Maintenance Planning (CS-AG/PM-PRM-MP)

HELP.PMPRMMP

Release 4.6C

Copyright

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Typographic Conventions

Type Style	Description
Example text	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options.
	Cross-references to other documentation
Example text	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
Example text	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.
`EXAMPLE TEXT`	Keys on the keyboard, for example, function keys (such as `F2`) or the `ENTER` key

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Purpose

Ensuring a high availability of objects in the long term is an important part of Plant Maintenance. Preventive maintenance is used to avoid system breakdowns or the breakdown of other objects, which - in addition to the repair costs - often result in much higher costs subsequently owing to production breakdown.

There are many benefits in using preventive maintenance within your company. It is the generic term for inspections, maintenance and planned repairs, for which the time and scope of the work can be planned in advance.

In addition to internal company aspects for preventive maintenance, external factors should also be considered. An increasing number of conditions set by legislative bodies demand more stringent requirements on planned monitoring and maintenance of objects. External requirements can be:

- **Manufacturer recommendations**

  The manufacturer of your technical objects may recommend certain procedures to ensure that the objects always function optimally.

- **Legal requirements**

  There may be labor protection laws or laws concerning the safety of objects which require you to maintain your technical system on a regular basis.

- **Environmental requirements**

  Effective preventive maintenance can also help to prevent breakdowns that could lead to environmental hazards.

Another reason for preventive maintenance is the need for quality assurance, since, for example, the quality of products manufactured at a technical system is substantially affected by the operating condition of the production plant.

It is also often more cost-effective to maintain objects regularly, and therefore prevent a much more expensive breakdown. You can determine the data required for this using past data supplied by the system.

Integration

The *Maintenance Planning* component is integrated with the following components and sub-components of the SAP System:

Plant Maintenance application component

- *Maintenance task lists*
- *Maintenance orders*
- *Maintenance notifications*

Customer Service application component

- *Service orders*
- *Service notifications*

Materials Management application component

- *Service procurement*
- *Service entry sheets*

Quality Management application component

- *Inspection characteristics*
- *Inspection lots*

Sales and Distribution application component

- *Outline agreements*

Features

You can use maintenance planning to describe the dates and scope of corrective maintenance and inspection activities at technical objects. You can ensure that your technical objects are maintained on time and thereby function optimally.

Generation of Maintenance Call Objects

The system generates maintenance call objects [Page 34] during the scheduling process. The following maintenance call objects are available in the overview:

- For rough planning of tasks
  - Maintenance notification
  - Service notification
- For detailed planning of tasks
  - Maintenance order
  - Service order
- For detailed planning of tasks and history for the damage processed in the notification
  - Maintenance notification and maintenance order simultaneously
  - Service notification and service order simultaneously
- For Customer Service
  - Maintenance plans with reference to an outline agreement
- For Quality Management using the link to QM inspection characteristics
  - Inspection lots
- For service procurement in purchasing
  - Service entry sheets
- Graphical scheduling overview
- List with calculated maintenance dates
- Cost display for maintenance plans
- Archiving of maintenance plans

Maintenance Planning (CS-AG/PM-PRM-MP)

Split-Level Maintenance

One of the most significant advantages offered by the *Plant Maintenance* application component is the option of split-level maintenance. You can create a maintenance plan, and consequently the maintenance call objects, for example, at the following levels:

- Pieces of equipment
- Functional locations
- Materials
- Material and serial numbers
- Assemblies

The possibility of split-level maintenance allows you to plan and perform maintenance tasks for the following objects:

- An **individual piece of equipment** which operates independently of other equipment (for example, a vehicle)
- **Functional locations** (for example, a production line) which may comprise several pieces of equipment

  You can thereby maintain the whole functional location, rather than the independent technical objects it comprises.
- An **assembly** within a piece of equipment (for example, a pump motor)
- Materials
- Material and serial numbers

Maintenance Plan

Definition

Description of the maintenance and inspection tasks to be performed at maintenance objects. The maintenance plans describe the dates and scope of the tasks.

Use

You can create maintenance plans for the technical objects in your company, thereby ensuring that your technical objects function optimally.

How Do I Structure Maintenance Plans in a Meaningful Way?

When creating a maintenance plan, you can take your company's method of working into account and, for example, control whether the system should generate a common order or separate orders for the objects to be maintained:

- You have several objects that must be maintained on **different dates**. You create a separate maintenance plan for each object to be maintained. The system should generate a call object [Page 34] (for example, an order or a notification) on a due date for each object. This method of structuring is the one most frequently used, as it is very flexible. (See Example 1 [Page 24])
- You have several objects that must always be maintained **on the same date** and with the **same cycle** (for example, every 6 months). For a due date, the system should:
  - Generate a separate call object (for example, an order or notification) for each object to be maintained (see Example 3 [Page 25])
  - Group several objects to be maintained in one call object. This grouping is only possible for the call object "Order", as only orders can have an object list [Page 76]. (See Example 2 [Page 26])

Which Maintenance Plan Do I Use?

The maintenance plan you use depends on the type of maintenance planning that you would like to use in your plant:

- **Single cycle plan or strategy plan (time-based or performance-based)**

  If you want to perform time-based [Page 29] or performance-based [Page 30] (counter-based) maintenance planning, you can work with both single cycle plans as well as strategy plans. For more information, see Single Cycle Plan and Strategy Plan [Page 13].

- **Multiple counter plan**

  If you want to combine maintenance cycles [Page 65] from different dimensions (for example, time and distance), you can use multiple counter plans [Page 14].

- **Maintenance plan for service procurement in Purchasing**

  If you want to use maintenance plans to process regular services, for example, the monthly maintenance of an elevator or a photocopier, you can use the maintenance plan for service procurement in Purchasing [Page 21].

- **Maintenance plan with reference to an outline agreement**

If you want to determine agreed deadlines for activities due as part of a cycle, you can use the maintenance plan with reference to an outline agreement [Page 16].

What Controls the Maintenance Plan Category?

When you create a maintenance plan, you must specify a maintenance plan category which determines, among other things, which maintenance call object [Page 34] the system generates for a due maintenance call (for example, a maintenance order, service entry sheet, or notification). For more information, see Maintenance Plan Category [Page 32].

Structure

A maintenance plan basically consists of the following elements:

- **Maintenance item(s)**

  A maintenance item describes which preventive maintenance tasks should take place regularly at a technical object or a group of technical objects.

  A maintenance plan **automatically** always contains a maintenance item. You can create additional maintenance items directly in the maintenance plan, or assign existing maintenance items that have not yet been assigned. Exceptions to this rule include maintenance plans for service procurement and maintenance plans with reference to an outline agreement. These plans have only **one** maintenance item.

  For more information, see Maintenance Item [Page 68].

  For the call objects [Page 34] maintenance order (PM order) or service order, you can describe the necessary activities using a task list which you assign to the maintenance item.

- **Maintenance plan**

  The maintenance plan contains scheduling information from the following sources:

  – For single cycle plans, from the maintenance cycle [Page 65]

  – For strategy plans from the maintenance strategy [Page 100] assigned to the maintenance plan

  – For multiple counter plans from the maintenance cycles

  – From the scheduling parameters [Page 118] specific to this maintenance plan

  When you schedule the maintenance plan, this information is used to calculate the due dates for the maintenance operations to be performed on the assigned technical objects.

  For more information about scheduling, see Scheduling [Page 113].

Single Cycle Plan and Strategy Plan

Definition

Single cycle plans or strategy plans are maintenance plans with which you can show time-based or performance-based maintenance cycles.

Use

- You use single cycle plans to show **simple maintenance cycles**.

  A single cycle plan is the simplest form of maintenance plan. You create a single cycle plan and define exactly **one** time-based or performance-based maintenance cycle [Page 65], in which you specify the interval at which the maintenance plan should be executed.

  It might be used, for example, for the annual maintenance of a car or for the repair of a photocopier after every 10,000 copies.

- In contrast, you use strategy plans to show **complex maintenance cycles**.

  You create a strategy plan and assign a maintenance strategy [Page 100] in which you have defined the maintenance cycles (in the strategy maintenance packages [Page 65]). A maintenance strategy contains general scheduling information, and can therefore be assigned to as many maintenance plans and maintenance task lists as required.

  For example, it makes sense to use a strategy plan if different maintenance tasks for a car are due in different cycles: oil check every 1,242.74 mi, oil change every 6,213.71 mi.

For more information, see Time-Based Maintenance Plans [Page 29] and Performance-Based Maintenance Plans [Page 30].

See also

Creating a Single Cycle Plan [Page 50]

Creating a Time-Based Strategy Plan [Page 51]

Creating a Performance-Based Strategy Plan [Page 53]

Multiple Counter Plan

Definition

A multiple counter plan is used in counter-based (performance-based) maintenance. This type of maintenance planning is not based on a maintenance strategy. This means that you create a multiple counter plan **without** a **maintenance strategy**.

In the maintenance schedule, you define maintenance cycles [Page 65] to which you assign equipment or functional location counters of **different dimensions**, for example, number of hours flown, number of take-offs and landings, kilometers travelled. You can also integrate time-based cycles into the maintenance plan. However, these do not have counters. Alternatively, you can also create a multiple counter plan with a cycle set as a **copy model** for maintenance cycles.

For the call objects [Page 34], maintenance order (PM order) or service order, you can describe the necessary activities using a maintenance task list [Page 89], which you assign to the maintenance item [Page 68].

If you use a multiple counter plan, **all** the operations in the task list are copied into the maintenance call object [Page 34], maintenance order or service order, when maintenance is due. You should consider this when planning and preparing maintenance tasks.

If you schedule the multiple counter plan, the system calculates the planned deadlines for each maintenance cycle on the basis of the current counter reading and the estimated annual counter activity. (For a time-based cycle, the system calculates the deadlines based on the time unit and cycle duration.)

The cycles for a multiple counter plan are linked with either an OR operation or an AND operation. For an **OR operation**, a maintenance order is generated for the **earliest** possible planned date. If maintenance is due, for example, every 100 tons produced or every 50 operating hours or every two weeks, the decisive factor is which occurs **first**.

For an **AND operation**, a maintenance order is generated for the **last** planned date. If maintenance is due, for example, every 100 tons produced or every 50 operating hours or every two weeks, the decisive factor is which occurs **last**.

Use

Multiple counter plans are best suited to individual activities or individual groups of activities, for example, in the airline industry, if the landing gear should be inspected according to the number of kilometers flown and the number of take-offs and landings.

Structure

A multiple counter plan must comprise the following parts in order to be scheduled:

- Scheduling data
  - Scheduling parameters [Page 118]
  - Maintenance cycles [Page 65]
- Maintenance item(s) [Page 68]

See also

Cycle Set as Copy Model [Page 47]

Maint. Plan with Reference to an Outline Agreement

Use

By creating a maintenance plan with reference to an outline agreement, you can simplify the processing of services which you have agreed for service objects in outline agreements.

You can create maintenance plans for this purpose for which the system generates the following maintenance call objects [Page 34]:

- Service notification
- Service order

You can define which maintenance call object (service notification or order) is generated by a maintenance plan by specifying a maintenance plan category [Page 32] when you create a maintenance plan.

Integration

The maintenance plan with reference to an outline agreement combines the functions from the *Plant Maintenance* (PM), *Sales and Distribution* (SD) and *Customer Service* (CS) application components.

Prerequisites

The following prerequisites must be fulfilled for you to create a maintenance plan with reference to an outline agreement.

Service Product

You have maintained the following data for the service product that you subsequently entered in the outline agreement under *Logistics* → *Customer Service* → *Contracts and planning* → *Environment* → *Sales* → *Service products*:

- Plant for maintenance planning
- Work center
- Order type
- Plant of maintenance work center
- Business area
- General maintenance task list (you cannot assign equipment task lists or functional location task lists)
- Task list type

Outline Agreements

You have created an outline agreement that fulfils the following conditions:

- The contract category is *Contract*.
- The contract type is *Service and Maintenance (WV).*
- On the tabstrip *Sales*, you have specified

  - the start and end dates of the contract
  - a service product as outline agreement item

- You have specified the start and end dates for billing in the billing plan under *Goto* → *Item* → *Billing plan*.

You can create a maintenance plan for outline agreement items with the following status:

- **Overall status**
  - *Outstanding*
  - *In process*
- **Completion status**
  - *Complete*
- **Rejection status**
  - *Not rejected* (The system assigns the outline agreement item when creating a maintenance plan.)
  - *Partially rejected* (The system issues a warning and assigns the outline agreement item when creating a maintenance plan.)

When Creating the Maintenance Plan

- When creating a maintenance plan, you choose an appropriate maintenance plan category. In the standard system, this is one of the following maintenance plan categories:
  - Maintenance plan category with reference to an outline agreement, maintenance call object “service notification”
  - Maintenance plan category with reference to an outline agreement, maintenance call object “service order”
- Enter the following data:
  - **Valid** outline agreement

    You cannot create a maintenance plan for an agreement that has expired.
  - Outline agreement item
  - Maintenance planning plant

Features

You can create a maintenance plan with reference to an outline agreement and for a maintenance planning plant (PM planning plant). Each agreement item for an outline agreement can:

– Apply to your own dates

– Apply to different objects (object list)

– Have its own status (for example, *Outstanding*, *In process*, *Complete*)

To ensure a unique assignment between outline agreement item and maintenance plan, you must create your own maintenance plan for each outline agreement item. Therefore, a

maintenance plan created with reference to an outline agreement only ever contains one maintenance item [Page 68].

Maintenance Call Object "Service Notification"

When a maintenance plan is being created with the **maintenance call object *Service notification***, the system copies the start of the agreement as the start date for scheduling from the outline agreement into the field *Cycle start of scheduling parameters*. The maintenance item does not have an object list.

Maintenance Call Object "Service Order"

When a maintenance plan is being created with the **maintenance call object *Service order***, the system copies the proposed dates for the service order from the service product. The start of the agreement as the start date for scheduling is copied from the outline agreement into the field *Cycle start of scheduling parameters*. The maintenance item for the maintenance plan contains the object list [Page 76] (for example, all copying equipment which should be maintained according to the outline agreement item). The object list in the maintenance plan refers to the outline agreement, that is, it contains your data from the outline agreement and can only be changed there. The remaining data for the maintenance plan consists of default values that you can change directly in the maintenance plan.

Since you have assigned a general maintenance task list to the service product, the system obtains information about the maintenance plan type [Page 28] when a maintenance plan is created. The type of maintenance plan is determined using the maintenance strategy [Page 100] which is specified in the general maintenance task list. The table clarifies the system activities for the different call objects:

Strategy	Call Object	System Activity
Time-based or performance-based	Service order	The system creates a strategy plan and obtains data (for example, maintenance packages [Page 65]) from the strategy. For performance-based maintenance plans, you must also enter a counter in the maintenance plan.
None	Service order	The system creates a single cycle plan. You must enter the maintenance cycle manually.
Time-based or performance-based	Service notification	
None	Service notification	

Scheduling a Maintenance Plan with Reference to an Outline Agreement

For scheduling, the system creates maintenance calls for the scheduling period [Page 130] that you have defined using the scheduling parameters, or maintenance call objects [Page 34] (for example, service orders) for the due date. However, the decisive factor in creating maintenance calls and maintenance call objects is the end date for the outline agreement item and not the scheduling period. If the agreement has expired, the system does not generate any call objects for maintenance calls with the status *On hold*, and no longer generates any new maintenance calls.

If you change the object list or the validity of the agreement in the outline agreement, the changes come into effect when the maintenance plan is rescheduled.

You can display the document flow for the service notification or service order, that is, which predecessor and successor documents exist and their status. For more information, see Document Flow [Page 189].

Activities

In the menu

Activity	Menu Path
Creating an outline agreement	*Logistics* → *Customer service* → *Contracts and planning* and then *Contracts* → *Contract* → *Create*
Assigning an object list in the outline agreement	*Extras* → *Technical objects*
Assigning a general maintenance task list to a service product	*Logistics* → *Customer service* → *Contracts and planning* and then *Environment* → *Sales and distribution* → *Service products* Choose *Edit* → *New entries*.
Displaying a document flow (for example, for a service order)	*Logistics* → *Customer service* → *Service processing* → *Service order* → *Order* → *Display* → *Extras* → *<Documents for notification/Documents for order>* and then *Environment* → *Maintenance contract* → *<Desired function>*

In Customizing

Activity	Menu Path	Special Features
Define your own maintenance plan categories as required.	In Customizing of Plant Maintenance under *Plant Maintenance* → *Maintenance Plans, Work Centers, Task Lists and PRTs* → *Maintenance Plans* → *Set Maintenance Plan Categories*.	Set the indicator for the maintenance contract. You must define *Service notification* or *Service order* as the maintenance call object [Page 34] for the maintenance plan category with reference to an outline agreement. The indicator *Service* must be set for the order type under *Plant Maintenance and Customer Service* → *Plant Maintenance and Services* → *PM Orders and Service Orders* → *Functions and Settings for Order Types* → *Credit Limit Checks, Sales Document Types for Service Orders*.

Maint. Plan with Reference to an Outline Agreement

For more information about outline agreements, see Customer Contracts [Ext.] in the *Sales and Distribution* application component.

Additional Information

Creating a Maintenance Plan for an Outline Agreement [Page 59]

Defining a Default Value for a Maintenance Plan Category [Page 40]

Maintenance Plan for Service Procurement

Use

There are different maintenance plan categories [Page 32] in maintenance planning. Using the maintenance plan category *Materials Management (MM)* in the standard system, you can use automatically generated service entry sheets to simplify service procurement in purchasing.

The “service entry sheet” is defined as the maintenance call object for this maintenance plan category. The system therefore generates a service entry sheet for a due maintenance call.

You can use the maintenance plan category for service procurement in purchasing (MM) to **process regular services**, for example, the monthly maintenance of an elevator or a photocopier.

The system automatically generates a service entry sheet for an external service order with runtime from the maintenance plan (the document type for this in the standard system is *FO*). As a result, service entry sheets do not need to be created for the services provided. It is only necessary to accept the service entry sheets generated automatically.

Integration

The maintenance plan category for service procurement in purchasing combines the functions from the PM and MM application components.

Prerequisites

The following prerequisites must be fulfilled if you want to create a maintenance plan for service procurement in purchasing:

- You have created an external service order in Materials Management for which the following conditions are fulfilled:
  - The standard document type is *FO*.
  - The runtime is specified in the header.

    The purchase order item
  - cannot be flagged for deletion
  - Has the account assignment category *Unaccounted* (U) or *Settlement on order* (F)
  - Has a goods receipt indicator
  - Provides a goods receipt-related invoice
  - Is not finally settled or delivered
- If the external service order has the account assignment category *Unaccounted*, you must also specify the following in the maintenance plan:
  - G/L account
  - A settlement order (standing order) with object reference, for example, a maintenance order

If the external service order has the account assignment category *Settlement on order*, you can nevertheless enter the G/L account and the settlement order. In this case, the system overrides the entries for the external service order.

Features

You can shorten the process for the purchase order of a service using the maintenance plan category for MM.

You create a maintenance plan with maintenance plan category MM and assign the following data to it:

- External service order
- G/L account
- Settlement order (for example, maintenance order)
- Service specifications with detailed service descriptions and/or value limits

Using the shortened process, the system creates a service entry sheet for a due maintenance call, which contains the planned services. You can supplement the service entry sheet with further unplanned services manually as required. Finally, it must still be signed off manually. Previously, a maintenance order had to be generated, from which a purchase order request and a purchase order had to be created, before a service entry sheet was created.

The system can display an object history using the settlement order (standing order) assigned with object reference.

See also

MM – Services [Ext.]

Maintenance Plan and Sales Document Item

Use

If you manually create a service order in the application component *Customer Service* and assign an outline agreement item, the system copies the service product and the form of billing from the outline agreement item to the service order.

This function is also available if the service order is generated through a maintenance plan.

Prerequisites

You have specified a **non-revenue-bearing service order** as the order type for the subsequent maintenance call object [Page 34] in the maintenance item.

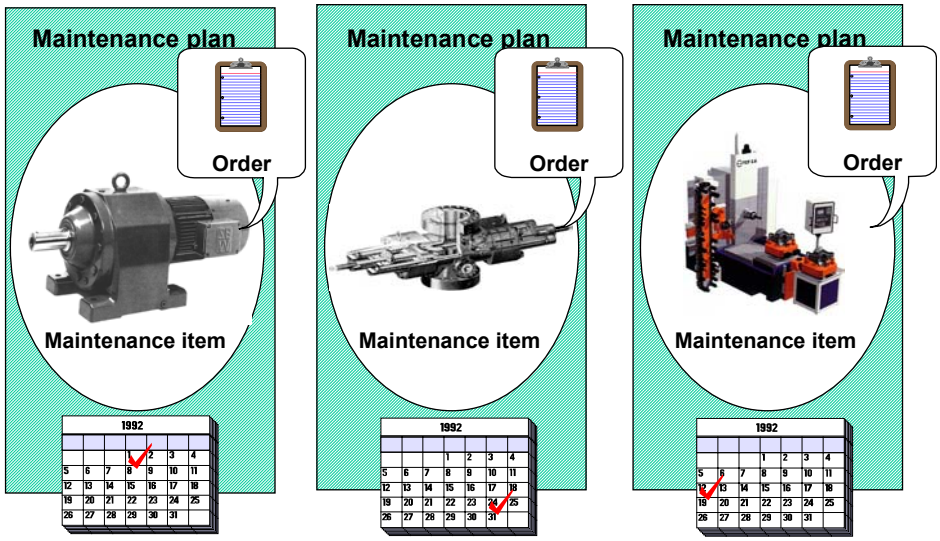
Features

As a result, you can assign an outline agreement item to the maintenance item in the maintenance plan. If the system generates a maintenance call object (in this case, a service order), the service product and the form of billing are also copied from the outline agreement item to the service order here.

