



*Perfect data is perfectly possible with Utopia.*

## User Help Guide for EAM Solutions by Utopia

Release EAM 9.1

## Document History

The following tables provide an overview of the most important document changes and approvals.

Version	Date	Description	Name
1.0	14/10/2017	Final version	Manik Choudhary

## Approval History

Version	Date	Description	Name
1.0	07/12/2017	Approved version	Lyle Snyder

## Table of Contents

EAM Solutions by Utopia .....	4
MDG Features.....	4
Additional Enhancements .....	4
User/System Status.....	5
Multi/Mixed CR Type .....	5
Dismantle/Move Equipment.....	5
Classification (Class and Characteristics Functionality).....	6
Creation and Replication of Delete/Inactive status .....	6
Data Import Framework (DIF) .....	6
Search .....	7
Enhanced (additional) Search Attributes.....	7
Enhanced Search Functionality – ALV.....	7
Copy from Search Results.....	7
Equipment.....	7
Functional Location .....	8
MRO Bill of Material.....	8
Work Center .....	8
Task List (General Task List, Equipment Task List and Functional Location Task List).....	9
Maintenance Plan/Item.....	9
Measuring Point.....	9
Object Links.....	9
Object Networks .....	10
Data Transfer (Inheritance) and Data Origin .....	10
Data Replication Framework .....	10
File Upload and File Download .....	10
Linear Asset Management (LAM) Functionalities .....	10
LAM Attributes .....	10
Current LAM Functionality .....	11
GIS Information .....	11
LAM Classification .....	12

## EAM Solutions by Utopia

EAM 9.1 Solutions by Utopia can be used to request, approve, and execute changes to the following Enterprise Asset Management objects as well as replicate those changes to decentralized systems by means of ALE and IDOC's.

The following objects are discussed in this section:

- **uEQUIP for MDG:** Utopia Equipment Master for Master Data Governance
- **uFLOC for MDG:** Utopia Functional Location Master for Master Data Governance
- **uMROBOM for MDG:** Utopia MRO Bill of Material for Master Data Governance
- **uMSRPTS for MDG:** Utopia Measuring Point for Master Data Governance
- **uWRKCTR for MDG:** Utopia Work Center for Master Data Governance
- **uTSKLST for MDG:** Utopia Task List for Master Data Governance
- **uMNTPLN for MDG:** Utopia Maintenance Plan for Master Data Governance
- **uOBJLNK for MDG:** Utopia Object Links for Master Data Governance
- **uOBJNTW for MDG:** Utopia Object Networks for Master Data Governance

## MDG Features

The management of master data usually follows the following pattern:

- You can influence the flow of this process by selecting a workflow. The available workflow templates can be found under Workflow Templates.
- You create a Change Request (see Creation of a Change Request).
- The Change Request undergoes an approval procedure. You can use the function processing of a Change Request.
- You execute the master data change (see Master Data Processing)
- You replicate the changes (see Data Replication)
- Simple field mappings with field transformations and complex transformations (SMT Mapping/Extensibility)
- Source and Target Value mapping (Key Mapping)
- DIF (Data Import Framework)
- DRF (Data Replication Framework)
- Context Based Adaptation for UI

## Additional Enhancements

The following additional enhancements are discussed in this section:

- [User / System Status](#)
- [Multi / Mixed CR Type](#)
- [Dismantle / Move Equipment](#)
- [Classification \(Class and Characteristics Functionality\)](#)
- [Creation and Replication of Delete / Inactive status](#)
- [Data Import Framework \(DIF\)](#)
- [Search](#)
- [Enhanced \(additional\) Search Attributes](#)
- [Enhanced Search Functionality – ALV](#)
- [Copy from Search Results](#)
- [Equipment](#)
- [Functional Location](#)

- [MRO Bill of Material](#)
- [Work Center](#)
- [Task List \(General Task List, Equipment Task List and Functional Location Task List\)](#)
- [Maintenance Plan/Item](#)
- [Measuring Point](#)
- [Object Links](#)
- [Object Networks](#)
- [Inheritance](#)
- [Data Replication Framework \(DRF\)](#)
- [File Upload and File Download](#)

## User/System Status

The technical objects and the complete processing with notification and order are linked to SAP's general status management. You should distinguish between the system status and the user status. For certain business processes, the system sets the system status internally and automatically as a part of its general status management. In addition to the status of the predefined system, you can define user status that fulfill your requirements to extend or enhance the system status.

