

SIEMENS

COMOS

Process COMOS Material Management Administration

Operating Manual

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
⚠ WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
⚠ CAUTION
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
NOTICE
indicates that an unintended result or situation can occur if the relevant information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

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The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Trademarks

Trademarks

Registered trademark: COMOS®

Definitions

The document key identifies the MTO document package as well as, indirectly, the MTO master document.

The XML file of the MTO master document saves the settings that were used during the creation of the MTO document package. Therefore, these settings are also available to users creating an update of the MTO document package.

Document key

A document key identifies a specific MTO document package or an MPR document package and is permitted to occur only once.

MTO document package

When you are working with the Material Management Wizard, various documents are created at the same time. These documents are bundled into an MTO document package.

MTO master document

The MTO master document contains all the information you need in COMOS to place orders. In particular, the MTO master document contains the current material stock and is part of the MTO document package.

Configuration object

3.1 Definition

The configuration object "MMConfig Configuration for material management" is available on the "Units" tab of the Navigator. This exists once per project.

In the configuration object, you set the base objects for working with the Material Management Assistant and define conditions for collecting material, among other things.

To make configuration settings, open the properties of the configuration object. See also chapter Tabs of the configuration object (Page 26).

3.2 Creating additional columns for MPR documents

You can expand the table of documents to be ordered on the "MPR Documents" tab in the Material Management Assistant by any number of columns.

Procedure

1. Open the "Attributes > Orders" tab of the configuration object. See also chapter "Orders" tab (Page 37).
2. In the "Additional columns" control group, enter the name of the column you want to create in the "Column name" column.
 - If you wish to create a column that adopts the values of a column from the material list, you have to enter the column name here exactly as it appears in the material list.
 - If you wish to create an empty column, enter any column name.
3. In the "Editable" column, enter whether or not the column is to be enabled for editing by the user.
 - Value "No": Column cannot be edited
 - Value "Yes": Column can be edited
4. In the "Quantity relevant" column, enter whether the contents of the column should be taken into consideration when the material is calculated
 - Value "No": Material quantity is ignored.
 - Value "Yes": Material quantity is taken into consideration

Material lists

4.1 Types of material lists

Material list type	Description
"Parts list"	Groups materials based on their pipe.
"Unit list"	Groups the material based on the unit in which it is located.
"Delta list"	<p>Calculates the difference between the following documents:</p> <ul style="list-style-type: none"> • Between successive revisions, or between the most recently released and currently pending revisions of an MTO document • Difference between currently pending revisions of the following MTO types: <ul style="list-style-type: none"> – Estimated MTO and Current MTO – Estimated MTO and Released MTO – Current MTO and Released MTO

4.2 Creating material lists

Material lists form the basis for creating MTO documents. The lists contain all data that will be transferred to the MTO documents on the basis of filters. You may create a material list for each MTO level.

Procedure

1. In the Navigator, select the "@MM > @Q > Material lists parts/units/delta list" object from the base data.
Below this object, you will find predefined material lists for the different MTO levels.
2. Drag&drop a material list to the engineering project.
3. You have the option of adding one or several columns to the material list, but you may not delete any of the predefined columns.
4. Save the material list.
5. Open the "Attributes > MTO documents" tab of the configuration object.
6. Drag&drop the material list you have created from the Navigator to the corresponding field of the "Material lists" control group.

Result

When you select the corresponding entry from the "MTO level" list of the "MTO documents" tab in the Material Management Assistant, material is taken from the material list that you have created and linked.

See also

Types of material lists (Page 11)

Creating and managing the MTO set of rules

Sets of rules are used to automatically calculate additions for the estimated quantities. The selection of the appropriate rules for a component is based on the relevant properties of the component. These properties include the number of parts, the nominal diameter, and the type.

Sets of rules can be created or managed in the standard tables.

Procedure

To create an MTO set of rules, proceed as follows:

1. To call the standard tables, call the "Administrator > Base data > Standard tables" menu command.
2. Activate the "Base" option.
3. To edit the MTO sets of rules, open the node "@3D > 00 > MTO > 31".
4. To view, delete, modify, or re-create the sets of rules shown in table format, double click on "31".

The table entries have the following meanings:

Column	Description
"Name"	Numbering increasing sequentially without gaps
"Description"	Rule set name, such as "L09-10/5 %"
"Value 1"	Component type, such as "TUBE". If a component type is not listed in the set of rules, enter "ELSE".
"Value 2"	Nominal diameter up to e.g. "50.0"
"Value 3"	Quantity up to e.g. "10.0"
"Value 4"	Margin in %, e.g. "10"
"Value 5"	Rounding, e.g. "6". This example involves a number that is divisible by the value "6".
"Value 6"	Cumulative number of parts, e.g. "0"

Example

Name	Description	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6
00001	L09-10/5 %	TUBE	50.0	10.0	0	6	0
00002	L09-10/5 %	TUBE	50.0	200.0	10	6	0
00003	L09-10/5 %	ELSE	10.0	99999.0	0	1	0

During MPR document creation, the user selects the name of a set of rules. The corresponding rule from the list described here is applied for the component and its number of parts.