Example 1: Maintenance Plan

Display in the System

- You create several maintenance plans.
- Each maintenance plan contains a maintenance item that describes the object to be maintained.
- The system generates a separate order for each object on a due date.

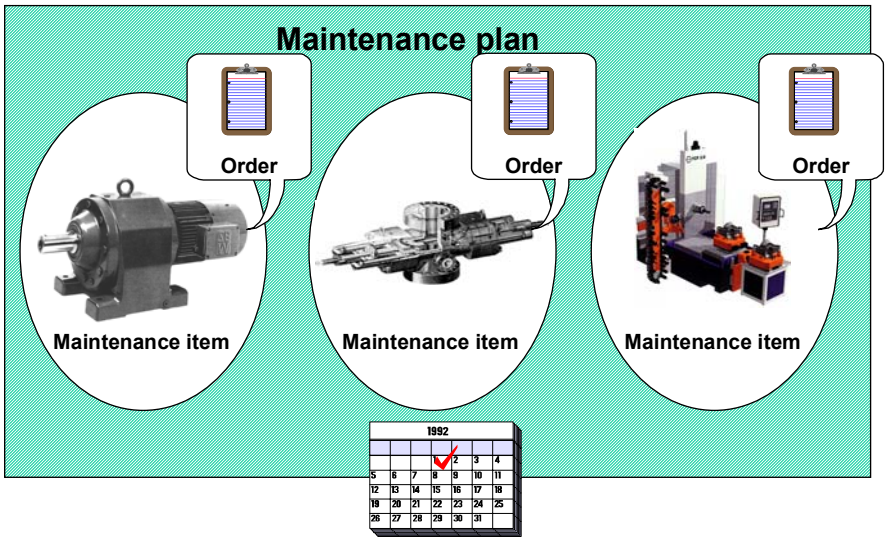


Example 3: Maintenance Plan

Display in the System

- You create **one** maintenance plan.
- The maintenance plan contains several maintenance items that each describe the objects to be maintained.
- The system generates a separate order for each object on a due date.

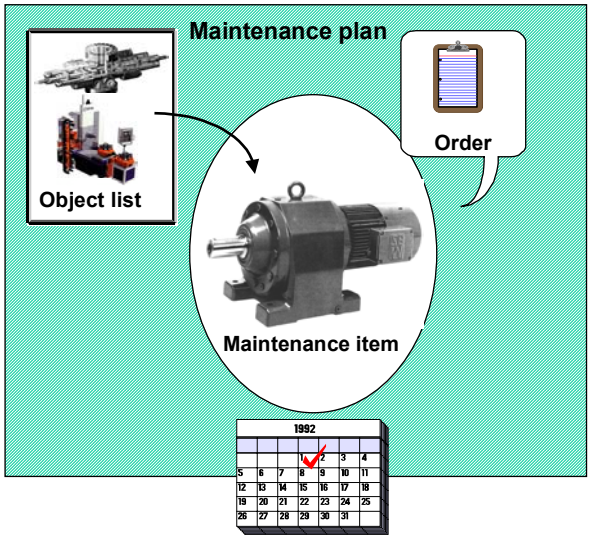
Changes to the maintenance plans and in scheduling always affect **all** the maintenance items assigned to the maintenance plan. Date shifts that affect only one object are **not** possible in this example.



Example 2: Maintenance Plan

Display in the System

- You create **one** maintenance plan.
- You assign an object list to the maintenance plan in which all object to be maintained are listed.
- The system generates an order for all objects on a due date.



Process for Maintenance Planning

Purpose

This process describes how you create a maintenance plan, which objects you must assign and which additional functions are available to you after you have created the maintenance plan.

Process Flow

1. You create a maintenance plan [Page 11].

   A maintenance plan always **automatically** contains at least one maintenance item [Page 68].

2. You enter the maintenance cycles [Page 65].

   For strategy plans, this means the maintenance cycles from the assigned maintenance strategy [Page 100].

3. Assign other technical objects if necessary to the maintenance item (see Object List [Page 76]).

4. You assign a maintenance task list [Page 89] to the maintenance item.

   This assignment is optional for single cycle plans.

5. You assign **additional** maintenance items to the maintenance plan if necessary.

6. You maintain the scheduling parameters [Page 118] if necessary.

7. Save the maintenance plan.

8. You schedule the maintenance plan and thereby generate maintenance calls, from which the system generates maintenance call objects [Page 34] (for example, maintenance orders, maintenance notifications or service entry sheets) for the due date.

9. You can display the scheduled calls using the call history [Page 166].

10. Where necessary, you can display the expected costs for one or more maintenance plans using the maintenance plan or cost display [Page 181].

Maintenance Plan Type

Definition

You can perform time-based and performance-based (counter reading-based) maintenance planning in your organization using the *Plant Maintenance* component. For more information, see Time-Based Maintenance Plans [Page 29] and Performance-Based Maintenance Plans [Page 30].

Time-Based Maintenance Plan

Definition

Maintenance is performed in specific cycles for time-based maintenance planning, for example, every two months or every six months.

To represent simple maintenance cycles, you can create a single cycle plan. To represent complex maintenance cycles, you can create a strategy plan based on a time-based maintenance strategy [Page 100]. For more information, see Single Cycle Plan and Strategy Plan [Page 13].

Structure

A time-based maintenance plan must comprise the following parts, in order for it to be scheduled:

- Scheduling data
  - Scheduling parameters [Page 118]
  - Maintenance cycle [Page 65] (for single cycle plans and multiple counter plans)
  - Maintenance strategy [Page 100] with maintenance packages [Page 65] (for strategy plans)
- Maintenance item(s) [Page 68]

See also

- Multiple Counter Plan [Page 14]

Performance-Based Maintenance Plan

Definition

With performance-based maintenance plans, you can plan regular maintenance based on counter readings maintained for measuring points at pieces of equipment and functional locations. To represent simple maintenance cycles, you can create a single cycle plan [Page 13]. To represent complex maintenance cycles, you can create a strategy plan based on a performance-based maintenance strategy [Page 100].

Assign a counter to the maintenance plan. Maintenance takes place when the counter for the technical object has reached a certain reading, for example, every 100 operating hours, every 500 moulding cycles. The calculated planned date depends on the counter reading at the time of planning, and the estimated annual performance that has been defined for the counter.

Counters are represented in the *Plant Maintenance* (PM) application component as a special form of measuring point. For more information about counters and measurement documents (= counter readings), see Counters [Ext.] and Measurement Documents [Ext.] in the *Measuring Points and Counters* component.

Use

You can use performance-based maintenance planning, for example, to ensure for the maintenance call object [Page 34], maintenance order (PM order), that the operations contained in the maintenance task list [Page 89] are performed at a time when the technical object actually requires maintenance.

For performance-based maintenance planning, it is important that you enter the current counter reading regularly, even if it has not changed. Otherwise, the system generates call objects (for example, maintenance orders) based on the estimated annual performance entered for the counter, even though the counter reading has not in reality been reached.

A pump requires a maintenance task to be performed every 100 operating hours. The call date calculated when the maintenance plan was scheduled is almost due, but the counter reading for the pump indicates that it has only been in operation for 50 hours (for example, owing to a temporary shutdown).
To avoid a maintenance order being created before it is needed, you maintain the new total counter reading in the system. You then reschedule the maintenance plan, and the call date is recalculated based on the updated counter reading. In this case, the call date would be later.

Structure

A performance-based maintenance plan must comprise the following parts in order for it to be scheduled:

- **Scheduling data**
  - Scheduling parameters [Page 118]
  - Maintenance cycle [Page 65] (for single cycle plans and multiple counter plans)

  - Maintenance strategy [Page 100] with maintenance packages [Page 65] (for strategy plans)

- Maintenance item(s) [Page 68]

Maintenance Plan Category

Definition

You use the maintenance plan category to determine which maintenance call object [Page 34] the system generates for a maintenance plan when a maintenance call is due (for example, maintenance order).

Furthermore, you can also define number ranges and the reference object view (for example, equipment, functional location, serial number) in the maintenance plan category.

SAP delivers pre-defined maintenance plan categories in the Standard system. You can create further maintenance plan categories in the Customizing for *Plant Maintenance* under *Plant Maintenance and Customer Service* → *Set Maintenance Plan Categories*.

Use

You can create maintenance plan categories with the following maintenance call objects:

- **Maintenance order and service order (PM, CS)**

  “Maintenance order or service order” is defined as the call object. The system generates a maintenance order or a service order for a due maintenance call.

  You can use this maintenance plan category to process preventive maintenance, for which detailed planning using an order is required.

  You can specify a priority for the maintenance or service order in the maintenance item [Page 68] of a maintenance plan (see Maintenance Item Priority [Page 42]).

  For more information on orders, see the documentation Maintenance Orders [Ext.] and Service Orders [Ext.].

  You can also set the order type in Customizing in such a way that the system generates an order and a notification simultaneously. The supplementary notification is helpful if, in addition to the order, you also want to define a history for the damage processed in the notification, to be able to evaluate this better in the Plant Maintenance Information System (PMIS).

  For more information about the Plant Maintenance Information System, see *LO - Logistics Information System*.

- **Maintenance or service notification (PM, CS)**

  “Maintenance or service notification” is defined as the call object. The system generates a maintenance notification or service notification for a due maintenance call.

  You can use this maintenance plan category to process preventive maintenance, for which rough planning (for example, describing the tasks to be performed) is sufficient. The call object *maintenance notification* is very useful if a maintenance order is not necessary, for example, since you only want to enter a note in the notification, indicating that a technical object should be checked.

  You can specify a priority for the maintenance or service notification in the maintenance item [Page 68] of a maintenance plan (see Priority for Maintenance Item [Page 42]).

  You can trigger an automatic task determination for the generated notifications (see Automatic Task Determination for Notifications [Page 43]).

For more information about maintenance notifications, see Maintenance Notification [Ext.].

- **Service entry sheet (MM)**

  “Service entry sheet” is defined as the call object. The system generates a service entry sheet for a due maintenance call.

  You can use the maintenance plan for service procurement in Purchasing [Page 21] to process regular services, for example, the monthly maintenance of an elevator or a photocopier.

  For more information about services generally, see MM - Service [Ext.].

- **Service order for outline agreements**

  “Service order” is defined as the call object. The system generates a service order for a due maintenance call.

  You can use the maintenance plan with reference to an outline agreement [Page 16] to determine the dates agreed in the contract for the services due in the cycle, and to generate service orders automatically.

- **Service notification for outline agreements**

  “Service notification” is defined as the call object. The system generates a service notification for a due maintenance call.

  You can use the maintenance plan with reference to an outline agreement [Page 16] to determine the dates agreed in the contract for the services due in the cycle, and to generate service notifications automatically.

See also

Defining a Default Value for a Maintenance Plan Category [Page 40]

Maintenance Call Object

Definition

An object which is generated by the system for a due maintenance call.

Use

You define which maintenance call object the system should generate in the maintenance plan category [Page 32].

For example, there are the following call objects:

- Order
  - Maintenance order (PM order)
  - Service order
  - Maintenance order with maintenance notification (Customizing setting)
  - Service order with service notification (Customizing setting)
- Notification
  - Maintenance notification
  - Service notification
- Service entry sheet

Practical Functions and Utilities

In maintenance planning, different practical functions and utilities are available in addition to normal maintenance planning functionality, that you can control from maintenance planning (for example Automatic Task Determination for Notifications [Page 43] or Sort Field for the Maintenance Plan [Page 41]).

Optimizing the Maintenance Plan

Use

The table describes how you can use customer exits to adjust the functions of the maintenance plan to better meet the individual requirements of your company.

Adjusting maintenance plans

How Can I…?	Customer Exit	What You Should Know
How can I define internal fields for automatically generated orders or notifications?	IPRM0003	You can define your own fields for the maintenance item using this customer exit. The fields appear on the tab *Customer exit: Item* in the maintenance plan or maintenance item. You can cause the system to copy these additionally defined fields to the maintenance call objects [Page 34] *order* and *notificatio*n.
How can I check whether certain fields in the maintenance plan contain values?	IPRM0004 Function module: EXIT_SAPLIPWP3_004	You can define your own checks for saving maintenance plans using this customer exit. For example, you can define, • That certain fields that you must document to meet regulations must contain values • That due to a verification obligation, changes to certain fields are documented

See also

Optimizing Scheduling [Page 136]

Worklist for Planned Maintenance

Purpose

You can generate a worklist for planned maintenance from maintenance planning.

You can combine several notifications that were generated from maintenance plans and for which joint processing makes sense in a maintenance or service order using the list editing function for notifications ("Worklist"). For example, you can combine all notifications for a certain building or all notifications for a certain work center.

A specialist visits your company every three weeks and requires an analysis kit for some maintenance activities.

Previously, the specialist received several orders in which the activities to be performed were described. The result of this was that business requirements analysis and completion confirmations were very awkward and time-consuming (for example, through a high number of printouts and completion confirmations for individual orders).

You can combine all relevant notifications for the specialist in **one** order using the worklist. You can select the notifications according to work center, location, room or equipment, for example. The specialist receives only one order and less paper is wasted. This means that the processing and confirmation of the activities performed are greatly simplified.

Prerequisites

The following prerequisites must be fulfilled for this process:

- You have specified a maintenance plan category [Page 32] with a maintenance call object [Page 34] "maintenance or service notification" for the maintenance plan.
- You have assigned a task list to the maintenance item in the maintenance plan.
- In order to combine the notifications in an order, you must call up the notification worklist in Change mode.

Process Flow

1. You create separate maintenance plans with the maintenance call object "notification" for all planned activities in your company. To do this, you enter a task list in the maintenance item for the maintenance plan in which the activities are precisely described.
2. Using maintenance plan scheduling, the system generates a notification for each maintenance item of a maintenance plan when maintenance calls are due.
3. If you call up the list editing function for notifications in Change mode, you can display the notifications thus generated and select those that should be combined in an order ("worklist").
4. When you create an order from list editing, the selected notifications are combined as follows:

- The individual notifications are displayed in the object list for the order. You can identify the maintenance plan from which a notification has originated.
- If you have specified a task list in the maintenance item of a maintenance plan, the system copies the operations of the task list to the order. The sequence of the operations corresponds to the sequence of notifications in the object list.

5. You can print out and process the order with all operations.
6. You post a completion confirmation for the completed activities to the order.

The system will only copy the operations from the task list, if you combine the notifications together in an order using the worklist. The operations will not be copied if you manually include the notifications in an order.

Configurable Equipment as a Reference Object

Use

As of Release 4.6A, maintenance planning supports the configuration of objects.

Prerequisites

You have specified a piece of configurable equipment as a reference object in the maintenance plan and assigned a configurable general maintenance task list.

Features

You can specify a piece of configurable equipment as the reference object for a maintenance plan in which the operations to be performed are described. You can define object dependencies for the operations of the general maintenance task list, that is, an operation, for example, is a relevant characteristic for the color "red" only.

If the system generates a maintenance or service order as a maintenance call object [Page 34] through scheduling, the general maintenance task list will be configured and the relevant operations copied to the order.

The general maintenance task list is configured automatically.

The characteristic defined in the equipment (Color = "Red") causes the system to configure the general maintenance task list assigned to the maintenance plan, and to copy the following operations of the general maintenance task list to the generated order:

- The operations in which the color "red" has been defined as object dependencies.
- All operations without object dependencies.

If problems occur during the configuration process (for example, if the system is unable to evaluate a characteristic), scheduling will be canceled.

Defining a Default Value for a Maintenance Plan Category

Procedure

1. Choose *System* → *User profile* → *Own data* → *Parameters*.

   You reach the screen for maintaining user data.

2. Enter the following:

Parameter	Value
WAT	<Desired maintenance plan category, for example, PM>

3. Save your entries.

   The changes take effect from when you next log on.

Result

When you create a maintenance plan, the system proposes the maintenance plan category entered under *Value* as the default value.

Sort Field for the Maintenance Plan

Use

You can define your own criteria for selecting maintenance plans using the sort field for maintenance plans. You can use the sort field to make a selection in the list editing function for maintenance plans, the scheduling overview in list form and deadline monitoring.

In plant 0001, there is one business unit called "Electrics" and another called "Mechanics". You want to schedule the maintenance plans for these business units separately.

Maintain the sort fields "0001 Mechanics" and "0001 Electrics" in Customizing and assign the fields to the maintenance plans of the corresponding business units.

In deadline monitoring, this means that you can use these sort fields for precise scheduling.

Activities

In Customizing

You can define possible entries for the sort field in Customizing for maintenance planning under *Plant Maintenance and Customer Service → Maintenance Plans, Work Centers, Task Lists and PRTs → Maintenance Plans → Define sort fields for maintenance plan*.

In the Maintenance Plan

Assign a sort string to each maintenance plan on the tabstrip *Maintenance plan: Additional data*.

Priority for Maintenance Item

Use

You can specify a priority for maintenance plans that generate a maintenance/service notification or a maintenance/service order as the maintenance call object [Page 34] in the maintenance call item [Page 68]. In scheduling, the priority is copied to the call object. This enables you to set priorities when planning the tasks to be performed, as is also possible in unplanned maintenance and service processing.

Prerequisites

In Customizing for *Plant Maintenance and Customer Service*, you have defined the priority types and the priorities for each priority type, and assigned the priority types to the notification types (for example, malfunction report) or order types (for example, service order) which are generated from the maintenance plan.

Activities

In Customizing

Activity	Menu Path
Defining priorities for notifications	*Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Notifications* → *Notification Processing* → *Response Time Monitoring* → *Define Priorities*
Defining priorities for orders	*Plant Maintenance and Customer Service* → *Maintenance and Service Processing* → *Maintenance and Service Orders* → *General Data* → *Define Priorities*

Automatic Task Determination for Notifications

Use

You can trigger automatic task determination for maintenance plans which generate a maintenance or service notification as the maintenance call object [Page 34].

The system determines at which times and in which period certain tasks must be performed for this notification from the response profile, service profile and, if necessary, the priority.

You create a notification at 10am. Intervals of 2 hours for the task code "Callback for partner" and 4 hours for the task code "Check whether technician is at customer site" are specified in the response profile. The service times are from 8am to 12pm and again from 2pm to 6pm.

You must therefore call your partner by 12pm in order to discuss the problem, or clarify that the technician must arrive at the partner site by 4pm.

Prerequisites

Maintenance Plan

You have selected the indicator *Tasks determined* on the tabstrip *Item* in the maintenance item, and, if necessary, specified a priority.

Customizing

You have maintained the following data for maintenance or service notifications:

- Priorities
- Response monitoring (for example, response profile, service profile)

You have assigned a response profile, service profile and, if necessary, a priority type to the notification type (for example, a malfunction report) from which the maintenance plan is generated.

Features

If the system generates a notification on the due date, the system will determine suitable tasks based on the settings you have performed in Customizing.

Activities

Settings in Customizing

Function	Menu Path
Defining priorities	*Plant Maintenance and Customer Service* → *Plant Maintenance and Services* → *Notifications* → *Priorities*

Defining a response profile and a service profile	*Plant Maintenance and Customer Service* → *Plant Maintenance and Services* → *Notifications* → *Response Time Monitoring*

Profile for a General Maintenance Task List

Definition

A profile which you can use to facilitate the creation of general maintenance task lists from the maintenance plan.

Use

You maintain the profile for the general maintenance task list in order to reach the **operation overview** of the general maintenance task list **directly** when creating a general maintenance task list from the maintenance plan. You thereby reduce the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Structure

The profile for the simplified creation of a general maintenance task list from the maintenance plan contains the following specifications:

- Default values for a task list which you maintain in Customizing.
- The profile number of the task list profile which you define with your personal user defaults.

See also:

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile [Page 99]

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile

Procedure

1. In Customizing, choose *Plant Maintenance* → *Preventive Maintenance* → *Task Lists* → *Control Data* → *Define profiles with default values*.

   You reach the overview screen for profile data of maintenance task lists.

2. You can change an existing profile or create a new profile as required.
3. Select the profile you want to process and choose *Goto* → *Details*.

   You reach the detail view of the profile maintenance.

4. Enter a status in the section *Header data*.
5. Save the profile.
6. Choose *System* → *User profile* → *Own data* → *Parameters*.

   You reach the screen for maintaining user data.

7. Enter the following:

Parameter	Value
PIN	<The number of the profile created or changed>

8. Save your entries.

   The changes take effect from when you next log on.

Result

If you create a general maintenance task list from the maintenance plan, the system branches **directly** to the **operation overview** of the general maintenance task list, thereby reducing the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Cycle Set

Definition

Combination of maintenance cycles which can be used as a **copy model** for creating multiple counter plans.

Use

You create a cycle set, to which you assign maintenance cycles. In these maintenance cycles, you define possible times or performance levels for planned maintenance, for example, monthly, every 6,213.71 mi.