## Multi/Mixed CR Type

This new Change Request type allows creating or changing multiple/mixed records of different objects through MDG in one session as opposed to separate Change Requests per entity type. As a restriction in the create case, the objects cannot be connected to each other. They can be linked in the change case. For example, it is not possible to create a functional location and to create an equipment that references this location at the same time.

## Dismantle/Move Equipment

This functionality allows for dismantling equipment from a functional location, and if necessary, to install at a different location. It also allows for removing an assignment of equipment from a superordinate equipment, and if necessary, reassigning to a different superordinate equipment.

In case of Dismantle and Installation Data Transfer (Inheritance) is supported.

## Classification (Class and Characteristics Functionality)

- CRUD (Create / Read / Update / Delete) operation is supported with Change Request processing. These are dependent attributes of Equipment, Functional Location, Measuring Point) Task List, Object Links and Networks.
- An Equipment, a Functional Location, and Measuring Point can be classified using the class and valuation functionality. Multiple classes with Equipment class type can be assigned to an Equipment.
- Once classes are assigned to the Equipment or Functional Location or Measuring Point, values belonging to characteristics can be assigned to the Equipment, FLOC, and MSPOINT. By default, the UI loads all mandatory and characteristics with default values and allows the user to Add and Delete. Required Class Assignment and assigned values to the Equipment / Functional Location / Measuring Points, Task List, Object Links and Networks.
- The UI only displays the characteristics that are assigned values, instead of showing all the characteristics of the assigned Classes like ECC does. It helps the user to maintain the required characteristics and refines the search.
- Once a class is assigned to Equipment, Functional Location, Measuring Point, Task List, Object Links and Networks the mandatory characteristics and characteristics with default values are automatically populated.
- Business Rules provided in the OOTB (Out of the Box) solution help in validating all the ERP Business Rules (as available in the backend ERP functionality)
- Provision for deletion of Class Assignments, Business Rules makes sure that all the corresponding values are also deleted.
- The Class Assignment is not deleted in the target SAP system under a hub scenario when deleting all classes. A CLFMAS IDOC does not get triggered in the hub as there are no classes assigned. A work around it is to create a placeholder class with no characteristics and assign that.

## Creation and Replication of Delete/Inactive status

- Deletion status set or reset is supported on Equipment, Functional Location, Task List, Maintenance Plan / Item, MRO Bill of Material, Work Center, Object Links and Networks
- Active / Inactive status is supported on Equipment, Functional Location, Task List, Measuring Point, Maintenance Plan/Item, MRO Bill of Material
- The replication of the status happens through IDOCs and the status are accordingly adjusted in the backend ECC system, thus maintaining synchronization of the status

## Data Import Framework (DIF)

- Data Import menus are only available in the Data Exchange menu for the specialist and steward roles
- The DIF feature can be used to load the data into the system along with the classification
- For the Data Creation with the internal number range, the upload of classification and LAM attribute data should be performed in the subsequent run of DIF
- Data Import functionality is available to create multiple records using xml and csv files with Key Mapping or without Key Mapping. Multiple options which includes manual and governance process are present.
- While performing Data Import, the applicable fields for each unique object type / category may be entered in the input file. You cannot dynamically restrict in the Framework, so the applicable field values are provided based on the object type /category in the Input files that are being loaded.
  - Examples – Work Center Category, BOM Item Category, Equipment Category

## Search

There are two types of search. The default search is DB and an optional one is SAP HANA Search. In both the search types you can search with various search criteria and search operators. DB search is limited to a defined list of attributes to query, whereas SAP HANA search supports dynamic attribute selection and Duplicate check based on SAP HANA Search. SAP HANA also supports fuzzy search and full-text search.