The percentage margin is calculated and then rounded to a value divisible by a specified number. In addition, a supplementary margin is added. The resulting number represents the margin for a component.

Configuring an import from isometrics

Procedure

1. Open the properties of the "MMConfig Configuration for material management" configuration object in the Navigator.
2. Open the "COMOS MTO" tab. See also chapter "COMOS MTO" tab (Page 30).
3. Drag&drop a base object to the "Base object for pipes", "Base object for MTO objects", and "Base object for folder collection point" fields.
4. If you wish, you can enter an attribute of the engineering objects in the "Status attribute name" field, which specifies whether the engineering object is "Current" or "Released".

Once created, an MTO object is sorted into the relevant folder according to the attribute value.

Classification in folder	Condition
"Current"	<ul style="list-style-type: none"> • If the attribute value of the attribute specified in the configuration object in the "Status attribute name" field has the value "Current". • If no entry is available in the "Status attribute name" field and no revisions have been made to the isometry of the planned material or the revision has not been released.
"Released"	<ul style="list-style-type: none"> • If the attribute value of the attribute specified in the configuration object in the "Status attribute name" field has the value "Released". • If no entry is available in the "Status attribute name" field, but revisions have been made to the isometry of the planned material and released.

1. If you wish, you can define a filter for object identification.
2. If you wish, you can define the assignment of attributes between the planned material and the MTO object.
3. If you wish, you can define the scheme for the structure of a summation key.

Result

The user can create MTO objects from isometry data. You can find additional information on this topic in the "COMOS Material Management Operation" manual, keyword "Creating material from isometrics".

Configuring the material status in AVEVA PDMS

You have the option of locking status changes for a material in AVEVA PDMS and specifying a status for the material at the same time. You can find additional information on this topic in the "COMOS Material Management Operation" manual, keyword "Locking status changes in PDMS".

You can automate the process of locking buttons for status changes by creating a StartupFunction, for example, which creates the configuration object and calls corresponding functions there.

Configuring a CSV import

8.1 Structure of a CSV file

To import CSV files, they must have the structure shown below. The separator between the individual entries in the CSV file must be a semicolon.

Example

This is a representation of the CSV file in Microsoft Excel.

Current	today	XXXXXXXX										
Subsection	Owner	ItemCode	Shop	Quantity	Description	Type	Unit	ND1	ND2	Weight	Filter	OrderID
Steel	P1M1T105	HE100A/S	F	34	I-Beam	HEBEAM	m	96		16. Jul	A	BEGG26
Steel	P1M1T105	HE100A	F	13	I-Beam	HEBEAM	m	96		16. Jul	A	BEGG25
Steel	P1M1T105	HE120A	F	81	I-Beam	HEBEAM	m	114		19. Sep	B	BEJJ34
Steel	P1M1T105	HE120A	F	34	I-Beam	HEBEAM	m	114		19. Sep	B	BEGG34
Steel	P1M1T105	HE140A	F	97	I-Beam	HEBEAM	m	133		24. Jul	C	BEGG35
Steel	P1M1T105	HE140A	F	24	I-Beam	HEBEAM	m	133		24. Jul	C	BEHH34
Steel	P1M1T105	HE160A	F	23	I-Beam	HEBEAM	m	152		30. Apr	C	BEHH01
Steel	P1M1T105	HE160A	F	12	I-Beam	HEBEAM	m	152		30. Apr	C	BEAA67
Steel	P1M1T105	HE1000x4	F	7	I-Beam	HEBEAM	m	1020		415	C	BEGG24
Steel	P1M1T105	HE1000x4	F	10	I-Beam	HEBEAM	m	2		437	B	BECC78

Row 1

This row contains settings which it is mandatory to make.

Column	Description
1	<p>This value specifies whether the material will be created in the "Estimated", "Current", or "Released" folder during import.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • "Estimated" • "Current" • "Released" <p>Make sure that the spelling is correct.</p>
2	You enter a timestamp here, which can take any format you wish.
3	<p>You enter a key for the CSV file here.</p> <p>Every file must have a unique key so that existing data in COMOS can be overwritten the next time an import is performed with the same key.</p> <p>If an MTO document has been created from data which has already been imported and revisions have been made to that document, new "Estimated", "Current", and "Released" folders are created and incremented with a counter the next time an import is performed with the same key.</p>

Row 2

This row contains the column headers for the table which describes the material. Please note that the names of the columns are case-sensitive; if the spelling and case do not exactly match the original, errors will occur during the import.

