

Comos – UBIK – Interface

Admin documentation

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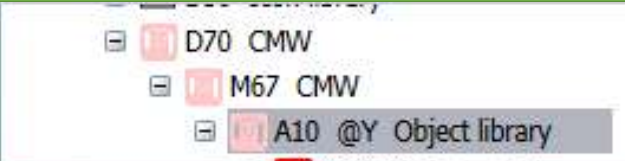
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Introduction



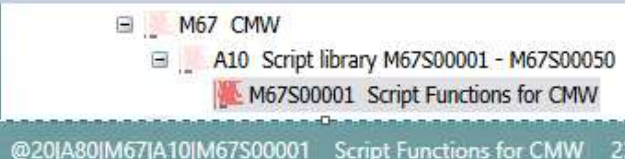
CUI (Comos – UBIK® – Interface)

CDevices for Interface Objects



@20[D70|M67|A10] Object library 23.09.2022

Script Library for Interface, and logging Data

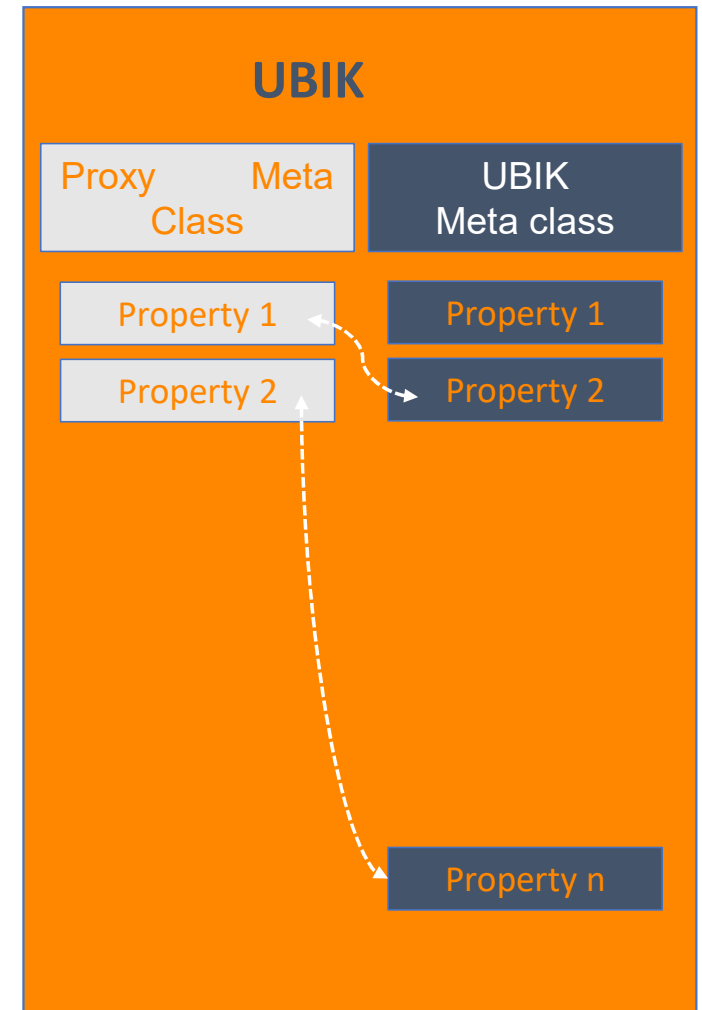
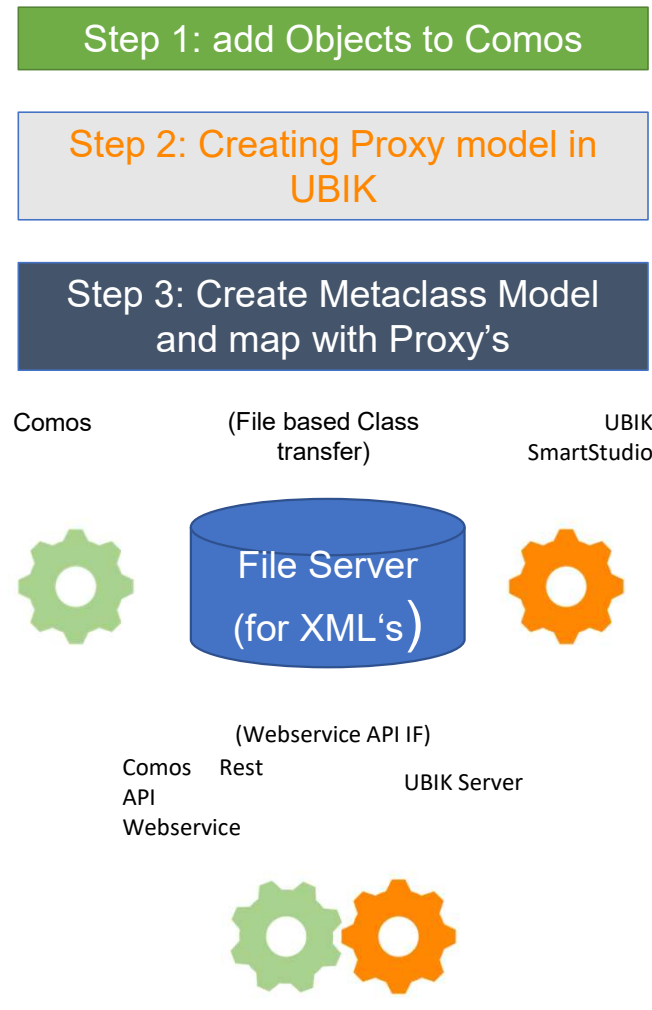