Note: TREX search is not supported

## Enhanced (additional) Search Attributes

Additional search criteria attributes have been added for each object to enhance the DB search capabilities. The additional attributes allow users more options to refine the criteria used when performing a search.

## Enhanced Search Functionality – ALV

Users can save information about column structure, sort criteria, filter conditions, various display options, and so on, in an unlimited number of views. This implies that the users can always display the ALV output with their preferred properties. However, these views are only available to the user who created them. The views are not visible to other users. This form of modification of the ALV output is referred to as 'personalization'.

## Copy from Search Results

Create a new object with the Copy functionality by using an existing object. In the Search Results screen, select an existing object and click Copy. The values that were present in the existing object will be automatically copied into a new Change Request for that object.

**Note:** In the pop-up window after clicking Copy.

- Equipment Master, Maintenance Plan, Task List, Object Links and Networks
  - Internal Number: The field should be left blank. A temporary key will be provided in the new Change Request generated.
  - External Number: Provide the new external number.
- Functional Location: The field should be left blank and enter the new Label in the generated Change Request.
- MRO Bill of Material: Provide the new Material, Alternative BOM (must be = 1), BOM Usage, and Plant.
- Measuring Point: The field should be left blank. A temporary key will be provided in the new generated Change Request.
- Work Center: Provide the new Work Center, Plant, and Category.

## Equipment

- Basic Data, General Data, System-User Status, Manufacturer Data, Location Data, Organization Account Assignment, Organization – Responsibilities, Structure Data (Install and Dismantle), Serialization Data, Stock Information Display, Configuration Data, Sales and Distribution Data, Warranty Details, Sub Equipment Details, Measuring Points Display, Partners, Permit Assignment, Permit Long Text Assignment at Equipment level, Production Resource Tools attributes, Data Origin Indicators, Class, Characteristics and Values, Linear Asset Management (LAM) Attributes and Characteristics are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported

- Multilingual short and Long Texts are supported
- Data Transfer (Inheritance) is supported

## Functional Location

- Basic Data, Functional Location with reference to a Reference Functional Location, default values based on Superior Functional Location, General Data, System-User Status, General-Reference Data, General – Manufacturer Data, Location Data, Organization – Account Assignment, Organization – Responsibilities, Structure Data, Partners, Warranty Details (Master Warranty Assignment), Sales and Distribution ( for Customer Location), Data Origin Indicators, Class, Characteristics and Values, Linear Asset Management (LAM) Attributes and Characteristics are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported
- Multi-lingual short and Long Texts are supported
- Maintain attribute FLOC\_REF and leave attribute FUNCLOC blank when performing a file upload to create new Functional Locations.
- When Alternate Label is “Active”, the temporary key for the record in the Reporting tab is displayed until the CR is approved. The established Label is displayed in Reporting after the approval.
- Data Transfer (Inheritance) is supported

## MRO Bill of Material

- Header Data, Quantity Data, Item Overview, BOM Text and Long Text, Alternative Text, BOM Item Overview, BOM Item details are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported

## Work Center

- Default Value fields, Normal Capacity, Pooled Capacity Category and Capacity, Capacity Category which has assigned in Capacity List, Capacity Category and Capacity if it is a Pooled Capacity, Costing Data fields, Technology fields are supported
- Multilingual Short and Long Texts are supported
- Mark for Deletion set / reset functionality is available through Search results and Mass Change. In the search screen, you can select a Work Center and click Mark for Deletion button in the toolbar. You can create a separate Change Request for Deletion set or reset. Save, Submit and Approve the Change Request.
- Setting and resetting the lock indicator option is available in the Change Work Center. When you try to change an existing Work Center, all the fields should be enabled along with lock indicator flag
- For Mass Change of Work Center, the applicable fields for each Work Center category only may be entered. You cannot dynamically restrict the Mass Change UI, based on data input. You should provide the applicable Field values based on the Work Center Category.
- Based on the Work Center Category, if any field is entered which does not belong to that category, an error is displayed. Hence, it is suggested to do Mass Change based on Work Center category values.
- For File Upload or performing Data Import with Work Center, the applicable fields for each Work Center category only may be entered in the input file. You cannot dynamically restrict in the Framework, so the applicable Field values should be provided based on the Work Center Category in the Input files that are being loaded.