Mandatory columns:

Column	Description
"Subsection"	Name of the subsection which you have created below the configuration object. The assignment of the SystemFullName and the storage position of the MTO objects, for example, are defined in this subsection. See also section Configuring a subsection (Page 20).
"Owner"	Name of the object below which an MTO object is to be created. The name of the owner is decoded using the assignment table in the subsection. See also section Configuring a subsection (Page 20).
"ItemCode"	Identification code
"Shop"	Workshop or construction site production Possible values: <ul style="list-style-type: none">• true• false
"Quantity"	Amount of material
"Description"	Description of material
"Type"	Type of material
"Unit"	Unit of quantity

Optional columns:

You can create as many other optional columns as you wish. The header of every additional column must contain the exact name of an attribute which is already available at the base object of the MTO object and whose value you want to enter via the CSV import.

Row 3 - n

The material being imported is described here. Each row corresponds to one component.

8.2 Configuring a subsection

Subsections are objects which are used to provide various settings for the CSV import. In particular, they perform the following functions:

- Deriving the path where an MTO object is to be created from the name of the owner specified in the "Owner" column in the CSV file
- Creating the MTO object at the position defined by the owner in the tree structure.
- Completing the owner structure of the MTO object according to the specifications relating to the name of the owner.

Procedure

1. Create a "Subsection" object below the configuration object.
2. Open the "Attributes > General settings" tab. See also section Subsection (Page 24).
3. Drag&drop a base object to the "MTO owner" field.
4. Drag&drop a base object to the "MTO object" field.
5. Enter the required settings in the "Name mapping for MTO owner" table. See also sections Subsection (Page 24) and Algorithm for generating a COMOS path name (Page 21).

8.3 Algorithm for generating a COMOS path name

Introduction

To find the path to the MTO object which is to be created, COMOS uses the "Name mapping for MTO owner" table at a subsection to deconstruct the name specified in the "Owner" column of the CSV file into its constituent parts. The interface then uses the parts of the name to derive the path to the correct node in the tree structure where an MTO object is to be created.

See also chapter Subsection (Page 24).

Algorithm

The following steps are performed when executing the mapping table:

1. Starting with the first part of the name, COMOS extracts the SystemFullName from the specification in the "Owner" column. To do this, COMOS evaluates the start index and the number of characters of the associated mapping entry.

For the last name part, the mapping entry on the far right is used; for the penultimate name part, the second mapping entry from the right is used, and so on.

2. The interface processes the individual mapping entries, starting with the one on the far left.

The following algorithm is executed for each mapping entry:

1. The entry in the "Data item" row is checked:
 - Name of a String Parameter:
Consequence: A corresponding COMOS node does not exist for the name part.
Continue with step 2.
 - Name or label of a COMOS object:
If there is one: The prefix and postfix are removed from the part of the name.
The remainder of the string represents the name or the label of an MTO COMOS. It is copied to the path list.
 - Nothing entered: Continue with step 2.
2. If the "Data item" row is empty or contains a String Parameter, a check is made whether the "Fixed name" row has been configured:
 - "Fixed name" not set: The processing of the mapping table is aborted for the object.
 - "Fixed name" set: The entered or resulting string is written to the path list.

Once all mapping entries have been processed, the sequence of the entries in the path list is reversed.

Result

- The string written to the path list produces the path to the MTO object to be created.
- If the object does not exist yet, the mapping table returns all needed information in order to create it. The name part of the last mapping entry is written to the "Name" property of the COMOS object.
- If the interface detects that the owner structure of the object you are looking for is incomplete: The mapping table provides all the information needed to complete the owner structure, if a base object has been specified for every hierarchy level.

References

9.1 MTOExportSettings.dat

The paths to the folders which are relevant for the MTO transfer are specified in this file. The path to the file must be specified in an INI file which you have created. You can find additional information on this topic in the "3D Integration Administration" manual, keyword "INI file".

The MTOExportSettings.dat file must be located in the following folder: %<PRJ>DFLTS%.

The file name MTOExportSettings.dat is just an example; any name can be used.

Note

You are not permitted to change the structure of this file, just the values.

