

Technical Objects (PM-EQM)



HELP.P.MEQM.FL

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Icons

| Icon | Meaning |
|---|----------------|
|  | Caution |
|  | Example |
|  | Note |
|  | Recommendation |
|  | Syntax |
|  | Tip |

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Technical Objects (PM-EQM)

Purpose

If DP-supported maintenance is to be set up properly at a company, it is necessary to structure the existing technical systems on the basis of technical objects.

Advantages of structuring:

- The time required for managing the technical objects is reduced.
- Maintenance processing is simplified.
- The time spent entering data during maintenance processing is reduced considerably.
- More specific, thorough and faster evaluation of maintenance data.

Implementation Considerations

You should allow sufficient time for planning the structure. Weigh up all the pros and cons for your company that each structuring approach will bring. Note that it takes longer to restructure objects later than it does to structure them in the first place.



Before you start representing technical objects in the system, it is imperative that you read the corresponding texts in the R/3 Implementation Guide (IMG).

Integration

Structuring your systems forms the basis for implementing the application components *Plant Maintenance (PM)* and *Customer Service (CS)*.

Features

Before you begin representing technical objects in the system, you should be aware of the organization of maintenance planning within your company. You should focus primarily on the structure of the entire company. This involves defining correctly the maintenance plants and maintenance planning plants in your system.

Maintenance Plant

The maintenance plant of a technical object is the plant at which it is installed. Furthermore, in the maintenance plant you manage the work centers that perform the maintenance tasks for the technical objects that are installed there.



Clarification plant C1 is located in plant 0001. Plant 0001 is therefore the maintenance plant of the clarification plant C1.

Maintenance Planning Plant

The maintenance planning plant of a technical object is the plant in which the maintenance tasks for the object are planned and prepared. Maintenance planner groups work at the maintenance planning plant to plan and prepare the maintenance tasks for the plants that are assigned to the

Technical Objects (PM-EQM)

maintenance planning plant. The following activities are performed at the maintenance planning plant:

- Definition of task lists
- Material planning based on bills of material in task lists and orders
- Management and scheduling of maintenance plans
- Creation of maintenance notifications
- Execution of maintenance orders



The maintenance plant of the clarification plant C1 is the plant 0001. The plant 0001 does not perform its own maintenance planning. It is assigned to plant 0002, in which a maintenance planner group works, and that, for this reason, is indicated in the system as being a maintenance plant. The maintenance planner group in plant 0002 plans for the plants 0001 and 0002.

The maintenance plant for the clarification plant C1 is therefore the plant 0002.

The way in which you represent the organization of maintenance planning in your company depends on the structure of the entire company. You have three options:

- Centralized Maintenance Planning
- Decentralized maintenance planning
- Partially centralized maintenance planning

Centralized Maintenance Planning

With centralized maintenance planning, you can have the following combinations of plants:

- A The company comprises only one plant, that is both maintenance plant and maintenance planning plant for all the technical objects.
- B The company has several maintenance plants, however only one plant in which maintenance planning is performed. The plant in which maintenance planning is performed is indicated in the system as the maintenance planning plant. All other plants are assigned to this plant as maintenance plants, for which the maintenance tasks must be planned in the maintenance planning plant.



| | |
|--|------------------|
| Plants: | 0001, 0002, 0003 |
| Maintenance plants: | 0001, 0002, 0003 |
| Maintenance planning plant: | 0001 |
| Plants assigned to the maintenance planning plant: | |
| Assigned plants: | 0002, 0003 |

Decentralized maintenance planning

The company comprises several maintenance plants. Each plant performs its own maintenance planning. In this case, all the plants in the system are indicated as maintenance planning plants.



| | |
|------------------------------|------------------|
| Plants: | 0001, 0002, 0003 |
| Maintenance plants: | 0001, 0002, 0003 |
| Maintenance planning plants: | 0001, 0002, 0003 |

Partially centralized maintenance planning

The company comprises several maintenance plants. Some of the maintenance plants perform their own maintenance planning, others do not. The plants without their own maintenance planning are assigned to maintenance planning plants in which planning is also performed for them, whilst the plants in which maintenance planning is performed are indicated in the system as being maintenance planning plants.



| | |
|--|------------------------------|
| Plants: | 0001, 0002, 0003, 0004, 0005 |
| Maintenance plants: | 0001, 0002, 0003, 0004, 0005 |
| Maintenance planning plants: | 0001, 0004 |
| Plants assigned to the maintenance planning plant 0001 | 0002, 0003 |
| Assigned plants: | |
| Plants assigned to the maintenance planning plant 0004 | 0005 |
| Assigned plants: | |

Once you have represented the organizational structure of your company, you can choose between three different options for representing technical objects:

- Functional structuring (only functional locations)
- Object-related structuring (only equipment)
- Combination (equipment at functional locations)

Functional Structuring

With this type of structuring, you subdivide your technical system into **functional locations**. For example, when you subdivide a production line into functional locations, you can represent the individual function units as functional locations in the system.

If you use functional locations when structuring your technical system, you can also take into account the process-oriented or spatial structure of the system.

Technical Objects (PM-EQM)

For more information, see [Functional Location \[Page 13\]](#) and [Reference Functional Location \[Page 17\]](#).

Object-Related Structuring

With this type of structuring, you subdivide your technical system into pieces of **equipment**. A piece of equipment is an individual, physical object that is to be maintained independently, and that can be installed in a technical system or part of a technical system.

Combination

You can combine object-related structuring using pieces of equipment with functional structuring using functional locations. In this case, the pieces of equipment are installed at functional locations (installation/dismantling of individual objects at a functional location).

- The functional location represents the site where the technical tasks are performed.
- The piece of equipment represents the object with which the technical tasks are performed.

Within the framework of a damage analysis, you will then be able to recognize, for example, whether or not damage occurring repeatedly is linked to the usage site, or is specific to the objects made by a particular manufacturer.

For more information, see:

[Equipment \[Page 57\]](#)

[Hierarchical Equipment Structure \[Page 80\]](#)

[Equipment at Functional Locations \[Page 70\]](#)

Structuring From a Technical and/or Accounting Perspective

When you perform structuring from a technical perspective, you assign the technical objects of the system to particular **object classes** (equipment, functional location and assembly classes).

You can use this type of structuring in addition to structuring from a functional and/or object-related perspective.

For more information, see [Classification of Technical Objects \[Page 136\]](#).

When you perform structuring from an accounting perspective, you assign the system and its technical objects to certain **cost centers** or **tangible assets**.

You can use this type of structuring in addition to structuring from a functional and/or object-related perspective.

For more information, see [Equipment as Units of Tangible Assets \[Page 106\]](#).

Functional Locations

Purpose

Functional locations are elements of a technical structure (for example, functional units within a system). You create functional locations hierarchically, and can also structure them based on the following criteria:

- Functional
- Process-related
- Spatial

Each functional location is managed independently in the system, so that you can:

- Manage individual data from a maintenance perspective for the object
- Perform individual maintenance tasks for the object
- Keep a record of the maintenance tasks performed for the object
- Collect and evaluate data over a long period of time for the object

Implementation Considerations

You implement this component if:

- You want to represent systems or operational structures within your company according to functionality
- Maintenance tasks (in the broadest sense) are to be performed for the individual areas of your system or operational structure
- Records are to be kept of the maintenance tasks that are performed for the individual areas of your system or operational structure
- Technical data is to be collected and evaluated over long periods of time for the individual areas of your system or operational structure
- The costs of maintenance tasks are to be monitored for the individual areas of your system or operational structure
- You want to perform analyses on the influence of usage conditions on the damage susceptibility of the pieces of equipment installed
- You require different views of a location structure (for example, a technical procedure view and a measurement/control technique view).



Refer to [Reference Functional Location \[Page 17\]](#) and [Functional Location \[Page 13\]](#), **before** you start representing functional locations and reference functional locations in the system.

Functional Locations

Integration

Pieces of equipment can be installed and dismantled at functional locations. The usage times for a piece of equipment at a functional location are documented over the course of time. If you want to use pieces of equipment, you need to implement the component *Equipment*.

Features

- The hierarchical structure of the functional location enables you to maintain centrally data that is on higher levels for all levels located below (hierarchical data transfer).
For more information on hierarchical data transfer, see [Data Transfer \[Page 116\]](#).
- You can also work with reference functional locations within this component. When doing this, you only have to define each specific type of data once. The reference location provides the corresponding locations located horizontally with the type-specific data (horizontal data transfer).
- You can display the objects of the entire technical system using various structure views.
- You can create functional locations and reference locations much quicker using list editing, than by creating them individually.
- You can assign several labels to each functional location. You define the label that you work with the most as the primary label and all others as alternative labels. You use this function if different views of functional locations structures are required.

Certain users then identify a functional location in the technical procedure view or labeling system 1 using label A, while other users identify the same functional location in their measurement/control technique view or labeling system 2 using label B.

Functional Location

Definition

The business object functional location is an organizational unit within Logistics, that structures the maintenance objects of a company according to functional, process-related or spatial criteria. A functional location represents the place at which a maintenance task is to be performed.

Use

A functional location represents system area at which an object can be installed. The objects that can be installed at functional locations are called pieces of equipment in the R/3 System.

You can structure functional locations according to the following criteria:

- **Functional criteria**

Example: "pumping station", "drive unit"

- **Process-related criteria**

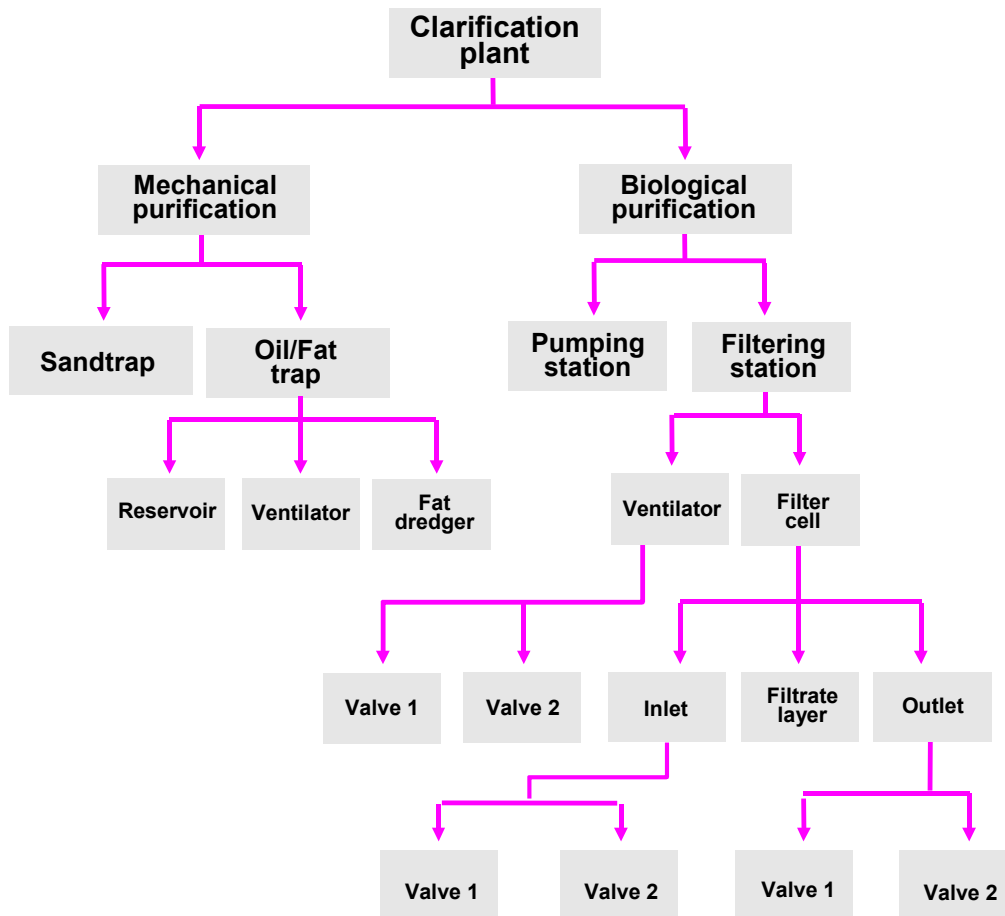
Example: "polymerization", "condensing"

- **Spatial criteria**

Example: "hall", "location"

Functional Location

Example of a Function Location: Clarification Plant



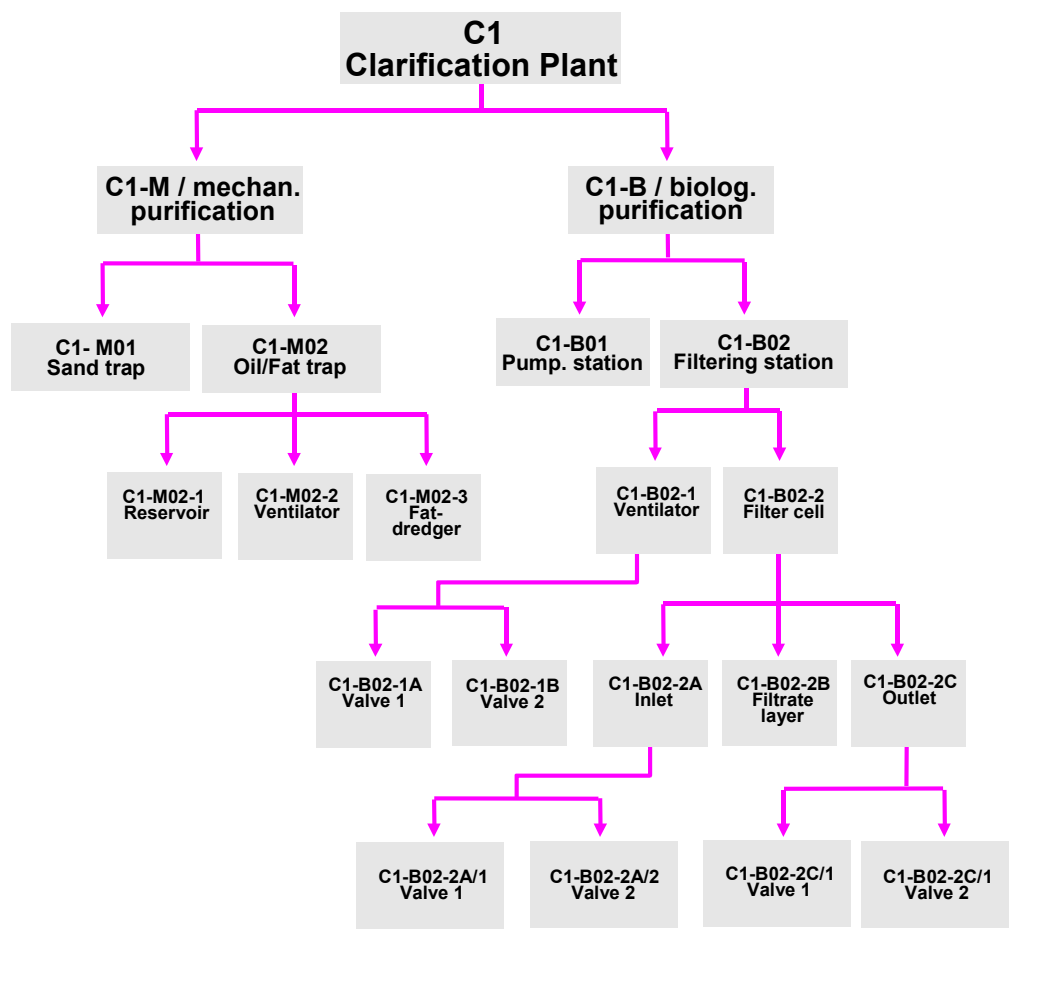
The following applies to functional location master records:

- You define and manage each functional location in the *Plant Maintenance (PM)* component in a separate master record.
- You can build up a separate maintenance history for each functional location.
- The labels for functional locations are structured hierarchically. You can specify their structure according to your own company criteria.

Using hierarchical labels, your company can easily represent systems or operational structures from a functional perspective. The hierarchical structure of functional locations can therefore represent the interrelations of the operational functions within a system.

- Each hierarchy level of the functional location labels represents a given level of detail in the description of the system.

**Example of a Functional Location With Hierarchical Label Assignment:
Clarification Plant**



Structure

The master record for a functional location contains the following data groups:

- Location and maintenance data
 - This data includes, for example, maintenance plant and cost center, structure indicator, superior functional location and the maintenance planning group responsible.
- Partner data
 - This is data that describes a certain responsibility for a functional location, for example, supplier, purchaser, responsible employee.
 - See [Partners in PM/SM Processing \[Page 158\]](#).

The following functions are also available:

- Measuring points, counters and measurement documents

Functional Location

- [Permits \[Page 154\]](#)
- [Multilingual texts \[Page 146\]](#)
- [Classification \[Page 136\]](#)

You can use the classification system to classify functional locations according to technical characteristics. The classes make it easier for you to find similar or identical functional locations in the system.

- [Document management \[Page 143\]](#)

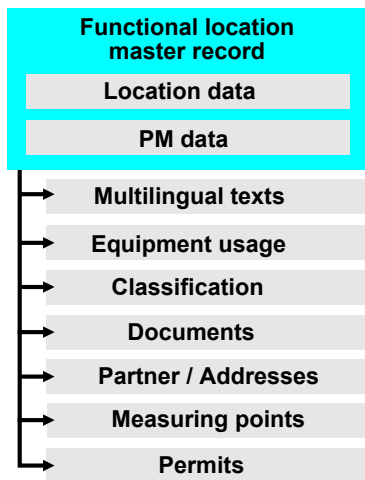
- Address management

You can define an address for each functional location. The address could be, for example, where the functional location is situated at a customer's.

- Evaluation

Using ABAP reports, you can evaluate the data in the master records for functional locations at any level in the hierarchy according to various criteria.

Master Record Structure of a Functional Location



Reference Functional Location

Definition

A reference functional location is a tool that helps you to enter and manage functional locations. You can use a reference functional location when you have to create and manage several functional locations of the same kind in the system.

You define and manage reference functional locations in their own master records. However, they do not represent functional locations that actually exist but are assigned to real functional locations as reference locations.

The master record of a reference functional location contains entries that are valid for the functional locations assigned to it. This means that when you create functional locations using reference functional locations, you only need to enter data afterwards that is specific to each of the individual functional locations.

Use



You want to represent several similar clarification plants in the system as functional locations. To do this, first create a reference functional location that contains all the data that applies to all the clarification plants. Then create the master records for the individual clarification plants, referring to the reference functional location. You then only need to enter the data that is specific to each individual clarification plant in each master record.

Structure

The system manages the master records for reference functional locations at client level. This means that their labels are valid for the entire corporate group.



As the label of the reference functional location is structured generically, the system automatically proposes the location with the generically immediately superior number as the superior reference functional location.

You use the master record of a reference functional location to describe model structures for technical systems. It contains:

- The label of the reference functional location
- The description
- [Classification data \[Page 136\]](#)

You can use the SAP Classification System to classify reference functional locations according to technical characteristics. The classes make it easier for you to find similar or identical functional locations in the system.

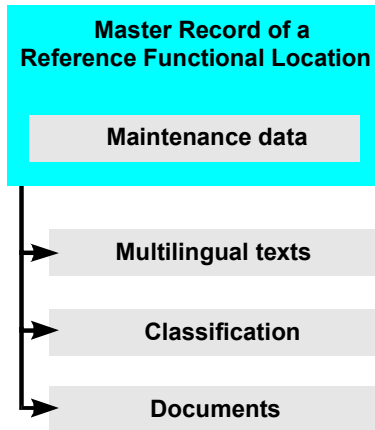
- The superior reference functional location
- Maintenance data

Reference Functional Location

The [Document Management \[Page 143\]](#) function is also available.

Using ABAP reports, you can evaluate the data in the master records for reference functional locations at any level in the hierarchy, according to various criteria.