When creating multiple counter plans, you can accelerate the creation process by specifying a cycle set as a copy model. You can delete cycles which are not required, but are copied into the multiple counter plan. Similarly, you can add cycles which are missing.

Structure

A cycle set consists of a:

- Strategy header
- Scheduling indicator *Cycle set*
- Maintenance cycles (for example, cycle duration, unit of measurement)

The cycle set contains no other scheduling parameters.

Creating a Cycle Set

Use

When creating multiple counter plans [Page 14], you can accelerate the creation process by specifying a cycle set [Page 47] as a copy model. You can delete cycles which are not required and add cycles which are missing.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Utilities* → *Create cycle set*.

   You reach the overview screen for creating cycle sets.

2. Choose *New entries*

   You reach the detail screen for cycle sets.

3. Enter the necessary data, and call up the entry screen for maintenance cycles in the overview tree by clicking twice on *Cycles*.

4. Choose *New entries*.

   The system makes the fields ready for input.

5. Enter the necessary data.

6. Save the cycle set.

7. Return to the overview screen by clicking twice on *Cycle sets*.

Creating a Maintenance Plan

Purpose

This process describes how you create a complete maintenance plan, which you can then schedule in order to generate maintenance call objects [Page 34] (for example, maintenance orders).

Process Flow

1. You create a maintenance plan and enter a maintenance plan category [Page 32] when creating it. You have the following options:
   - Creating a single cycle plan [Page 50]
   - Creating a time-based strategy plan [Page 51]
   - Creating a performance-based strategy plan [Page 53]
   - Creating a multiple counter plan [Page 55]
   - Creating a maintenance plan for service procurement [Page 57]
   - Creating a maintenance plan for an outline agreement [Page 59]
2. Enter the necessary data for the maintenance item.
5. You assign a task list to the maintenance item. This assignment is optional for single cycle plans. You have the following options:
   - You create a task list in the maintenance plan. For a strategy plan, you assign maintenance packages [Page 65] to the operations of the task list.
   - Assign an existing task list.
7. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see Object List [Page 76]).
8. Assign **additional** maintenance items to the maintenance plan if necessary. You can:
   - Create a maintenance item in the maintenance plan [Page 70]
   - Assign maintenance items to a maintenance plan [Page 72]
6. Maintain the scheduling parameters [Page 118].
7. Save the maintenance plan.

Creating a Single Cycle Plan

6. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Single Cycle Plan*.

   You reach the screen for creating a maintenance plan.

7. Enter the maintenance plan category [Page 32] and choose .

   You reach the initial screen for creating a single cycle plan.

8. Enter the necessary data.

   If you specify a performance unit for the cycle, the system automatically selects the first counter suitable for the reference object as a default value.

9. Maintain the scheduling parameters [Page 118] if necessary on the tab *Maintenance plan scheduling parameters*.

   You can only maintain the scheduling parameters for the maintenance plan if you have entered a unit in the section *Interval* for the cycle. From the unit, the system can recognize whether the single cycle plan is performance-based or time-based and provides the corresponding scheduling parameters.

10. Enter the necessary data for the maintenance item.

11. You assign a task list if necessary to the maintenance item:

    – To assign a task list, choose .

    – To create a task list, choose with quick info *Create task list/general task list*.

9. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see Object List [Page 76]).

8. If you want to create further maintenance items, choose with quick info *Create MaintItem.*

    – Enter the necessary data, or select an unassigned maintenance item using .

    – Assign a task list if necessary to each of the maintenance items.

    – Assign other technical objects if necessary to the maintenance item.

    – In order to cancel the assignment of a maintenance item to the maintenance plan, choose .

9. Save the maintenance plan.

See also

Profile for a General Maintenance Task List [Page 98]

Defining a Default Value for a Maintenance Plan Category [Page 40]

Creating a Time-Based Strategy Plan

3. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Strategy Plan*.

   You reach the initial screen for creating a maintenance plan.

4. Enter the necessary data*:*

   – Enter a maintenance plan category [Page 32].

   – Enter a time-based maintenance strategy [Page 100].

5. Choose .

   You reach the initial screen for creating a strategy plan.

12. Enter the necessary data for the maintenance plan header and the maintenance item.

13. Assign a task list to the maintenance item:

   – To assign an existing task list, choose .

   – To create a task list, choose with quick info *Create task list*/*general task list*. Assign maintenance packages [Page 65] to the operations of the task list.

   After you have assigned a task list, the system displays the following data:

   – The assigned task list on the tab *Item*

   – The maintenance packages from the strategy assigned to the operations in the task list on the tab *Maintenance plan: Cycles*

10. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see Object List [Page 76]).

9. If you want to create further maintenance items, choose with quick info *Create MaintItem.*

   – Enter the necessary data, or select an unassigned maintenance item using .

   – Assign a task list if necessary to each of the maintenance items.

   – Assign other technical objects if necessary to the maintenance item.

   – In order to cancel the assignment of a maintenance item to the maintenance plan, choose .

9. Maintain the scheduling parameters [Page 118] if necessary on the tab *Maintenance plan scheduling parameters*.

10. Save the maintenance plan.

See also

Defining a Default Value for a Maintenance Plan Category [Page 40]

Profile for a General Maintenance Task List [Page 98]

Creating a Performance-Based Strategy Plan

1. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Strategy Plan*.

   You reach the initial screen for creating a maintenance plan.

2. Enter the necessary data:
   - Enter a maintenance plan category [Page 32].
   - Enter a performance-based strategy [Page 100].

   The strategy that you enter must have the scheduling indicator *Performance* and a dimension other than *Time*.

3. Choose  .

   You reach the initial screen for creating a strategy plan.

14. Enter the necessary data for the maintenance plan header and the maintenance item and choose  .

    If you have already created counters for the reference object (for example, equipment) that you have specified in the maintenance item, you reach the dialog box *Counter selection*.

    Enter the counter whose readings are to serve as a basis for scheduling and choose  .

    The counter unit must have the same dimension as the maintenance strategy that you have entered.

15. Assign a task list to the maintenance item:
    - To assign an existing task list, choose  .
    - To create a task list, choose  with quick info *Create task list/general task list*. Assign maintenance packages [Page 65] to the operations of the task list.

      After you have assigned a task list, the system displays the following data:

    - The assigned task list on the tab *Item*
    - The maintenance packages from the strategy assigned to the operations in the task list on the tab *Maintenance plan: Cycles*

11. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see Object List [Page 76]).

10. If you want to create further maintenance items, choose  with quick info *Create MaintItem.*
    - Enter the necessary data, or select an unassigned maintenance item using  .
    - Assign a task list if necessary to each of the maintenance items.
    - Assign other technical objects if necessary to the maintenance item.

- In order to cancel the assignment of a maintenance item to the maintenance plan, choose  .

8. Maintain the scheduling parameters [Page 118] if necessary on the tab *Maintenance plan scheduling parameters*.
9. Save the maintenance plan.

See also

Defining a Default Value for a Maintenance Plan Category [Page 40]

Profile for a General Maintenance Task List [Page 98]

Creating a Multiple Counter Plan

1. Choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Create* → *Multiple Counter Plan*.

   You reach the initial screen for creating a maintenance plan.

2. Enter the necessary data*:*

   – A maintenance plan category which generates service entry sheets for the due date, is not advisable for a multiple counter plan because the system would generate the same service entry sheet for each due date.

   Enter a maintenance plan category [Page 32].

   – If you want to create the maintenance plan with a copy model for maintenance cycles, you enter a cycle set [Page 47].

6. Choose .

   You reach the initial screen for creating a multiple counter plan.

4. Enter the necessary data for the maintenance plan header and create new maintenance cycles on the tab *Maintenance plan cycles* or change/delete existing cycles if you have created the multiple counter plan with a cycle set as copy model.

   For more information, see Creating or Changing Maintenance Cycles in the Multiple Counter Plan [Page 67].

16. Enter the necessary data for the maintenance item.

17. Assign a task list to the maintenance item:

   – To assign an existing task list, choose .

   – To create a task list, choose with quick info *Create task list/general task list*. Assign maintenance packages [Page 65] to the operations of the task list.

   After you have assigned a task list, the system displays the following data:

   – The assigned task list on the tab *Item*

   – The maintenance packages from the strategy assigned to the operations in the task list on the tab *Maintenance plan: Cycles*

12. Assign further technical objects to the maintenance item if necessary using the tab *Object list* (see Object List [Page 76]).

11. If you want to create further maintenance items, choose with quick info *Create MaintItem.*

   – Enter the necessary data, or select an unassigned maintenance item using .

   – Assign a task list if necessary to each of the maintenance items.

   – Assign other technical objects if necessary to the maintenance item.

   – In order to cancel the assignment of a maintenance item to the maintenance plan, choose .

11. Maintain the scheduling parameters [Page 118] if necessary on the tab *Maintenance plan scheduling parameters*.

Creating a Multiple Counter Plan

10. Save the maintenance plan.

See also

Profile for a General Maintenance Task List [Page 98]

Creating a Maint. Plan for Service Procurement

Prerequisites

For more information about requirements, see Maintenance Plan for Service Procurement [Page 21].

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Create* → *Single cycle plan*.

   You reach the initial screen for creating a maintenance plan.

2. Enter a maintenance plan category [Page 32] for the service procurement in purchasing and choose *Continue*.

   You reach the initial screen for creating a single cycle plan.

3. Enter the necessary data.

   If the external service order has the account assignment category *Settlement on order*, you can nevertheless enter the G/L account and the settlement order. In this case, the system overrides the entries for the external service order.

4. Assign service specifications to the maintenance plan.

   a) For this, choose *Goto* → *Service specifications*.

      You reach a dialog box in which you are asked if you want to create an outline.

   b) Choose *No* if you do not want an outline.

      You reach the screen for maintaining service specifications.

   c) You have the following options:

      – Enter manual services for new service specifications.

      – Select services from existing service specifications. For this, choose *Service specifications* → *Service selection*.

        For more information about service specifications and creating outlines for service specifications, see *MM – Service*.

   d) Return to the maintenance plan. The system automatically saves the data.

5. Maintain the scheduling parameters [Page 118] if necessary on the tabstrip *Scheduling parameters* for the maintenance plan.

6. Save the maintenance plan.

Result

You have created a maintenance plan which generates a service entry sheet for a due maintenance call that you can process and sign off.

See also

Defining a Default Value for a Maintenance Plan Category [Page 40]

Creating a Maint. Plan for an Outline Agreement

Prerequisites

For more information about the prerequisites, see Maintenance Plan with Reference to an Outline Agreement [Page 16].

Procedure

1. Choose one of the following menu options:
   - PM:

     Logistics → *Plant maintenance* → *Maintenance planning* and then *Maintenance plans* → *Create* → *For contract item*.
   - SM:

     Logistics → *Service management* → *Contracts and planning* and then *Maintenance plans* → *Create (special)* → *For contract item*.

   You reach the initial screen for creating a maintenance plan.
2. If you use the external number assignment in your company, enter an alphanumeric sequence for the maintenance plan.
3. Enter the following data:
   - Maintenance plan category with reference to an outline agreement
   - Outline agreement
   - Outline agreement item
   - Maintenance planning plant
4. Choose *Continue*.

   If a maintenance plan already exists for the outline agreement item, the system indicates this in a dialog box. You can create a second maintenance plan for the item by choosing *Continue*.

   The system response depends on the maintenance plan category selected and the maintenance call object [Page 34] defined for it:

Call Object	System Activity
Service Notification	The system copies the start of the agreement as the start date for scheduling into the field *Cycle start* for the scheduling parameters. The maintenance item does not have an object list.

Service Order	The system copies the start of the agreement as the start date for scheduling into the field *Cycle start* for the scheduling parameters. The system copies other data as changeable default data from the service product into the maintenance plan. The object list [Page 76] for the maintenance item refers to the outline agreement, that is, it contains your data from the outline agreement and can only be changed there.

Since you have assigned a general maintenance task list to the service product, the system obtains information about the maintenance plan type [Page 28] when a maintenance plan is created. The type of maintenance plan is determined using the maintenance strategy [Page 100] which is specified in the general maintenance task list.

The table clarifies the activities for the different call objects:

Strategy	Call Object	Activity
Time-based or performance-based	Service order	The system creates a strategy plan and obtains data (for example, maintenance packages [Page 65]) from the strategy. Change the default data as required. For performance-based maintenance plans, enter a counter in the maintenance plan.
None	Service order	The system creates a single cycle plan. Change the default data as required, and enter the maintenance cycle manually.
Time-based or performance-based	Service notification	The system creates a single cycle plan. Enter the necessary data, and enter the maintenance cycle manually.
None	Service notification	

5. Save the maintenance plan.

Additional Information

Defining a Default Value for a Maintenance Plan Category [Page 40]

Displaying Objects for Outline Agreement (Items) [Page 163]

Document Flow [Page 189]

Processing Maintenance Plans

To call up individual functions in the table, choose one of the following menu paths:

- *Logistics → Plant Maintenance → Planned Maintenance → Maintenance Planning → Maintenance Plans → Change*
- *Logistics → Customer Service → Service Agreements → Maintenance Planning → Maintenance Plans → Change*

Function	Menu Path/Pushbutton	What You Should Know
Displaying/hiding maintenance plan header	*Displaying/hiding maintenance plan header*	Using this pushbutton, you can hide the maintenance plan header data if this is not required.
Changing a maintenance cycle	Tab *Maintenance plan: Cycles*	See also Creating/Changing Maintenance Cycles in the Multiple Counter Plan [Page 67]
Changing the scheduling parameters	Tab *Maintenance plan scheduling parameters*	You can modify the scheduling process to meet your individual requirements by changing the scheduling parameters [Page 118] in your maintenance plan accordingly.
Displaying a maintenance item	Tab *Item* or *Overview: Item*	If more than one maintenance item is available for a maintenance plan, the system will automatically display the tab *Overview: Items*. Select the required item, and choose the tab *Item*.
Assigning a maintenance item to a maintenance plan		See Assigning a Maintenance Item to a Maintenance Plan [Page 72]
Processing a maintenance item		See Processing a Maintenance Item [Page 73]
Setting or resetting a deletion flag	*Maintenance plan → Functions → Deletion flag → <Set/Reset>.*	The system does not generate any more maintenance calls for maintenance plans with a deletion flag.
Setting or resetting several deletion flags		See Setting a Deletion Flag for Several Maintenance Plans [Page 63]
Activating or deactivating a maintenance plan	*Functions → Active <-> Inactive → <Deactivate/Activate>.*	This function is also available in scheduling.
Sorting maintenance plans	*Sort field* on the tab *Maintenance plan: Additional data*	See Sort Field for the Maintenance Plan [Page 41]

Changing a maintenance item with list editing	*Maintenance Plans* → *Maintenance Items* → *List Editing* → *Change*	See Working with Lists [Ext.]
Assigning processing authorization	*AuthorizGroup* on the tab *Maintenance plan: Additional data*	With this field, you can control that only certain persons can change a maintenance plan.
Changing an assigned maintenance strategy		It is not possible to assign another strategy to a maintenance plan.

See also

Scheduling [Page 113]

Displaying Maintenance Call Objects [Page 157]

Setting a Deletion Flag for Several Maint. Plans

Use

You can use this function to select several maintenance plans and to set the status *Deletion flag* for all the maintenance plans selected.

The system does not generate any more maintenance calls for maintenance plans which are set with a deletion flag.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Set deletion flag*.

   You reach the selection screen for setting deletion flags.

2. Enter the necessary data.

   If you want to test the function first, select *Test mode*.

3. Choose *Program* → *Execute*.

   The system sets deletion flags for the maintenance plans selected and a log is displayed.

4. Exit the function.

Creating a Maintenance Item in the Maint. Plan

Use

You can create a new maintenance item directly in the maintenance plan. However, you can also assign existing maintenance items [Page 72] to a maintenance plan.

Prerequisites

You are in the Create or Change mode of the maintenance plan.

Procedure

1. Enter the necessary data for the first maintenance item on the tabstrips *Item, Object list, Location* and so on.

18. You assign a task list if necessary to the maintenance item:
    - To assign a task list, choose  .
    - To create a task list (category: *General task list*), choose  with quick info *Create general task list*.

13. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see Object List [Page 76]).

12. If you want to create further maintenance items, choose  with quick info *Create MaintItem.*
    - Enter the necessary data, or select an unassigned maintenance item using  .
    - Assign a task list if necessary to each of the maintenance items.
    - Assign other technical objects if necessary to the maintenance item.

13. Save the maintenance plan.

See also

Creating a Maintenance Item Without Assignment [Page 71]

Maintenance Cycle and Maintenance Package

Definition

The maintenance cycles and packages contain the time or performance condition when maintenance must be performed.

Use

A distinction is made between maintenance plan types [Page 28] which are created without a maintenance strategy [Page 100] and those created with one.

- **Maintenance Plans Without a Maintenance Strategy**

  You create **maintenance cycles** directly in the maintenance plan for maintenance plans that were created without a maintenance strategy (for example, single cycle plan or multiple counter plan).

  To create multiple counter plans, you can use a copy model for maintenance cycles, known as cycle sets [Page 47].

- **Maintenance Plans with Maintenance Strategy**

  The maintenance plans created using a maintenance strategy (for example, time-based or performance-based strategy plans) contain **maintenance packages** which you define in the maintenance strategy.

Structure

Maintenance packages and maintenance cycles contain the following data:

Maintenance Packages	Maintenance Cycle
Package number	
Short text and description	Short text and description
Cycle duration	Cycle duration
Unit of measurement	Unit of measurement
Hierarchy	
Offset and offset short text	Offset and offset short text
Preliminary buffer and follow-up buffer	

Integration

The following example describes integration for maintenance packages:

The maintenance order (PM order) is defined as the maintenance call object [Page 34] for a maintenance plan. You can assign a task list [Page 89] to a maintenance item in the maintenance plan which describes the maintenance tasks to be performed in its operations.

You finally assign the individual operations for the maintenance task list to the maintenance strategy assigned to the task list. You assign the maintenance package “every 6,213.71 mi” to the operation “oil change”.

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 mi) in which the operations should be performed.

See also

Displaying a Maintenance Package Sequence for a Maintenance Strategy [Page 111].

Creating/Changing Maint. Cycles in MultCntr Plans

Use

If you want to create or change maintenance cycles in a multiple counter plan, the procedure differs from that used for performance and counter-based maintenance plans.

In performance and counter-based maintenance plans, you define maintenance cycles using the maintenance packages [Page 65] that you create in the maintenance strategy [Page 100]. However, since **no maintenance strategy** is assigned to a multiple counter plan, you must create or change the maintenance cycles directly in the multiple counter plan. This also applies to multiple counter plans that you have created using a cycle set [Page 47] as a copy model. You can transfer or delete copied cycles.

Prerequisites

You must be in the Create or Change mode of a multiple counter plan.

Procedure

To call up the individual functions in the table, choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Change* in the R/3 screen.

Function	Menu Path/Pushbutton	What You Should Know
Creating a maintenance cycle		Enter a cycle, a cycle unit and a cycle text. For performance-based cycles, enter the functional location or equipment counter. For performance-based maintenance cycles, the counter unit (for example, operating hours) must have the same dimension as the cycle entered. In this case, the dimension would be “time”. Enter the offset as required at which maintenance should be performed. If you want to create new maintenance cycles for a multiple counter plan, then we recommend that you add new maintenance cycles, and do **not overwrite** existing ones. Delete the maintenance cycles that are not required.
Changing a maintenance cycle		Change the maintenance cycle.
Deleting a maintenance cycle		

Maintenance Item

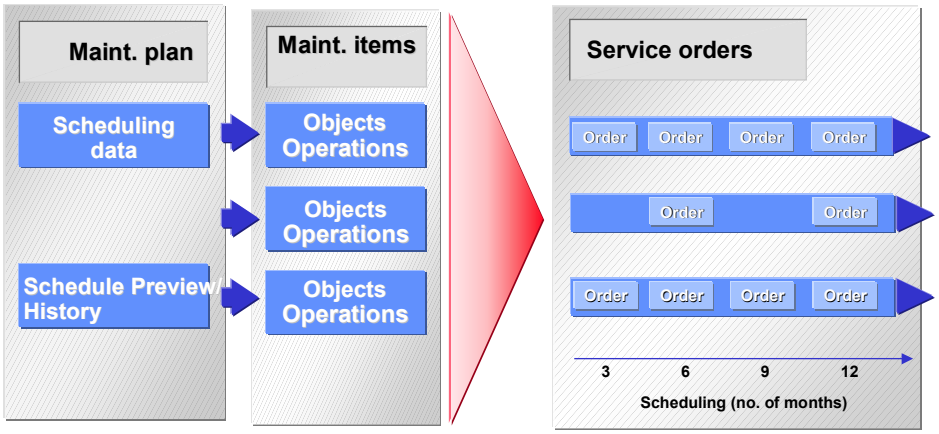
Definition

A maintenance item describes which preventive maintenance tasks should take place regularly at a technical object or a group of technical objects.

A maintenance item could, for example, be “perform safety test”. You then assign exactly the objects (for example, equipment, functional locations or assemblies) at which you want to perform the maintenance task “safety test” to a maintenance item.