- Based on the Work Center Category, if any field is entered which does not belong to that category, it displays an error
- Multilingual short and Long texts are supported

## Task List (General Task List, Equipment Task List and Functional Location Task List)

- Task List with Internal and External number range Group and Counter, with reference to Profile – User defaults, Multiple Counter, Strategy, QM Data – Inspection Point, Operations with Long Text, Standard Text Key, User Field key, Qualification, Sub-Operation, Summarize standard values, Sub-Operation usage dates, Maintenance Packages, Components, Relationships, Production Resources / Tools (PRT), Service Packages, Inspection Characteristics, Class, Characteristics and Values are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported
- Fully created Equipment and functional location can be used to create Equipment Task List and Functional Task List. MDG solution will validate and allow to create further Task List.
- Provision for deletion flags allows to mark task list as deleted one
- The search UI has been introduced to support all task list types. This also included cross copy functionality to copy one type of Task List to a different type of Task List.

## Maintenance Plan/Item

- Single Cycle, Performance based Preventive, Time based Preventive, Multiple Counter, Multiple Cycles Maintenance Plans reference to Cycle Sets are supported
- Maintenance Item during Maintenance Plan Creation, Multiple Items (Create and Assign Maintenance Items), Maintenance Plan with Object List Items (Functional Location, Equipment, Assembly, Material and Serial Number) and Linear Asset Management (LAM) Attributes are supported
- Can assign an existing Maintenance Item which hasn't assigned to any Maintenance Plan
- Provision for deletion flags allows to mark task list as deleted one
- Planning data is derived from reference object

## Measuring Point

- Assignment of a Measuring Point Category, with Counter, without Counter, Basic Data, General Data, Target Limits and Counter Data, Additional Data – Measurement Range Limits, General Class Assignment and Characteristics, and Linear Asset Management (LAM) Attributes are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported
- While downloading LAM attributes, it also downloads Measuring Points other than LAM category where the reference object is of LAM category.

## Object Links

- Basic Data, System-User status, Objects Linked (supported for both Equipment and Functional Location), General Class Assignment and Characteristics, and Linear Asset Management (LAM) Attributes (Linear Reference Pattern and Geographical Information are in scope) are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported
- Multilingual Short and Long Texts are supported

## Object Networks

- Network ID, Network Data (Network Group and Network Type), Network Linear Data, Object Links Creation within Network, Object Links Assignment within Network, De-Link Existing Object Links from Network, Links set or reset for Deletion are supported
- Document Create and Assignment
- Document Multilingual Text and Long Text are supported
- Multilingual Short and Long Texts are supported

## Data Transfer (Inheritance) and Data Origin

- Data Transfer (Inheritance) and displaying and changing Data Origin Indicator are supported

## Data Replication Framework

- Replication Framework functionality is available to replicate the data to target SAP systems through manual replication and DRFOUT and auto replication.
- Manual Data Replication menus are only available in the Data Exchange menu for the Specialist and Steward roles