Master Record Structure of a Reference Functional Location



Creating a Reference Functional Location

Prerequisites

Before you begin to represent reference functional locations in your system, you should at least know about master data structures. For more information, see:

[Reference Functional Location \[Page 17\]](#)

[Functional Location \[Page 13\]](#)

[Structure Indicator \[Page 25\]](#)

You should only create a master record for a reference functional location, once the following prerequisites have been met:

- You must have established the structure of the system to be represented.
- You must have performed the table settings for structuring functional locations using the system's Customizing function.
- You must know which level of the functional location you are entering in each case, in order to represent the hierarchical structure correctly in the system. The Top-Down principle is valid in this case: You begin with the highest level and then enter the lower levels.
- You must know if the description of the functional location has to be entered according to a specific company procedure, so that they are easier to search for in the system.

Procedure

1. From the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Functional Location* → *Reference Location* → *Create*.

The screen *Create Reference Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system now displays the edit mask for the reference location label as well as its hierarchy levels.

3. Enter the reference location and the label of another reference location if applicable, and choose *Continue*.

The screen *Create Reference Location: Master data* is displayed.

4. Make all the necessary entries in this screen.

If you want to classify the reference location, choose *Goto* → *Classification*. You go to the classification processing function.

5. Save the master record.

Creating a Reference Functional Location

Copying a Reference Functional Location

1. From the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Functional Location* → *Reference Location* → *Create*.

The screen *Create Reference Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system now displays the edit mask for the reference location label as well as its hierarchy levels.

3. Enter the reference location label.
4. Enter the reference location in the section *Reference*.
5. Choose *Enter*.

A dialog box is displayed in which you specify which data belonging to the reference location should be copied to the new reference functional location.

6. Choose *Enter*.

The screen *Create Reference Location: Master data* is displayed.

The system has copied the data from the reference into the master record of the new reference functional location. You can change this data if required.

7. Make all the necessary entries in this screen.

If you want to classify the reference location, choose *Goto* → *Classification*. You go to the classification processing function.

8. Save the master record.

Changing and Displaying a Reference Functional Location

Changing and Displaying a Reference Functional Location

Prerequisites

In particular cases, you may have to make changes to the data in the master record of a reference functional location, for example, if mistakes were made when data was entered or if certain data has changed in all the dependent functional locations.

Every change that you make can affect the master records of all the functional locations that you have assigned to the reference functional location.

Changing a Reference Functional Location

1. In the screen *Technical Objects* choose *Functional Location* → *Reference Location* → *Change*.

The screen *Change Reference Location: Initial screen* is displayed.

2. Enter the label of the reference functional location or use a matchcode to search for it. Choose *Enter*.

The screen *Change Reference Location: Master data* is displayed.

3. Make all the necessary changes in this screen.

If you want to change the classification, choose *Goto* → *Classification*. You go to the classification processing function.

4. Save the changes.

Displaying a Reference Functional Location

1. In the screen *Technical Objects* choose *Functional Location* → *Reference Location* → *Display*.

The screen *Display Reference Location: Initial* is displayed.

2. Enter the label of the reference functional location or use a matchcode to search for it. Choose *Enter*.

The screen *Display Reference Location: Master data* is displayed. From this screen, you can display all the technical data for the reference functional location.

Activating/Deactivating Reference Functional Locations

Prerequisites

A master record is always activated when you create it. Before you deactivate a reference functional location, you should be fully aware of the consequences that this may have. See [Deactivating Master Records \[Page 174\]](#).

Deactivating Reference Functional Locations

1. Select the master record of the reference location in the create or change mode.
2. Choose *RefLocation* → *Functions* → *Active <-> Inactive* → *Deactivate*.
The system then shows the status "Object deactivated".
3. Save the master record.

Activating Reference Functional Locations

1. Select the master record of the reference functional location in the change mode.
2. Choose *Reference location* → *Functions* → *Active <-> Inactive* → *Activate*.
The system then cancels the status "Object deactivated".
3. Save the master record.

Flagging a Reference Functional Location for Deletion

Flagging a Reference Functional Location for Deletion

Prerequisites

Before you set a deletion flag for a reference location, you should be fully aware of the effect and consequences that this may have. For more information on this, see [Flagging Master Records for Deletion \[Page 172\]](#).

Setting Deletion Flags

1. Select the reference location in the change mode.
2. Choose *Reference location* → *Functions* → *Deletion flag* → *Set*.
The system sets the status “Flagged for deletion” for the master record.
3. Save the master record.

Resetting Deletion Flags

1. Select the reference location in the change mode.
2. Choose *Reference location* → *Functions* → *Deletion flag* → *Reset*.
The system then removes the status “Flagged for deletion” for the master record.
3. Save the master record.

Structure Indicator

Definition

Before you can create functional locations and reference functional locations in the system, you must define the structure you want to use for them. You do this with the help of **structure indicators**.

You define the structure indicator in Customizing for *Plant Maintenance* under *Create structure indicator for ref.funct.locs/funct.locs*.

Use

Using structure indicators, you can:

- Specify and monitor the generic structure of the functional location label
- Portray the hierarchy levels within the functional location structure in the functional location label
- Make use of the system's automatic functions for generating the structure when you create functional locations



The generic structure of the location label enables the system to determine a superior functional location and to copy specific data from it into the new functional location. However, this is only possible if the functional locations have been created strictly according to the top-down principle, in other words starting with the uppermost functional location.

After you have created a functional location, the system no longer determines the location hierarchy of this particular location from its label, but from the entries in the *SupFunctLoc*. fields of the individual master records.

The following shows an example of a structure indicator and the resulting structure of a functional location label:

| Structure element | Structure of structure indicator and location label | Location text |
|--|---|-------------------------------|
| Structure indicator | CLARF | |
| Text for the structure indicator | | Clarification plant structure |
| Edit mask | XX-XNN-NX/X | |
| Hierarchy levels | 1 2 3 4 5 6 | |
| Functional location label according to structure indicator | C1 | Clarification plant |
| | C1-B | Biological purification |
| | C1-B02 | Filter station |
| | C1-B02-2 | Filter cell |
| | C1-B02-2A | Inlet |
| | C1-B02-2A/1 | Valve 1 |

Structure Indicator

Creation Functions for Functional Locations

Use

There are four possible procedures for creating a functional location:

| If you want to | You use the following creation function | Advantages |
|---|---|--|
| Create a functional location without a reference, | Creating a Functional Location [Page 28] | |
| Create a functional location that is based on a reference location, | Creating a Functional Location for the Reference Location [Page 29] | The reference location transfers type-specific data to the fields of the functional location being created (horizontal data transfer). |
| Use another functional location as a copy reference, | Creating a Functional Location Using a Copy Reference [Page 30] | You can transfer either all or only part of the data from the copy reference. |
| Create a subordinate functional location within the hierarchy of another functional location, | Assigning a Superior Functional Location [Page 31] | The data of the superior functional location is transferred automatically (hierarchical data transfer). |

Prerequisites

You can only create a master record for a functional location once the following prerequisites have been met:

- You must have established the structure of the system to be represented.
- You must have performed the table settings for structuring functional locations using the system's Customizing function.
- You must know which level of the functional location you are entering in each case, in order to represent the hierarchical structure correctly in the system. The top-down principle applies: Start at the highest level and enter the next levels down, one after the other. This ensures data transfer within a hierarchical structure.
- You must know if the description of the functional location has to be entered according to a specific company procedure, so that they are easier to search for in the system.

Creating a Functional Location

Creating a Functional Location

1. From the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects* → *Functional Location* → *Create*.

The screen *Create Functional Location: Initial* is displayed.

2. Enter the structure indicator you require and choose *Continue*.

The system displays the edit mask for the location label as well as its hierarchy levels.

3. Enter the functional location label and a technical location as a reference if necessary, and choose *Continue*.

The screen *Create Functional Location: Master data* is displayed.

4. Make all the necessary entries.

If you want to classify the functional location, choose *Goto* → *Classification*. You go to the classification processing function.

For further information on classifying functional locations, see [Classifying Functional Locations \[Page 140\]](#).

5. Save the master record.

Creating a Functional Location for the Reference Location

1. In the screen *Technical Objects* choose *Functional Location* → *Create*.
The screen *Create Functional Location: Initial* is displayed.
2. Enter the structure indicator you require and choose *Continue*.
The system displays the edit mask for the location labels as well as their hierarchy levels.
3. Enter the label of the new functional location, as well as the label of the location you want to use in the field *RefLocation* in the section *Reference*.
4. Choose *Enter*.
The screen *Create Functional Location: Master data* is displayed. The system has copied all the data that was entered in the reference location into the corresponding fields. You can change this data if necessary and add data that is specific to the master record.
If you want to classify the functional location, choose *Goto* → *Classification*. You go to the classification processing function.
For further information on classifying functional locations, see [Classifying Functional Locations \[Page 140\]](#).
5. Save the master record.

Creating a Functional Location Using a Copy Reference

Creating a Functional Location Using a Copy Reference

Prerequisites

If the functional location you are using as a copy reference has a reference functional location, this reference will also be copied. However, the superior functional location in the structure will not be copied for the new functional location; the system will automatically search for it instead.

If the functional location you are using as a copy reference is classified, you can copy the classification data to the new functional location. To do this, you must call up the classification function.

If measuring points have been assigned to the location that you are using as a copy reference, you can also copy these to the new functional location. To do this, you must call up the measuring point function.

Procedure

1. In the screen *Technical Objects* choose *Functional Location* → *Create*.
The screen *Create Functional Location: Initial* is displayed.
2. Enter the structure indicator you require and choose *Continue*.
The system displays the edit mask for the location label as well as its hierarchy levels.
3. Enter the label of the new functional location as well as the label of the location whose data you want to copy in the block *Reference* in the field *FunctLocation*.
4. Choose *Enter*.
A dialog box is displayed, in which you specify which reference location data should be copied to the new location.
5. Choose *Enter*.
The screen *Create Functional Location: Master data* is displayed.
The system copies the selected data from the copy reference into the master record of the new functional location. You can change this data if required.
6. Save the new master record.

Assigning a Superior Functional Location

Prerequisites

When you create a functional location, the system **automatically** proposes the directly superior functional location, based on the structure indicator.

When creating a functional location, you can also assign the directly superior functional location **manually**. This makes possible data transfer within a location hierarchy even if the location label deviates from the structure indicator. In this way you override the automatic determination of the superior location.

Manual assignment is particularly useful if your company identifies individual units of a technical system with a label that describes the position of a unit within the system. This so-called **tag number**, is often used as an identification of the equipment category (for example, **P** for pumps) combined with a serial number (for example, pump station **1234**). This identification is generally only unique within a plant or system.



In a company, the following structure of functional locations exists:

| | |
|----------------------|---|
| 01-A | Production line A in plant 01 |
| 01-A-S | Spinning machine area |
| 01-A-S-EXT | Extruder |
| 01-A-S-EXT-A01 | Extruder level A01 |
| 01-A-S-EXT-A01-P1234 | A spin pump at position 1234 would have this label, based on the conventional labeling structure. |

However, in the company, the spin pump is usually referred to by the generally known tag number **01-P1234**.

If you want to create the master record for the spin pump using the shortened label **01-P1234**, enter this label in the initial screen of the function *Create Functional Location*, and the label of the superior location (in this example **01-A-S-EXT-A01**) in the appropriate field.

In the **structure display**, the system also includes those functional locations whose description does not conform to the naming convention for the superior functional location. This means that it is possible to perform a complete analysis of all functional locations for a technical system, regardless of their location label.



If you copy a structure similar to that in the following example using the **list editing function**, the system does not take into account the exception to the naming convention. In the example, this would mean that the superior location **01** would be

Assigning a Superior Functional Location

assigned as the superior location for the newly created functional location 01 - P1234.

The tag number is usually related to the functional location and not to the piece of equipment. The pieces of equipment installed at a functional location are identified by their equipment number. If numbering systems are also being used for identifying pieces of equipment in your company, check whether this number can be used as a key in the R/3 System. It must be unique at client level and unchangeable for each piece of equipment. If the criteria for the number being unique and unchangeable are not met, you should use the internally assigned serial number given by the system as an equipment number (internal number assignment) and use the existing external number as the technical identification number in the equipment master record. You can use a matchcode to access the piece of equipment by means of the technical identification number.

Procedure

1. In the screen *Technical Objects* choose *Functional Location* → *Create*.
The screen *Create Functional Location: Initial* is displayed.
2. Enter the structure indicator you require and choose *Continue*.
The system displays the edit mask for the location label as well as its hierarchy levels.
3. Enter the label of the new functional location and the label of the superior location.
If a superior location is already displayed, you can overwrite it. Take into account the above-mentioned prerequisites when doing this.
4. Choose *Enter*.
The screen *Create Functional Location: Master data* is displayed.
The system copies the data from the superior location into the master record of the new functional location. You can change this data if required.
5. Save the new master record.

Changing and Displaying a Functional Location

Prerequisites

Changes should only be made in certain cases, for example, if you made a mistake when entering the data, or if certain data has changed and the master record has to be updated.

Changing a Functional Location

1. In the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects*.
2. Choose *Functional Location* → *Change*.

The screen *Change Functional Location: Initial* is displayed.

3. Enter the label of the functional location or use a matchcode to search for it.
4. Choose *Enter*.

The master record of the functional location is displayed.

Displaying a Functional Location

1. In the main menu, choose *Logistics* → *Plant Maintenance* → *Technical Objects*.

You go to the screen *Technical Objects*.

2. Choose *Functional Location* → *Display*.

The screen *Display Functional Location: Initial* is displayed.

3. Enter the label of the functional location or use a matchcode to search for it.
4. Choose *Enter*.

The master record of the functional location is displayed.



If necessary, you can switch from the display mode to the change mode. In the screen *Display Functional Location*, choose *Functional location* → *Display* → *Change*.

Renaming Functional Locations

Renaming Functional Locations

Use

Functional location labels can be changed. The system saves all previously used labels as historical labels. To avoid confusion, you cannot reuse a historical label.

However, if you need to use the historical label you must explicitly release it for reuse.

Prerequisites

Activate the function *Alternative Labeling of Functional Locations* in Customizing for *Plant Maintenance (PM)* under *Functional Locations*.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* and then *FunctLocation* → *Change*.
2. Enter the functional location label and choose *Continue*.
3. Choose *Extras* → *Label* → *Overview*. You go to the labeling history for the functional location.
4. Select the label you require and choose *Rename*.
5. Enter the new label in the dialog box *Functional Location: Rename* and choose *Continue*.
6. In the dialog box for the labeling history the new label is displayed as the active version and the old label as the historical version.

Choose *Continue* and save the changes made to the master record.

Changing the Maintenance Plant in a Functional Location

Prerequisites

In rare cases, such as for example, complete restructuring within a company or dismantling and rebuilding an entire system, it may be necessary to change the maintenance plant of a functional location.



Consider carefully whether this change is really necessary. This is a change with far-reaching consequences:

| | |
|---|--|
| • | The system automatically clears all fields that are dependent on the maintenance plant for this master record and all the dependent master records. |
| • | The maintenance plant change can cause a company code change, which means that the system will clear all fields dependent on the company code for this master record and all the dependent master records. |
| • | The company code change can produce a change in the controlling area, which means that the system clears all fields dependent on the controlling area. |

Procedure

1. Select the master record of the functional location as described in [Changing and Displaying a Functional Location \[Page 33\]](#), and call up the location data screen.

2. Choose *Edit* → *Change MaintPlant*.

The dialog box *Change Maintenance Plant* is displayed, in which you can enter the new maintenance plant.

3. Choose *Continue*.

The system issues a warning of the consequences of changing the maintenance plant. If you really do want to change the maintenance plant, choose *Continue*.

4. Save the changes to the master record.



If you want to change the data origin for the field *Maintenance plant*, you must call up this function in the dialog box *Change Maintenance Plant*.

Activating/Deactivating Functional Locations

Activating/Deactivating Functional Locations

Prerequisites

A master record is always activated when you create it. Before you deactivate a functional location make sure that you are fully aware of the consequences that this may have. See [Deactivating Master Records \[Page 174\]](#).

Deactivating Functional Locations

1. Select the master record of the functional location in the create or change mode.
2. Choose *FuncLoc* → *Functions* → *Active <-> Inactive* → *Deactivate*.
The system then shows the status “Object deactivated”.
3. Save the master record.

Activating Functional Locations

1. Select the master record of the functional location in the change mode.
2. Choose *FuncLoc* → *Functions* → *Active <-> Inactive* → *Activate*.
The system then cancels the status “Object deactivated”.
3. Save the master record.

Flagging a Functional Location for Deletion

Prerequisites

Before you flag a functional location for deletion you should be fully aware of the consequences that this may have. For more information on this, see [Flagging Master Records for Deletion \[Page 172\]](#).

Setting Deletion Flags

1. Select the functional location in the change mode.
2. Choose *FuncLocat*ion → *Functions* → *Deletion flag* → *Set*.
The system sets the status “Flagged for deletion” for the master record.
3. Save the master record.

Resetting Deletion Flags

1. Select the functional location in the change mode.
2. Choose *FuncLocat*ion → *Functions* → *Deletion flag* → *Reset*.
The system then removes the status “Flagged for deletion” for the master record.
3. Save the master record.

Alternative Labeling Systems

Use



SAP recommends that you avoid testing this function in the productive system. You will be unable to set the alternative labeling systems to inactive and undesirable side effects may occur during deactivation.

A functional location is identified by its label. You can assign several labels to each functional location. You define the label that you work with the most as the **primary label** and all others as **alternative labels**. In this way you can define a primary and as many alternative labeling systems as you require for a functional location structure.

You use this function if different views of functional locations structures are required. You can only generate new views for existing structures using these functions. You cannot generate **any new structures**. Certain users then identify a functional location in their view or labeling system 1 using label A, while other users identify the same functional location in their view or labeling system 2 using label B.



The following views are feasible:

| Primary labeling system | Alternative labeling systems |
|--------------------------|---|
| Service provider view | View for customer 1 View for customer 2 View for customer 3 |
| SAP view | Geographical Information System (GIS) view |
| Technical procedure view | Electronic/measurement/control technique view |

Features

Primary Labeling System

You should define the labeling system that the majority of users work with as the primary labeling system.

When creating or processing functional locations, a user can select a labeling system and save it in his or her own user profile if necessary. If a user has not saved a labeling system in his or her user profile, the system proposes the primary labeling system.

Uniqueness

A label must be unique within a labeling system. This means that it can only exist once. You can also define that a label must be unique across **all** labeling systems.

Historical Labels

Alternative Labeling Systems

Functional location labels can be changed. The system saves all previously used labels as historical labels. You cannot reuse a historical label.



However, if you need to use the historical label you must explicitly release it for reuse. To do this, use the executable program under *Logistics → Plant Maintenance → Technical Objects → Functional Location → Labels → Reusability*.

Activities

You make all settings for labeling systems in Customizing for *Plant Maintenance (PM)* under *Functional Locations*.

Configuring a Required Labeling System

Configuring a Required Labeling System

Prerequisites

If you want to work with alternative labeling systems you must first make the following settings in Customizing for *Plant Maintenance (PM)* under *Functional Locations*:

1. Activate the function *Alternative Labeling of Functional Locations*.
2. Create the required labeling system. Assign a key and a description.

If necessary, define the labeling system as unique. This means that if you want to use a particular label in this labeling system, it is first checked whether the label already exists in one of the other labeling systems. If this is the case, the label cannot be assigned.

Procedure

1. Choose *Logistics* → *Plant Maintenance* → *Technical Objects* and then *Functional Location* → *Labels* → *User Profile*. A dialog box is displayed.
2. Select the required labeling system in your user profile or create a new entry.
3. If you are creating a new entry, you go to the dialog box *Alternative Functional Location Label: Create User Profile*.

Assign a new number and a description for the new entry in the user profile.

4. Enter one of the labeling systems that were created in Customizing.
5. Assign a structure indicator to the labeling system and choose *Continue*.
6. You return to the dialog box in which your user profile is now entered. Check that the required labeling system is selected and choose *Continue*.