For some call objects [Page 34], (for example, maintenance order or service order), you can describe the activities that are necessary for the maintenance item "Perform safety test" using a maintenance task list [Page 89], which you assign to the maintenance item. If, for example, the system generates a service order for a due date, the operations will be copied from the task list to the service order.

Maintenance Plan with Maintenance Items



Use

You can assign one or more maintenance items to a maintenance plan. A maintenance plan always **automatically** contains at least one maintenance item. Maintenance plans for service procurement and maintenance plans which refer to an outline agreement have only **one** maintenance item.

You can assign maintenance items to a maintenance plan in the following ways:

- You create a maintenance plan and create a maintenance item directly in the maintenance plan by entering the required data in the tabstrip *Item*.
- You create additional maintenance items in a maintenance plan.
- You create a maintenance item without assignment and subsequently assign it to a maintenance plan.

  The following rules apply if you assign a maintenance item to a maintenance plan:

  – A maintenance item can only be assigned to one maintenance plan.

  – You must have created the maintenance item you want to assign to a single cycle plan or multiple counter plan without reference to a maintenance strategy.

  – The maintenance item you assign to a strategy plan must have the same maintenance strategy as the maintenance plan.

  – The maintenance item you assign to a strategy plan must have the same maintenance plan category as the maintenance plan.

The easiest way is to create maintenance items directly in the maintenance plan.

Reference Objects for Maintenance Items

You assign the reference object(s) to a maintenance item at which you want to perform the maintenance task "safety test".

Maintenance items can also be object-independent, that is, you can create them without a reference object.

Maintenance Items with Reference Object

You can create maintenance items with a reference object, that is, object-specific maintenance items, for example, for the following reference objects:

- Functional locations
- Pieces of equipment
- Assemblies for a piece of equipment
- Materials
- Material and serial numbers

For further information on the assignment of several technical objects to a maintenance item, see Object List [Page 76].

Maintenance Items Without Reference Object

You can also create maintenance items that do not refer to a technical object, that is, object-independent maintenance items. You can maintain both location data and account assignment data individually for such maintenance items. This allows you to define regular preventive maintenance tasks without having to specify the technical objects for which the tasks are to be performed. This is particularly useful for smaller maintenance tasks, such as “cleaning”, “lubricating” and so on.

See also

Changing a Reference Object of a Maintenance Item [Page 75].

Creating a Maintenance Item in the Maint. Plan

Use

You can create a new maintenance item directly in the maintenance plan. However, you can also assign existing maintenance items [Page 72] to a maintenance plan.

Prerequisites

You are in the Create or Change mode of the maintenance plan.

Procedure

2. Enter the necessary data for the first maintenance item on the tabstrips *Item, Object list, Location* and so on.

19. You assign a task list if necessary to the maintenance item:
    - To assign a task list, choose  .
    - To create a task list (category: *General task list*), choose  with quick info *Create general task list*.

14. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see Object List [Page 76]).

14. If you want to create further maintenance items, choose  with quick info *Create MaintItem.*
    - Enter the necessary data, or select an unassigned maintenance item using  .
    - Assign a task list if necessary to each of the maintenance items.
    - Assign other technical objects if necessary to the maintenance item.

15. Save the maintenance plan.

See also

Creating a Maintenance Item Without Assignment [Page 71]

Creating a Maintenance Item Without Assignment

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Maintenance items* → *Create*.

   You reach the initial screen for creating a maintenance item.

7. Enter the necessary data*:*

   – Enter a maintenance plan category [Page 32].

   – Enter a maintenance strategy [Page 100] if necessary.

   If you want to assign the maintenance item to a time-based or performance-based maintenance plan, you must enter a corresponding maintenance strategy.

   If you do not specify a strategy for the maintenance item, you can only assign this item to a single cycle plan or multiple counter plan.

3. Choose  .

   You reach the maintenance item.

4. Enter the necessary data.

   You should use a descriptive text for the maintenance item (for example, “Perform safety test”), as this will make it easier for you to recognize the relevant maintenance item when assigning it to the maintenance plan. For more information about this assignment, see Assigning Maintenance Items to a Maintenance Plan [Page 72].

15. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see Object List [Page 76]).

20. You assign a task list if necessary to the maintenance item:

   – To assign an existing task list, choose  .

   – To create a task list (category: *General task list*), choose  with quick info *Create general task list*. If you have created a maintenance item with a strategy, you assign maintenance packages [Page 65] to the operations of the task list.

   After you have assigned a task list, the system displays the assigned task list on the tabstrip *Item*.

6. Save the maintenance item.

See also

Creating a Maintenance Item in the Maintenance Plan [Page 70]

Assigning a Maintenance Item to a Maintenance Plan

Use

As a rule, you create maintenance items [Page 68] directly in the maintenance plan (see Creating a Maintenance Item in the Maintenance Plan [Page 70]). However, you can also assign existing maintenance items that have not yet been assigned to a maintenance plan.

Prerequisite

You are in the Create or Change mode of the maintenance plan.

Procedure

1. Select  with quick info *Create MaintItem*, and select a maintenance item that has not yet been assigned using  .

21. You assign a task list if necessary to the maintenance item:

    - To assign a task list, choose  .
    - To create a task list (category: *General task list*), choose  with quick info *Create general task list*.

16. Assign further technical objects to the maintenance item if necessary using the tabstrip *Object list* (see Processing an Object List [Page 79]).

4. In order to cancel the assignment of a maintenance item to the maintenance plan, choose  .

16. Save the maintenance plan.

See also

Creating a Maintenance Item Without Assignment [Page 71]

Processing a Maintenance Item

Use

You can change a maintenance item directly or from the maintenance plan, for example, to insert additional information.

Procedure

To call up the individual functions in the table, choose *Logistics* → *Plant maintenance* → *Maintenance planning* in the R/3 screen.

Function	Menu Path	What You Should Know
Changing a Maintenance Item from a Maintenance Plan	*Maintenance plans* → *Change*	If more than one maintenance items are available for a maintenance plan, the system will automatically display the tabstrip *Overview: Items*. Select the required item, and choose the tabstrip *Item*.
Displaying a Maintenance Item from the Maintenance Plan	*Maintenance plans* → *Display*	
Assigning a Maintenance Item to a Maintenance Plan		See Assigning a Maintenance Item to a Maintenance Plan [Page 72]
Canceling the Assignment of a Maintenance Item to the Maintenance Plan	*Maintenance plans* → *Change* and then  with quick info *Cancel MaintItem assignment*	You cannot delete the last maintenance item of a maintenance plan because at least one maintenance item must always be assigned to a maintenance plan.
Changing a Maintenance Item Directly	*Maintenance plans* → *Maintenance items* → *Change*	
Displaying a Maintenance Item Directly	*Maintenance plans* → *Maintenance items* → *Display*	
Assigning Further Technical Objects	Tabstrip *Object list*	See Processing an Object List [Page 79]
Creating a Task List (Category: General Task List) in the Maintenance Item	 with quick info *Create general task list*	
Assigning a Task List		

Changing a Maintenance Item with List Editing	*Maintenance plans* → *Maintenance items* → *List editing* → *Change*	For more information, see Working With Lists [Ext.].
Displaying a Maintenance Item with List Editing	*Maintenance plans* → *Maintenance items* → *List editing* → *Display*	

See also

Changing a Reference Object of a Maintenance Item [Page 75].

Changing a Reference Object of a Maintenance Item

1. Choose *Maintenance plans* → *Change*.

   You reach the initial screen for changing maintenance plans.

2. Enter the number of the maintenance plan you want to change and choose  .

   You reach the maintenance plan screen.

3. Select the tabstrip *Item object list* and delete the objects from the object list using  .
4. Select the tabstrip *Item* and delete the data entered in the section *Reference object*.
5. Choose *Extras* → *Settings* → *Reference object view.*

   You reach a dialog box in which the system indicates the object change.

6. Choose  .

   You reach a dialog box in which you can select a new reference object.

7. Select a reference object and choose  .

   The system adjusts the section *Reference object* accordingly.

8. Check whether the item data is also still valid for the new reference object and save it.

Object List

Definition

A list of objects which are assigned to a particular maintenance item.

These objects can be:

- Functional locations
- Pieces of equipment
- Assemblies
- Materials
- Material and serial numbers

You can assign several technical objects to a maintenance item. The maintenance operations that you define for a maintenance item, using the link to a maintenance task list, are due for all the technical objects assigned.

For more information about the significance of the object list in maintenance orders (PM orders), see *PM - Maintenance Orders*.

Use

By using an object list, you can create logical groups of similar or interlinked technical objects which can then be linked with a group of maintenance activities. This has the advantage that the data entry requirement is reduced and order processing is facilitated considerably. Another advantage is the reduction in paper used as a result.

These advantages are particularly clear when planning a small preventive maintenance task for a technical system, for example, a general view control. Instead of creating a maintenance order for each object at which the view control should be performed, you create one common maintenance order for all objects listed in the object list.

No cost update takes place for objects in the object list. You cannot perform an evaluation for the reference object that you have directly specified in the maintenance item in the Plant Maintenance Information System (PMIS).

Structure

The structure of the object list depends on:

- The choice of reference object for the maintenance item
- The view setting in the section *Reference object* in the maintenance item

Integration

If the system generates a maintenance call object, for example, a maintenance order, for a maintenance plan, and the maintenance item has an object list, the system copies the object list into the order. You can extend it there as necessary.

See also

Rules for Processing an Object List [Page 78]

Processing an Object List [Page 79]

Rules for Processing an Object List

You must observe these rules if you want to:

- Enter objects in the object list
- Process entries in the object list

If you enter...	then...
a piece of equipment	the system shows you the functional location at which it is installed. This field is not ready for input. If the equipment is not installed, the field for the functional loacation is blank.
a functional location	the system displays no more data for the location.
a combination of material and serial numbers	you can only do this if the reference object view is set accordingly. In an object list, in which technical objects (pieces of equipment; functional locations) have already been entered, you cannot enter any combination of material and serial numbers.
a material number	you can only do this if the reference object view is set accordingly. In an object list, in which technical objects (pieces of equipment; functional locations) have already been entered, you cannot enter any combination of material and serial numbers.

Processing an Object List

1. To call up the individual functions in the table, choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance plans* → *Change*.

   You reach the initial screen for changing maintenance plans.

2. Enter the number of the maintenance plan you want to change and choose *Continue*.

   You reach the maintenance plan screen.

3. Choose the tab page *Object list item*.

   You reach the object list. When working with the object list, note the rules for processing an object list [Page 78].

Function	Menu Path/Pushbutton	What You Should Know
Assigning objects	Enter the necessary data in the appropriate fields (for example, material, functional location, equipment, assembly). Choose  . The system displays the short text for the technical objects.	You assign other technical objects to a maintenance item. This may be necessary, for example, if you have received a new piece of equipment which is constructed in exactly the same way as another object in the list and which you want to maintain with the same maintenance tasks.
Deleting an object from the object list		The deletion of objects from the object list may be necessary, for example, if an object has become obsolete or if it is to be included in the object list for another maintenance item.

Assigning objects in the object list	Place the cursor in the object list and choose  .	You have the option of specifying the sequence in which the maintenance activities should be executed at the objects contained in the object list. There is a sort field for this in the object list. If you enter a number or alphanumeric key in this field, you can determine the sequence in which the objects should be maintained.  On the shop floor in Hall A of your company, you have six milling machines and eight lathes. These are arranged so that they cover the entire shop floor space. In the sort field, you can enter an appropriate sequence to determine an optimum inspection route around the shop floor. This enables you to save time and energy. Once all the machines have been inspected, the completion confirmation, which you enter for the maintenance order, is valid for all the technical objects contained in the object list.

Assignment of Task Lists to a Maintenance Item

Use

In the *Plant Maintenance* application component, maintenance task lists (PM task lists) are used to process planned and unplanned maintenance tasks. Maintenance task lists describe the individual steps which must be executed for inspections, repairs, and maintenance. In addition, they list the spare parts and tools required for the job, and specify the necessary completion time.

You include this information if necessary in a maintenance item by assigning a maintenance task list to it. If you work with strategy plans, enter a maintenance strategy in the maintenance task list. This means that you can assign the maintenance packages of the assigned maintenance strategy to individual operations in the maintenance task list. For example, you assign the maintenance package "every 6,213.71 miles" to the operation “oil change”.

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 miles) in which the operations should be performed. The operations described in the maintenance task list are performed on all the technical objects which have been assigned to the maintenance item (see Object List [Page 76]).

Prerequisites

The following prerequisites must be fulfilled:

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set for the maintenance task list.

Features

You can assign an existing task list to a maintenance item or alternatively, you can create a general task list, an equipment task list, or a function location task list directly from the maintenance item.

- Assigning a Functional Location Task List or Equipment Task List [Page 93]
- Assigning a General Maintenance Task List [Page 94]
- Creating a Task List from the Maintenance Item [Page 90]

On the detail screen for task lists, you can also enter the following data:

- **Task list factor**

  The task list factor specifies how often a task list should be performed.

  You have created an elevator, which you must inspect according to industrial standards, as a piece of equipment. The assigned task list describes the operation “Check elevator door mechanism”. You enter “5” as the task list factor because the elevator stops on five floors and you must check five elevator doors in total.

  The system automatically projects the labor time and material components assigned to the task list.

Assignment of Task Lists to a Maintenance Item

- **System condition**

  The system condition indicates, for example, whether or not a technical system can be in operation during the maintenance task.

  If a maintenance order is generated from the maintenance item, then the capacity requirements records for the assigned PP work center (work center for the *Production Planning* application component) are generated. The production planning sees when maintenance is to be performed and whether or not the technical object concerned, for example, a production system, can be in operation during the maintenance work.

Assigning a Functional Location Task List or Equipment Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list (PM task list) to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

1. On the item data screen, choose *Goto* → *Task list* → *Select task list*.

   You reach a list of the maintenance task lists that are relevant for your technical object and strategy specifications.

   If **only one** task list fulfills the criteria in your maintenance item, a dialog box appears which displays the assigned maintenance packages. Choose *Continue*.

   The system immediately assigns this task list to the maintenance item.

   You save this assignment using *Maintenance item* → *Save*.

2. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto* → *Task list*.

   You reach the maintenance task list.

   You can page through the various screens of the maintenance task list using the *Goto* menu.

3. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit* → *Choose*.

   A dialog box appears which displays the assigned maintenance packages.

4. Choose *Continue*.

   The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

5. To maintain the task list factor or the system condition, choose *Goto* → *Task list details*.

6. Save the assignment using *Maintenance item* → *Save*.

Creating a Task List from the Maintenance Item

1. Call up the maintenance plan in Create or Change mode.
2. Assign a task list to the maintenance item:
   - To assign a task list, choose  .
   - To create a task list, choose  with quick info *Create task list/general task list*.

     If a task list has already been assigned, the system will issue an information message. Choose *Continue*. This creates a new task list group and you reach the header data screen (general view) for the general maintenance task list.

     If a task list was already assigned to the maintenance item, the existing task list data is overwritten when you save. If you want to avoid this, you must cancel the task list processing. The existing assignment is not overwritten, but any data that you have just entered and not saved in the maintenance item will be lost.
3. Enter the necessary data.
4. Save the task list.

   The system automatically assigns the new task list to the maintenance item and then redisplays the tab *Item*.
5. Save the maintenance item.

See also

Profile for a General Maintenance Task List [Page 98]

Assigning a General Maintenance Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

1. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList.*

   You now have three options for choosing a general maintenance task list:

   – For the assembly [Page 95]
   – For the object structure [Page 96]
   – With general criteria [Page 97]

2. When you have chosen one of the above options, the system displays a list of the maintenance task lists that are relevant for your technical object and strategy specifications or correspond to your general criteria.

   If only **one** task list fulfils the criteria in your maintenance item, the system assigns this task list to the maintenance item immediately.
   You save this assignment using *Maintenance item* → *Save*.

3. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto* → *Task list*.

   You reach the maintenance task list.

   You can page through the various screens using the *Goto* menu bar.

4. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit* → *Choose*.

   The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

5. To maintain the task list factor or the system condition, choose *Goto* → *Task list details*.

6. Save the assignment using *Maintenance item* → *Save*.

Choosing a General Maintenance Task List Using an Assembly

Use

You can assign a general maintenance task list to a maintenance item using an assembly.

Prerequisites

The assembly and its associated technical object must have already been entered on the item data screen.

Procedure

On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *For assembly*.

Result

The system searches for the general maintenance task lists that contain the specified assembly at header level and have the same strategy specifications.

You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.

If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using an Object Structure

Use

You can assign a general maintenance task list to a maintenance item using an object structure.

Prerequisites

A functional location or piece of equipment must have already been entered on the item data screen.

Procedure

1. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *For object structure*.
2. The system searches through the structure list of the technical object entered. For each assembly found, the system searches for the general maintenance task lists which contain that assembly at header level and have the same strategy specifications.

   You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.

   If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using General Criteria

Use

You can choose a general maintenance task list in a maintenance item using general criteria entered directly, and then assign it to the maintenance item.

Procedure

1. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *General*.

   You reach a selection screen for maintenance task lists.

2. Make all the necessary entries.

   You will see that certain fields are not ready for input and that others already contain entries. These are fields that the system has processed automatically when you called up the selection.

3. Choose *Continue.*

4. You reach a list of the general maintenance task lists that fulfill your criteria.

   If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Maintenance Task Lists

Definition

Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company.

There are three types of maintenance task lists that can be distinguished from one another using indicators:

- Equipment Task List [Ext.]
- Functional Location Task List [Ext.]
- General Maintenance Task List [Ext.]

Use

You can use all three task list types for ongoing and planned maintenance.

If you want to use the general maintenance task list for planned maintenance you must assign the task list to a maintenance plan or one or more maintenance items. The operations described in the general maintenance task list are performed for all technical objects that you have assigned to the maintenance item. The operations fall due at the times calculated by the system while scheduling the maintenance plan.

For more information on maintenance plans, see the documentation PM - Maintenance Planning [Ext.].

Structure

You can group together all similar maintenance task lists for groups. The Task list group [Ext.] contains a series of maintenance task lists that describe similar maintenance tasks, for example, oil changes for cars and trucks.

You describe the maintenance tasks to be performed in the individual elements of the maintenance task list. The most important elements are:

- Operations [Ext.]
- Sub-operations [Ext.]
- Material Components [Ext.]
- Maintenance Packages [Page 65]
- Production Resources/Tools [Ext.]
- Relationships [Ext.]

Creating a Task List from the Maintenance Item

2. Call up the maintenance plan in Create or Change mode.
3. Assign a task list to the maintenance item:
   - To assign a task list, choose .
   - To create a task list, choose with quick info *Create task list/general task list*.

     If a task list has already been assigned, the system will issue an information message. Choose *Continue*. This creates a new task list group and you reach the header data screen (general view) for the general maintenance task list.

     If a task list was already assigned to the maintenance item, the existing task list data is overwritten when you save. If you want to avoid this, you must cancel the task list processing. The existing assignment is not overwritten, but any data that you have just entered and not saved in the maintenance item will be lost.
6. Enter the necessary data.
7. Save the task list.

   The system automatically assigns the new task list to the maintenance item and then redisplays the tab *Item*.
8. Save the maintenance item.

See also

Profile for a General Maintenance Task List [Page 98]

Assignment of Task Lists to a Maintenance Item

Use

In the *Plant Maintenance* application component, maintenance task lists (PM task lists) are used to process planned and unplanned maintenance tasks. Maintenance task lists describe the individual steps which must be executed for inspections, repairs, and maintenance. In addition, they list the spare parts and tools required for the job, and specify the necessary completion time.

You include this information if necessary in a maintenance item by assigning a maintenance task list to it. If you work with strategy plans, enter a maintenance strategy in the maintenance task list. This means that you can assign the maintenance packages of the assigned maintenance strategy to individual operations in the maintenance task list. For example, you assign the maintenance package "every 6,213.71 miles" to the operation “oil change”.

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 miles) in which the operations should be performed. The operations described in the maintenance task list are performed on all the technical objects which have been assigned to the maintenance item (see Object List [Page 76]).

Prerequisites

The following prerequisites must be fulfilled:

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set for the maintenance task list.

Features

You can assign an existing task list to a maintenance item or alternatively, you can create a general task list, an equipment task list, or a function location task list directly from the maintenance item.

- Assigning a Functional Location Task List or Equipment Task List [Page 93]
- Assigning a General Maintenance Task List [Page 94]
- Creating a Task List from the Maintenance Item [Page 90]

On the detail screen for task lists, you can also enter the following data:

- **Task list factor**

  The task list factor specifies how often a task list should be performed.

  You have created an elevator, which you must inspect according to industrial standards, as a piece of equipment. The assigned task list describes the operation “Check elevator door mechanism”. You enter “5” as the task list factor because the elevator stops on five floors and you must check five elevator doors in total.

  The system automatically projects the labor time and material components assigned to the task list.

Assignment of Task Lists to a Maintenance Item

- **System condition**

  The system condition indicates, for example, whether or not a technical system can be in operation during the maintenance task.

  If a maintenance order is generated from the maintenance item, then the capacity requirements records for the assigned PP work center (work center for the *Production Planning* application component) are generated. The production planning sees when maintenance is to be performed and whether or not the technical object concerned, for example, a production system, can be in operation during the maintenance work.

Assigning a Functional Location Task List or Equipment Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list (PM task list) to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

7. On the item data screen, choose *Goto* → *Task list* → *Select task list*.

   You reach a list of the maintenance task lists that are relevant for your technical object and strategy specifications.

