HR310 Time Evaluation With Clock Times

HR310

Release 640   04/06/2006

SAP ®

HR310

Time Evaluation
With Clock Times

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- R/3 System
- Release 4.6C
- December 2000
- Material number 50043343

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Human Resources 4.6 (1)

SAP

Level 2

HR051 1 day

Human Resources Essentials I

HR052 2 days

Human Resources Essentials II

HR053 2 days

Human Resources Essentials III

Level 3

HR305 3 days

Configuration of Master Data

see HR2

HR306 4 days

Configuration of Time Recording

HR310/311 5 days

Time Evaluation

HR505 3 days

Organizational Management

HR506 2 days

Advanced Organizational Management

HR325 3 days

Benefits Administration

HR520 2 days

Shift and Workforce Planning

HR540 3 days

Compensation Management

HR510 3 days

Personnel Development

HR515 3 days

Training and Event Management

CA500 2 days

CATS The Cross Application Time Sheet

HR250 2 days

Employee Self-Service

HR580 3 days

Reporting in Human Resources

HR307 2 days

Configuration of HR System Controls

HR350 5 days

Programming in HR

HR530 3 days

Technical topics in Human Resources

Human Resources 4.6 (2)

SAP

Level 2

HR051   1 day

Human Resources
Essentials I

HR052   2 days

Human Resources
Essentials II

HR053   2 days

Human Resources
Essentials III

Level 3

HR305   3 days

Configuration of
Master Data

HR390   2 days

Introduction
to Payroll

HR400   5 days

Payroll Configuration

HR490   4 days

Incentive wages

Note:

Please note our country specific curriculum and our curriculum
for release 4.6B.

Course Prerequisites

- **Required:**
  HR306 Time Recording

- **Recommended:**
  HR050 Human Resources and
  HR305 Master Data

Target Group

SAP
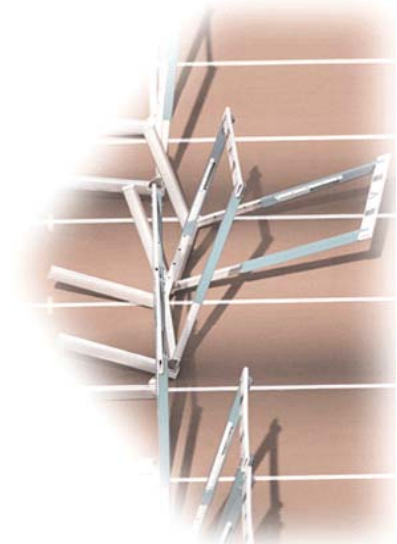
- **Audience:**
  - Members of a project team who are implementing R/3 Time Evaluation
  - SAP consultants and SAP partners who work with R/3 Time Management
- **Duration: 5 days**

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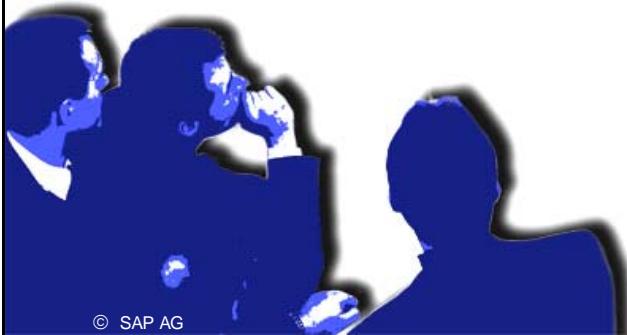
Notes to the user

- The training materials are **not teach-yourself programs**. They **complement the course instructor's explanations**. Your material includes space for noting down this additional information.
- There may not be enough time to do all the exercises during the course. The exercises are intended to be additional examples that are dealt with during the course. Participants can also use them to deepen their knowledge after the course.

Course Overview

Contents:

- **Course Goals**
- **Course Objectives**
- **Course Content**
- **Course Overview Diagram**

Course Goals

This course will prepare you to:

- **Understand SAP Time Evaluation and its role in the business processes of human resources**

- **Customize time evaluation to suit your own requirements**

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Course Objectives
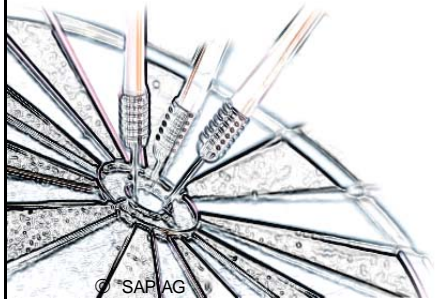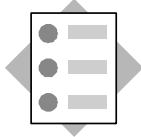
At the conclusion of this course, you will be able to:

- **Describe the data flow within the time evaluation process**

- **Explain the technical flow of time evaluation**

- **Modify the standard time evaluation schema**

- **Modify standard personnel calculation rules and create new ones**

- **Customize tables**

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Course Content

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Course Content - Continued

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Course Overview Diagram

Business Overview of Time Evaluation

Operations as Tools ofTime Evaluation

Time Evaluation in the SAP System

Personnel Calculation Schema TM00

Concept of the Time Evaluation Driver RPTIME00

Special Solutions

Time Evaluation Messages

Alternative Time Evaluation Schemas

Customizing Time Evaluation

Integration with Payroll

Data Collection in Time Evaluation

Time Statement and Reporting

SAP

Contents:

- **Business process of time evaluation**
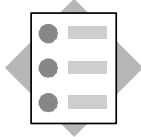
At the conclusion of this unit, you will be able to:

- **Describe what time evaluation is and what it does**

- **Explain how time evaluation is integrated into human resources business processes**

- **Describe the different time evaluation methods**

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Course Overview Diagram

Business Overview of Time Evaluation

Operations as Tools of Time Evaluation

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Data Collection in Time Evaluation

Time Statement and Reporting

Recording and Evaluating Time Data

Recording...   ...evaluating...   ... and using time data

Time sheet

Self-service

Time administrator

Time recording terminals

SAP Time Evaluation

Manage time accounts
Print time statements

Issue messages for postprocessing

Create wage types for Payroll

Run evaluations and compile statistics

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- With the SAP Time Management component, you can use various systems and methods for recording personnel times, such as working times, business trips, leave, or substitutions:
  - Online entry by the time administrator
  - Using front-end time recording systems
  - Using the SAP Cross-Application Time Sheet (CATS)
  - Using self-service applications such as Web applications or touch-screen systems
- The main objective of time evaluation is to check and classify the recorded personnel times and to valuate them automatically. It focuses on the checking of working time provisions, the administration of time accounts, and the formation of wage types for determining gross wages in Payroll. Messages concerning any special situations that may have occurred, such as missing attendance times, inform time administrators that postprocessing is required.

Roles for the Time Evaluation Environment

Organized centrally

Time and Labor Analyst
Creates reports on time and labor data

HR Administrator
Supplements time and labor data with data relevant for payroll

Time Management Specialist
Ensures time management system runs smoothly

Organized decentrally

Time Supervisor: Department head, project leader, foreman
Checks and approves time and labor data
Delegates time management tasks:

Shift Planner: Scheduler, foreman
Plans working times, shifts, and time off

Employee
Records own time data using time sheet, time recording subsystem, and so on

Time Administrator: Secretary, shop-floor supervisor, foreman
Records and administrates time and labor data

- The following roles are relevant for time evaluation where time management is organized in the individual departments of a company:

- **Time Management Specialist** (Role SAP_HR_PT_TIME-MGMT-SPECIALIST): The Time Management Specialist is responsible for ensuring that the time management system runs smoothly, and is familiar with the technical side of the SAP System. His or her duties include making periodically recurring settings, maintaining interfaces to other systems and SAP applications, and supplementing HR-specific Customizing, as required.

- **Time Administrator** (Role SAP_HR_PT_TIME-ADMINISTRATOR, composite role SAP_WP_TIME-ADMINISTRATOR): In the time evaluation environment, Time Administrators process the messages issued during time evaluation. They check that working time regulations are adhered to and they create reports, to inform their superiors or to supply information on the status of time-off accounts, for example.

- **Time Supervisor** (Role SAP_HR_PT_TIME-SUPERVISOR): The Time Supervisor is responsible for the time and labor data of the employees assigned to him or her. In the time evaluation environment, the Time Supervisor regularly monitors the amount of overtime worked in the department, creates reports, and checks employees' time accounts.

- **Employee** (Composite role SAP_WP_EMPLOYEE): Employees use Employee Self-Service applications and MiniApps to check the current status of their time accounts or to display the time statement, for example.

Business Transactions Using Time Evaluation

SAP

Set up working time provisions

Customizing

Time Management Specialist

Record current time data

Time Administrator

Employee

SAP Time Evaluation

Evaluate times Update time accounts Issue messages

Time Management Specialist

Employee

Time Administrator

Time Supervisor

Postprocess time data Monitor Inform employees

Individual departments Payroll HR controlling

Use the results

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- When new employees are hired, they are assigned a work schedule. The work schedule depicts the working times.
- Employees record their attendance times using self-service applications, such as time recording terminals or an intranet application.
- The time administrators modify employees' personal work schedules to take account of any short-term changes, and they record absences such as leave or special absences in the SAP System.
- Time evaluation in the SAP System evaluates employees' time data overnight. It compares employees' times to internal company policy and legal regulations. The SAP System manages time accounts, determines approved overtime, accrues absence entitlements, and forms wage types and bonus wage types. It generates messages to document special situations that occur during the evaluation.
- The next morning, time administrators follow up any messages using the message processing function in the *Time Manager's Workplace.* They grant subsequent approval for overtime or enter any missing time postings.
- At the end of the month, employees receive a statement detailing their time accounts, or they use Web applications to check their account balances.
- The results of time evaluation form the basis for gross payroll, and are used to form statistics and monitor data.

In Which Format Should Times Be Recorded?

SAP

Time evaluation with clock times
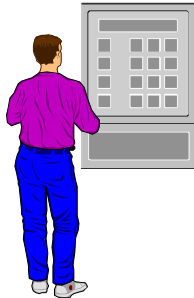
Attendance type	0800	
Time	08:00	17:00

07:55	Clock-in
17:02	Clock-out

Time evaluation without clock times

Attendance type	0800
Attendance hours	8.00

07:55	Clock-in
17:02	Clock-out
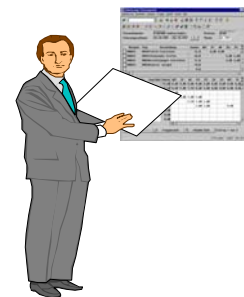
= 8.1166 hrs

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- Time evaluation can use either the actual length of time worked (for example, 8.1166 hours) or the clock-in and clock-out times (for example, 07:55 to 17:02). If you implement time evaluation based on clock times, you can also perform the following business tasks:
  - You can check working time provisions that determine, for example, which start and end times and break times employees must abide by.
  - You can issue and evaluate overtime approvals that relate to specific times of day.
- SAP Time Evaluation provides several standard processing methods, each responding to specific business requirements.

Which Times Should Be Recorded?

SAP

Recording all times

Attendance	08:00	11:00
Doctor's appt	11:00	14:00
Attendance	14:00	17:00

Recording only deviations from the work schedule

Doctor's appt	11:00	14:00

- There are two different methods of time data recording:
  - Recording all times
    If you use this method, all employees' working times and absence times are recorded.
  - Recording only work schedule deviations
    If you use this method, only times that represent and exception to an employee's work schedule are recorded, such as absence due to illness, changes to planned specifications (for example, attendance at a training class), or leave.
- The different methods affect which functions time evaluation performs. For example, you can only set up complex regulations for overtime if you record all times.
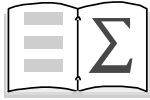
- **You have learned what time evaluation is and what it does**

- **You have learned how time evaluation is integrated into human resources business processes**

- **You know which time evaluation methods are supported in the SAP System**

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Time Evaluation in the SAP System
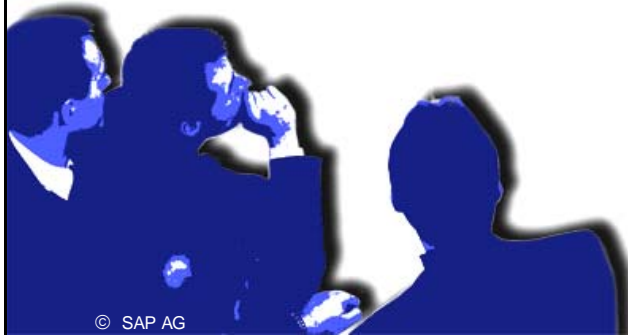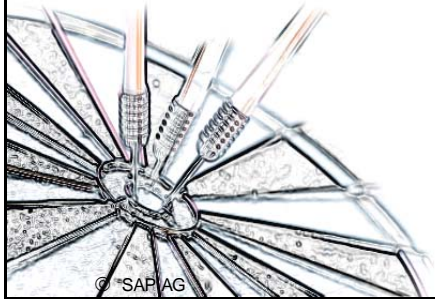
Contents:

- **Basics and prerequisites for time evaluation**

Time Evaluation in the SAP System: Objectives

At the conclusion of this unit, you will be able to:

- **Explain what data is required in time evaluation, and why**

- **Describe the relationship of the different time evaluation methods**

- **How tasks are distributed between the time recording system and the SAP System**

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Course Overview Diagram

Business Overview of Time Evaluation

Time Evaluation in the SAP System

Concept of the Time Evaluation Driver RPTIME00

Time Evaluation Messages

Customizing Time Evaluation

Data Collection in Time Evaluation

Operations as Tools of Time Evaluation

Personnel Calculation Schema TM00

Special Solutions

Alternative Time Evaluation Schemas

Integration with Payroll

Time Statement and Reporting

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Time Evaluation in the SAP System: Business Scenario

Create employee master data

Set up working time provisions

Record time data

Upload time events from time recording system

Evaluate time data

Overview of the Master Data Infotypes

Planned Working Time (0007)

Organizational Assignment (0001)

Time Recording Information (0050)

Personal Data (0002)

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- The following master data infotypes **must** be maintained if you work with time evaluation.
  - *Organizational Assignment* (0001)
  - *Personal Data* (0002)
  - *Planned Working Time* (0007)
- The following master data infotypes are **optional**:
  - *Basic Pay* (0008)
  - *Date Specifications* (0041)
- Employees' leave entitlement is managed in the *Absence Quotas* infotype (2006).
- The *Time Recording Information* infotype (0050) is mandatory if you:
  - Use a time recording system
  - Evaluate time variables from the infotype in time evaluation.

SAP

Work schedule rule — **When is the employee scheduled to work?**

Time Management status — **Does the employee participate in time evaluation, and how should his or her times be evaluated?**

Working week — **How is the employee's working week defined?**
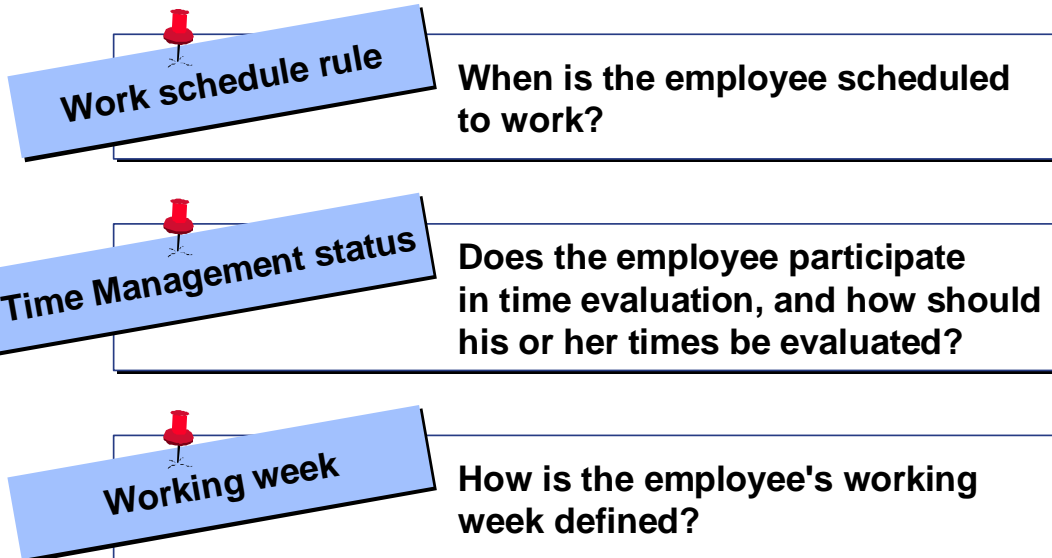
© SAP AG 1999

- The *Planned Working Time* infotype (0007) defines employees' planned working time.
- The *work schedule rule* describes the relationship to the work schedule. In turn, working times and breaks are defined in the work schedule.
- The *Time Management status* indicates whether employees are permitted to take part in time evaluation, and in which form.
  Possible values:
  Time Management status:

0	=	No time evaluation; time wage types are formed by Payroll
1	=	Time evaluation of actual times
2	=	Time evaluation (PDC)
7	=	Time evaluation without integration to Payroll; time wage types are formed by Payroll
8	=	External services
9	=	Evaluation of planned times

What the Time Management Status Signifies

How and where is the employee's time data processed?

Time Evaluation

Payroll

Integration with Payroll

9 Recording deviations to the work schedule

1 Recording all times

2

7 Time evaluation without Payroll integration

8 Evaluation of external services

Time data processing in Payroll

0 No time evaluation

7 Time evaluation without Payroll integration
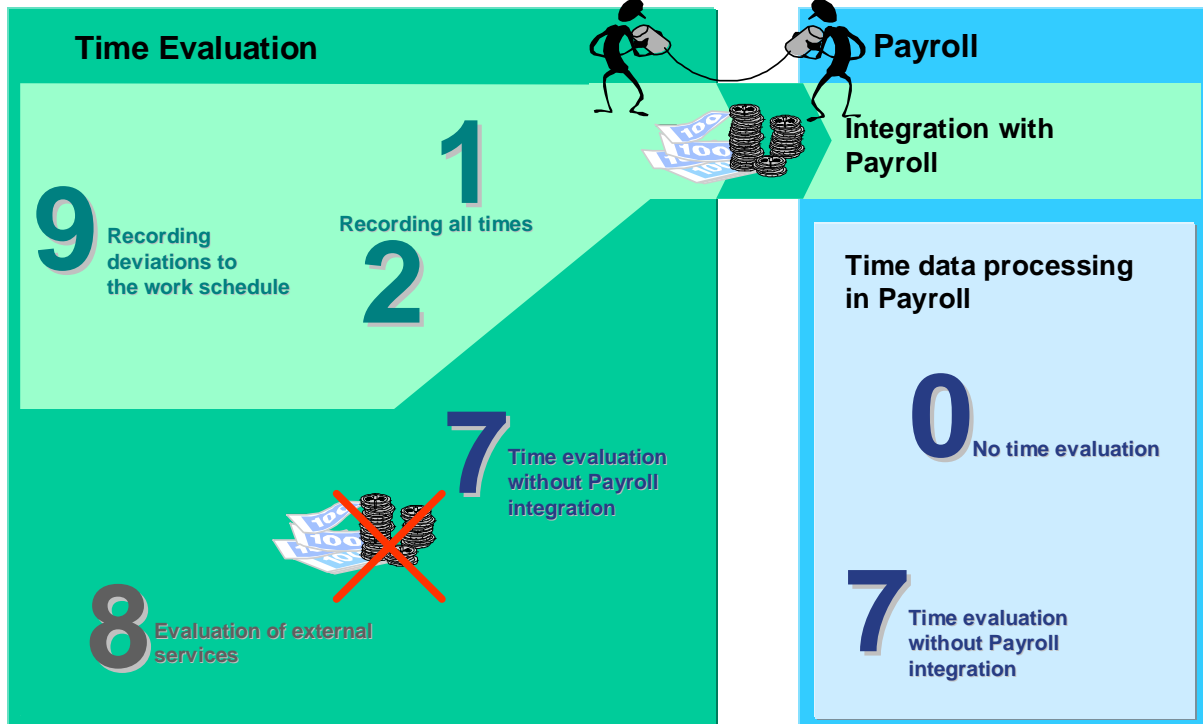
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- The *Time Management status* in the *Planned Working Time* infotype (0007) has a fundamental significance for time evaluation: It determines whether and how an employee is processed in time evaluation.
- Processing employee in time evaluation and transferring the time wage types formed to Payroll:
  - *Time evaluation (actual)* (1) and *Time evaluation (PDC)* (2): All times are recorded for the employee.
  - *Time evaluation of planned times* (9): Only deviations from the work schedule are recorded for the employee.
- Processing employee in time evaluation **without** transferring the time wage types formed to Payroll:
  - *Time evaluation without Payroll integration* (7): Time evaluation is run to administrate special time accounts, for example, to accrue absence quotas. When time data is processed in Payroll, the employee is treated as if he or she had the *Time Management status* 0.
  - *External Services* (8): Status for external employees. The results of time evaluation are transferred to *Materials Management* (MM-SRV).
- Time data processing in Payroll: *Time evaluation of planned times* (0). The time data of these employees is not processed in time evaluation.

Work Schedule

SAP

Daily work schedule

OFF	Off
L	Late
E	Early

Planned working hours 8.00
Plnd working time 6:00 - 15:00
Compensation time   0.40
Work break schedule   M3

Work schedule

Period work schedule

L L
L Off
L Off
L E
Off E
Off E
E E
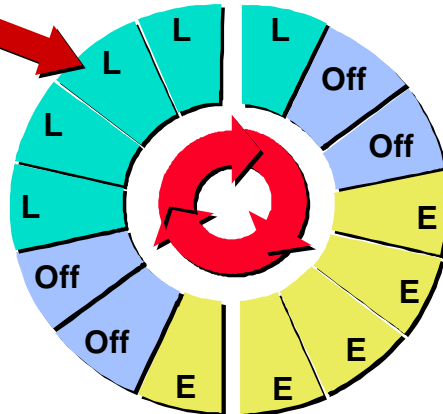
Public holiday calendar

April

1 F	Good Friday
2 S	
3 S	Easter Sunday
4 M	Easter Monday
5 T	
6 W	
7 T	
8 F	

...	3/30	3/31	4/1	4/2	4/3	4/4	4/5	4/6	4/7	4/8	4/9	4/10	...
	L	L	L	Off	Off	E	E	E	E	E	Off	Off	
			Good Friday		Easter Sunday	Easter Monday								

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- Employees' planned working time is described in a work schedule. The work schedule is created from a period work schedule and a public holiday calendar, for individual months.
  The period work schedule is made up of a fixed sequence of daily work schedules that repeats in a specific pattern. The work schedule takes account of the public holiday calendar.
- The work schedule is used as the basis for valuating time data.
  Examples:
  - The work schedule shows how many hours salaried employees have to work to be entitled to a full salary. Hours over and above this can be flagged as overtime in time evaluation, according to individual specifications.
  - If you only record deviations to the work schedule, the planned working time is used as the basis for time evaluation.

What is a Workday?

Does the employee have to work?
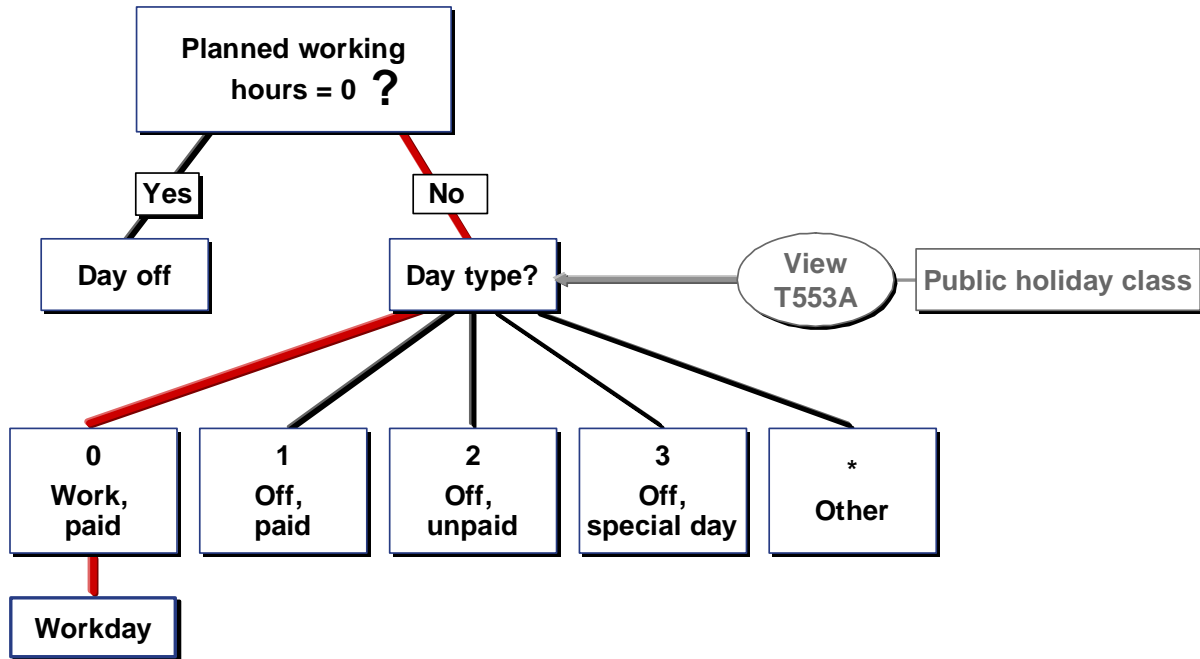
There are two factors that determine whether an employee has to work on a certain day:

1. *Non-calendar-dependent*
   The daily work schedule assigned to the employee on the day being evaluated determines whether the employee has to work on that day. Days that are assigned a daily work schedule with zero planned working hours are classified as days off.

2. *Calendar-dependent*
   Days with more than zero planned hours can also be days off (for example, public holidays). This is determined by the day type.

   IMG: Personnel Time Management -> Work Schedules -> Define Public Holiday Classes
   IMG: Personnel Time Management -> Work Schedules -> Day Types -> Define Selection Rules

Overview of Time Management Infotypes

SAP

Entering actual times:

Absences	(2001)
Attendances	(2002)
Overtime	(2005)
Time Events	(2011)

Entering approvals and absence entitlements:

Attendance Quotas	(2007)
Absence Quotas	(2006)

Entering changes to planned specifications:

Substitutions	(2003)
Availability	(2004)

Entering corrections to time accounts:

Time Transfer Specifications	(2012)
Quota Corrections	(2013)

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- You can use the *Substitutions* infotype (2003) to overwrite the planned specifications in an employee's personal work schedule. The personal work schedule specifies the working times of individual employees. Planned specifications are not overwritten for a *position substitution* and a *time substitution in another position*.
- To access the time management infotypes, choose *Human Resources -> Time Management -> Administration -> Time Data -> Maintain.*

Absences and Attendances: Clock Times or Hours?

SAP

Recording a full-day record:

Only the date is entered → The planned working times are generated automatically, but without clock times

Recording as clock times:

08:00 - 14:00 → = 5.00 hours (1 hour break according to
(8 a.m. - 2 p.m.) the daily work schedule)

Recording as hours: **Feature HRSIF**

5.00 hours → HRSIF = 0
→ 08:00 - 14:00

HRSIF = 1
→ 5 hours

■ You can use feature HRSIF to determine whether time data can be recorded without clock times, or whether clock times are generated on the basis of the employee's personal work schedule for attendances or absences lasting less than one day.

IMG: Personnel Time Management -> Time Data Recording and Administration -> Permit Att./Absences to be Recorded Without Clock Times

Time Events Infotype (2011)

Access control area E001

Clock-in
08:00:00

When?

Where?

Additional information

Time event

Date	04/01/xxxx
Time	08:00:00
Time event type	P10 Clock-in
Day assignment	=

Terminal ID	E001
Origin indicator	

Attendance/absence reason

Different payment
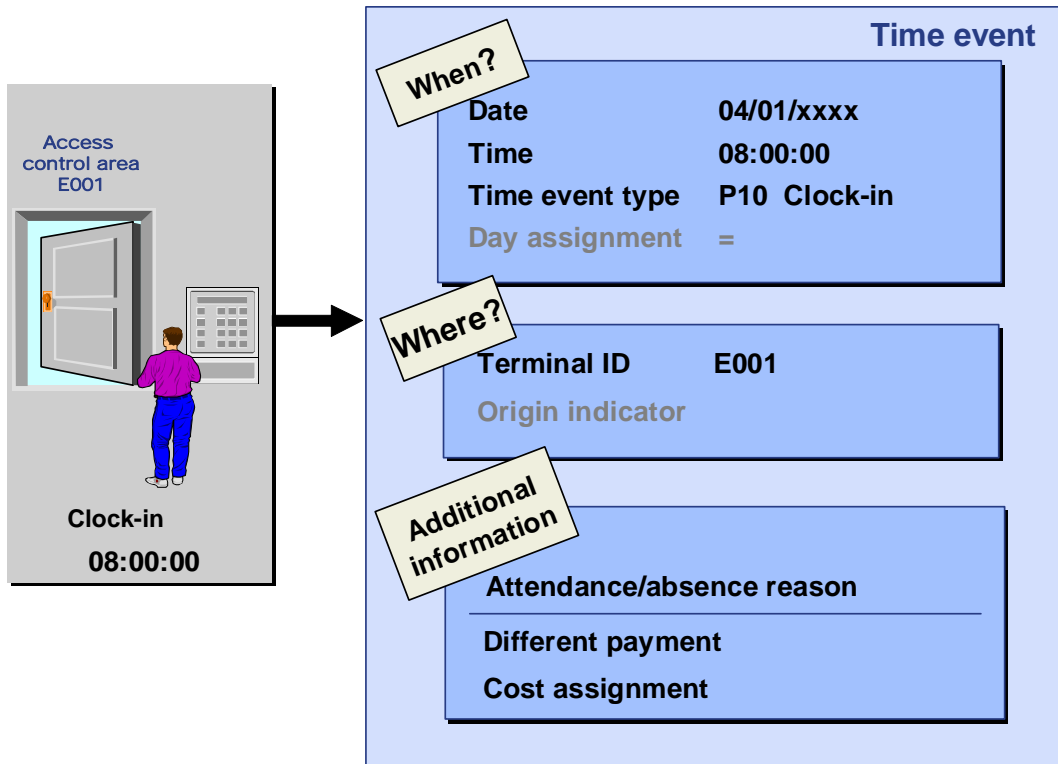
Cost assignment

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- Time events are, for example, clock-in and clock-out entries that employees record electronically using a time recording ID card at a time recording terminal. Employees can also enter information on cost assignment and on work for a different position. Several SAP enhancements are provided, which you can use to fill customer-specific fields and transfer them to the R/3 System.
- In the *Time Events* infotype (2011), you can:
  - Record time events manually or change time events that were imported into the R/3 System with errors
  - Enter or supplement information on cost assignment or on a different payment
- The *time events* are stored in transparent table TEVEN.
- The day assignment allocates the time event to the day to which it logically belongs (either the current day or the previous day). The day assignment is determined by the system, but you can override it, if necessary.
  Example: Employee works night shift on March 2:
  - Clock-in   on 02/02 at 22:05 -> day assignment: =
  - Clock-out on 02/03 at 07:03 -> day assignment: <
- We recommend the *list entry* function because it enables you to check and correct several time events at the same time. List entry is available for all of the Time Management infotypes.

