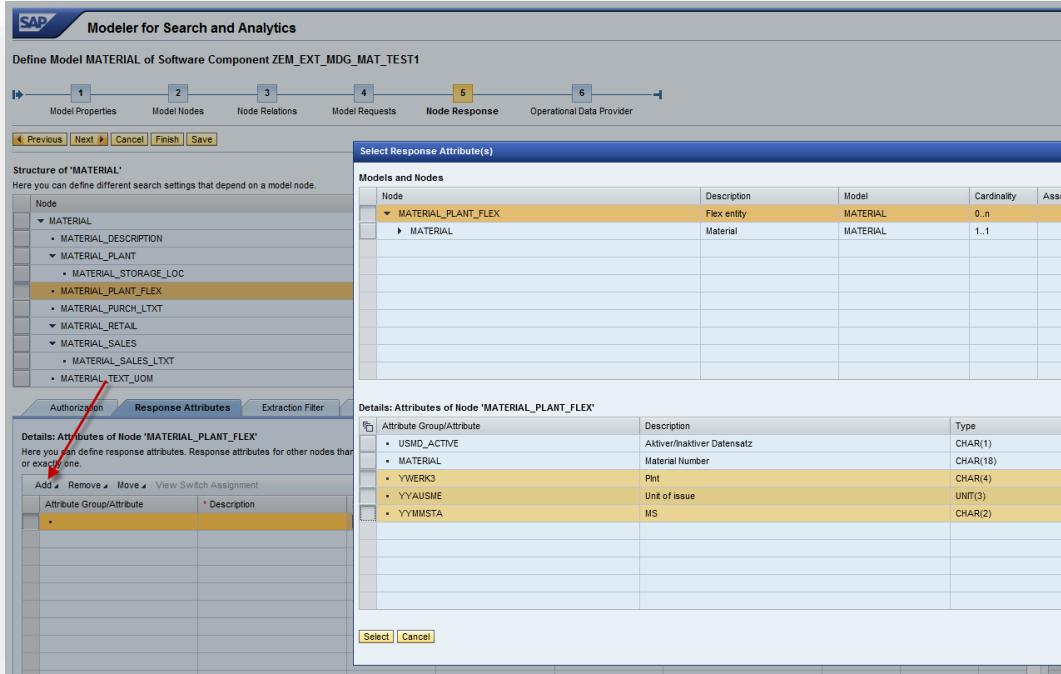
Add □ Remove □ Move □ Attribute Group/Attrib...

- FIBER_CODE2
- BRAND_ID
- IVSO/R_PKGRP
- NAME2
- LVORM3
- VALUE_UUID
- LVORM2
- NAME1
- VKORG_TEXT
- MATNR1

Select Cancel

Add to Response Attributes. Refer to chapter [5.6.1.3 Add attributes to the Response Fields](#)

How-To: Enhance the Material Enterprise Search

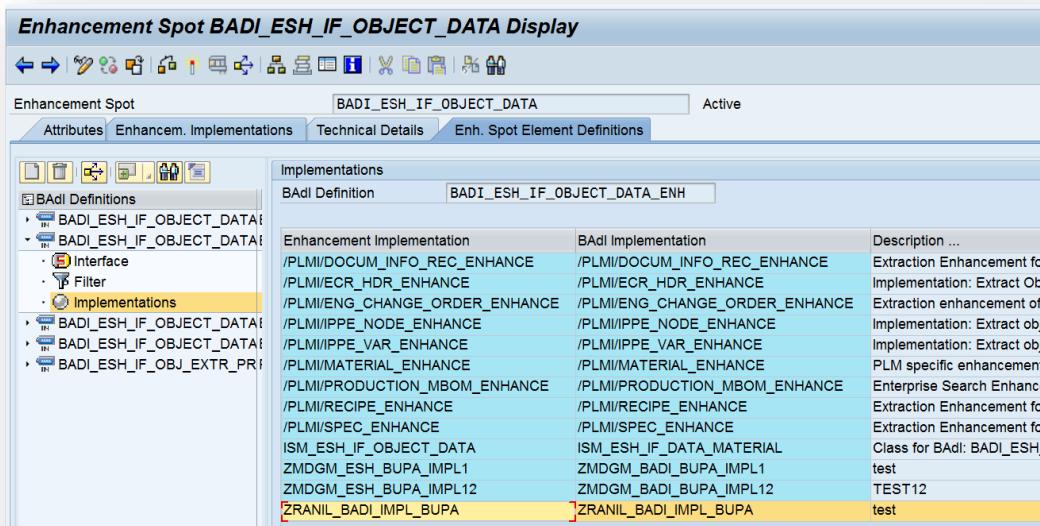


If necessary, update your existing connector and schedule it again.

8.4.2 BADI Implementation for Indexing Flex node data

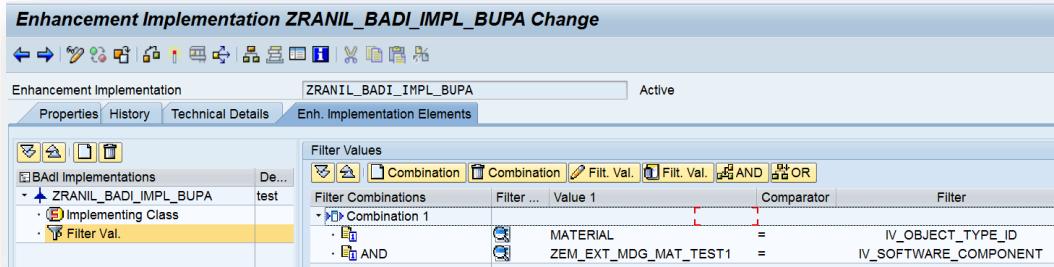
Enhancement Spot: BADI_ESH_IF_OBJECT_DATA

A new implementation has to be provided for the BADI BADI_ESH_IF_OBJECT_DATA_ENH.