Result

You can now create functional locations within the required labeling system. When doing this, the system automatically proposes the labeling system linked to the structure indicator.

You can change the selected labeling system at any time either by selecting another entry in your user profile or by creating a new entry.

The labeling system selected in the user profile overrides the primary labeling system (which could be a cross-client setting).

Note that you must adjust the selection of internal reports accordingly if you activate or deactivate alternative labeling.

Assigning an Alternative Label to a Functional Location

Use

A functional location could, for example, have the label BB-03 in a company-wide labeling system. However, in a customer-defined labeling system the same location should have the label RL-999.



You do **not** rename the functional location label using this method. The master record of the functional location remains unchanged. Using the alternative label, you just create a **reference to this master record** in an alternative labeling system.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* and then *FunctLocation* → *Change*.
2. Enter the functional location label and choose *Continue*.
3. Choose *Extras* → *Alternative labels* → *Overview*. The *Labels* dialog box is displayed.
4. Select the required alternative labeling system and choose *Change label*. The *Functional Location: Change Label* dialog box is displayed.
5. Enter the new, alternative label and choose *Continue*.
6. The new, alternative label is displayed in the *Labels* dialog box for the corresponding labeling system.
7. Choose *Continue* and you return to the master record of the functional location.

Displaying Alternative Labels for a Functional Location

Displaying Alternative Labels for a Functional Location

Use

You are working with a company-defined labeling system. However, your customer uses a customer-defined labeling system for the same functional locations. When your customer makes an inquiry, you can identify the functional location in the company-defined labeling system and report back to the customer using their labeling system.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* and then *FunctLocation* → *Display/Change*.
2. Enter the functional location label and choose *Continue*.
3. Choose *Extras* → *Label* → *Overview*.

A dialog box is displayed showing which labels the functional location has in existing labeling systems.

Representing the Structure of a Whole System

Use

If you want to create, change or display functional locations or reference functional locations, you can display the whole hierarchy, or just parts of it, using the structure overview. This enables you to obtain an overall picture of the structure that you are processing or want to process.

Features

You can find the structure overview:

- In the initial screen, the PM data screen and the location data screen of the location master record
- When using a matchcode to help you enter a location

You can select an individual master record for processing from the structure graphic.

You can display the location structure in two different ways on the screen:

- As a structure graphic
- As a structure list

Structure Graphic

The structure graphic provides you with a graphic overview of the structure, that you can break down further.

You can select individually the fields you want to display for the functional locations and reference functional locations. To do this, choose *Settings* → *Field selection* in the structure graphic.

Structure List

The structure list provides you with a graphic overview of the structure in list form, that you can break down further.

You can select individually the fields you want to display for the functional locations and reference functional locations. To do this, choose *Settings* → *Field selection* → *FunctLocation* in the screen *Structure list*.

Displaying Location Structures

Displaying Location Structures

Calling up a Structure Display from the Master Record of a Functional Location or Reference Location

1. Call up the master record of the required functional location or reference functional location in the display or change mode.
2. In any master data screen, use one of the following menu bar sequences:
 - *Structure* → *Structure list*
 - *Structure* → *Structure graphic*

The location structure that you can break down further is displayed either as a graphic or in list form, depending on the menu bar sequence you selected.

Calling up the Structure Overview Directly

1. In the screen *Technical Objects*, choose one of the following menu bar sequences:
 - *FunctLocation* → *Structure*
 - *RefLocation* → *Structure*

The selection screen for the structure overview is displayed.

2. Make the selection field entries you require.
3. Choose *Program* → *Execute*.

The location structure that you can break down further is displayed either as a graphic or in list form, depending on the selections you made.

List Editing for Functional and Reference Functional Locations

Use

In addition to entering functional locations and reference functional locations individually, a list editing option is also available. Using this you can quickly represent complete functional location structures including their essential data, and you can refer to existing structures if necessary.

You can use reference functional locations when working with the list editing option for functional locations.

Advantages

- You can quickly represent the structure you require in the system in one operation and enter detail data later if necessary.
- You can copy existing structures quickly and clearly.
- You can quickly create a clear structure for functional locations which refers to the structure of a reference functional location.

Features

| If you want to | Then use the following creation function |
|---|--|
| Create reference functional locations and functional locations without using a reference, | Creating Master Records Using List Editing [Page 46] |
| Use another reference functional location as a copy reference for new reference functional locations, | List Editing Using a Copy Reference [Page 49] |
| Use another functional location as a copy reference for new functional locations, | List Editing Using a Copy Reference [Page 49] |
| Use a reference functional location as a copy reference for new functional locations, | List Editing Using a Reference Functional Location [Page 53] |

Creating Location Master Records Using List Editing

Creating Location Master Records Using List Editing

1. In the main menu, choose *Logistics → Plant maintenance → Technical objects*.
The screen *Technical Objects* is displayed.
2. Then choose
 - for functional locations:
Then use the menu bar sequence *FunctLocation → List editing → Create*.
 - for reference functional locations:
Now use the menu bar sequence *Edit → Copy reference → Create*.
In both cases the List Entry screen is displayed.
3. Enter the required structure indicator for the new functional location in the list entry screen and choose *Continue*.
You see the corresponding edit mask with the hierarchy levels.
4. Enter the new functional location labels together with their descriptions in the columns provided.
5. Save your entries.



When saving, the system may find that there are obligatory entry fields with no entries. If so, it branches into individual processing of the master records and asks you to make the entries in these fields.

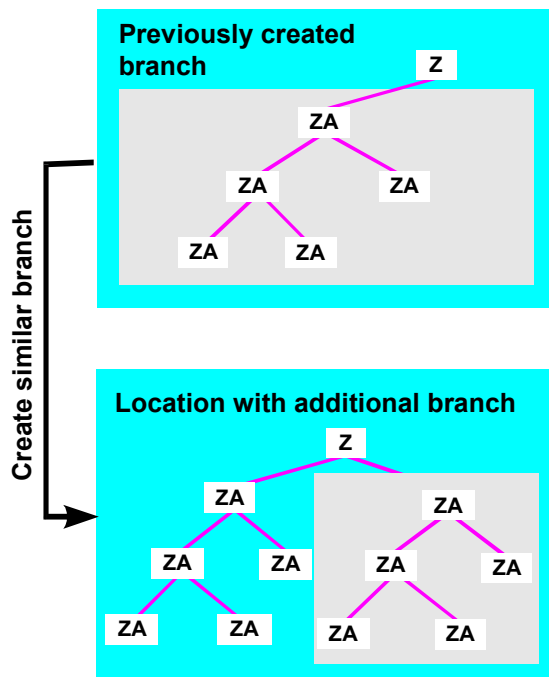
Creating Similar Functional Location Structures

Use

Entering similar structures within a functional location or a reference functional location has been made easier by the function *Change structure*. This enables you to alter and insert structure branches whose labels vary from the branch that has already been entered. You can use this function as long as you have not yet saved the data of the similar structure to which you are referring. You can not access the database when using this function.

Example of Creating Similar Structures

You have entered branch ZA for the functional location Z. Branch ZA consists of 5 functional locations. You now want to create a second branch that should have the same structure as ZA.



Procedure

1. In the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects*.
The screen *Technical Objects* is displayed.
2. Then choose
 - for functional locations:
Then use the menu bar sequence *FunctLocation* → *List editing* → *Create*.
 - for reference functional locations:

Creating Similar Functional Location Structures

FuncLocation → Reference location → List editing → Create.

In both cases the List Entry screen is displayed.

3. Enter the required structure indicator and enter the new functional location labels and descriptions.
4. Position the cursor on the functional location or reference functional location at the top of the hierarchy of the structure branch you require.
5. Choose *Edit → Change structure*.
6. Change the label in the dialog box as required.
7. Flag the field *Create*.
8. Choose *Continue*.

The system creates the new branch in the list editing screen.

List Editing Using a Copy Reference

Use

If you want to represent a location structure that already exists in the system in a similar form, you can use this structure as a copy reference. In this way you are able to:

- Extend existing location structures at a later date, using copy references
- Create new location structures using a number of individual copy references

Procedure

1. In the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects*.
The screen *Technical Objects* is displayed.
2. Then choose
 - for functional locations:
Then use the menu bar sequence *FunctLocation* → *List editing* → *Create*.
 - for reference functional locations:
FunctLocation → *Reference location* → *List editing* → *Create*.In both cases you go to the List Entry screen.
3. Enter the structure indicator that you want to use. Then choose *Edit* → *Copy reference*.
The dialog box *Copy Functional Location Structure* is displayed.
4. Enter the label of the location you want to use as a copy reference in this dialog box.
5. Enter the label of the functional location that is to be at the top of the new structure in the field *New FunctLocStruct*.
6. You now have two options:
 - You copy all locations of this structure
To do this, choose *Continue*.
The system enters all the location labels and texts in the entry list. The labels have already been changed according to the new location structure specified.
 - You display the structure of the copy reference and select the locations that you want to copy.
To do this, choose either *Structure list* or *Structure graphic*.
In both cases, the location hierarchy, that you can break down further as required, is displayed.
Flag the locations that you would like to copy and choose *Edit* → *Select*. You return to the List Editing screen.
The system enters all the labels and texts of the selected locations in the entry list. The labels have already been changed in accordance with the new location structure, and possibly adapted to suit the new structure indicator.

List Editing Using a Copy Reference

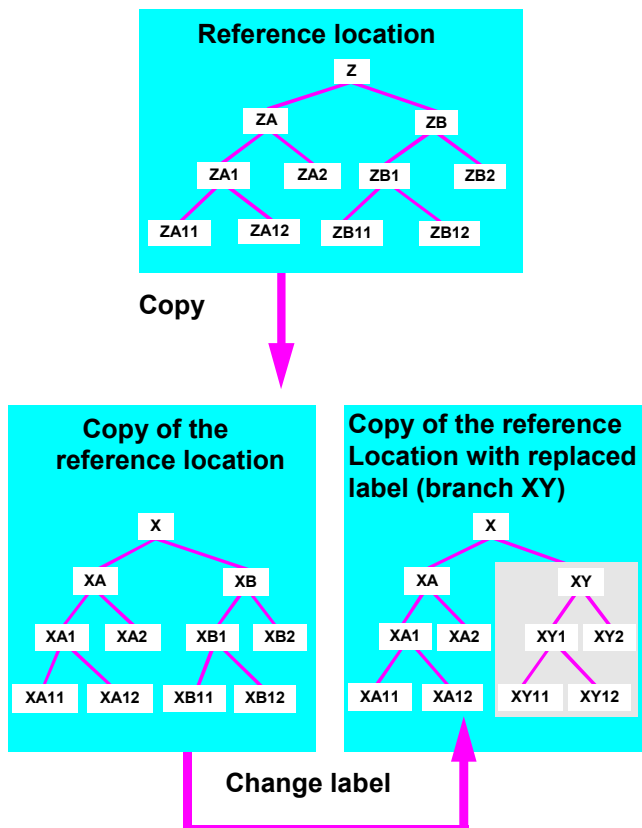
7. Change the functional location texts as required.
8. Save the new functional locations.

Replacing Location Labels

Use

The function *Change structure* also helps you with this form of list editing when creating new functional locations or reference functional locations. You can use it to change and enter a structure branch of the copy reference into the new functional location.

Example



Procedure

1. Make a copy of the copy reference functional location as described in the topic [List Editing Using a Copy Reference \[Page 49\]](#).
2. Position your cursor on the top functional location in the branch whose label you want to change. Use the menu bar sequence *Edit* → *Change structure*.
3. In the dialog box that is displayed, change the label according to your needs.
4. Flag the field *Replace*.
5. Choose *Continue*.

The system replaces the old label of the branch with the new one.

Replacing Location Labels

List Editing Using a Reference Functional Location

Prerequisites

You can only use this list editing function for **functional locations**.

With this list editing option, you refer to an existing reference functional location.

Procedure

1. In the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects*.
The screen *Technical Objects* is displayed.
2. Then choose *FunctLocation* → *List editing* → *Create*.
The list entry screen is displayed.
3. Choose *Edit* → *Copy reference*.
The dialog box *Create FunctLocation Structure using Copy Reference* is displayed.
4. Enter the label of a reference functional location to be used as a reference, and the label of the new functional location structure.
In this dialog box, the functions *Structure list* and *Structure graphic* are also available.
5. The system enters all the locations, or those with the new labels, in the list.
Using this option, the functional locations that are created refer in their master records to the reference functional location that you specified when creating them.

The function *Change structure* also helps you with this form of list editing when creating new functional locations. You can use it to change and enter a structure branch of the copy reference into the new functional location. To do this, proceed in the same way as when replacing functional location labels (see [Replacing Location Labels \[Page 51\]](#)).

Consistency Check for Functional Location Data

Consistency Check for Functional Location Data

Definition

In the master records of functional locations, reference is made to many objects, which for their part, were also created in the form of master records in the system. These also can refer to further objects.

When you create a functional location in the system or change certain data in the master record, the system warns you of existing inconsistencies with dialog messages. If, however, you are only displaying the location or do not perform any changes to particular fields over a long period of time, it is possible that data inconsistencies will occur.



In the master record C1-B01 (filtration plant) the cost center 511 is entered. Additionally, the master record refers to the asset 1004711/0001. However, in the master record of the asset, the cost center is 909.

In cases like this, it is advisable to perform a consistency check for the location master record at certain intervals.

Performing a Consistency Check

1. Select the functional location required in display or change mode.
2. In the Location Data or PM Data screen, choose *Functional location* → *Check* and then enter a key date for the check in the dialog box.

The system checks the functional location and displays any data inconsistencies found in a dialog box as a list with corresponding dialog messages.

3. Check the content of the dialog messages. Display the long texts if required, and correct the inconsistencies where necessary.

Equipment

Equipment

Purpose

A piece of equipment is an individual object that is to be maintained independently. Each piece of equipment is managed independently in the system, so that you can:

- Manage individual data from a maintenance perspective for the object
- Perform individual maintenance tasks for the object
- Keep a record of the maintenance tasks performed for the object
- Collect and evaluate data over a long period of time for the object

Pieces of equipment can be installed and dismantled at functional locations. The usage times for a piece of equipment at a functional location are documented over the course of time.

Implementation Considerations

You should always create an equipment master record for a technical object if:

- Individual data is to be managed for the object (for example, year of construction, warranty period, usage sites)
- Maintenance tasks are to be performed for the object, either regular, planned or resulting from damage
- A record of the maintenance tasks performed for the object must be kept (for example, for insurance or compulsory annual inspection purposes)
- Technical data on the object is to be collected and evaluated over a long period of time
- The costs of maintenance tasks are to be monitored for the object
- Records of usage times at functional locations are required for the object

Integration

You can use pieces of equipment by themselves (pure object-related structuring), or in combination with the component *Functional locations* (function and object-related structuring).

You can create warranties in the system using the *Service Management (SM)* application component.

You can also use pieces of equipment in the following application areas:

- *Production Planning and Control (PP)*: Production resources/tools
- *Quality Management (QM)*: Test equipment
- *Materials Management (MM)*: Serialized materials
- *Sales and Distribution (SD)*: Customer equipment

Equipment

Definition

The business object “Equipment” is an individual, physical object that is to be maintained independently. It can be installed in a technical system or part of a technical system.

You can manage all types of device as pieces of equipment (for example, production utilities, transportation utilities, test equipment, production resources/tools, buildings, PCs).

Since many of these physical objects are managed as “assets” in Asset Management, the term “piece of equipment” was chosen for objects defined from a technical perspective, in order to avoid confusion with the activated tangible assets.

You define and manage each piece of equipment in the *Plant Maintenance (PM)* System in a separate master record and can set up an individual maintenance history for each one.

Structure

The system manages the master records for pieces of equipment at client level. This means that their numbers are valid for the entire corporate group.

The equipment master record contains several types of data:

- General data
 - This is fixed data, which generally does not change in the course of time, for example, the acquisition value of the piece of equipment, its size and dimensions and the year of construction.
- Plant Maintenance Data, Location Data and Sales Data
 - This is time-dependent data. It can change repeatedly in the course of time. This data can be, for example, the maintenance planner group, the responsible work center, the maintenance plant and the cost center.
 - Time-dependent data allows you to look at a piece of equipment dynamically, in other words over the course of time. If your system is set up accordingly with the help of the Customizing functions, it automatically creates a new time segment for specific master record changes that describes the equipment usage period.
- Serial number data
 - This is data that you specify when you want to manage your pieces of equipment not only as individual objects, but also from an inventory management perspective. This data comprises material data as well as stock and customer information.
 - See [Serialization Data in the Piece of Equipment \[Ext.\]](#).
- Configuration data
 - This is data that describes which individual components of a standard product make up the piece of equipment.
- Partner data
 - This is data that describes a certain responsibility for a piece of equipment, such as for example, supplier, purchaser, responsible employee.

Equipment

See [Partners in PM/SM Processing \[Page 158\]](#).

The following functions are also available:

- Measuring Points, Counters, Measurement Documents
- [Permits \[Page 154\]](#)
- [Multilingual Texts \[Page 146\]](#)
- [Classification \[Page 136\]](#)

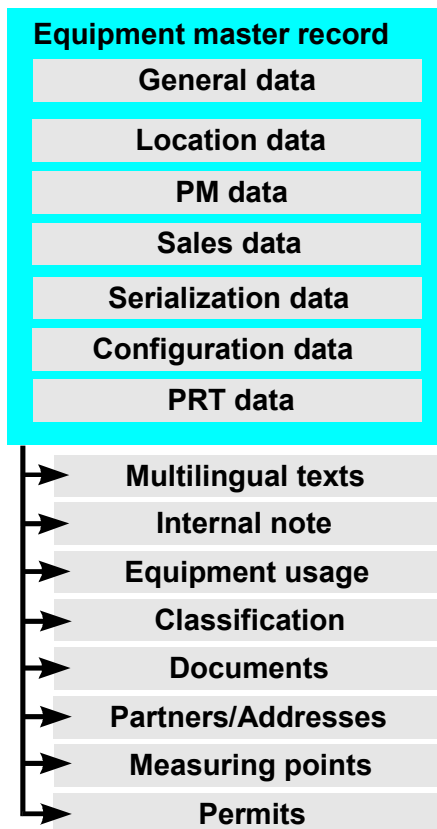
You can classify pieces of equipment by their technical characteristics using the SAP Classification System. The classes help you to find similar or identical pieces of equipment in the system more easily.

- [Document management \[Page 143\]](#)
- Address management

You can define an address for each piece of equipment. This could be, for example, the address of a company that is responsible for the maintenance of a service equipment, or an internal consultant.

Using ABAP reports, you can evaluate the master records data for pieces of equipment, according to different criteria.

Structure of Equipment Master Record



Creating a Piece of Equipment

Creating a Piece of Equipment

Prerequisites

Before you create a master record for a piece of equipment, you must know the following:

- How are the **equipment numbers** assigned?
 - Internally, meaning automatically by the system
 - Externally, meaning manually, possibly according to a company-specific system
- Do you have to enter **equipment descriptions** according to a particular company-specific method, in order to simplify the search process?

Procedure

1. In the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects*.
The screen *Technical Objects* is displayed.
2. Choose *Equipment* → *Create*.
The initial screen is displayed.
3. Make all the necessary entries.
If you want to use another piece of equipment or material as a reference for the new piece of equipment, enter its number in the block *Reference*.
4. Choose *Continue*.
If you have specified a piece of equipment as a reference, the system displays a dialog box, in which you specify which data of the reference equipment should be copied to the new equipment. Then choose *Continue* and you return to the screen *General Data*.
5. Make all the necessary entries in this screen.
6. Select further master data screens, such as the location and maintenance data, serialization or partner data screens.
Make all the required entries in these screens too.
If you want to classify the equipment master record, choose *Goto* → *Classification*. You go to the classification processing function.
7. Save the master record.