   If **only one** task list fulfills the criteria in your maintenance item, a dialog box appears which displays the assigned maintenance packages. Choose *Continue*.

   The system immediately assigns this task list to the maintenance item.

   You save this assignment using *Maintenance item* → *Save*.

8. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto* → *Task list*.

   You reach the maintenance task list.

   You can page through the various screens of the maintenance task list using the *Goto* menu.

9. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit* → *Choose*.

   A dialog box appears which displays the assigned maintenance packages.

10. Choose *Continue*.

    The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

11. To maintain the task list factor or the system condition, choose *Goto* → *Task list details*.

12. Save the assignment using *Maintenance item* → *Save*.

Assigning a General Maintenance Task List

Prerequisites

The following prerequisites must be fulfilled for you to assign a maintenance task list to a maintenance item.

- For time-based and performance-based maintenance plans **with** a strategy, the maintenance task list and the maintenance item must have the **same** strategy.
- The status *Released* must be set.

Procedure

7. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList.*

   You now have three options for choosing a general maintenance task list:

   – For the assembly [Page 95]

   – For the object structure [Page 96]

   – With general criteria [Page 97]

8. When you have chosen one of the above options, the system displays a list of the maintenance task lists that are relevant for your technical object and strategy specifications or correspond to your general criteria.

   If only **one** task list fulfils the criteria in your maintenance item, the system assigns this task list to the maintenance item immediately.
   You save this assignment using *Maintenance item* → *Save*.

9. To **display** a maintenance task list from the list, select the required maintenance task list and choose *Goto* → *Task list*.

   You reach the maintenance task list.

   You can page through the various screens using the *Goto* menu bar.

10. To **assign** a maintenance task list to your maintenance item, select the required maintenance task list and choose *Edit* → *Choose*.

    The system assigns the maintenance task list to your maintenance item and enters the data in the section *Task list data*.

11. To maintain the task list factor or the system condition, choose *Goto* → *Task list details*.

12. Save the assignment using *Maintenance item* → *Save*.

Choosing a General Maintenance Task List Using an Assembly

Use

You can assign a general maintenance task list to a maintenance item using an assembly.

Prerequisites

The assembly and its associated technical object must have already been entered on the item data screen.

Procedure

On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *For assembly*.

Result

The system searches for the general maintenance task lists that contain the specified assembly at header level and have the same strategy specifications.

You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.

If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using an Object Structure

Use

You can assign a general maintenance task list to a maintenance item using an object structure.

Prerequisites

A functional location or piece of equipment must have already been entered on the item data screen.

Procedure

3. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *For object structure*.
4. The system searches through the structure list of the technical object entered. For each assembly found, the system searches for the general maintenance task lists which contain that assembly at header level and have the same strategy specifications.

   You reach a list of the general maintenance task lists that are relevant for your technical object and strategy specifications.

   If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Choosing a General Maintenance Task List Using General Criteria

Use

You can choose a general maintenance task list in a maintenance item using general criteria entered directly, and then assign it to the maintenance item.

Procedure

5. On the item data screen, choose *Goto* → *Task list* → *Select GenTaskList* → *General*.

   You reach a selection screen for maintenance task lists.

6. Make all the necessary entries.

   You will see that certain fields are not ready for input and that others already contain entries. These are fields that the system has processed automatically when you called up the selection.

7. Choose *Continue.*

8. You reach a list of the general maintenance task lists that fulfill your criteria.

   If only **one** general maintenance task list fulfills the criteria in your maintenance item, the system immediately assigns this general task list to the maintenance item.

Profile for a General Maintenance Task List

Definition

A profile which you can use to facilitate the creation of general maintenance task lists from the maintenance plan.

Use

You maintain the profile for the general maintenance task list in order to reach the **operation overview** of the general maintenance task list **directly** when creating a general maintenance task list from the maintenance plan. You thereby reduce the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Structure

The profile for the simplified creation of a general maintenance task list from the maintenance plan contains the following specifications:

- Default values for a task list which you maintain in Customizing.
- The profile number of the task list profile which you define with your personal user defaults.

See also:

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile [Page 99]

Creating a Profile for a Maintenance Task List and Assigning it to the User Profile

Procedure

8. In Customizing, choose *Plant Maintenance* → *Preventive Maintenance* → *Task Lists* → *Control Data* → *Define profiles with default values*.

   You reach the overview screen for profile data of maintenance task lists.

9. You can change an existing profile or create a new profile as required.
10. Select the profile you want to process and choose *Goto* → *Details*.

    You reach the detail view of the profile maintenance.

11. Enter a status in the section *Header data*.
12. Save the profile.
13. Choose *System* → *User profile* → *Own data* → *Parameters*.

    You reach the screen for maintaining user data.

14. Enter the following:

Parameter	Value
PIN	<The number of the profile created or changed>

9. Save your entries.

The changes take effect from when you next log on.

Result

If you create a general maintenance task list from the maintenance plan, the system branches **directly** to the **operation overview** of the general maintenance task list, thereby reducing the entry time. (Normally, the system branches to the general task list header and from there you go to the operation overview.)

Maintenance Strategy

Definition

A maintenance strategy defines the rules for the sequence of planned maintenance work. It contains general scheduling information, and can therefore be assigned to as many maintenance task lists (PM task lists) and maintenance plans as required. A maintenance strategy contains maintenance packages [Page 65] in which the following information is defined:

- The cycle in which the individual work should be performed (for example, every two months, every 3,106.86 miles, every 500 operating hours)
- Other data which affects scheduling

Use

From Release 4.0A, maintenance strategies are optional. If you want to perform simple preventive maintenance in your company, for which **one** maintenance cycle is sufficient, then you can work with single cycle plans [Page 13]. In contrast, you use strategy plans [Page 13] to show complex maintenance cycles.

You create some maintenance plans with a maintenance strategy. The following table shows which maintenance plan types [Page 28] require a maintenance strategy.

Maintenance Plan Type	Maintenance Strategy
Single cycle plan, time-based	No
Single cycle plan, performance-based	No
Strategy plan, time-based	Yes
Strategy plan, performance-based	Yes
Multiple counter plan	No

If you want to use time-based [Page 29] or performance-based [Page 30] strategy plans in your company, you must first define

- Where regular maintenance is required (shown in the system as a maintenance item [Page 68])
- The frequency of these maintenance tasks in terms of performance or time (shown in the system as maintenance packages [Page 65])

For this, you must compare the legal requirements, manufacturer recommendations and costs of preventive maintenance with the cost of a breakdown. You should also consider how you can set up the tasks in a maintenance plan, so that scheduling [Page 113] and maintenance activities are combined most effectively.

Once you have determined the optimum cycles for preventive maintenance, you can define a suitable maintenance strategy. Using the PM application component, you can create strategies which represent the scheduling rules for all the preventive maintenance tasks required within your company. As these strategies contain general scheduling information, they can be assigned to as many different maintenance plans as required.

By using maintenance strategies containing general scheduling information, you can:

- **Reduce maintenance plan creation time**

  You do not need to create the same scheduling information for each maintenance plan.

- **Update scheduling information easily**

  Maintenance packages are referenced. In other words, when you make changes in the maintenance strategy (for example, delete packages, change the preliminary or follow-up buffer), the changes are also valid for the assigned maintenance plans. However, the scheduling parameters are copied into the respective maintenance plan. For more information about the effects of the changes, see Scheduling Parameters [Page 118]).

Structure

A maintenance strategy consists of:

- Strategy header
- Scheduling parameters
- Scheduling indicators
- Maintenance packages

The individual components of a maintenance strategy are explained in detail below:

Strategy Header

- Name of the strategy
- Short text

Scheduling Parameters

The scheduling parameters [Page 118] (for example, call horizon, shift factor) contain the scheduling data for the respective maintenance strategy, with which you can influence the scheduling of maintenance plans. When you create a strategy plan, the system copies this data to the plan where you can change it.

Scheduling Indicators

Within a maintenance strategy, you can use different scheduling indicators to specify the type of scheduling you require or to define a cycle set:

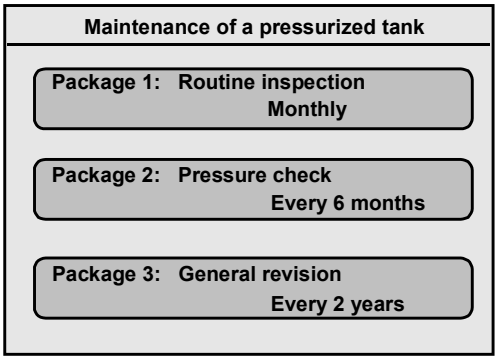
- Time-based [Page 122] (for example, every 30 days)
- Time-based by key date [Page 123] (for example, every 30 days on the 30th day of the month)
- Time-based by factory calendar [Page 124] (for example, every 30 working days)
- Performance-based [Page 125] (for example, every 50 operating hours)

Maintenance Packages

Maintenance activities that must be performed at a particular date or point in time are combined into maintenance packages. These contain, for example, the cycle duration and unit of measurement. For more information, see Maintenance Packages [Page 65].

Maintenance Strategy

You can create a maintenance strategy with three packages for maintaining a



pressurized tank.

You can assign several packages with different cycle durations to a strategy. All packages must have the same dimensions, for example, 'time', 'weight', or 'length'. The packages or maintenance cycles within a strategy have a common basic unit of conversion. This unit corresponds to a particular dimension, for example, 'time', ‘weight’, or ‘length’.

Packages within **one strategy** may have different cycle units, but they all have the **same dimension**.

A strategy contains three packages:

- Every two weeks
- Every 4 months
- Annually

Here, the dimension 'time' has the cycle units 'week', 'month', 'year'.

If you work with hierarchies [Page 135] for packages and several packages are due on the same date, note that one year and twelve months are considered to be of **different** length in the SAP System.

1 year = 365 days; 12 months = 360 days (12 x 30)

Integration

For strategy plans, you can assign a maintenance task list [Page 89] if necessary to a maintenance item in the strategy plan which describes the maintenance tasks to be performed in its operations. The same strategy must be specified in the maintenance task list as in the strategy plan. This means that you can assign the maintenance packages of the assigned maintenance strategy to individual operations in the maintenance task list. For example, you assign the maintenance package "every 6,213.71 miles” to the operation “oil change”.

Through the assignment of maintenance packages to operations, you define the frequency (in this case, every 6,213.71 miles) in which the operations should be performed. For more information, see Assignment of Task Lists to the Maintenance Item [Page 91].

See also

Changing a Maintenance Strategy [Page 104].

Creating a Maintenance Strategy

8. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance strategies* → *Change*.

   You reach the overview screen for changing maintenance strategies.

9. Choose *New entries*

   You reach the detail screen for maintenance strategies.

10. Enter the necessary data. For more information about scheduling parameters, see Scheduling Parameters [Page 118].

11. Call up the entry screen for maintenance packages in the overview tree by clicking twice on *Packages*.

12. Choose *New entries*.

    The system makes the fields ready for input.

13. Enter the necessary data.

14. Save the maintenance strategy.

15. To return to the overview screen, click twice on *Maintenance Strategies* in the overview tree.

If you want to create a **one-time maintenance package**, proceed exactly as described above. However, leave the field for the cycle duration blank, and enter the offset at which maintenance is to be performed, for example, one year and once only.

Changing a Maintenance Strategy

Use

It may be necessary for you to change a maintenance strategy, for example, because you find the best solution for scheduling after a certain period has elapsed. In this case, you can change the scheduling parameters [Page 118] or the cycle in which the maintenance packages [Page 65] should be performed.

After the changes have been made, the activities contained in the maintenance plan are performed in the new maintenance cycle. If you change a package from a 1 month cycle to a 2 month cycle in a strategy, all the maintenance tasks assigned to this package are scheduled at 2 month intervals from now on.

You can use a maintenance strategy in several maintenance plans simultaneously. This means that when you change a maintenance strategy, some changes are copied into all the maintenance plans to which this strategy has been assigned. It therefore makes sense to find out to which maintenance plans a maintenance strategy was assigned by performing a where-used list for maintenance strategies [Page 112] before you make any changes.

For more information about the effects of the changes, see Scheduling Parameters [Page 118].

Procedure

To call up the individual functions in the table, choose *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning* → *Maintenance Plans* → *Change* and select a strategy.

Function	Menu Path/Pushbutton	What You Should Know
Changing a maintenance strategy header	*Goto* → *Detail*	You can change the strategy description and the scheduling parameters [Page 118].
To call up the following functions, click twice on *Packages* in the overview tree.		
Adding maintenance packages	Choose *New entries*.	See Adding Maintenance Packages [Page 106]

Deleting maintenance packages	*Edit → Delete*	Before the system deletes maintenance packages, it performs a series of checks to ensure that the packages are not being used in a maintenance task list [Page 89]. If the packages are being used in one or more task lists, the system issues a message in a dialog box informing you of this, and you will not be able to delete the packages. It is possible to reactivate deleted maintenance packages. However, it is assumed that you have **not** saved the changes after deletion and have **not** exited the transaction (see Reactivating Processed Maintenance Packages [Page 108].
Reactivating deleted, changed and added maintenance packages		Reactivating Processed Maintenance Packages [Page 108]
Copying maintenance packages		See Copying Maintenance Packages [Page 107]
Displaying a list of all **changed** maintenance packages	*Selection → All changed entries*	This function is available if you have **not** saved and have **not** exited the transaction. You can undo changes (see Reactivating Processed Maintenance Packages [Page 108]).
Displaying a list of all **added** maintenance packages	*Selection → All added entries*	
Displaying a list of all **deleted** packages	*Selection → Display deleted entries*	

See also

Deleting a Maintenance Strategy [Page 109]

Adding Maintenance Packages

Use

You want to add new packages to your maintenance strategy [Page 100].

Prerequisites

Always add new maintenance packages **after** existing ones.

Procedure

1. Call up the maintenance strategy in Create or Change mode.
2. Select the strategy which you want to edit and select it in the overview tree by doubleclicking on *Packages*.

   You reach the overview screen for maintenance packages.
3. Choose *New entries*.

   The system makes the fields ready for input.

   The maintenance packages you have previously entered are saved in the background. You will not see them on this screen.
4. Enter the necessary data.
5. Choose *Back*.

   You see the maintenance packages that you have just added and those already contained in the strategy.
6. Save the maintenance packages.

   If you want to create a **one-time maintenance package**, proceed exactly as described above. However, leave the field for the cycle duration blank, and enter the offset at which maintenance is to be performed, for example, one year and once only.

Copying Maintenance Packages

1. Call up the maintenance strategy in Create or Change mode.
2. In the screen *Change maintenance packages: Overview,* select the maintenance package or packages you want to copy.
3. To copy the maintenance package(s) you have selected, choose *Edit* → *Copy as...*
4. The system will ask you to enter your **target entries**.

   Overwrite the numbers of the maintenance packages displayed on the screen with the numbers of the maintenance packages to which you want the data to be copied.

   You want to copy the data from maintenance packages 1 and 2 to the new maintenance packages 7 and 8.

   The system displays maintenance packages 1 and 2 on the screen. Overwrite the numbers 1 and 2 with **7** and **8**, and choose *Continue*. Your data is then copied to the new packages 7 and 8.

   You can only copy the data from existing maintenance packages to new maintenance packages.
5. Make any changes you require to the copied data.

   If you are copying a **single maintenance package**, the system displays the new package after copying has been completed. You can display the other packages by choosing *Goto*.

   If you are copying **several maintenance packages**, the system displays a list of the new packages after copying has been completed. To return to the entire list, choose *Goto* → *Back*.
6. Save the maintenance packages.

Reactivating Processed Maintenance Packages

Use

You can undo changes that you have made to the maintenance packages of a maintenance strategy [Page 100]. For example, when you have deleted maintenance packages or changed existing ones, you can undo the changes and save the packages with your initial entries.

Prerequisites

You can only restore the original field entries before you have **saved and exited the transaction**.

Procedure

1. Display the maintenance packages which you have changed. Choose one of the following options:

   Selection → All changed entries

   Selection → All created entries

   Selection → Display deleted entries

   You see a list of all the maintenance packages which you changed, created or deleted.
2. Select the maintenance packages to which you made changes that you want to undo.
3. To restore the original entries in your maintenance packages, choose *Retrieve*.

Deleting a Maintenance Strategy

Use

If you have the necessary authorization, you can delete a maintenance strategy. When you delete a maintenance strategy, the system performs a series of checks to ensure that the strategy is not being used in a maintenance plan or maintenance task list [Page 89].

You cannot delete a strategy that is being used in a maintenance plan or maintenance task list. The system issues a message informing you the strategy is being used.

If you have accidentally deleted a maintenance strategy, you can reactivate it (see Reactivating Deleted Strategies [Page 110]).

You can only reactivate deleted maintenance strategies if you have **not saved and exited the transaction**.

Procedure

1. In the maintenance planning menu [Ext.], choose *Maintenance strategies* → *Change*.

   You reach the screen *Change Maintenance Strategies: Overview*.

2. Select the strategy or strategies you want to delete.
3. Choose *Edit* → *Delete*.

   If the strategy or strategies still contain maintenance packages, you can:

   - Delete all the strategies selected including their maintenance packages.
   - Delete only the strategies that have no maintenance packages.
   - Cancel the deletion operation.

4. Save the changes by choosing *Table view* → *Save*.

Reactivating a Deleted Maintenance Strategy

Prerequisites

If you have deleted strategies from the overview but **not yet saved** your changes, you can display and, if necessary, reactivate the deleted strategies.

Procedure

1. In the screen *Change maintenance strategies: Overview*, choose *Selection* → *Display del.entries*.

   You see a list of all the maintenance strategies you have deleted.

2. In the list of deleted maintenance strategies, select those which you want to reactivate.

3. To reactivate the strategies, choose *Retrieve*.

   The system reactivates the maintenance strategies selected, and issues an online message indicating how many strategies were reactivated.

Displaying Package Sequence: Maint. Strategy

Use

You can display the package sequence and the due date of the packages graphically for a maintenance strategy [Page 65].

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance strategies* → *Change*.
2. Enter the maintenance strategy you want to display.
3. Choose *Program* → *Execute*.

   You reach the package sequence screen for the specified maintenance strategy.
4. You can display past dates or simulate future dates. To do this, choose:
   - *Previous dates*
   - *Further dates*

Displaying Uses for a Maintenance Strategy

Use

The where-used list for maintenance strategies enables you to establish to which maintenance plans you have assigned a certain maintenance strategy. For example, this can be useful if you want to make changes to a maintenance strategy and want to determine which maintenance plans will be affected by these changes before you perform them.

Procedure

1. Choose *Logistics* → *Plant maintenance* → *Maintenance planning* → *Maintenance strategies* → *Where-used list*.

   You reach the initial screen for where-used lists.

2. Enter the maintenance strategy for which you want to display a where-used list.
3. Choose *Program* → *Execute*.

   You see a list of all the maintenance plans to which the specified maintenance strategy has been assigned.

4. To display the detail data for a maintenance plan, call up the corresponding maintenance plan with a double-click.
5. Exit the display.

Scheduling

Use

You schedule a maintenance plan with which the system generates maintenance call objects [Page 34] (for example, maintenance orders or service orders) for the defined cycles.

Features

When you schedule a maintenance plan for the first time, the start date or the initial counter reading entered triggers the maintenance cycle on the time axis. The following special features are valid for the start date or initial counter reading:

- If you **enter** the start date or initial counter reading in the scheduling parameters, then you can start the automatic deadline monitoring directly for the maintenance plan (see Scheduling a Maintenance Plan automatically [Page 115]).
- If you do **not enter** the start date or initial counter reading in the scheduling parameters, then you must start the scheduling for the maintenance plan manually before you can start the automatic deadline monitoring (see First-Time Scheduling [Page 144]).
- If you have created a maintenance plan with reference to an outline agreement [Page 16] , the system copies the start date automatically from the outline agreement into the scheduling parameters for the maintenance plan.

Scheduling

For each scheduling, the system calculates the due date (planned date) for a maintenance call object based on the scheduling parameters [Page 118] and the maintenance cycles or packages [Page 65] and generates maintenance calls. It ensures that at least one maintenance call has the status *On hold*. When the maintenance call is due, the system generates a maintenance call object for each due maintenance item. Which object the system generates for the due date is determined by the maintenance plan category [Page 32].

Automatic Deadline Monitoring

You can use this function to simplify the generation of maintenance call objects for maintenance plans. Start the deadline monitoring at regular intervals using an internally programmed report (for example, weekly or for a weekly cycle). The system then generates the maintenance call objects according to the cycles defined.

A start date or an initial counter reading must have been entered in the scheduling parameters for the maintenance plan, or you must have already scheduled the maintenance plan once (see First-Time [Page 144] Scheduling).

When you run the deadline monitoring function, the system converts all the maintenance calls, for which the call horizon [Page 129] has been reached, into maintenance call objects. The system also performs a complete rescheduling of the maintenance plan and ensures that maintenance calls are always available for the period which you have defined as the scheduling period [Page 130].

Scheduling

Scheduling period	30 days
Deadline monitoring on:	01. January, 19XX
Scheduling performed up to:	01. February, 19XX

Even if you do not specify a scheduling period in the maintenance plan, scheduling is performed at least once, and the system generates at least one maintenance call. The maintenance plan is automatically extended. You no longer need to schedule the maintenance plan manually using the scheduling function.