As the BADI is filter based, the filter values for this should be based IV_OBJECT_TYPE_ID = 'MATERIAL' and IV_SOFTWARE_COMPONENT = <name of the software component under which the template is enhanced>.

How-To: Enhance the Material Enterprise Search



As the implementation is not delivered as standard, sample code of the implementation is attached here.

Method: IF_BADI_ESH_IF_OBJECT_DATA_ENH~GET_DATA: (for Delta Indexing)

```
METHOD if_badi_esh_if_object_data_enh~get_data.  
  
DATA:  
  lt_sel          TYPE usmd_ts_sel,  
  lt_message      TYPE usmd_t_message,  
  lr_usmd_data_model  TYPE REF TO if_usmd_model_ext,  
  lr_data         TYPE REF TO data .  
  
FIELD-SYMBOLS:  
  
<fs_object_extraction>  TYPE esh_s_if_extract_node,  
<ft_modify_table>      TYPE STANDARD TABLE,  
<fs_modify_table>      TYPE any,  
<fs_data>            TYPE any,  
<fs_usmd_active>      TYPE usmd_active,  
<ft_data>             TYPE ANY TABLE.  
  
CLEAR et_messages.  
  
CALL METHOD cl_usmd_model_ext->get_instance  
  EXPORTING  
    i_usmd_model = 'MM'  
  IMPORTING  
    eo_instance = lr_usmd_data_model  
    et_message  = lt_message.  
  
CALL METHOD lr_usmd_data_model->create_data_reference  
  EXPORTING  
    i_fieldname = 'YMARC3'  
    i_struct    = if_usmd_model_ext->gc_struct_key_attr  
    if_table    = 'X'  " Financial MDM: General Indicator  
    i_tabtype   = if_usmd_model_ext->gc_tabtype_standard  
  IMPORTING  
    er_data     = lr_data.  
  
ASSIGN lr_data->* TO <ft_data>.  
  
CALL METHOD lr_usmd_data_model->read_char_value  
  EXPORTING  
    i_fieldname = 'YMARC3'  
    it_sel     = lt_sel  
    i_readmode = if_usmd_model_ext->gc_readmode_no_inact  
  IMPORTING  
    et_data    = <ft_data>  
    et_message = lt_message.  
  
LOOP AT it_object_extraction ASSIGNING <fs_object_extraction>  
  WHERE node_type_id = 'MATERIAL_PLANT_FLEX' AND  
        parent_node_type_id = 'MATERIAL'.  
  ASSIGN <fs_object_extraction>-modify_table_ref->* TO
```

```

<ft_modify_table>.
LOOP AT <ft_data> ASSIGNING <fs_data>.
APPEND INITIAL LINE TO <ft_modify_table> ASSIGNING
<fs_modify_table>.
ASSIGN COMPONENT if_mdg_sdg_const=>usmd_active OF STRUCTURE
<fs_modify_table> TO <fs_usmd_active>.
IF sy-subrc = 0.
<fs_usmd_active> = 1.
ENDIF.
MOVE-CORRESPONDING <fs_data> TO <fs_modify_table>.
ENDLOOP.
ENDLOOP.
ENDMETHOD.

```

Method **IF_BADI_ESH_IF_OBJECT_DATA_ENH~NEXT**: (for Initial Indexing)

```
METHOD if_badi_esh_if_object_data_enh~next.
```

```

DATA lt_sel          TYPE usmd_ts_sel.
DATA lt_message      TYPE usmd_t_message.
DATA lr_usmd_data_model   TYPE REF TO if_usmd_model_ext.
DATA lr_data         TYPE REF TO data.

FIELD-SYMBOLS: <fs_object_extraction>    TYPE esh_s_if_extract_node,
               <ft_modify_table>        TYPE STANDARD TABLE,
               <fs_modify_table>        TYPE any,
               <fs_data>                TYPE any,
               <fs_usmd_active>        TYPE usmd_active,
               <ft_data>                TYPE ANY TABLE.

CALL METHOD cl_usmd_model_ext=>get_instance
EXPORTING
  i_usmd_model = 'MM'
IMPORTING
  eo_instance = lr_usmd_data_model
  et_message = lt_message.

CALL METHOD lr_usmd_data_model->create_data_reference
EXPORTING
  i_fieldname = 'YMARC3'
  i_struct = if_usmd_model_ext=>gc_struct_key_attr
  if_table = 'X' " Financial MDM: General Indicator
  i_tabtype = if_usmd_model_ext=>gc_tabtype_standard " Single-Character Indicator
IMPORTING
  er_data = lr_data.

ASSIGN lr_data->* TO <ft_data>.

CALL METHOD lr_usmd_data_model->read_char_value
EXPORTING
  i_fieldname = 'YMARC3'
  it_sel = lt_sel
  i_readmode = if_usmd_model_ext=>gc_readmode_no_inact " Read mode
IMPORTING
  et_data = <ft_data>
  et_message = lt_message.

LOOP AT it_object_extraction ASSIGNING <fs_object_extraction> WHERE node_type_id = 'MATERIAL_PLANT_FLEX' AND parent_node_type_id = 'MATERIAL'.

  ASSIGN <fs_object_extraction>-modify_table_ref->* TO <ft_modify_table>.
  LOOP AT <ft_data> ASSIGNING <fs_data>.
    APPEND INITIAL LINE TO <ft_modify_table> ASSIGNING <fs_modify_table>.

    ASSIGN COMPONENT if_mdg_sdg_const=>usmd_active OF STRUCTURE <fs_modify_table> TO <fs_usmd_active>.
    IF sy-subrc = 0.