@20[A80|M67|A10|M67S00001] Script Functions for CMW 23.09.2022

Template Objects for CDevices



@30[M67|A50|A20|A10] ComosBaseObject 23.09.2022



Idea and Concept

METADATA

- Meta information should be transferred from Comos to UBIK defining the Proxy's and Metaclasses used in interfacing.
- The meta definitions include object types as well as how these objects and defined properties are synchronized.

DATA

- Data and hierarchy information should be synchronized between UBIK and Comos.
- This encompasses engineering data as well as documents from Comos and its according counterpart in UBIK.

HANDSHAKE

- The result of a synchronization action in one system is a response information for the other system.
- With this response the systems exchange status information on the synchronization with each other.

Comos: Meta data I (Comos Templates)

- Meta data is defined via Template Objects (Base Objects).
- Template Objects are created for and linked to Base Objects, whose engineering objects should be synchronized; for attributes that should be transferred there are elements created.
- Element Objects of a Template are used to
 - For each element there is a transfer definition.
 - Is the element from Comos Master, Client or Synched via Timestamp
 - Definition of transfer Values (Value, XValue, SValue or LValue)
 - Or a Calculated DisplayValue with or without PhysUnit (DisplayValue)
 - Also, StandardValues in Lists (single or all Values) !!!!

Comos: Meta data II (Comos Base Data)

- Standard Tables, linked to a configured attribute in Comos, and the according Element template are automatically added to the meta data export.
- PhysUnits, in terms of Unit Groups and Unit Items of this group, are automatically added to the meta data export, with linkage to SI Unit System.
- Comos Document Relations (DocObj's) and Reference Documents could be transferred to UBIK (Relation Data Objects).
- Any future update of the template structure in Comos has to be updated in the meta structure in UBIK.

Standards of Data transfer

- Data handover is bound to standards
 - Objects and Attributes are transferred with the last user and timestamp from Comos, to assure the timeliness of the data.
 - Date and Time are converted to UTC (Greenwich) for transfer.
 - Numbers with Units will be transferred in SI-Units.
 - StandardValues will be transferred as StandardValue of List.
 - There is a value mapping for both directions to ensure that unique values are transmitted and understood by the other side.
 - There is also a values filter to filter predefined values if desired.

Standards of Data transfer

To transfer Objects the main requirement is an Attribute with the Link to the Template, its located on the UBIK Object Tab, and its NestedName is “M67T00013.M67A00020”

The screenshot shows the 'Configuration' and 'Meta data' tabs of the UBIK Object interface. The 'Configuration' tab has a 'Register' button and fields for 'Comos UID' (U:29:A4QSV43YJ4), 'Comos Owner UID' (U:8:A4QSV430J4), 'UBIK GUID', and 'UBIK Owner PRD'. The 'Meta data' tab has an 'Active' checkbox and a 'Template' field containing 'COMOS_DOCUMENT_BASE_OBJECTS_IN_RELATION_'. The 'Template' field is highlighted with a red rectangle. Below the 'Template' field is an 'Interface' section.

- From Comos 10.4.2 and UBIK 3.7 it is also possible, to transfer engineering Data, if Objects in Comos Classified with “C270” Functional Classification, they will notify any change via the Webservice Interface permanently. The webservice doesn’t need files to transfer data between the Systems as long an internet connection exists.
- For Objects that are already existing in the Engineering Project and/or not Classified “C270” there is the possibility to Export them as long they have a Template set on the UBIK TAB

Comos: Data I

- Planning data are transferred according to the settings of the templates
- An engineering object knows its template, below this there also the elements to be synchronized.
- On UBIK side there are auxiliary objects for the data transfer, in these are called Proxy objects
- Logging is written to files in the Comos file store according to Project setting.
- All other data is loaded from UBIK via Web-Rest-API according to the settings
- If connection is online transfer Back Data to Comos is possible, and nearly immediately