Using List Editing for Equipment

Use

In addition to the individual entry of equipment master records, you can also use the list editing function. This allows you to enter quickly a large number of pieces of equipment in the system with their essential data, using existing equipment or material master records as a reference where necessary.

Procedure

1. From the main menu, choose *Logistics → Plant maintenance → Technical objects → FunctLocation → List editing → Change*.
You go to the screen *Equipment List Entry*.
2. In the upper section of the screen, enter the equipment category and the maintenance plant. These entries will be valid for all the pieces of equipment that you create using this transaction.
3. If you want to use a reference when creating the pieces of equipment, enter either a piece of equipment or a material in the section *Reference*.

If you are using a reference, you can specify the number of pieces of equipment that you want to create. The description of the reference equipment or material is copied into as many of the list entry fields as you specify here.

4. In the list entry part of the screen, enter the following data for each equipment master record that you want to create:
 - The equipment number (only if you are using external number assignment)
 - The equipment description (if this has not been copied from the reference)
5. Save the new equipment master records.

Depending on the fields in the equipment master record that have been defined as obligatory fields, processing continues in one of the following ways:

- A** The system saves the master records and issues a message informing you of the numbers of the pieces of equipment created
- B** The system branches into the individual master records in which you must enter particular data that has been defined as obligatory data.

After you have made all the required entries, the system saves the master records and issues a message informing you of the numbers of the pieces of equipment created.

Changing a Piece of Equipment

Changing a Piece of Equipment

Prerequisites

In certain circumstances, you may have to make changes to the data in the equipment master record. For example, if you made mistakes when the data was entered or if certain data has changed and has to be updated in the master record.

For information on what you should be aware of when creating serial number and configuration data for a piece of equipment so that you can use inventory management for it, see the topics [Serialization Data \[Ext.\]](#) and [Configuration Data \[Page 108\]](#).

Procedure

1. In the screen *Technical Objects* choose *Equipment* → *Change*.
The screen *Change Equipment: Initial*, is displayed.
2. Enter the number of the equipment master record or use a matchcode to search for it.
3. Choose *Continue*.
The screen *Change Equipment: General Data*.
4. Make all the necessary changes in this screen. To change further data, go to the required screens.
5. If necessary, you can change the equipment category. Choose *Edit* → *Change category*.
6. The dialog box *Change Equipment Category* is displayed. Enter the required data.
7. Save the changes.

Changing the Maintenance Plant

Prerequisites

It may be necessary to change the maintenance plant for a piece of equipment. For example when it is to be installed at a functional location which is in another maintenance plant, or when it is to be used in another maintenance plant from now on.

However, you can only change the maintenance plant for a piece of equipment, when the piece of equipment is no longer installed at a functional location.



Changing a maintenance plant has the following consequences:

- The system automatically clears all fields of the master record that are dependent on the maintenance plant.
- A change of maintenance plant can result in a change of company code, which causes the system to clear all fields that are dependent on the company code.
- The company code change can produce a change in the controlling area, which means that the system clears all fields dependent on the controlling area.

Procedure

1. Select the equipment master record in the change mode, and go to the Location data screen.
2. Choose *Edit* → *Change MaintPlant*.

The dialog box *Change Maintenance Plant* is displayed, in which you can enter the new maintenance plant.

3. Choose *Continue*.

The system issues a warning of the consequences of changing the maintenance plant. If you really do want to change the maintenance plant, choose *Continue*.

4. Save the changes to the master record.

Change View Selection

Change View Selection

Use

The view selection is determined by the equipment category. Generally, the views (tab pages) *General data*, *PM data* and *Location data* belong to the equipment.

When you create a new piece of equipment, you can select and deselect any of the views. Once a piece of equipment has been created, you can only select new views. It is then no longer possible to deselect existing views.

Procedure

1. Select the equipment master record in the Change mode.
2. Choose *Edit* → *View selection*.
The selection screen is displayed.
3. Select the additional views that you require.
4. Save the changes to the master record.

Displaying an Equipment Master Record

Use

You can display equipment master records for information purposes. When doing so, you have the options of displaying individual master records as they appeared on a particular validity date.

Procedure

1. In the screen *Technical Objects* choose *Equipment* → *Display*.
The screen *Display Equipment: Initial*, is displayed.
2. Enter the number of the equipment master record or use a matchcode to search for it.
3. Enter a date in the field *Valid on*. The date must lie within the validity period you want to view.
4. Choose *Continue*.

The screen for general data is displayed.

PM data, location data and sales and distribution data are displayed for the validity period you have entered. You can display further data for the piece of equipment by using the menu bars and the function buttons.



If necessary, you can switch from the display mode to the change mode. In the screen *Display Equipment: Initial*, choose *Equipment* → *Display* → *Change*.

Activating/Deactivating Equipment

Activating/Deactivating Equipment

Prerequisites

Before you deactivate a piece of equipment, you should be fully aware of the consequences that this may have. See [Deactivating Master Records \[Page 174\]](#).

Deactivating a Piece of Equipment

To deactivate a piece of equipment, perform the following three steps:

1. Call up the equipment master record in create or change mode.
2. Choose *Equipment* → *Functions* → *Active* <-> *Inactive* → *Deactivate*.
The system then shows the status “Object deactivated”.
3. Save the master record.

Activating a Piece of Equipment

To activate a deactivated piece of equipment, perform the following three steps:

1. Call up the equipment master record in create or change mode.
2. Choose *Equipment* → *Functions* → *Active* <-> *Inactive* → *Deactivate*.
The system then cancels the status “Object deactivated”.
3. Save the master record.

Flagging a Piece of Equipment for Deletion

Prerequisites

Before you set a deletion flag for a piece of equipment, you should be fully aware of the effect and consequences that this may have. For more information on this, see [Flagging Master Records for Deletion \[Page 172\]](#).

Setting Deletion Flags

1. Call up the equipment in change mode.
2. Choose *Equipment* → *Functions* → *Deletion flag* → *Set*.
The system sets the status *Flagged for deletion* for the master record.
3. Save the master record.

Resetting Deletion Flags

1. Call up the equipment in change mode.
2. Choose *FunctLocation* → *Functions* → *Deletion flag* → *Reset*.
The system then removes the status *Flagged for deletion* for the master record.
3. Save the master record.

For information on how to archive equipment data, refer to the document *BC - Application Data Archiving*.

Displaying Usage Times

Displaying Usage Times

Use

Usage times are created by the system for every piece of equipment. They describe certain equipment data (for example, at which functional location it is installed, to which cost center it is assigned or which maintenance planner group is responsible for the piece of equipment).

If you change certain fields defined in the system, the system completes the existing equipment usage period and creates a new one which contains the changed data. This occurs, for example, when you install the piece of equipment at a new functional location, or when you assign it to a new cost center.

You can display the usage periods of a piece of equipment in its master record in list form.

Using the Customizing function, you can specify the conditions under which the system should create new equipment usage periods.

Procedure

1. In the screen *Technical Objects* choose *Equipment* → *Display*.

You go to the initial screen of the equipment master record.

2. Enter the number of the piece of equipment and the validity date you require and choose *Extras* → *Usage list*.

If there are several entries in the usage list for the equipment and validity date entered, the system displays the most recent entry.

3. You can now display the different usages with reference to:

- Location data
- PM data
- Account assignment data
- Sales data

The functions for editing single-level lists are also available to you. For more information, refer to [Working With Lists \[Ext.\]](#).

Displaying the Structure List and the Structure Graphic

Use

You can display a structure graphic or a structure list for a piece of equipment. This is useful in the following cases:

- When a bill of material exists for the piece of equipment
- When the piece of equipment is part of an equipment hierarchy
- When the piece of equipment is installed at a functional location

The system displays the piece of equipment and the surrounding structure in either graphic or list form.

Procedure

1. Select the master record for the piece of equipment you require.
2. In any of the master data screens, choose:
 - For the structure list *Structure* → *Structure list*
 - For the structure graphic *Structure* → *Structure graphic*
3. Depending on your choice, the system displays a structure list or structure graphic, which you can hide or break down further using the function keys, and in which you can see the following:
 - The materials in the bill of material, if one exists for the piece of equipment
 - The superior and/or sub-pieces of equipment, if the piece of equipment is part of an equipment hierarchy
 - The structure of the functional location, if the piece of equipment is installed at a functional location.

Equipment at Functional Locations

Equipment at Functional Locations

Definition

If you have structured your technical system using functional locations, then you have simultaneously specified the possible installation locations for the pieces of equipment you have defined.

Pieces of equipment can be installed at different functional locations in the course of their useful life. It is also possible that this useful life contains periods when they are not installed or when they are in stock.

Use

The individual equipment usage periods are documented by the system. For each piece of equipment it creates a usage list in which it makes an entry for every equipment usage period. This list forms part of the equipment history.

You can create the link between the piece of equipment and the functional location (the equipment installation or dismantling) in the object master record.



If you have structured your technical operation system not only using functional locations and pieces of equipment, but also equipment hierarchies, you must make sure that you can only install the uppermost superior equipment at a functional location.

Structure

The installation/dismantling of equipment is performed either from the functional location master record, or from the equipment master record.

Installing/Dismantling Equipment from the Functional Location Mater Record:

| Function | Use | Example |
|--------------|--|--|
| Installation | No pieces of equipment are installed at the functional location. You want to install one or more pieces of equipment there. | Part of the system which is under construction is equipped with pieces of equipment. |
| Dismantling | One or more pieces of equipment are installed at the functional location. You want to dismantle one or more of these. | Damage has occurred and one or more pieces of equipment are affected. |
| Replacement | One or more pieces of equipment are installed at the functional location. You want to dismantle one or more of these and install one or more other pieces of equipment in their place. | Damage has occurred and you replace the pieces of equipment to ensure that the system is operational again as quickly as possible. |

Equipment at Functional Locations



In certain circumstances you cannot install or dismantle pieces of equipment, for example, when the equipment category does not allow it. If this is the case, the system provides dismantling information in the list for the pieces of equipment installed at the functional location. This information is explained in *Plant Maintenance (PM)* online help.

Installing/Dismantling Equipment from the Equipment Master Record

| Function | Use | Example |
|--------------|---|---|
| Installation | The piece of equipment is not installed at a functional location. You want to install it. | A new piece of equipment, to be used for the first time, must be installed. |
| Dismantling | The piece of equipment is installed at a functional location. You want to dismantle it. | Damage has occurred and the piece of equipment cannot be repaired at its location. |
| Replacement | The piece of equipment is installed at a functional location. You want to dismantle it and immediately install it at a different functional location. | The piece of equipment is installed in part of the system which is shutdown at the moment, and therefore, has to be moved to another functional location. |

To display a whole system consisting of functional locations, pieces of equipment and sub-equipment, see [Representing the Structure of a Whole System \[Page 43\]](#).

Installing/Dismantling Equipment from the Functional Location Master Record

Installing/Dismantling Equipment from the Functional Location Master Record

Use

You can define for a functional location whether:

- No pieces of equipment can be installed
- Only one piece of equipment can be installed
- Several pieces of equipment can be installed

For this reason, the functions for installing and dismantling pieces of equipment include the possibility of installing or dismantling several pieces of equipment simultaneously at a functional location.

When can you Install/Dismantle?

You can call up the transaction for installing/dismantling when you create a functional location. However, you can only install the piece of equipment at the functional location if the equipment master record already exists in the system.

If all necessary master records exist in the system, you can represent an installation or dismantling that was carried out some time before its entry into the system. Date and time fields are provided to enable you to do this.

If you do not enter an installation or dismantling time, the system automatically enters the date and valid system time.

What are the Consequences of Installing/Dismantling?

When you install a piece of equipment, the system - if it is set up accordingly - creates a new entry in the equipment usage list. This contains the current data for the piece of equipment.

When the piece of equipment is dismantled, the system automatically closes the current entry in the equipment usage list and enters the date and time of dismantling. It also creates a new entry containing the new equipment data.

Installing Equipment

Prerequisites

The master records for the functional location and the pieces of equipment must already be created in the system. You can install several pieces of equipment at the functional location.

Procedure

1. From the main menu, choose *Logistics* → *Plant maintenance* → *Technical objects* → *FunctLocation* → *Change*.

The screen *Change Functional Location: Initial*, is displayed.

2. Make all the necessary entries for the functional location in the initial screen and then choose either *Goto* → *Location data* or *Goto* → *PM data*.

The functions for installation/dismantling can be selected from either screen.

3. To do this, choose *Structure* → *Equipment*.
 - If no pieces of equipment have yet been installed at the functional location, you go to the screen *Installation Location: Install Equipment*.
 - If pieces of equipment have already been installed at the functional location, you go to the screen *Installation Location: Equipment Overview*, on which you see a list of all the pieces of equipment installed at this functional location.

Select *Edit* → *Install equipment*, to go to the screen *Installation Location: Install Equipment*.

For how to change the position number of the installed pieces of equipment, see [Changing the Position Number \[Page 90\]](#).

4. Enter the pieces of equipment that you want to install at the functional location in the section *Equipment*.
5. Now you can choose *Extras* → *Change log* to display:
 - Which pieces of equipment are installed
 - Which pieces of equipment were installed before this installation
 - Which pieces of equipment are installed after this installation



If you want to use the *Data transfer* function for the newly installed pieces of equipment, proceed as described in [Data Transfer \[Page 127\]](#).

6. Return to the Maintenance data or Location data screen and save the installation.

Dismantling Equipment

Dismantling Equipment

1. From the main screen, choose *Logistics* → *Plant maintenance* → *Technical objects* → *FunctLocation* → *Change*.

The screen *Change Functional Location: Initial*, is displayed.

2. Make all the necessary entries for the functional location in the initial screen and then choose either *Goto* → *Location data* or *Goto* → *PM data*.

The functions for installing/dismantling are on both screens.

3. Choose *Structure* → *Equipment*.

You go to the screen *Installation Location: Equipment Overview*, on which you see a list of all the pieces of equipment installed at this functional location.

For how to change the position number of the installed pieces of equipment, see [Changing the Position Number \[Page 90\]](#).

4. Select the pieces of equipment which you want to dismantle from the functional location.
5. Choose *Edit* → *Dismantle equipment*.

The system deletes the selected pieces of equipment from the list.

6. Using *Extras* → *Change log*, you can display:

- Which pieces of equipment were dismantled
- Which pieces of equipment were installed before the dismantling
- Which pieces of equipment are installed after the dismantling



If you want to use the *Data transfer* function for the dismantled pieces of equipment, proceed as described in [Data Transfer \[Page 127\]](#).

7. Return to the Maintenance data or Location data screen.
8. Save the dismantling.

Replacing Equipment

1. From the main screen, choose *Logistics* → *Plant maintenance* → *Technical objects* → *FunctLocation* → *Change*.

The screen *Change Functional Location: Initial*, is displayed.

2. Make all the necessary entries for the functional location in the initial screen and then choose either *Goto* → *Location data* or *Goto* → *PM data*.

The functions for installing/dismantling are on both screens.

3. Choose *Structure* → *Equipment*.

You are now on the screen *Installation Location: Equipment Overview*, on which you see a list of all the pieces of equipment installed at this functional location, is displayed.

For information on how to change the position number of the installed pieces of equipment, see [Changing the Position Number \[Page 90\]](#).

4. Select the pieces of equipment which you want to dismantle from the functional location.
5. Choose *Edit* → *Replace equipment*.

6. Specify the pieces of equipment that the selected pieces of equipment are to replace. Select *Confirm*.

You are now back on the screen *Installation Location: Equipment Overview*, on which you now see the list with the new pieces of equipment, is displayed.

7. Here you may enter the installation time, which differs from the date and system time, for each new piece of equipment.
8. Using *Extras* → *Change log*, you can display:
 - Which pieces of equipment were dismantled
 - Which pieces of equipment were installed
 - Which pieces of equipment were installed before the replacement
 - Which pieces of equipment are installed after the replacement



If you want to use the *Data transfer* function for the replaced pieces of equipment, proceed as described in [Data Transfer \[Page 127\]](#).

9. Return to the Maintenance data or Location data screen and save the modification.

Installing/Dismantling from the Equipment Master Record

Installing/Dismantling from the Equipment Master Record

Use

When can you Install/Dismantle?

As a piece of equipment is an individual object, you can only install or dismantle a single piece of equipment (for the master record you are currently editing) at a functional location from the equipment master record.

You can call up the installation/dismantling functions when creating the equipment master record. However, you can only represent the installation of a piece of equipment at a functional location immediately provided the functional location master record has already been created in the system and permits equipment installation.

If all necessary master records exist in the system, you can represent an installation or dismantling that was carried out some time before its entry into the system. Date and time fields are provided to enable you to do this.

If you do not enter an installation or dismantling time, the system automatically enters the date and valid system time.

What are the Consequences of Installing/Dismantling?

When you install a piece of equipment, the system - if it is set up accordingly - creates a new entry in the equipment usage list. This contains the current data for the piece of equipment.

When the piece of equipment is dismantled, the system automatically closes the current entry in the equipment usage list and enters the date and time of dismantling. It also creates a new entry containing the new equipment data.

Installing Equipment

Prerequisites

The master records for the functional location and the pieces of equipment must already be created in the system.

Procedure

1. Select the equipment master record in the Change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc*.
The dialog box *Change Equipment Installation Location* is displayed.
4. Make all the required entries for the installation location.
5. Perform the installation. The following options are available for doing this:
 - Use the pushbutton *Dism. w. DataTransfer*.
The system installs the piece of equipment. You can determine the data transfer manually. For information on this, see [Data Transfer \[Page 127\]](#).
Return to the dialog box *Change Equipment Installation Location*.
 - Use the pushbutton *Installation*.
The system installs the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
6. Select *Confirm*.
You return to the master record screen from which you called up the dialog box.
7. Save the equipment master record.

Dismantling Equipment

Dismantling Equipment

1. Select the equipment master record in the Change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc.*

The dialog box *Change Equipment Installation Location* is displayed.
4. Dismantle the piece of equipment. The following options are available for doing this:
 - Use the pushbutton *Dism. w. DataTransfer.*

The system dismantles the piece of equipment. You can determine the data transfer manually. For information on this, see [Data Transfer \[Page 127\]](#).
Return to the dialog box *Change Equipment Installation Location*.
 - Use the pushbutton *Dismantle.*

The system dismantles the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
5. Choose *Confirm.*

You return to the master record screen from which you called up the dialog box.
6. Save the equipment master record.

Replacing Equipment

1. Select the equipment master record in the Change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc.*

The dialog box *Change Equipment Installation Location* is displayed.
4. First of all, dismantle the piece of equipment at its current installation location. The following options are available for doing this:
 - Use the pushbutton *Dism. w. DataTransfer.*

The system dismantles the piece of equipment. You can determine the data transfer manually. For information on this, see [Data Transfer \[Page 127\]](#).
Return to the dialog box *Change Equipment Installation Location.*
 - Use the pushbutton *Dismantle.*

The system dismantles the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
5. Now install the piece of equipment at its new installation location. The following options are available for doing this:
 - Use the pushbutton *Inst. w. DataTransfer.*

The system installs the piece of equipment. You can determine the data transfer manually.
Return to the dialog box *Change Equipment Installation Location.*
 - Use the pushbutton *Installation.*

The system installs the piece of equipment. In this case, you are **not** able to influence the data transfer manually.
6. Choose *Confirm.*

You return to the master record screen from which you called up the dialog box.
7. Save the equipment master record.

Hierarchical Equipment Structure

Hierarchical Equipment Structure

Definition

When you structure your company's technical systems, you have the option of representing a hierarchical equipment structure with the use of **superior** and **sub-pieces** of equipment. This is useful, for example, when you want to divide large pieces of equipment that are installed at a functional location into smaller units, that you can also manage in the system as pieces of equipment.