Distribution of Tasks

Time recording system

Terminal

Terminal

Time recording
system

CC1TEV

Time Management

R/3

Time
events

Results
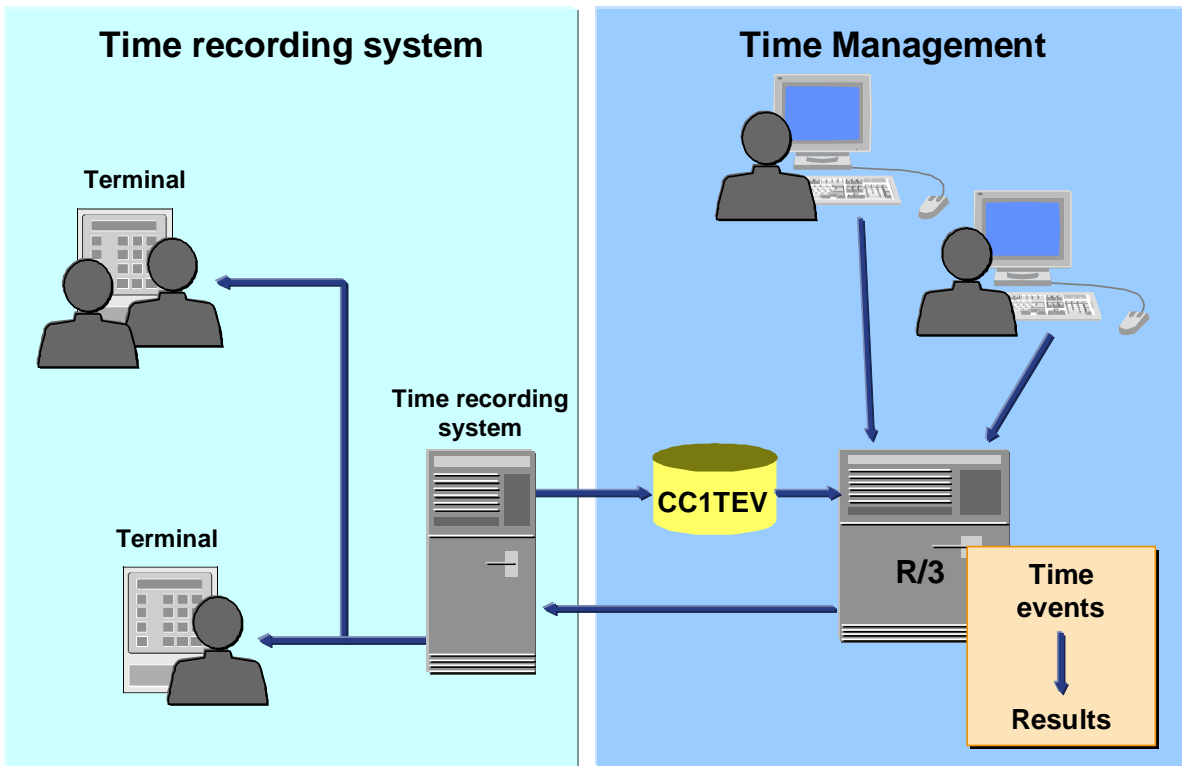
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- The distribution of tasks between the time recording system and R/3 *Time Management* is clearly defined.
  - **Tasks of the time recording system:**
    - Transferring the HR mini-master records and selected time accounts from the time recording system to the time recording terminals
    - Recording time events
    - Checking ID number, attendance/absence reason, and so on, for particular dates
    - Transferring time events to the interface CC1TEV
  - **Tasks of *R/3 Time Management*:**
    - Transferring time events from interface CC1TEV to table TEVEN
    - Processing time events
    - Correcting and supplementing time events (infotype 2011)
    - Transferring the selected time accounts to the time recording system

Data Flow Between the Time Recording System and SAP Time Management
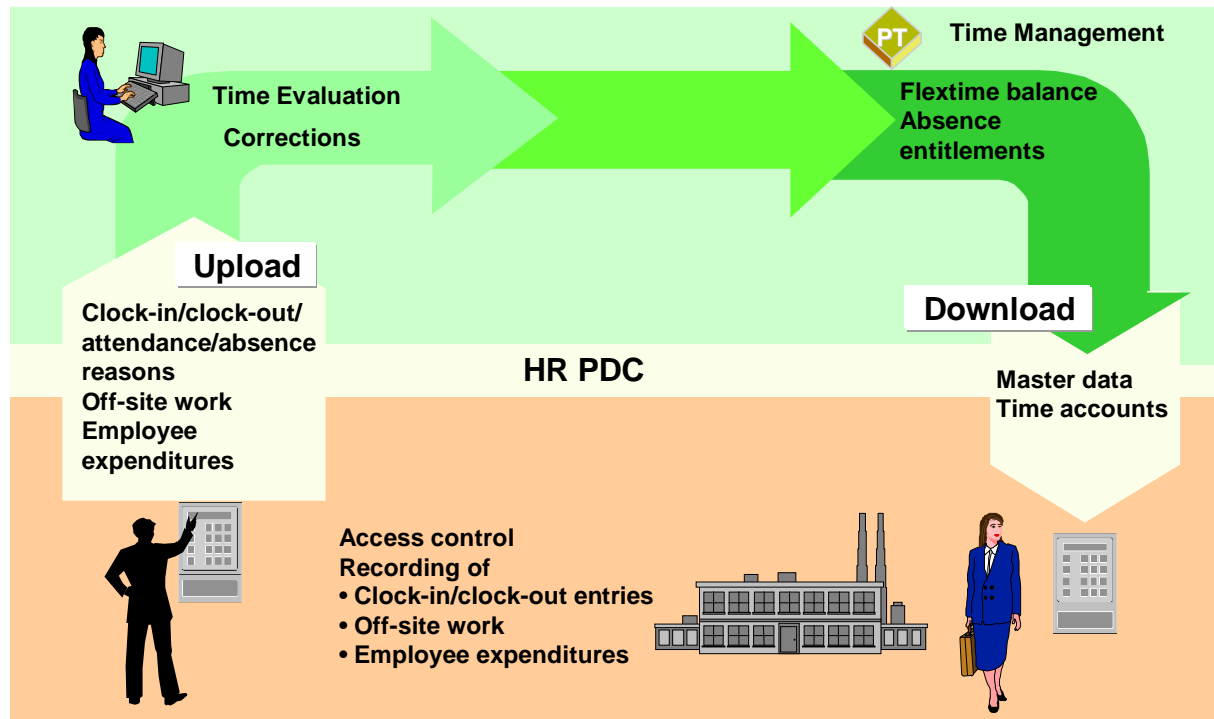
- There is a constant exchange of data between the time recording system and the SAP Time Management system.
  - The transfer of data from the time recording system to Time Management is referred to as the upload.
  - The transfer of data from Time Management to the time recording system is referred to as the download.
- **Upload**
  The interface is supplied with the unprocessed time events by the time recording system.
  Data required by a record:
  - ID number
  - Date, clock time, time event type (clock-in/clock-out/off-site work, and so on)
  - Other possible data: Terminal ID, employee expenditures,
  - Information on cost assignment and on a different payment
- **Download**
  A record containing the following information is passed on to the interface for each personnel number:
  - ID number
  - Validity period
  - Access authorization
  - Other data (such as personal code, mail indicator)
  - Information on time accounts (including leave status)

Download to the Time Recording System

Download

Projects

Cost centers
Internal orders

HR mini-master

Time event types

Attendance/
absence reasons

Positions

Time accounts

**TEVEN
(*Time Events*
infotype (2011))**

CC1TEV

Time recording system

Recording

Clock-in/clock-out (doctor's appointment)

Off-site work

Change of position

Change of cost center

Time events

Upload
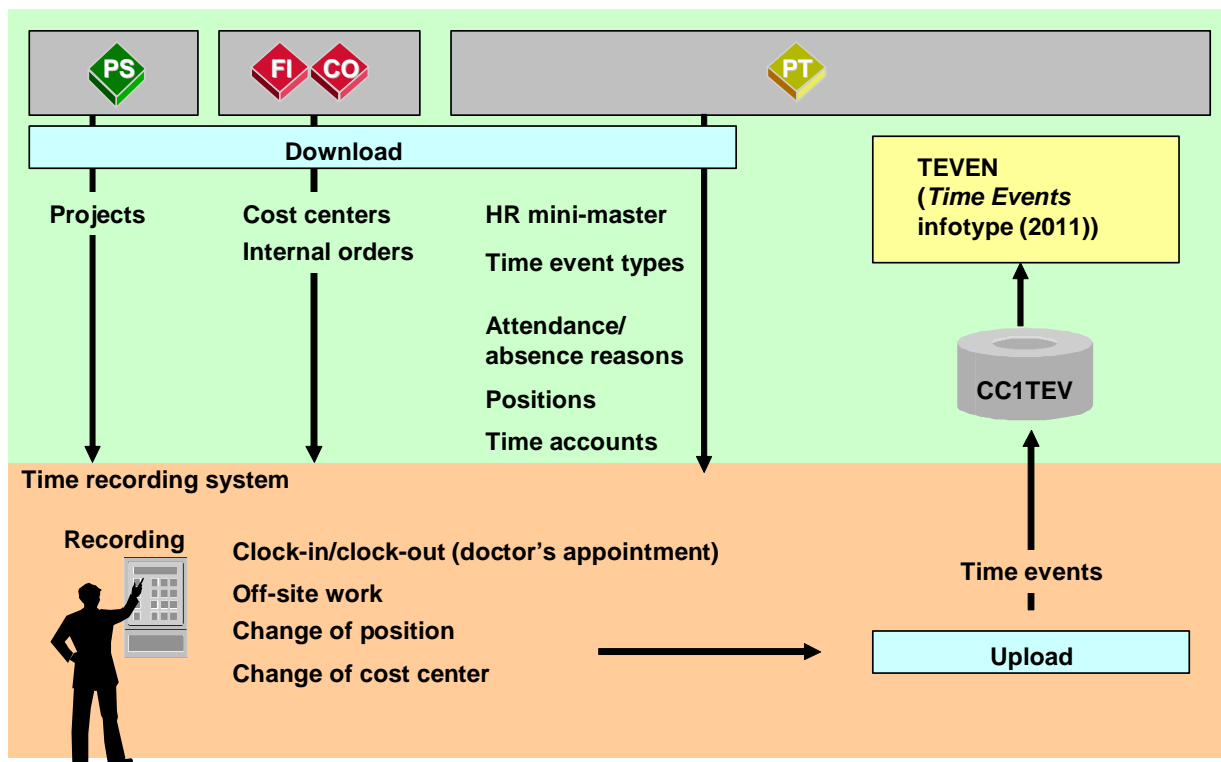
© SAP AG 1999
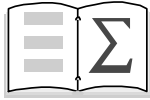
■ The download supplies the time recording system with the data it requires from Personnel Management, Time Management, Logistics, and Controlling, for validations. For each employee whose HR master is downloaded to the time recording system, there must be a *Time Recording Information* infotype record for at least one day of the HR master record's validity period.

■ Data for the download is categorized as follows:

• **Supply of master data**
  Master data from the applications (for example, HR master) has to be supplied to the time recording system so that it can validate the data. This data may change, therefore the download must be performed regularly.

• **Supply of control data**
  Reasons for an absence or attendance can be specified in Time Management. This information can be entered into the time recording system. The time recording system must check the data. Since this type of data rarely changes, it needs to be supplied once and then updated only if there are changes. Data does not need to be supplied periodically.

• **Supply of transaction data**
  Employee time accounts that are calculated in time evaluation change each time that time evaluation is run. For the data at the time recording system to be current, it must be downloaded frequently.
  Menu: Human Resources -> Time Management -> Administration -> Environment -> Subsystem Connection

Time Recording Information Infotype (0050)

SAP

Time recording ID number
ID version

HR System

Time recording terminal

Interface data

Work time event type group
Subsystem grouping
....

Time evaluation report

Time variables from
time evaluation

Grouping for time evaluation rule
Flextime maximum/minimum
General overtime
....
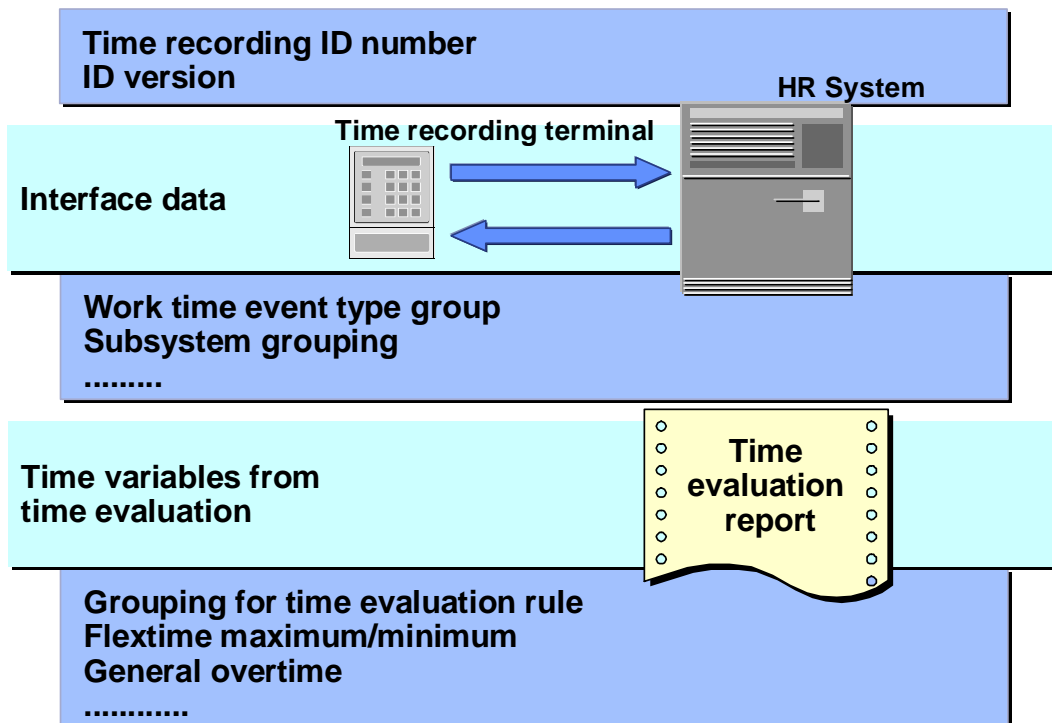
■ Interface data (interface to the time recording systems):
- Time recording ID number and ID version: Valid version of the time recording ID card.
- Work time event type group: Which time event types (for example, clock-in and clock-out) are permitted for the employee?
- Grouping for subsystem connection: Distribution of master records and a site-restricted access control
- Grouping for attendance/absence reasons: Which attendance/absence reasons are permitted?
- Grouping for employee expenditures: Which employee expenditures are permitted for the employee?
- Access control group: Time-restricted access control
- Mail indicator: A message can be displayed to employees when they record a time event at the time recording terminal.
- Personal code: Employees must enter this code at the time recording terminal in order to be granted access
■ Time variables (additional information that can be processed in time evaluation):
- Employee grouping for the time evaluation rule
- Flextime maximum and minimum
- Time bonus/deduction
- Indicator for general overtime (can be defined by the user)
- Additional indicator

Time Evaluation in the SAP System: Summary

- **You can explain what data is required by SAP Time Evaluation, and why**

- **You can discuss the relationship between the different time evaluation methods**

- **You can describe how tasks are distributed between the time recording system and the SAP System**

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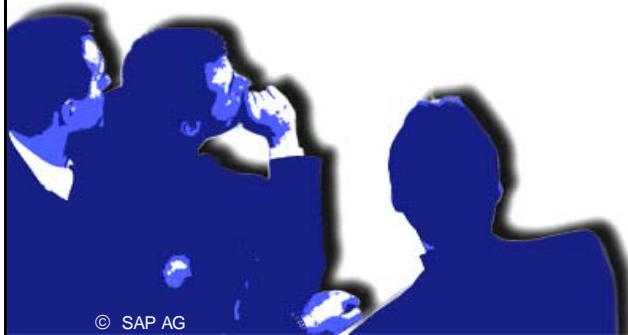
Data Sheet

Data Used in the Exercises

Data	Data in the training system	Data in the IDES system
Personnel area	1400	1400
Employee subgroup	DU	DU
Cost center	2200 – Human Resources	2200 – Human Resources
Work schedule rule	FLEX	FLEX
	NORM	NORM
Absences	0200 – Illness	0200 – Illness
	9000 – Compensation time	
Attendance	0440 – Active in works council	0440 – Active in works council
Wage type	MD70 - Works council bonus	MD70 - Works council bonus
Parameters for the Time Manager's Workplace	Profile: Z_HR310_TIME_ADMIN	
	Definition set for IDs: SET_DE	
	Subset of the definition set: 001	

Group assignments

Group	User name
01	HRTRAIN-01
02	HRTRAIN-02
03	HRTRAIN-03
04	HRTRAIN-04
05	HRTRAIN-05
06	HRTRAIN-06
07	HRTRAIN-07
08	HRTRAIN-08
09	HRTRAIN-09
10	HRTRAIN-10
11	HRTRAIN-11
12	HRTRAIN-12
13	HRTRAIN-13
14	HRTRAIN-14
15	HRTRAIN-15
16	HRTRAIN-16
17	HRTRAIN-17
18	HRTRAIN-18

Initial password: INITPASS

Time Evaluation in the SAP System: Exercises

Unit: **Time Evaluation in the SAP System**

Topic: **Basics and Prerequisites for Time Evaluation**

- Hiring an Employee

1 **Hiring an employee**

1-1 Use the personnel action type *Time recording (mini-master)* to create personnel number 310011## (## = your group number):

Entry date	01/01/yyyy (yyyy = current year)
Personnel area	1400
Employee group	1
Employee subgroup	DU (Salaried employees)
Work schedule rule	FLEX
Time event type grp	01
Subsystem grouping	001
Grouping for attendances/absences	001
Grouping for employee expenditures	001

Do not assign a position in the *Organizational Assignment* infotype (0001).

Your employee participates in time evaluation, and is assigned the *Time Management status* 1. The time recording ID number in the *Time Recording Information* infotype is the same as the personnel number.

1-2 Your employee is ill from January 2 through January 6. Record this absence in the system.

To do so, use the *Time Manager's Workplace*. Access the *Time Manager's Workplace* using the profile Z_HR310_TIME_ADMIN. For the time data IDs, use the *definition set* SET_DE with the *definition subset* 001.

Select the employee group HR310, then select your employee.

2   Information on the planned working time

2-1   You have assigned your employee the work schedule rule FLEX. Which system settings indicate whether this is a flextime schedule?

2-2   Is January 1 a workday for your employee?

Time Evaluation in the SAP System: Solutions

Unit: Time Evaluation in the SAP System

Topic: Basics and Prerequisites for Time Evaluation

1 Hiring an employee

To hire an employee, use the *Time Recording (mini master)* action. To access the action, choose *Human Resources → Personnel Management → Administration→ HR Master Data → Personnel Actions*.

In the *Planned Working Time* infotype (0007), assign the employee the *Time Management status* **1 - Time eval. (act)**.

2 Information on the planned working time

2-1 In the *Time Manager's Workplace,* information on employees' planned working times is displayed for you when you administrate time and labor data.

   1. Select the required day and choose *Choose Detail*. The system displays detailed information on the most import item of information for that day (the dominant), in this case, the work schedule assigned to the employee.

      You can display additional information, such as details of the personal work schedule and times stored in the work schedule, by choosing the various tab pages.

   2. Choose the *Work Schedule Times* tab. The daily work schedule FLEX contains clock times in the fields for the normal working time.

      For flextime schedules:

- The planned working time forms the flextime framework

- The normal working time defines the number of planned working hours (including breaks from the work break schedule)

2-2 Choose the *Personal Work Schedule* tab. January 1 has the day type *1- Off/paid*. The employee does not have to work on this day.

   Note: You can also obtain information on the employee's planned working time using the *Personal Work Schedule* report (RPTPSH10). To run the report for your employee, choose *Human Resources → Time Management → Administration →*

Information System → Report Selection → Work Schedule → Personal Work Schedule.

Concept of the Time Evaluation Driver RPTIME00

SAP

Contents:

- **Environment and process of the time evaluation driver RPTIME00**

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Concept of the Time Evaluation Driver RPTIME00: Objectives
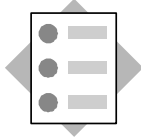
At the conclusion of this unit, you will be able to:

- **Run time evaluation**
- **Name the periods for which times are evaluated**
- **List the data required by time evaluation**
- **Describe how time pairs are formed**
- **Explain what results are delivered by time evaluation, and how to find out more information on the results**
- **Explain that the data can be archived**

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Course Overview Diagram

Business Overview of Time Evaluation

Time Evaluation in the SAP System

Concept of the Time Evaluation Driver RPTIME00

Time Evaluation Messages

Customizing Time Evaluation

Data Collection in Time Evaluation

Operations as Tools of Time Evaluation

Personnel Calculation Schema TM00

Special Solutions

Alternative Time Evaluation Schemas

Integration with Payroll

Time Statement and Reporting

Evaluating Time Data

- Select employees and evaluation period
- Provide data
- Check data for errors
- Classify times
- Select time wage types
- Compensate overtime wage types
- Manage time accounts
- Update results

Is everything OK?

- Breaks
- Planned working times
- Overtime

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- Time data is evaluated in several processing steps, which are carried out in a fixed sequence. You determine the sequence and the individual processing steps in an *evaluation schema* in Customizing.

The Time Evaluation Driver RPTIME00

Evaluation of time data

Individual test run | **Daily background processing**

Time evaluation driver RPTIME00

Past or future time data

Recalculation if back-dated changes are made

Current time data

Information

Maintenance and correction

- Time wage types
- Time balances
- Leave entitlement
- Messages

Up-to-date results

Errors Notes Information

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■ Time evaluation is performed by the time evaluation driver, RPTIME00. Time evaluation generally runs daily, overnight, and is scheduled as a background job. The evaluation usually encompasses as large a group of employees as possible.
You can also run time evaluation for individual employees, employee groups, or for past evaluation periods for test purposes, for example.

■ The time evaluation report can also be run for future periods. Evaluating future periods can be useful in the following situations:
- You want time evaluation to determine an employee's anticipated absence entitlements when absence quotas are accrued automatically
- You want to valuate planned times in Shift Planning while taking anticipated overtime into account, for example.

■ Important time wage types
- Night bonus / bonus for work on a public holiday / overtime wage types
Time wage types are primary wage types that are formed during time evaluation, provided that predefined conditions are fulfilled. Time wage types are formed on the basis of time information. They enter Payroll only as a number. They are not valuated on a monetary basis until they enter Payroll.

■ Important time accounts
- Flextime / overtime / attendance hours / attendance and absence quotas / planned working time

■ To access the time evaluation report, choose *Human Resources -> Time Management -> Administration -> Time Evaluation -> Time Evaluation.* You can also access time evaluation at other points in the menu.

Maintaining the Results of Time Evaluation
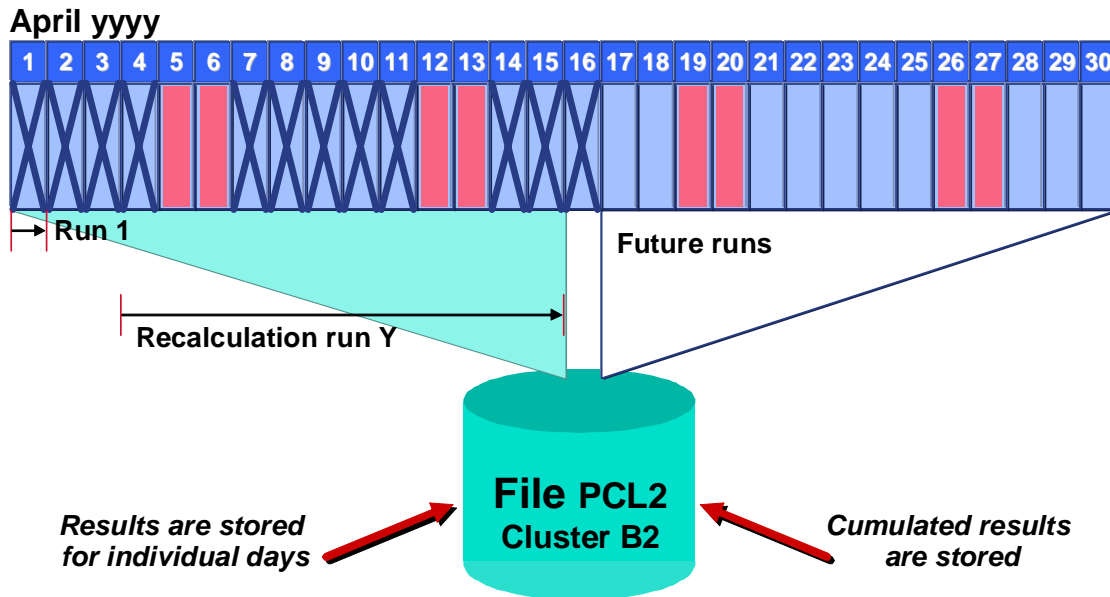
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- Time evaluation is usually run once daily, but can also be run for any period of your choice. The results are then determined for each individual day in the period.
- The results are stored in file PCL2 in Cluster B2 according to the day being evaluated and the period. This includes results that are cumulated over a period, such as the flextime balance.
- Storing the results for individual days means that time evaluation can return to the results of a particular day at any time to perform a recalculation.
- **Note:**
  If back-dated changes are made to infotypes, a second evaluation can be triggered for days that have already been evaluated.

Data Flow

| Previous evaluation results | Master infotypes:
• Org. assignment
• Planned working time
• Payroll status | Time infotypes:
• Absences
• Attendances
• Substitutions
• Quotas | TEVEN
Cluster B1
• Personnel time events |

Pair formation

Evaluation of time data via the time evaluation driver RPTIME00

| Cluster B2
• Balances
• Messages
• Time wage types | Master data infotypes
• Payroll status | Quotas/ entitlements
• Absence quotas
• Attendance quotas | Time infotypes
• Absences
• Attendances |

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- Time evaluation processes the current master data, time data, and the time events. It groups the time events into pairs before it processes them. It refers to the previous evaluation results for many calculations, for example, for managing time accounts.
- Balances, time wage types, and messages are generated and stored in file PCL2 in cluster B2. Certain infotypes are then updated.

Pair Formation

Table TEVEN

08:02 Clock-in

12:05 Start of break

12:40 End of break

Message Processing
Time Events infotype (2011)

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* Status information for error tracking
* Tracking the attendance status

Table PT (Cluster B2)

Start	End	Status	Attendance status
08:02:00	12:05:00		1

Start	End	Status	Attendance status
12:05:00	12:40:00		0

Start	End	Status	Attendance status
12:40:00		3	1

"No clock-out entry"

- In pair formation, the time evaluation report groups individual time events that are assigned to the same day into time pairs. This is necessary for time evaluation to be able to process the time events and determine, for example, the amount of time worked. Pair formation is only triggered for days on which unprocessed time events exist.
- **Warning:**
  In pair formation, a time event is always assigned to the day on which it was posted or to the previous day, but never to the following day.
- If certain processing conditions occur (for example, a clock-out posting is missing and therefore a pair cannot be formed), pair formation issues messages so that the data can be postprocessed in the messages processing function of the *Time Manager's Workplace*.

Forming Pairs from Time Events

Absent	At work	On a break	At work	Absent
Clock-in	**Start of break**	**End of break**	**Clock-out**
Opens pair	Closes pair and opens new pair	Closes pair and opens new pair	Closes pair
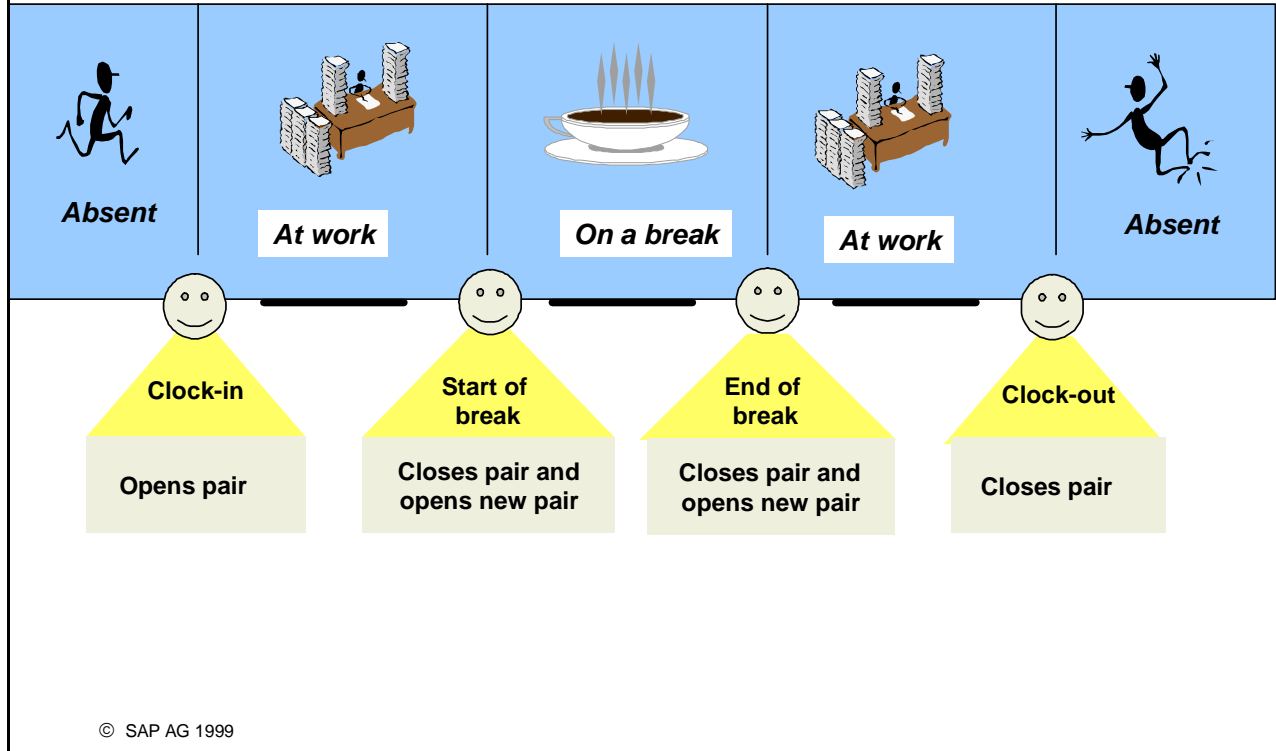
- At the start of pair formation, the individual time events are assigned to a day. Time events are assigned to their current date or to the previous day. The employee's daily work schedule determines whether a time event is assigned to the previous day or to the current day.
- For each time event, the system determines the employee's attendance or absence status before and after the entry so that a pair formed is correct. Each time pair is assigned a status, which informs time evaluation that the pair is complete.
- In Customizing, you can change the standard system reaction to certain situations, for example when:
  - Time events occur a short time after one another
  - Two consecutive time events could not be formed into a pair (for example, an employee is absent and records *Start of break*).
    IMG: Personnel Time Management -> Time Evaluation -> General Settings -> Define Settings for Pair Formation

Starting RPTIME00: Parameters

SAP

Evaluation schema	**Defines the sequence of the processing steps.**
Time statement variant	**Specifies whether the evaluation results are displayed, and how they are laid out.**
Display variant for log	**Determines which user settings are used to display the time evaluation log.**
Forced recalculation as of	**Time evaluation is recalculated as of this date (inclusive) at the latest.**
Evaluation up to	**Time evaluation runs up to and including the date entered.**
Program options	**- Display log** **- Test run (no update)** **- Stop at function / operation BREAK** **- Stop at fixed positions in time evaluation**

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■ Important program options of RPTIME00:
  • Display log:
    All the processing steps and substeps of the evaluation schema are logged.
  • Test run (no update):
    Simulation mode: Time evaluation is run without changes to the database.
■ Sample variants:
  • Test run:
    Program options *Display log* and *Test run*
  • Background processing:
    All parameters BLANK except the schema

First Day to be Evaluated

Payroll Status infotype (0003)

PDC recalculation

Unprocessed time events

Forced recalculation

Recalculation date

First day to be evaluated by time evaluation

Earliest recalculation date

V_T569R
ERD Time evaluation
ERD Pair formation

Payroll Status infotype (0003)

Personal ERD time evaluation
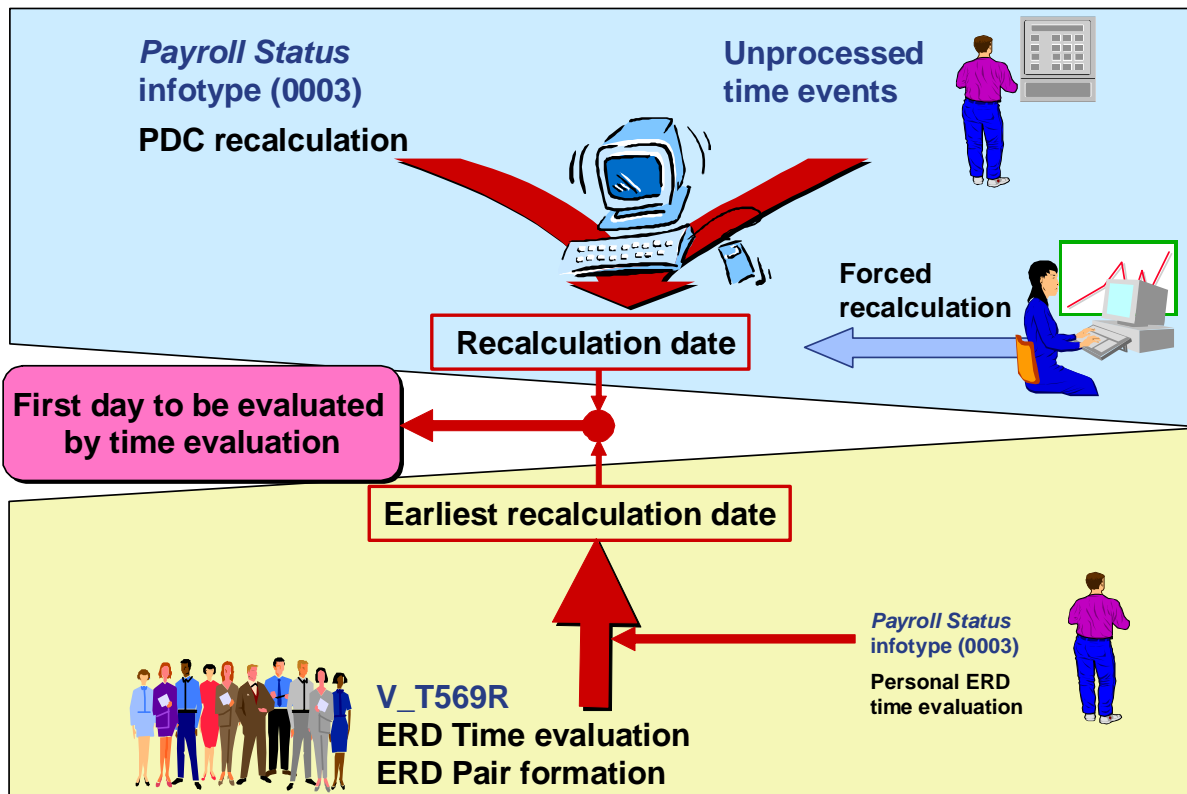
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- Prerequisites for a correct evaluation:
  - Time data must be evaluated without gaps
  - Back-dated changes to employee data that affect the payroll must lead to a recalculation of the results already determined (= changes relevant to a recalculation)

  If there are no changes relevant to a recalculation, time evaluation returns to the day after the last day evaluated without errors.
- RPTIME00 checks the first day evaluated for each employee by reading the information in the *Payroll Status* infotype (0003). The system constantly updates this infotype.
- If you want to evaluate a period before the last day to be evaluated without errors, you can use the RPTIME00 parameter *Forced recalculation as of* to reset manually the first day to be evaluated.
- To prevent the system processing periods that are no longer relevant to Payroll, you can set an earliest recalculation date:
  - For individual employees:
    Using the *Personal earliest recalculation date* field in the *Payroll Status* infotype (0003)
  - For the whole of time evaluation:
    IMG: *Personnel Time Management -> Time Evaluation -> General Settings -> Set Earliest Recalculation Date for Pair Formation/Time Evaluation*

Recalculation Trigger

Last day to be evaluated

1st evaluation run

06/09

Next evaluation as of:

06/10

Processing of master or time data

Valid	05/20/yyyy – 05/20/yyyy
Attendance type	0800
Time	10:30 17:00

Payroll Status infotype

05/20

Relevant to recalculation

2nd evaluation run

06/09

05/20

First day to be evaluated

06/10

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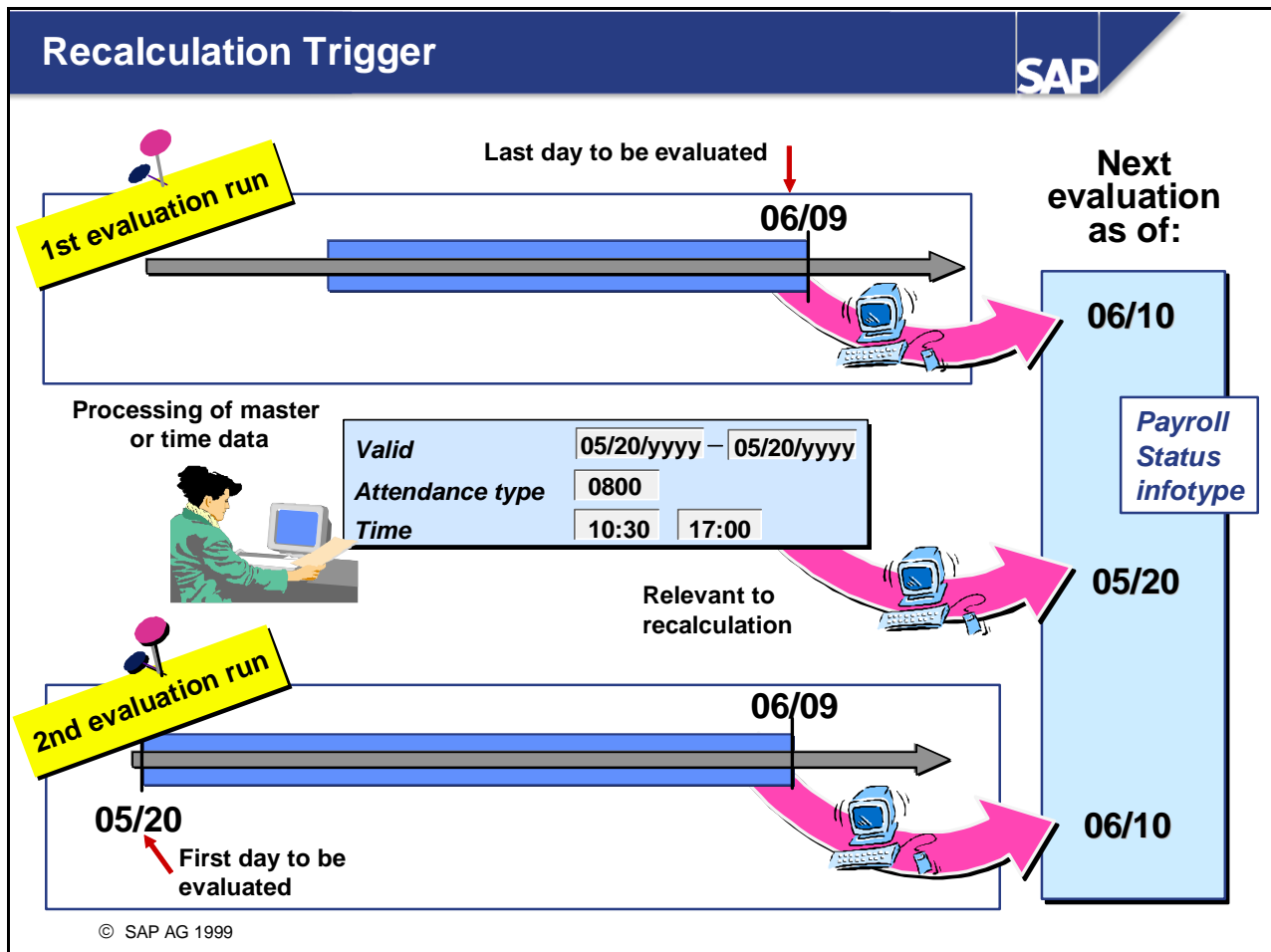
■ For each infotype, you can determine in the *Infotypes* view (V_T582A) whether changes are relevant to retroactive accounting. You can use the *Retr.acct.PDC* field to define which condition should trigger a recalculation:
  • Any changes made to an infotype, or
  • Only changes made to certain fields in the infotype.
  You can determine which fields in the infotype should initiate a recalculation in the *Field-Specific Recalculation Indicator* view (V_T588G).