```

```

<fs_usmd_active> = 1.
ENDIF.
MOVE-CORRESPONDING <fs_data> TO <fs_modify_table>.
ENDLOOP.
ENDLOOP.
ENDMETHOD.

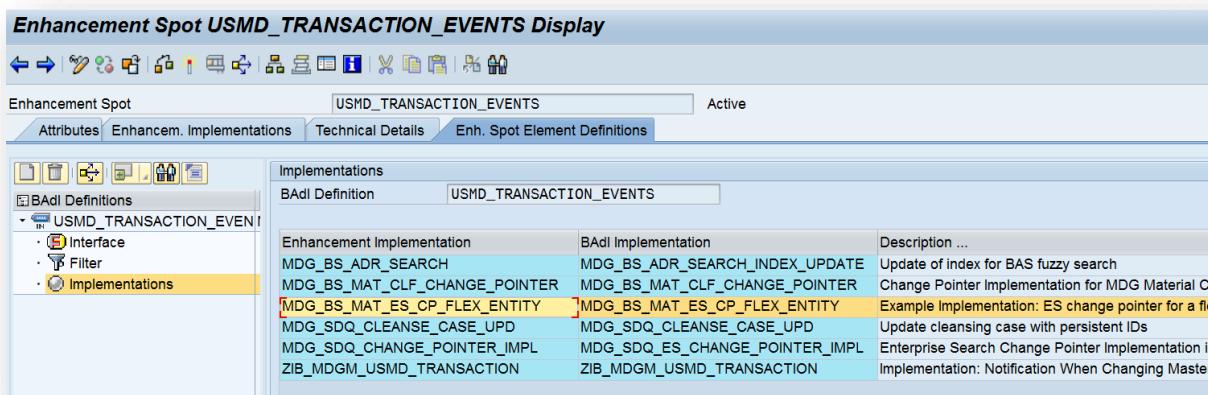
```

8.4.3 BADI Implementation for handling Change Pointers for Flex node data

To handle change pointers for Flex node, a new enhancement implementation has to be provided for the enhancement spot USMD_TRANSACTION_EVENTS.

SAP note 1669651 contains an example implementation (MDG_BS_MAT_ES_CP_FLEX_ENTITY) to create ES change pointers on activation of a flex entity. This note is delivered.

Create a new BAdI Implementation and adapt the example implementation.



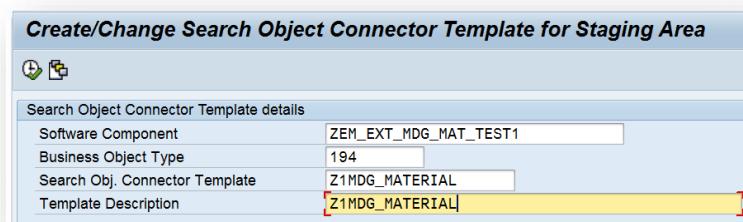
8.5 Staging Area: Connector for MDG

Refer chapters [4.5.1](#) Template Modeler to [4.5.3](#) Test Connector: ZMDG_MATERIAL and follow the procedure. Ensure that the request attribute names in staging template and corresponding active area template are the same.

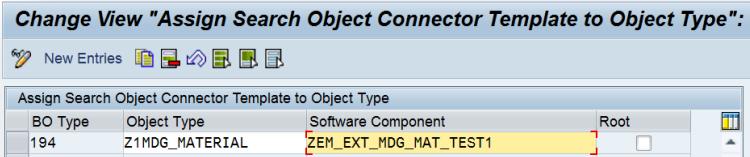
8.5.1 Create new search connector template for MDG

Refer to chapter [4.5.1](#) Template Modeler.

Create a new Enterprise Search connector template by using transaction MDG_ES_TEMPL or in the implementation guide under General Settings > Data Quality and Search > Create Search Object Connector Templates. Once the Enterprise Search template is generated, a relationship has to be maintained between the Object Type Code (OTC) and the Enterprise Search Template in the implementation guide under General Settings > Data Quality and Search > Assign Search Object Connector Templates to Object Types.



Create new search connector template for MDG under the new software component and assign the new connector to object type 194.