Scheduling parameters

You can control special scheduling requirements using the scheduling parameters [Page 118] in the maintenance plan. The system calculates the cycles in which maintenance call objects should be generated, based on these scheduling parameters. The following data is also considered:

- For performance-based or time-based strategy plans: the maintenance strategy [Page 100]
- For single cycle plans: the maintenance cycles [Page 65] defined in the maintenance plan
- For multiple counter plans: the maintenance cycles defined in the maintenance plan

You schedule a maintenance plan which contains a 2-month and a 6-month package. The first due package is the 2-month package. After four months, the 2-month package is due again. After six months, both the 2-month package and the 6-month package are due.

If you specify a scheduling period [Page 130] for a maintenance plan in the scheduling parameters, the system calculates the due dates for this period of time, and generates maintenance calls. For example, you can enter a scheduling period of 365 days or 6 months to obtain an overview of the due dates for the entire year or half year.

Special Scheduling Functions

In some cases, it may be necessary to reschedule the maintenance plan or cancel scheduling. For more information about additional scheduling functions, see Special Scheduling Functions [Page 143].

See also

Completion Confirmation [Page 117]

Rescheduling [Page 116]

Adapting a Planned Date Individually [Page 156]

Changing the Scheduling Parameters for a Maintenance Plan [Page 120]

Scheduling a Maintenance Plan Automatically

Use

You can use automatic deadline monitoring (see Scheduling [Page 113]) to schedule a maintenance plan for the first time or reschedule it (see Rescheduling [Page 116]).

Prerequisites

You have entered a start date or an initial counter reading in the scheduling parameters [Page 118] for the maintenance plan, or you have already scheduled the maintenance plan once (see First-Time Scheduling [Page 144]).

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Deadline monitoring*.

   You reach the initial screen for deadline monitoring.

2. Enter the maintenance plans or maintenance strategies for which the system should perform scheduling.
3. Select either *Call transaction* or *BDC session* (batch input). The *Call Transaction* mode is proposed by the system.
4. Start the program using *Program* → *Execute*.

   The system generates maintenance calls and/or maintenance call objects for the maintenance plan(s) selected.

See also

Displaying Maintenance Call Objects [Page 157]

Rescheduling

Use

A maintenance plan can be rescheduled in the following ways:

- Using automatic deadline monitoring (see Scheduling a Maintenance Plan Automatically [Page 115])
- Using the scheduling function (see Rescheduling a Maintenance Plan [Page 149])

Prerequisites

The prerequisites for rescheduling a maintenance plan depend on the maintenance plan type [Page 28]. The following prerequisites apply regardless of whether it is a single cycle plan or a strategy plan.

Maintenance Plan	Prerequisites
Time-based	None
Performance-based	The overall counter reading of the counter assigned to the maintenance plan is current. If you are rescheduling a performance-based maintenance plan or a multiple counter plan, the system assumes that the counter readings are current and calculates the planned dates accordingly.
Multiple counter plan	

Features

The system generates maintenance calls. For due maintenance calls, for example, for calls where the due date (planned date) has been reached, maintenance call objects [Page 68] are generated for each due maintenance item [Page 34]. The system ensures that at least one maintenance call has the status *On hold*.

Maintenance Calls

For **time-based maintenance plans**, the system calculates the next maintenance calls based on the maintenance cycles or maintenance packages [Page 65] and the scheduling parameters [Page 118].

For **performance-based maintenance plans** and **multiple counter plans**, the system calculates the next maintenance calls based on the maintenance packages or maintenance cycles, the scheduling parameters, the estimated annual performance and the last counter readings.

Maintenance Call Objects

For multiple counter plans, the planned date, for which the system generates a maintenance call object, depends on the link type. In the case of an OR link, the system selects the earliest planned date. In the case of an AND link, the system will select the latest.

Note the confirmation requirement [Page 131] for maintenance call objects when scheduling.

Completion Confirmation

Use

If a due maintenance call has been called, that is, the system has generated a maintenance call object [Page 34] [Page 34] (for example, maintenance order), then the maintenance call has the status [Ext.] *Called*.

The maintenance call only obtains the status *Completed* when:

- The maintenance order (PM order) or service order generated has been technically completed
- The maintenance notification or service notification has been completed
- The service entry sheet generated has been signed off
- You have confirmed the maintenance call in the scheduling function

Scheduling Parameters

Use

You can use the scheduling parameters to adapt the scheduling process to meet your individual requirements.

Features

The maintenance of scheduling parameters is dependent on the maintenance plan type [Page 28].

Maintenance for Single Cycle Plans and Multiple Counter Plans

You maintain the scheduling parameters for single cycle plans and multiple counter plans directly in the maintenance plan.

Maintenance for Strategy Plans

For maintenance plans with a maintenance strategy [Page 100], the system copies the scheduling parameters defined in the strategy to the maintenance plan. The scheduling parameters are default values that you can change in the maintenance plan.

Take account of the following special features for modifications:

- Changes that you perform in the maintenance strategy will not affect the scheduling parameters of existing maintenance plans.
- However, maintenance packages [Page 65] are referenced. In other words, when you make changes in the maintenance packages of the maintenance strategy, (for example, delete packages, change the preliminary or follow-up buffer), the changes are also valid for the maintenance plans to which you have assigned the strategy.

General Information on Maintenance

You can maintain the scheduling parameters in the maintenance plan or in the maintenance strategy. The following table shows which scheduling parameters you can only maintain in the maintenance strategy and which you can maintain in both the strategy and the maintenance plan:

- S: Maintenance only possible in the maintenance strategy
- W, S: Maintenance possible in both the strategy and the maintenance plan

The following scheduling parameters are available for different maintenance plan types:

Scheduling parameters	Single Cycle and Strategy Plan	Multiple Counter	
	Time-based	Performance-based	
Scheduling indicators [Page 121]	W, S		
...for date determination			
Shift factor [Page 126]	W, S	W, S	

Tolerance [Page 127]	W, S	W, S	
Cycle modification factor [Page 128]	W, S	W, S	W, S
...for call control			
Call horizon [Page 129]	W, S	W, S	
Scheduling period [Page 130]	W, S		
Confirmation requirement [Page 131]	W	W	
Others			
Preliminary buffer [Page 132]	S	S	W, S
Follow-up buffer [Page 133]	S	S	
Link type [Page 134]			W, S
Maintenance package hierarchy [Page 135]	S	S	

See also

Changing the Scheduling Parameters for a Maintenance Plan [Page 120]

Changing the Scheduling Parameters

Use

You can modify the scheduling process to meet your individual requirements by changing the scheduling parameters [Page 118] in your maintenance plan accordingly.

Procedure

1. In the maintenance planning menu [Ext.], call up the maintenance plan in Create or Change mode.
2. Enter the necessary data.
3. Choose the tabstrip *Maintenance plan: Scheduling parameters*.
4. Make the desired changes.
5. Save the maintenance plan.

Scheduling Indicators

There are four scheduling indicators in the *Maintenance Planning* component. They are used for the following scheduling options:

- Time-based scheduling [Page 122]
- Scheduling based on a key date [Page 123]
- Scheduling by factory calendar [Page 124]
- Performance-based scheduling [Page 125]

Time-Based Scheduling

If you create a monthly maintenance cycle (one month = 30 days) and have specified time-based scheduling, planned dates are calculated as follows:

Current Date	**21. August, 1999**
1st planned date	20. September, 1999
2nd planned date	20. October, 1999
3rd planned date	19. November, 1999

Planned dates are therefore created every 30 days.

See also

Adapting a Planned Date Individually [Page 156]

Scheduling Based on a Key Date

If you create a monthly maintenance cycle (one month = 30 days) and have specified key-date scheduling, planned dates are calculated as follows:

Current Date	**21. August, 1999**
1st planned date	21. September, 1999
2nd planned date	21. October, 1999
3rd planned date	21. November, 1999

The planned dates always fall on a specific day of each month, in this example on the 21st of each month.

You should not define a key date later than the 28 of a month.

See also

Adapting a Planned Date Individually [Page 156]

Scheduling by Factory Calendar

If you create a monthly maintenance cycle (one month = 30 days) and have specified scheduling by factory calendar, planned dates are calculated as follows:

Current Date	**21. August, 1999**
1st planned date	02. October, 1999
2nd planned date	15. November, 1999
3rd planned date	02. January, 2000

The planned dates therefore have an interval of 30 **working days**. In this example, five days of the week have been defined as work days in the factory calendar.

See also

Adapting a Planned Date Individually [Page 156]

Performance-Based Scheduling

If you create a performance-based maintenance cycle (for example, ‘Every 500 operating hours’), the planned date is calculated based on the estimated annual performance of the counter specified in the maintenance plan and the current counter reading.

If the counter reading at which maintenance should be performed has not yet been reached, the planned date is calculated for each scheduling operation based on the current counter reading and the estimated annual performance.

The estimated annual performance of a car is 7,456.45 mi, that is, 621.37 mi per month.

If, owing to company holidays, the car travels less than the estimated 621.37 mi in a month, the system reacts to this deviation. When scheduling is next performed, the calculated planned date is moved accordingly to a later date.

See also

Adapting a Planned Date Individually [Page 156]

Shift Factor

There are two shift factors in the *Maintenance Planning* component. These are shift factors for the following cases:

- Early completion confirmation
- Late completion confirmation

You can define the shift factor specifically for your maintenance plan by specifying the shift percentage to be taken into account when calculating the next due date.

The shift factor only applies once the maintenance plan has already been scheduled, and when the difference between the planned date and actual date lies outside the tolerance range.

The planned date for your maintenance order was August 1, 1995, but it was confirmed 15 days too late, namely on August 16. The next planned date may now be on a different date since this is dependent on the shift factors entered. Three possible shift factors are shown in the table below:

Shift Factors

Planned Date	Confirmed	Next Planned Date	Shift Factor
01.08.1995	16.08.1995	**01.09.1995**	**0 %**
		16.09.1995	**100 %**
		08.09.1995	**50 %**

Tolerance

There are two tolerance ranges for the scheduling parameters in the *Maintenance Planning* component.

- + Tolerance

  For a **late** completion confirmation, this tolerance defines the time span in which a **positive** deviation between the actual and planned date does not influence any subsequent scheduling.

- - Tolerance

  For an **early** completion confirmation, this tolerance defines the time span in which a **negative** deviation between the actual and planned date does not influence any subsequent scheduling.

You can define the tolerance as a percentage of the smallest cycle in the maintenance strategy which you have assigned to the maintenance plan.

The smallest cycle in the maintenance strategy which you have assigned to the maintenance plan is 30 days. You have defined a tolerance of 10% in the case of **early** completion confirmation. This produces a tolerance of 3 days.

If completion is confirmed no more than 3 days **before** the planned date, the system does not consider this deviation when calculating the next planned date.

Cycle Modification Factor

You can use the cycle modification factor to define the execution time for a maintenance plan individually. To do this, modify the cycle for the maintenance strategy which is generally valid to meet the requirements of the technical system, process or location.

By entering a cycle modification factor, you can lengthen or shorten the cycle specified in the maintenance strategy. A cycle modification factor greater than 1 lengthens the cycle, whereas a factor less than 1 shortens the cycle.

A maintenance strategy with a total cycle duration of 60 days is assigned to the maintenance plan. You want to change that for this plan. Therefore, you enter the cycle modification factor *1.5*.

Cycle according to strategy	60 days
Cycle modification factor	1.5
Result	60 x 1.5 => 90 days

Call Horizon

The call horizon specifies as a percentage when a maintenance call object [Page 34] (for example, a maintenance order) should be created for a calculated maintenance date, that is, the time interval between the confirmation date or start date and the next planned date of a maintenance plan until the maintenance order is created.

You can define a specific call horizon for a time-based or performance-based maintenance plan by entering a percentage of the total maintenance cycle. When you schedule a maintenance plan, the system calculates the next planned date.

The total maintenance cycle is 250 days. If you define a call horizon of 0%, 80% or 100%, the system creates the maintenance order according to the following number of days:

0 %	Immediate call
80 %	Call after 200 days (= 80% of 250 days)
	The start date is April 1, 1995. The maintenance order will be created 200 days later, on November 17, 1995.
100 %	The call is only made once the planned date has been reached

You **cannot** define a call horizon for a multiple counter plan. To ensure that a maintenance order is created before the order start date is reached, you must specify a preliminary buffer in the scheduling parameters. To do this, enter how many days before the start date the maintenance order should be created.

You should **always** specify a call horizon for performance-based maintenance plans.

Scheduling Period

You can define a scheduling period for a **time-based** and **performance-based** maintenance plans. You can use the scheduling period to display a preview of the maintenance dates in the queue.

The scheduling period specifies in days, months, or years the actual length of time over which scheduling will take place. For example, if you want a maintenance plan to be scheduled for the entire year, so that all the calls are generated for this year, you must enter 365 days or 12 months as the scheduling period.

If you work with a call horizon, you should use deadline monitoring [Page 115] to perform further scheduling.

Confirmation Requirement

You can use the indicator *Confirmation requirement* to control when the system generates the next maintenance call object [Page 34].

If you set the indicator, the system only generates the next maintenance call object once the previous call object has been confirmed.

For the call object “maintenance order”, this means that the system only creates the next order if the previous order has been technically completed, or if you have confirmed the call in scheduling.

Do not confuse this indicator with the completion confirmation function at order operation level. These functions work independently of one another.

Preliminary Buffer

The preliminary buffer specifies how long before the due date for the maintenance package the activities can be started, without the subsequent due dates being changed.

You specify a preliminary buffer of 5 days for each maintenance package in the strategy.

The planned date calculated by the system is September 30. The start date proposed in the maintenance order is therefore September 25.

Follow-up Buffer

The follow-up buffer specifies how long after the maintenance package is due the processing of the activities can be finished, without the subsequent due dates being changed.

You specify a follow-up buffer of 5 days for each maintenance package in the strategy.

The planned date calculated by the system is September 30. The end date proposed in the maintenance order is therefore October 5.

Link Type

The link type is an indicator for defining the relationship between the maintenance cycles of a multiple counter plan.

In the case of an **OR link**, an activity will be due as soon as a maintenance cycle finishes.

In the case of an **AND link**, an activity will only be due once the last maintenance cycle has also finished.

A car should be maintained annually and/or every 10,000 km.

If the maintenance cycles are linked using an OR operation, you must maintain the car as soon as one of these conditions is fulfilled: Either one year must have elapsed **or** the car has traveled 10,000 km.

If the maintenance cycles are linked with an AND operation, you must only maintain the car when both conditions are fulfilled: A year must have elapsed **and** the car has traveled 10,000 km.

Maintenance Package Hierarchy

A hierarchy which determines which maintenance packages are performed if several maintenance packages [Page 65] are due at one time.

If the maintenance packages are to be performed together at this time, they must have the same hierarchy number (= value).

If only certain maintenance packages are to be performed at this time, these packages must have a higher hierarchy number (= value) than the others. The system always selects the packages with the highest hierarchy number.

If you work with hierarchies and several packages are due on the same date, note that one year and twelve months are considered to be of **different** length in the R/3 System.

1 year = 365 days; 12 months = 360 days (12 x 30)

Examples

The example explains the due date of maintenance packages with different hierarchies for a period of **one year** (01.01). - 31.12). The strategy assigned to the maintenance plan contains two maintenance packages:

- Package 1: monthly (1M)
- Package 2: every three months (3M)

Example 1

Package 2 belongs to a **higher** hierarchy than package 1.

Package	Due Date	Frequency	Special Features
Package 1	1M	8 times	Packages 1 and 2 are due at the same time four times. Because only the packages with the higher hierarchy number are executed, package 1 is omitted when two packages are due at the same time.
Package 2	3M	4 times	

Example 2

Package 1 and package 2 belong to the **same** hierarchy.

Package	Due Date	Frequency	Special Features
Package 1	1M	12 times	Packages 1 and 2 are due at the same time four times. The same package hierarchy means that both packages are always due. In this case, neither package is omitted when both packages are due at the same time.
Package 2	3M	4 times	

Optimizing Scheduling

Use

The table describes how you can flexibly adjust the dates calculated by the system for the maintenance plans to meet your company's individual requirements.

Adjusting dates for maintenance plans

How Can I…?	Customer Exit	What You Should Know
How can I influence planned deadlines individually?	IPRM0002	You can use this customer exit to specify the next planned dates for **performance-based** and **time-based maintenance plans**. This exit consists of several function modules.
How can I determine a desired date for a planned counter reading, for example, if the date should always occur on a working day? How can I use self-defined forecast models or seasonal models for scheduling?	IPRM0002 Function module: EXIT_SAPLIPM5_001	You can use this customer exit function module to determine the date on which the next planned counter reading should be reached for **performance-based maintenance plans**. For more information, see Example Customer Exit IPRM0002 (1) [Page 139].
How can I determine desired dates, for example, if an inspection should always be due on the first Monday in the month?	IPRM0002 Function module: EXIT_SAPLIPM5_002	You can use this customer exit function module to individually adjust planned dates for **time-based maintenance plans** to meet your company's requirements. For more information, see Example Customer Exit IPRM0002 (2) [Page 140].
How can I show seasonal counter deviations in the system, for example, for ice manufacture or in agriculture?	IPRM0002 Function module: EXIT_SAPLIPM5_002	You can use this customer exit function module to change the estimated annual performance for the counter used in the maintenance plan for **performance-based maintenance plans**. The new counter reading will only be used in scheduling to schedule seasonally varying dates. The annual performance saved in the system is not changed. For more information, see Example Customer Exit IPRM0002 (3) [Page 141].

How can I dynamically change the estimated annual performance?	MEASURE_POINT_UPD_PYEAR	You can use this function module to change the estimated annual performance for the counter used in the maintenance plan for **performance-based maintenance plans**. For more information, see Example Function Module MEASUREM_POINT_UPD_PYEAR [Page 142].
How can I use my own rules to determine which maintenance package should be due next? How can I skip maintenance packages that are not required because they no longer need to be performed based on the current counter reading?	IPRM0005	You can influence the dates for **performance-based strategy plans** using this customer exit. You can determine which maintenance packages are due next, and, for example, which can be skipped on the basis of the counter reading entered using your own rules. For more information, see Example Customer Exit IPRM0002 [Page 138].

See also

Optimizing the Maintenance Plan [Page 36]

Example Customer Exit IPRM0005

The following inspection cycles have been defined for the maintenance strategy of a boring head:

- Package 1: Every 100 operating hours (small inspection)
- Package 2: Every 500 operating hours (large inspection)

Which packages are due for the boring head?

100 h	200 h	300 h	400 h	500 h
Package 1	Package 1	Package 1	Package 1	Package 1
-	-	-	-	Package 2

The last inspection of the boring head was performed after 100 hours. The boring head comes back from the oil platform after 480 operating hours.

Despite the current counter reading of 480 hours, the system still determines *Package 1 at 200 h* as the next maintenance call on the basis of the strategy.

However, as the counter has already reached 480 hours and both a small and a large inspection are due **simultaneously** at 500 hours, you want to skip *Package 1 at 200 h* (as well as *Package 1 at 300 h* and *Package 1 at 400 hours*).

This is possible using customer exit IPRM0005. You can use your own rules to determine which maintenance packages are due next and which can be skipped. If the logic in the customer exit means that packages are skipped, the system performs a start for the cycle for the maintenance plan in the background.

Example Customer Exit IPRM0002 (1)

Customer exit: IPRM0002

Function module: EXIT_SAPLIPM5_001

The system calculates the planned dates for your machine on the basis of the estimated annual performance. You require that the calculated planned dates always fall on a workday - never on Sundays or holidays. This means, for example, that if the next planned date is due on January 1, the system should determine the next workday.

Example Customer Exit IPRM0002 (2)

Customer exit: IPRM0002

Function module: EXIT_SAPLIPM5_002

The system calculates the planned dates for your machine on the basis of the specified cycles. You want to adjust these planned dates to meet your company's individual requirements.

- You require, for example, that the calculated planned dates always fall on a workday - never on Sundays or holidays. This means, for example, that if the next planned date is due on January 1, the system should determine the next workday.
- For example, you require that the date for an inspection and maintenance always occurs on the first Monday in the month.

Example Customer Exit IPRM0002 (3)

Customer exit: IPRM0002

Function module: EXIT_SAPLIPWP3_003

You have created a maintenance plan for an agricultural machine whose performance is subject to strong seasonal fluctuations. 90% of the operating performance occurs in the summer months between May and September

You want the system to take account of these seasonal variations when determining planned dates for maintenance and inspection.

Example Function Module MEASUREM_POINT_UPD_PYEAR

Function module: MEASUREM_POINT_UPD_PYEAR

You want to dynamically change the annual performance of a counter:

- For example, if you want to enter a counter reading, a customer-defined program should automatically update the estimated annual performance in the system.
- A customer-defined forecast program should run periodically or for a specific reason in order to update the annual performance of several counters.

Special Scheduling Functions

Use

If you want to ensure that there is at least one maintenance plan call, or if you want to restart the entire maintenance cycle, for example, you can use one of the special scheduling functions.