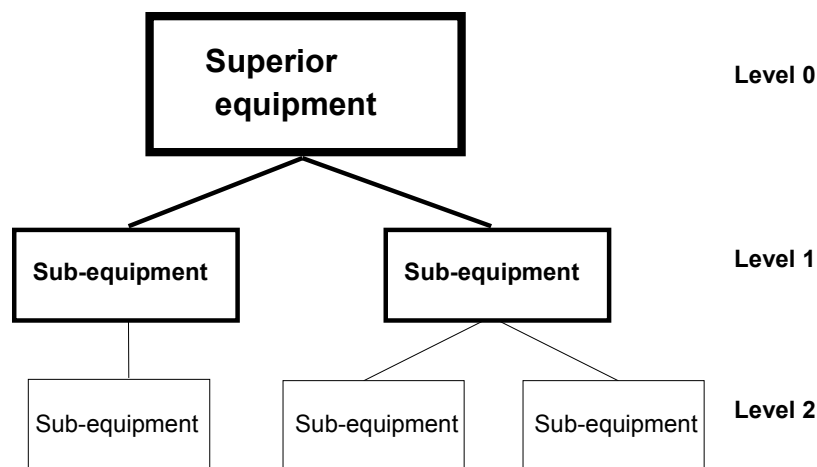
You can also use structuring of superior and sub-pieces of equipment even if you do not use functional locations.

Use

A superior piece of equipment is a complex system that is made up of several individual pieces of equipment. You can represent the structure of the system by installing individual pieces of equipment in the superior piece of equipment.

All the elements of the structure represented by the superior pieces and the sub-pieces installed in them are themselves pieces of equipment. They are objects that are to be maintained as autonomous units and for which an individual maintenance history is to be built up.

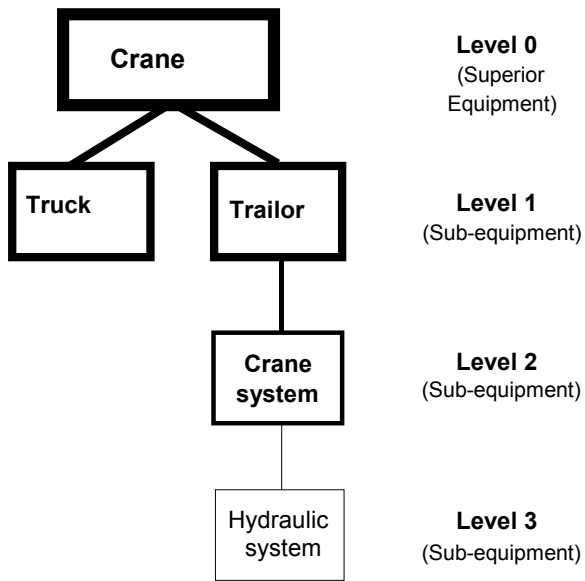
You can structure a complex system with as many levels as you require using superior and sub-pieces of equipment. You can install as many sub-pieces of equipment as required in superior pieces of equipment. A sub-piece of equipment can itself be a superior piece of equipment to several other sub-pieces of equipment. This produces the hierarchical structure:



Pieces of equipment can be installed in various superior pieces of equipment in the course of their useful life. It is also possible that this useful life contains periods when they are not installed or when they are in stock.

The individual equipment usage periods in superior pieces of equipment are recorded if the appropriate settings have been made within your system. The system creates a usage period list, in which it makes one entry per equipment usage period, for each piece of equipment. This list forms part of the equipment history.

Example of an Equipment Hierarchy



If you have structured your technical operation system not only using functional locations and pieces of equipment, but also equipment hierarchies, you must make sure that you can only install the uppermost superior equipment at a functional location.

Hierarchy System for Equipment

Hierarchy System for Equipment

Use

You structure a system into superior equipment and sub-equipment by assigning individual pieces of equipment to another piece of equipment. This piece of equipment becomes the superior piece of equipment for all the individual pieces of equipment.

To represent the installation of the sub-equipment in the superior equipment, the following methods are available:

- You assign one or more sub-pieces of equipment to a piece of equipment.
- You assign one or more pieces of equipment to a superior piece of equipment.

Prerequisites

You must create **equipment master records** for both superior and sub-pieces of equipment because the assignment of equipment is performed there.

Features

When you create equipment hierarchies, you can use the following additional functions:

- **Data Transfer** within the Structure
The associated superior and sub-pieces of equipment form a structural unit. This is why it is possible to copy certain data (for example, the planning plant or the responsible maintenance planning group) from the master record of the superior piece of equipment into the master records of the sub-pieces of equipment.
- **Installation /Dismantling on a Specific Date**
When dismantling an equipment hierarchy, you also have the option in the system of representing an installation, dismantling or replacement that has already taken place some time ago, with the correct date and time. In this way you can be sure that the sequence of equipment usage periods in the equipment usage list is correct.

Installing Sub-Equipment in a Piece of Equipment

1. Create master records for all the pieces of equipment you want to process. To do this, proceed as described in [Creating a Piece of Equipment \[Page 60\]](#).
2. Call up the master record of the piece of equipment that you want to define as the superior equipment. In the screen *Technical Objects* use the menu bar sequence *Equipment* → *Change* or use the list editing functions.
3. In any master record screen, use the menu bar sequence *Structure* → *Sub-equipment*.
You are now back on the screen *Installation Location: Install Equipment*.
4. Enter the pieces of sub-equipment that you want to install in the list.
5. When you have installed all the pieces of sub-equipment required, you can display all the pieces of installed equipment in an overview. To do this use the menu bar sequence *Installation location* → *Equipment overview*

The screen *Installation Location: Equipment Overview* is displayed.



If you want to use the *Data transfer* function for the sub-equipment, proceed as described in [Data Transfer \[Page 127\]](#).

6. Return to the master data screen from which you called up the sub-equipment installation function.
7. Save the equipment master record.

Installing Equipment in a Superior Piece of Equipment

Installing Equipment in a Superior Piece of Equipment

1. Create master records for the pieces of equipment that you want to process. To do this, proceed as described in [Creating a Piece of Equipment \[Page 60\]](#).
2. Call up the master record of the piece of equipment that you want to install in the superior piece of equipment. To do this, in the screen *Technical Objects* either use the menu bar sequence *Equipment* → *Create* or *Equipment* → *Change*, or use the list editing functions.
3. In any master data screen, choose *Structure* → *Change InstallLoc*.

The dialog box *Change Equipment Installation Location* is displayed.

4. Enter the superior piece of equipment.



If you want to use the *Data transfer* function for the sub-equipment, proceed as described in [Data Transfer \[Page 127\]](#).

5. Choose *Confirm*.

You return to the master data screen.

6. Save the equipment master record.

Changing the Equipment Hierarchy

Use

You use this function to represent the changes made to an equipment hierarchy. When doing this, you can:

- **Change the installed pieces of equipment in the master record of the superior equipment**
For more information, see [Changing the Hierarchy in the Superior Equipment Master Record \[Page 86\]](#).
- **Change the installation location in the master record of the sub-equipment**
For more information, see [Changing the Hierarchy in the Sub-Equipment Master Record \[Page 91\]](#).

Features

Further change functions are available in the master record of the superior equipment. You can:

- [Install further pieces of sub-equipment \[Page 87\]](#)
- [Delete pieces of sub-equipment \[Page 88\]](#)
- [Replace pieces of sub-equipment \[Page 89\]](#)
- [Change position numbers \[Page 90\]](#)

Changing the Hierarchy in the Superior Equipment Master Record

Changing the Hierarchy in the Superior Equipment Master Record

1. Select the master record for the superior piece of equipment in the change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Sub-equipment*.

You are now back on the screen *Installation Location: Install Equipment*, in which you will see a list of all the sub-pieces of equipment assigned to this piece of equipment.
4. Perform the changes you require in this screen.
5. After you have made the changes to the pieces of sub-equipment, you can then display:
 - The newly assigned pieces of equipment
 - The deleted pieces of equipment
 - The pieces of equipment for which the position number was changed
 - All the pieces of equipment assigned before this change
 - All the pieces of equipment assigned after this change

To view these, choose *Extras* → *Change log* in the screen *Equipment Overview*. You go to the screen *Equip.Hierarchy Configuration: Overview of Changes*.



If you want to use the *Data transfer* function for the changed or newly installed sub-equipment, proceed as described in [Data Transfer \[Page 127\]](#).

6. Return to the master data screen from which you called up the change function for pieces of sub-equipment.
7. Save the equipment master record.

Installing Further Sub-Equipment

1. Select an equipment master screen, using *Structure* → *Sub-equipment*.
2. In the screen *Installation Location: Equipment Overview*, choose *Edit* → *Install equipment*.
The list entry screen *Installation Location: Install Equipment* is displayed.
3. Enter further pieces of sub-equipment.
4. Choose *Edit* → *Equipment overview* to return to the screen *Installation Location: Equipment Overview*.
5. Save the equipment master record.

Deleting Pieces of Sub-Equipment

Deleting Pieces of Sub-Equipment

1. Select an equipment master screen by choosing *Structure* → *Sub-equipment* or choose *Edit* → *Equipment overview* in the equipment installation screen.
2. In the screen *Installation Location: Equipment Overview*, select the required pieces of equipment.
3. Then choose *Edit* → *Dismantle equipment*.

The system deletes the selected pieces of equipment from the overview.

4. Save the equipment master record.

Replacing Sub-Equipment

1. Select an equipment master screen by choosing *Structure* → *Sub-equipment* or choose *Edit* → *Equipment overview* in the equipment installation screen.
2. In the screen *Installation Location: Equipment Overview*, select the required pieces of equipment.
3. Choose *Edit* → *Replace equipment*.

The system displays a dialog box for each piece of equipment that is to be replaced.

4. Enter each replacement piece of equipment.
5. Confirm that you want to replace the sub-equipment.

You return to the screen *Installation Location: Equipment Overview*.

6. Save the equipment master record.

Changing the Position Number

Changing the Position Number

1. Select an equipment master screen by choosing *Structure* → *Sub-equipment* or choose *Edit* → *Equipment overview* in the equipment installation screen.
2. In the screen *Installation Location: Equipment Overview*, select the required pieces of equipment.
3. Then choose *Edit* → *Change InstPosition*.

The dialog box *Installation Location: Change Equipment Position* is displayed.

4. Change the position number.
5. Confirm the position number change.

You return to the screen *Installation Location: Equipment Overview*.

6. Save the equipment master record.

Changing the Hierarchy in the Sub-Equipment Master Record

1. Select the master record of the sub-piece of equipment in the change mode.
2. Go to any screen in the equipment master record.
3. Choose *Structure* → *Change InstallLoc*.
The dialog box *Change Equipment Installation Location*, which contains the superior piece of equipment, is displayed.
4. Dismantle the piece of sub-equipment from the superior equipment and install it into another superior equipment if necessary.



If you want to use the *Data transfer* function for the sub-equipment, proceed as described in [Data Transfer \[Page 127\]](#).

5. Select *Confirm*.
You return to the master data screen from which you called up the change function for the installation location.
6. Save the equipment master record.

Hierarchy Display for Equipment

Use

There are two possibilities for displaying a hierarchical equipment structure:

- You can display the **whole hierarchy** of superior and sub-pieces of equipment, including the functional location at which the uppermost piece of equipment may be installed. To do this, use the structure display as it is also described in [Representing the Structure of the Whole System \[Page 43\]](#).
- You can display the **superior piece of equipment** that you are currently processing together with its sub-equipment structure. This display possibility only reflects the current state of processing.

Displaying the Whole Hierarchy

1. In the screen *Technical Objects*, choose *Equipment* → *Structure*.

The screen *Equipment Structure: Selection* is displayed.

2. Make the selection field entries you require.
3. Choose *Program* → *Execute*.

You will see a display of the piece of equipment and also any functional location structure in either graphic or list form, depending on your entries in the selection screen.

4. You can explode the display as required. To do this, use the options in the *Edit* menu bar.

Displaying the Sub-Equipment Structure of an Individual Piece of Equipment

Displaying the Sub-Equipment Structure of an Individual Piece of Equipment

1. Selected the master record of the superior piece of equipment you require in the screen *Technical Objects*, by choosing *Equipment* → *Change* or *Equipment* → *List editing* → *Change*.
2. Now select the sub-equipment processing function from any master data screen by choosing *Structure* → *Sub-equipment*.
3. On the screens *Installation Location: Equipment Overview*, and *Installation Location: Install Equipment*, you can display the current sub-equipment structure by choosing *Goto* → *Equipment structure* → *Structure graphic* or *Goto* → *Equipment structure* → *Structure list*.

Production Resources/Tools as Equipment

Definition

To perform certain operations in a maintenance order, the worker responsible for performing the task requires resources. In the R/3 System, these resources are given the term **production resources/tools** (abbreviated to **PRT**).

PRTs belong to the group of operating resources. PRTs are involved in the production process, or are used to check or restore size, structure, or efficiency. They are also used to support or to fulfill the prerequisites for performing a maintenance task.

Possible PRTs are, for example, tools, measuring equipment, drawings, NC programs, cranes, scaffolds.

Use

Using PRTs for which you have created equipment master records in the system, has the following advantages:

- You can monitor wear and tear of production resources/tools.
To do this, create a counter for the PRT's equipment master record (PRT usage counter). The counter reading, which is updated when the order is completed, provides information about how many units are available after the PRT has been used.
- You can restore the production resource/tool to working condition in a cycle.
You also define a preventive maintenance plan for a PRT, in addition to a performance-based counter. In the preventive maintenance plan, you define at what counter reading (meaning at what level of wear and tear) the PRT must be restored to working order. You enter the preventive maintenance plan in the PRT's equipment master record.
For information on counter-based maintenance, see the SAP document *PM Maintenance Planning*.
- You can use an availability check for individual PRTs.
When doing this, the system checks what status the equipment has, and whether the level of wear and tear is sufficiently low for the PRT to be used again.

Creating Production Resources/Tools as Equipment

Creating Production Resources/Tools as Equipment

The procedure for creating an equipment master record for production resources/tools (PRTs) is basically the same as described in the topic [Creating Equipment \[Page 60\]](#). Note, however, the following **changes to the procedure**:

- In the screen *Technical Objects* choose *Equipment* → *Create (special)* → *ProdRes/Tools*.
The initial screen is displayed. Depending on the configuration, your system may have already specified the correct equipment category for PRTs. If not, enter the valid equipment category.
- To enter production/resource data, select *PRT data*.
The tab page for PRT data, where you can make all the necessary entries, is displayed.

You can monitor wear and tear of production resources/tools. To do this, create a counter for the equipment master record of the PRT ([Create PRT Usage Counter for Equipment \[Page 97\]](#)).

Creating PRT Usage Counters for Equipment

Prerequisites

You create the production resource/tool (PRT) as a piece of equipment by choosing *Equipment* → *Create (special)* → *ProdRes/Tools*.

The PRT data is maintained in the equipment master record under *PRT data*.

For more information, see [Creating Equipment \[Page 60\]](#).

Procedure

1. In the screen *Technical Objects*, choose *Environment* → *Measuring points* → *Create*.
The initial screen is displayed.
2. Enter the key of the PRT equipment master record, for which you want to create the PRT usage counter.
Flag the field *MeasPoint is counter* and choose *Continue*.
3. Enter the required data in the screen *General Data*. Make sure that you assign a characteristic and a characteristic unit to the counter.
4. Save the data for the counter.
5. In the screen *Technical Objects* choose *Equipment* → *Change*.
The initial screen is displayed.
6. Enter the key of the PRT equipment master record that you want to assign to the counter and choose *Continue*.
7. Choose *PRT data*.
8. In the block *Plant maintenance default values*, enter the key for the counter in the field *MeasPoint*.
In this way, the counter is linked to the PRT equipment master record as the PRT usage counter.
9. Save the data.



You can restore the production resource/tool to working condition in a cycle.

You also define a preventive maintenance plan for a PRT, in addition to a performance-based counter. In the preventive maintenance plan, you define at what counter reading (meaning at what level of wear and tear) the PRT must be restored to working order. You enter the preventive maintenance plan in the PRT's equipment master record.

For information on counter-based maintenance, see the SAP document *PM Maintenance Planning*.

Creating PRT Usage Counters for Equipment

Releasing/Locking Production Resources/Tools

Use

If you have created a production resource/tool as a piece of equipment, you can use a status to specify whether the PRT is:

- Released for use
This status is useful if the PRT is freely available for use.
- Not released for use
This status is useful if, for example, there is no longer a work list available for the PRT or the PRT is defect.

Procedure

1. Select the master record of the PRT in the Create or Change mode.
2. Choose the PRT data screen of the master record.
3. On the PRT data screen, choose *Equipment* → *Functions* → *Production resources/tools* → *<Required release status>*.
4. Save the equipment master record.

Fleet Object as Equipment

Fleet Object as Equipment

Definition

In addition to cars and trucks, the term 'fleet object' also includes buses, trains, commercial vehicles (tow-trucks, deep loading vehicles, cranes, and so on), machinery, ships, airplanes and helicopters. You can also use the fleet functionality to manage containers.

Use

The R/3 system shows a fleet object as an equipment master record with fleet-relevant data. Like all pieces of [equipment \[Page 57\]](#), you can also use the fleet object as a reference object for maintenance or service tasks.

Structure

In addition to the normal components of the equipment master record, the following fleet-relevant data is available in the R/3 system:

- Identification data (for example, license plate number, chassis number)
- Measurement data (for example, height, width)
- Transport-relevant data (for example, weight, maximum load weight, maximum load volume)
- Planning data (for example, criteria based on which the fleet object should be replaced)
- Further attributes (for example, fuel card number, key number)
- Engine data (for example, engine type, engine power, number of revolutions per minute, cubic capacity)
- Fuel and lubrication data (for example, fuel type, oil type)
- A customer-defined screen section for your individual fleet data

Integration

Fleet management is fully integrated in the *Plant Maintenance* (PM) and *Customer Service* (CS) application components.

Fleet Management

Use

This function enables you to display [fleet objects \[Page 100\]](#) from your transport fleet in the R/3 system. As a general rule, it was already possible to show fleet objects as equipment master records prior to Release 4.6. The fleet-relevant additional data represented in the standard system as two additional tabstrips is new. You can now maintain important fleet data such as the license plate number, load volume, consumption data, fuel card number, engine data, fuel type and so on directly in the equipment master record.

Like all pieces of equipment, you can also use the fleet object as a reference object for maintenance or service tasks. The fleet object can act as the reference object for either a notification or an order. You can also perform maintenance planning for a fleet object. You can make the date of the next scheduled service dependent on the distance counter (for example, the odometer), the time counter (for example, the time meter), or any other fleet counter.

Integration

Fleet management is a standard function. All *Plant Maintenance* (PM) and *Customer Service* (CS) functions are available to you, including evaluation functions such as executable programs (reports), list display and list editing functions, the maintenance history and the Plant Maintenance Information System (PMIS).

Prerequisites

Your system administrator has defined the desired fleet types as types of technical objects in the Customizing function for technical objects. Fleet types enable you to differentiate between cars, fork lift trucks and tanks in your fleet pool.



Even if you only have freight vehicles in your fleet pool, you can still use the fleet type for classification purposes. For example, a haulage company divides its fleet pool into the following fleet types for better data evaluation: Silo vehicles, tanks, tip trucks (for example, street car suspensions or semitrailers), container vehicles, tarpaulin-covered vehicles (for example, semitrailers, conveyor vehicles, plateau vehicles or jumbo load trucks) and special vehicles (for example, coal trucks or walking floor vehicles for bulky material).

Your system administrator has assigned a separate view profile to each defined fleet type regulating the screen structure. This enables you to configure screens for cars and tanks differently, because, in the case of cars for example, you may only want to record the usage type (business or private), and in the case of tanks, only the load volume. You have two tabstrips with a total of eight screen sections at your disposal in the standard system which you can arrange as you wish. You can choose the titles of these tabstrips yourself.