8.5.2 Add the request fields to Z1MDG_MATERIAL template

Refer to chapter [4.5.2.2 Add the new attributes to ZMDG_MATERIAL template request fields](#)

Attribute Group/Attribute	Description	Select Path	Reference Node	Reference Attr...	Ref. Attribute Desc...	Type	Int. Nav.	Relev...	Sw...
• TXTMI	Description (medium text)	Select Path	MATERIAL->T_MATERIA	TXTMI	Description (mediu...	CHAR(40)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• ZZPROTYP2	EM: Data element ZPROC	Select Path	MATERIAL	ZZPROTYP2	EM: Data element Z...	CHAR(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• ZZPRODTY7	EM: Data element ZZPRC	Select Path	MATERIAL	ZZPRODTY7	EM: Data element Z...	CHAR(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• YYAUSME	Unit of issue	Select Path	MATERIAL->YMARC3	YYAUSME	Unit of issue	UNIT(3)	<input type="checkbox"/>	Low	<input type="checkbox"/>
• YYMMSTA	MS	Select Path	MATERIAL->YMARC3	YYMMSTA	MS	CHAR(2)	<input type="checkbox"/>	Low	<input type="checkbox"/>
• ZZKM	Version Number Compon...	Select Path	MATERIAL	ZZKM	Version Number Co...	CHAR(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• ZZFORMAT	Page Format of Productic...	Select Path	MATERIAL	ZZFORMAT	Page Format of Pro...	CHAR(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• ZZCURRENCY	testing	Select Path	MATERIAL	ZZCURRENCY	testing	CHAR(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• ZZCITY	City	Select Path	MATERIAL	ZZCITY	City	CHAR(25)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• ZZBRAND7	EM: Data element ZZBRA	Select Path	MATERIAL	ZZBRAND7	EM: Data element Z...	CHAR(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8.5.3 Schedule Indexing

Refer to chapter [4.4.2 Administration Cockpit](#)

8.5.4 Test Connector: Z1MDG_MATERIAL

Refer to chapter [4.5.3 Test Connector: ZMDG_MATERIAL](#)

8.6 Customizing

Refer to chapter [4.6 Customizing](#)

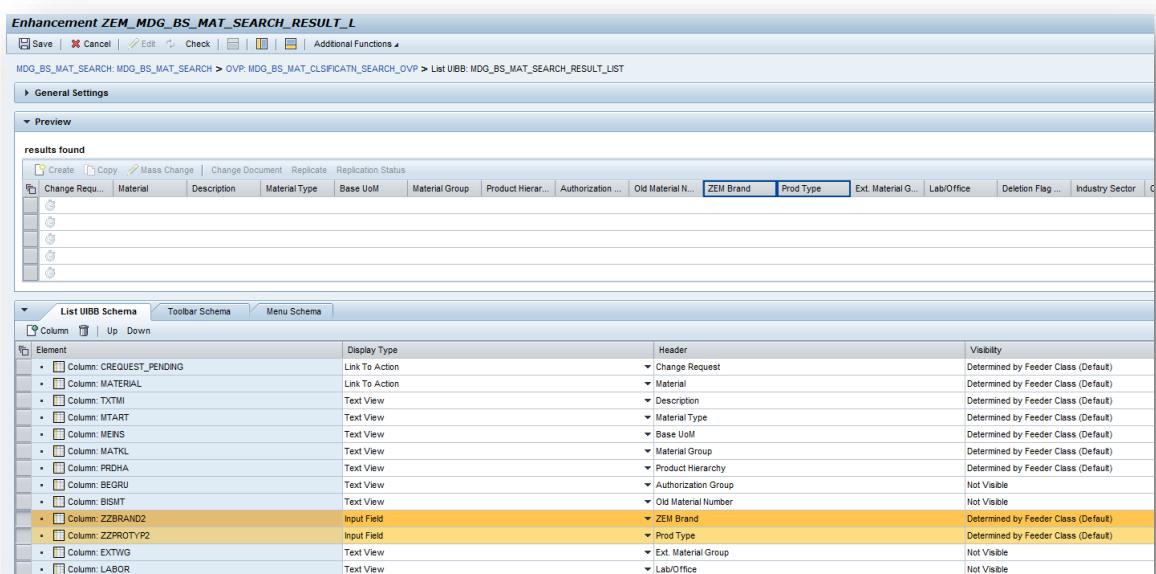
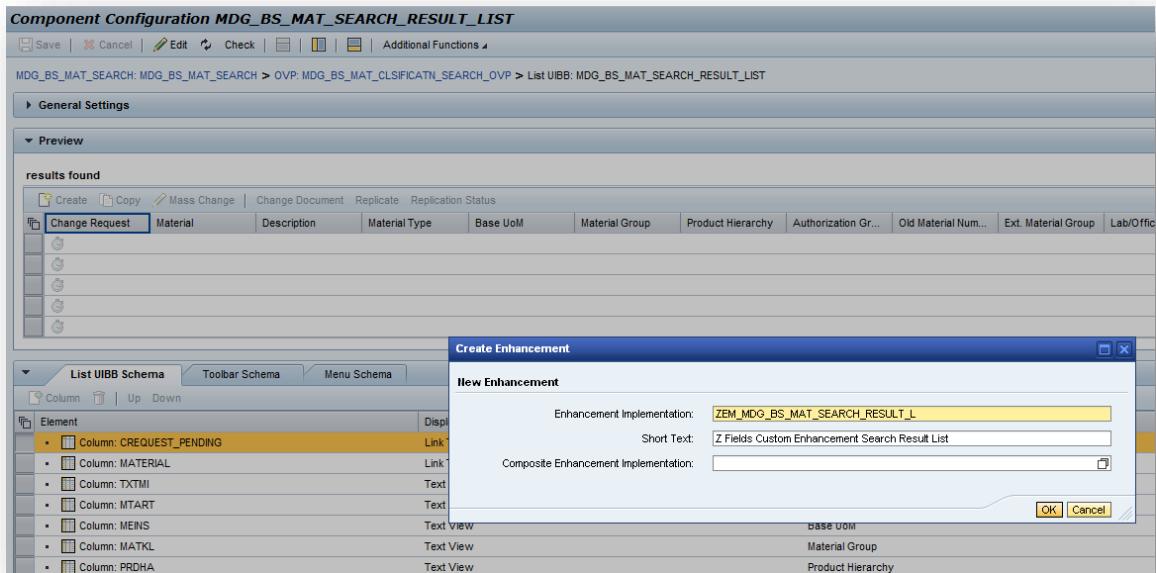
9. STEP-BY-STEP PROCEDURE: EXTEND SEARCH UI