## File Upload and File Download

- File Upload does not validate duplicate entries of the entities as standard framework does not support the same. A runtime error will occur under this circumstance.
- Object Links: During File Upload, Attribute KANXT should be used to update Object Links description. Field TXTMI should not be used.
- Object Networks: During File Upload, Attribute NETXT should be used to update Object Network description. Field TXTMI should not be used.
- Maintenance Plan / Item: During File Upload, Attribute WPTXT should be used to update Maintenance Plan description. Field TXTMI should not be used.
- While uploading a file, or performing Data Import, only the applicable fields for each unique object type / category may be entered in the input file. You cannot dynamically restrict the fields in the Framework, so the applicable field values should be provided based on the object type /category in the Input files that are being loaded.
  - Examples – Work Center Category, BOM Item Category, Equipment Category

## Linear Asset Management (LAM) Functionalities

The following topics are discussed in the section:

- [LAM Attributes](#)
- [Current LAM Functionality](#)
- [GIS Information](#)
- [LAM Classification](#)

## LAM Attributes

- CRUD operation is supported with Change Request processing. These are the dependent attributes of Equipment, FLOC, Object Links, Object Networks and Network attributes.
- LAM attributes can be assigned to Measuring Point if the category is of type Linear and the reference object is also of Linear category.
- LAM attributes can be assigned to Maintenance Item, if reference object (Equipment or Functional Location) assigned is of Linear category

- LAM attributes can be assigned to Object Links, if linked objects (Equipment or Functional Location) assigned is of Linear category provided the Object Links is associated with an Object Networks
- LAM attributes can be assigned to Object Networks
- LAM attributes can be assigned to Object Networks attribute provided the network attribute category is of type Linear

## Current LAM Functionality

Current LAM functionality supports the following attributes:

1. LRP ID
2. Start Point
3. End Point
4. Length
5. Length UOM
6. Start Marker
7. End Marker
8. Distance between Marker and Start Point
9. Distance between Marker and End Point
10. Offset1
  - Type of Offset1
  - UOM Offset1
  - Offset 1
    - Offset2
      - Type of Offset2
      - UOM Offset2
      - Offset 2

Derivations for all the above fields are performed as they normally happen in ECC as part of OOTB solution. LAM attributes can be added and deleted using single Create or Delete button provided in the UI.

## GIS Information

- CRUD operation is supported with Change Request processing. These are dependent attributes of Equipment and FLOC and Object Links
- Geo Graphical information system attributes
  - Start Latitude
  - Start Longitude
  - End Latitude
  - End Longitude
  - Time Zone

If customers prefer not to use / hide in UI, customizing can be performed on the Utopia delivered UI. Customers can add GIS information with LAM attribute. LAM attributes and GIS fields will work together. All derivations and validations will work as per backend SAP ERP. Additional validations and derivations can be added using BAdI/Enhancements and not offered as part of OOTB.

Customers can implement BAdI: EAML\_LFE\_SCREEN\_CUST to have GIS fields visible in ERP Linear Data Screen. This Business Add-In (BAdI) is used in the *Technical Objects* (PM-EQM) component to add a customer-specific screen to the Linear data screen used in the detailed view of technical objects, notifications, notification items, (simplified) maintenance orders and operations, (overall completion) confirmations, measuring points, and measurement documents.

The above fields perform the derivations that happen in Backend ERP as part of out-of-the-box solution.

## LAM Classification

- CRUD operation is supported with Change request processing. These are dependent attributes of Equipment and FLOC classification.
- LAM Classification can be added once Class and Values are added to Equipment or FLOC, Provided the Equipment or FLOC category is of type Linear (L).
- LAM Classification can be added and Deleted from Equipment or Floc.
- General Value deletions will trigger, LAM classification deletion. For example, once the General value is deleted, LAM classification also gets deleted by itself.
- LAM Classification Supports following attributes:
  - Characteristics Description
  - Characteristics Value
  - Start Point
  - End Point
  - Length
  - UoM

**Note:** The LAM Classification is not part of the MSPOINT, OBJLINK and OBJNETWRK object. The above fields are subject to all validations and derivations that happen in standard backend ERP and are part of out-of-the-box solution.

**Note:** All the functionalities described above are subject to Release / Restriction notes dispatched along with the other technical documents for this release.