Features

The *Maintenance Planning* component offers the following special scheduling functions:

- Scheduling a maintenance plan for the first time [Page 144]
- Confirming a maintenance call [Page 148]
- Rescheduling a maintenance plan [Page 116]
- Canceling scheduling [Page 150]
- Restarting a scheduling function [Page 151]
- Starting scheduling in the current cycle [Page 152]
- Creating a call manually [Page 154]
- Changing the status of a call [Page 167]
- Adapting a planned date individually [Page 156]

First-Time Scheduling

Use

When you schedule your maintenance plan for the first time, you trigger the maintenance cycle. The system uses the scheduling information in the maintenance plan to calculate which maintenance package is due next.

The procedure depends on the type of maintenance plan. You have the following options:

- Scheduling a time-based maintenance plan for the first time [Page 145]
- Scheduling a performance-based maintenance plan for the first time [Page 146]
- Scheduling a multiple counter plan for the first time [Page 147]

For more information on how to cancel scheduling before saving, see Canceling Scheduling [Page 150].

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.

Additional Information

Adapting a Planned Date Individually [Page 156]

Scheduling a Time-Based Maintenance Plan for the First Time

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.

   You reach the *Maintenance Schedule* screen.

3. To start the scheduling function, choose *Edit* → *Start*.

   The system displays the field *Start of cycle* as ready for input.

4. Enter the date on which you want scheduling to start, and choose *Continue*.

   The system automatically calculates the planned dates and call dates based on the maintenance packages [Page 65] and the scheduling parameters [Page 118].

   If necessary, you can cancel scheduling (see Canceling Scheduling [Page 150]).

5. Save the scheduled maintenance plan.

Additional Information

Adapting a Planned Date Individually [Page 156]

Call History [Page 166]

Special Scheduling Functions [Page 143]

Scheduling a Performance-Based Maintenance Plan for the First Time

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.
- The overall counter reading of the counter assigned to the maintenance plan is current.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.

   You reach the *Maintenance Schedule* screen.

3. To start the scheduling function, choose *Edit* → *Start*.

   The system displays the field *Start of cycle* as ready for input.

4. Enter the counter reading at which you want scheduling to start, and choose *Continue*.

   The system automatically calculates the planned date and call date based on the maintenance packages [Page 65], the scheduling parameters [Page 118], the estimated annual performance and the counter reading at the start of the cycle. It then displays the following:

   - Counter reading unit
   - Counter reading at the planned date

   The first planned date cannot be in the past. If it is in the past, then the system sets the planned date as the current date.

   If necessary, you can cancel scheduling (see Canceling Scheduling [Page 150]).

5. Save the scheduled maintenance plan.

Additional Information

Adapting a Planned Date Individually [Page 156]

Call History [Page 166]

Special Scheduling Functions [Page 143] [Page 143]

Scheduling a Multiple Counter Plan for the First Time

Prerequisites

When you schedule a maintenance plan, the following conditions must be fulfilled:

- The scheduling data is maintained.
- The maintenance plan contains at least one maintenance item.
- Task lists are assigned to the maintenance items.
- The overall counter reading of the counter assigned to the maintenance plan is current.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.

   You reach the *Maintenance Schedule* screen.

3. To start the scheduling function, choose *Edit* → *Start*.

   The system uses the current date as the start date and automatically calculates the planned dates based on the maintenance cycles, the scheduling parameters, the estimated annual performance and the last counter readings. It then displays the following:

   - Counter reading units
   - Last counter readings
   - Next planned counter readings and planned dates

   The planned date for which a maintenance order is created depends on the operation type in the multiple counter plan. In the case of an OR operation, the system selects the earliest planned date. In the case of an AND operation, the system will select the latest.

   If necessary, you can cancel scheduling (see Canceling Scheduling [Page 150]).

4. Save the scheduled maintenance plan using *Maintenance plan* → *Save*.

   For more information on how to cancel scheduling before saving, see Canceling Scheduling [Page 150].

Additional Information

Adapting a Planned Date Individually [Page 156]

Call History [Page 166]

Special Scheduling Functions [Page 143]

Confirming a Maintenance Call

Use

When you confirm a maintenance call object [Page 34] (for example, technically completing a maintenance order), then the accompanying maintenance call obtains the status *Completed*.

However, you can also confirm a maintenance call in the scheduling function. This completion confirmation has no effect on the actual maintenance call object.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the necessary data and choose *Continue*.

   You reach the screen for scheduling maintenance plans. The system displays the planned date that should be confirmed next in the *Due planned date* field.

3. Choose *Edit* → *Confirm*.

   The system highlights the *Confirmation* field and proposes the current date as a completion confirmation date.

4. Save the maintenance plan.

   The system confirms the maintenance call. The maintenance call obtains the status *Completed*.

Additional Information

The Call History [Page 166]

Adapting a Planned Date Individually [Page 156]

Rescheduling a Maintenance Plan

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the necessary data and choose *Continue*.

   You reach the screen for scheduling maintenance plans.

3. Choose *Edit* → *Update scheduling*.

   The system calculates the maintenance calls based on the maintenance packages or maintenance cycles [Page 65] and the scheduling parameters [Page 118]. It ensures that at least one scheduling record exists that has the status *On hold*.

   For more information about how to cancel scheduling **before** saving, see Canceling Scheduling [Page 150].

4. Save the maintenance plan.

Additional Information

Adapting a Planned Date Individually [Page 156]

The Call History [Page 166]

Canceling Scheduling

Use

If you have performed a scheduling function and subsequently want to perform a different scheduling function or reschedule your maintenance plan, for example, using different scheduling parameters [Page 118], you must either exit the maintenance plan function without saving your changes or cancel the scheduling function **before** you save.

Procedure

1. On the *Maintenance Schedule* screen, choose *Edit* → *Cancel scheduling*.

   The system issues an online message informing you that the original schedule has been restored.

2. Save the original schedule for the maintenance plan.

Restarting Scheduling

Use

You can restart scheduling for your maintenance plan. This is useful, for example, if there has been a major shutdown in your company and you want to resume maintenance from a new start date.

Procedure

1. In the maintenance planning menu [Ext.], choose *Maintenance Plans* → *Scheduling for Maintenance Plans* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the number of the maintenance plan you want to schedule, and choose *Continue*.

   You reach the maintenance plan scheduling screen.

3. Choose *Restart.*

   If there are still maintenance calls with status 'waiting', the system displays a dialog box. You can decide whether the system should delete or skip the calls.

   The system displays the *Start of cycle* field as ready for input.

4. Enter the date at which you want to restart scheduling (or the counter reading in the case of performance-based maintenance plans) and choose *Continue*.

   The system then calculates the next due packages [Page 65] based on the scheduling information in the maintenance plan. For performance-based maintenance plans, the system also considers the current counter readings.

5. Save the maintenance plan.

Starting Scheduling in the Current Cycle

Use

You can start scheduling in the current cycle for strategy plans [Page 13]. A start in the cycle is normally the start for a maintenance plan during data transfer from an old system. This function is useful, for example, if you previously managed your plant maintenance without an EDP system or with an EDP system other than the SAP System.

Example

The maintenance strategy [Page 100] which you have assigned to your maintenance plan contains two packages [Page 65]:

- 1M: monthly
- 3M: every three months

The table shows when packages are due:

1M	**1M**	1M	1M	1M	1M
		3M			3M

You have carried out maintenance work, and the contents correspond to the monthly package. This appears in bold in the table.

When maintenance is next due you also want to perform measures included in the 3-monthly plan. From a strategic perspective, the function *Start in Cycle* allows you to start from the package you performed previously. This means that you use *Start in cycle* to confirm the monthly package that you just carried out (for example, without a data processing system). The next packages falling due in the example are 1M and 3M.

- You therefore enter two months as the offset.
- For the confirmation date you enter the date when you performed the last maintenance measure.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling for Maintenance Plans* → *Schedule*.

   You reach the initial screen for scheduling a maintenance plan.

2. Enter the necessary data and choose *Continue*.

   You reach the *Schedule Maintenance Plan* screen.

3. Choose *Start in cycle*.

   If there are still maintenance calls with status 'waiting', the system displays a dialog box. You can decide whether the system should delete or skip the calls.

   The system displays the fields *CompConfirmDate* and *Offset* as ready for input.

4. Enter the completion confirmation date of the last package performed, or the counter reading in the case of performance-based maintenance plans.

5. Enter the offset **directly** (in the example this would be 2 MON) or select it using **package selection**.

   a) Choose *Select package*.

      You reach the *Package Sequence* screen and see the maintenance strategy, which is assigned to the maintenance plan, in graphical form.

   b) Select the package that you performed last by placing the cursor on it, and then choosing *Set start offset*.

   c) The system flags the new start offset with a call symbol. Scheduling begins with the package(s) after the start offset (see example).

      If you want to cancel the offset, choose *Reset offset*.

   d) Exit the function.

6. The system calculates the next due packages based on the scheduling information in the maintenance plan. For performance-based maintenance plans, the system also considers the current counter readings.

7. Save the maintenance plan.

Creating a Maintenance Call Manually

Use

A manual maintenance call allows you to include additional dates for maintenance calls without affecting normal scheduling. You can specify the required call date and maintenance packages [Page 65] which should be due on this date.

The call horizon [Page 129] is not considered for a manual maintenance call.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling maintenance plans.

2. Enter the number of the maintenance plan you want to schedule and choose *Continue*.

   You reach the *Maintenance Schedule* screen.

3. Choose *Edit* → *Manual call*.

   The system displays the *Manual call* field as ready for input.

4. Enter the planned date for the manual call and choose *Continue*.

   You reach a dialog box in which you can select the required maintenance packages.

5. Select the maintenance packages that are to be performed for the call date and choose *Copy*.

   The packages selected are copied into the *Packages due* field.

6. Save the maintenance plan.

Changing the Status of a Call

Use

If you have called up the maintenance plan in scheduling mode, you can change the status of a scheduled maintenance call within the call history.

You cannot change the status of manual maintenance call.

Procedure

1. On the *Schedule Maintenance Planning* screen, choose G*oto* → *Display schedule* → *Scheduled calls*.
2. You can define the following statuses:
   - **Save to call**

     To set the status **save to call**, place the cursor on the call status you want to change and choose *Edit* → *Release call*.

     The system releases the call and creates a maintenance call object [Page 34] (for example, maintenance order) when you save.
   - **Fixed**

     To set the status to **fixed**, place the cursor on the call status you want to change and choose *Edit* → *Fix call*.

     The system makes the field *Planned date* ready for input. Enter the planned date on which you want to fix the call, and choose *Continue*.

     The system fixes the call for the date entered.
   - **Skipped**

     To set the status to **skipped**, place the cursor on the call status you want to change and choose *Edit* → *Skip call*.

     The system will ignore this call and no maintenance call object will be created for it.
3. Save the maintenance plan.

Adapting a Planned Date Individually

Use

You can use the customer exit IPRM0002 to adapt a planned date calculated by the system individually, and, for example, represent seasonal variations for counter readings.

Features

The following function modules are available:

- For counter-based maintenance: EXIT_SAPLIPM5_001
- For time-based maintenance: EXIT_SAPLIPM5_002

For more information, see the online help.

Displaying Maintenance Call Objects

Use

When maintenance plans are scheduled, the system generates maintenance call objects [Page 34] (for example, maintenance orders). You define the maintenance call object which should be generated for a maintenance plan in the maintenance plan category [Page 32]. You can display the different maintenance call objects in different ways:

- From the maintenance plan
- From the call history
- Using the list function for the maintenance call object

Procedure

Displaying from the Maintenance Plan or Call History

Function	What You Should Know:
Displaying maintenance orders, maintenance notifications, service orders or service notifications	See Displaying Orders or Notifications [Page 159]
Displaying service entry sheets	See Displaying a Service Entry Sheet [Page 161]

Displaying Using the List Function

The list function is only possible for maintenance call objects which the system has generated using automatic deadline monitoring (see Scheduling [Page 113]).

Function	Menu Path	What You Should Know:
Displaying maintenance orders	*Logistics → Plant maintenance → Maintenance processing → Orders → List editing → <Desired function>*	Select a status. Enter a period of time and the group name [Ext.] (for example, IP1019980101) as *Created by*. Choose *Program → Execute*.
Displaying service orders	*Logistics → Service management → Call management → Orders → List editing → <Desired function>*	

Displaying Maintenance Call Objects

Displaying maintenance notifications	*Logistics* → *Plant maintenance* → *Maintenance processing* → *Notifications* → *List editing* → *<Desired function>*	Select a status. Enter a period of time and the group name [Ext.] (for example, IP1019980101) as *Reported by*. Choose *Program* → *Execute*.
Displaying service notifications	*Logistics* → *Service management* → *Call management* → Notifications → *List editing* → *<Desired function>*	

Displaying Orders or Notifications

Prerequisites

If a maintenance call has the status *Called* or *Completed*, a maintenance call object [Page 34] (here, maintenance order, service order, maintenance notification or service notification) exists in the system for that call. You can display maintenance call objects from the call history or the maintenance plan.

Displaying from the Call History

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule.*

   You reach the initial screen for scheduling maintenance plans.

2. On the screen *Schedule Maintenance Plan*, choose:
   Goto → *Display schedule* → *Scheduled calls* or
   Goto → *Display schedule* → *Manual calls.*

   You reach the call history with the scheduled maintenance calls for the **current system date**.

   If you want to display **older** maintenance calls, choose *Edit* → *Selection date* and enter the required selection date.

   The system displays the list according to the selection date.

3. Select the call for which you want to display the maintenance call object, and choose *Goto* → *<Order/notification>*.

   Depending on the number of maintenance items assigned to the maintenance plan, you reach one of the following screens:

Number of Maintenance Items	Screen
One	Order header
More than one	List of all the maintenance call objects for the different maintenance items Select the maintenance item for which you want to display the maintenance call object, and choose *Goto* → *Maintenance item details*.

4. Return to the call history.

Displaying the Last Call from the Maintenance Plan

1. In the maintenance planning menu [Ext.], choose *Maintenance plans* → *<Change/Display>*.

   You reach the initial screen for displaying or changing maintenance plans.

2. Enter the number of the maintenance plan you want to display or change.

   Depending on the number of maintenance items assigned to the maintenance plan, you reach one of the following screens:

Displaying Orders or Notifications

Number of Maintenance Items	Screen
One	Item data screen
More than one	Maintenance plan overview Select the maintenance item you want to edit and choose *Goto → Maintenance item details*.

3. Choose *Environment → Last call*.

   The system displays the last order generated or the last notification generated.

Displaying a Service Entry Sheet

Use

If a maintenance call has the status *Called* or *Confirmed*, a service entry sheet exists in the system for this call. You can display the service entry sheets created for a purchase order number from the call history or from the maintenance plan.

Displaying from the Call History

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Schedule*.

   You reach the initial screen for scheduling maintenance plans.

2. Enter the number of the maintenance plan you want to display.

   You reach the scheduling screen for maintenance plans.

3. Select one of the following options:
   Goto → *Display schedule* → *Scheduled calls.*
   Goto → *Display schedule* → *Manual calls*.

   The system displays the scheduled maintenance calls for the **current system date**.

   If you want to display **older** maintenance calls, choose *Edit* → *Selection date* and enter the required selection date.

   The system displays the list according to the selection date.

4. Select the call for which you want to display the service entry sheet and choose *Goto* → *Service entry sheet*.

   You reach the service entry sheet.

5. If you want to display the purchase order for the service entry sheet, choose *Environment* → *Purchase order*.

   You reach the screen for displaying the purchase order.

6. Return to the call history.

Displaying the Last Call from the Maintenance Plan

1. Choose *Maintenance plans* → *<Change/Display>*.

   You reach the initial screen for displaying or changing maintenance plans.

2. Enter the number of the maintenance plan you want to display or change.

3. Choose *Environment* → *Last call*.

   The system displays the service entry sheets which have been created for the same purchase order number.

See also

MM-Service [Ext.]

Displaying Objects for an Outline Agreement

Use

If a maintenance plan has been created for an outline agreement item, you can define a period of time for the outline agreement or for the outline agreement item, and display the objects available. You can display the following objects:

- Maintenance items
- Maintenance plan calls as a list or graphic
- Notifications
- Orders

Procedure

1. Choose *Logistics* → *Service management* → *Contracts and planning* and then *Contracts* → *Contract* → *Environment evaluations* → *Evaluation*.

   You reach the initial evaluation screen.

2. Enter the necessary data and select the objects which you want to display for the outline agreement or the outline agreement item.
3. Choose *Execute*.

   The system displays the objects for the first object group selected (for example, maintenance items).

4. Use *Back* to return each time to the objects for the next object group selected.

Scheduling Overview

Use

To obtain an overview of the maintenance calls and maintenance call objects [Page 34] (for example, maintenance orders), you can display and edit the scheduling overviews.

Features

The different scheduling overviews are as follows:

- Call history
- **Graphical** scheduling overview
- Scheduling overview as **list**

Call History

The call history provides you with an overview of the calls which the system has generated for a maintenance plan using the scheduling function. This overview displays both scheduled and manual call dates. This is particularly important for critical technical systems, for example, in the case of unforeseen shutdowns or damage which could affect the past of future call dates.

When you generate a call in a maintenance plan, the system records all the calls in one of two displays:

- Call history of scheduled calls
- Call history of manual calls

The call history contains the following data:

- Planned date [Ext.]
- Maintenance packages [Page 65]
- Scheduling type [Ext.]
- Status [Ext.]
- Call date [Ext.]
- Actual deviation [Ext.]

For more information, see Calling Up a Call History [Page 166].

Graphical Representation

The graphical scheduling overview provides information about maintenance calls, maintenance call objects, maintenance items and the capacity load for work centers concerned, which result from the maintenance plans.

The graphical scheduling overview consists of the following components:

- **Graphical maintenance scheduling overview**

  This overview provides information in graphical form about the call dates and maintenance call objects associated with the maintenance items contained in the overview.

- **Graphical representation of the capacity load**

  The graphical representation of the capacity load provides information in graphical form about the capacity required by the maintenance items for the:

  – Individual work centers

  – Chosen period of time (for example, daily, weekly, monthly)

- **Detail screen(s)**

  You can display detail screens (for example, the order or the notification) for all the maintenance calls or maintenance call objects contained in the scheduling overview.

The graphical scheduling overview is available for time-based and performance-based maintenance plans and multiple counter plans. You can display the graphical scheduling overview in the following ways:

- From the maintenance planning menu [Page 172]
- From the maintenance plan [Page 170]
- Using list editing [Page 171]

For more information, see Simulating Changes in the Scheduling Overview [Page 177], Shifting a Call Date in the Scheduling Overview [Page 179] and Change of a Call in the Scheduling Overview [Page 180].

List Representation

You can use the scheduling list to display all the dates for conditions defined by you, for example, for a piece of equipment, a maintenance plan number, a specific start date.

- **Maintenance item overview list**

  The schedule list provides information about the call dates and maintenance call objects for the conditions defined by you.

- **Detail screen(s)**

  You can display detail screens for all of the maintenance calls or maintenance call objects contained in the scheduling overview.

For more information, see Displaying a Scheduling List [Page 169].

Additional Information

Variant Maintenance for Scheduling Overview [Page 174]

Calling Up a Call History

Use

You can display scheduled and manual calls, which have been generated using the scheduling function, from the *Maintenance Schedule* screen.

Procedure

1. In the maintenance planning menu [Ext.], call up the Change, Display or Schedule transaction, using one of the following menu paths:

   Maintenance plans → *Change*

   Maintenance plans → *Display*

   Scheduling → *Schedule*

2. Enter the number of the required maintenance plan and choose *Continue*.

   You reach the *Maintenance Schedule* screen.

3. To display the call history, choose one of the following options:

   Goto → *Display schedule* → *Scheduled calls*

   Goto → *Display schedule* → *Manual calls*

Additional Information

Changing a Status [Page 167]

Displaying a Scheduling Algorithm [Page 168]

Changing the Status of a Call

Use

If you have called up the maintenance plan in scheduling mode, you can change the status of a scheduled maintenance call within the call history.

You cannot change the status of manual maintenance call.

Procedure

3. On the *Schedule Maintenance Planning* screen, choose G*oto* → *Display schedule* → *Scheduled calls*.
4. You can define the following statuses:
   - **Save to call**

     To set the status **save to call**, place the cursor on the call status you want to change and choose *Edit* → *Release call*.

     The system releases the call and creates a maintenance call object [Page 34] (for example, maintenance order) when you save.
   - **Fixed**

     To set the status to **fixed**, place the cursor on the call status you want to change and choose *Edit* → *Fix call*.

     The system makes the field *Planned date* ready for input. Enter the planned date on which you want to fix the call, and choose *Continue*.

     The system fixes the call for the date entered.
   - **Skipped**

     To set the status to **skipped**, place the cursor on the call status you want to change and choose *Edit* → *Skip call*.

     The system will ignore this call and no maintenance call object will be created for it.
4. Save the maintenance plan.

Displaying a Scheduling Algorithm for a Maintenance Call

Use

For each scheduled call in the call history, the system has created a scheduling algorithm. This algorithm provides an overview of the scheduling information that determined a particular maintenance call.

The scheduling algorithm displays:

- Scheduling parameters
- Status
- Actual dates
- Planned dates
- Shift factor

Since the actual and planned confirmation dates are displayed in the scheduling algorithm, you can easily compare deviations between these dates, and if necessary, specify to what extent they should be taken into account when you reschedule your maintenance plan.