Comos: Handshake

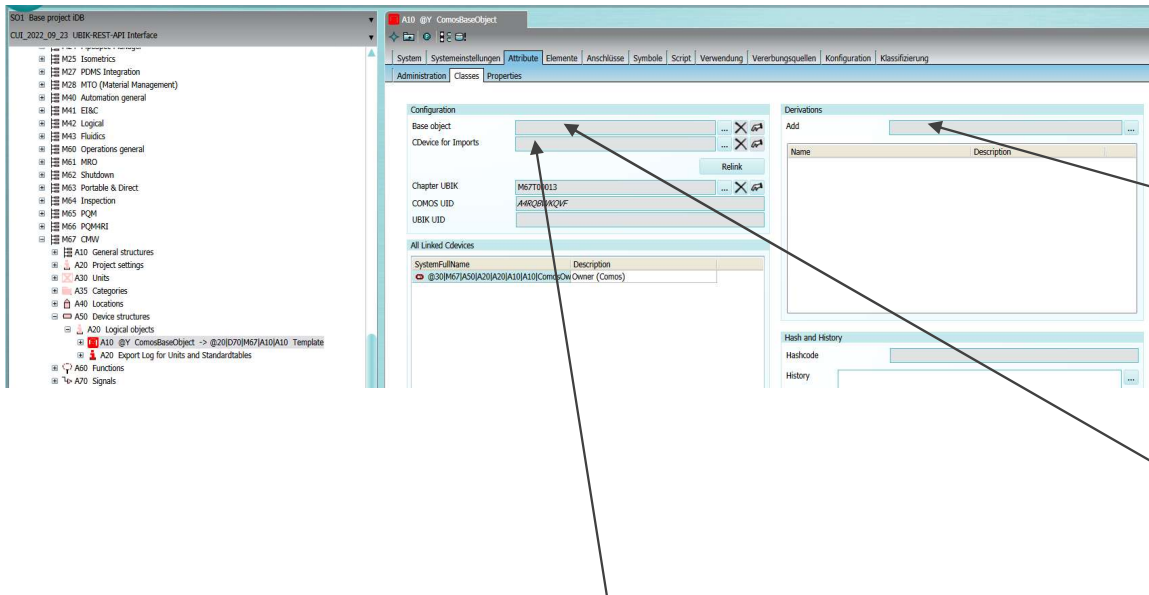
- The response of the other system is called a handshake
 - „Acknowledged“: means the synchronisation action was successful
 - „Not acknowledged“: synchronisation action not successful; error information given in the handshake data
- Handshakes also transfer GUIDs from new UBIK objects to Comos and vice versa; thus, you have both the Comos UID and GUID uniquely switched to each other.
- If Web Rest API is used only on Base project for Meta Data Export a Handshake will be written by UBIK.

Templates



Comos: Templates

METADATA



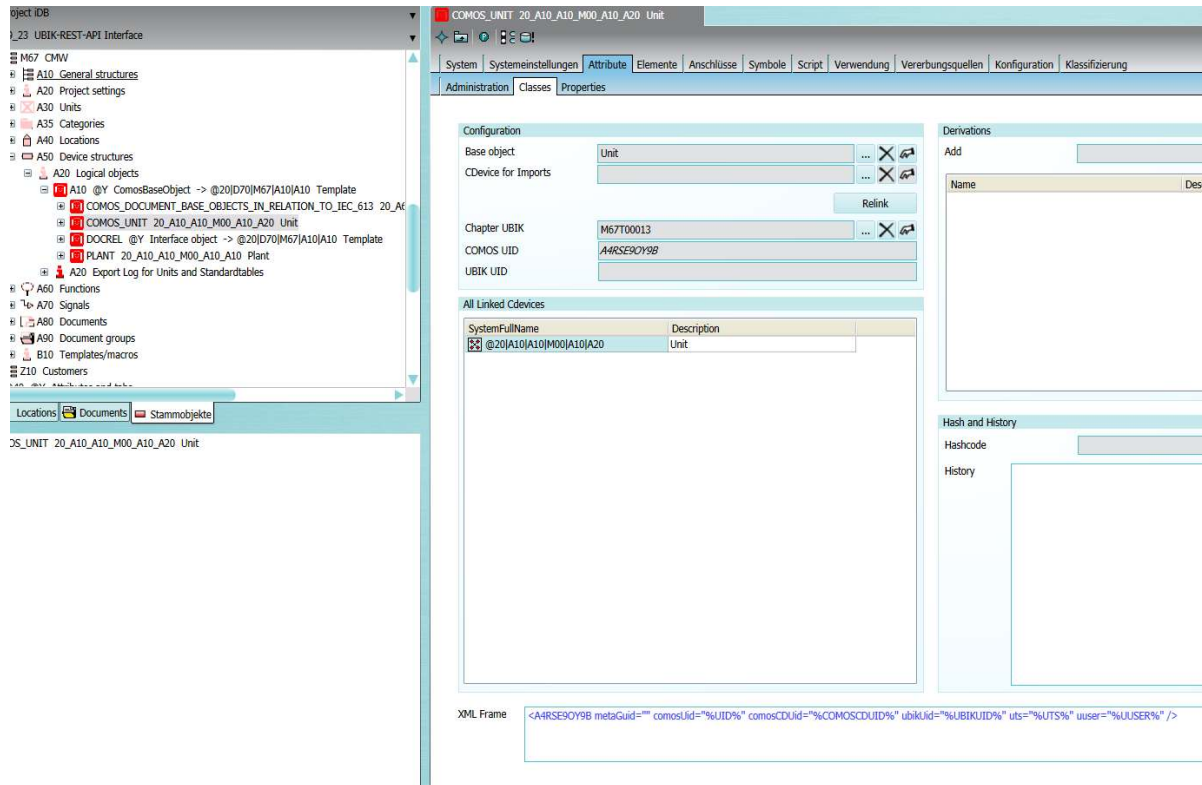
On the Base project there are ways to generate new Templates