■ *IMG: Personnel Management -> Personnel Administration -> Customize Procedures -> Infotypes -> Set up Infotypes*

■ *IMG: Personnel Management -> Personnel Administration -> Customize Procedures -> Infotypes -> Define Fields Relevant for Retroactive Accounting*

How Were the Results Achieved?

SAP

```
Log: Time evaluation
   📂 General Data
       ⊞ Parameters for time evaluation
       ⊞ Schema
   📂 Successful personnel numbers
       ⊞ 00012356  John Miller
       📂 00012360  Mary Smith
           ⊞ Initialization 02/1998
           ⊞ 02/01/1998 Sunday
           ⊞ 02/02/1998 Monday
           ⊞ End processing 02/1998
   📂 Personnel numbers with errors
       ⊞ 00012342  Paul Bond
      Personnel numbers ended early
      Personnel numbers rejected
   ⊞ Messages
   ⊞ Statistics
```

For all personnel numbers

All time evaluation messages
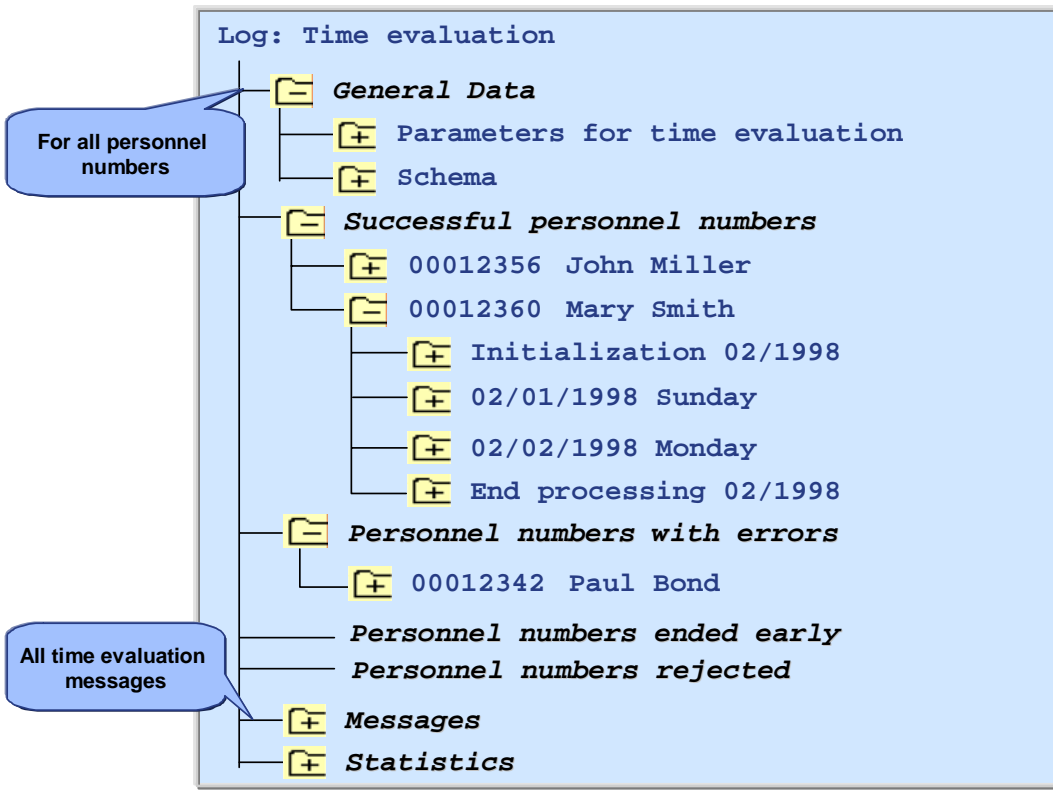
- RPTIME00 generates a log for every time evaluation run. You can control the scope of the log in the program options for RPTIME00.
- The time evaluation log is divided in the following way:
  - A non-employee-specific section
  - Employee-specific sections (dependent on the error status of the personnel numbers)
  - Multiple-employee sections: all messages, statistics
- You can expand the log to a particular level of detail. This allows you to track the input and output of the individual processing steps when the *Display log* parameter is activated.
- You can save the level of detail as a variant, and access it at the start of RPTIME00 by using the *Display variant log* field.

Storing Time Evaluation Messages

SAP

Cluster B2: Time Evaluation Results

Period 06

Balances
Wage types
Messages

SALDO · ZES · ZL · C1 · ALP · FEHLER

Basic data and
work schedule

WPBP · PSP

**Automatic accrual of
absence quotas**

Time pairs

PT

Time data

AB · VERT · SKO · ANWES

QTTRANS · QTACC · QTBASE

...

→ RPCLSTB2

Cluster B1

Not for specific periods

Unprocessed time events

NT1 · NT2

Worklist of messages to
be processed

ERT

...

RPCLSTB1 →

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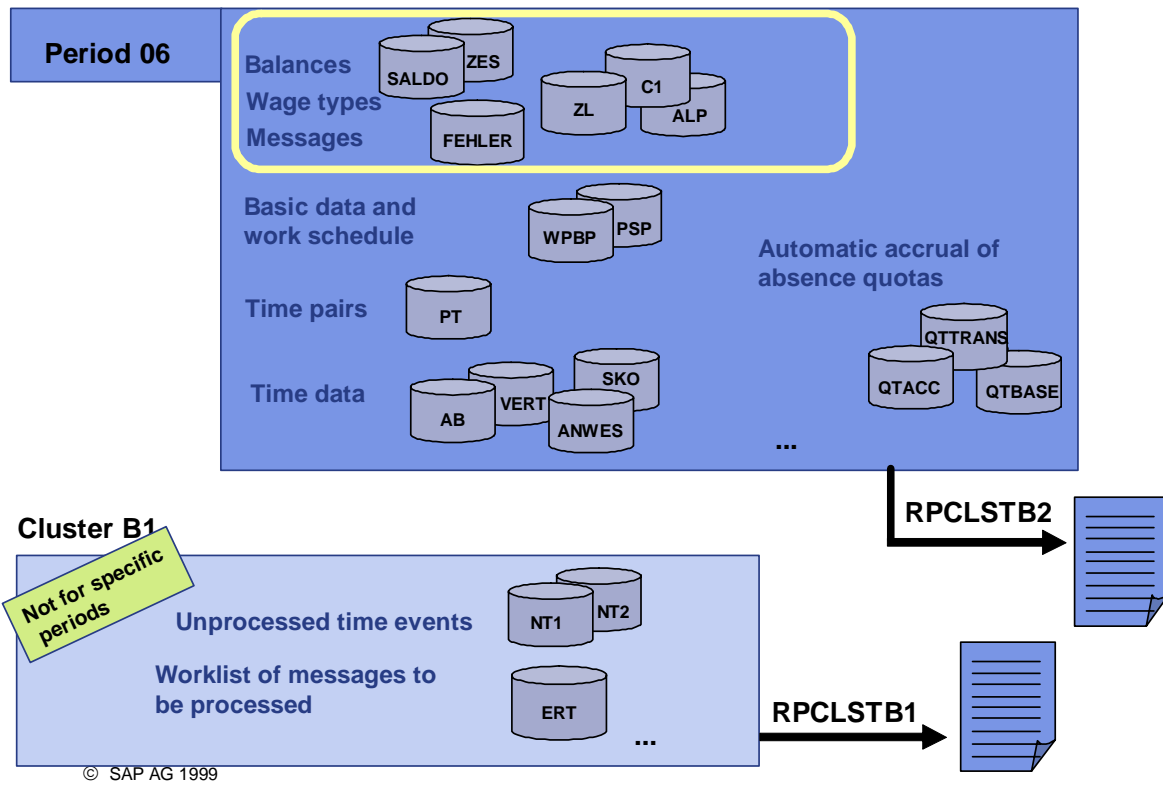
- The file PCL2 contains the cluster B2, which is relevant for time evaluation:
  - You can use report RPCLSTB2 (*Display Time Evaluation Results (Cluster B2)*) to view all the results of time evaluation, and the basic data and time data for each time evaluation period.
- The file PCL1 contains the cluster B1, which is relevant for time evaluation:
  - You can use report RPCLSTB1 *(Display Recording Data (Cluster B1))* to obtain an overview of all the processed and unprocessed time events, generated and not yet corrected or confirmed messages from time evaluation, and important status fields.
- You can use the report RPCLSTxx (xx = name of the cluster) to view different clusters in the databases PCL1 and PCL2.
  Menu: Human Resources -> Time Management -> Administration -> Tools -> Tools Selection -> Cluster

Cluster B2 (PCL2)

. . .	
Apr. 2001	Data
Mar. 2001	Data
Feb. 2001	Data
Jan. 2001	Data
Dec. 2000	Data
Nov. 2000	Data
Oct. 2000	Data
Sep. 2000	Data
. . .	

Personal earliest recalculation to Feb 1, 2001

Buffer

Archived to Dec. 31, 2000

Archive

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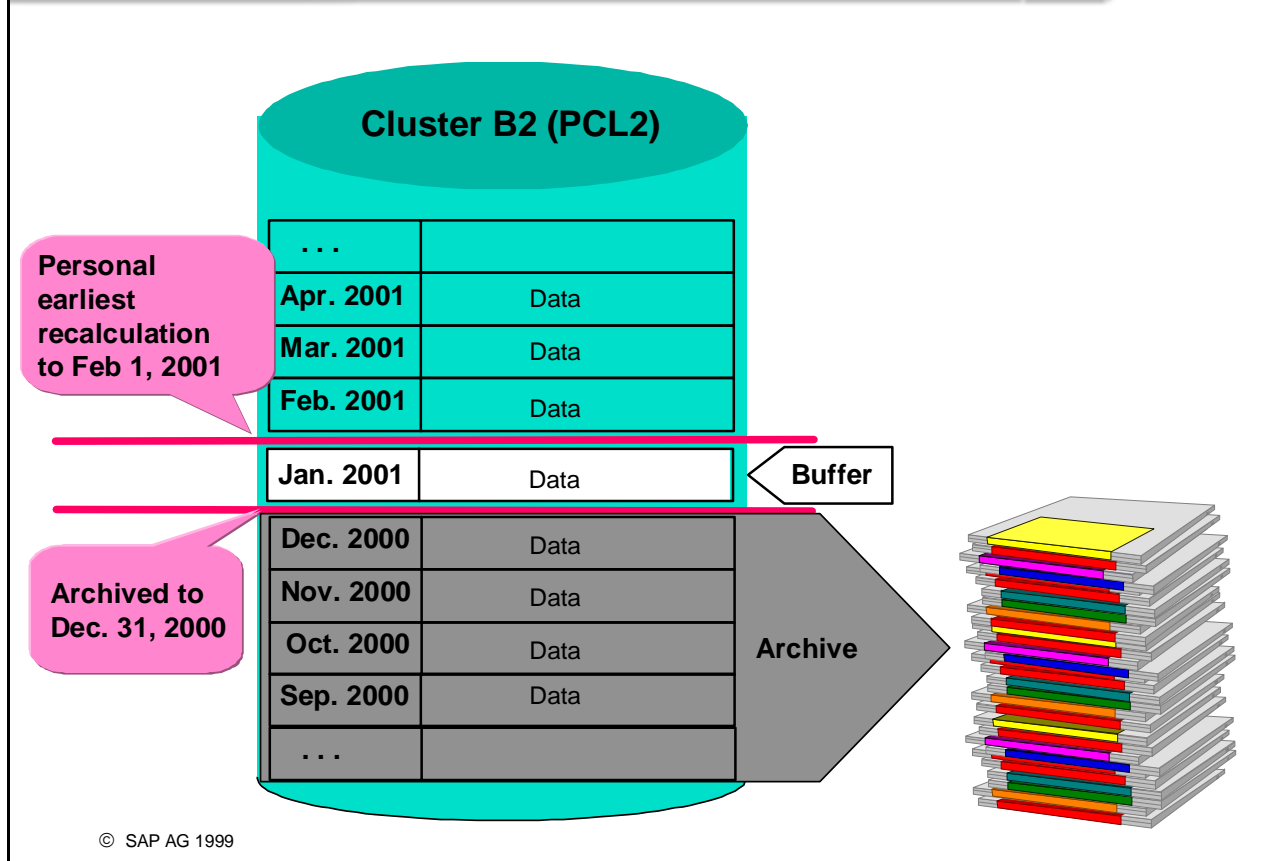
- You can archive the time evaluation results in order to relieve the database PCL2. To do this, you use the central HR archiving transaction PU22.
  Menu: Human Resources -> Time Management -> Administration -> Tools-> Archiving
  The archiving is employee-specific. You can use a report to select employees according to particular factors (for example, employees' leaving dates).
- Only periods that are no longer relevant to a recalculation are archived, since archived periods cannot be recalculated.
  When archiving the data, the transaction uses a buffer of an evaluation period to guarantee that any possible recalculations are taken into account if the previous day assignment is changed. The archiving transaction limits the the earliest recalculation date by changing the *Earl.pers.rec.date* field in the *Payroll Status* infotype (0003).
- You can display the archived periods using the report RPCLSTB2 (Display Time Evaluation Results (Cluster B2)) if the system meets the access requirements.

Overview of Time Evaluation

SAP

Recording deviations to the WS

| Master data
Daily work schedule | Deviations to the daily WS

e.g. infotype 2001 2002 |

Recording actual times

| Master data
Daily work schedule | Working times
Attendances Absences \| Time events
Attendance/absence quotas | Time recording system |

Time evaluation RPTIME00

Pair formation

Cluster B2

Update

| | Time wage types
ZL
ALP
C1 | Time accounts
ZES
SALDO | Messages
FEHLER | Infotypes
2001 2006 0003
2002 2007 |

Payroll

Remuneration statement

**Time statement list
RPTEDT00**

Download balances to subsystem

Message processing in the *Time Manager's Workplace*

**Online
Display/change time infotypes**

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Concept of the Time Evaluation Driver RPTIME00: Summary

SAP

- **You are now able to**
  - **Run time evaluation**
  - **Name the periods for which times are evaluated**
  - **List the data required by time evaluation**
  - **Describe how time pairs are formed**
  - **Explain what results are delivered by time evaluation, and how to find out more information on the results**
  - **Explain that results can be archived**

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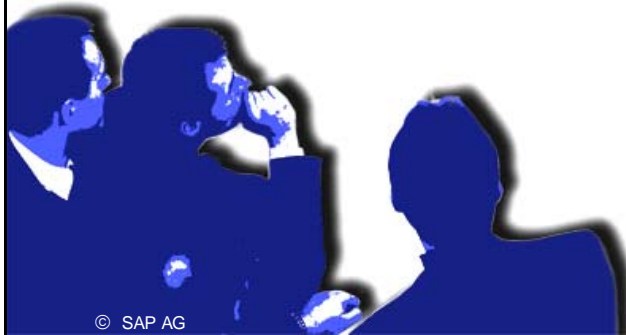
Concept of the Time Evaluation Driver RPTIME00Exercises
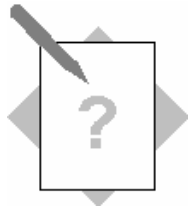
Unit: **Concept of the Time Evaluation Driver RPTIME00**

Topic: **Running Time Evaluation**
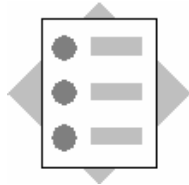
- Running Time Evaluation

1 Time evaluation using RPTIME00

1-1 In the *Time Manager's Workplace,* record time infotypes and time events for your employee for the whole of January. When you record time events, refer to the employee's planned specifications.

1-2 Return to the *SAP Easy Access Menu* and run time evaluation. Use the program option *Display log,* and check the evaluation results in the time evaluation form.

1-3 Which additional options are available for checking the results of the evaluation?

2 Retroactive Accounting

2-1 Check the status of the recalculation date for time evaluation in the *Payroll Status* infotype (0003).

2-2 In January, your employee also worked 2 hours at home, in addition to the normal work. Record this attendance retroactively.

2-3 Look again at the *Payroll Status* infotype (0003). Which value has changed?

2-4 Run time evaluation again.

Concept of the Time Evaluation Driver RPTIME00 Solutions

Unit: **Concept of the Time Evaluation Driver RPTIME00**

Topic: **Running Time Evaluation**

1   Time evaluation using RPTIME00

1. Choose *Human Resources → Time Management → Administration → Time Evaluation → Time Evaluation*.

2. Enter the *personnel number,* the *evaluation schema* TM00*,* the *time statement variant* SAP&TEDT*,* and the *evaluation up to* date.

3. Choose *Program options*.

4. Select the *Display log* option.

5. Choose *Execute*.

The time evaluation log gives you a detailed view of the processing steps, results, and messages in time evaluation. You can branch from the log to the employee's time statement by choosing *Goto → Display form*.

The report *Display Database PCL2 Cluster B2* (RPCLSTB2) provides a view of all the results of time evaluation for a given period.
To access report RPCLSTB2, choose *Human Resources → Time Management→ Administration → Tools → Tool Selection→ Cluster → Display Time Evaluation Results (Cluster B2)*.

You can choose two additional reports to check the evaluation results:

- The time statement form (RPTEDT00):

      Human Resources → Time Management → Administration → Time Evaluation → Time Statement

- Cumulated time evaluation results – time balances and time wage types (RPTBAL00):

      Human Resources → Time Management → Administration → Information System → Report Selection → Time Accounts → Cumulated Time Evaluation Results: Time Balances/Wage Types

2   Retroactive accounting

Choose *Human Resources → Time Management → Administration → Time Data → Maintain*.

The *PDC recalc. date* field in the *Payroll Status* infotype (0003) contains the start date for the next time evaluation. It is defined by the day after the last day that was evaluated without errors.

If subsequent changes are made to infotypes that are flagged as relevant to recalculation, the system automatically resets the date.

SAP
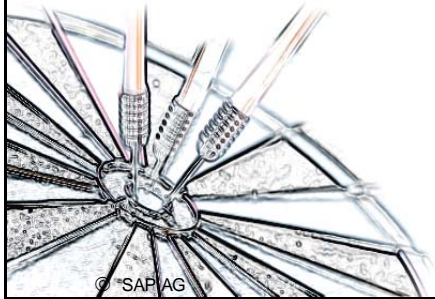
Contents:

- **Time evaluation messages**
- **Processing messages in the *Time Manager's Workplace***
- **Customizing message processing**

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Time Evaluation Messages: Objectives

SAP

At the conclusion of this unit, you will be able to:

- **Explain the significance of messages for Time Management**

- **Create customer-specific messages**

- **Describe how you can arrange the layout of message processing in the _Time Manager's Workplace_**

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Course Overview Diagram

Business Overview of Time Evaluation

Operations as Tools of Time Evaluation

Time Evaluation in the SAP System

Personnel Calculation Schema TM00

Concept of the Time Evaluation Driver RPTIME00

Special Solutions

Time Evaluation Messages ◀

Alternative Time Evaluation Schemas

Customizing Time Evaluation

Integration with Payroll

Data Collection in Time Evaluation

Time Statement and Reporting

Time Evaluation Messages: Business Scenario
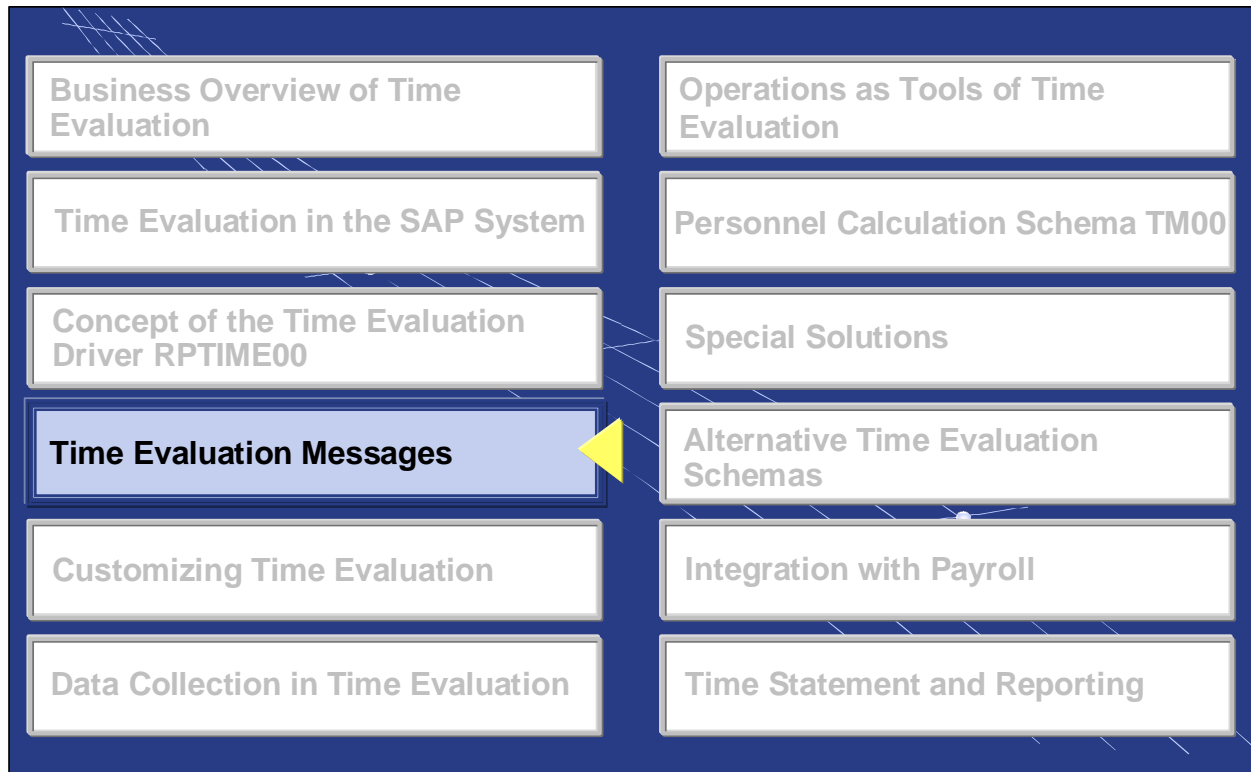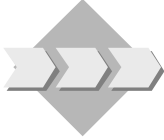
The day-to-day tasks of a time administrator:

- **Viewing time evaluation messages**

- **Routinely postprocessing messages that recur frequently**

- **Analyzing messages that occur less frequently**

- **Entering missing time data and correcting incorrect data**

- **Consulting with employees**

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Time Evaluation Messages

Is the time data under evaluation complete and plausible?

Correct time data

The day's evaluation is correct

Have working time regulations been complied with?

Are time accounts nearing critical value limits?

Inform employees

Grant missing approvals

Collate statistics

Compliance with working time regulations is ensured

Did technical errors occur?

Correct errors

The day's evaluation is correct

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- One of the most important tasks of time evaluation is to alert time administrators to errors or situations that require their attention. System administrators also need to be informed if there are errors in Customizing or technical errors.
- Time evaluation performs the following tasks:
    - Checking the consistency of the time data being evaluated: Time evaluation checks whether time data was recorded correctly and does not conflict with working time provisions and other recorded time data.
    - Checking working time provisions, company working time regulations, and time accounts
    - Pointing out technical errors that prevent time data from being evaluated. Possible causes for such errors may be errors in pair formation or in Customizing.
- You can use report RPTERL00 (*Display Time Evaluation Messages*) to perform statistical evaluations on the messages.

Origin and Categories of Messages

Origin of messages

Time evaluation

Errors determined in pair formation

Messages determined by message types that have been set in Customizing and assigned to particular situations

Errors, warnings, and notes issued by RPTIME00
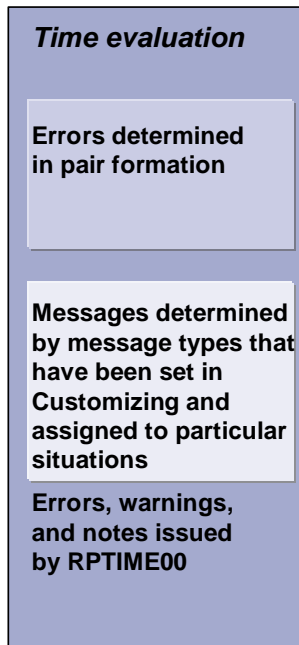
Categories of messages

How do you want time evaluation to react if, for example, a working time violation is issued?

Time evaluation terminates
Serious errors

Error message
Less serious errors, recalculation

Information message
Describing a particular situation, confirming the message

Note
Describing a particular situation
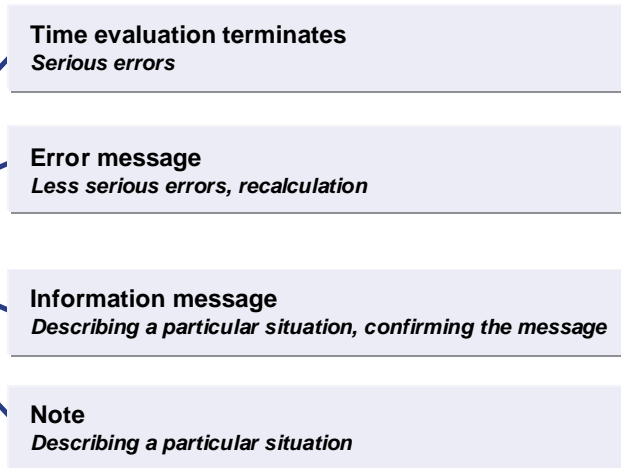
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- Time evaluation can create messages at various stages of processing. Messages to be output are specified in the SAP System in the form of message types. The category of the message type indicates what triggered the messages.
- Categories of a message type: Origin of messages for analyzing an error situation
  - 1 - Customer-defined message generated by time evaluation
  - 3 - Technical error from pair formation
  - 4 - Technical error from time evaluation
  - 5 - Warnings and notes generated by time evaluation
  - *IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times* or *Time Evaluation Without Clock Times -> Message Output -> Create Message Descriptions*
- Categories of messages for postprocessing
  You can define message types of category 1 in Customizing. In Customizing for Time Evaluation, you then determine how time evaluation is to react to particular situations. This enables you to control whether postprocessing is necessary and, if so, which form, and to determine the significance of the situation for a correct evaluation result.

Processing Messages in the *Time Manager's Workplace*

SAP

Message list displaying
- Balances, work schedule rule, etc.
- Category of the message for postprocessing
- Processing status

Time Manager's Workplace

Simple selection of period and fast navigation

| Calendar | Message list |

| List of all employees with messages or list of all messages | Time data maintenance |

Multi-day view: Showing the day of the message and the day before and after

| | Details |

Message-oriented or employee-oriented view

Detailed information on the time data

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- The message processing function is fully integrated in the *Time Manager's Workplace.* It uses the same design elements as the time data maintenance function.
- This means that time administrators work with the same user interfaces for processing time evaluation messages as for maintaining time data.
- In the message processing function of the *Time Manager's Workplace*:
    - All relevant contextual information is displayed for a message
    - Time administrators can switch between an employee-oriented and a message-oriented view
    - Time administrators can flag messages that they have already processed
- For more information, see:
    - The SAP Library: Choose *Human Resources -> Personnel Time Management (PT) -> Time Manager's Workplace -> Message Processing*
    - The Implementation Guide: Choose *Personnel Time Management -> Time Manager's Workplace -> Basic Settings -> Set Up Message Processing*

Message-Oriented and Employee-Oriented Processing

Message-Oriented Processing

Message list

Technical Dept North	Msg
Work schedule deviations	3
Unapproved overtime exists	2
Employee at work although OFF	1
Time events with errors	3
Violation of working time provisions	2
Core time violation	1
Employee not at work	1
EE at work despite full-day absence	1

- "Quick and dirty" processing of messages not needing additional research
- Routine handling of errors that occur frequently
- Quickly reduce number of messages on list

Employee-Oriented Processing

Employee list

Name	St	Msg	A
Oleg Kopp	✔	2	
Elena Lopez	✔	1	
Helga Martin		1	
Vaclev Mikovics		3	

- Processing messages with a focus on all of the messages for one person
- Recognize subsequent errors or dependencies that can be processed at one time
- In-depth analysis of situation causing error message

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Structuring of Message Lists Using Message Functional Areas

View V_T555E_WLIST: *Assign Message Types to Functional Areas*

PSGrpg	Type	MsgTyNo	Text	Functional area	Functional area text
01	1	01	Employee not at work	WOTIREG	Violation of wkg time prov.
01	1	22	Min. working time not reached	WOTIREG	Violation of wkg time prov.
01	1	46	Max. weekly plnd time reached	WOTIREG	Violation of wkg time prov.
01	1	02	At work despite full-day absence		

Assignment of functional area

No assignment of functional area

Grouping together of message types into message functional areas:

▶ Messages concerning similar business situations – time administrator processes one message subject area at a time

▶ Identical or similar handling methods for processing messages – routine handling requiring similar steps

Technical Dept North

Work schedule deviations	3
Unapproved overtime exists	2
Employee at work although OFF	1
Violation of working time provisions	3
Core time violation	2
Employee not at work	1
Time events with errors	1
EE at work despite full-day absence	1

Display messagetypes individually:

Message types requiring a specific handling method

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■ Message functional areas enable you to see an overview of messages and to control how the messages are processed.