9.1 Enhance UIBB MDG_BS_MAT_SEARCH_RESULT_LIST

Scenario:

You want to see the added fields in the search results list. Until MDG6.1 the list only supports fields that are contained in the response structure of the MDG template.

In MDG7 you can choose all attributes from entities with relation 1:1 to entity material.



9.2 Change Search Criteria Values

Scenario:

You want to change the defaults of the following search criteria's in the Search UI: Material, Industry sector, and Description.

Solution:

This is not possible with configuration but it can be done with an overwrite-exit.

WD Component: MDG_BS_MAT_CLASSIF_SEARCH

Controller/Method:

Material_Search /Method WDDOINIT

-> wd_comp_controller->mo_mat_sel_options->add_attributes

Componentcontroller / Method PROCESS_EVENT

-> wd_this->mo_mat_sel_options->reset_attribute_definition

First_View / Method ONACTIONLOAD_SAVED_SEARCH

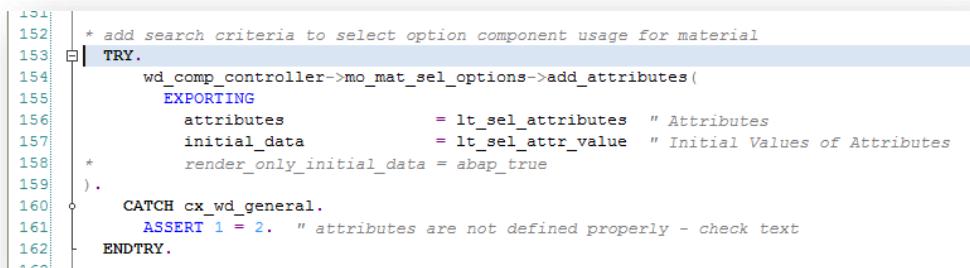
-> wd_this->mo_mat_sel_options->reset_attribute_definition

```
*      set initial order of attributes
IF ls_search_crit_det-name = if_mdg_bs_mat_assist_ui_search=>gc_so_attr_material
    OR
    ls_search_crit_det-name = if_mdg_bs_mat_assist_ui_search=>gc_so_attr_txtmi OR
    ls_search_crit_det-name = if_mdg_bs_mat_assist_ui_search=>gc_so_attr_mbrsh.
        <= here enhance

    ls_sel_attr_value-attribute = ls_search_crit_det-name.

    "Example Coding
        ls_sel_attr_value-sign = 'I'.
        ls_sel_attr_value-option = 'EQ'.
        ls_sel_attr_value-low = <custom value>.
    "Example Coding end

    ls_sel_attr_value-unvaluated_row = abap_true.
    APPEND ls_sel_attr_value TO lt_sel_attr_value.
ENDIF.
```



```
151 | * add search criteria to select option component usage for material
152 | TRY.
153 |   wd_comp_controller->mo_mat_sel_options->add_attributes(
154 |     EXPORTING
155 |       attributes          = lt_sel_attributes  " Attributes
156 |       initial_data        = lt_sel_attr_value " Initial Values of Attributes
157 |       render_only_initial_data = abap_true
158 |   ).
159 |   CATCH cx_wd_general.
160 |     ASSERT 1 = 2. " attributes are not defined properly - check text
161 |   ENDTRY.
162 |
163 | 
```

For additional hints see the How to Guide for the UI:

<http://scn.sap.com/docs/DOC-30192> Chapter 6.2 Search UI: Hide Classification

9.2.1 Change Search Criteria from MDG7.0 on

With MDG7.0 there are 2 new methods which allow you to change the UI easier with an exit.

METHOD DEFINE_GLOBAL_OPTIONS allows numerous adaptions of the search UI because of DDIC structure WDR_SO_S_GLOBAL_OPTIONS. With an exit you can change for example:

- Number of defaulted rows (maximum number = 4)
- Execution of search after F4 help
- Number of search results

METHOD DEFINE_INITIAL_ATTRIBUTES

With an exit you can change the 3 defaulted search criteria (material, description and industry sector).

9.3 Default for class type

Example Coding:

View FIRST_VIEW-> Methode WDDOINIT, Postexit

```

DATA lo_nd_classification TYPE REF TO if_wd_context_node.
DATA lo_el_classification TYPE REF TO if_wd_context_element.
DATA ls_classification TYPE wd_this->element_search_clf.

lo_nd_classification = wd_context->get_child_node( name = wd_this-
>wdctx_search_clf ).
lo_el_classification = lo_nd_classification->get_element( ) .
lo_el_classification->set_attribute(
    EXPORTING
        name = 'KLART'
        value = '<WERT>' ).
```

9.4 Add field descriptions to the result list

Scenario:

You want to see the field descriptions for the displayed data in the results list.