1. Open the Tab Classes on the ComosBaseObject, chose a Cdevice and drag it on the “Add” attribute.
2. Create a New Cdevice below the ComosBaseObject and drag your Cdevice to the Base object Link.

If the Cdevice is a Structure or an inactive Device, you can add a Cdevice link for reimport cases the linked additional Cdevice will be used for Creation of new Devices

Comos: Templates

METADATA



After creation and Linkage, your new template should look like this;
The Base Object got a new UBIK tab and is linked to this template Object.

Comos: Template Elements I

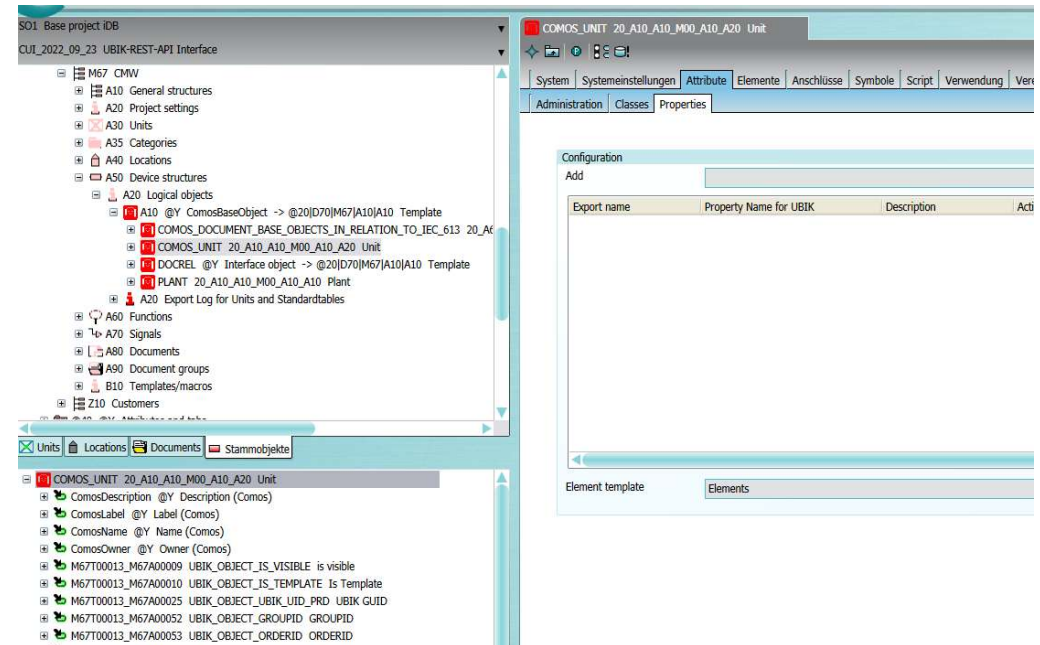
METADATA

Standard Properties and Custom Properties are defined as Elements that are heritage.

If the are not defined directly on this Object, the list on the Properties Tab will stay empty.

If you want to add Properties from this Cdevice be aware that they must be inherit there; if not linking would not work.