■ Not all message types need to be assigned to a message functional area. Unassigned message types are displayed in the *Message View* on the same hierarchy level as the message functional areas.

Processing Methods

SAP

Processing methods enable you to provide information and solution strategies to streamline the processing of your time evaluation messages. As of Release 4.6C, you can display contextual information on the messages.

Planned

Assignment of special solution strategies → Quickly unlock attendance or absence records, for example

4.6C

Processing method

Contextual information = Groups of display objects →

Group of display objects OVER: Overtime and planned hours
- *Overtime*
- *Unapproved overtime*
- *Planned hours*
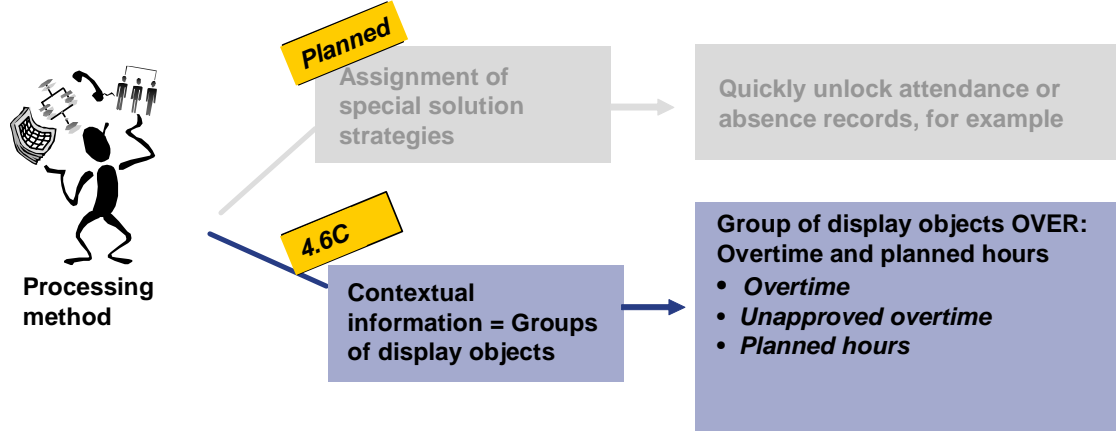
Message list

Cat.	Status	Name	Date	Message text	Additional information	Msg
⚠		Kai Wishids	04/15/2000	Unapproved overtime exists	Unapproved OT 4.15 hrs	
⚠			04/15/2000	Employee at work although OFF	OT 0.00/Unapp. OT 4.15/Plnd 0.00	

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- In Release 4.6C, you can use *processing methods* to provide specific contextual information to streamline the processing of time evaluation messages. You can have the contextual information displayed together with the message type or with the message functional area. If, under one message functional area, there are messages with different contextual information, the information is grouped in one field.
- Typical examples of contextual information:
    - Planned time and flextime account balances, when violations to working time provisions occur
    - Planned hours and overtime in the case of overtime approvals
    - Work schedule
- You organize the contextual information into *groups of display objects*. A *group of display objects* can contain up to 10 display objects.
- You can assign a *group of display objects* to each *processing method.*
- In future releases, you will also be able to use special screens, for example.

Assigning Processing Methods

Processing method

Assigned to the functional area

Assigned to message types of functional area

All assigned message types are subtotaled under the functional area and no longer appear in the message view

Each message type appears under the node for the function area in the message view

Technical Dept North	
Work schedule deviations	3
Unapproved overtime exists	2
Employee at work although OFF	1
Time events with errors	3
Violations of working time provisions	2
Core time violation	1
Employee not at work	1
EE at work despite full-day absence	1

- You can use *processing methods* in two ways:
  - You assign a processing method to a functional area. All message types that fall under this functional area inherit this processing method. The messages are then subtotaled under the functional area, that is, they no longer explicitly appear in the *Message View*.
  - You assign a processing method to a message type. If the message type is not assigned to a functional area or no processing method is assigned to the functional area, then the processing method is displayed with the message type.
- You may want to use a functional area only to structure the message list, so that particular messages are not listed separately, for example. In this case, assign a processing method to a functional area that does not have a group of display objects assigned to it. Make sure that the relevant message types do not have processing methods.

Time Evaluation Messages: Summary

SAP
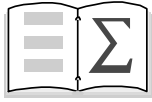
You are now able to:

- **Explain the significance of messages for Time Management**

- **Create customer-specific messages**

- **Describe how you can arrange the layout of message processing in the *Time Manager's Workplace***

© SAP AG
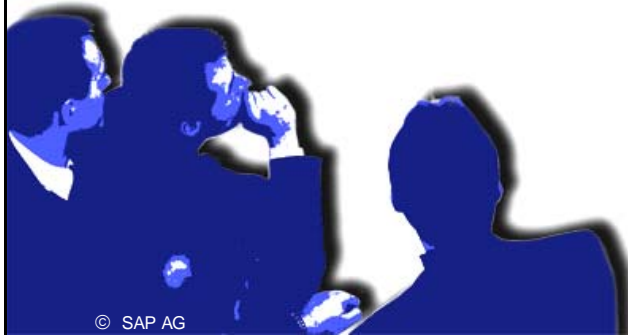
Time Evaluation Messages: Exercises

Unit: **Time Evaluation Messages**

Topic: **Processing Messages in the Time Manager's Workplace**

- Correcting Errors Using the Message Processing Function

1 **Missing clock-out entry**

An employee has forgotten to make a *Clock-out* entry when leaving work on a workday.

1-1 In the *Time Manager's Workplace,* enter the employee's time events for this day.

1-2 Run time evaluation again for the employee. Check the log.

1-3 Correct the error using the message processing function in the *Time Manager's Workplace*.

2 **Check the Customizing settings for message processing**

Time evaluation always outputs the message *At work despite day type "1"* when an employee works on a public holiday.

Check the Customizing settings for this message type in the Implementation Guide (IMG).

2-1 Which message functional area is the message assigned to?

2-2 Which processing method is assigned to the message type?

2-3 What contextual information is displayed for the message in the *Time Manager's Workplace*?

Time Evaluation Messages: Solutions

Unit: **Time Evaluation Messages**

Topic: **Processing Messages in the Time Manager's Workplace**

1   **Missing clock-out entry**

Time evaluation terminated processing with the message *04 Clock-out cannot be delimited.*

1. Correct the error using the message processing function in the *Time Manager's Workplace*.

2. Access the Time Manager's Workplace and choose *Goto → Process Messages.*

3. Select the *Employee view*, then select your employee.

4. Click on the message *Clock-out cannot be delimited.*

5. Choose the *Time Events* tab, and enter the missing time event.

6. Run time evaluation again for the employee: Select your employee in the employee list and choose *Time evaluation.*

2   **Check the Customizing settings for message processing**

1. In the Implementation Guide, choose *Personnel Time Management → Time Manager's Workplace → Basic Settings → Set Up Message Processing → Assign Processing Methods to Message Functional Areas and Message Types*

2. Choose *Assign Processing Methods to Message Types.*
   The system displays an overview of the message functional areas and processing methods assigned to the message types. The message type 08 - *At work despite day type "1"* is assigned to the *message functional area* PWS and the *processing method* **TOVER - Check Overtime Worked**.

3. Choose the IMG activity *Assign Groups of Display Objects to Processing Methods.*
   The view indicates that the *group of display objects* **OVER - Overtime and Planned Hours** is assigned to the processing method TOVER.

4. Choose the IMG activity *Create Groups of Display Objects*.

5. Select the OVER entry, and double-click on *Field Customizing*.
   This view shows that the group contains the display objects *Overtime* and *Planned hours.*

Customizing Time Evaluation

SAP

Contents:

- **Introduction to the tools used for customizing time evaluation**

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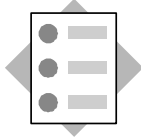
At the conclusion of this unit, you will be able to:

- **Customize the time evaluation process**
- **Describe the special features of Customizing for time evaluation, and the purpose of the Implementation Guide (IMG)**
- **Explain how tables, schemas, and personnel calculation rules interact in time evaluation**
- **Explain how functions and operations work**
- **Describe how to edit schemas and personnel calculation rules**
- **Explain the significance of the *time type* in time evaluation**

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Course Overview Diagram

Business Overview of Time Evaluation

Time Evaluation in the SAP System

Concept of the Time Evaluation Driver RPTIME00

Time Evaluation Messages

Customizing Time Evaluation

Data Collection in Time Evaluation

Operations as Tools of Time Evaluation

Personnel Calculation Schema TM00

Special Solutions

Alternative Time Evaluation Schemas

Integration with Payroll

Time Statement and Reporting

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Time Evaluation With Clock Times

SAP

```
▽ 📑 Personnel Time Management
    ▷ 📑 Work Schedules
    ▷ 📑 Time Data Recording and Administration
    ▷ 📑 Personnel Time Events
    ▷ 📑 Plant Data Collection
    ▽ 📑 Time Evaluation
        ▷ 📑 General Settings
        ▷ 📑 Settings for Time Evaluation
        ▷ 📑 Time Evaluation With Clock Times
            ▷ 📑 Initial Steps
            ▷ 📑 Providing Time Data
            ▷ 📑 Time Data Processing
            ▷ 📑 Time Wage Type Selection and Overtime Compensation
            ▷ 📑 Processing Balances
            ▷ 📑 Message Output
            ▷ 📑 Storing Evaluation Results
            ▷ 📑 Special Problems and Solutions in Time Evaluation
        ▷ 📑 Time Evaluation Without Clock Times
```

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- The standard system supplies several personnel calculation schemas (or schemas for short), which have different requirements for time data to be evaluated, and which follow different evaluation strategies.
- The Implementation Guide (IMG) contains two chapters that describe the two most important standard schemas. They also give a detailed explanation of how you can modify the schemas to suit your own company's requirements:
  - Time evaluation with clock times (standard schema TM00)
  - Time evaluation without clock times (standard schema TM04)

Customizing Time Evaluation

SAP

Driver

RPTIME00

Payroll driver

- Set parameters
- Schedule background jobs

General control of
time evaluation

Rule Processing/Evaluation Schema

Carry out
processing steps

Customize/
determine
processing steps

Evaluation Customizing

Tables/Views

Time Types

Time wage type selection

Absence quota type sel.

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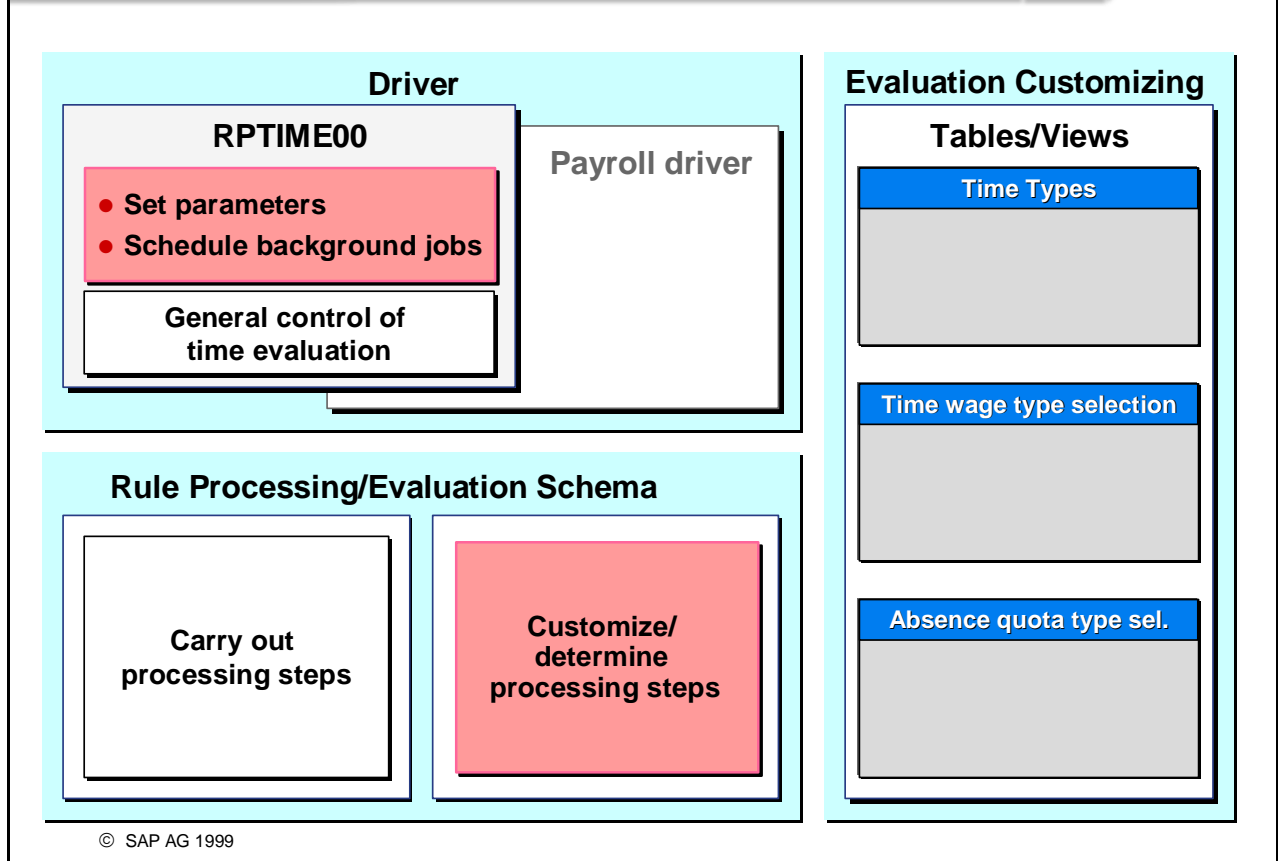
- The rules that govern the valuation of time data are not hard-coded. This means that you have a variety of options for modifying time evaluation to suit your own requirements.
- The boxes highlighted in color indicate the areas of time evaluation that you can customize.
- The processing steps of time evaluation are grouped together in the schemas. The schema determines how time evaluation processes the steps and in which sequence. The system reads values from various Customizing tables during processing.
- To start time evaluation, specify in the selection screen for RPTIME00 the schema you want to use to evaluate times.
- Time data processing by the payroll driver has the same processing structure as within time evaluation.

Steps of Time Evaluation

SAP

Select employees
Determine evaluation period

Rule Processing/Schema:

Initialization: Set groupings

Day processing:
- Provide data
- Check data for errors
- Classify times
- Select time wage types
- Compensate overtime wage types
- Manage time accounts

Final processing: Carry out checks

Export evaluation results
Update infotypes

Database
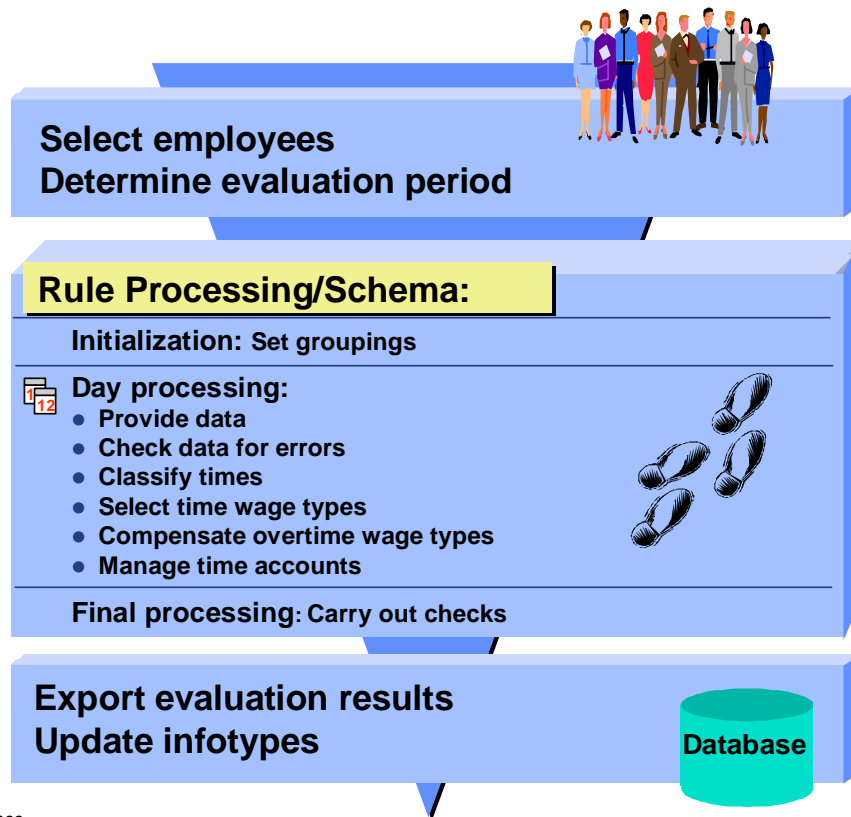
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- The time evaluation driver evaluates employees' time data on a daily basis.
- The individual processing steps that are defined in a schema are called functions. They are carried out in a particular sequence, which is determined by the arrangement of the functions in the schema.
- Functions have precisely defined attributes. Some functions are used to carry out necessary, and therefore standardized, processing steps of time evaluation (for example, selecting time wage types).

How Functions and Operations Work

SAP

Function

Trigger processing

Personnel calculation rule

Operations
- Planned hrs = 0 ?
- EE at work?
- EE absent?
- Day type?
- ...

Sequence of elementary processing steps

Evaluation Customizing

Tables/Views

Time Types

Time wage type selection

Function

Carry out processing

- **Import data**
  - Functions   P2001
                       P2002
- **Select time wage types**
  - Function   GWT

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- Functions can carry out a variety of tasks, for example:
  - Set a switch for time evaluation
  - Carry out processing
  - Trigger processing

- Some functions allow you to describe the individual processing steps more precisely, by accessing *personnel calculation rules*. In them, a sequence of elementary processing steps is carried out. The processing steps are triggered by operations. You can use operations to:
  - Query whether the employee was at work
  - Query the day type of the day to be evaluated
  - Form time balances
- Functions and operations can query values that you have set in time evaluation views.

Using HR Documentation Maintenance

SAP

HR Documentation Maintenance

| Document class | Function (Time Management) |

Documentation object

Country

Object name

Also available as a modeless dialog box

HR documentation: Object name

| HR document class | FUNT |
| Country | |

Object name	Description of the logical information object
***	
A2003	Process work center substitution
ACTIO	Rule-controlled execution of an action
ADJAB	Modify absence records
BDAY	Initiate processing block in day processing
BEND	Processing block after day processing
BINI	Initiate processing block

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- Transaction PDSY (*HR Documentation Maintenance*) accesses the documentation of all schemas, functions, personnel calculation rules, and operations. If necessary, you can create the documentation for specific clients.
- To obtain a list of these objects, enter the appropriate documentation class, and use the possible entries help for the *Object name* field. You can also display the list in a modeless dialog box to keep a list of all operations while you are creating personnel calculation rules, for example.
- Documentation classes relevant to Time Management:
  - SCHE - Personnel calculation schemas
  - CYCL - Personnel calculation rules
  - FUNT - Time Management functions
  - OPET - Time Management operations
  - 549B - Features
  - PRCL - Processing class
  - SKON - Symbolic constant
- When you maintain schemas and personnel calculation rules, context-sensitive HR documentation is displayed when you access the field help (F1).

Maintaining Personnel Calculation Schemas

SAP

Personnel Calculation Schemas: Initial Screen

Schema [   ]

[ ] **Create**

Sub-objects
- ○ Source text
- ● Attributes
- ○ Documentation

[ ] **Display**   [ ] **Change**

Attributes

Program class	C Payroll
	T Time Management

Country grouping   * , 01, 02, ... 99

☑ **Schema can be executed**

Person responsible   [   ]

☑ **Changes only by person responsible**

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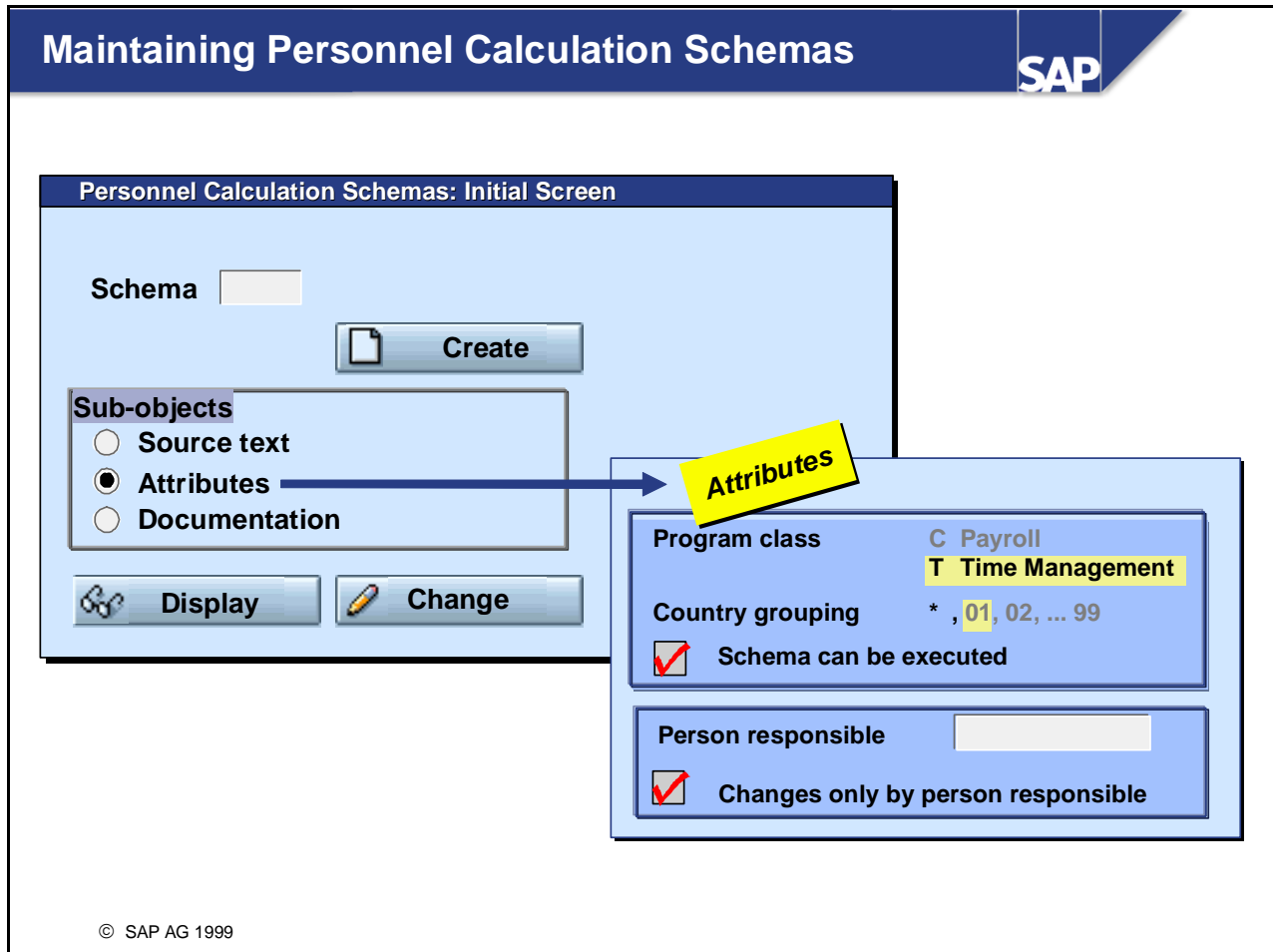
- You can use the schema editor (transaction PE01) to display and maintain personnel calculation schemas.
- You can determine characteristics of a schema in attributes. You can choose to permit only the person responsible to change the attributes and the schema.
  - The program class indicates where the schema is used (C = Payroll; T = Time Management).
  - The country grouping specifies whether the schema can be used in the country-specific versions of the payroll driver. There are no country versions of RPTIME00. The country grouping is therefore always assigned the value "*".
- To access the tree structure for the schema to display the individual processing blocks, choose *Utilities -> Structural graphics*. You cannot edit the schema in the structural graphic.

  Menu: *Human Resources -> Time Management -> Administration -> Tools-> Maintain Schemas*

Layout of the Schema Editor

SAP

Command line →

Edit Schema: Txxx

check

	Fct	Par1	Par2	Par3	Par4	D	Text
000180							
000190							
c00200	PERT	TD20					Evaluate errors from pair form
000210							
000220							
000230	A2003					*	Process work center substitut
a00240							
000250							

Line commands

Function   **Parameters 1- 4**   **Inactive function**

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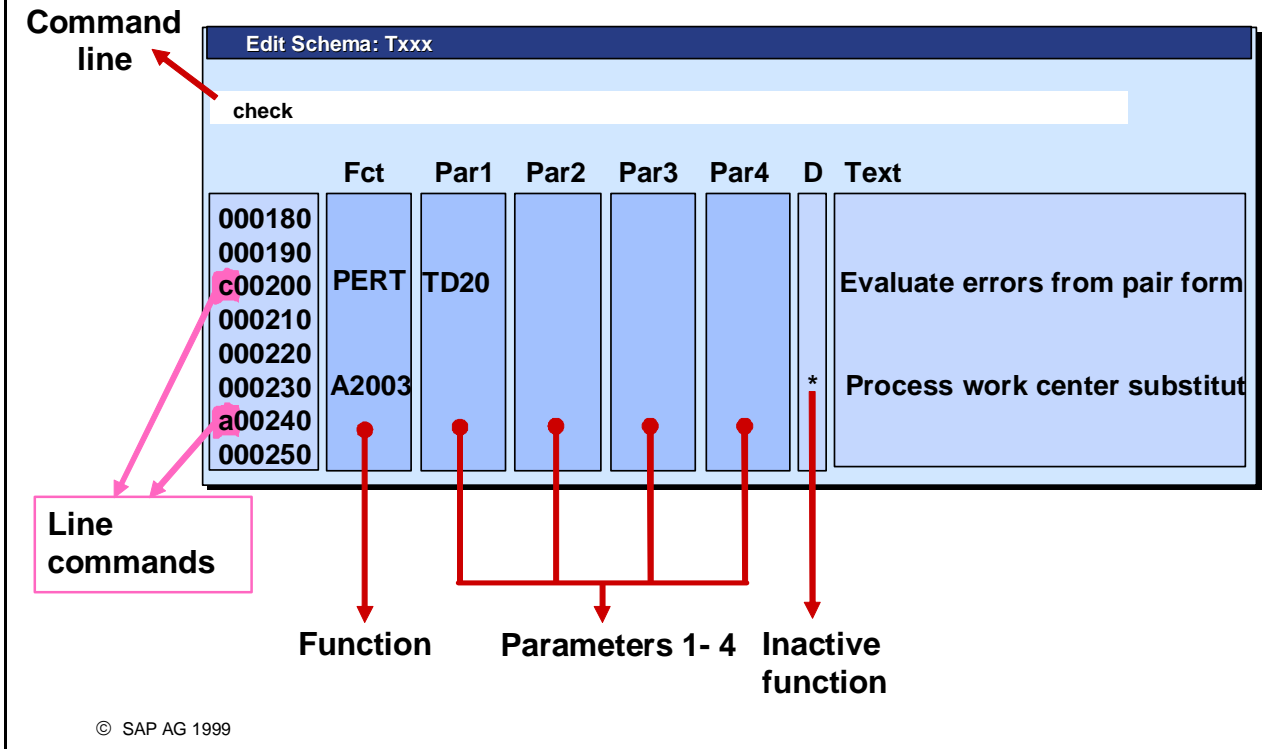
- You can use the schema editor to display, change, and create schemas.
- You can use the standard help function (F1 Help) in the schema editor to access documentation according to context (by positioning the cursor on a function, personnel calculation rule, and so on) as follows:
  F1 help from the command line: Documentation for all permitted commands
  F1 help from a line number: Documentation for all permitted line commands

Maintaining Personnel Calculation Rules

SAP

Personnel Calculation Rule: Initial Screen

Rule   TE20

[Create]

Sub-objects

○ **Source text**

    ES grouping   `*`

    Wage/time type   `****`

● **Attributes** ➡

○ **Documentation**

[Display]   [Change]

Attributes

Program class   C Payroll

                  T Time Management

Country grouping   `*` , 01, 02, ... 99

Person responsible   [   ]

☑ **Changes only by person responsible**
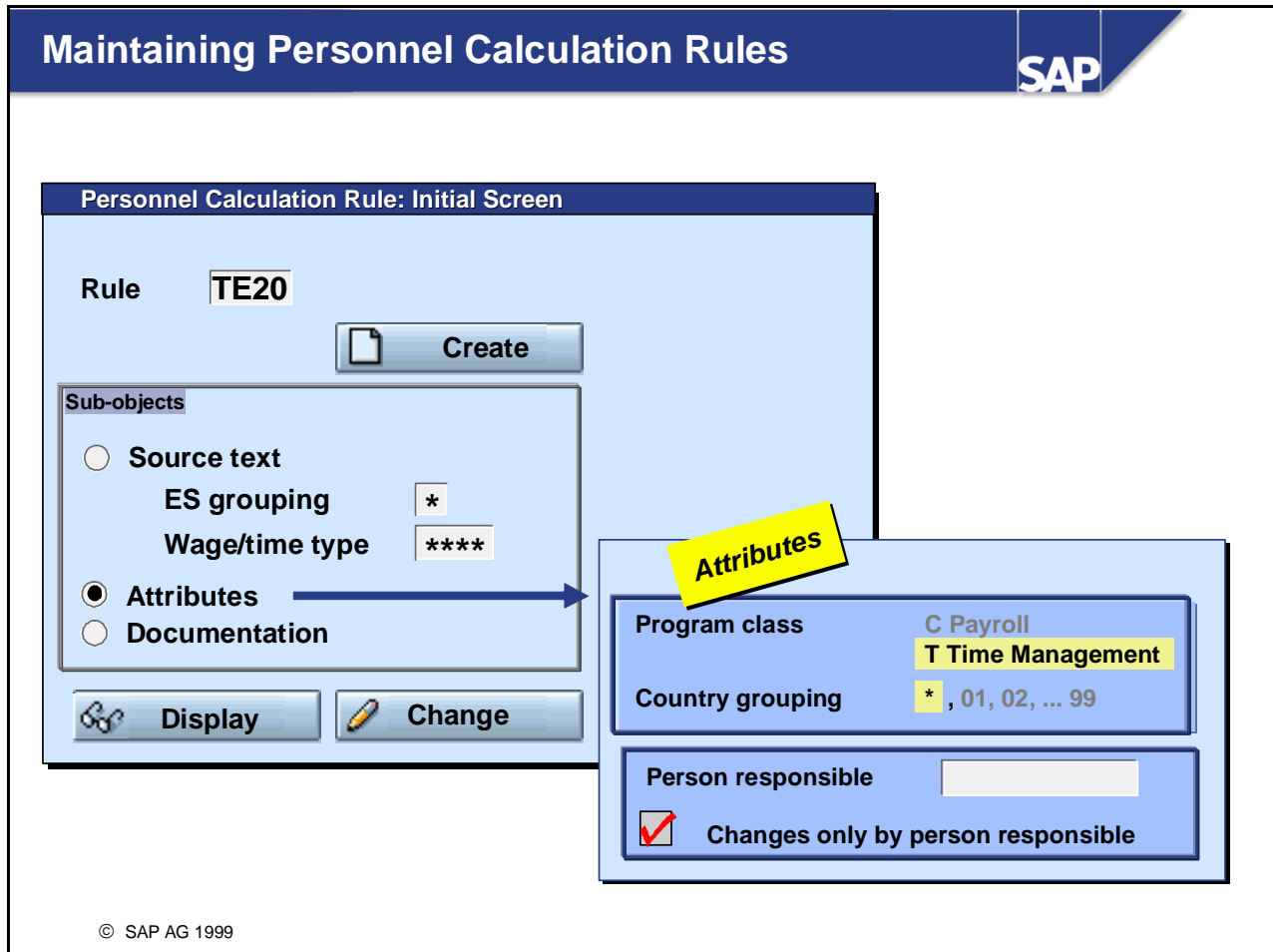
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- You can use the personnel calculation rule editor (Transaction PE02) to display and maintain personnel calculation rules.
- You edit personnel calculation rules according to the *Employee subgroup grouping for personnel calculation* rules and the wage type or time type.
- You can determine characteristics of a personnel calculation rule in attributes. You can choose to permit only the person responsible to change the attributes and the personnel calculation rule.
  - The program class determines where the personnel calculation rule is used (C = Payroll; T = Time Management).
  - The country grouping specifies whether the schema can be used in the country-specific versions of the payroll driver. There are no country versions of RPTIME00. The country grouping is therefore always assigned the value "*".
- You can choose between two screens for editing personnel calculation rules: If you choose *Utilities -> Structural graphics,* the personnel calculation rule is displayed in a tree structure If you choose *Utilities -> Table display,* you can edit the personnel calculation rules in a table view

  Menu: *Human Resources -> Time Management -> Administration -> Tools -> Maintain Personnel Calculation Rules*

Layout of the Rule Editor

TE20   **Error checks by day**

*

Employee subgroup grouping for personnel calculation rule

****

Time type

VARSTFREE   **Planned hours DWS = 0 ?**

N . . .