Row in the file	Meaning
One	Possible values: <ul style="list-style-type: none"> • C • R Specifies whether the material has the status Current or Released
Two	Path to the folder in which the material files must be stored
Three	Path to the folder in which the XML files for pipes created by AVEVA PDMS with the status Current are stored
Four	Path to the folder in which the XML files for pipes created with the status Released are stored
Five	Path to the folder in which the created XML files for pipes are stored, if AVEVA PDMS is in IsoDraft mode
Six	Path to the Subclasses.xml file
Seven	Path to the folder containing the exportMTO files
Eight - n	For batch mode: Each row has a reference to an object in AVEVA PDMS whose MTO data is to be transferred to COMOS

Example

R
D:\MTOExport\MaterialFiles
D:\MTOExport\CurrentMTO
D:\MTOExport\Released
D:\MTOExport\Iso
C:\ComosTemp\Configuration\Subclasses.xml

9.2 User interface reference

9.2.1 Subsection

You create a subsection on the engineering side in the context menu of the configuration object in the Navigator.

Open: "Attribute > General settings" tab

"Base objects" control group

Field	Description
"MTO owner"	Base object of the owner of the MTO folder in the Navigator. If the owner specified in the CSV file does not exist, it is created again. Has the same function as the last column used in the "Base object of the 'Name mapping for MTO owner' table" row.
"MTO object"	Base object of the MTO object being created. Has the same function as all columns up to the last one used in the "Base object of the 'Name mapping for MTO owner' table" row.

"Name mapping for MTO owner" table

Row name	Function	Comment
"Prefix"	The prefix in the "Owner" column.	Used to break down the specification in the "Owner" column of the CSV file.
"Postfix"	The postfix in the "Owner" column.	
"Data item"	The basis for generating names. For example: "U2L" Meaning: unit tree, level 2, label. Stands for the label of the object at the second level of the unit tree.	
"Start index"	The insertion point for the SystemFullName within the full specification in the "Owner" column of the CSV file.	
"Number of characters"	The length of a data item at the corresponding hierarchy level.	
"Base object"	Base object used to create an object.	Only used to complete the owner structure of the MTO object or to create the MTO object.
"Base object from structure"	Flag which indicates whether the engineering structure linked to the project is used to create an object.	
"Fixed name"	The name of a COMOS object used to structure the COMOS data.	Only used to generate a path to a COMOS object.

The table columns represent the hierarchy levels of the objects in the Navigator.

9.2.2 Tabs of the configuration object

Open: Properties of the configuration object on the engineering side, "Attributes" tab

9.2.2.1 "General" tab

The "General" tab is where base objects and engineering objects are linked. You need the link for creating MTO and MPR documents and collecting objects from the P&ID.

"Folder" control group

Control element	Description
"Base object for revision folder" field	<p>Mandatory field. Used for referencing the base object template for the MTO folders that are created under the pipes and for collecting the MTO objects.</p> <ol style="list-style-type: none"> 1. In the Navigator, switch to the "Base objects" tab and open the node "@MM > @O > 1 MTOFolder". 2. Drag&drop the object "1 MTOFolder" into the "MTO Objects" field.
"MTO/PO report templates" field	<p>Mandatory field. Used for referencing the base object template/the node under which the report templates for MTO and MPR documents are located.</p> <ol style="list-style-type: none"> 1. In the Navigator, switch to the "Base objects" tab and open the node "@MM > @D Documents". 2. Drag&drop the object "@D Documents" into the field provided.
"MTO/PO documents" field	<p>Mandatory field. Used for referencing a group folder for all MTO and MPR document packages.</p> <ol style="list-style-type: none"> 1. First create a group folder in your engineering project on the "Units" tab. You can choose any name. 2. For referencing purposes, drag&drop this folder into the field provided.
"MTO document packages" field	<p>Mandatory field. For referencing the base object template for the MTO document packages. The document packages are created in the group folder for MTO packages (see "MTO/PO documents") and contain all documents of the respective package.</p> <ol style="list-style-type: none"> 1. In the Navigator, switch to the "Base objects" tab and open the node "@O Documents > @MTO MTO DocBaseObject". 2. Drag&drop the object "@MTO MTO DocBaseObject" into the field provided.
"MPR document packages" field	<p>Mandatory field. For referencing the base object template for the MPR document packages. The packages are created in the group folder for MPR packages (see "MTO/PO documents") and contain all documents of the respective package.</p> <ol style="list-style-type: none"> 1. In the Navigator, switch to the "Base objects" tab and open the node "@O Documents > @MTO MTO DocBaseObject". 2. Drag&drop the object "@MTO MTO DocBaseObject" into the field provided.