After adding Elements, you can change the standard settings to your needs, by opening the element as Object single, or use a Query stored in “@20|A70|Y20|M67|A70”



Comos: Template Elements II

METADATA

Administration Classes Properties

Configuration					
Add					
Export name	Property name for UBIK	Description	Multilanguage	Sync	Value type
M67T00013_M67A00025	UBIK_GUID	UBIK GUID	☐	Timestamp	Value / XValue
M67T00013_M67A00037	ICONFILE	Icon File name	☐	Master	DisplayValue / DisplayXV
M67T00013_M67A00058	FREEPOINTER_01	Free pointer 01	☐	Timestamp	SystemUId (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_02	Free pointer 02	☐	Timestamp	SystemUId (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_03	Free pointer 03	☐	Timestamp	SystemUId (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_04	Free pointer 04	☐	Timestamp	SystemUId (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_05	Free pointer 05	☐	Timestamp	SystemUId (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_06	Free pointer 06	☐	Timestamp	SystemUId (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_07	Free pointer 07	☐	Timestamp	SystemUId (of LinkObject)

Template Element's are Linked to inherit attributes and hold the Settings for Export and Import. The Element name is the NestedName of the Attribute, the Name for UBIK is the English Description of the Owner and the Attribute and can be changed on the Attribute Properties; Note that its max. length is 255 Characters

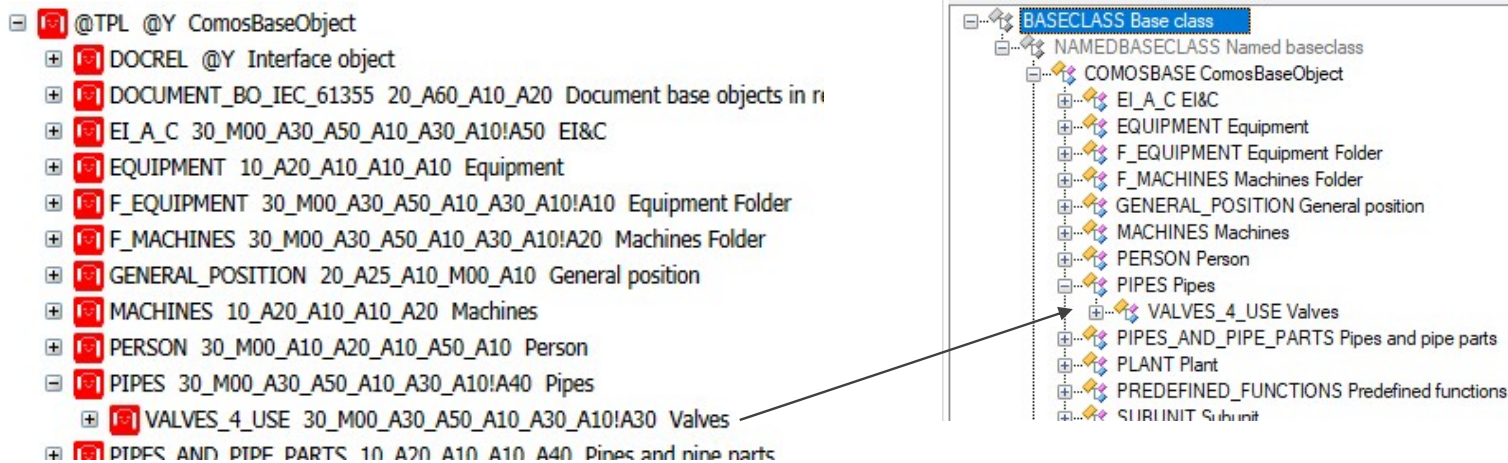
Specification	
Specification	Freepointer 02
COMOS UID	A4RNCI7L51
UBIK UID	
Sync. method	Timestamp
Property name for CMW (UBIK)	FREEPOINTER_02
XML Frame	<A4RNCI7L51 name="FREEPOINTER_02" uts="%UTS%" uuser="%UUSER%"><value>%VALUE%</value>%VALUES%%XVALUES%</A4RNCI7L51>

Value configuration	
Value type	SystemUId (of LinkObject)
Multilanguage	☐
Validation User	
Validation Timestamp	
Use X-values	☐
Standard value	
External UBIK SIUnit	
Template object	ComosBaseObject