Y

Variable key

VARSTPRSNT   **Employee at work**

N

Y

COLER00   **Note**
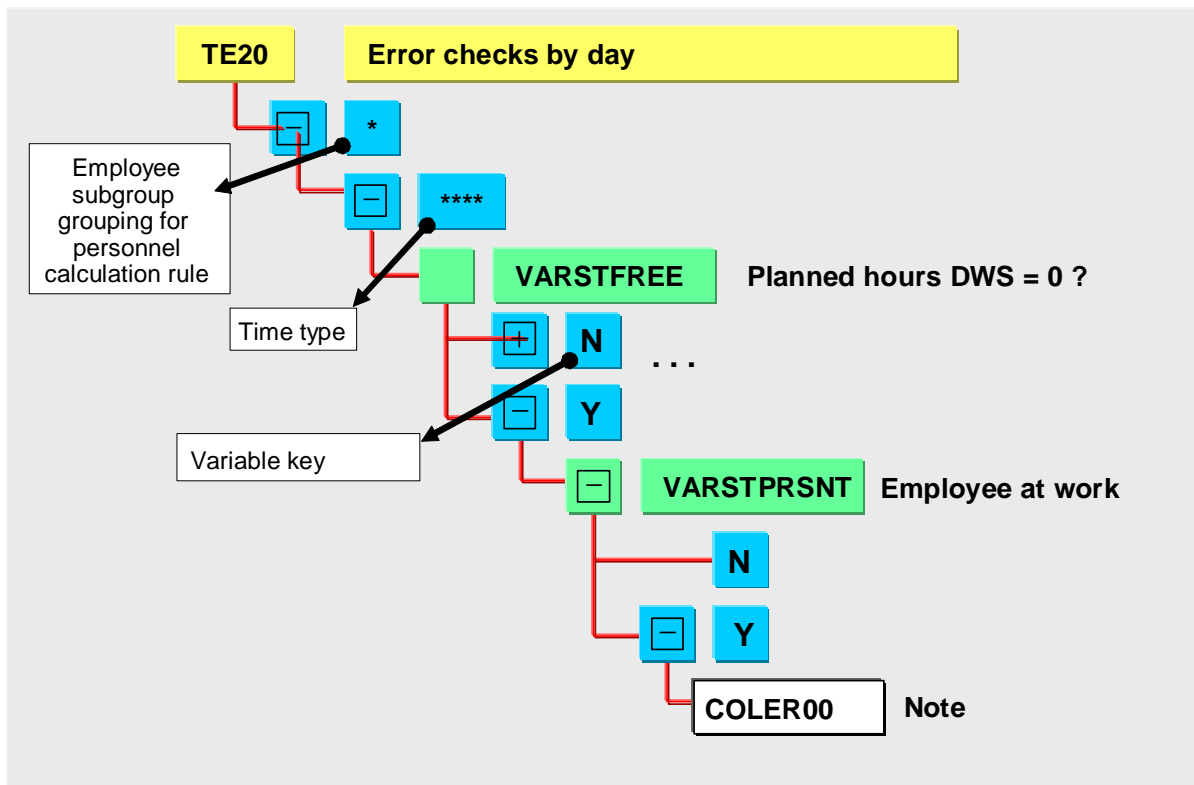
- You can use the rule editor to display, enter, and change personnel calculation rules.
- The variable key is used to build a decision tree. The decision tree enables you to perform processing differently according to organizational aspects, for example. It is only used for decision operations (indicated in green).
  For each personnel calculation rule, the length of the variable key must not exceed 8 characters, inclusive of the spaces necessary between the keys (not shown on the diagram).
- If the length of the variable key is insufficient, you can use operation PCY to branch to another personnel calculation rule. After this rule is processed, processing returns to the original personnel calculation rule, and the continues with the next operation in the line.
- You can also use operation GCY to branch to another personnel calculation rule. After this rule is processed, processing does not return to the original personnel calculation rule.
- You can access context-sensitive documentation on the operations by using the F1 help. To display a key of the colors used to identify different objects in the tree display, choose *Utilities -> Color legend.*

Managing Time Accounts

John Miller	Account no. 123999		Date: mm/31/yyyy
Date		Debit	Credit
...			
mm/04/yyyy	Deposit		150.00
mm/11/yyyy	Withdrawal	235.00	
mm/23/yyyy	Deposit		120.00
...			
	Previous balance:	300.00	Current balance: 335.00

Time Account 0050: Productive Hours

John Miller　　　　　　Pers.no.: 00012356

Balance on mm/09/yyyy: 58.90

		Debit	Credit
Time evaluation			
mm/10/yyyy	Productive hours		9.00
mm/11/yyyy	Productive hours		7.50

Balance on mm/11/yyyy: 75.00

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- You can use time evaluation to manage time accounts such as:
  - Overtime
  - Planned times
  - Flextime balances
- Time accounts can be
  - Accumulated and deducted
  - Used for employees' information
  - Used to create statistics
- Managing a time account is similar to running a bank account. Bank accounts and time accounts have the following features in common:
  - They are person-related
  - They are time-related
  - They are credited and debited
  - They show a certain value (credit) at a certain point in time
- RPTIME00 maintains time accounts according to defined processing steps. The value of the respective time account is updated on every day that is processed in time evaluation.

Time Types

Time Types View (V_T555A)

PS grouping	Time type	Time type long text	From	To
01	0002	Planned time	01/01/1901	12/31/9999
01	0003	Skeleton time	01/01/1901	12/31/9999
01	0005	Flextime balance	01/01/1901	12/31/9999
...	...			

Pers. subarea grpg.	01		From	To
Time type	0002	Planned time >	01/01/1901	12/31/9999

Balances

Save as day balance	1	Balance formation
Cumulate in period balance	1	Balance formation

ZES

Rel. Date		Time type	Number
01	04/01/yyyy	0002	7.50
01	04/01/yyyy	0003	8.00
01	04/01/yyyy	0005	0.50
01	04/02/yyyy	...	...

SALDO

Time type	Number
0002	155.00
0003	167.50
0005	12.50
...	...

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- A time type is a technical name for a duration, and assigns it a concrete meaning. Time types that are related in a business administration context can be cumulated during time evaluation to form balances.
- You can use the *Time Types* view (V_T555A) to determine which time types filled during time evaluation are stored as evaluation results. The following control options are available:
  - Transfer to total for day: Save in table ZES
  - Transfer to total for month: Cumulate in table SALDO
  - Transfer previous month/year: The value of the time type is passed on at the start of a new period or year.
  - Time type start of new period/year: At the start of a new period or year, the value of the time type is stored under the new time type specified.
  - Storing for time accounts: You can use report RPTDOW00 (*Time Accounts*) to evaluate the balances. Up to 10 balances can be downloaded to the time recording system.

IMG: Personnel Time Management -> Time Evaluation ->Time Evaluation Settings -> Define Time Types

Time Type as Calculation Tool in Time Evaluation

- **Group durations together**
  - Paid breaks
  - Attendances

- **Calculation using durations**
- **Compare times**
- **Note time points**

Time type

- **Form balances**
  - Flextime balance ← Difference of time types
  - Cluster B2

- **Transfer times**
  - Flextime balance
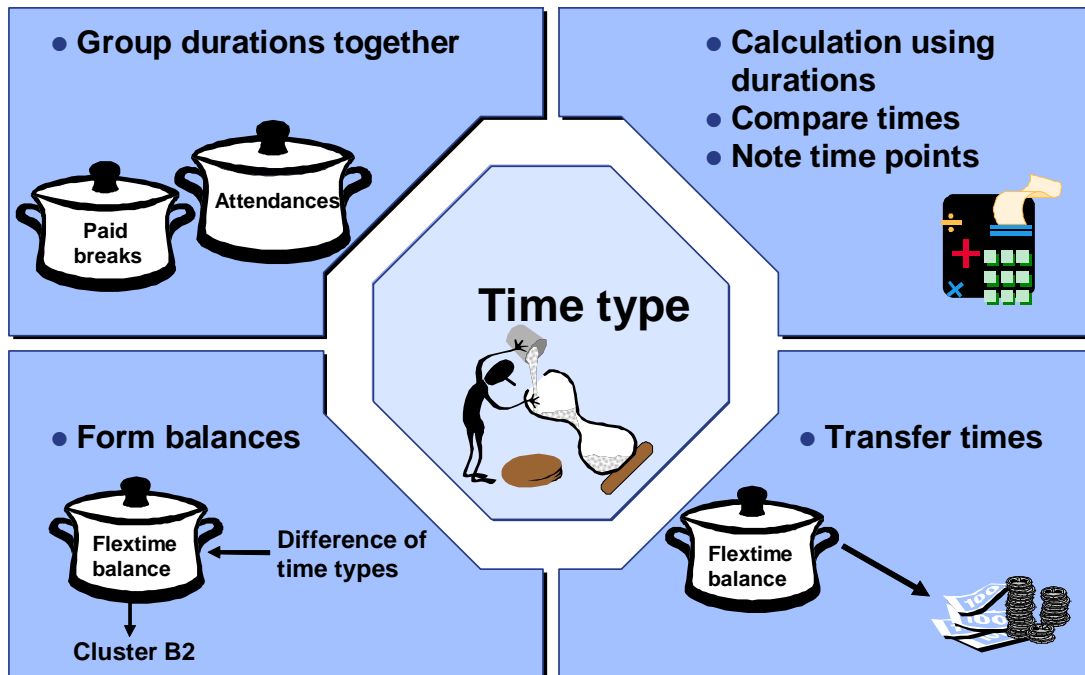
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■ Time types perform many tasks during time evaluation. Important balances that are formed by calculations, transfers, or grouping of time types are collected into time types and made available for storage in cluster B2.

Processing Structure of Time Evaluation

SAP

Time Evaluation Driver

Time evaluation driver RPTIME00

- Select employees
- Lock personnel numbers
- Determine evaluation period
- Collect data
- Trigger function pool SAPFP51T
- Determine next day to be evaluated
- Save results of evaluation
- Log data

Schema Processing

Function pool SAPFP51T

Module

Execution/ coding of functions

Module

Execution/ coding of operations

Schema

- Function
- Function
- Function
- etc.

Personnel calculation rules

- Operation
- Operation
- Operation
- etc.

Evaluation Customizing

Tables/Views

Time types

Time wage type selection rule

Absence quota type selection

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■ The complex processing structure of the time evaluation driver, schema processing, and evaluation customizing allow you to set up most of your requirements for time evaluation. If the options available in the standard system are not sufficient, you can also create your own functions and operations.

Menu: *Human Resources -> Time Management -> Administration -> Tools-> Functions/Operations*

Customizing Time Evaluation: Summary

SAP
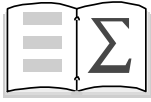
- **In this unit you have learned the different Customizing options for the processes of time evaluation (the Implementation Guide, personnel calculation schemas and rules).**

- **You have been introduced to the personnel calculation schemas and rule editors.**

- **You have learned the meaning of the *time type* for time evaluation.**

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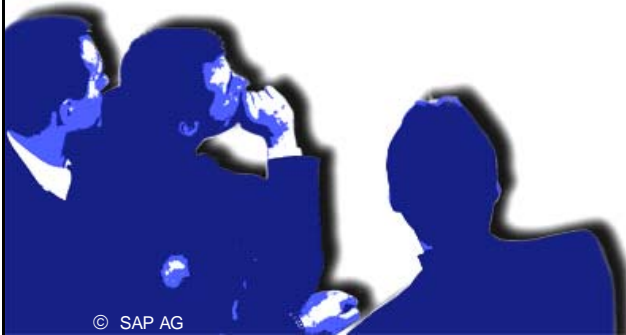
Customizing Time Evaluation Exercises
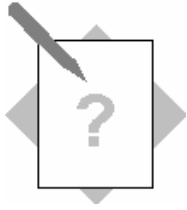
Unit: **Customizing Time Evaluation**

Topic: **Introduction to the Tools Used for Customizing Time Evaluation**

- Creating a Time Type

1   Creating a time type

In your enterprise, employees can accrue a compensation time account. This account is managed in the time type 90## (where ## = your group number).
Create the time type 90##. The time type is to be transferred to the day totals and period totals.

Customizing Time Evaluation Solutions

Unit: **Customizing Time Evaluation**

Topic: **Introduction to the Tools Used for Customizing Time Evaluation**

1   Creating a time type

You create the time type 91## in the IMG step:

Personnel Time Management → Time Evaluation → Time Evaluation Settings → Define Time Types.

In the *Save as day balance* and *Cumulate in period balance* fields, enter the value 1 (= balance formation/transfer).

Data Collection in Time Evaluation

SAP

Contents:

- **Importing the daily work schedule**
- **Providing the time infotypes**
- **Evaluating attendance and absence reasons**
- **Processing using internal tables**
- **Schema section: Collecting data in time evaluation schema TM00**

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Data Collection in Time Evaluation: Objectives
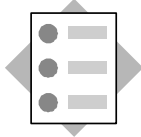
At the conclusion of this unit, you will be able to:

- **Describe the functions that are used to import employees' planned specifications and their infotypes into time evaluation**

- **Discuss how this information is available in internal tables for further processing**

- **Explain how data is collected in the time evaluation schema TM00**

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Course Overview Diagram

SAP

Business Overview of Time Evaluation	Operations as Tools of Time Evaluation
Time Evaluation in the SAP System	Personnel Calculation Schema TM00
Concept of the Time Evaluation Driver RPTIME00	Special Solutions
Time Evaluation Messages	Alternative Time Evaluation Schemas
Customizing Time Evaluation	Integration with Payroll
Data Collection in Time Evaluation ◄	Time Statement and Reporting

Data Collection in Time Evaluation: Business Scenario

- **Attendances and absences are recorded for employees. The time data is entered into time evaluation, where it is made available for further processing.**

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Recording work schedule deviations		Recording all times

Function P2000 ← **Work schedule incl. substitutions** → **Function P2011**

Postings

Function P2001 ← **Absences** → **Function P2001**

Function P2002 ← **Attendances** → **Function P2002**

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- Employees' planned specifications, time events, and data from the time infotypes are imported using special functions. Depending on your method of time recording, you use either function P2000 or P2011 to import employees' planned specifications (from the work schedule).
- Additional functions for importing data:
  - **A2003 -** You can use function A2003 to take account of position substitutions that lead to a different payment in time evaluation.
    Substitutions that lead to a change in the planned specifications are imported by function P2000 or P2011.
  - **P2005 -** You can use function P2005 to import the overtime of the day that was recorded in the *Overtime* infotype (2005). You would normally only use this function if you record work schedule deviations. If you record actual times, there are checks to determine whether the employee is permitted to work overtime:
    - By time evaluation, which checks overtime approvals automatically
    - By the time administrator, who records overtime in the *Attendances* infotype (2002)

IMG: *Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Providing Time Data*

Function P2000: Importing Daily Work Schedule
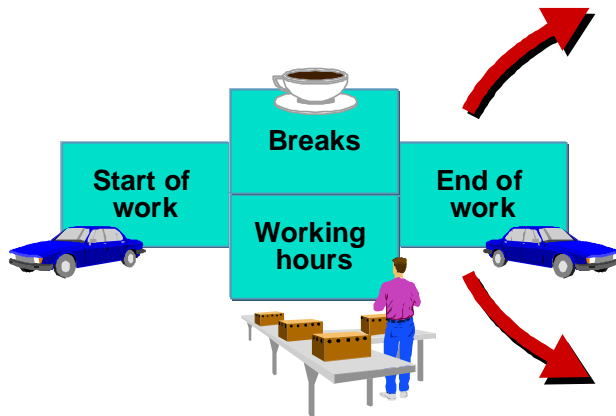
Table TZP: Planned Specifications

Forms the basis for comparison with recorded time data:

Enables processing of:
- Absence times
- Break durations
- Error checks

Breaks

Start of work

Working hours

End of work

Table TIP: Planned Pair

If no actual times are recorded:

The time pair according to the planned working times forms the basis for time evaluation

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■ Function P2000 is used for the following tasks:

- Recording work schedule deviations
  Function P2000 enters the employee's current work schedule in the internal table TZP. It also enters a time pair according to the day's planned working times in the work table TIP. This pair is flagged as a planned pair.
- Time evaluation without clock times
  If you use the recorded attendances from the *Attendances* infotype (2002) as a basis for the valuation of times, function P2000 places the daily work schedule in table TZP. You prevent the system forming a planned pair by entering NOTP in parameter 4 of the function.
- Evaluation or simulation of future times
  For the evaluation of future times, no information on employees' actual work is available. Time evaluation therefore uses function P2000 to generate information on the day. It enters the daily work schedule in table TZP and a planned pair in table TIP.

Function P2000: Providing Planned Specifications

SAP

Daily work schedule (V_T550A)

Grpg for daily WS	01
Daily work schedule	FLEX Flextime

Planned working hours

Planned working hours	8.00	**DWS selection rule**	01
☐ No planned working hrs			

Working times

Fixed working hours

Planned working time		-	

Flextime

Planned working time	07:00	-	18:00
Normal working time	08:00	-	17:00
Core time 1	09:00	-	11:30
Core time 2	14:00	-	16:00

Breaks

Work break schedule	FLEX

. . .

Valuation

Min. working time		**Daily WS class**	5

. . .

■ The planned specifications ("When was the employee scheduled to work?") are based on the employee's personal work schedule. If a substitution is assigned to the employee on the day being evaluated, the substitution overrides the daily work schedule.

IMG: Personnel Time Management -> Work Schedules -> Daily Work Schedules -> Define Daily Work Schedules

Function P2000: Filling Internal Table TZP

SAP

Generate entries in internal table TZP

Time	Time identifier	Break duration
00 .0000	01 Overtime hours	
07 .0000	02 Fill time	
09 .0000	03 Core time	
09 .5000	04 Core time break	0.25
10 .0000	03 Core time	
11 .5000	02 Fill time	
12 .0000	05 Fill time break	0.75
13 .5000	02 Fill time	
14 .0000	03 Core time	
16 .0000	02 Fill time	
18 .0000	01 Overtime hours	

Further information from daily work schedule

DWS	Variant	Day type	DWS class	Planned hours
FLEX		BLANK	5	8

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- An entry is generated in the internal table TZP for each time point in the daily work schedule; all clock times are decimalized. Each entry in table TZP is assigned a time identifier, which describes each section of the daily work schedule.
- Time evaluation also uses function P2000 to import the:
  Daily work schedule
  Daily work schedule variant
  Day type
  Daily work schedule class
  Planned working hours.

Function P2011: Providing Planned Specifications and Actual Times

Planned specifications

Daily work schedule

Breaks

Start of work

Working hours

End of work

22:00   06:00

→ TZP

Actual times

Employee postings

22:00 Clock-in
01:10 Start of break
01:40 End of break
05:45 Clock-out

→ TIP

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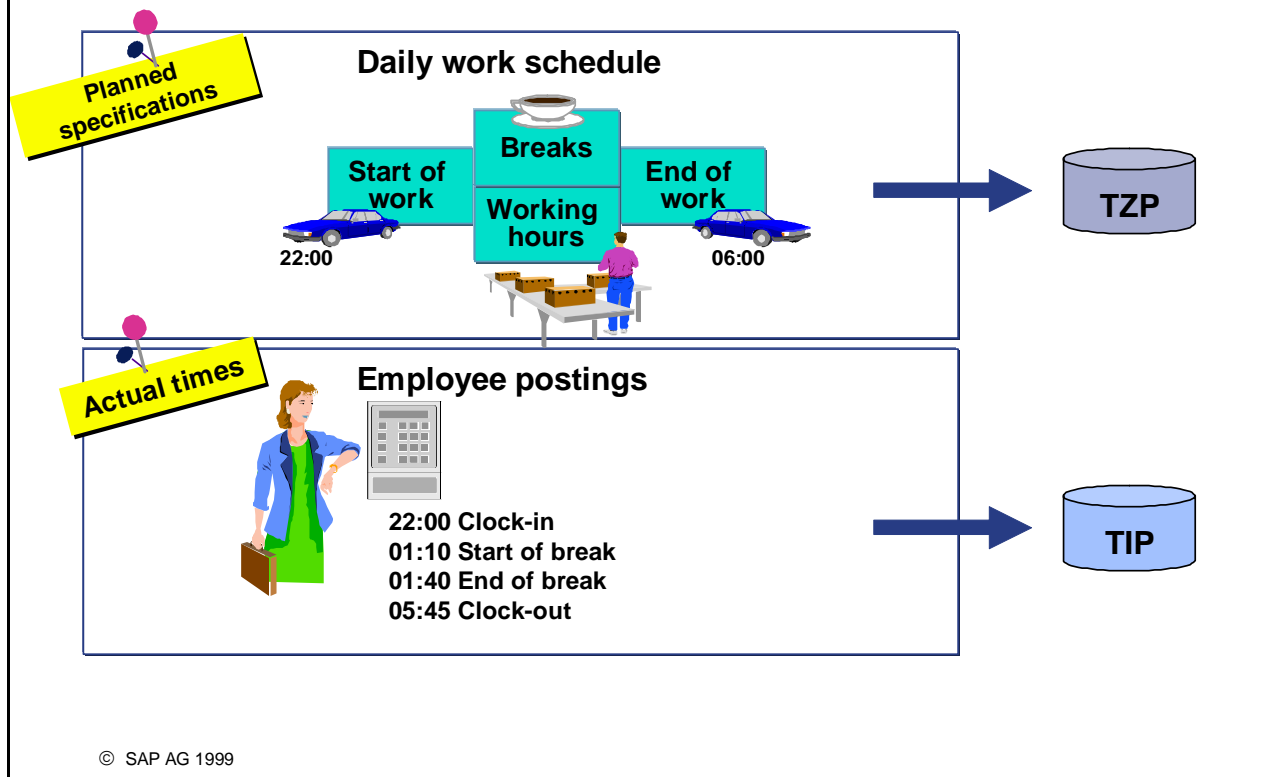
- You use function P2011 when you upload time events/time postings from external time recording systems to the R/3 System. Function P2011 performs two tasks:
  - Importing the planned specifications:
    The employee's current daily work schedule is first imported to the internal table TZP.
  - Loading the actual times:
    The pairs formed from the time postings are then placed in the internal table TIP.
- If you use function P2011 in the schema, you require function P2000 only if you want to load planned specifications for future days.

Daily Input: Table TIP After Function P2011

Time Events (infotype 2011)

22:00	P10	
01:10	P15	Start of break
01:40	P25	End of break
05:45	P20	Clock-out

Pair formation →

Table PT (Cluster B2)

Start	End	BR	ER	S1	P
22:00:00	25:10:00	P10	P15		1
25:10:00	25:40:00	P15	P25		0
25:40:00	29:45:00	P25	P20		1

Function P2011

TIP

From	To	1	P	ID	Ct	P	TTyp	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	Number
22.0000	25.1667		1		00			P10	P15		E				0001				3.1667
25.1667	25.6667		0		00			P15	P25		E				0002				0.15000
25.6667	29.7500		1		00			P25	P20		E				0003				4.0833

Status from pair formation — **Pair type** — **Time event type** — **Origin indicator** — **Reference to time pairs (table PT)**

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■ Function P2011 transfers the time pairs that were formed from the time postings from table PT (Cluster B2) to the internal work table TIP. All clock times are decimalized in the process.
If pair formation assigns time events to the previous day, the system adds 24 hours to the time pair.

■ So that table TIP is not overloaded with information, further data on the TIP entries is stored in other tables. This separation of data is known as a split. Only the reference to the corresponding table is stored in table TIP:

- PT-   Pair table
- ALP   -   Different payment
- C1-   Cost assignment specifications
- AB   -   Absences

The reference number that is specified under the table name refers to the corresponding record in the table in cluster B2. The numbers in these tables are assigned automatically.

Processing Using Internal Tables

Internal tables (temporary):
Read, fill, and change data

Input for processing steps in time evaluation

TOP

TIP
Day's input

TZP
Day's clock times

Results of the individual processing steps in time evaluation

TES
Day's balances

ZML
Overtime wage types

DZL
Wage types

FEHLER
Messages

Tables in cluster B2
Time evaluation results

ZES
Day's balances

SALDO
Period balances

ZL
Wage types

FEHLER
Messages

Output

RPTIME00, program option: Display log

Output

Report RPCLSTB2

- Internal tables are the work tables of *Time Evaluation*. They are filled and changed during the time evaluation run. When time evaluation requires specific data for a processing step, it reads it from the internal tables and then processes it further. At the end of the processing step, time evaluation returns the modified data to the internal table. The data is then available there for further processing steps.

- Internal tables are temporary in nature, and are deleted at the end of time evaluation for each employee. Data that is required subsequently, such as time balances and time wage types, is exported to tables in cluster B2 in file PCL2 at the end of time evaluation.

- The principal work table is the internal table TIP (daily input). It provides the input for the respective processing step in the form of the time data that has been imported or evaluated so far by time evaluation. The entries in TIP are processed line by line and inserted in the internal table TOP (daily output). Table TOP becomes the new table TIP at the end of the processing step.

- The internal table TZP contains the planned specifications from the employee's personal work schedule.

- The values in the internal tables that are determined in the individual processing steps are displayed in the time evaluation log.

Functions P2001 and P2002: Providing Absences and Attendances

SAP

Absences (infotype 2001)

Absence type	0230
Time	08:00 — 10:30

Attendances (infotype 2002)

Attendance type	0800
Time	10:30 — 17:00

Function P2001

Function P2002

TIP

Start	End	1	P	ID	Ct	P	TTyp	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	Number
08.0000	10.5000	0	2		02	A					A							01	2.5000
10.5000	17.0000	0	3		01	P					P								6.5000

Reference to:
- **Different payment (Table ALP)**
- **Cost assignment (Table C1)**
- **Absences (Table AB)**

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- Function P2001 generates an entry in the internal table TIP for each recorded absence (infotype 2001). Function P2002 enters the attendances from infotype 2002 in the internal table TIP. For full-day attendances and absences, a time pair is generated according to the planned working times from the daily work schedule.
- Depending on how attendances and absences are recorded and how feature HRSIF is set, the clock times are stored in table TIP.
- When loading full-day attendances or absences, time evaluation generates the times according to the planned working times. (When full-day attendances and absences are recorded, the attendance or absence hours are not entered manually, but instead are imported automatically from the daily work schedule.)
- The *Processing type/time type class* (field CT) is used to group together attendances and absences that are processed identically in *Time Evaluation Without Clock Times*. It has no relevance for *Time Evaluation With Clock Times.*

Processing Attendance and Absence Reasons

Attendance/absence reason

10:00	P10	0001 Doctor's appointment <1 day
16:00	P20	0004 Time in lieu of flextime

Rule TD80

Att./Absence Reasons for Subsystem (V_T705A)

Att/abs	ESgrp	PSgrp	A/AReas	Text	Abs/Att	Text
0001	1	01	0001	Doctor's appt <1 day	0230	Doctor's appt
0001	1	01	0004	Time in lieu of flextime	0900	Time in lieu of flex.

TIP

Start	End	1	P	ID	Ct	P	TTyp	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	Number
08.0000	10.0000	0	2		02	A					C							01	2.0000
10.0000	16.0000	0	1		00	P		P10	P20		E		0001	0004	0001				6.0000

Infotype 2001 locked

Current day: 0230 Doctor's appt   08:00 - 10:00
Following day: 0900 Time in lieu of flex.   Full day

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- Employees can record an attendance or absence reason in conjunction with a clock-in or clock-out entry at the time recording terminal. Time evaluation can use the attendance or absence reasons to generate records for the *Attendances* (2002) and *Absences* (2001) infotypes automatically.
- Rule TD80 evaluates the attendance and absence reasons using the view *Att./Absence Reasons for Subsystem* (V_T705A). All the automatically generated records are defined as locked infotype records in the system. A note is issued in error processing in the *Time Management pool*. The *time recording* administrator can then confirm the record by unlocking it, or delete it.
- An additional entry is generated in table TIP and evaluated for records of less than one day. The payroll for day in question is first run provisionally, since generating a locked attendance or absence record sets a recalculation for the day.
- A full-day attendance or absence is evaluated on the following day by the personnel calculation rule TD90. If the attendance or absence is still locked and the day is a workday, a planned pair is entered in TIP. If the following day is not a workday, the automatically generated record can be extended by one day.
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation with Clock Times -> Providing Time Data -> Absences -> Provide Full-Day Absences Recorded at Terminal
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation with Clock Times -> Providing Time Data -> Absences -> Provide Full-Day Absences Recorded at Terminal

Dynamic Daily Work Schedule Assignment: Rule TD30

Personal work schedule

EARLY   LATE   NIGHT

06:00   14:00   22:00   06:00

Problem: Personal work schedule not suitable
Suitable daily work schedule?

Rule TD30
(Operation DYNDP)

V_T552V   DWS assignment:

Clock-in	DWS
05:00 - 07:00	EARLY
13:00 - 15:00	LATE
21:00 - 23:00	NIGHT

Personal work schedule:
LATE

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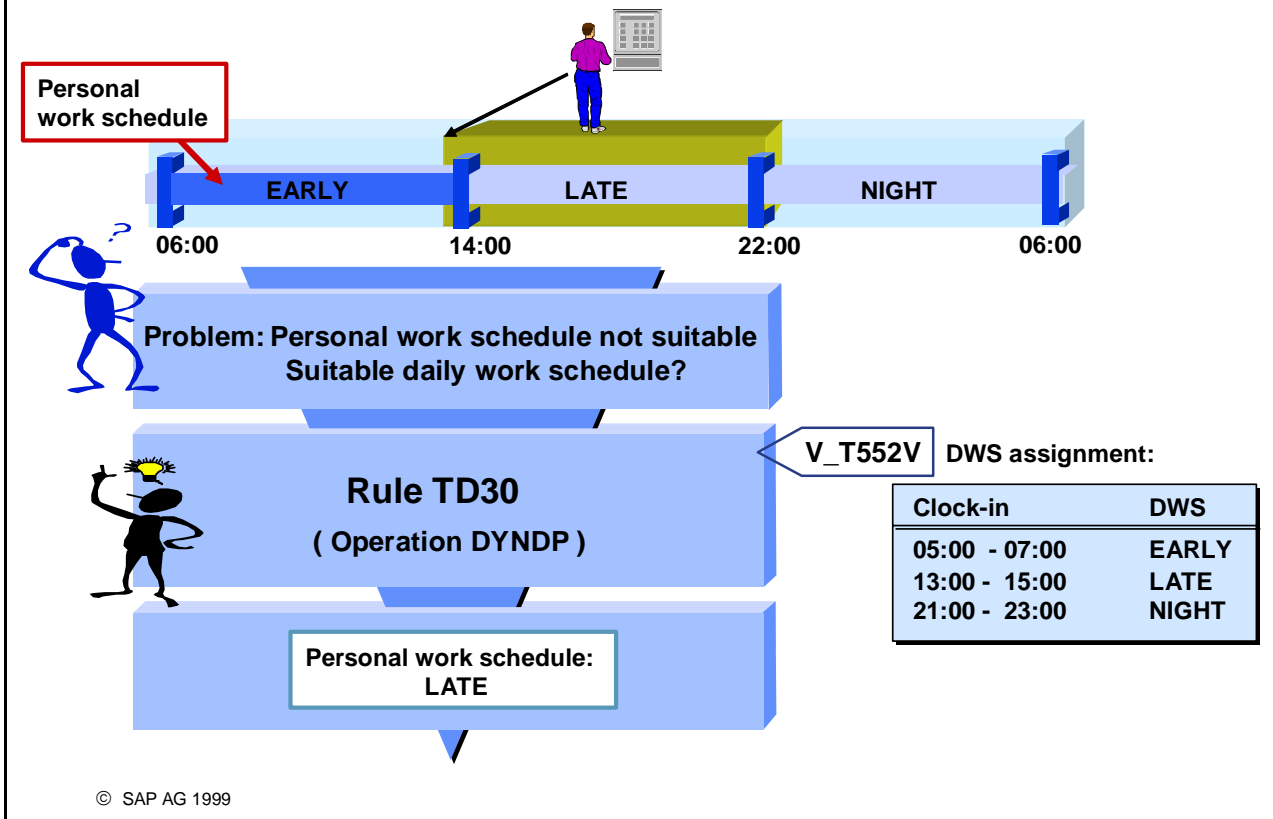
- The **dynamic assignment of the daily work schedule** allows time evaluation to determine the appropriate daily work schedule depending on the time of the first clock-in entry for the day. You can use the dynamic assignment for relief shifts, for example, to assign employees an appropriate work schedule.
- Rule TD30 compares the employee's first clock-in posting with the corresponding entries from the *Dynamic Assignment of Daily Work Schedules* view (V_T552V) to determine the current daily work schedule.

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Providing Time Data -> Work Schedule and Time Events -> Dynamic Assignment of Daily Work Schedules -> Dynamic Assignment Based on Clock-Ins

Evaluation and Simulation of Time Data for Future Periods

Fct	Par1	Par2	Par3	Par4	D	Text
CHECK	FUT					Allow evaluations for future periods
. . .						
IF		NOT	SIMF			No simulation for future periods
. . .						
ELSE						Simulation for future period
COPY	TDT0					Provide time data for simulation
ENDIF						Endif (simulation)
. . .						

Fct	Par1	Par2	Par3	Par4
P2000				
A2003				
P2001		1		
P2002		1		
RTIPA	TD70	GEN		

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- You can also run time evaluation for future periods or for periods that end in the future. **Evaluation for future periods** triggers a database update. You normally use a special schema that is only valid for future evaluations.
- **Simulation for future periods** does not trigger a database update. It is used for planning shifts and for projecting an employee's quota entitlements. Note: If you want to prevent a database update in other situations, start RPTIME00 using the program option *Test run (no update).*
- You can use function IF to set conditions to control the further processing. IF constructions are formed in conjunction with functions ELSE and ENDIF.
  You can set conditions using a personnel calculation rule. The system supplies some frequently used conditions. Examples:
  - IF NEG   Time Management status 9 (Recording deviations to the work schedule)
  - IF POS   Time Management status 1 or 2 (Recording all times)
  - IF EOP   Last day of payroll period
- You can use parameter 2 of functions P2001 and P2002 to determine that manually recorded attendance and absence records delimit time pairs already in table TIP.