"Queries for estimated MTO" control group

Field	Description
"PID Estimation" field	<p>Mandatory field. For referencing the base object template for the display of the collected objects from the P&ID or from individual pipes.</p> <p>After clicking on "Update" or "Collect", the user sees the query on the "Estimated" tab in the Material Management Assistant.</p> <ol style="list-style-type: none"> 1. In the Navigator, switch to the "Base objects" tab and navigate to the "@MM > @Q > MTO-EstimatePID Query" node. 2. Drag&drop the object to the field provided.

9.2.2.2 "Estimated MTO" tab

On this tab you can configure the defaults for the user's view of the "Estimated MTO" tab.

"Base object for MTO object" field

For defining a base object for creating MTO objects from the P&ID.

A suitable base object can be found as a template on the "Base objects" tab in the Navigator, under the "@MM > @O > MTO > 01 Estimated material" node.

"Object identification" control group

This area is responsible for correct collection from the P&ID. This is where you define the conditions which are checked for every object placed on the P&ID.

If an object does not satisfy all the conditions, the collection routine skips it.

Control element	Description
"Only objects with implementation" option	<p>Objects with implementation are objects which have already been assigned manufacturer devices. The opposite of these are engineering objects, for which only the pipe spec and nominal diameter information is known, for example.</p> <p>If the "Only objects with implementation" option is activated, additional elements of the "Object identification" control group are deactivated due to the implementation work carried out.</p>
"Attribute" column	Here, enter the name of an attribute or a script call.

Control element	Description
"Condition" column	<p>The following operators can be used:</p> <ul style="list-style-type: none"> • "=" • ">" • "<" • ">=" • "<=" • "<>" (not the same) • "like" • "set": Checks that the attribute specified exists • "unset": Checks that the attribute specified is missing
"Value" column	<p>Specifies the value to be checked. Values in quotation marks represent fixed texts. Alternatively, an attribute name or a script call may be entered in this case too. If a "set" or "unset" was selected in the preceding "Condition" column, the "Value" column must not have information entered in it.</p>

"Attributes list" control group

This is where you define the assignment of the attributes of the P&ID objects to attributes of the created MTO objects. The attribute value of the attribute in the "P&ID" column is transferred to the attribute in the "MTO" column.

Example:

Attributes list	P&ID	MTO
Attribute1	SYS.PIA600	MTO.MatchCode

The "SYS.PIA600" attribute sets the "MatchCode" attribute at the MTO object to the value of the "SYS.PIA600" attribute of the P&ID object.

"Summation key" control group

The purpose of this control group is to identify components of the same type with the same summation key.

This is where you define a set of rules for assembling a key based on the properties of the P&ID object. As far as possible, the key is intended to identify the object uniquely. This is necessary so that, as early as the step when the objects are collected from the P&ID, objects that are assumed to be of the same type can be merged to form a single MTO object and the quantities found can be added up.

Column	Description
"Expression"	<p>Attributes of the planned object; the summation key is assembled from these attribute values.</p> <p>You can enter a value in the following format:</p> <ul style="list-style-type: none"> • Fixed texts enclosed in quotation marks • Attribute names • Script calls
"Condition"	<p>Possible operators are:</p> <ul style="list-style-type: none"> • "=" • ">" • "<" • ">=" • "<=" • "<>" (not the same) • "like" • "set": Checks that the attribute specified exists • "unset": Checks that the attribute specified does not exist <p>The logic is that expression 1 is compared with expression 2 based on the condition. Depending on whether the comparison is true or false, the summation key receives the value from "True value" or "False value".</p> <p>If a "Set" or "Unset" is defined in the condition, the expression 2 column is not filled out.</p> <p>If a fixed value within quotation marks is entered in expression 1, none of the other columns are required.</p> <p>If an attribute name or a script appears in expression 1 and none of the other columns are filled out, only this column is evaluated and appended to the summation key.</p>
"Expression"	Here you enter attribute names or script calls.
"True value"	<p>You can enter a value in the following format:</p> <ul style="list-style-type: none"> • Fixed texts enclosed in quotation marks • Attribute names • Script calls
"Wrong value"	<p>You can enter a value in the following format:</p> <ul style="list-style-type: none"> • Fixed texts enclosed in quotation marks • Attribute names • Script calls

Examples of entries in the "Summation key" control group

Expression	Condition	Expression	True value	Wrong value
SYS.PIA600				
PI030.PIA008a				
PI030.PIA008b	set		PI030.PIA008b	""

Meaning:

Component type + nominal diameter 1 + nominal diameter 2 (if available)

Summation key: FLAN100

Summation key: REDU10080

The key signifies that all components found with the same key are merged to form a single object. In this example, all flanges with the same nominal diameter are merged to form a single object and their quantities are added together.

9.2.2.3 "COMOS MTO" tab

Tab for configuring links for import objects. These links are required for collecting objects that have been imported by COMOS.