Here you can define settings like: Sync. Method, Value Type or Is Multilanguage

Comos: Template Modules and Hierarchie

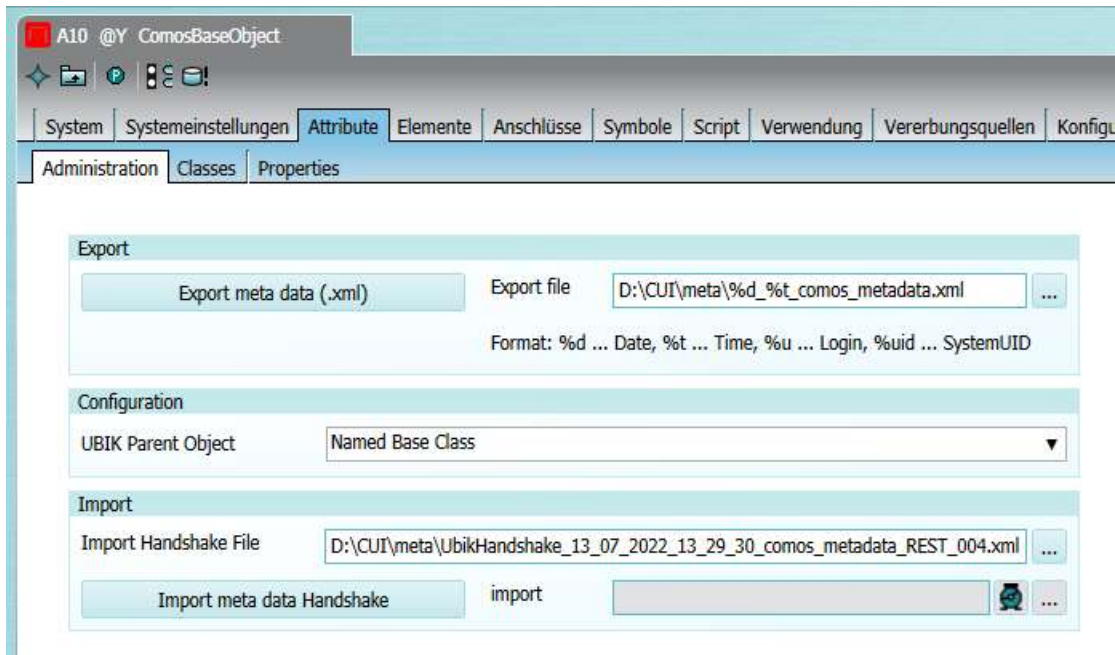
METADATA



Template hierarchy in Comos defines Metaclass inheritance in UBIK. This doesn't affect the visualisation on the UBIK client directly.

Comos: Templates Administration I

METADATA



- The Template object is the basic template.
- The UBIK Parent Object is a definition where the UBIK Object is created.
- After the import in UBIK you can create a Handshake with the GUID to write this to Comos.

The export function is available on every template but is mostly executed only on the root object.

Comos: Templates Administration II

METADATA

The Base object is linked on the class tab; it automatically defines a name for the template. Special Characters will be replaced!

The Cdevice for Imports must be used if the Base Object is a structure or inactive to define a Cdevice for new Created Objects

The Relink Button is checking the Base Object and settings and restoring them to standard

The Chapter UBIK is a link to the Tab that is provided to the Cdevice that is linked on the Base Object Attribute

Th Comos UID is showing the SystemUID (DB KEY) from this Comos Object

The UBIK GUID (DB KEY) should show after import the UBIK Metaclass Identifier

SystemFullName	Description
@20 A10 A10 M00 A10 A10	Plant

The list of linked CDevices shows all CDevices directly pointing to this Template

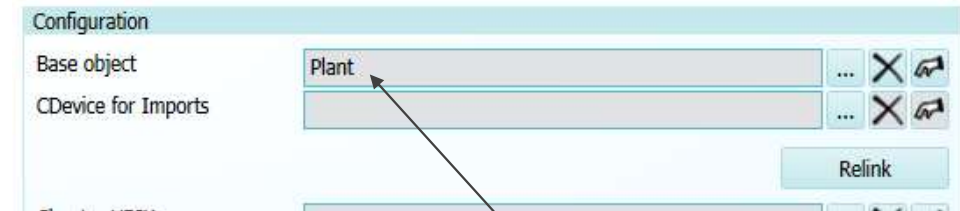
Comos: Templates Hierarchy / Heritage

METADATA

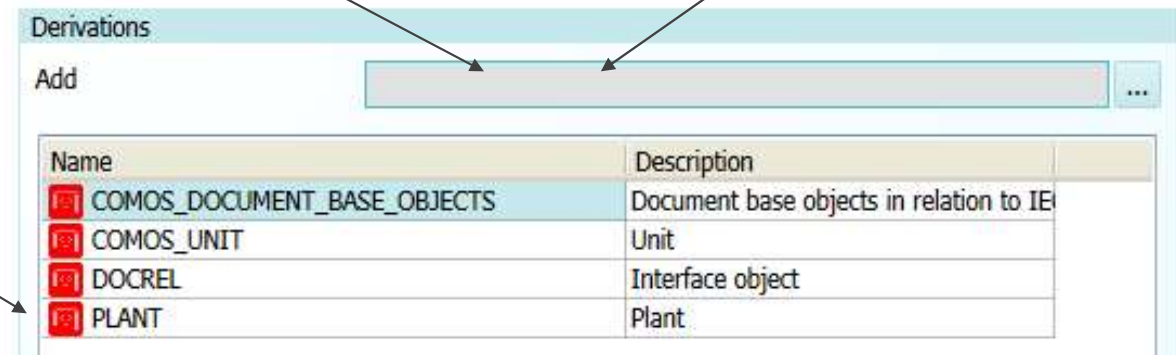
Drag & Drop Cdevice to Template.