Data Collection in Schema TM00

Func.	Par1	Par2	Par3	Par4	D	Text
. . .						
IF		NOT	SIMF			No simulation for future periods
PERT	TD20					Evaluate errors from pair formation
P2011						Provide time pairs and daily WS
ACTIO	TD10					End if the daily work schedule still active
A2003						Process work center substitution
ACTIO	TD60	AB				Transfer daily WS, if RWH and leave
P2001						Provide absence data
P2002						Provide attendance data
PTIP	TD80	GEN				Process attendance/absence reasons
ACTIO	TD90					Process generated locked records
ACTIO	TD30					Dynamic DWS assignment - clock-in entry
ELSE						Simulation for future period
COPY	TDT0					Provide time data for simulation
ENDIF						Endif (simulation)
. . .						

- Data collection in the schema follows a set sequence.
- Two additional personnel calculation rules play an important part in data collection:
  - Personnel calculation rule TD20 processes the errors generated in pair formation.
  - Personnel calculation rule TD10 checks whether the daily work schedule of the day to be evaluated is not yet completed at the time of the evaluation. It terminates processing for the day if the difference exceeds the value specified in the constant TETOL (Payroll Constants table (T511K)).

SAP

Selection specifications using function CHECK

■ CHECK PON ➡	**All personnel numbers with a Time Management status other than 0 are selected**

■ CHECK NEG ➡	**Only personnel numbers with *Time Management status* 9 are selected**
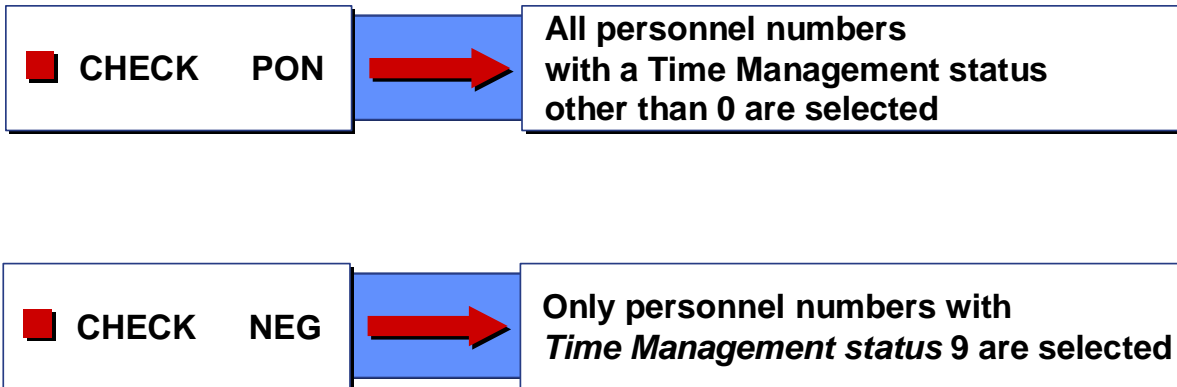
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- Function CHECK uses the Time Management status, which is stored for each employee in the *Planned Working Time* infotype (0007), to check whether the employee should be selected for time evaluation with the relevant schema.
- If function CHECK does not feature in the schema with a parameter specifying which employees should be selected, all employees with the *Time Management status* 1 or 2 are selected for time evaluation.
- Function CHECK can be inserted at any point in the schema.

Data Collection in Time Evaluation: Summary
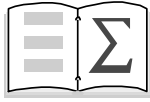
- **In this unit, you have learned the functions that are used to import the planned specifications and the time infotypes in time evaluation.**

- **You have learned the processing principle of the internal table TIP.**

- **You know how data is collected in the time evaluation schema TM00.**

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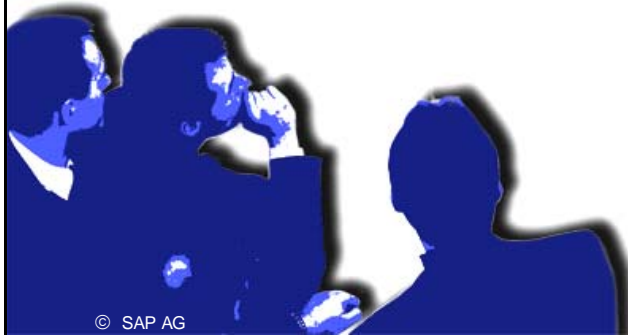
Data Collection in Time EvaluationExercises
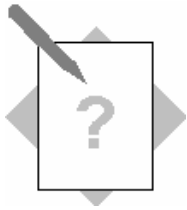
	Unit:	Data Collection in Time Evaluation
	Topic:	Providing Time Data
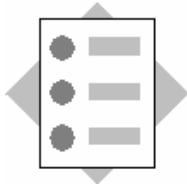
- Importing Time Data in a Time Evaluation Schema

1   Assigning costs for works council activities

In your enterprise, times that employees spend active in the works council are documented. Employees receive special bonuses for working time spent on works council activities. These bonuses are to be assigned to cost center *2200 – Human Resources*.
To record times spent on works council activities, use the time data ID *BR* in the *Time Manager's Workplace*.

1-1   Record time spent on works council activities, with cost assignment, for your employee.

1-2   Copy personnel calculation schema TM00, and name it ZM## (where ## = your group number).

1-3   The recorded attendances may overlap other time data. If you want the recorded absences to delimit other TIP entries, you can use parameter 2 of function P2002. In your schema ZM##, modify parameter 2 of function P2002 in such a way that existing TIP entries are delimited by the recorded attendances.

1-4   Run time evaluation using your schema ZM##, and use the time evaluation log to check how the recorded attendances are imported within time evaluation.

Data Collection in Time Evaluation Solutions

Unit: **Data Collection in Time Evaluation**

Topic: **Providing Time Data**

1 **Assigning costs for works council activities**

1-2 To copy schema TM00, choose *Human Resources → Time Management → Administration→ Tools → Maintain Schemas*. In the *Schema* field, enter `TM00`, and choose *Schema → Copy.*

1-3 To make the import of attendances delimit existing TIP entries, enter an asterisk (*) in parameter 2 of function P2002.

1-4 The works council activities stored in the *Attendances* infotype (2002) are imported to table TIP by function P2002.
Field C1 in table TIP indicates whether a cost assignment is linked to the TIP entry.
The cost information is stored in table C1 of cluster B2.

Operations as Tools of Time Evaluation

SAP

Contents:

- **Time evaluation operations**
- **Decision operations**
- **Performing calculations**
- **Updating results**
- **Issuing messages**

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Operations as Tools of Time Evaluation: Objectives

SAP

At the conclusion of this unit, you will be able to:

- **List the principal operations, and describe what they do**

- **Explain how to find detailed information about operations**

- **Create and modify a personnel calculation rule based on a business requirement**

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Course Overview Diagram

SAP

Business Overview of Time Evaluation	**Operations as Tools of Time Evaluation**
Time Evaluation in the SAP System	Personnel Calculation Schema TM00
Concept of the Time Evaluation Driver RPTIME00	Special Solutions
Time Evaluation Messages	Alternative Time Evaluation Schemas
Customizing Time Evaluation	Integration with Payroll
Data Collection in Time Evaluation	Time Statement and Reporting
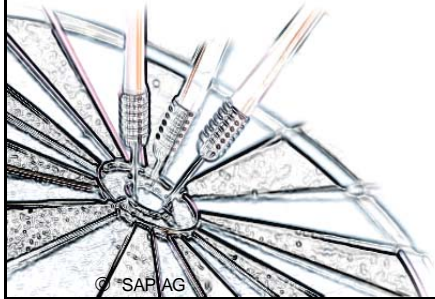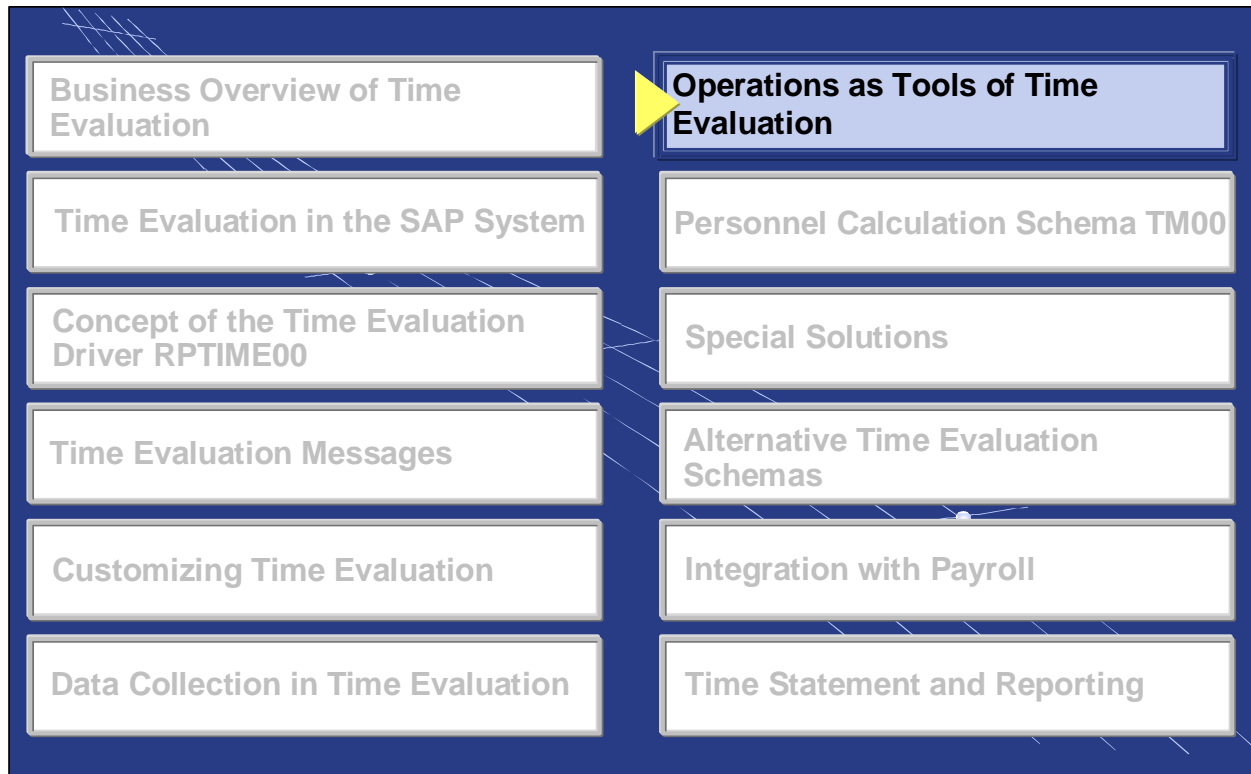
- **Time evaluation determines whether an employee was scheduled to work on a day being evaluated.**

Time Evaluation Operations

Operations that perform one or more actions

Update results in table fields

Add, multiply, round values

Carry out a business process, generate a planned pair, for example

Decision operations

Operations for technical control

for example, branch to a personnel calculation rule

Retrieve and evaluate information, and update processing based on result

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- Operations are the basic modules of personnel calculation rules. They carry out elementary processing steps and influence the structure of the processing and/or the data and values from the internal processing tables.

Decision Operations

Provide work center data

OUTWPPERSB		Perform special processing if the employee belongs to employee subgroup XY
* *	.....	
X Y	.....	

Provide general fields

VARSTABSWD		Was the employee absent for the full day? (Yes/No)
N	...	
Y	...	

VARSTHOLCL		Which public holiday class is assigned to the day being evaluated?
*	.....	
0	.....	
1	.....	

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- **Decision operations** control the further processing. To do this, the operation queries conditions that can be answered as follows, for example:
  - With Y (Yes) or N (No)
  - With information on the organizational assignment
  - With information on the current day
- The different methods of processing by a decision operation are depicted in a decision tree. The variable key is extended by the relevant specification (answer) according to the result of the decision.
- **Note:**
  The answer in the variable key must depict each outcome of a decision.
  You can use an asterisk (*) to summarize all further outcomes of a decision that do not require special processing or identical processing. The number of asterisks must correspond to the number of characters in the answer (for example, time type = ****). A single asterisk also describes the following answer: the queried field was not filled.
- The majority of decision operations start with the letters OUT or VAR. You can display a list of these decision operations in the HR documentation maintenance. To do so, enter the *Document class* **Operation** (**Time Management**) or, depending on your view, **OPET**. In the *Object name* field, enter *OUT** or *VAR*,* and choose the possible entries help.

Operation VARST

■ **Was the employee at work?**	➡	**VARSTPRSNT**
■ **Was the employee scheduled to work?**	➡	**VARSTFREE**
■ **Which day type is assigned to the day being evaluated?**	➡	**VARSTDAYTY**
■ **Is there an absence on the day being evaluated?**	➡	**VARST _____**
■ **Is there a full-day absence on the day being evaluated?**	➡	**VARST _____**
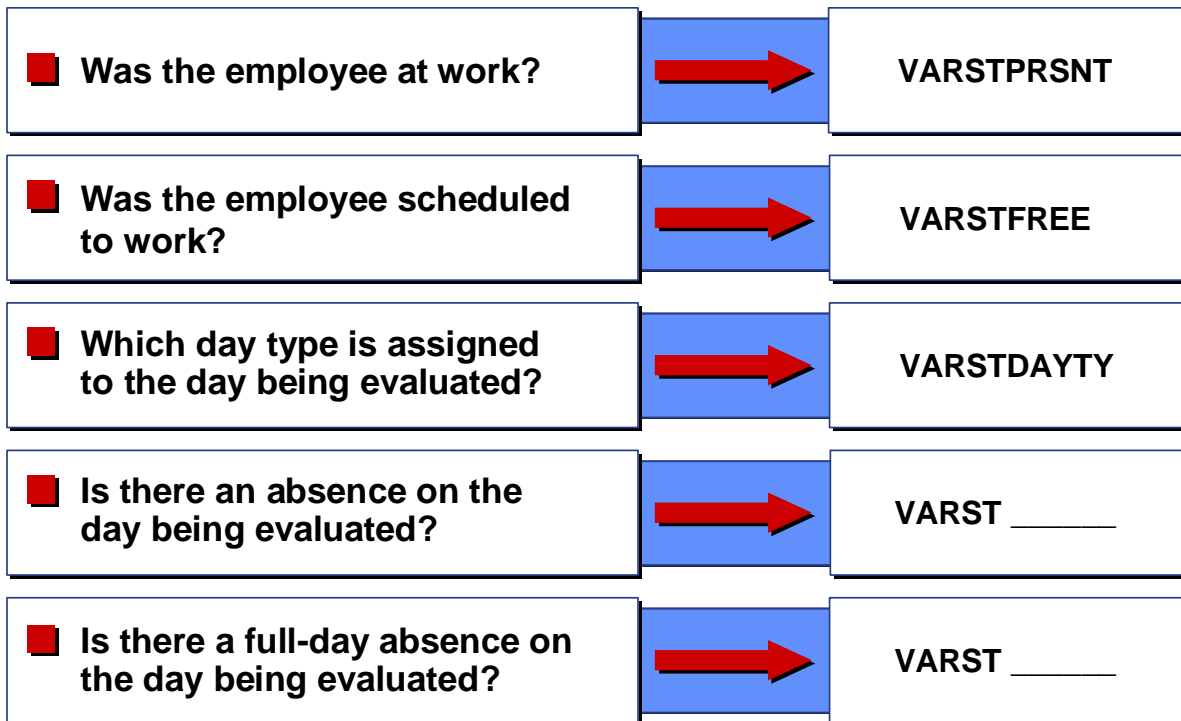
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- Operation VARST is only used as a decision operation. It can be used to enter general status fields (values from tables, infotypes, data on the weekday, and so on) in the variable key of the personnel calculation rule.
- You use a parameter of operation VARST to query the status fields. The documentation on operation VARST lists all the possible parameters.

SAP

Edit the *Number of hours* fields

| H | R | S | O | Y | Z | Z | Z | Z | Z |

Operation

Operator e.g. + = - ...

Origin indicator of the operand

Operand
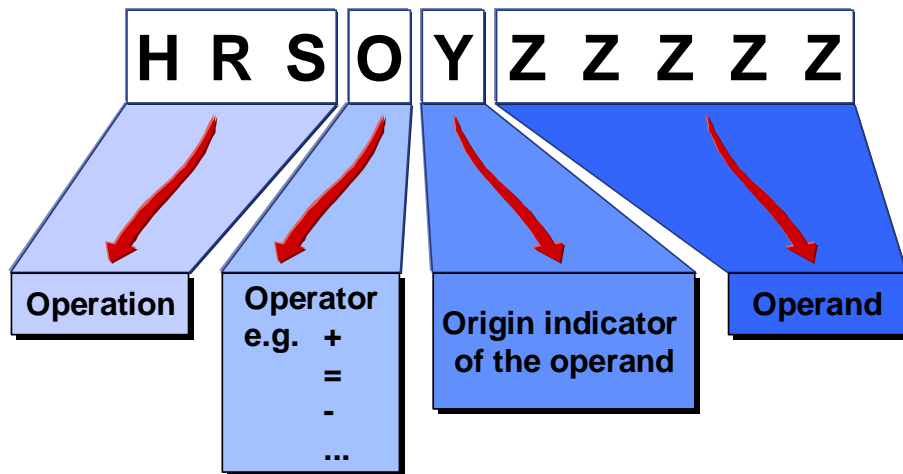
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- The main task of time evaluation is to process and classify time durations. The *Number of hours* field is used for calculations.
- Operation HRS can be used to fill and change the number of hours field. A number of values can be referenced, for example:
    - Number of hours field of an **explicitly determined** entry in an internal table is provided**:**
        - Time type zzzz from table SALDO (period balance table):   HRS=Mzzzz
        - Time type zzzz from table TES (day balances):   HRS=Dzzzz
        - Time type zzzz of previous day: HRS=Lzzzz
        - Time type zzzz cumulated over the days of the current payroll period that have already elapsed: HRS=Xzzzz
    - Number of hours field of an entry in an internal table that is **currently being processed** is provided:
        - Current entry from TIP: HRS=Pxxxxx
        - Current entry from DZL (with function PZL):   HRS=Exxx
        - Current entry from ZML (with function POVT): HRS=Zxxx
    - Specific number fields:
        - From infotypes (for example, HRS=I)
        - Tables (HRS=T....), table specified previously with operation TABLE
    - Number fields of the values of a constant zzzzz: HRS=Czzzzz
    - Explicit values: HRS=2.00

Examples of Operation HRS

Content of current
Number of hours **field**

■ **HRS=IWEHRS**	Load weekly working hours from the *Planned Working Time* infotype (0007)	**40.0000**
■ **HRS*0.50**	Multiply the value from the number of hours field by 0.5	**20.0000**
■ **HRS?10.00**		
■ **HRS?CGLMAX**		

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- You can also use operation HRS to compare the contents of two fields.
  HRS?PNUM:
  Compare value in number of hours field with the number of hours in the current TIP entry
  Possible answers:
  < Value in *Number of hours* field is less than the number of hours in the TIP entry.
  > Value in *Number of hours* field is greater than the number of hours in the TIP entry.
  = Value in *Number of hours* field is equal to the number of hours in the TIP entry.

Operation ADDDB: Cumulation in internal table TES

A D D D B x x x x y

Operation   **Time type**   **Control indicator**
T   = Planned hours
Z   = Initialization
–   = Subtraction
blank = Addition
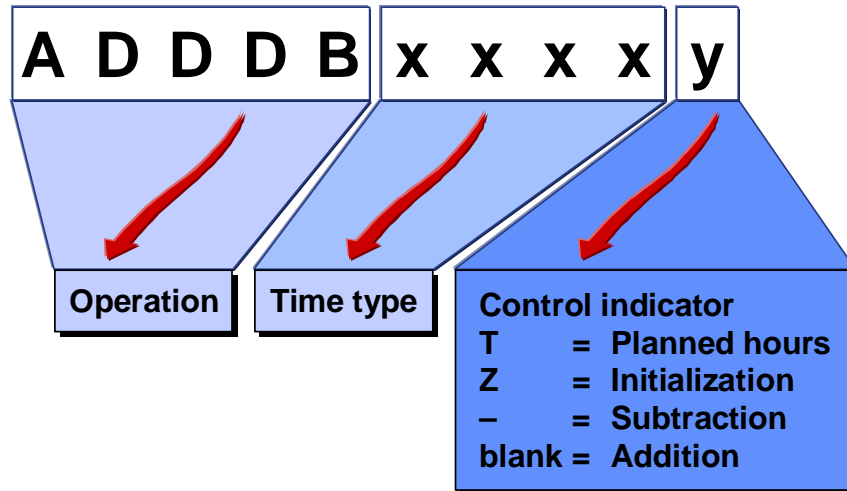
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- Operation ADDDB (add daily balances) cumulates the value from the number of hours field to the specified time type and enters the total in the internal day balances table (TES).
- Additional important operations that update results:
  - ADDZL: Operation ADDZL cumulates the value from the number of hours field under the specified time type and enters it and the clock times in the internal table ZL.
  - ADDOT: Operation ADDOT enters the wage types in the overtime wage types table ZML. The operation can be used only in conjunction with function POVT.

Examples of Operation ADDDB

SAP

There are 5 hours in time type 9999

Example 1: *Overwrite value*

| HRS=3.00 |
| ADDDB9999Z |

TES
Day balances

Time type	No.
9999 Test time type	3.0000

TES
Day balances

Time type	No.
9999 Test time type	5.0000

Example 2: *Add value*

| HRS=3.00 |
| ADDDB9999 |

TES
Day balances

Time type	No.
9999 Test time type	8.0000

Example 3: *Subtract value*

| HRS=3.00 |
| ADDDB9999- |

TES
Day balances

Time type	No.
9999 Test time type	2.0000

Issuing Messages: Operation COLER

VARSTFREE — Planned hours DWS = 0 ?
N
Y . . .
VARSTPRSNT — Employee at work
N
Y
COLER00

**Message from time evaluation:
"Employee at work although off"**

Cluster B1 — ERT

Cluster B2 — FEHLER

Download of mail indicator to the subsystem

Message processing in the *Time Manager's Workplace*

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- If special situations or errors arise during processing, time evaluation can stop for an employee, and/or messages can be generated and stored in clusters B1 and B2 on the database.
- The messages are entered in the message processing function of the *Time Manager's Workplace* for postprocessing. You can instruct the system not to generate the same information message or note again after a recalculation. You can download mail indicators if you use a time recording subsystem that supports the function.
- You can use operation COLER to generate messages if there are errors in time evaluation of which the administrator should be notified. The code of the message is specified in variable 1 of the operation. You can define the message codes and corresponding texts under error type 1 in the IMG step: *Personnel Time Management -> Time Evaluation -> Time Evaluation With/Without Clock Times -> Message Output -> Create Message Descriptions.*
- You determine how time evaluation reacts to the situation in variable 2 of operation COLER:
  - COLERxx: Time evaluation continues and a note is generated
  - COLERxxF: A recalculation indicator is set so that the day is evaluated again; time evaluation continues
  - COLERxxE: Time evaluation terminates
  - COLERxxI: Information is issued. It can be confirmed in the worklist

Use personnel calculation schema ZM## (## = group number) for the following exercise. ZM## is a copy of personnel calculation schema TM00.

1. Create a new personnel calculation rule Z1## to carry out the following tasks:
   If the employee is at work on a workday, one hour is added to time type 9000. If there is an absence on the same day, only half an hour is added to time type 9000. Have the system issue a note in this case.

2. Incorporate personnel calculation rule Z1## into your personnel calculation schema.

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Decision Tree for Rule Z1##

Planned hours DWS = 0 ?

Yes   No

Day type?

0   *

Employee at work?

Yes   No

Employee absent?

Yes   No

Add 0.5 hours to 9000
Issue a note

Add 1 hour to 9000

Personnel Calculation Rule and Schema Entry

Rule Z1##

```
Z1##    Exercise HR Time
  *
    ****
      VARSTFREE    Planned hrs DWS = 0 ?
        N
          VARSTDAYTY   Day type
            *
            0
              VARSTPRSNT   Employee at work
                N
                Y
                  VARSTABSCE   Employee absent
                    N
                      HRS=1.00       Set
                      ADDDB9000      Add day balance
                    Y
                      HRS=0.50       Set
                      ADDDB9000      Add day balance
                      COLERxx        Note
        Y
```

Schema ZM##

	Fct	Par1	Par2	Par3	Par4	D	Text
.							Day processing
.							
.							
	PRINT		TES				Time type 9000 before Z1##
000420	ACTIO	Z1##					Exercise HR Time
.	PRINT		TES				Time type 9000 after Z1##
.							
.							

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Operations as Tools of Time Evaluation: Summary

SAP
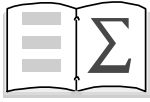
In this unit you have:

- **Learned what the principal time evaluation operations do**

- **Explain how to find detailed information about operations**

- **Create and modify a personnel calculation rule based on a business requirement**

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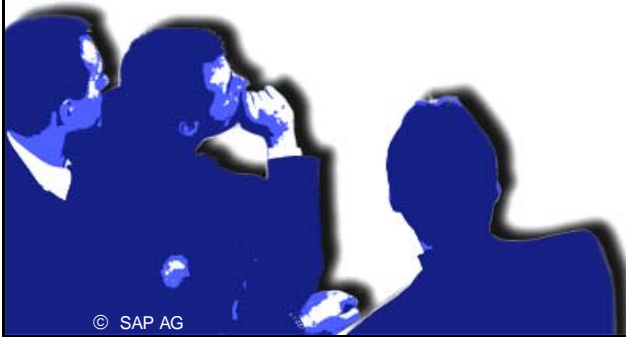
Operations as Tools of Time EvaluationExercises
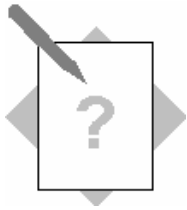
Unit: **Operations as Tools of Time Evaluation**

Topic: **Providing Information from an Employee's Master Data and from Customizing Tables**
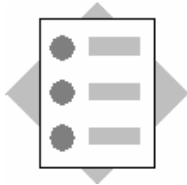
- Working with HR Documentation

1   **What do the following lines of a personnel calculation rule mean?**

1-1

0   HRS=PNUM
1   ADDDB9999

_____

_____

_____

1-2

2   HRS-IDAHRS
3   ADDDB9999Z

_____

_____

_____

2 **Creating a personnel calculation rule**

Create a personnel calculation rule (on paper) that enters the planned working time according to the daily work schedule in time type 9999.

4
5

3 **Querying part-time work**

Which operation can you use in a personnel calculation rule to query whether an employee works part-time hours?

Operations as Tools of Time EvaluationSolutions

Unit: Operations as Tools of Time Evaluation

Topic: Providing Information from an Employee's Master Data and from Customizing Tables

1 **What do the following lines of a personnel calculation rule mean?**

1-1

HRS=PNUM
ADDDB9999

Add the number of hours of the current TIP entry to time type 9999 in table TES.

1-2

HRS-IDAHRS
ADDDB9999Z

Subtract the working hours per day according to the *Planned Working Time* infotype (0007) from the value of the current number of hours, and set time type 9999 in table TES to this value.

2 **Creating a personnel calculation rule**

Enter the planned working time according to the daily work schedule into time type 9999.

HRS=S
ADDDB9999Z

3 **Querying part-time work**

Operation OUTWP enters values from the work center into the variable key. You can use operand PARTT to query whether an employee works part-time hours.

Personnel Calculation Schema TM00

SAP

Contents:

- **Structure of schema TM00**
- **Initialization**
- **Providing time data (reminder)**
- **Tolerances and error checks**
- **Determining planned working times**
- **Determining overtime**
- **Selecting time wage types**
- **Compensating overtime wage types**
- **Managing time accounts**
- **Final processing**

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Personnel Calculation Schema TM00: Objectives

At the conclusion of this unit, you will be able to:

- **Explain the meaning of the elementary processing steps in time evaluation, and how they function**

- **Use the personnel calculation schema TM00 to control time evaluation**

- **Customize the standard schema TM00 and the standard personnel calculation rules to suit your own requirements**
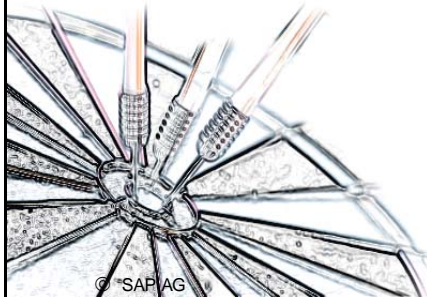
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Course Overview Diagram

SAP

Business Overview of Time Evaluation	Operations as Tools of Time Evaluation
Time Evaluation in the SAP System	► **Personnel Calculation Schema TM00**
Concept of the Time Evaluation Driver RPTIME00	Special Solutions
Time Evaluation Messages	Alternative Time Evaluation Schemas
Customizing Time Evaluation	Integration with Payroll
Data Collection in Time Evaluation	Time Statement and Reporting

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Personnel Calculation Schema TM00: Business Scenario

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- Attendances and absences are recorded for employees. The time data is entered into time evaluation, where it is made available for further processing.

- The system classifies employees' recorded times by comparing them to the planned specifications.

- Time wage types are formed for Payroll and time accounts are updated.

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Structure of a Time Evaluation Schema

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■ **Before day processing**		**BINI** **Initialization** **EINI**
■ **Day processing**		**BDAY** **Evaluate data for each day** **EDAY**
■ **After day processing**		**BEND** **Final processing** **EEND**
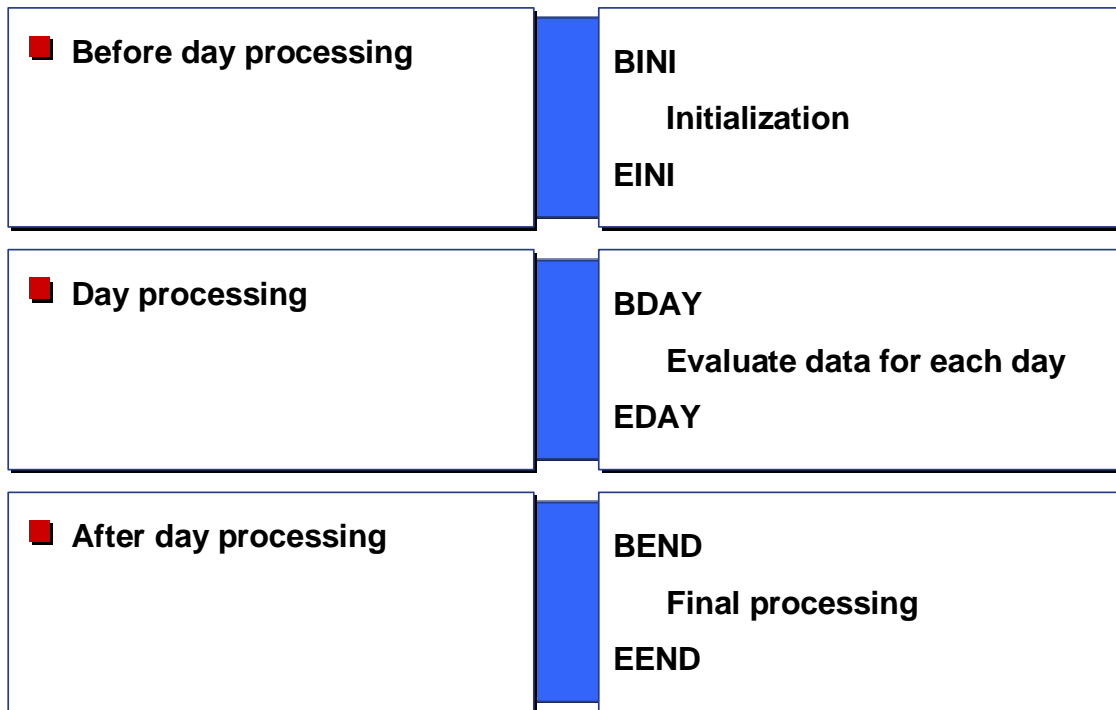
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- The personnel calculation schema is divided into three blocks. Different functions are processed in each of these blocks.
- The first block in the schema (from BINI-EINI) is processed only once for each evaluation, evaluation period and employee. Groupings are set for each employee and time evaluation run for table accesses.
- Day processing (from BDAY-EDAY) is processed once per employee for each day being evaluated.
- The final processing block (from BEND-EEND) is processed once only for each evaluation, evaluation period and employee. The system carries out checks at the end of the period if every day in the period was evaluated without errors. The results determined are stored at the end of processing.

Day Processing in the Schema

Provide data

Check data for errors

Is every-thing OK?