Field	Description
"Base object for pipes"	Mandatory field. For defining a base object template for pipes. Is used to add the MTO objects below the pipes. "RLI Isometry" base object in the COMOSDB
"Base object for MTO objects"	Mandatory field. For defining a base object template for creating new MTO objects. "05 Estimated piping MTO" base object in the COMOSDB
"Base object for folder collection point"	Mandatory field. For defining the base object for the object in the Navigator under which the objects to be collected (which will later be merged to form MTO objects) are located. "DocFolder objects" base object in the COMOSDB
"Status attribute name"	Optional. Attribute name of an attribute at the planned material, which specifies whether the material is "Current" or "Released". A created MTO object is sorted according to the attribute value.

"Object identification" control group

This is where you define filters which control the selection of material for creating MTO objects. If no filter is defined, MTO objects are created for all objects below the node for which you have executed the "Collect material" command.

Column	Description
"Attribute"	Attribute of the planned objects, which must fulfill a condition
"Condition"	Condition which the attribute value must fulfill
"Value"	Comparison value

"Attributes list" control group

This is where you define the assignment of the attributes of the planned objects to those of the created MTO objects. The attribute value of the attribute in the "Isometry" column is transferred to the attribute in the "MTO" column.

"Summation key" control group

The purpose of this control group is to identify components of the same type with the same summation key.

This is where you define a set of rules for assembling a key from the properties of the planned object. As far as possible, the key is intended to identify the object uniquely. This is necessary so that, as early as the step when planned objects are collected, objects that are assumed to be of the same type can be merged to form a single MTO object and the quantities found can be added together.

Column	Description
"Expression"	Attributes of the planned object; the summation key is assembled from these attribute values.
"Condition"	<p>Possible operators are:</p> <ul style="list-style-type: none"> • "=" • ">" • "<" • ">=" • "<=" • "<>" (not the same) • "like" • "set": Checks that the attribute specified exists • "unset": Checks that the attribute specified does not exist <p>The logic is that expression 1 is compared with expression 2 based on the condition. Depending on whether the comparison is true or false, the summation key receives the value from "True value" or "False value".</p> <p>If a "Set" or "Unset" is defined in the condition, the expression 2 column is not filled out.</p> <p>If a fixed value within quotation marks is entered in expression 1, none of the other columns are required.</p> <p>If an attribute name or a script appears in expression 1 and none of the other columns are filled out, only this column is evaluated and appended to the summation key.</p>
"Expression"	Here you enter attribute names or script calls.
"True value"	<p>You can enter a value in the following format:</p> <ul style="list-style-type: none"> • Fixed texts enclosed in quotation marks • Attribute names • Script calls
"Wrong value"	<p>You can enter a value in the following format:</p> <ul style="list-style-type: none"> • Fixed texts enclosed in quotation marks • Attribute names • Script calls

Examples of entries in the "Summation key" control group

Expression	Condition	Expression	True value	Wrong value
SYS.PIA600				
PI030.PIA008a				
PI030.PIA008b	set		PI030.PIA008b	""

Meaning:

Component type + nominal diameter 1 + nominal diameter 2 (if available)

Summation key: FLAN100

Summation key: REDU10080

The key signifies that all components found with the same key are merged to form a single object. In this example, all flanges with the same nominal diameter are merged to form a single object and their quantities are added together.

"Quantities" control group

This is where you define whether the quantity of pipes is to be determined via their number of parts or their total length.

If you do not enter anything in this table, the number of parts of all pipes is added together. If you define conditions, the values of the attribute you have specified in the "Attribute" column are added together for all objects.

You can define several conditions. If a particular condition is not fulfilled, the subsequent ones are checked. If none of the conditions are fulfilled, the current pipe is skipped and not included in the quantity.

Column	Description
"Expression"	Attribute of the planned objects, which must fulfill a condition
"Condition"	Condition which the attribute value must fulfill
"Value"	Value which the expression must have
"Attribute"	Attribute whose value is read out and added to the values of other objects. The sum of these values gives the total quantity The attribute must contain the length of the pipe

9.2.2.4 "MTO documents" tab

You can make the following settings on the "MTO Documents" tab:

- The rules governing the naming of MTO document packages.
- The types of documents to be created.
- Whether the content of the documents is to be dependent on conditions (filters)
- Whether and how documents should be grouped