Drag & Drop Cdevice's that should be created below as a template, to create hierarchy levels.

All objects that are configured in Comos under the template, are also hierarchically ordered in the same way in the Metaclass model in UBIK.



Drag & Drop CDevices



Comos: Templates Properties

METADATA

Administration Classes Properties

Configuration

Add

Export name	Property name for UBIK	Description	Multilanguage	Sync	Value type
M67T00013_M67A00025	UBIK_GUID	UBIK GUID	☐	Timestamp	Value / XValue
M67T00013_M67A00037	ICONFILE	Icon File name	☐	Master	DisplayValue / DisplayXV
M67T00013_M67A00058	FREEPOINTER_01	Free pointer 01	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_02	Free pointer 02	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_03	Free pointer 03	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_04	Free pointer 04	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_05	Free pointer 05	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_06	Free pointer 06	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_07	Free pointer 07	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00058AA0	FREEPOINTER_08	Free pointer 08	☐	Timestamp	SystemUid (of LinkObject)
M67T00013_M67A00059	FREE_TEXT_01	Free text 01	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_02	Free text 02	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_03	Free text 03	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_04	Free text 04	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_05	Free text 05	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_06	Free text 06	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_07	Free text 07	☐	Timestamp	Value / XValue
M67T00013_M67A00059AA0	FREE_TEXT_08	Free text 08	☐	Timestamp	Value / XValue
M67T00013_M67A00060	STATUS	Status	☐	Timestamp	Value / XValue
M67T00013_M67A00061	REMARKS	Remarks	☐	Timestamp	Value / XValue
M67T00013_M67A00062	SYNCHED_WITH_UBIK	Export	☐	Timestamp	Value / XValue
M67T00013_M67A00063	CREATED_IN_UBIK_AT	Import	☐	Timestamp	Value / XValue
M67T00013_M67A00064	COMOS_DOCUMENT_TYPE	Document Type	☐	Master	DisplayValue / DisplayXV
M67T00013_M67A00064AA0	COMOS_DOCUMENT_TYPE_NAME	Document Type Name	☐	Master	DisplayValue / DisplayXV
M67T00013_M67A00065	COMOS_REPORT_TYPE	Report Type from Comos	☐	Master	DisplayValue / DisplayXV
M67T00013_M67A00065AA0	COMOS_REPORT_DESCRIPTION	Report Description from Comos	☐	Master	DisplayValue / DisplayXV
M67T00013_M67A00066	RIGHTS	Rights	☐	Timestamp	DisplayValue / DisplayXV
OverlayName	overlayName	overlayName	☐	Client	
OverlayUid	overlayUid	overlayUid	☐	Client	SystemUid (of LinkObject)
ProjectName	projectName	projectName	☐	Client	

Element template Elements

- On the Property Tab you will see all direct added Attributes for Export or Import.
- Each property has different settings and description, more can be found on the following pages.



- Properties in UBIK could be properties or attributes from Comos.
- Some object properties are predefined by default, attributes can be added as needed.
- The SystemUID from Comos Objects is Hardcoded because it is Used as Primary Key.
- Multiple Used Properties that are not heritable but have to be transferred to the same UBIK Property, can be predefined once „@30|M67|A50|A20|A20|A10“.

Comos: Property Elements

ComosName @Y Name (Comos) A10 @Y ComosBaseObject

System System settings Attributes Elements Connectors Symbols Script Usage Inheritance sources Configuration Classification

Configuration Usage of Attribute (Property)

Specification

Specification

COMOS UID A4RNCIB351

UBIK UID

Sync method Master

Property name for CMW (UBIK) ComosName

XML Frame

<A4RNCIB351 name="ComosName" uts="%UTS%" uuser="%UUSER%"><value>%VALUE%</value>%VALUES%%XVALUES%</A4RNCIB351>

Value configuration

Value type

Multilanguage

Validation User

Validation Timestamp

Use X-values

Standard value

External UBIK SIUnit

Template object ComosBaseObject

Check if Linked Attribute is exists on Cdevice

Attribute Missing on Cdevice	False
IMP	
EXP	

METADATA

- The main difference between property and attribute elements is that they don't get a linked attribute and the value configuration options have no effect except for multilingualism.
- Always effective are the settings Active and Sync. Method; the Sync. Method defines what may be exported or imported, and which value wins in case of an error.