Solution:

1. Create a post exit for the method CL_MDG_BS_MAT_BO_SEARCH -> GET_SEARCHABLE_ATTRIBUTES. Paste the code from chapter [9.4.1](#) into the post exit method and activate the code.
2. Create a post exit for the method CL_MDG_BS_MAT_SP_SEARCH -> COMPLETE_DATA. Paste the code from chapter [9.4.2](#) into the post exit method and activate the code.
3. Invalidate the SPI metadata (Use transaction MDGIMG -> Master Data Governance for Material -> Clear UI Metadata Buffers or execute report MDG_BS_MAT_METADATA_INVALIDATE).
4. Customize the component configuration for your search result list; the field catalog now contains the new text fields.

When you restart the search, the search result list displays texts with the entity fields.

9.4.1 POST-EXIT for method CL_MDG_BS_MAT_BO_SEARCH-> GET_SEARCHABLE_ATTRIBUTES

```

DATA ls_component          TYPE      abap_componentdescr.
DATA ls_entity_attr        TYPE      usmd_s_entity_attr_prop_ext.
DATA ls_entity_prop         TYPE      usmd_s_entity_prop_ext.
DATA lv_entity              TYPE      usmd_entity.
DATA ls_entity_cont         TYPE      usmd_s_entity_cont.
DATA lv_entity_key          TYPE      usmd_entity.
DATA lv_add_entity          TYPE      boole_d.
DATA lt_result_comp         TYPE      abap_component_tab.
DATA lt_attr_fprop          TYPE      usmd_ts_fprop_ext.
DATA lt_txt_fprop           TYPE      usmd_ts_fprop_ext.
DATA lo_text                TYPE      cl_mdg_bs_mat_text.
DATA ls_fprop               TYPE      usmd_s_fprop_ext.
DATA lv_field                TYPE      typename.
DATA lv_field_id             TYPE      typename.
DATA lt_text_field_id       TYPE      mdg_bs_mat_t_typename.
DATA lv_text_field_id       TYPE      typename.
DATA lv_text_field           TYPE      typename.

FIELD-SYMBOLS <fs_fdep>          TYPE usmd_s_fdep.
FIELD-SYMBOLS <fs_fprop>          TYPE usmd_s_fprop_ext.

lo_text = cl_mdg_bs_mat_text->get_instance(
```