Field	Description
"Name of MTO document package"	<p>Mandatory field. In this field, you specify the names of MTO document packages, including the required naming conditions.</p> <p>Example:</p> <p>The entry is as follows: <code>"PM." + Text(1) + "-" + Filter(1) + "-" + group + "-"</code></p> <p>The first value in the "Text fields" control group is: "L10", the first value in the "Filter" control group: "B1".</p> <p>This results in the following names for MTO document packages: "PM.L10-B1-1-1", "PM.L10-B1-2-1", "PM.L10-B1-3-1", etc.</p>
"Document key"	<p>Mandatory field. Set the document key here. Enter the desired conditions. The document key consists of filter values, text field values, and fixed strings.</p> <p>Example:</p> <code>"MTO-" + Filter(1) + "-" + Text(1)</code> <p>In the "Document key" field on the "Material Management Assistant > MTO Documents" tab, this results in the following entry in the standard table: "MTO-B1-L10"</p>
"Base object for creating documents via popup"	<p>Specifies the base object that is necessary for an object at which you can create MTO documents in the Navigator by means of the context menu.</p> <p>For more information on this topic, refer to the "COMOS Material Management Operation" manual, keyword "Creating MTO documents".</p>
"User context"	<p>Possible value: Script call or attribute query</p> <p>If you call the Material Management Assistant from the Navigator via the context menu, the expression is evaluated depending on the selected object.</p> <p>The user context is appended to each document process.</p> <p>Effect:</p> <ul style="list-style-type: none"> • The "Documents" tab displays only those document processes which have the same user context as that determined at the object in the Navigator. • The "MPR documents" tab displays only those MTO keys of the documents which have the same user context as that determined at the object in the Navigator. <p>Example: If the user context is <code>owner.name</code>, only those documents which have the name of the selected object in the Navigator as user context are displayed.</p>

"Documents" control group

In this control group, you set which documents are created in a run. Data must be entered for at least one document. One line is provided for each document.

Column	Description
"Master"	Mandatory field. One master document per document package. Entry "Yes" or "No"
"Name"	Mandatory field. Enter a name that identifies the document internally as a type of variable. Example: Doc1. The name of the variable must be unique. It is used throughout the internal system.
"Document name"	Enter the name of a document, e.g. CoverSheet. If several package groups are specified, a name such as this can be used unchanged for several package groups.
"Description"	Enter a description text here.
"Label"	Label of the document
"Description"	Description of document
"Report"	Mandatory field. Enter the name of the appropriate report template. You can find suitable report templates on the "Base objects" tab in the Navigator under the "@MM Material Management > @D Documents" node.
"Package group"	Mandatory field. Enter a number for the package index, e.g. "1" or "2". All documents that relate to the same package index later emerge in a single group.
"XML"	Specifies whether an XML file containing material data is created for an MTO document. Possible values: <ul style="list-style-type: none"> • Yes • No

Example:

Master	Name	Document name	Label	Description	Report	Package group	XML
Yes	Doc1	DAT		Material Assembly List Group	DAT.001	1	Yes
No	Doc2	CoverSheet			CSV.001	1	No

"Filter" control group

In this control group you set which objects from material lists are shown in specific documents.

Column	Description
"Document"	Enter the MTO document for which the filter is defined. Example: In order to enter "Doc1" at this point, for instance, "Doc1" must also appear in the "Name" field of the "Documents" control group.
"Column"	Enter the column name in the material list in which the filter is to be set.
"Operation"	Here, select a comparison operator from a list.
"Value"	Enter a setpoint. This value is only transferred to the Material Management Assistant if you create MTO documents via the context menu of an object in the Navigator. You can enter a value in the following format: <ul style="list-style-type: none"> • Fixed texts enclosed in quotation marks • Attribute names • Script calls (owner.<script call>)

"Material lists" control group

In this control group you specify the material lists on which the creation of MTO documents is based. When configuring material lists, verify the existence of a "Quantity" column that contains the total quantity for each material entry.

Field	Description
"Estimated MTO"	3 mandatory fields. To complete these fields, select the desired query in your engineering project on the "Units" tab in the Navigator, and drag&drop it to the appropriate edit field in the "Material Lists" control group.
"Current MTO"	
"Released MTO".	
	If you have not yet created a suitable query, you can find appropriate templates on the "Base objects" tab in the Navigator, under the node "@ MM Material Management > Q Queries > MaterialLists".

"Grouping" control group

In this control group you set the sequence in which the individual documents are created.

Column	Description
"Document"	Here you enter the name by which the document is identified internally. It is identical to one of the names in the "Documents" control group, in the "Name" column.
"Column"	Here, enter the column name by which the display on the MTO documents is grouped.
"Level"	Here you specify the hierarchy level for the grouping. This must be consecutively numbered for each document level. Example: Level 1 stands for the first grouping, level 2 for a subgroup of the first grouping, etc. For a first document (Doc1), the elements to be listed are grouped first by "TechnoCode". Within this grouping, they are also grouped by "PipeName":

Example:

Document	Column	Level
Doc1	CommodityCode	1
Doc1	PipeName	2

"Text fields" control group

This control group contains fields you have the option of completing, which are to appear on the specified documents. For instance, you have the option of adding the phone number at a specific point in all cases.