Procedure

1. On the *Schedule Maintenance Plan* screen, choose *Goto* → *Display schedule* → *Scheduled calls*.
2. To display the scheduling algorithm for a maintenance call, place the cursor on the call and choose *Goto* → *Algorithm*.

   The system displays the scheduling algorithm for the call you selected. You can display the scheduling algorithms for other calls in the call history by using one of the following menu paths:

   Goto → *Next algorithm*

   Goto → *Previous algorithm*

   The system issues an online message informing you when the first or the last call date has been reached.
3. To leave the algorithm display, choose *Goto* → *Back*.

Displaying a Scheduling List

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Scheduling overview* → *List*.

   You reach the screen where you can define selection criteria.

2. Enter the necessary data and choose *Program* → *Execute*.

   You reach the screen *Maintenance Item: Scheduling List*.

Displaying a Scheduling Overview from the Maintenance Plan

1. In the maintenance planning menu [Ext.], choose one of the following options:

   Maintenance plans → *Display*

   Maintenance plans → *Change*

   Scheduling → *Schedule*

2. Enter the number of the required maintenance plan and choose *Continue*.

   You reach the *Maintenance Schedule* screen.

3. To display the graphical maintenance scheduling overview, choose *Extras* → *Maintenance item overview*.

   The system displays the graphical maintenance scheduling overview.

   If you have called up the scheduling overview using *Schedule* or *Change maintenance plan*, you cannot make any changes.

   If you display the graphical maintenance scheduling overview **directly** from the maintenance plan, you can make changes.

   For more information, see Displaying a Graphical Scheduling Overview or Simulation Directly [Page 172].

See also:

Working with the Graphical Scheduling Overview [Page 175]

Variant Maintenance for Scheduling Overview [Page 174]

Displaying a Scheduling Overview Using List Editing

Procedure

You can also use the list editing functions for maintenance plans and maintenance items to display the scheduling overview:

1. In the maintenance planning menu [Ext.], choose one of the following options:

   Maintenance plans → *List editing* → *Change*

   Maintenance plans → *List editing* → *Display*

   Maintenance plans → *Maintenance items* → *List editing* → *Change*

   Maintenance plans → *Maintenance items* → *List editing* → *Display*

   You reach the selection criteria screen.

2. Enter the necessary data and start the program by using *Program* → *Execute*.

   The system creates a list of maintenance items or maintenance plans which correspond to your criteria.

3. Select the maintenance items or plans you require and choose *Goto* → *Scheduling overview*.

   The system displays the graphical maintenance scheduling overview and simulation.

   For more information about the scheduling overview, see Working with the Graphical Scheduling Overview [Page 175].

   If you display the graphical maintenance scheduling overview in list editing mode, you cannot make any changes.

   If you display the graphical maintenance scheduling overview **directly** from the maintenance plan, you can make changes.

   For more information, see Displaying a Graphical Scheduling Overview or Simulation Directly [Page 172].

See also:

Variant Maintenance for Scheduling Overview [Page 174]

Displaying the Graphical Scheduling Overview or Simulation Directly

Use

If you display the scheduling overview from the *Maintenance Planning* menu, you can use other object selection criteria to display additional information in the scheduling overview. For example, you can display a scheduling overview containing the following data:

- Pieces of equipment
- Maintenance orders

You can also define the period of time for which you want to view the scheduling and capacity load by entering a start and end date.

Procedure

1. In the maintenance planning menu [Ext.], choose *Scheduling* → *Maintenance scheduling overview* → *Graphical*.

   You reach the *Selection Criteria* screen.

2. The options available include:

   – In the section *General object selection*, select all the objects which should be included in the scheduling overview.

   – Select *With task list* if you want to display the maintenance task list assigned to the maintenance item with due packages and operations.

   The display is very performance-intensive.

   – Enter a start and end date to limit the period for which you create the scheduling overview.

   – If you select *Additional date*, the scheduling overview can simulate other call dates for the rest of the analysis period.

   – If you select *With object list*, the scheduling overview selects maintenance items that have an object list.

   – Make the necessary entries in the section *Maintenance item selection*.

   – Select *Maintenance plan simulation* or *Maintenance item overview* in the section *Maintenance scheduling overview start screen*.

3. Choose *Program* → *Execute*.

   You reach the graphical maintenance scheduling overview or maintenance plan simulation for the maintenance item(s) selected.

4. To change the selection of displayed objects subsequently, choose *Environment* → *Object setting*.

See also:

Working with the Graphical Scheduling Overview [Page 175]

Simulating Changes in the Scheduling Overview [Page 177]

Change of a Call in the Scheduling Overview [Page 180]

Variant Maintenance for Scheduling Overview [Page 174]

Variant Maintenance for Scheduling Overview

Use

You can use the variant maintenance to define the selection criteria for the graphical scheduling overview and the scheduling overview as a list individually.

Features

Three variants are available in the *Maintenance Planning* component. The table list the variants in the order of priority in which they are considered by the system. If, for example, a user variant (= priority 1) is created, then it is displayed; if no user variant exists, the system displays the standard variant (= priority 2).

Variant Priorities

Priority	Type of Variant	Special Features
1	User variant	Begins with *U_*
2	Standard variant	– Begins with *SAP_* – Setting in Customizing – Valid for all users
3	Standard system	Display period for the graphic: Current date plus three months

Activities

You maintain a standard variant for the **list display** in the Customizing of Maintenance Planning under *Plant Maintenance → Preventive Maintenance → Maintenance Plans → Set list editing for maintenance item dates*.

You maintain a standard variant for the **graphic display** in the Customizing of Maintenance Planning under *Plant Maintenance → Preventive Maintenance → Maintenance Plans → Set list editing for maintenance plan overview*.

Working with the Graphical Scheduling Overview

Overview

The graphical scheduling overview consists of three components:

- Graphical scheduling overview
- Graphical representation of the capacity load
- Detail screen(s)

The graphical representation of the capacity and the detail screen can only be displayed from the graphical maintenance scheduling overview. The following sections explain the individual components of the scheduling overview.

Graphical Scheduling Overview

The graphical scheduling overview displays colored blocks which represent the following objects:

- Call dates for individual operations
- Operation status

For example:	**Called**
	On hold

- Maintenance orders created
- Maintenance orders executed

The different colors represent the different statuses, and are explained in the legend. To call up the legend, choose *Settings → Legend*.

Detail Screen(s)

You can click on each symbol to display it in detail. The system displays the detail screen for the selected object. For example, you see the task list operation, order operation, order header and maintenance packages (if you do not display any task lists).

To exit the detail screen, choose *Graphics → Back.*

Capacity Load

1. To display the capacity load, choose one of the following options:

   Environment → Daily capacity load

   Environment → Weekly capacity load

   Environment → Monthly capacity load

   The system displays a business graphic of the capacity load for the period of time you specified.

2. You can display the capacity load in 2D or 3D. Choose one of the following options:

   Settings → 2D settings

   Settings → 3D settings

Working with the Graphical Scheduling Overview

3. To display an overview, choose *Goto* → *Overview*.

See also:

For more information about working with graphics in the SAP System, see *BC - SAP Graphics: User Manual*.

Simulating Changes in the Scheduling Overview

Use

In the simulation mode of the scheduling overview, the graphical maintenance plan simulation of the scheduling overview, you can simulate certain changes to the information displayed at maintenance plan level.

This is very useful if you want to see the effect that shifting call dates has on the maintenance plan, or if you want to level off the capacity load interactively in the individual work centers.

The following table shows the functions possible in the maintenance scheduling overview:

Counter-based strategy plan, single cycle plan or multiple counter plan	**Time-based strategy plan, single cycle plan or multiple counter plan**
Change status	Change status
	Change dates

Possible Simulated Changes

You can simulate the following changes at maintenance plan level:

- **Date shift**

  You can shift dates provided that the call sequence is maintained. You cannot skip over earlier or later call dates. You can:

  – Shift a selected date and all subsequent call dates (status **Fixed**)

  – Shift only the selected call date (status **Fixed**)

- Status change for individual maintenance plan calls

  You can change the status to:

  – **Released** (with order creation for each maintenance item)

  – **Skipped**

- Status change for maintenance plans

  You can change the status to:

  – **Locked**

  – **Inactive**

  – **Deletion flag**

Simulating Changes

1. Call up the scheduling overview directly [Page 172] from the maintenance planning menu [Ext.].

If you are already in the graphical maintenance item overview (and have called it up directly), you can switch to the maintenance plan simulation. To do this, choose *Environment* → *Maintenance plan simulation*.

2. You reach the maintenance plan simulation graphic.
3. Using the *Edit* menu, you can simulate the following changes:
   - Date Shift [Page 179]
   - Status Change [Page 180]

   For multiple counter plans, you can change the status, but it is not possible to simulate scheduling.

Resetting Simulated Changes Again

If you do not want the changes you have simulated to be transferred, you can:

- Exit the graphic

  The simulated changes are not saved.

- Choose *Environment* → *Reset*

  The original call dates are restored, and the colored blocks reassigned their original color.

Saving Simulated Changes

If you want to save the changes you have simulated, choose *Graphic* → *Save*.

The simulated changes are saved immediately. For example, if you have shifted a call date, the new (shifted) date becomes the new call date when you save, and is indicated accordingly in the graphic.

Shifting a Call Date in the Scheduling Overview

1. In the maintenance plan simulation graphic, choose *Edit* → *Move*.
2. Select the colored block representing the date you want to shift and move it to the required date using the left mouse button.
3. Release your mouse button.

   A dialog box appears asking you whether you want to shift the date selected and all subsequent dates, or whether you only want to shift the selected date.
4. Choose the shift type you require. You return to the maintenance plan simulation graphic, on which you can see all the dates which have been moved. The color of the block has also changed, so you can see that this is a simulation.

Changing a Call in the Scheduling Overview

Use

In the scheduling overview, you can change maintenance calls for time-based and performance-based maintenance plans and for multiple counter plans.

Procedure

1. In the maintenance plan simulation graphic, choose *Edit* → *Choose.*
2. Click on the call date for which you want to change the status.

   You see the dialog box *Change status of calls*.
3. Choose the status you want to assign to your selected call.

   You can assign the following statuses to calls:

   - Released
   - On hold
   - Skipped

   You can assign the following statuses to maintenance plans:

   - Active/inactive
   - Deletion flag

   The color of the block you selected changes to indicate that a status change has been simulated.

Maintenance Plan Costing

Use

You can determine the expected costs for maintenance plans for a period using maintenance plan costing (see also Example of Maintenance Plan Costing [Page 185]).

Prerequisites

The following prerequisites must be fulfilled:

- The maintenance plans are scheduled.
- In Customizing for the maintenance plan category [Page 32], the *maintenance order* or *service order* is configured as the maintenance call object [Page 34].
- The maintenance plan does **not** have the status *Inactive* or *Deletion flag*.
- The following data is specified in the task list for the operations:
  - The working time and/or materials with prices
  - A work center to which an activity type is assigned
- Tariffs are assigned to the activity type.

Features

The system determines the costs to be expected for the specified period as follows:

- It calculates on the basis of existing calls in the maintenance plans.
- It then simulates maintenance calls and the corresponding maintenance or service orders. The expected costs are also determined from this.

The costs determined are planned costs and not actual costs, and are determined from the following sources:

- The maintenance packages and cycles [Page 65]

  These contain the time or performance condition when maintenance must be performed.

- The assigned task list [Page 89]

  This contains the activities to be performed together with the corresponding quantities (for example, internal and external services, required materials).

  The system does not determine any overhead costs. You cannot perform a costing for multiple counter plans.

When costing for strategy plans, note the following:

- The system notes calls that are already available.
- These calls are determined according to when packages fall due. If a package is no longer valid, (for example, because the task list was exchanged or the package in the task list was deleted) then costing cannot be performed. The system must once again determine the costs in the operations (these costs arose when the original package was due). This assignment is

no longer possible when a task list has been exchanged or an original package has been deleted.

The system uses the currently valid tariffs for the cost tariffs on which the costing is based. These tariffs are calculated from the activity type and cost center. If you have changed tariffs for the future, these will not be considered by the system which also uses the current tariffs here.

You will find additional information on

- Maintenance plan costing under Costing a Maintenance Plan [Page 183]
- Changing the maintenance plan costing display in the documentation *CO - Product Cost Planning*.

Costing Maintenance Plans

Prerequisites

For more information about the prerequisites, see Maintenance Plan Costing [Page 181].

Procedure

To call up individual functions in the table, choose one of the following menu paths:

- *Logistics* → *Plant Maintenance* → *Planned Maintenance* → *Maintenance Planning*
- *Logistics* → *Customer Service* → *Service Agreements* → *Maintenance Planning*

Function	Menu Path	Special Features
Costing in the maintenance plan	*Maintenance Plans* → <*Change/Display*> and then *Extras* → *Costing*	The system calculates the costs for the maintenance plan. The system does not save the costing.
Costing in list editing for maintenance items	*Maintenance Plans* → *Maintenance Items* → *List Editing* → <*Change/Display*>	Select the desired maintenance items in the list of results, and choose *Costing*. When performing costing using the list editing function, you can select the maintenance plans based on different criteria. The system does not save the costing.
Maintenance plan costing (**online**)	*Scheduling* → *Maintenance plan costing*	You can only execute costing for **one** maintenance plan. The system does not save the costing.

Maintenance plan costing **(in the background)**	*Scheduling → Maintenance plan costing → Execute in background*	You can execute costing for **one** or **mor**e maintenance plans. The system saves the costing specific to the user together with the date on which it was performed in a file (INDX). As soon as you execute costing in the background in your name again, the system overwrites the user-specific data.
The following functions are available if you have executed costing **in the background**:		
Displaying selected maintenance plans	*Selected maintenance plans*	Displays the maintenance plans considered by the system during the last costing performed by the user.
Displaying costing	*Display costing*	Displays costing with the expected costs from planned maintenance in the specified analysis period.
Displaying the last error log	*Last error log*	Displays the error log for the last costing.
Displaying administrative data	*Administrative data*	Displays the date of the last costing saved.

For more information about changing the maintenance plan costing display, see *CO - Product Cost Planning*.

Example of Maintenance Plan Costing

In this example, maintenance plan costing is performed for a **one-year** analysis period from 01.01 to 31.12. The strategy assigned to the maintenance plan contains two maintenance packages:

- Package 1: Every month (1M)
- Package 2: Every three months (3M)

The following calculations take different package hierarchies [Page 135].

Determination of the frequency for Calculation 1

Package 2 belongs to a **higher** hierarchy than package 1.

Package	Due Date	Frequency	Special Features
Package 1	1M	8 times	Packages 1 and 2 are due at the same time four times. Because only the packages with the higher hierarchy number are executed, package 1 is omitted when two packages are due at the same time.
Package 2	3M	4 times	

Determination of the frequency for Calculation 2

Package 1 and package 2 belong to the **same** hierarchy.

Package	Due Date	Frequency	Special Features
Package 1	1M	12 times	Packages 1 and 2 are due at the same time four times. The same package hierarchy means that both packages are always due. In this case, neither package is omitted when both packages are due at the same time.
Package 2	3M	4 times	

Determination of Costs

1. The system totals the maintenance calls determined for a specified analysis period (= frequency) for each scheduling combination.
2. The service simulates a maintenance or service order for each maintenance call.
3. The costs to be expected are derived from the multiplication of quantities and values (for example, (internal/external service, required materials) and the determined frequency.

Status Management

Use

This function informs you about the status of the maintenance plans and their meaning.

Features

The system statuses for the maintenance plan are set internally by the system within the general SAP R/3 Status Management. For example, the system sets the status *Created* if you create a maintenance plan, or it sets the status *Deletion flag* if you flag a maintenance plan for archiving.

Status “Created”

- **Prerequisites**

  The maintenance plan is created.

- **Effects**

  Changes to the maintenance plan, the assignment of a maintenance item and maintenance task list as well as the scheduling of the maintenance plan are possible.

- **Special features**

  None.

Status “Deletion flag”

- **Prerequisites**

  None.

- **Effects**

  You mark a maintenance plan for archiving with the status *Deletion flag*. The system does not generate any further maintenance calls for this maintenance plan. The maintenance plan can no longer be scheduled.

- **Special features**

  You can reset the status as required.

Status “Deleted”

- **Prerequisites**
  - The maintenance plan has the status *Deletion flag*.
  - All the maintenance calls for the maintenance plan which are called have the status *Completed*.
  - If you use maintenance plans for pieces of equipment of category *Production resources/tools* (PRT equipment) in your company, and you set the indicator *Use in PRT equipment* in the initial run variant, the maintenance plan can also no longer be used in PRT equipment. For more information, see Variant Settings for the Initial Archiving Run (PM-PRM-MP) [Ext.].

- **Effects**

The status *Deleted* is set by the initial run program for archiving.

- **Special features**

  You can no longer reset the status.

Status “Inactive”

- **Prerequisites**

  The status *Deletion flag* cannot be set for the maintenance plan.

- **Effects**

  If you set the status *Inactive* for a maintenance plan, it can no longer be scheduled. This means that the system does not generate any maintenance calls or maintenance call objects for this maintenance plan.

  From Relase 4.0A, the status *Inactive* replaces the field *Lock for calls* which you could set in the maintenance plan using *Goto* → *Maintenance plan additional data*. The system automatically converts the previous indicator to the status *Inactive*.

- **Special features**

  You can reactivate the maintenance plan if necessary.

Displaying Status Information

1. From the maintenance planning menu [Ext.], choose *Maintenance plans* → *<Change/Display>*.

   You reach the initial screen for changing or displaying maintenance plans.

2. Enter the number of the maintenance plan you want to change or display, and choose *Continue.*

   You reach the item data screen.

3. Choose *Extras* → *Status info*.

   You reach the status screen where you see all the active statuses for the maintenance plan.

Document Flow

Use

The document flow shows the development of a PM or CS document and provides an overview of preceding and subsequent documents and their status.

The individual documents form document chains. All preceding and subsequent documents will be shown for each document you call up.

Document	Date	Status
Contract 40000149	30.03.1998	open
. Notification 300001256	23.03.1998	in process, assigned to order
.. Order 905580	23.03.1998	open, pre-costed
.. Sales order 2155	24.03.1998	completed
... Delivery 80001132	24.03.1998	completed
.... Goods movement 49008835	24.03.1998	completed
.... Invoice 900001082	24.03.1998	completed

Integration

The document flow includes notifications and orders for the application components Customer Service (CS), Plant Maintenance (PM) and Quality Management (QM).

Within the logistics supply chain, the document flow is integrated with the application components

- Materials Management (MM)

  for example, via purchase requisitions or goods receipt documents, and
- Sales and Distribution (SD)

  for example, via invoices or credit memos.

Features

You can display the following objects in the document flow:

- Service contract
- Maintenance plan item
- Service notification
- Service order
- Paging object (for example, a document)

Document Flow

- Purchase requisition
- Purchase order
- Sales order
- Confirmation in time
- Debit memo request
- Debit memo
- Returns
- Returns delivery
- Credit memo request
- Invoice
- Invoice cancellation
- Credit memo
- Credit memo cancellation
- Delivery
- Goods movement
- Goods movement cancellation

Document Selection

Use

This function enables you to display a specific document and its position within the document flow.

You can for example search for an invoice using the invoicing number, for a sales order using the sales document or for a service notification using customer data.

Features

In the *Document Flow Display* screen, you can specify criteria for selecting documents as well as filter criteria for displaying data.

If you select the field *Object links,* the system will display the existing links in a dialog box. This concerns documents that are not directly part of the document flow but that are assigned to a specific document (for example because they were used as a copy model or reference object).

Activities

Use the menu bar sequence *Service processing* → *History* → *Document flow list* to display the document selection.

After you have made your selection the *Document Flow* screen is displayed. You can select the desired document in this screen and use the menu bar sequence *Environment* → *Display document* to display the detail data or the sequence *Environment* → *Object links* to display the existing object links.

Displaying Document Flow for Notifications or Orders

1. Depending on the application component in which you are working, select one of the following menu paths:

- *Logistics* → *Plant Maintenance* → *Maintenance Processing*
- *Logistics* → *Customer Service* → *Service Processing*

2. Call up the notification or order in the display or change mode.
3. In the notification or order, use the menu bar sequence *Extras* → <*Notification documents*/*Order documents*> → *Document flow*.

   The *Document Flow* screen appears.

   If object links already exist for a notification or order, the dialog box *Display Object Links* will first be displayed. You can display objects that are linked to the notification or order by selecting the relevant object type and choosing *Select*.
4. You can select the desired document and display in it in the *Document Flow Display* screen using he menu bar sequence *Environment* → *Display document*.
5. If object links already exist for a notification or order, the documents are highlighted in green in the list. You can display objects that are linked to the notification or order by selecting the relevant object type and using the menu bar sequence *Environment* → *Object links*.

Obtaining Maintenance Contract Information from the Document Flow

Use

Using this function you can call up all necessary information on the maintenance contract within the document flow on the screen *Display document flow*.

Integration

The system automatically branches out into the PM - Maintenance Planning function.

Prerequisites

A maintenance contract must be shown in the document flow.

Features

You can call up the following information:

- Maintenance items
- Maintenance calls
- Generated orders and notifications

Activities

Select the maintenance contract in the list of documents. Then use the menu bar sequence *Environment* → *Maintenance contract*.