How-To: Enhance the Material Enterprise Search

```
        iv_appl = cl_mdg_bs_mat_c=>gc_buffer_appl ).

*   Get properties of main entity (MATERIAL)
READ TABLE cl_mdg_bs_mat_bo_search=>so_model->dt_entity_prop
  INTO ls_entity_prop
  WITH KEY usmd_entity = if_mdg_bs_mat_gen_c=>gc_entity_material.

IF sy-subrc = 0.
*   Get properties of main entity (DDIC info)
LOOP AT cl_mdg_bs_mat_bo_search=>so_model->dt_fdep ASSIGNING <fs_fdep>
  WHERE fieldname = ls_entity_prop-r_fprop->fieldname.
  READ TABLE cl_mdg_bs_mat_bo_search=>so_model->dt_fprop
    ASSIGNING <fs_fprop>
    WITH KEY fieldname = <fs_fdep>-masterfield.
  lv_entity      = <fs_fprop>-usmd_entity.
  ls_component-name = <fs_fprop>-fieldname.
  ls_component-type ?= cl_abap_typedescr=>describe_by_name(
    <fs_fprop>-rollname ).
  INSERT ls_component INTO TABLE lt_result_comp.
ENDLOOP.

cl_mdg_bs_mat_smt=>find_prop_entity(
  EXPORTING
    iv_respect_switch = abap_false
    iv_entity          = if_mdg_bs_mat_gen_c=>gc_entity_material
  IMPORTING
    et_attr_fprop      = lt_attr_fprop
    et_txt_fprop       = lt_txt_fprop ).

***** RESPONSE attributes *****
* Get all attributes of main entity
LOOP AT cl_mdg_bs_mat_bo_search=>so_model->dt_entity_attr_prop
  INTO ls_entity_attr
  WHERE usmd_entity = ls_entity_prop-usmd_entity AND
    f_read_only IS INITIAL AND
    f_direct_attr = abap_true.
* Attribute customized as response field?
READ TABLE cl_mdg_bs_mat_bo_search=>so_model->dt_fld_uiprop
  TRANSPORTING NO FIELDS "VC_USMD006"
  WITH KEY usmd_entity = ls_entity_attr-usmd_entity
    fieldname = ls_entity_attr-r_fprop->fieldname
    no_result_list = abap_false.
IF sy-subrc = 0.
  CLEAR ls_component.
  ls_component-name = ls_entity_attr-r_fprop->fieldname.
  ls_component-type ?= cl_abap_typedescr=>describe_by_name(
    ls_entity_attr-r_fprop->rollname ).
  INSERT ls_component INTO TABLE lt_result_comp.

***** get assigned text fields *****
READ TABLE lt_attr_fprop INTO ls_fprop
  WITH KEY fieldname = ls_component-name.
IF sy-subrc = 0.
  lv_field      = ls_fprop-rollname.
  lv_field_id   = ls_fprop-fieldname.
  lt_text_field_id = lo_text->get_text_field_id(
    iv_field      = lv_field
    iv_field_id   = lv_field_id ).
  LOOP AT lt_text_field_id INTO lv_text_field_id.
*   Get data element (rollname) for given text field ID
  lv_text_field = lo_text->get_text_field( lv_text_field_id ).
  IF lv_text_field IS INITIAL.
    CONTINUE.
  ENDIF.
  READ TABLE lt_result_comp TRANSPORTING NO FIELDS
    WITH KEY name = lv_text_field_id.
```

```

        IF sy-subrc <> 0.
            ls_component-name = lv_text_field_id.
            ls_component-type ?= cl_abap_typedescr->describe_by_name(
                lv_text_field ).
            INSERT ls_component INTO TABLE lt_result_comp.
        ENDIF.
    ENDLOOP.
ENDIF.
* ++++++
ENDIF.
ENDLOOP.

* Get extended response attributes
LOOP AT cl_mdg_bs_mat_bo_search=>so_model->dt_entity_cont
    INTO ls_entity_cont
    WHERE usmd_entity = ls_entity_prop-usmd_entity.
lv_add_entity = abap_false.
* Check key field of dependent entitys -> only 1:1 relation relevant
IF ls_entity_cont-t_entity_key IS INITIAL.
    lv_add_entity = abap_true.
ELSEIF lines( ls_entity_cont-t_entity_key ) = 1.
    READ TABLE ls_entity_cont-t_entity_key INTO lv_entity_key INDEX 1.
    IF lv_entity_key = if_mdg_bs_mat_gen_c=>gc_entity_material.
        lv_add_entity = abap_true.
    ENDIF.
ENDIF.
IF lv_add_entity = abap_true.
    cl_mdg_bs_mat_smt=>find_prop_entity(
        EXPORTING
            iv_respect_switch = abap_false
            iv_entity = ls_entity_cont-usmd_entity_cont
        IMPORTING
            et_attr_fprop = lt_attr_fprop
            et_txt_fprop = lt_txt_fprop ).
* Add all entity attributes to response attribute list
LOOP AT cl_mdg_bs_mat_bo_search=>so_model->dt_entity_attr_prop
    INTO ls_entity_attr
    WHERE usmd_entity = ls_entity_cont-usmd_entity_cont AND
        f_read_only IS INITIAL AND
        f_direct_attr = abap_true.
* Attribute already contained in response attribute list?
READ TABLE lt_result_comp TRANSPORTING NO FIELDS
    WITH KEY name = ls_entity_attr-r_fprop->fieldname.
IF sy-subrc = 0.
    CONTINUE.
ENDIF.
* Attribute customized as response field?
READ TABLE cl_mdg_bs_mat_bo_search=>so_model->dt_fld_uiprop
    TRANSPORTING NO FIELDS "VC_USMD006"
    WITH KEY usmd_entity = ls_entity_attr-usmd_entity
        fieldname = ls_entity_attr-r_fprop->fieldname
        no_result_list = abap_false.
IF sy-subrc = 0.
    CLEAR ls_component.
    ls_component-name = ls_entity_attr-r_fprop->fieldname.
    ls_component-type ?= cl_abap_typedescr->describe_by_name(
        ls_entity_attr-r_fprop->rollname ).
    INSERT ls_component INTO TABLE lt_result_comp.

* ++++++ get assigned text fields ++++++
READ TABLE lt_attr_fprop INTO ls_fprop
    WITH KEY fieldname = ls_component-name.
IF sy-subrc = 0.
    lv_field = ls_fprop-rollname.
    lv_field_id = ls_fprop-fieldname.
    lt_text_field_id = lo_text->get_text_field_id(
        iv_field = lv_field
        iv_field_id = lv_field_id ).
```

```

*          LOOP AT lt_text_field_id INTO lv_text_field_id.
*            Get data element (rollname) for given text field ID
*            lv_text_field = lo_text->get_text_field( lv_text_field_id ).
*            IF lv_text_field IS INITIAL.
*              CONTINUE.
*            ENDIF.
*            READ TABLE lt_result_comp TRANSPORTING NO FIELDS
*              WITH KEY name = lv_text_field_id.
*            IF sy-subrc <> 0.
*              ls_component-name = lv_text_field_id.
*              ls_component-type ?= cl_abap_typedescr->describe_by_name(
*                lv_text_field ).
*              INSERT ls_component INTO TABLE lt_result_comp.
*            ENDIF.
*          ENDLOOP.
*        ENDIF.
*      ENDLOOP.
*    ENDIF.

*      ++++++
*      ENDIF.
*    ENDLOOP.
*  ENDIF.
* ENDIF.

SORT lt_result_comp BY name.
et_result_list_attributes = lt_result_comp.