Classify times

- Breaks
- Planned working times
- Overtime

Select time wage types

Compensate overtime wage types

Manage time accounts
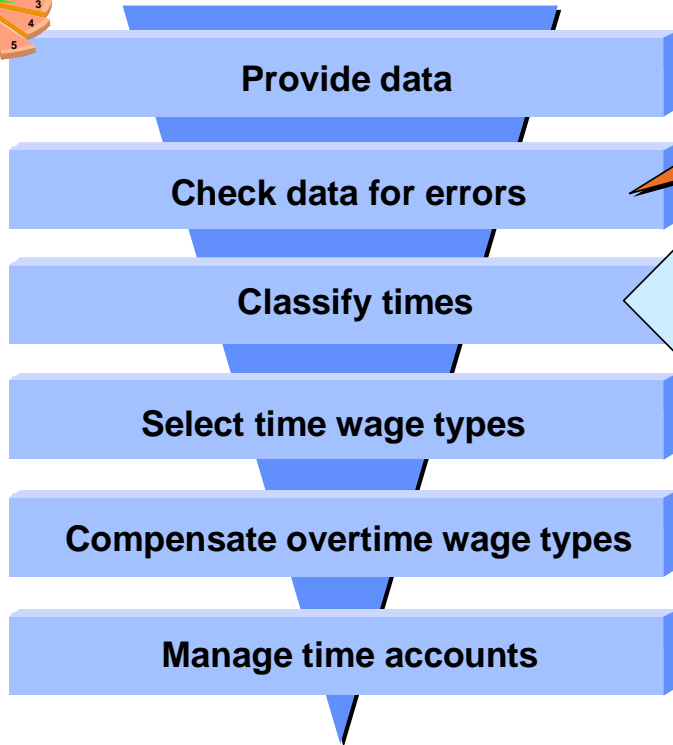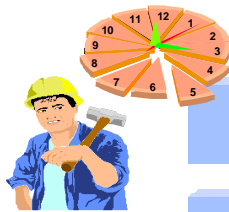
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- In day processing, time evaluation performs through the following processing steps, in a set sequence:
  - Imports the day's actual times from the time infotypes and the pair table (time pairs) and the planned specifications from the daily work schedule. It provides the necessary data from the master data infotypes and the previous evaluation results.
  - Carries out error checks for the day being evaluated
  - Compares the employee's time data with the planned specifications from the personal work schedule
  - Determines whether the employee has worked overtime and whether it should be approved
  - Selects time wage types
  - Determines how any overtime that exists is to be compensated, that is, whether it should be remunerated and/or compensated with time off
  - Cumulates the day balances and forms time accounts

Structuring in the Schema: Function BLOCK

Fct	Par1 . . . Text
. . .	
BDAY . . .	**Day processing**
BLOCK BEG . . . **BLOCK END**	**Provide time data**
BLOCK BEG . . . **BLOCK END**	**Tolerances and error checks**
. . .	
BLOCK BEG . . . **BLOCK END**	**Manage time accounts**
EDAY	**End of day processing**
. . .	

Personnel calculation schema

Log: Time evaluation

. . .

📁 **01/31/2001 Wednesday**
　　⊞ **Provide time data**
　　⊞ **Tolerances and error checks**
　　　⁝
　　⊞ **Manage time accounts**
. . .
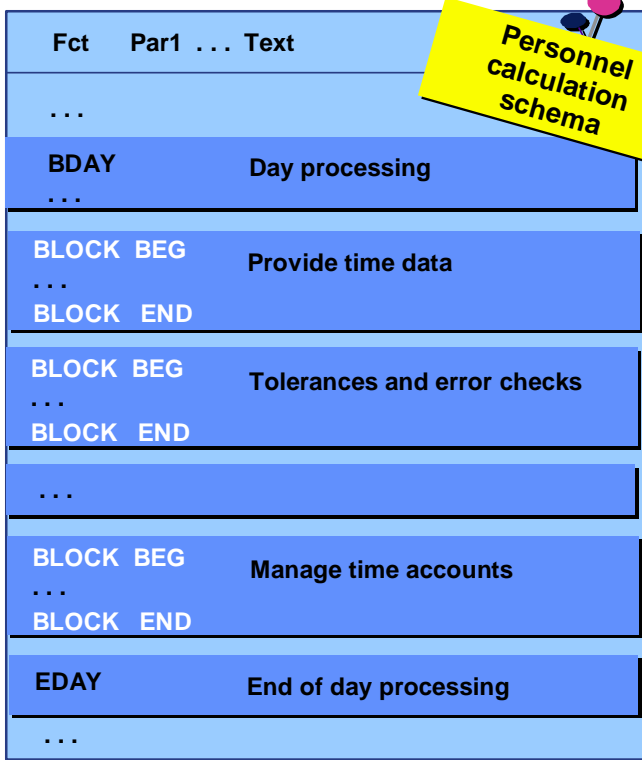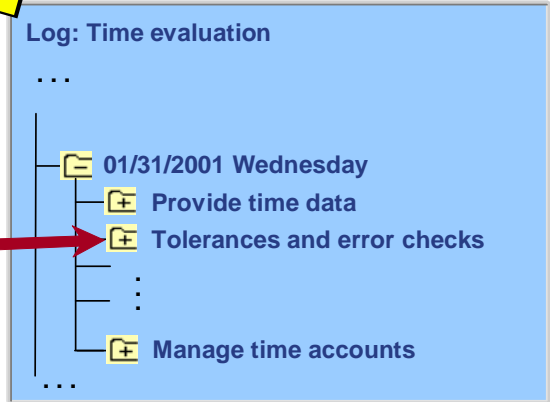
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■ You can use function BLOCK to structure the time evaluation log. The start and end markings group together a sequence of time evaluation functions according to their meaning, which appears under the same node in the log. The parameter BEG in the schema marks the start of a block, the parameter END the end of a block.
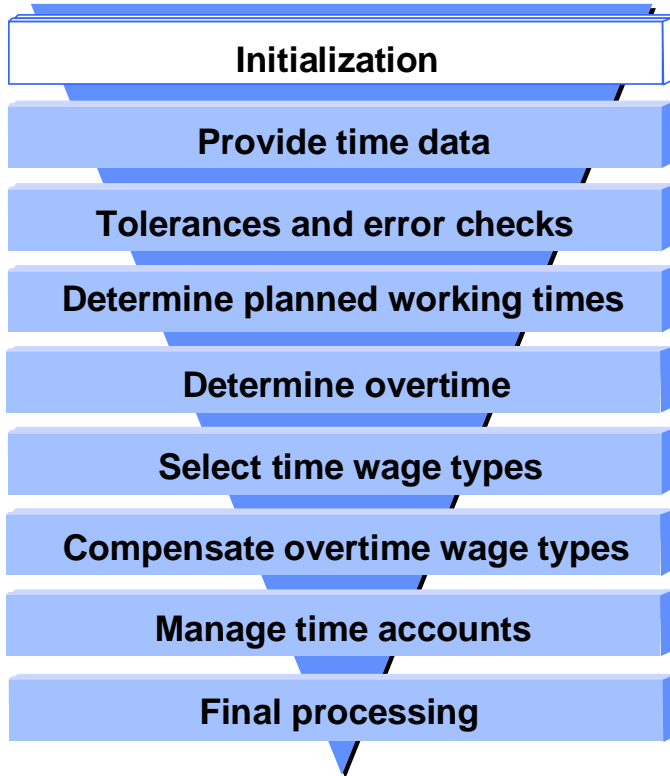
SAP
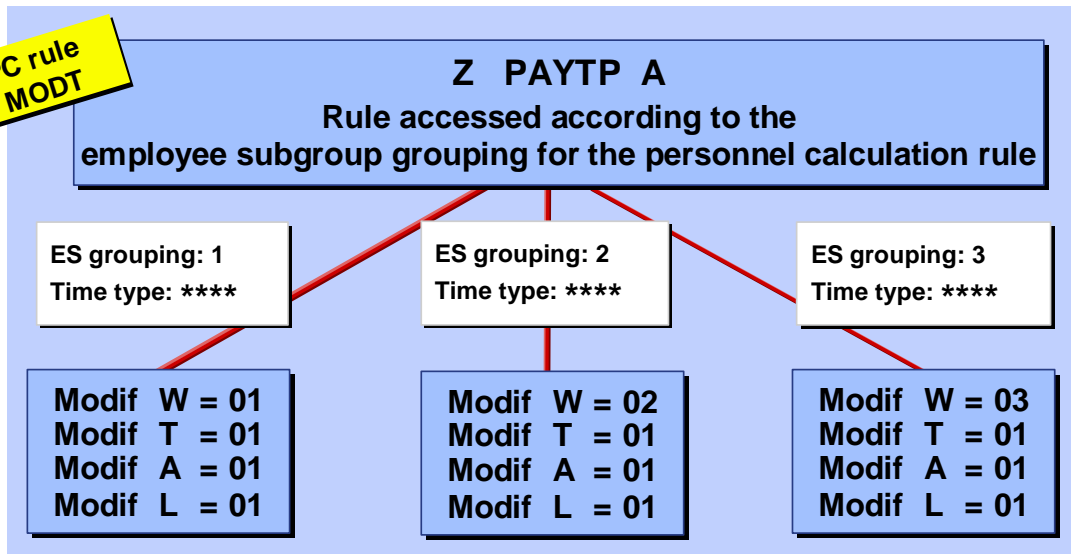
Initialization

Provide time data

Tolerances and error checks

Determine planned working times

Determine overtime

Select time wage types

Compensate overtime wage types
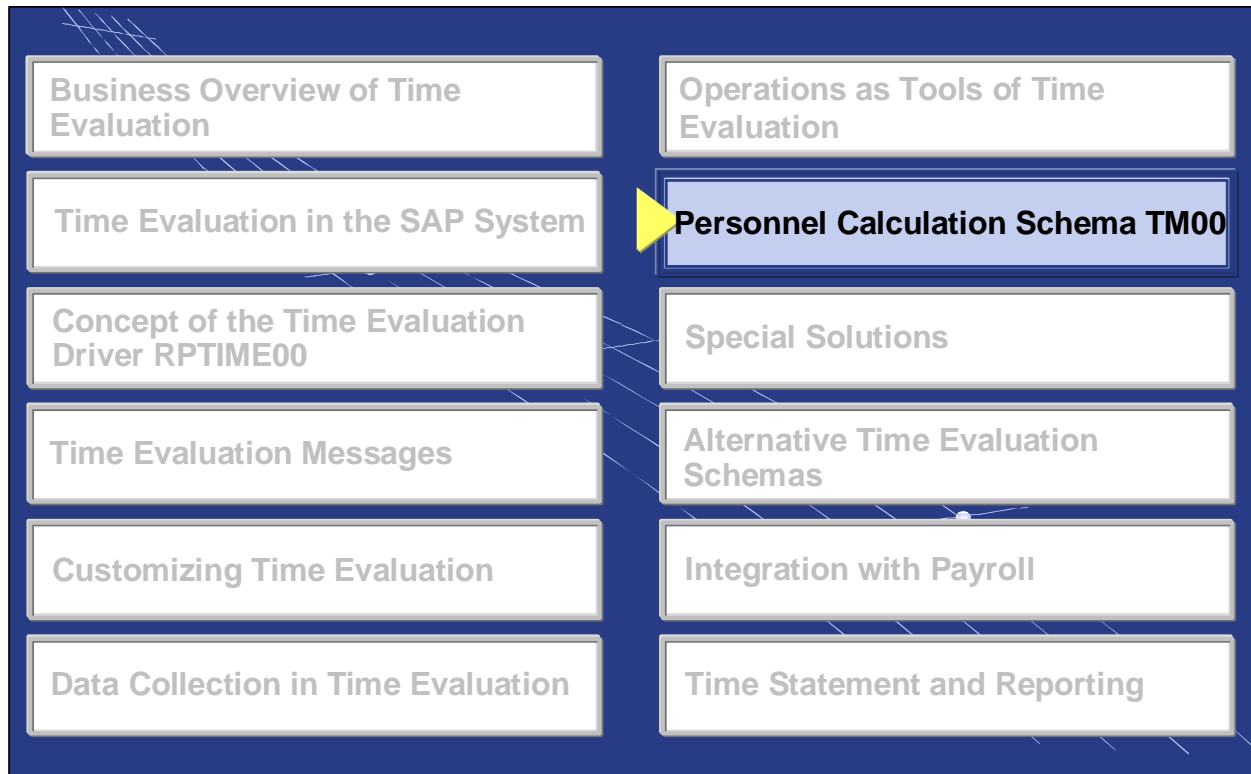
Manage time accounts

Final processing

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PC rule MODT

Z PAYTP A
Rule accessed according to the
employee subgroup grouping for the personnel calculation rule

ES grouping: 1	ES grouping: 2	ES grouping: 3
Time type: ****	Time type: ****	Time type: ****

Modif W = 01	Modif W = 02	Modif W = 03
Modif T = 01	Modif T = 01	Modif T = 01
Modif A = 01	Modif A = 01	Modif A = 01
Modif L = 01	Modif L = 01	Modif L = 01

MODIF W : Time wage type selection rule group (V_T510S)
MODIF T : Time type determination group (V_T555Z)
MODIF A : Employee grouping for absence valuation (V_T554C)
MODIF L : Time balance rule group (V_T559P)

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- Before day processing (initialization block in schema), function MOD is used to determine for each employee grouping:
  - Which time wage types are formed
  - Which time types are formed
  - How absence are valuated, and so on.
  The groupings that time evaluation should use to access the corresponding tables during processing are specified. To do this, function MOD calls personnel calculation rule MODT.
- A personnel calculation subrule is called in rule MODT according to the employee's *employee subgroup grouping for the personnel calculation rule*. The groupings for table access are defined here.
- You can also control processing individually using the *employee grouping for the time evaluation* rule in the *Time Recording Information* infotype (0050); this is done using PAYTP S.
  IMG: Personnel Management -> Personnel Administration -> Payroll Data -> Basic Pay -> Define EE Subgroup Grouping for PCR and Coll.Agrmt.Prov. (collective agreement provisions)
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Initial Steps -> Define Groupings

Providing Time Data

Initialization

Provide time data

Tolerances and error checks

Determine planned working times

Determine overtime

Select time wage types

Compensate overtime wage types

Manage time accounts

Final processing
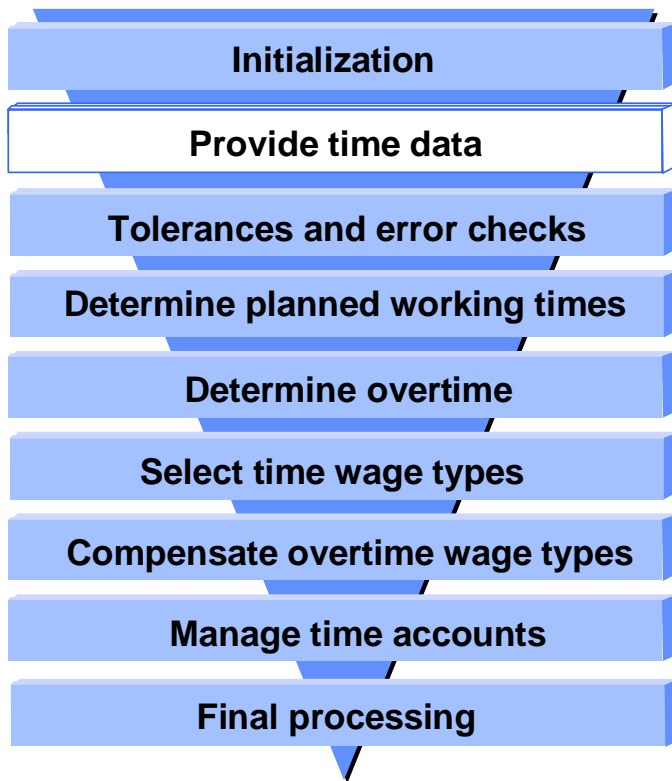
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Providing Time Data in Schema TM00

Planned working time

Time events

10:00	P10	Clock-in
12:45	P20	Clock-out

Function P2011 TZP

Absence

Absence type	0230
Time	08:00 — 10:00

Function P2001

Attendance

Attendance type	0420
Time	13:00 — 17:00

Function P2002

TIP

Start	End	1	P	ID	Ct	P	TTyp	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	Number
08.0000	10.0000	0	2		02	A					A							01	2.0000
10.0000	12.7500		1		00			P10	P20		E				0001				2.7500
13.0000	17.0000	0	3		03	P					P								4.0000

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■ Time data in TM00 is provided using the following functions:
- P2011   Import employee's planned specifications to internal table TZP and the pairs formed from the time postings to internal table TIP
- P2001   Import absence from the *Absences* infotype (2001) to TIP
- P2002   Import the attendances from the *Attendances* infotype (2002) to table TIP
- PTIP TD80 GEN   Provide attendance/absence reasons

Tolerances and Error Checks

Initialization

Provide time data

Tolerances and error checks

Determine planned working times

Determine overtime

Select time wage types

Compensate overtime wage types

Manage time accounts

Final processing

- Process tolerances
- Adjust absences
- Error checks for each day
- Error checks for each TIP entry

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Error Checks: Rule TE10
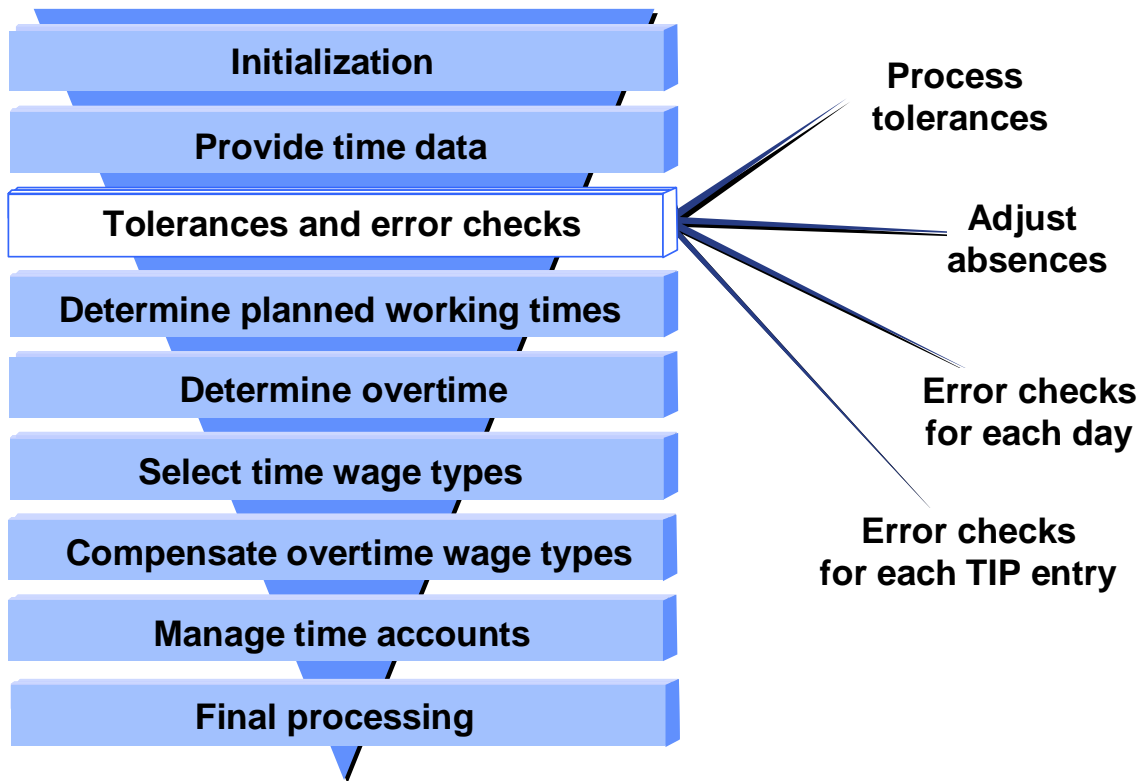
Rule TE10: Adjust absences

Scenario 1

Postings:
Clock-in 08:00
Clock-out 11:50

Absence:
12:00 - 17:00

Rule TE10

At work | Absence

08:00   11:50 12:00   17:00

Message

Scenario 2

Postings:
Clock-in 08:00
Clock-out 12:05

Absence:
12:00 - 17:00

Rule TE10

At work | Absence

08:00   12:05   17:00
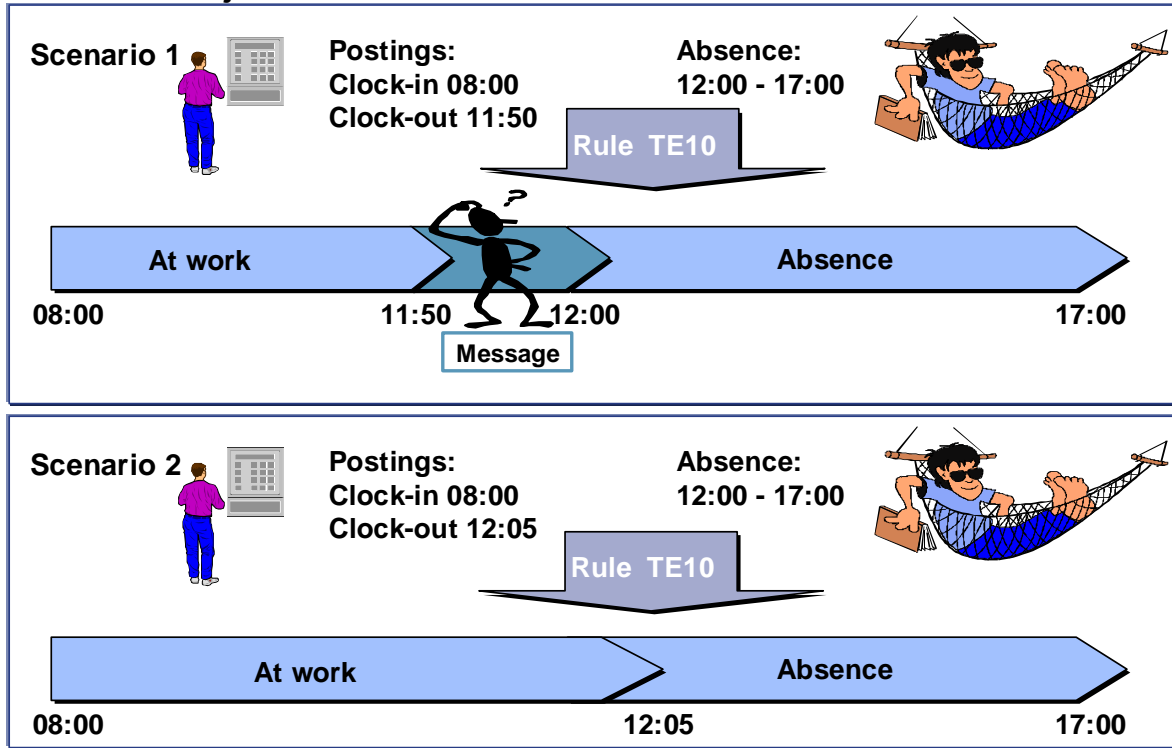
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- Personnel calculation rule TE10 compares the absences of less than one day with the day's attendances. According to the relative position of the absence, a note or a message is included in the error table. If attendances and absences overlap, operation INSTP is used to reduce the absence.
- Personnel calculation rule TE10 is accessed via function PTIPA.

Error Checks for Each Day: Rule TE20

SAP

Decision tree:

Daily WS off?

- **N** → **EE at work?**
- **Y** → **EE at work?**
  - **N** → **ok**
  - **Y** → **Message**

EE at work? (left branch)
- **N** → **Absence recorded?**
- **Y** → **Full-day absence?**

Full-day absence?
- **Y** → **Error**
- **N** → **Day type?**
  - ***** → **ok**
  - **1** → **Gen. plnd pair**
  - **2** → **DAILY WS off**

Absence recorded?
- **N** → **Day type?**
  - ***** → **Error**
  - **1** → **Gen. plnd pair**
  - **2** → **DAILY WS off**
- **Y** → **Day type?**
  - ***** → **ok**
  - **1** → **Rule TE21**
  - **2** → **DAILY WS off**

Day types:
blank = work, paid
1 = off, paid
2 = off, unpaid
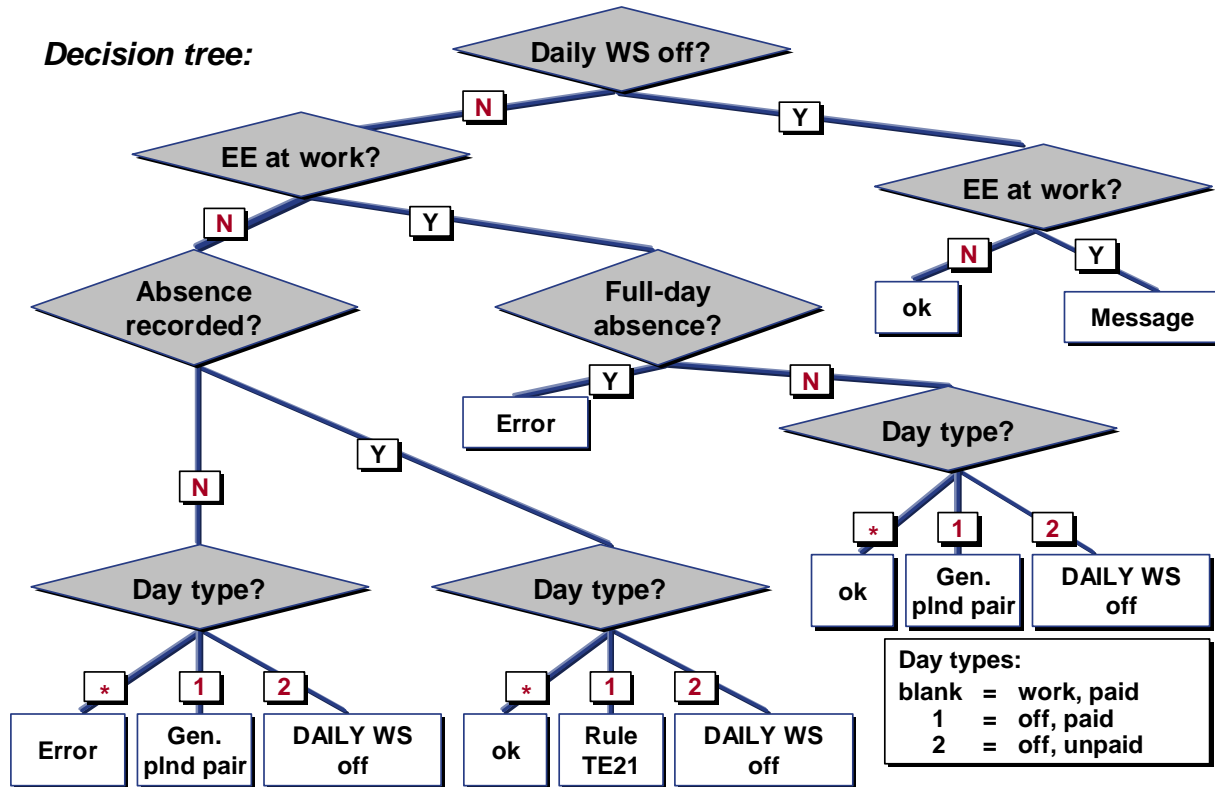
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- Personnel calculation rule TE20 checks whether employees have to be at work on certain days, or if they are not permitted to be at work (illness, public holiday, leave, and so on). An error is generated if, for example, the employee is absent without permission.
- To obtain results for a paid public holiday (for hourly wage earners, for example), the system generates a TIP entry based on the planned working times in the daily work schedule (planned pair).
- If an absence has been recorded on a public holiday, you can use personnel calculation rule TE21 to define whether this day is evaluated as an absence or as a public holiday.
- Personnel calculation rule TE20 is accessed using function ACTIO.

Error Checks for Each Pair: Rule TE30

Ex. 1:

Table TIP

Status from pair formation

Start	End	1	....
08.0000	17.0000		

✓ Complete, error-free pair

Ex. 2:

Start	End	1	....
	17.0000	2	

Error: Clock-in missing

Ex. 3:

Start	End	1	...
22.0000		3	

End of planned working time 06:00

Is employee scheduled to be still at work?

Compare end of planned working time with system time

Yes → No error: delimit pair, set recalculation

Start	End	1	....
22.0000	30.0000	3	

No → Error: Clock-out missing

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- Pair formation assigns each pair a status, which defines whether a time pair was able to be formed correctly.
- Personnel calculation rule TE30 performs error checks for each TIP entry being evaluated. Depending on the missing posting (clock-in, clock-out, end of off-site work), it performs the following actions:
  - It issues an error message and terminates
  - It checks whether the employee could still make the posting theoretically, since the end of the planned working time has not yet been reached or lies in a tolerance interval defined by the constant DELIM. You can use the constant DELIM (constants table T511K) to define the duration within which a missing clock-out entry is automatically replaced by the end of planned working time; this happens as of the end of the planned working time.
  - It uses operation DELIM to delimit the open pair with the start or end of the planned working time. It performs a preliminary evaluation for the day, and sets a recalculation.
- Personnel calculation rule TE30 is accessed using function PTIP (Process internal table TIP).
- **Notes:**
  - As an alternative to TE30, you can use personnel calculation rule TE31, which does not delimit incomplete pairs automatically, but instead ends time evaluation with corresponding messages.
  - The "difficult" errors to which pair formation could not assign a status are intercepted by personnel calculation rule TD20.

Functions for Calling Personnel Calculation Rules

General information

ACTIO   Example   TE20

Information from TIP entries

Processing table TIP

PTIP   Example   TE30
PTIPA   Example   TE10

Operation COLOP

Reading table TIP

RTIP   Example   TR10
RTIPA   Example   TP20
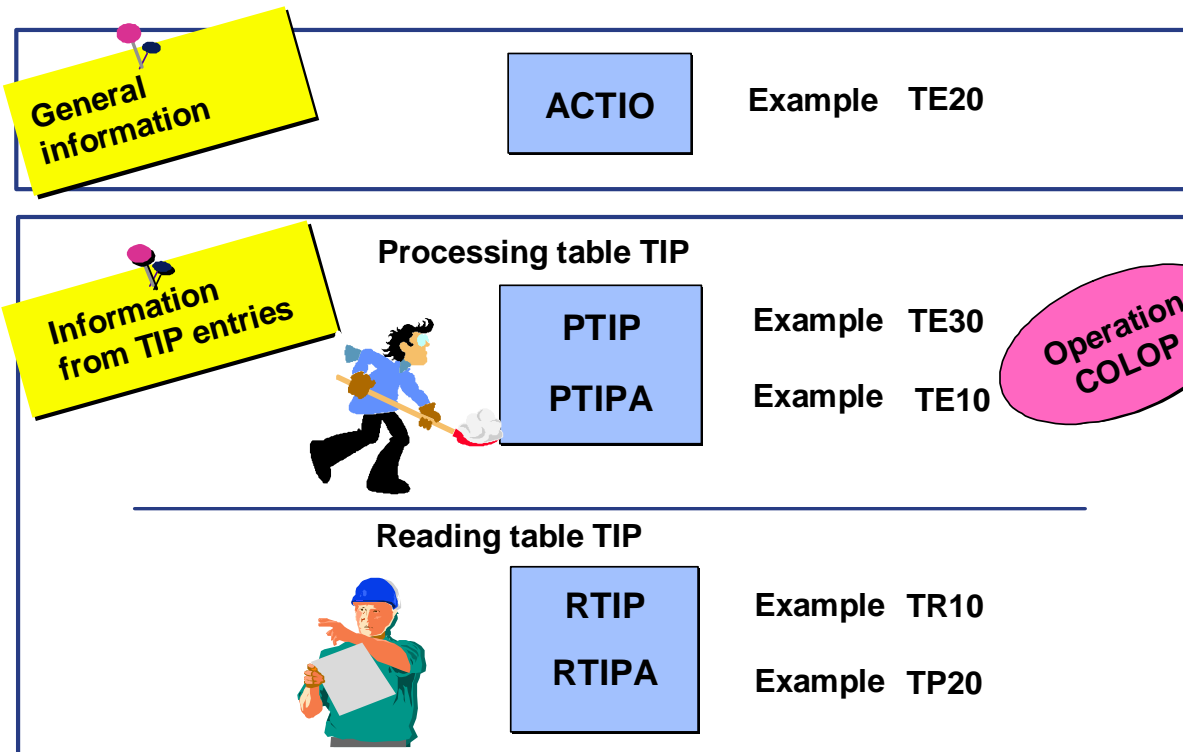
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- Function ACTIO accesses a personnel calculation rule that carries out processing regardless of the existence of TIP entries (for example, checking the current day for errors, determining the flextime balance).
- Function PTIP accesses a personnel calculation rule that processes the content of table TIP according to the rule. Each TIP entry is processed according to the specified personnel calculation rule. If a TIP entry is still available after processing, it must be transferred from the personnel calculation rule to the output table TOP by operation COLOP* (except for operations that generate a TIP entry, such as INSTP, GENTG, INSLR or GENTP). After all the TIP entries have been processed, table TOP is converted to the new table TIP.
- Function RTIP accesses a personnel calculation rule that reads the content of table TIP according to the rules. Function RTIP works in exactly the same way as function PTIP, with the restriction that no changes can be made to the TIP entries.
- Functions PTIPA and RTIPA correspond to functions PTIP and RTIP respectively; the only difference is that they are processed only if there is an absence on the current day.

Tolerance Times: Function DPTOL

Specifications from the daily work schedule
Start of planned working time: **07:00**
Start tolerance: **07:00 - 07:05**

Scenario 1: Clock-in entry: 07:03

> **Start time in TIP:**   **DPTOL** ➤   **Start time in TIP:**
> **07.0500**   **07.0000**

Scenario 2: Clock-in entry: 07:07

> **Start time in TIP:**   **DPTOL** ➤   **Start time in TIP:**
> **07.1167**   **07.1167**

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- Function DPTOL is used to edit TIP entries according to the start and end tolerances in the daily work schedule. If an employee clocks in during the tolerance interval, for example, all further calculations are based on the start of planned working time.
- Alternatively, or in addition to DPTOL, you can use the standard personnel calculation rule TL10 to round the first and last TIP entry according to the employee subgroup. Operation ROUND is used for this purpose.