Features

If your system administrator has defined special measurement positions for your fleet objects in the fleet management Customizing function, you can create special measuring points or counters in the *Plant Maintenance* (PM) application component that are used to calculate the consumption data for your fleet object. To calculate consumption, you require a fuel counter that measures

Fleet Management

either the amount of fuel consumed or also (for trams, locomotives and electrical cars) the amount of energy consumed. You also require a so-called primary counter (activity counter) that measures time or distance (for example, the number of kilometers traveled or the operating hours).



The measurement position of the fuel counter must be labeled with the counter usage **3 = consumption-relevant fuel counter** in Customizing. The measurement position of the primary counter must be labeled with the counter usage **1 = consumption-relevant distance counter** or **2 = consumption-relevant time counter** in Customizing.

You can define several such counters for a fleet object. The counters referred to when calculating the consumption values are controlled by the calculation method. This is defined by your system administrator in Customizing. The length of the periods from which the calculation of average consumption values should be determined as well as the unit of measurement of consumption (for example, liters per 100 kilometers, miles per gallon, liters per hour, gallons per hour) is controlled by the calculation method. In the standard system, calculation methods for calculating consumption values are delivered in the following units of measurement:

- Liters per 100 kilometers
- Miles per gallon
- Liters per hour
- Liters per mile

You can display the consumption data in the fleet master at all times if you have correctly maintained the calculation method. The following analysis data is necessary:

- Total counter reading of the primary counter
 - The system determines the overall counter reading for the primary counter from the measurement document last entered for this counter.
- Total counter reading of the consumption-relevant fuel counter
 - The system determines the overall counter reading for the consumption-relevant fuel counter from the measurement document last entered for this counter.
- Average daily vehicle activity (for example, the distance traveled in kilometers per day) in the long and short term

In order to calculate the average daily fleet object activity, the system first determines the start of the period for which the data should be determined.

In the case of a short-term analysis, the start of the period is the current date minus the number of days for the short-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the case of a long-term analysis, the start of the period is the current date minus the number of days for the long-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

The average daily fleet object activity is then calculated from the first and last measurement documents entered for the primary counter at the start of the period. The number of days between the entry dates for these documents is chosen as the time interval. The following formula is used for calculation purposes: Average daily activity =

(Overall counter reading for the last measurement document – Overall counter reading for the first measurement document after the start of the period) / Number of days between the entry dates for both documents

- Average daily fuel consumption (for example, liters per day) in the short and long term

In order to calculate the quantity of fuel consumed daily, the system first determines the start of the period for which the data should be determined.

In the case of a short-term analysis, the start of the period is the current date minus the number of days for the short-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the case of a long-term analysis, the start of the period is the current date minus the number of days for the long-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

The average quantity of fuel consumed daily is then calculated from the first and last measurement documents entered for the consumption-relevant fuel counter at the start of the period. The number of days between the entry dates for these documents is chosen as the time interval. The following formula is used for calculation purposes:
 Average daily consumption = (Overall counter reading for the last measurement document – Overall counter reading for the first measurement document after the start of the period) / Number of days between the entry dates for both documents
- Average vehicle consumption (for example, how many liters on average does the vehicle consume per 62.14 mi? How many liters does the vehicle consume on average per operating hour? How many miles on average can a vehicle travel with 100 liters of fuel?)

In order to calculate the average consumption for the fleet object, the system first determines the start of the period for which the data should be determined.

In the case of a short-term analysis, the start of the period is the current date minus the number of days for the short-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the case of a long-term analysis, the start of the period is the current date minus the number of days for the long-term period. Your System Administrator has assigned this number of days to the calculation method in Customizing.

In the next step, the system determines the first and last measurement documents entered for the consumption-relevant fuel counter. The difference between the overall counter readings for these measurement documents is displayed. The system also searches for the measurement document entered for the primary counter at the same time as the measurement documents for the consumption-relevant fuel counter. The difference between the overall counter readings is also displayed in this case. The average consumption is calculated from the quotient of both differences. The unit is expressed in the units that your System Administrator has assigned to the costing method selected.



In order to ensure the precise calculation of these consumption values, you must enter a measurement document for the primary counter in realtime for each measurement document entered for the consumption-relevant fuel counter in your system. This means that the mileage reading and other related data must be entered every time the tank is filled.

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- Date of next scheduled service (only if you perform maintenance planning).

All average values are calculated as an average of a long and a short period, the exact length of which is defined in Customizing. You can use the comparison of long-term and short-term analysis values to detect damages to the fleet object (for example, a leak or a faulty engine) or to recognize misuse.

Creating a Fleet Object as Equipment

Prerequisites

Your system administrator has created fleet types as technical object types in the Customizing function for technical objects.

At the same time, your administrator has also defined the following data for fleet types in the Customizing function for fleet management:



- The view profile used by all fleet objects of a particular fleet type
- The equipment categories permitted for fleet objects of a particular fleet type

Procedure

1. From the initial screen, choose *Logistics* → *Plant maintenance* → *Technical objects* → and then *Equipment* → *Create (special)* → *Fleet object*.
2. Enter the necessary data and choose *Continue*.
3. Enter the necessary data on the equipment master record and fleet object screens.



If you want to assign a counter to the fleet object, follow the procedure described in [Creating Measuring Points and Counters \[Ext.\]](#). You will find the prerequisites for calculating consumption in the Implementation Guide (IMG) under *Settings for Fleet Management*.

You can call up the current data, that is, the consumption data for the fleet object, directly from the fleet object master record using . In the case of planned maintenance, the system displays the date of the next scheduled service. The icon  is located on the screen area *Fuel and lubrication types*.

4. Save the data.

Equipment as Units of Tangible Assets

Equipment as Units of Tangible Assets

Definition

Pieces of equipment that are to be maintained in a technical system, can be grouped together in asset units from an accounting perspective. In this case, the superior technical system is equivalent to a tangible asset in the business sense.

Use

By grouping pieces of equipment together to form tangible assets, you can perform comprehensive analyses at a higher level than that of the individual piece of equipment.

Integration

In the R/3 System, the application components *Plant Maintenance (PM)* and *Asset Accounting (FI-AA)* are linked together by the tangible asset number in the equipment master.

If your company does not use the application component *Asset Accounting*, you cannot use the tangible asset number in the equipment master.

For more information on asset accounting, see the SAP documentation *FI - AA - Asset Accounting*.

Allocating Equipment to an Asset

Prerequisites

The equipment master record must already be created. You can assign a piece of equipment to a tangible asset when you create or change the equipment master record.

Procedure

1. In the *Technical Objects* screen, select the equipment master record by choosing *Equipment* → *Change*.
2. Enter the equipment and go to the Location data screen.
3. Enter the required main asset number and the sub-number.
4. Save the changes to the master record.

Configuration Data

Configuration Data

Definition

It may be necessary to enter configuration data for a piece of equipment. The piece of equipment may have the same configuration a piece of material that has already been configured, and that you are managing as a variant. It can, however, also be an individual configuration purely for this piece of equipment.

Configurable Material

A **configurable** material is a material whose material type allows configuration. It can also be described as a standard product.

The bill of material of the configurable material contains components that can be selected, in addition to the components that are contained in all variants.

The components can be selected by assigning and evaluating configuration parameters (characteristics of an assigned class) and through defined relationships (for example, for the selected items of a BOM). The valuation is checked for consistency and completeness at the time of configuration.

Configured Material

A **configured** material is one that is assigned to a standard product, in other words, to a **configurable** material. It can also be described as a variant. It represents a particular product variant, through the configuration valuation.

Structure

Maintaining Configuration Data

There are several options available for maintaining configuration data for a piece of equipment:

A You configure the piece of equipment in the same way as existing stock material.

To do this, refer to a configured material using a configurable material, also known as a variant.

For more information, see [Configuring a Piece of Equipment as a Variant \[Page 110\]](#).

B You define an individual configuration for the piece of equipment.

There are two possibilities for doing this.

- You copy an existing configuration, for example, that of a variant, and modify it.

For information on how to proceed in this case, see [Copying and Changing the Existing Configuration \[Page 111\]](#).

- You refer to a configurable material and create a separate configuration from the components that can be selected.

For information on how to proceed in this case, see [Creating a New Configuration \[Page 112\]](#).

Configuring a Piece of Equipment Individually

If you want to enter an individual configuration for a piece of equipment, you must first choose one of the following procedures:

- A** Copy the configuration of a configured material and then make any individual changes.

If you choose this option, see [Copying and Changing an Existing Configuration \[Page 111\]](#).

- B** Refer to a configurable material and create an individual configuration from its components.

If you choose this option, see [Creating a New Configuration \[Page 112\]](#).

Configuring a Piece of Equipment as a Variant**Configuring a Piece of Equipment as a Variant**

1. Select the equipment master record.
2. Select the Configuration data screen.
3. Choose *Edit → Assign to ConfMat*.
A dialog box is displayed.
4. Enter the configured material and the plant information.
To display the configuration, choose *Display object*. Otherwise, choose *Continue*.
5. You return to the Configuration data screen.
6. Save the equipment master record.

Copying and Changing an Existing Configuration

1. Select the equipment master record.
2. Choose the Configuration data screen.
3. Choose *Edit → Assign to ConfigMat*.
A dialog box is displayed.
4. Enter the configured material and the plant information.
To display the configuration, press *Display object*. Otherwise, choose *Continue*.
5. You return to the Configuration data screen.
6. Choose *Edit → Copy*.
The system copies the configuration data from the configured material. This means that the master record of the material serial number no longer refers to the variant configuration. Instead you can maintain the configuration individually for the material serial number.
You go to the screen with the characteristic values for the configured material.
7. Change the data according to your requirements, and return to the configuration screen for the material serial number.
The configuration data is now flagged to show that it is maintained individually.
8. Save the master record.

Creating a New Configuration

Creating a New Configuration

1. Select the equipment master record.
2. Select the Configuration data screen.
3. Enter the configurable material you require.
4. Choose *Edit → Maintain*.

The screen for evaluating characteristics of the configurable material is displayed.

5. Change the data according to your requirements.
6. Save the characteristic evaluation.

You return to the configuration data screen. You will see that the configuration data is now flagged as being maintained individually.

7. Save the master record.

Functional Comparison: Equipment - Functional Location

Use

The following functional comparison should enable you to decide when to represent an object as a piece of equipment, and when as a functional location.

Prerequisites

The deciding factor is whether you mainly want to represent the object concerned in the R/3 System as a technical object, meaning as a piece of [equipment \[Page 57\]](#), or as a [functional location \[Page 13\]](#):

- **Equipment, Functional Location**

You should represent an object as a technical object if it is to be repaired, not exchanged, in the event of a breakdown. In this case, you represent the object as an individual object whose maintenance or service history can be documented.

- **Material, Assembly**

You should **not** represent an object as a technical object if it is exchanged in the event of a breakdown because repairing it is not worthwhile due to its low value. In this case, you represent the object as a material or assembly. This does not enable you to document a maintenance or service history, but a material or an assembly can also be a reference object for a notification or order.

Features

Equipment Functions

- A piece of equipment can be serialized by assigning a material and a serial number to it. This enables you to perform inventory management for the piece of equipment.
- You can create a piece of equipment with a material as reference and copy material data when doing this. This also includes the material classification from Release 4.6.
- A piece of equipment can be [configured \[Page 108\]](#) (using a super bill of material/variant configuration).
- Pieces of equipment can be installed in functional locations, in other pieces of equipment, or exist as individual objects.
- From Release 4.6, a piece of equipment can be a [fleet object \[Page 100\]](#) within the framework of Fleet Management.
- A piece of equipment can be a device within the framework of the industry solution *Utilities* (IS-U).
- A piece of equipment that is installed in a technical object can store the [history \[Page 68\]](#) of its installation location. The system records a usage period for each installation location, enabling you to track the complete installation history.
- In addition to the standard tabstrips of the equipment master record, you can call up further [tabpages \[Page 64\]](#) where necessary from the menu (Sales and distribution data, Production

Functional Comparison: Equipment - Functional Location

resources/tools data, Configuration data), without having to make any settings in Customizing.

What to note when using equipment

- When you create structures, the pieces of equipment do not find their places within the structure automatically. Instead, you have to assign each master record manually.
- The equipment number cannot be changed once it has been created. If you have made a mistake when entering the equipment number, you must archive the piece of equipment.
- If you use many pieces of equipment as individual objects or as equipment hierarchies, without using functional locations also, you should [classify \[Page 136\]](#) the pieces of equipment. This enables you to search more easily.

Functional Location Functions

- It has been possible to change the functional location label after you have created it from Release 4.5. If you make a mistake when entering the label, you can change the label at any time. Moreover, additional labels ([alternative labels \[Page 38\]](#)) are possible for functional locations.
- Functional locations automatically find their position within the structure upon creation, on the basis of the [structure indicator \[Page 25\]](#) (according to the top-down principle). This simplifies the process of creating functional location structures.
- Because the structure of functional locations is strictly hierarchical, it is possible to summarize data (for example, costs) for individual hierarchy levels.
- A functional location can be a real estate object within the framework of the industry solution *Real Estate Management* (IS-RE).

What to note when using functional locations

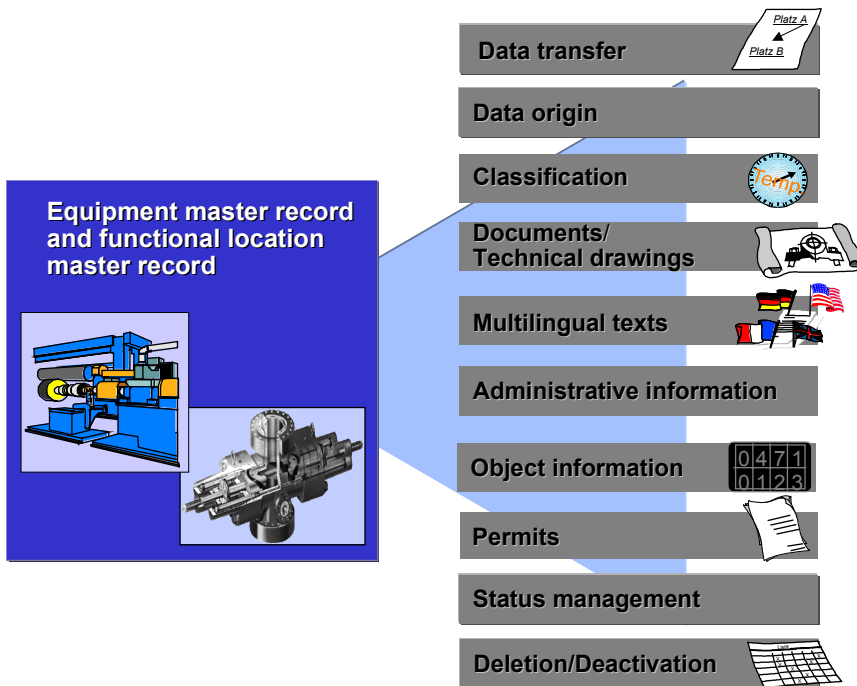
- You must create a structure indicator per structure in Customizing.
- Functional locations can only be installed in functional locations or exist as individual objects.
- A functional location that is installed in another functional location, cannot store the history of its installation location. It just shows the current installation location.
- When modifying functional location structures that have different structure indicators, the automatic assignment no longer functions. As with equipment, you must then assign the subordinate functional location manually.
- Up until Release 4.5B, there are no warranties for the functional locations, just for equipment.

Functions of Technical Objects

Use

The following functions are valid for both the equipment master record and the functional location master record.

Features



Data Transfer

Data Transfer

Definition

Data is transferred from functional locations and reference functional locations to reference functional locations, functional locations and pieces of equipment.

If you structure your technical systems using reference functional locations, functional locations and pieces of equipment, the hierarchical structures you create often have identical master data.



The functional location “clarification plant” is assigned to the cost center 511 at its highest structure level, C1. All the levels below C1 are therefore also assigned to this cost center.

For a better overview and easier management of the data contained in the master records assigned to certain structures, you can use the data transfer function. Using this you can:

- Maintain data at a superior level for objects further down the hierarchy
- Maintain data centrally for objects assigned to a reference location
- Copy or leave out data from the superior or central object when creating a technical object.

Use

You must distinguish between the following:

- The objects between which data transfer can be performed
- The data transfer procedure

For the objects between which data transfer can be performed, you can have:

- [Hierarchical Data Transfer \[Page 117\]](#)
- [Horizontal Data Transfer \[Page 118\]](#)

There are two different data transfer procedures:

- [Data Transfer By System Rules \[Page 119\]](#)
- [Individually-Defined Data Transfer \[Page 120\]](#)

Hierarchical Data Transfer

Definition

You can maintain data at a high level within a hierarchical object structure. The system will automatically transfer the data changes to the levels below that are affected.



The maintenance planner group is changed for the clarification plant described in [Functional Location \[Page 13\]](#). The employee responsible for maintaining the master data makes the change to the master record of the highest functional location C1 and saves the changes. The system automatically makes the same change for all affected functional locations below the functional location C1, and issues a message to inform the employee of these changes.

Horizontal Data Transfer

Definition

With horizontal data transfer you can differentiate between:

- Data transfer from reference location to functional location
- Data transfer from functional location to installed piece of equipment



In some cases, when data is transferred from the reference location, it can also cause data to be transferred **hierarchically**, as objects below can acquire their data from the superior objects that have changed.

Using reference functional locations you can specify type-specific data for each system type and transfer it to the corresponding functional locations as well as to the pieces of equipment installed there and their sub-equipment.



The ABC indicator of the functional location C1-B02-1 “Ventilator” is to be changed for several clarification plants.

The employee responsible for maintaining the master data makes the change in the master record of the reference functional location and saves the entries.

The system automatically makes the same change for all affected functional locations that were assigned to this reference location and for the pieces of equipment that are installed at these locations. The system then issues a message informing the employee of the changes.

Data Transfer By System Rules

The data transfer should be performed as extensively as possible. For this reason the following three rules have been created:

Rule 1

When you create a functional location or reference functional location, the system tries to determine the superior location from the label and automatically writes this in the master record for the new location.



You create the functional location C1-B02-2. The system determines the functional location C1-B02 as the superior functional location and writes it to the new master record.

When the system finds a superior functional location, it transfers all the data that makes sense to be transferred to the new master record. The user **cannot** change this setting using the Customizing functions.

Rule 2

When you create a functional location, you can refer to a reference functional location, by which you will later still have the possibility of maintaining data centrally in the assigned master records by using data transfer.

When you create a functional location and use a reference location as a copy reference, the data from this has priority over the data from the functional location that is higher in the hierarchy.

Rule 3

When you create a functional location and use another location as a copy reference, the system also copies the reference functional location that is entered in the copy reference.

Individually-Defined Data Transfer

Individually-Defined Data Transfer

You can change the data transfer individually for each functional location and reference location. However, the following restrictions apply:

Restriction 1

Data from a superior location or reference location can only be transferred, if such a location has been assigned. You can change the assignments whenever you want.

Restriction 2

In the case of dependent data, subordinate data can only be transferred in the same way as the corresponding superior data.



The maintenance planning group in the reference functional location can only be transferred once the maintenance planning plant in the reference functional location has been transferred.

Data Transfer Sequence

Purpose

As a general rule, both hierarchical and horizontal data transfer occur over several levels in the technical system as a whole.

When both forms of data transfer occur, the rule is that the more specific data has priority over the more general data.

Process Flow

Hierarchical Data Transfer

When data is transferred hierarchically in the system as a result of a change to the master record, it affects all objects in the structure that are below the changed object. This means, for example, that a change to a functional location high up in the hierarchy will affect all the functional locations below and the pieces of equipment that are installed at the functional locations.



During data transfer to a superior functional location, the system normally does not check any authorizations, in this way making it possible to also transfer data for which you do not have authorization, to a superior location.

Horizontal Data Transfer

When data is transferred horizontally in the system from a reference location, it affects all the objects that are assigned to this master record on the same level. This means, for example, that a change to the data of a reference functional location will affect all the functional locations directly assigned to this reference location as well the functional locations below them and the pieces of equipment installed there.