Comos: Attribute Elements

METADATA

M67T00013_M67A00060 UBIK_OBJECT_STATUS Status A10 @Y ComosBaseObject

System System settings Attributes Elements Connectors Symbols Script Usage Inheritance sources Configuration Classification

Configuration Usage of Attribute (Property)

Specification

Specification: Status

COMOS UID: A4RNCI6651

UBIK UID:

Sync. method: Timestamp

Property name for CMW (UBIK): STATUS

XML Frame: <A4RNCI6651 name="STATUS" uts="%UTS%" uuser="%USER%"><value>%VALUE%</value>%VALUES%%XVALUES%</A4RNCI6651>

Value configuration

Value type: Value / XValue

Multilanguage: ☐

Validation User:

Validation Timestamp:

Use X-values: ☐

Standard value:

External UBIK SIUnit:

Template object: ComosBaseObject

Check if Linked Attribute is exists on Cdevice

Attribute Missing on Cdevice: False

IMP:

EXP:

- Fields like Como's UID or XML frame are internal supporting fields.
- It depends on the attribute witch setting will show an effect.
- The settings in the Specification frame always have a direct effect on attributes.

Comos: Element Configuration I

METADATA

Reference link to attribute	→	Specification
Comos SystemUID	→	Specification
UBIK GUID	→	COMOS UID
Synchronisation method	→	UBIK UID
Property name for UBIK	→	Sync. method
XML frame, template for export of this property	→	Property name for CMW (UBIK)

Value type setting	→	Value configuration
Use multilingual values	→	Value type
Linkattribute for validation user	→	Multilanguage
Linkattribute for validation time stamp	→	Validation User
Use standard table index	→	Validation Timestamp
Use Standard Value	→	Use X-values
Link to SI-Unit object from UBIK	→	Standard value
Target type of reference	→	External UBIK SIUnit
	→	Template object

Specification

Specification: ... ✕ ↗

COMOS UID:

UBIK UID:

Sync. method: ▼

Property name for CMW (UBIK):

XML Frame: ...

Value configuration

Value type: ▼

Multilanguage: ☐

Validation User: ... ✕ ↗

Validation Timestamp: ... ✕ ↗

Use X-values: ☐

Standard value:

External UBIK SIUnit: ... ✕ ↗

Template object: ... ✕ ↗

Comos: Element Configuration II

METADATA

Attributes that are not found on the Cdevice
(name, heritance,...)

Import and Export Strings for XML

Check if Linked Attribute is exists on Cdevice

Attribute Missing on Cdevice *False*

IMP

EXP

Master:

Comos acts as Master

Client:

Comos acts as Klient

Timestamp:

Comos / UBIK Timestamps

Description
Undefined
Master
Client
Timestamp

Specification

Specification	Status
COMOS UID	A4RNCI6651
UBIK UID	
Sync. method	Timestamp
Property name for CMW (UBIK)	STATUS
XML Frame	<A4RNCI6651 name="STATUS" uts="%UTS%" uuser="%UUSER%"><value>%VAI IIF%</value>%VAI IIFC%XXVAI IIFC%</

Comos: Element Configuration III

METADATA

Value types

Depending on the Comos attribute and value, you define here whether you want to transfer a reference, a value (posted), a link value (Lvalue) or an SI value.

Standard Values

Index Values from the selection list.

The screenshot displays the 'Value configuration' interface. On the right, the 'Value configuration' panel includes fields for 'Value type' (set to 'Value / XValue'), 'Multilanguage' (checkbox), 'Validation User' and 'Validation Timestamp' (each with a selection button, close button, and refresh button), 'Use X-values' (checkbox), 'Standard value' (dropdown), 'External UBIK SIUnit' (with selection, close, and refresh buttons), and 'Template object' (set to 'ComosBaseObject' with selection, close, and refresh buttons). On the left, there are two lists. The top list, titled 'Description', contains items like 'Value / XValue', 'DisplayValue / DisplayXValue', 'LValue / LXValue', 'SI-Value', and 'SystemUid (of LinkObject)'. The bottom list contains 'Value 1' through 'Value 10', followed by 'Name Description Value', 'All Values', and 'N. D. All Values'. Arrows indicate that the 'Value type' dropdown is linked to the top list and the 'Standard value' dropdown is linked to the bottom list.

Description
Value / XValue
Value / XValue UnitLabel
DisplayValue / DisplayXValue
DisplayValue / DisplayXValue UnitLabel
LValue / LXValue
LValue / LXValue UnitLabel
SI-Value
SI-Value SIUnitLabel
SystemUid (of LinkObject)

Description
Value 1
Value 2
Value 3
Value 4
Value 5
Value 6
Value 7
Value 8
Value 9
Value 10
Name Description Value
All Values
N. D. All Values

Value configuration

Value type: Value / XValue

Multilanguage: ☐

Validation User: ... X Refresh

Validation Timestamp: ... X Refresh

Use X-values: ☐

Standard value: [Dropdown]

External UBIK SIUnit: ... X Refresh

Template object: ComosBaseObject ... X Refresh

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