Column	Description
"Document"	Internal name of the document on which the text field is placed. It is identical to one of the names in the "Documents" control group, in the "Name" column.
"Field"	References the text field in the respective document.
"Value"	This value is shown in the document.

The "Apply" or "OK" buttons are available for saving the configuration settings.

9.2.2.5 "Orders" tab

The terms "Purchase Orders" and "MPR documents" are used synonymously to refer to order lists.

You can specify the following, for example:

- The rules governing the naming of MPR document packages.
- The types of documents to be created.

- Whether additional column names are to be used in MPR documents.
- What is to be entered in certain text fields.

Field	Description
"Name of MPR Package"	Mandatory field. In this column, you specify the names of MTO document packages and the required naming conditions. You can find additional information in the "COMOS Material Management Operation" manual, keyword "'MTO documents' tab".
"Document key"	Mandatory field. Set the document key here. Enter the desired conditions. The document key consists of filter values, text field values, and fixed strings. You can find additional information in the "COMOS Material Management Operation" manual, keyword "'MTO documents' tab".

"Documents" control group

Here you set which documents are created in a run. Data must be entered for at least one document. One line is provided for each document.

Column	Description
"XML"	Mandatory field. Entry "Yes" or "No" If you enter "Yes", not only is a document object created, but an XML file is also saved in your file system. The "Yes" entry must appear once per MPR document package.

The meanings of the other columns in the "Documents" control group have already been explained. See also chapter "MTO documents" tab (Page 33).

"Additional columns" control group

This control group allows you to create additional columns which are shown on the "MPR documents" tab of the Material Management Assistant. The columns are displayed after a quantity of data has been selected for order.

Column	Description
"Column name"	Name of the column
"Editable"	<ul style="list-style-type: none"> • Value "No": Column cannot be edited • Value "Yes": Column can be edited
"Quantity relevant"	<p>Specifies whether and how the column is used for calculating material. The value contained in the respective column is added to or subtracted from the calculated order quantity.</p> <ul style="list-style-type: none"> • Value "No": Column is not used • Value "Yes": Column is used <p>If the user enters a positive value in the column created in the Material Management Assistant, it is added to the material quantity.</p> <p>If the user enters a negative value in the column created in the Material Management Assistant, it is subtracted from the material quantity.</p>

"Text fields" control group

In this control group you can set the output of additional text information in the MPR document.

Column	Description
"Name"	Name of the text field. Example: "Author"
"Value"	Value of the text field. Example of an entry for the name of the author: "Miller"

Fields

Field	Description
"Column for summation"	Column name for summing and sorting. This column is particularly suitable for contents such as the order number. To make an appropriate new column name visible in the MPR document, you must also enter it in the "Additional columns" control group.
"MPR package ID"	Mandatory field. This is where you set the label of the package group. Enter the desired conditions. The document key consists of filter values, text field values, and fixed strings.

"Allow revisioning" option

Activated: The "Make revision" option can be activated for the user on the "MPR Documents" tab in the Material Management Assistant.

9.2.2.6 "Detailing Pipes" tab**"Standard GTypes" control group**

In this control group, enter the component types that are to be displayed to the user on the "Manual Estimation" tab during manual estimation. You can find additional information on this topic in the "COMOS Material Management Operation" manual, keyword "Assigning additional components".

Only the components that were extracted from the piping and instrumentation diagram (P&ID) are listed on the "PID Estimation" tab. However, parts that are not listed on the piping and instrumentation diagram (such as elbows) should also be added during manual estimation.

Column	Description
"GType"	To call a component type from a standard table, click in an empty field. The standard table contains the stored component types, for instance "ELBO – fitting elbow" or "Tube – implied tube". On the "Manual Estimation" tab, the user is then also shown detail data (manufacturer devices) which can be selected and which is taken from the COMOS base data.

"Additional columns" control group

This control group allows you to define additional columns which are also shown on the "PID Estimation" tab. You can find additional information on this topic in the "COMOS Material Management Operation" manual, keyword "Itemizing material".

This has the purpose of providing information for the user. The information displayed in the columns always refers to the component in the pipe spec. The file extension here is either a script call or an attribute name.

Column	Description
"Column name"	Enter the column name here.
"Expression"	Enter the attribute name or the script call here. Example: "Owner.Owner.Name". This evaluates 2 levels of the owner and states the name of the upper owner.
"Width"	For entering the field width in pixels, e.g. "100".