Changing Data Transfer by Field

The data transfer sequences described above represent the normal data transfer patterns. However, you can define data transfer differently for each object and field. For example, you can set your system so that it always transfers the maintenance planning plant and maintenance planner group from the superior location, even if a reference location is assigned.

You can also deactivate data transfer for each object or field.

The system automatically deactivates data transfer when you maintain a field directly.

Transferring Data from Dependent Fields

Transferring Data from Dependent Fields

Use

In the master record for technical objects, there are fields that are dependent on other master record fields. The maintenance planner group, for example, is dependent on the maintenance planning plant.

In certain cases it makes sense to maintain the hierarchically dependent, subordinate fields individually.

Activities

What Happens When You Change a Superior Field?

If you change data in the superior field using data transfer, it is no longer certain that the data in the individually maintained, dependent fields is still correct. For example, if you change the planning plant, it is not necessarily the case that the new maintenance planner group responsible for a technical object has the same number in the new planning plant as in the old one.

What Does the System Do and What Do You Have to Do?

As it cannot be ensured that the data in the individually maintained, dependent fields is still correct, the system automatically clears these fields in such a case, and you must maintain them again where necessary.

Transferring Data When Objects are Locked

Use

When the data of a master record is changed and this change is to be copied into other master records using data transfer, it may be that the objects in question are locked by another user at this time. In this case, the system displays an overview of the objects to which data could not be transferred as well as the names of the users who are blocking the objects.



Objects that are hierarchically below the locked objects, are only included in the data transfer when you perform subsequent processing for the objects.

Processing the Objects Immediately

Processing the Objects Immediately

Prerequisites

As soon as the objects are no longer locked, you can perform the data transfer using the list issued by the system.

Procedure

1. Position your cursor on the object you require and choose *Edit* → *Edit object*.
You go directly to the master record of the object you selected. The system automatically performs the data transfer and issues a message to inform you of this.
2. Save the master record. By doing this, you save the data that has been transferred.
Any objects that are below the selected object in the hierarchy, will be included in the data transfer when you perform this step.

Processing the Objects Later

Use

The employee responsible will not always be able to process the list of locked objects immediately. For this reason, the system stores a list of the objects that were locked during the data transfer in a separate database table.

Procedure

1. Display the list of these objects from the screen *Technical Objects* by choosing *Environment* → *Data transfer* → *Take up data transfer*.

The screen *Take Up Data Transfer* is displayed, containing a list of all technical objects that still have to be processed for the data transfer.

2. Position your cursor on the object you require and choose *Edit* → *Edit object*.

You go directly to the master record of the object you selected. The system automatically performs the data transfer and issues a message to inform you of this.

3. Save the master record. In this way you save the transferred data, and return to the list of objects.
4. Position the cursor on the next required object, and repeat steps 2 and 3 for all other objects that you want to process.

Data Transfer for Subsequent Structure Changes

Data Transfer for Subsequent Structure Changes

Use

In exceptional cases it is necessary to:

- Assign a functional location subsequently to a reference functional location
- Insert a complete functional location structure subsequently in another functional location structure

In both cases, data cannot be transferred to the newly assigned objects at first because the uppermost functional location in the structure is set to be maintained individually.

- To transfer a functional location from one structure to another

For a functional location that, up until now, had a superior functional location/reference functional location up and was assigned to another superior functional location/reference functional location, data is transferred automatically for all the fields that are set for allowing data transfer. The contents of the fields that were maintained individually up to now remains intact.

Activities

If you want to make data transfer possible, you must activate it for each individual master record field of the newly assigned functional location.

Data Transfer

Use

The *Data Transfer* function is used in the following cases:

- When you are creating or maintaining an equipment hierarchy
- When you are installing or dismantling a piece of equipment at a functional location

You can use data transfer to define which data should be transferred from the master record of the superior equipment or functional location into the master record of the installed piece of equipment.

Features

You can use the *Data transfer* function:

- When a piece of equipment is installed at a functional location or in a superior piece of equipment
- When sub-pieces of equipment are assigned to a piece of equipment
- When a piece of equipment is dismantled from a functional location or from a superior piece of equipment
- When assignment changes have been performed in the equipment hierarchy, for example,
 - Assignment of further sub-pieces of equipment
 - Assignment of a different superior equipment

In these cases, however, data transfer can only be performed for the pieces of equipment affected by the changes.

You can access the data transfer function in two different ways, depending on whether you want to transfer data from the superior piece of equipment or functional location, or from the installed piece of equipment.

Transferring Data From the Superior Equipment or Location

Transferring Data From the Superior Equipment or Location

1. Select the screen *InstallLocation: Equipment Overview*:
 - In the functional location master record using *Structure → Equipment*
 - In the equipment master record using *Structure → Sub-equipment*
2. Go to the change log by choosing *Extras → Change log*.

You go to a screen that displays all the newly created pieces of equipment, or those affected by changes.
3. Select the pieces of equipment for which you want to perform the function *Data Transfer*.
4. Access the data transfer function by choosing *Goto → Data transfer*.

The screen *Data Transfer* is displayed for the first piece of equipment you selected.
5. Specify,
 - Which data should be transferred from the master record of the installation location into the equipment master record.

To do this, select the appropriate fields in the column *IL*.
 - Which data should be individually maintained in the equipment master record.

To do this, select the appropriate fields in the column *EQ*.
6. When you have made all the necessary entries for the first piece of equipment, you can transfer the information by choosing *Goto → Back*.

The screen *Data Transfer* is now displayed for the next selected piece of equipment.
7. Process the *Data Transfer* screen for all the selected pieces of equipment. Afterwards, return to the screen displaying all the newly assigned pieces of equipment, or those pieces affected by changes.
8. Return to the master data screen from which you accessed the function for processing pieces of equipment.
9. Save the master record.

Transferring Data From Installed Equipment

1. In the equipment master record, choose *Structure* → *Change InstallLoc* to display the dialog box *Change Equipment Installation Location*.
2. Proceed by choosing one of the following options:
 - **Install the piece of equipment.** To do this, enter the required superior equipment or functional location in the dialog box, and then choose *Install w. DataTransfer*.
The screen *Data Transfer: Install Equipment* is displayed.
Specify,
 - Which data should be transferred from the master record of the superior piece of equipment or functional location into the equipment master record.
To do this, select the appropriate fields in the column *IL*.
 - Which data should be individually maintained in the equipment master record.
To do this, select the appropriate fields in the column *EQ*.
 - **Dismantle the piece of equipment.** To do this, choose *Dism. w. DataTransfer*.
The screen *Data Transfer: Dismantle Equipment* is displayed:
Specify which data for the installation should be retained for the piece of equipment after the dismantling.
3. Choose *Goto* → *Back*.
4. Confirm the installation or dismantling and save the equipment master record.

Displaying and Changing Data Origin

Displaying and Changing Data Origin

Use

When you create a functional location, reference location, or equipment hierarchy, the default values for the fields have been set in such a way that data transfer is possible. The default values are only set to individual maintenance in the case of functional locations that are uppermost in a hierarchy and those that are not assigned to a reference location.

Features

There are certain circumstances in which it makes sense to change the type of data transfer normally used for technical objects in your system.

In these circumstances you can use the system's display and change functions:

- For each object, to which you want to transfer data, you can use the display function to display the data it receives or can receive from superior functional locations, reference functional locations or pieces of equipment.
- For many fields, you can use the change functions to specify whether data should be transferred from the superior functional location, from the reference functional location or from the superior piece of equipment. Alternatively, you can specify whether data should be maintained individually for the respective fields.

Displaying and Changing Data for Locations

Use

You can display where data in the master record fields has come from for reference functional locations and functional locations. To do this you have the following two display options:

- Individual display for an individual field
- Overview display

Features

What Information Can You Display?

- For **reference functional locations**, you can display whether the data:
 - Originates from a superior location in the structure
 - Was maintained individually for this master record
- For **functional locations**, you can display whether the data:
 - Originates from a superior location in the structure
 - Originates from a reference functional location
 - Was maintained individually for this master record

What Information Can You Change?

For reference functional locations and functional locations you can specify from where the data should originate for the individual master data fields.

- For **reference functional locations**, you can specify whether the data:
 - Should originate from a superior location in the structure
 - Should be maintained individually for this master record
- For **functional locations**, you can specify whether the data:
 - Should originate from a superior location in the structure
 - Should originate from a reference functional location
 - Should be maintained individually for this master record

Displaying Data Origin for Locations

Displaying Data Origin for Locations

Data Origin of an Individual Field

1. In the master record, go to the required screen in the display mode.
2. Position the cursor on the field you require.
3. Choose *Edit* → *Data origin*.

A dialog box is displayed, containing information on the data origin for the field you selected.

If you want to change the data origin of the field, perform the steps described in [Changing Data Origin for Locations \[Page 133\]](#).

Data Origin of All Fields in One Screen

1. In the master record, go to the required screen in the display mode.
2. Choose *Edit* → *Data origin list*.

A dialog box is displayed, containing information on the data origin for all the fields in the screen you selected.

Changing Data Origin for Locations

1. In the master record, go to the screen you require in the create or change mode.
2. Position the cursor on the field you require.
3. Choose *Edit* → *Data origin*.
A dialog box is displayed, in which you can specify the required information for the field you selected.
4. Save the changes to the master record.

Displaying and Changing Data Origin for Equipment

Use

You can change the data origin for equipment master records in the following situations:

- When you install a piece of equipment at a functional location or dismantle it from a functional location
- When you install a piece of equipment in an equipment hierarchy or when you dismantle it from an equipment hierarchy

For more information, see [Equipment at Functional Location \[Page 70\]](#).

Features

Which Information Can You Display?

For the fields in the PM data screen and the location data screen of an equipment master record, you can display an overview which tells you whether the data

- Comes from the functional location or from a superior piece of equipment
- Was maintained individually for this master record

What Information Can You Change?

You can specify from where the data should originate for the individual master data fields in the location data and PM data screens for pieces of equipment.

When you want to change the data origin for pieces of equipment, you can specify for the data in the master record fields:

- Whether it should originate from the functional location or from the superior equipment at which the piece of equipment is installed
- Whether it should be maintained individually for the piece of equipment

Displaying Data Origin for Pieces of Equipment

1. Call up the equipment master record you require.
2. Select the location data or PM data screen.
3. Choose *Edit* → *Data origin list*.

A dialog box is displayed, containing the information you require.

Classification of Technical Objects

Classification of Technical Objects

Purpose

When you are managing a large number of objects, you must be able to group these objects according to particular features. In this way, you can logically organize them according to various criteria, find them easily, and group them together when performing analyses.

Using the Classification System you can create a hierarchically structured classification system for your company. The **hierarchical structure** of the Classification System enables you to find easily existing special classes - starting from a superior class.



A class hierarchy could look like this, for example:

Pumps → Rotary pumps → Magnetically-coupled pumps

In Plant Maintenance, you can classify all technical objects that are represented by a master record in the system. You classify an individual object in its master record either when creating the master record or later when changing it.

Process Flow

1. First you create **Characteristics**, with which you describe the technical objects in more detail.

This also enables you to manage technical data that is not contained in the master records of the maintenance objects.



For a solar collector class you could, for example, specify the effectiveness in % and the conductor used as characteristics.

2. Afterwards, you create the necessary **Classes**. Classes are created within the class type for the respective technical objects.



In plant maintenance, for example, there are class types for pieces of equipment, functional locations and reference functional locations.

You assign a suitable characteristic to the class. You can assign **keywords** to the class to make it easier to find.



For example, you could assign to a class of solar collectors, the keywords “solar collector”, “collector” and “alternative energy source”.

Classification of Technical Objects

3. You perform the **classification** in the master record of the technical object, by assigning one or more classes to it.
4. You can perform characteristic valuation based on the classification data in the master record of the technical object. To do this, you enter one value for the class and the characteristic respectively.

Creating and Changing Characteristics and Classes

Characteristics

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* → *Environment* → *Classes* and then *Characteristic* → *Create/Change*.

The initial screen for maintaining characteristics is displayed.

2. Enter the required data. You can obtain additional data by choosing *Goto* → *Additional data*.
3. You can assign the characteristic to a particular class type. To do this, choose *Goto* → *Restr. to class types*.
4. Save the data.

Classes



Always create the characteristic first and then the class.

1. Choose *Logistics* → *Plant maintenance* → *Technical objects* → *Environment* → *Classes* and then *Characteristic* → *Create/Change*.

The screen *Classifiable Objects/Class types* is displayed.

2. When you create a class, you must first determine the class type and then the initial screen for class maintenance is displayed. When you change a class, you access this screen directly.
3. Enter the required data.
You can assign keywords to the class to make it easier to find. To do this, choose *Goto* → *Keywords*.
4. Assign characteristics to the class by choosing *Goto* → *Characteristics*.
The screen for maintaining characteristics is displayed.
5. Enter the required data.
6. Save the data.

Classifying Reference Functional Locations

Prerequisites

- A master record must exist for the reference functional location
- The required classes and characteristics must exist

For more information, see [Creating and Changing Characteristics and Classes \[Page 138\]](#).

Procedure

1. Go to the initial screen of the reference functional location by choosing *Reference location* → *Change* in the screen *Technical Objects*.
2. Make all the necessary entries in the initial screen and choose *Continue*.
The screen *Change Reference Location: PM Data* is displayed.
3. Choose *Goto* → *Classification*.



If several class types have been maintained in Customizing for *Cross-Application Components* under *Classification System* → *Classes* → *Object types* → *Class types*, the system displays a dialog box in which you can select the required class type.

The screen *Change Reference Location: Classification* is displayed.

4. Enter the classes to which you want to assign the reference functional location in the column *Class*.
5. Select the class that is to be the standard class for the reference location in the field *StdClass*.
6. To specify value entries for the class, position your cursor on the class you require and choose *Edit* → *Values*.
The screen *Change Reference Location: Char.Val.Assgmt* is displayed.
7. Enter the values for the specified characteristics.
Use *Goto* → *Back* to return to the screen *Change Functional Location: Classification*.
8. When you have entered the values for all the classes you require, you can return to the PM data screen of the master record by choosing *Goto* → *Back*.
9. Save the changes to master record.

Classifying Functional Locations

Classifying Functional Locations

Prerequisites

- A master record must exist for the functional location
- The required classes and characteristics must exist

For more information, see [Creating and Changing Characteristics and Classes \[Page 138\]](#).

Procedure

1. Select the master record in the screen *Technical Objects* by choosing *FuncLoc* → *Change*.

You can call up the classification function from the Location Data and the PM Data screens.

2. Choose *Goto* → *Classification*.



If several class types have been maintained in Customizing for *Cross-Application Components* under *Classification System* → *Classes* → *Object types* → *Class types*, the system displays a dialog box in which you can select the required class type.

The screen *Change Functional Location: Classification* is displayed.

3. Enter the classes to which you want to assign the functional location in the column *Class*.
4. Select the class that is to be the standard class for the functional location in the field *StdClass*.
5. To specify value entries for the class, position your cursor on the class you require and choose *Edit* → *Values*.

The screen *Change Functional Location: Char.Val.Assgmt.* is displayed.

6. Enter the values for the specified characteristics.

Choose *Goto* → *Back* to return to the screen *Change Functional Location: Classification*.

7. When you have entered the values for all the classes you require, you can return to the master data screen from which you called up the classification function by using the menu bar sequence *Goto* → *Back*.
8. Save the changes to master record.

Classifying Equipment

Prerequisites

- A master record must exist for the piece of equipment
- The required classes and characteristics must exist

For more information, see [Creating and Changing Characteristics and Classes \[Page 138\]](#).

Procedure

1. Select the master record in the *Technical Objects* screen by choosing *Equipment* → *Change*.

You can call up the classification function in the General Data, Location Data and PM Data screens.

2. Choose *Goto* → *Classification*.



If several class types have been maintained in Customizing for *Cross-Application Components* under *Classification System* → *Classes* → *Object types* → *Class types*, the system displays a dialog box in which you can select the required class type.

The screen *Change Equipment: Classification* is displayed.

3. Enter the classes to which you want to assign the piece of equipment in the column *Class*.
4. Select the class that is to be the standard class for the piece of equipment in the field *StdClass*.
5. To specify value entries for the class, position your cursor on the class you require and choose *Edit* → *Values*.

The screen *Change Equipment: Char.Val.Assgmt* is displayed.

6. Enter the values for the specified characteristics.

Choose *Goto* → *Back* to return to the screen *Change Equipment: Classification*.

7. When you have entered the values for all the classes you require, you can return to the master data screen from which you called up the classification function by using the menu bar sequence *Goto* → *Back*.
8. Save the changes to master record.

Changing the Classification

Changing the Classification

1. Select the master record of the technical object you require in the change mode.
2. Go to the master data screen you require and in this screen call up the classification by choosing *Goto → Classification*.
The screen *Change <Technical object>: Classification* is displayed.
3. Make all the changes you require:
 - To **delete the assignment** to a class, position the cursor on the class you want to delete and choose *Allocation → Delete*.
Confirm the question in the dialog box.
 - To **assign further** classes, choose *Edit → New allocations*.
The system displays further entry lines in which you can enter the classes.
When assigning classes, proceed as described previously.
 - To **change the standard class**, place your cursor on the class in which you want to enter a new standard class and use the menu bar sequence *Extras → Chge standard class*.
4. When you have made all the changes you require, choose *Goto → Back*.
5. Save the changes to master record.

Document Management for Technical Objects

Use

Information about technical objects that are to be maintained, can also exist in the form of documents (for example, design drawings, programs or photographs). Documents are managed, visualized and archived in the document management system as master records.

As documents are frequently required during the execution of maintenance tasks, you can link directly the document master records with the master record of the technical object. By using the corresponding application or a view program, almost every document can be made available at the work centers concerned.

Prerequisites

Your system administrator has made the necessary settings in Customizing for *Cross-Application Components* under *Document Management System*.

Features

You can:

- Link master records of technical objects to [documents \[Page 144\]](#)
- [Display \[Page 145\]](#) linked documents from master records of the technical objects

For more information, refer to the SAP documentation *CA - Document Management Guide*.

Linking Master Records to Documents

Linking Master Records to Documents

Prerequisites

If you have specified a reference functional location for a **functional location**, you should only assign those documents to the functional location that as a result of their limited validity cannot be linked to the reference functional location.

Procedure

1. Select the master record in the create or change mode.
2. Use the menu bar sequence *Goto* → *Documents* in any of the master data screens.
The dialog box *Functional Location: Link to Documents*, in which you can select the documents relating to the master record, is displayed.
3. If you want to link the master record with a document, the number of which you do not know, you can use the system **search function**. This is available when you want to link a master record for a technical object to a document in the create or change mode.
Select the function *Find document*.
The screen *Find Documents: Selection Criteria* is displayed.
4. Enter the selection criteria you require.
5. Choose *Execute*.
The system displays a list of all the documents that correspond to your selection criteria.
6. Select the required documents and choose *Continue*.
You return to the master data screen from which you called up the document management system.
7. Save the changes to the master record.

Displaying Documents

1. Select the master record you require.
2. Use the menu bar sequence *Goto* → *Documents* in any of the master data screens.
The dialog box *Link to Documents* is displayed.
3. In the dialog box *Link to Documents*, place your cursor on the line containing the document you require.
4. Select the function *Display Originals*.

You go to a screen in which the required document is displayed.

Creating Multilingual Texts for Technical Objects

Use

You can create multilingual short texts and long texts for each functional or reference functional location, as well as for pieces of equipment, when you create or change the master record.

In many companies, plant maintenance is performed in several languages for different reasons. Companies may be located, for example, in countries where several languages are spoken (for example, Belgium or Canada) or they may operate plants in countries that have different languages. Technical objects have short texts by which the maintenance planner can identify them and long texts that contain manufacturer descriptions or technical data that should be available in all languages. It is therefore logical to provide these technical objects with short and long texts in more than one language.