```

9.4.2 POST-EXIT for method CL_MDG_BS_MAT_SP_SEARCH->COMPLETE_DATA

```

DATA lo_struct TYPE REF TO cl_abap_structdescr.
DATA lt_comp TYPE abap_compdscr_tab.
DATA lo_text TYPE REF TO cl_mdg_bs_mat_text.

FIELD-SYMBOLS <ls_data>      TYPE mdg_bs_mat_s_sp_search_data.
FIELD-SYMBOLS <ls_data_mat>  TYPE any.
FIELD-SYMBOLS <ls_comp>       TYPE abap_compdscr.
FIELD-SYMBOLS <lv_txt_field> TYPE any.

lo_text = cl_mdg_bs_mat_text->get_instance(
           iv_appl = cl_mdg_bs_mat_c->gc_buffer_appl ).

* add text field values
LOOP AT ct_data ASSIGNING <ls_data>.
  ASSIGN <ls_data>-s_data->* TO <ls_data_mat>.
  IF sy-tabix = 1.
    lo_struct ?= cl_abap_structdescr->describe_by_data( <ls_data_mat> ).
    LOOP AT lo_struct->components ASSIGNING <ls_comp>
      WHERE name CS '_TXT'.
      INSERT <ls_comp> INTO TABLE lt_comp.
    ENDLOOP.
  ENDIF.
  LOOP AT lt_comp ASSIGNING <ls_comp>.
    ASSIGN COMPONENT <ls_comp>-name
      OF STRUCTURE <ls_data_mat> TO <lv_txt_field>.
    lo_text->get_text_field_value(
      EXPORTING
        is_field_value      = <ls_data_mat>
        iv_text_field_id   = <ls_comp>-name
      IMPORTING
        ev_text_field_value = <lv_txt_field> ).
    ENDLOOP.
  ENDLOOP.

```

10. MULTIPLE LANGUAGES

Search is performed always on all languages. The response returns texts in the log-on language in the first place. If no description is available in that language, the effective language of the text is determined by a language vector which is defined in customizing:

SAP Customizing Implementation Guide > SAP NetWeaver > Search and Operational Analytics > SAP NetWeaver Enterprise Search/Presentation of Objects > Define Preferred Language Sequence for the Presentation of Objects

Example:

With Customizing: DE Language 1, EN Language 2

Material text maintained in DE original and EN (translation)

Search:

- In EN you get the English text
- In DE you get the German text
- In FR you get the German text

Without Customizing:

Material text maintained in DE original and EN (translation)

- In EN you get the English text
- In DE you get the German text
- In FR you get the English text

Material text maintained in EN original and DE (translation)

- In EN you get the English text
- In DE you get the German text
- In FR you get the English text

Without customizing the strategy is that the system uses the system language not the original language.

11. ADDITIONAL INFORMATION

11.1.1 Information on SAP MDG on SAP S/4HANA

- Exchange knowledge: [SAP Community](#) | [Q&A](#) | [Blog](#)
- Try SAP Master Data Governance on S/4HANA for free: [Trial Version](#)
- Try SAP Master Data Governance on S/4HANA on the SAP Cloud Appliance Library: [S/4HANA 2022 FPS1](#)
- Learn more: [Latest Release](#) | [Help Portal](#) | [How-to Information](#) | [Key Presentations](#)

11.1.2 SAP Roadmap Explorer

- Please see the [roadmap for SAP Master Data Governance](#)

11.1.3 Related Information

- Learn more: [Floorplan Manager for Web Dynpro ABAP](#) | [How to Adapt FPM](#) | [FPM Blog](#) | [How-to Information](#) | [Service Mapping Tool](#) | [SAP S/4HANA Cookbook CVI](#)

11.2 SAP Notes

In addition to the detailed explanations written in this document, please see the following SAP Notes for further important information.

Note Number	Note Description
3372801	Upgrade or Conversion for Master Data Governance, Central Governance
3043582	MDG Customer Connection 2020
3194967	MDG Customer Connection 2021 for S/4HANA 2022
3311039	MDG Customer Connection 2023
3428179	Master Data Governance: Continuous Influence
3134600	MDG-M: Supported fields in Data Model MM
2284745	Functional Restrictions in MDG for Material with SAP Master Data Governance 9.0
2461516	Functional Restrictions in MDG for Material with SAP Master Data Governance 9.1
2656693	Functional Restrictions in MDG for Material in SAP Master Data Governance 9.2 and on SAP S/4HANA 1809
2816571	Functional Restrictions in MDG for Material on SAP S/4HANA 1909
2948873	Functional Restrictions in MDG for Material on SAP S/4HANA 2020
2479869	Usage of Lean Classification with SAP Master Data Governance
3070012	Functional Restrictions in MDG for Material on SAP S/4HANA 2021
3219945	Functional Restrictions in MDG for Material on SAP S/4HANA 2022
3374998	Functional Restrictions in MDG for Material on SAP S/4HANA 2023
2479869	Usage of Lean Classification with SAP Master Data Governance

How-To: Enhance the Material Enterprise Search

<u>1619534</u>	How to Create, Enhance and Adapt FPM Applications
<u>1637249</u>	MDG: Information for efficient message processing
<u>2105467</u>	MDG Performance
<u>2561461</u>	Scope of support for SAP Master Data Governance (MDG)
<u>1637249</u>	MDG: Information for efficient message processing
<u>2157166</u>	ES reuse data indexing
<u>2110371</u>	SPI Metadaten
<u>2106708</u>	SPI metadata: Removal of unused nodes
<u>2098606</u>	SEARCH: Check boxes 'Fuzzy Search' and 'Search Active Data Only'
<u>2100398</u>	SEARCH: Object characteristics are offered as request attributes
<u>2106680</u>	SEARCH: Response fields are not determined correctly
<u>2108051</u>	Search criteria / custom parameters get lost in case of error
<u>2123673</u>	SelectOptions20: Default label for search term is wrong
<u>2970633</u>	Operator restriction in Enterprise Search for Material longtext fields
<u>2645144</u>	Preferred language search during Enterprise search and Hana search