Prerequisites

You can only maintain multilingual texts for pieces of equipment when the equipment category set in the system permits this. You define this in Customizing for *Plant Maintenance* under *Equipment and Technical Objects* → *Technical Objects* → *Equipment* → *Allow multilingual text maintenance by EquipCategory*.

Entering Multilingual Short Texts

1. Select the master record of the technical object in the create or change mode.
2. In one of the master record screens, choose *Goto* → *Multilingual texts*.
You go to the screen *Multilingual Texts*.
3. Assign a language key to each new entry.

| | |
|----|----------|
| DE | for Gerr |
| EN | for Engl |
| FR | for Fren |

4. Enter the short text in the respective language.
5. After you have entered all the short texts, save them by choosing *Texts* → *Hold*.
You return to the master data screen.
6. Save the master record.

You can enter a long text for the short text. For more information, see [Entering Multilingual Long Texts \[Page 148\]](#).

Entering Multilingual Long Texts

Entering Multilingual Long Texts

1. Select the master record of the technical object in the create or change mode.
2. In one of the master record screens, choose *Goto → Multilingual texts*.
You go to the screen *Multilingual Texts*.
3. Select the short text in the language you want to enter a long text.
4. Choose *Goto → Long text*.
The long text editor screen is displayed.
5. Enter the long text. The *SAPscript* functions are available for this.
6. Save the long text and return to the screen *Multilingual texts* by choosing *Goto → Back*.
The system sets the long text indicator for the language that has been processed.
7. Save the text you entered by choosing *Texts → Hold*.
You return to the master data screen of the technical object.
8. Save the master record.

Administrative Information for Technical Objects

Definition

- Administrative Information for **Functional Locations and Reference Functional Locations**:
 - Date on which the master record was created
 - Name of the user who created the master record
 - Date on which the master record was last changed
 - Name of the user who made the last change

- Administrative Information for **Pieces of Equipment**

| Master Data Information | Equipment Usage Information |
|--|---|
| Date master record was created and date of the last change | Date usage information was created and date of the last change |
| Name of the person who created and last changed the equipment usage period | Name of the person who created and last changed the equipment usage period |
| Primary language | Time equipment usage period was created |
| | Sequential number for the equipment usage period and its time stamp |
| | Abbreviation for the business transaction in which the equipment usage period was created |

For information about changes to a technical object, see [Displaying the Action Log \[Page 151\]](#).

Displaying Administrative Information

Displaying Administrative Information

1. Select one of the master data screens for the technical object in the display mode.
Possible screens from which you can display administrative information:

| For functional locations and reference functional locations: | For pieces of equipment |
|--|-------------------------|
| Initial data | General data |
| Location data | Location data |
| PM data | PM data |
| | Sales data |
| | PRT data |

2. Choose *Extras* → *Administrative info*.

The administrative information for the master record is displayed.

Displaying the Action Log

Use

Changes made to pieces of equipment and functional locations are recorded in the action log. This enables you to trace who has made status or data changes to which fields at what time.

In contrast to the administrative information, the action log displays not only the last change to be made, but **all** changes.

Procedure

1. Call up the technical object in the display or change mode.
2. Choose *Extras* → *Action log*.

The action log for the technical object is displayed.

Object Information

Object Information

Definition

Object information is displayed in a dialog box that you can call up for functional locations and pieces of equipment. Using the functions in this dialog box, you can answer many questions that concern the technical object being displayed.

Use

Your system administrator must have defined the object information in Customizing for *Plant Maintenance* under *Equipment and Technical Objects* → *Basic Settings* → *Define object information key*. Depending on these settings, you can use the object information to find out, for example:

- Whether open maintenance notifications exist for the technical object at the present time
- How many maintenance orders had been entered for the technical object between a certain date and the date displayed
- In which structure (location hierarchy, equipment hierarchy) and in which position the technical object is located
- Which object links exist for the technical object
- Which are the next maintenance dates for the technical object
- Which maintenance items there are for the technical object

In addition to this, you also have the option of:

- Directly displaying maintenance notifications and orders for the object
- Directly calling up the PM Information system

Calling up Object Information

1. Select the required functional location or piece of equipment in the display or change mode.
2. In the Location Data, Maintenance Data or (with pieces of equipment) the General Data screen, choose *Extras* → *Object info*.

The screen *Object Information* is displayed.

Permit

Permit

Definition

For some technical objects certain regulations or conditions must be taken into account when using them or performing maintenance work. These regulations are managed in the system as **permits**.

Use

When a maintenance task has to be performed for a technical object and you want a special permit for this to be issued in the maintenance order, you must assign this permit to the technical object. You do this in the master record for the technical object.

You can assign permits to the following technical objects:

- Functional locations
- Equipment

Structure

Because the term 'permit' covers all possible types of regulations or conditions, it is useful to combine individual permits in logical **permit categories** to achieve a better overview of them. You must define the permit categories, **before** you create the individual permits in the system.



The following permit categories are feasible:

- Work permits
- Safety permits

You can create the individual permits -which can be very varied even within the company - once you have defined the permit category for your system in Customizing for *Plant Maintenance*, under *Define permit categories*. For each individual permit, you must specify to which permit category it is assigned.



The following permits are feasible:

- Welding permit
- Vat access permit
- Activation authorization
- Technical inspection certificate

Creating Data for the Permit

Creating Data for the Permit

1. In the screen *Technical Objects*, choose *Environment* → *Permits*.
The screen *Change View "Maintain Permits"* is displayed.
2. Enter a permit category for each permit. You can enter a long text by choosing *Goto* → *Long text*.
3. To process a Detail screen, select the required permit and choose *Goto* → *Detail*.

Assigning a Permit

1. Select the master record for the technical object you require in the change mode.
2. Select the permit screen by choosing *Extras* → *Permits*.
The screen for assigning permits is displayed.
3. Enter data as required.
4. If you want to enter a long text for the permit, select the permit you require in the dialog box for assigning permits, and choose the function *Long text*.
You go to the long text editor.
5. Enter the text you require.
6. Save the long text and return to the dialog box for assigning permits. You will see that the permit you processed has been given a long text indicator.
7. Save the data.

Partner

Partner

Definition

Partners (business partners) are internal and/or external organizational units. For example, internal partners can be logistics and sales departments that perform services. External partners can be customers as service recipients and vendors as supporting service providers. A partner can be a natural or a legal entity. You can use partners in CS and PM processing.

Structure

Partner type

The following partner types are delivered as standard:

- Customer
- Contact person
- Vendor
- User
- Personnel number
- Organizational unit
- Position

Partner function

You define partner functions in Customizing for Plant Maintenance and Customer Service. They are freely definable and always refer to a partner type. Standard functions exist (for example, goods recipient) and you can also define your own functions.

Partner determination procedure

The partner determination procedure is a grouping of partner functions. It specifies which partner functions are permitted or must always be specified for a particular business transaction (for example, for the processing of a service or maintenance order). In Customizing you define the partner determination procedure and assign partner functions to it. If functions are assigned to the partner determination procedure, you can assign the partner determination procedure to an object (for example, to a notification type).

Integration

You can assign partners to the following objects:

- [Functional location \[Page 165\]](#) and [equipment \[Page 165\]](#)

If you have defined in Customizing for Plant Maintenance and Customer Service under *Plant Maintenance and Customer Service* → *Master Data in Plant Maintenance and Customer Service* → *Basic Settings* → *Partner Data* → *Copy Partner Functions to Master and Transaction Data*, which partners you want to copy, the system copies the respective partner functions when creating the notification with a technical object. For example, a particular technician, who performs a service to a piece of equipment, is

Partner

assigned to a customer. This technician can be specified as the partner in the equipment master record. In this case, the system copies the partner data into the notification.

- [Notification \[Ext.\]](#)
- [Order \[Ext.\]](#)

For more information on partner data in serial numbers see *Management of Serial Numbers* in [Partner Data \[Ext.\]](#).

Customizing for Partners

Customizing for Partners

Purpose

You want to work with partners in your company.

Prerequisites

You can make the following settings in Customizing:

| Function | Menu path | What you should know |
|--|---|--|
| General Settings | | |
| You define the partner functions and the partner determination procedure | <i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Define Partner Data → Define Partner Determination Procedures</i> | If you want to work with partners, first define the partner functions, then define that partner determination procedure, and finally, assign the partner functions to the partner determination procedure. |
| You assign the partner functions to the partner determination procedure | <i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Copy Partner Functions to Master and Transaction Data</i> | |
| Notification | | |
| The <i>Partner</i> tabstrip should be visible in the notification | <i>Plant Maintenance and Customer Service → Maintenance Processing and Service Processing → Notifications → Notification Types → Set Screen Templates for the Notification Type</i> | |
| Assign notification type to partner determination procedure | <i>Plant Maintenance and Customer Service → Maintenance Processing and Service Processing → Basic Settings → Partner Determination Procedure → Define Partner Determination Procedure</i> | |
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Customizing for Partners

| | | |
|---|--|--|
| Define field selection for partner data fields | <i>Plant Maintenance and Customer Service → Plant Maintenance and Service → Notifications → Field Selection for Multi-level Notification List Display → Define Field Selection for Partner Data Fields</i> | |
| You want to set the fields for the additional partner address | <i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Field Selection for Partner Addresses</i> | There is an additional partner address per partner function in the notification. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed. |
| Order | | |
| Define partner determination procedure and assign order types to partner determination procedure | <i>Plant Maintenance and Customer Service → Plant Maintenance and Services → PM Orders and Service Orders → Partner Determination Procedure → Define Partner Determination Procedure</i> | The partner overview screen can be seen in the order by choosing the <i>Partner</i> tabstrip. By choosing the <i>Overview</i> pushbutton, you go to a more detailed overview screen where you are able to perform further settings using the menu. |
| You want to set the fields for the additional partner address | <i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Basic Settings → Partner Data → Field Selection for Partner Addresses</i> | There is an additional partner address per partner function in the order. You can define which fields in this additional address are mandatory or optional, and which fields should not be displayed. |
| You define a transaction variant for the transaction in which an additional partner address is to be entered. Afterwards, you assign the transaction variant to the respective partner function | <i>General Settings → Field Display Characteristics → Configure Fields for Application Transactions</i> | You can create a transaction variant per partner function, which defines the field selection. |
| Functional Locations | | |

Customizing for Partners

| | | |
|---|---|-----------------------------|
| <p>Define field selection for partner data fields</p> | <p><i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Field Selection for Multi-level FunctLoc. List Displays</i></p> | |
| <p>The <i>Partner</i> tabstrip should be visible in the functional location</p> | <p><i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Define Field Selection for Technical Objects</i></p> | |
| <p>Assign functional location category to partner determination procedure</p> | <p><i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Functional Locations → Define Category of Functional Location</i></p> | |
| <p>Equipment</p> | | |
| <p>Define field selection for partner data fields</p> | <p><i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Define Field Selection for Multi-level Equipment. List Displays</i></p> | |
| <p>The <i>Partner</i> tabstrip should be visible in the equipment</p> | <p><i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → General Data → Define Field Selection for Technical Objects</i></p> | |
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Customizing for Partners

| | | |
|---|---|--|
| <p>Assign equipment category to partner determination procedure</p> | <p><i>Plant Maintenance and Customer Service → Master Data in Plant Maintenance and Customer Service → Technical Objects → Equipment → Assign Partner Determination Procedure to Equipment Category</i></p> | |
|---|---|--|

For more information, refer to the documentation in Customizing for Plant Maintenance and Customer Service.

Partner Transfer

Partner Transfer

Use

You use this function to determine which partner the system copies from an object into the notification, order, and serial number. The system also copies the mandatory partner if one exists.


Features

| Data source | Data destination |
|---|--|
| Master record of a functional location or of a piece of equipment | Notification when creating a notification for the reference object |
| Master record of a functional location or of a piece of equipment | Order when creating an order for the reference object |
| Notification | Order when creating an order for the notification |
| Delivery note | Serial number when posting goods issues |



If you change the reference for notifications or orders at a later date, it is possible that the partner data will no longer correspond. You can then decide whether you want to copy the partner data of the new reference object.

Creating a Partner for the Technical Object

1. Call up the technical object in Create or Change mode.
2. Choose .
3. First specify a partner function and then the corresponding partner.
4. Save the data.

Status Management

Status Management

Use

This function deals with general status management and its use for technical objects in Plant Maintenance (technical objects, orders, notifications).

You can use status management to describe and recognize whether particular business transactions can be performed for an object.

There are two types of status:

- [System Status \[Page 167\]](#)
- [User Status \[Page 168\]](#)

Prerequisites

System Status

None

User Status

To use this type of status you must:

1. Create a status profile for the objects concerned
2. Define the user statuses within this status profile
3. Assign the status profile

You maintain the status profile in Customizing for *Plant Maintenance*.

Features

System Status

Generally, all functional locations have the system status *CRTE* (Created). In addition, the system statuses *INAK* (object deactivated) and *DLFL* (deletion flag activated) are possible.

Several system statuses are available for equipment, notifications and orders.

You can display for each object the various business transactions that can be performed for it.

User Status

The functional scope of the user status depends on your settings in Customizing.

System Status

Definition

System statuses are set internally by the system within the framework of general status management when you perform certain business transactions. They inform you that a certain business transaction was performed on an object, which enables you to determine which business transactions you can now perform on the object as a result of this status.

Because system statuses cannot be directly changed by the user and are set automatically by the system when you perform certain business transactions, you can only display them.

Use



A user creates a new piece of equipment in the system. He or she installs it immediately at a functional location and saves it. The system assigns the internal system status "*INST (Installed)*" to the new piece of equipment.

Business transactions that can be performed with this system status are, for example, "*dismantle object*" and "*install object*". Business transactions that cannot be performed are, for example, "*delivery to customer*" and "*set deletion flag*".



An order is assigned the status "*REL*". The system checks the material and production resource/tool availability and possible permit requirements. Goods receipt postings and time confirmations are possible, printing is possible and settlement is possible once this status has been set.

User Status

User Status

Definition

User statuses are defined within a status profile in Customizing for *Plant Maintenance*. You can use them to further limit the business transactions allowed by the various system statuses.



A status profile that has been assigned once can no longer be changed.

You can assign and delete any user statuses that have been defined in your system provided you have the appropriate authorization.

There are generally two types of user status within a status profile:

- User status with status number
- User status without status number

The status number serves to define the possible follow-on statuses for a particular user status. Only one user status with status number can be active at any one time. For more information and an example of the status number, see Customizing for *Plant Maintenance*.

If you want to activate one or more user statuses simultaneously in addition to the user status that is currently active, you must define these as user statuses without status number. Any number of user statuses without status numbers can be active at any one time.

Use



The employee responsible sets the user status "*Equipment in production*" for a piece of equipment that has been created and installed. This restricts the permitted business transactions, as it does not allow the transaction "*Dismantle Equipment*" to be performed.

As a consequence, this piece of equipment cannot be dismantled and installed at another functional location using the replacement transaction as long as it has this user status. The employee responsible must first deactivate the status before the piece of equipment can be dismantled from the current functional location.



You can set the user status "*Blocked for billing*" for an order. The business transaction "Create billing document" is then not allowed.

You can configure the operations "Determine costs" and "Advance shipment" in Customizing for the status profile in such a way that they are allowed, allowed but a warning is displayed, or not allowed.

Displaying the Status and Transactions Allowed

Use

Based on a combination of system and user statuses, there are a certain number of business transactions that the user can perform for an object. There is separate information about these operations for each individual object.

Procedure

1. Select the object for which you want to display the permitted business transactions in the display mode.
2. Choose *Extras* → *Status* in any of the screens.
You are now on the screen *Display Status*.
3. Choose *Extras* → *Business transactions*.
The dialog box *Business Transactions*, in which all the possible transactions are listed, is displayed. You will see:
 - Which business transactions are allowed
 - Which business transactions can only be performed once the system has issued a warning
 - Which business transactions are not allowed
4. For more information on the individual business transactions, position your cursor on the transaction required and select *Transaction analysis*.

Setting a User Status

Setting a User Status

Prerequisites

Your system administrator has defined a status profile in Customizing.

Procedure

1. Select the object for which you want to set a user status in the create or change mode.
2. Choose *Extras* → *Status* in any of the screens.
The screen *Change Status* is displayed.
3. Choose *Edit* → *Set user status*.
The dialog box *User Statuses Allowed*, in which all the user statuses contained in the status profile are listed, is displayed.
4. Select the user status that you want to set.
You return to the screen *Change Status*, and the status you selected appears in the column *User Status*.
5. Choose *Goto* → *Back*.
You return to the screen from which you called up the status management function.
6. Save the data.

Deactivating a User Status

1. Select the object for which you want to delete the user status in the change mode.
2. Choose *Extras* → *Status* in any of the screens.
The screen *Change Status* is displayed.
3. Place the cursor in the column *User Status*, on the status that you want to delete.
4. Choose *Edit* → *Delete user status*.
5. If you do want to delete the status, confirm with *Yes*.

The system deletes the status from the column *User Status*.



You **cannot** delete user statuses that have a status number. You can only overwrite them by assigning another user status with a status number.

To do this, proceed as described in [Setting a User Status \[Page 170\]](#).

6. Choose *Goto* → *Back*.
You return to the screen from which you called up the status management function.
7. Save the changes to the object.

Flagging Master Records for Deletion

Flagging Master Records for Deletion

Use

You use the deletion flag for the master record of a technical object if it is no longer needed in the system.



- There are no longer any functional locations that refer to a particular reference location because this structure type was replaced a long time ago by a more modern one. The master record of the reference location is also no longer needed for evaluation or statistical purposes.
- A piece of equipment was scrapped long time ago. The master record of the piece of equipment is also no longer needed for evaluation or statistical purposes.

You can set and reset deletion flags at any time.

Prerequisites

Do not confuse the deletion **flag** with the deletion **indicator**.

- The deletion **flags** are set by you.
- The deletion **indicators** are set by the preprocessing program for the PM reorganization program.



You cannot reverse the effects of a deletion indicator. If you discover that a master record has inadvertently been given a deletion indicator, you can only transfer its data to a new master record by copying.

Features

What are the Consequences of Setting a Deletion Flag?

When a deletion flag is set for the master record of a technical object, this means that:

- You can now only save it or perform status functions for it
- You can perform further processing and close existing notifications, orders and so on if necessary
- No new dependencies can be defined for it. This means that no new notifications, orders and so on can be created for it.

What Happens When you set a Deletion Flag?

The deletion flag is of prime importance if a data reorganization has to be performed for the *Plant Maintenance (PM)* area. With the aid of a preprocessing program, the system administrator then establishes whether active dependencies belonging to the object marked for deletion still exist in the system. If this is **not** the case, the preprocessing program automatically sets the deletion **indicator** for the master record. Dependencies that are themselves flagged for deletion will no longer be taken into consideration by the program.

Flagging Master Records for Deletion

If no deletion indicators are set for a master record, this means that:

- The master record can no longer be processed in the system
- No dependencies exist for it in the system and no new ones can be created
- The master record will then be archived by the PM reorganization program and physically deleted from the database.

For more information on archiving PM master data, refer to the SAP documentation *CA - Application Data Archiving*.

Deactivating Master Records

Deactivating Master Records

Use

You use this function if:

- The technical object has been scrapped but you want to keep its data in the system for statistical reasons.
This could be the case for an piece of equipment or a functional location.
- There are no more objects that refer to the master record, but you wish to keep the master record data in the system for statistical reasons.
This could be the case for reference functional locations.
- You want to plan a structure in your system, but the structure is not yet under construction.
This could be the case for reference functional locations, functional locations and pieces of equipment.

Features

You can carry out and reverse a deactivation at any time.

Generally, when a master record is deactivated this means that maintenance of the master record itself is still possible, however, no new transaction data can be entered for the master record.

This means, for example, that no new notifications or orders can be entered for a functional location or a piece of equipment and that no new functional locations can be allocated to a reference functional location. Transaction data that already exists for technical objects can, however, still be processed and closed.