Determining Planned Working Times

SAP

- Initialization
- Provide time data
- Tolerances and error checks
- **Determine planned working times**
- Determine overtime
- Select time wage types
- Compensate overtime wage types
- Manage time accounts
- Final processing

Planned hours

Breaks

Absences

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Two Important Objectives of Time Evaluation

Processing types

S - Planned work
M - Overtime
A - Absence
P - Attendance
X - Attendance on public holiday

Time wage type selection

Time wage types

Time types

0010 - Attendances
0030 - Recorded attendances
         from infotype 2002
0040 - Overtime
0050 - Productive hours

Balance formation

Balances/time accounts

- Balances are formed using time types. Time wage types are formed according to the processing type of the TIP entry.
- What are time types and processing types?
  - **Time type**
    The time types and the number of hours in the various TIP entries are cumulated to form time balances.
  - **Processing type**
    The time wage types are selected according to the processing type
    Examples: Processing type S   -> Wage types for planned work
        Processing type M   -> Overtime wage types

Assigning Time Type/Processing Type According to the Time Identifier and Pair Type

SAP

TZP

Time	Time ID	Break duration
00.0000	01 Overtime hours	
07.0000	02 Fill time	
09.0000	05 Fill time break	0.50
09.5000	02 Fill time	
12.0000	05 Fill time break	0.75

TIP

Start	End	P	ID	TTyp Number
08.0000	10.5000	2		2.5000

Function
TIMTP

V_T555Z

PSGrpg	Group	ID	From	To	PairType 0	PairType 1	PairType 2	PairType 3
01	01	01	01/01/1990	12/31/9999		0310	0320	0330
01	01	02	01/01/1990	12/31/9999	-	P 0110	A 0120	P 0130
...								
01	01	05	01/01/1990	12/31/9999	-	K 0510	0520	K 0530
...								

TIP

Start	End	P	ID	P	TTyp	Number
07.0000	08.0000	0	02		0000	1.0000
08.0000	09.0000	2	02	A	0120	1.0000
09.0000	09.5000	2	05		0520	0.5000
09.5000	10.5000	2	02	A	0120	1.0000
10.5000	12.0000	0	02		0000	1.5000
...						

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- Function TIMTP is used to merge the TIP entries (actual times) with the daily work schedule in table TIP (planned times). This results in new TIP entries.
- The TIP entries are assigned a description of their position relative to the daily work schedule (time identifier). The time identifier of the newly formed TIP entries determines whether the times are in the core time, fill time, time outside the daily work schedule, and so on.
- The time identifier is used to assign a processing type and a time type to each new TIP entry according to the pair type. To do this, function TIMTP reads the entries that are defined in the Customizing settings in the *Time Type Determination* view (V_T555Z).
- The function also carries out the following activities:
  - Planned times for which there are no corresponding actual times are assigned TIP entries with the pair type 0
  - The resulting TIP entries are assigned a processing type and a time type according to the *Time Type Determination* view (V_T555Z).

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Set Time Type Determination

Comparing Times: Function TIMTP

Table TIP:
Pair type

08:00	10:30		19:00
Absent: **Pair type 2**	**At work:** **Pair type 1**		

TIMTP

Table TZP:
Time identifier

Fill time	Core time	Break	Core time	Fill time	Break	Fill time	Core time	Fill time	Overtime hours
02	03	05	03	02	05	02	03	02	01

Table TIP
after TIMTP:
Pair type and
Time identifier

07:00	08:00	09:00	09:30	10:00	10:30	11:30	12:00	13:30	14:00	16:00	18:00	19:00

0	2	2	2	2	1	1	1	1	1	1	1
02	02	03	05	03	03	02	05	02	03	02	01

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- A new TIP entry is formed in table TIP for each new time point in the daily work schedule. In this process, the entries from TIP are compared with those in TZP.

Layout of the Time Type Determination View

SAP

MODIF T=01
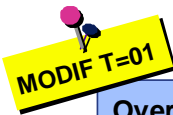
	Not at work	At work Planned pair	Absent (IT2001)	Off-site (time posting) At work (IT2002)
Overtime hours		0310	0320	0330
Fill time	K 0000	P 0110	A 0120	P 0130
Core time	K 0235	P 0210	A 0220	P 0230
Core time break	K 0000	K 0510	0520	K 0530
Fill time break	K 0000	K 0510	0520	K 0530
Break, paid	K 0000	A 0540	A 0540	A 0540
Overtime break, unpaid		K 0510	0520	K 0530
Overtime break, paid		M 0540	M 0540	M 0540
Break during overtime hours	K 0000	K 0510	0520	K 0530

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- In the *Time Type Determination* view (V_T555Z), you define which time types and processing types the TIP entries are assigned, based on the time identifier and the pair type:
  - Pair type 0:   Unrecorded times
  - Pair type 1:   Attendances from time postings and planned pairs
  - Pair type 2:   Absences (infotype 2001)
  - Pair type 3:   Attendances (infotype 2002) and off-site work postings

- You can assign the following processing types as a default for time wage type formation:
  - S: Pair is included in the daily calculation of planned time, without a maximum working time per day
  - M: Pair is valued as an overtime pair; the time is not included in the daily planned working time
  - P: Pair is valued as an attendance pair; that is, the time is included in the daily calculation of planned time
  - A: Pair is valued as an absence pair; that is, the time is included in the daily calculation of planned time
  - "-":   Pair is deleted at a later stage
  - " ":   Pair is not valued as productive time

Processing Breaks: Definition of Work Breaks

Recording with clock times

Breaks at fixed times:
12:00 - 12:30   0.5   hours, unpaid

Breaks within a specific time interval:
12:00 - 13:00   0.25 hours, paid
                   0.25 hours, unpaid

Recording with or without clock times

Dynamic breaks:
After 4 hours   0.25 hours, paid
                   0.25 hours, unpaid

■ The following information is specified for each break in the work break schedule:
  • What time the break starts or how many hours the employee must work before taking a break
  • Whether the break is paid
  • What duration of the break is paid

■ The length of the break is the total of the paid break plus the unpaid break.
■ **Note**: You can use function DYNBR to control the position of the dynamic breaks. Function DYNBR must be before function TIMTP in the schema.
  Example: Counting starts with the first clock-in time, and not with the start of planned working time (standard processing).

IMG: Personnel Time Management -> Work Schedules -> Daily Work Schedules -> Define Break Schedules
*IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Break Processing -> Set Start of Break Dynamically*

Evaluating Break Durations: Function PBRKS

Problem: How are variable breaks set?

Scenario 1:

0.5 hrs break

12:00   14:00
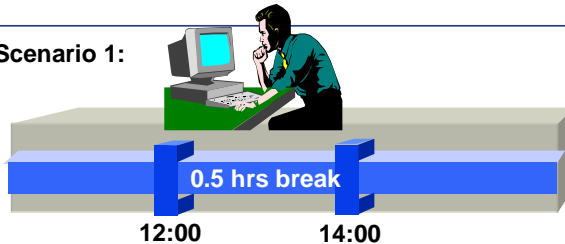
PBRKS
Par 2 user-defined → Break in TIP
12:00 - 12:30

Scenario 2:

0.5 hrs break

12:00   13:00   14:00
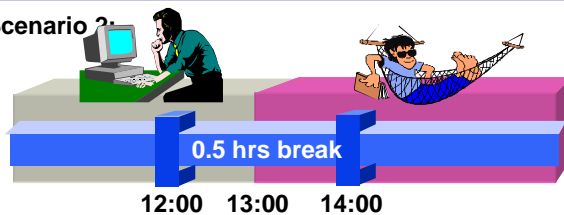
PBRKS   1 → Break in TIP
12:00 - 12:30

PBRKS   2 → Break in TIP
13:00 - 13:30

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- Function PBRKS evaluates the break specifications from the daily work schedule.
- You use **Parameter 2** of function PBRKS to define the sequence in which the TIP entries for the break are calculated:
  1   Unrecorded times (pair type 0) first, then all others in chronological order
  2   Absences (pair type 2) first, then unrecorded times (pair type 0), then all others in chronological order
  3   Absences (pair type 2) first, then attendances or off-site work postings (pair type 1/3), then all others in chronological order
  4   Unrecorded times (pair type 0), then absences (pair type 2), then all others in chronological order
  5   Attendances or off-site work postings (pair type 1/3) first, then unrecorded times (pair type 0), then absences (pair type 2)
  6   Attendances or off-site work postings (pair type 1/3) first, then absences (pair type 2), then unrecorded times (pair type 0)
  7   Unrecorded times (pair type 0) first, then attendances or off-site work postings (pair type 1/3), then absences (pair type 2)

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Break Processing -> Determine Break Times

Opening Break Frames: Function PBRKS

Personal work schedule   0.5 hrs break

08:00   12:00   13:45 14:00 14:15   16:30
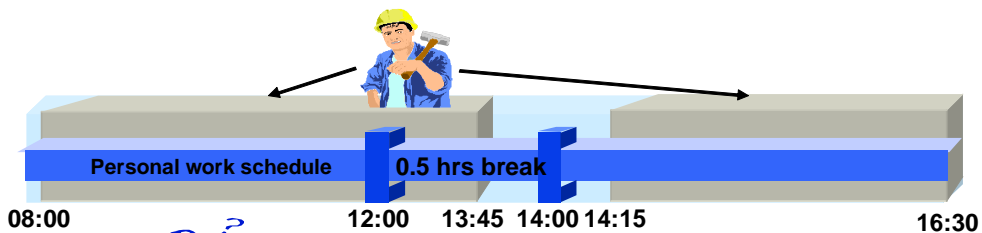
Problem: Is 13:45 - 14:15 a break?

Par 3

PBRKS   1   ALL

PBRKS   1

- Break frame opened
- Break within unrecorded time

- Break frame not opened
- Attendance reduced

Break

TIP

Start	End	P	ID	PTyp	TTyp	Number
08.0000	13.7500	3	02	P	0130	4.7500
13.7500	14.2500	0	05	K	0000	0.5000
14.2500	16.5000	3	02	P	0130	2.2500

TIP

Start	End	P	ID	PTyp	TTyp	Number
08.0000	12.0000	3	02	P	0130	4.0000
12.0000	12.2500	3	05	K	0530	0.2500
12.2500	13.7500	3	02	P	0130	1.5000
13.7500	14.0000	0	05	K	0000	0.2500
14.0000	14.2500	0	02	K	0000	0.2500
14.2500	16.5000	3	02	P	0130	2.2500

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- In **parameter 3** of function PBRKS, you specify how unrecorded times are processed:

  - blank: Only times within the break frame are counted
  - AFT: Unrecorded times immediately after the break frame are included in the calculation
  - BEF: Unrecorded times immediately before the break frame are included in the calculation
  - ALL: Unrecorded times immediately before and after the break frame are included in the calculation
  - ABE: All unrecorded times before the break frame are included in the calculation
- In **parameter 4** of function PBRKS, you specify which TIP entries are taken into account in break processing. Parameter 4 is only relevant if partial-day attendances or absences are recorded.
  - OWTI: Breaks are only generated for pairs with clock times
  - NOTI: The clock times of the pairs are ignored. Breaks must be defined in the break schedule/ daily work schedule in the form "after x hours".

Calculating Planned Working Time: Function DEFTP

Personal work schedule

08:00   11:00   16:30 17:00
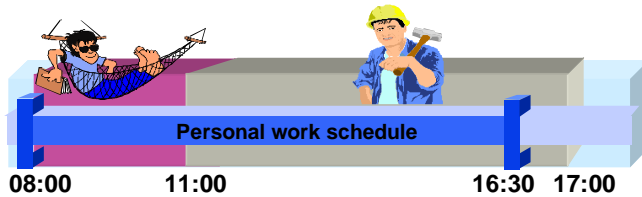
TIP	Start	End	P	ID	PTyp	TTyp	Number
	08.0000	11.0000	2	02	A	0120	3.0000
	11.0000	12.0000	3	02	P	0130	1.0000
	12.0000	12.5000	3	05	K	0530	0.5000
	12.5000	16.5000	3	02	P	0130	4.0000
	16.5000	17.0000	3	01		0330	0.5000

A,P → S **Function DEFTP**

Maximum daily working time

TIP	Start	End	P	ID	PTyp	TTyp	Number
	08.0000	11.0000	2	02	S	0120	3.0000
	11.0000	12.0000	3	02	S	0130	1.0000
	12.0000	12.5000	3	05	K	0530	0.5000
	12.5000	16.5000	3	02	S	0130	4.0000
	16.5000	17.0000	3	01		0330	0.5000

TES

A P P
P P A
P P A
8 hrs

P P P
P P P
5 hrs

Time type 0000   0001

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- Function DEFTP is used to determine the planned work TIP entries. The function assigns the processing type S to TIP entries with processing types A and P, thereby ensuring that processing type S is assigned until (at most) the maximum daily working time is reached.
- You can determine the maximum daily working time in the *Daily Work Schedule* view (V_T550A). (In the case of part-time employees, this information is overwritten by the maximum working time in the *Planned Working Time* infotype (0007)). If there is no information in the daily work schedule, function DEFTP uses the value of the constant TGMAX from the *Payroll Constants* view(V_T511K).
- Function DEFTP collects all attendance and absence times in utility time type 0000, and all attendances in utility time type 0001. Both time types are used for determining overtime and for reducing absences.
- TIP entries with processing type "-" are deleted.

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Indicate Planned Working Time Pairs

Reducing Absences: Rule TP10

Flextime DWS: 8 planned hours

Planned working time frame

08:00   11:00   17:00   18:00

Problem: Planned hours exceeded
Reduce absence?

PTIPA TP10

V_554S_E,
Class for time evaluation

TIP

Start	End	P	ID	PTyp	TTyp	Number
08.5000	11.0000	2	02	S	0120	2.5000
11.0000	12.0000	3	02	S	0130	1.0000
12.0000	12.5000	3	05	K	0530	0.5000
12.5000	17.0000	3	02	S	0130	4.5000
17.0000	18.0000	0	02	K	0000	1.0000

Absence reduced

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- In personnel calculation rule TP10, you can reduce certain absences of less than one day so that they do not increase the flextime balance, that is, the planned specifications are not exceeded by particular absences.
- You specify which absences you want to be reduced by grouping the absence into *classes for time evaluation* in the *Absence: Time Evaluation* view (V_554S_E).
- The flextime balance represents the difference between the working time that is calculated as planned work and the planned working hours stipulated in the daily work schedule. The following count as planned work, for example:
  • Attendances
  • Paid leave
  • Sickness with certificate
  • Overtime

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Shorten Absences of Less Than One Day

Determining Overtime

SAP

- Initialization
- Provide time data
- Tolerances and error checks
- Determine planned working times
- **Determine overtime**
- Select time wage types
- Compensate overtime wage types
- Manage time accounts
- Final processing

Processing Overtime

Personal work schedule

08:00   16:30   19:30

Question: Does overtime exist between 16:30 and 19:30 ?

Overtime approval:
- **general**
- **employee-specific**

Determine overtime:
- **Identify TIP pairs with processing type M**

Select time wage types:
- **Overtime wage types**
- **Bonuses**

Compensate overtime:
- **Time off**
- **Remuneration**

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- Overtime processing consists of the following steps:

  1. Overtime is determined. The employee's overtime approvals are checked, if necessary. The hours of overtime are assigned processing type M.
  2. Time wage type selection for the overtime. The overtime wage types formed are stored in a special internal table, ZML.
  3. The overtime wage types stored in ZML are compensated, either with remuneration or with time off.
- **Example:**
  Employees receive an overtime bonus as remuneration and time off in lieu of the hours of overtime they have worked.

Methods of Overtime Approval

General overtime approval for all employees who have worked overtime

General overtime approval via the current daily work schedule Overtime automatic = X

TO15

Employee-specific

TO10

TO16
Determine TIP entries with time identifier "01" Overtime hours

TO11
Planned hours completed? TGMAX not exceeded? => overtime

General overtime = X

Employee-specific general overtime approval in the Time Recording Information infotype (0050)

General overtime = A-Z except X or 0-9

Customer-specific personnel calculation rule

Overtime approval via attendance quota (2007)

GOT TO20 01
GOT TO20 02

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- An important factor in overtime determination is the check as to whether the employee being evaluated is permitted to work overtime, and if so, how many hours. This depends on whether an overtime approval is necessary for determining hours of overtime.
- Schema TM00 contains several standard solutions for evaluating overtime approvals. These range from evaluating a general overtime approval for all employees, to evaluating individual approvals for a particular period and number.

Attendance Quotas (Infotype 2007)

SAP

Valid: 01/01/yyyy - 01/31/yyyy

Type:: 01 ← Views V_T556P and V_566P_B

When and for how many hours is the employee permitted to work overtime?

How is the overtime compensated?
- **Remuneration**
- **Time off**

Overtime compensation type
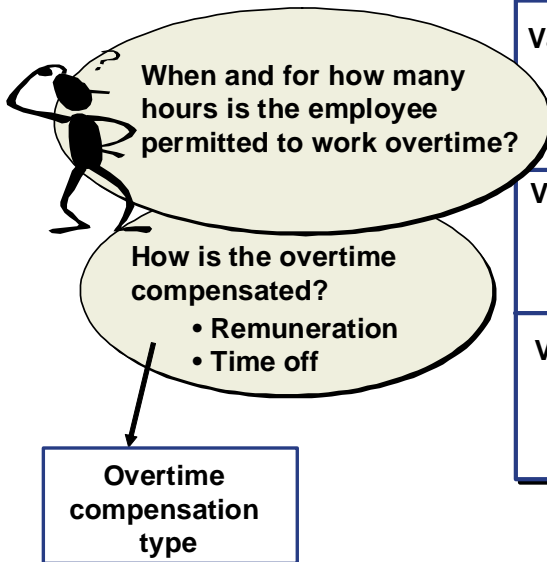
Variant 1:

  Number: 20 hours

Variant 2:

  Time: 16:30-18:00
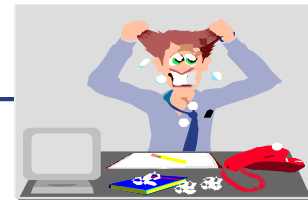
Variant 3:

  Time: 16:30-18:00

  Number: 20 hours

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- The processing of employee-specific overtime approvals in time evaluation is dependent on the following factors:
  - If there is no attendance quota (overtime approval) for the current day, there is no overtime processing
  - If an attendance approval exists, the processing depends on how it was recorded:
    - For attendance quotas without clock times, attendance times outside the working time frame are used for determining overtime
    - For attendance quotas with clock times, only TIP entries within the specified interval are processed

- You can use fast entry functions in the *Attendance Quotas* infotype (2007) to create overtime approvals for different groups of employees quickly and easily.
- In the *Attendance Quotas* infotype (2007), you can assign an overtime compensation type to control how the overtime is remunerated or compensated.

  IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Time Quota Types -> Define Attendance Quota Types

TIP	Start	End	P	ID	PTyp	TTyp	Number
	08.0000	12.0000	3	02	S	0130	4.0000
	12.0000	12.5000	3	05	K	0530	0.5000
	12.5000	16.5000	3	02	S	0130	4.0000
	16.5000	19.5000	3	01		0330	3.0000

**Function
GOT   TO20   01**

- Does an attendance quota exist?
- Has the planned time been exceeded?
- Has the maximum daily working time been reached?

TIP	Start	End	P	ID	PTyp	TTyp	Number
	08.0000	12.0000	3	02	S	0130	4.0000
	12.0000	12.5000	3	05	K	0530	0.5000
	12.5000	16.5000	3	02	S	0130	4.0000
	16.5000	19.0000	3	01	M	0040	2.5000
	19.0000	19.5000	3	01		0330	0.5000

No attendance quota exists

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■ The following prerequisites must be fulfilled before overtime on the basis of attendance quotas can be determined:
  • The employee has an overtime approval
  • The planned working time in the daily work schedule has been completed
  • The attendances do not exceed the daily maximum working time, which you can specify in the daily work schedule or in constant TGMAX

Personnel calculation rule TO20 checks whether the conditions have been observed for each TIP entry.

■ Function GOT requires valid overtime approvals before it determines overtime. GOT …. XX checks whether there is an attendance quota (infotype 2007) with the attendance quota type XX in parameter 2 on the current day, and compares the quota with the time data from TIP.

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Determining Overtime -> Determine Overtime from Attendance Quotas

Classification of times

TIP

Start	To	Proc.type	Time type	No.
12.5000	16.5000	S	0130	4.0000
16.5000	19.0000	M	0040	2.5000

Time wage type selection: Form wage types

DZL   ZML

Compensate overtime

Cluster B2

ZL

Balance formation
Time accounts

TES

Cluster B2

ZES   SALDO   **Time quotas**

Payroll

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- After overtime has been determined, all the information is available for valuating the times. The TIP entries can now be used to:
  - Select time wage types for Payroll according to the processing types
  - Form balances according to the time types. The balances are then used for managing time accounts.
- Time evaluation saves the results determined in further processing in internal tables:
  - Balances in TES (daily balances)
  - Time wage types in tables DZL (hourly wage and bonuses) and ZML (overtime). After overtime determination, the overtime wage types are transferred to table DZL

- At the end of time evaluation, the results determined are saved to the database:
  - Balances in ZES (daily balances, Cluster B2) and SALDO (period balances, Cluster B2). The *Attendance Quotas* (2007) and *Absence Quotas* (2006) infotypes are updated, if necessary.
  - Time wage types are entered in table ZL at the end of time evaluation. Table ZL forms the interface to R/3 Payroll.

Selecting Time Wage Types

- Initialization
- Provide time data
- Tolerances and error checks
- Determine planned working times
- Determine overtime
- **Select time wage types**
- Compensate overtime wage types
- Manage time accounts
- Final processing

- Time wage type selection rule group
- Function DAYMO
- The principle of the rule group
- Time wage type selection

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Time Wage Type Selection

SAP

TIP
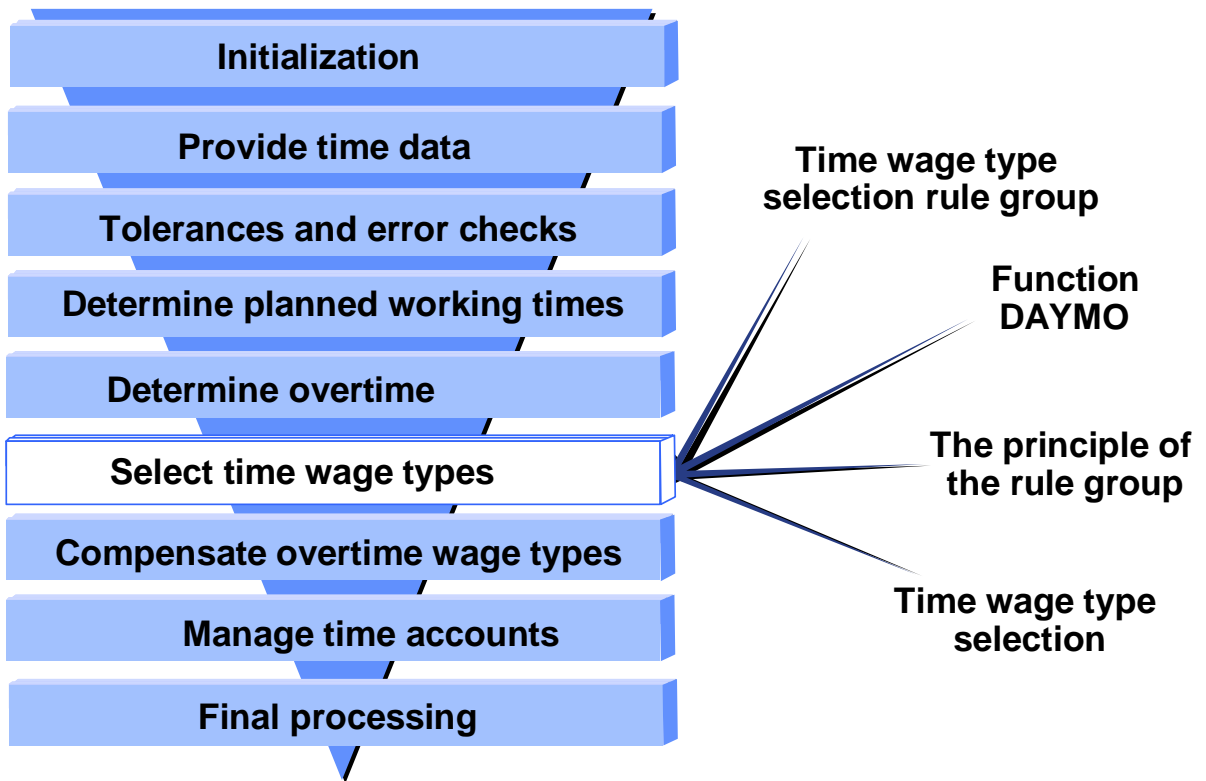
Start	End	Proc.type	No.
12.5000	16.5000	S	4.0000
16.5000	19.0000	M	2.5000

**Function
Time wage type selection**
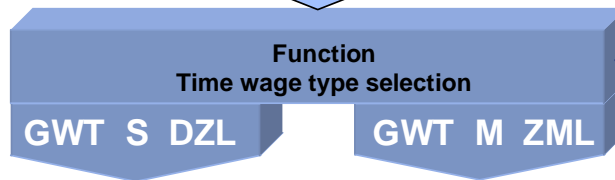
**Rules for selecting
time wage types
(V_T510S)**

GWT S DZL   **GWT M ZML**

TIP entries for planned working times   **TIP entries for overtime**
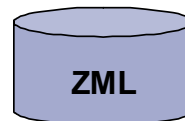
- **Hourly wage**   **DZL**   **ZML**   • **Overtime**
- **Bonuses**   **wage types**
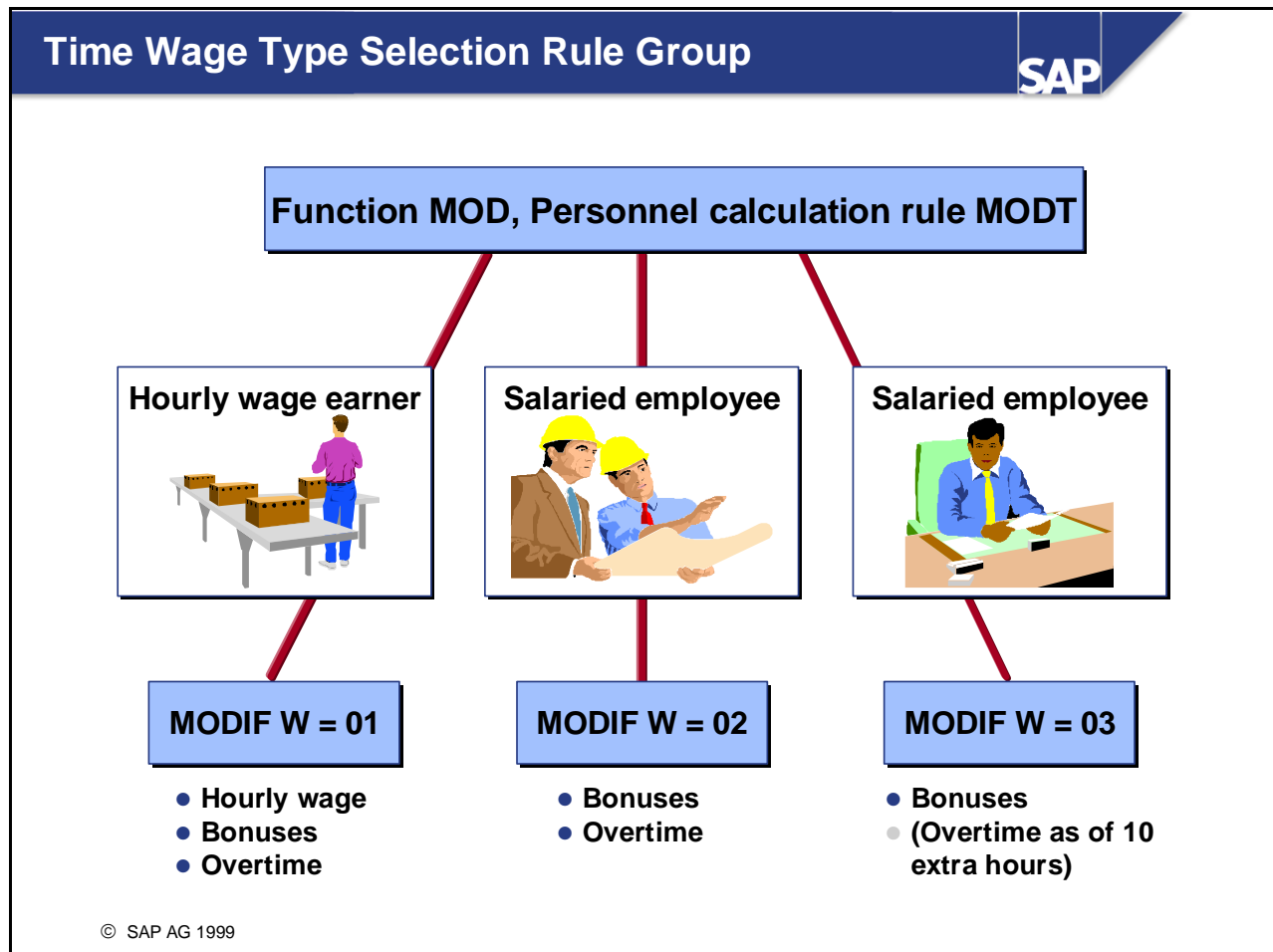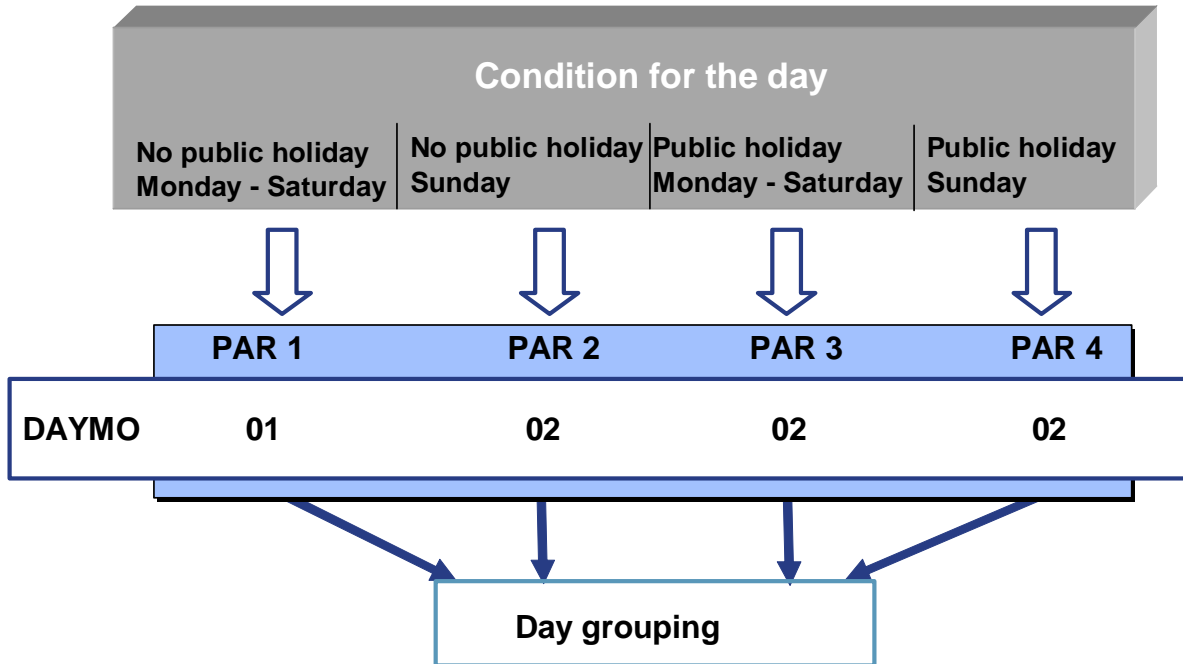
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- In time wage type selection, time wage types are formed from the TIP entries. These time wage types are then passed on to Payroll, where they are used to determine the gross pay.
- Time wage types are selected according to the processing type of the TIP entry. You specify the processing type for which you want wage types to be selected in parameter 2 of function GWT (Generate Wage Types).
- Planned work wage types are transferred to internal table DZL after time wage type selection, and overtime wage types are transferred to internal table ZML. You specify in parameter 3 of function GWT which wage types are transferred to which table.
- In the *Time Wage Type Selection Rule* view (V_T510S), you set regulations according to which time wage types are selected. These can be in relation to employees, days, and times.
- **Examples:**
  - You want wage types to be selected for hourly wage earners' planned times, but not for employees with a fixed salary.
  - You want different wage types to be selected for work on a public holiday than for a working day.
  - You want wage type Mxxx to be selected for up to two hours of overtime, and wage type Myyy for each additional hour of overtime.

Time Wage Type Selection Rule Group

Function MOD, Personnel calculation rule MODT

Hourly wage earner	Salaried employee	Salaried employee

MODIF W = 01	**MODIF W = 02**	**MODIF W = 03**
• Hourly wage • Bonuses • Overtime	• Bonuses • Overtime	• Bonuses ◦ (Overtime as of 10 extra hours)

© SAP AG 1999

- You can use the *time wage type selection rule group* to set specific regulations for time wage type selection according to an employee's organizational assignment.
- In personnel calculation rule MODT, you determine the *time wage type selection rule group* that time evaluation uses to access the entries in the time wage type selection table when it is evaluating an employee. Personnel calculation rule MODT is accessed via function MOD. It is in the initialization block in the schema.
- You can use a personnel calculation rule and operation MODIF W to determine *a time wage type selection rule group* in day processing in time evaluation. You can access the table entries according to criteria which are only available in day processing (for example, the employee's daily work schedule, Time Management status).
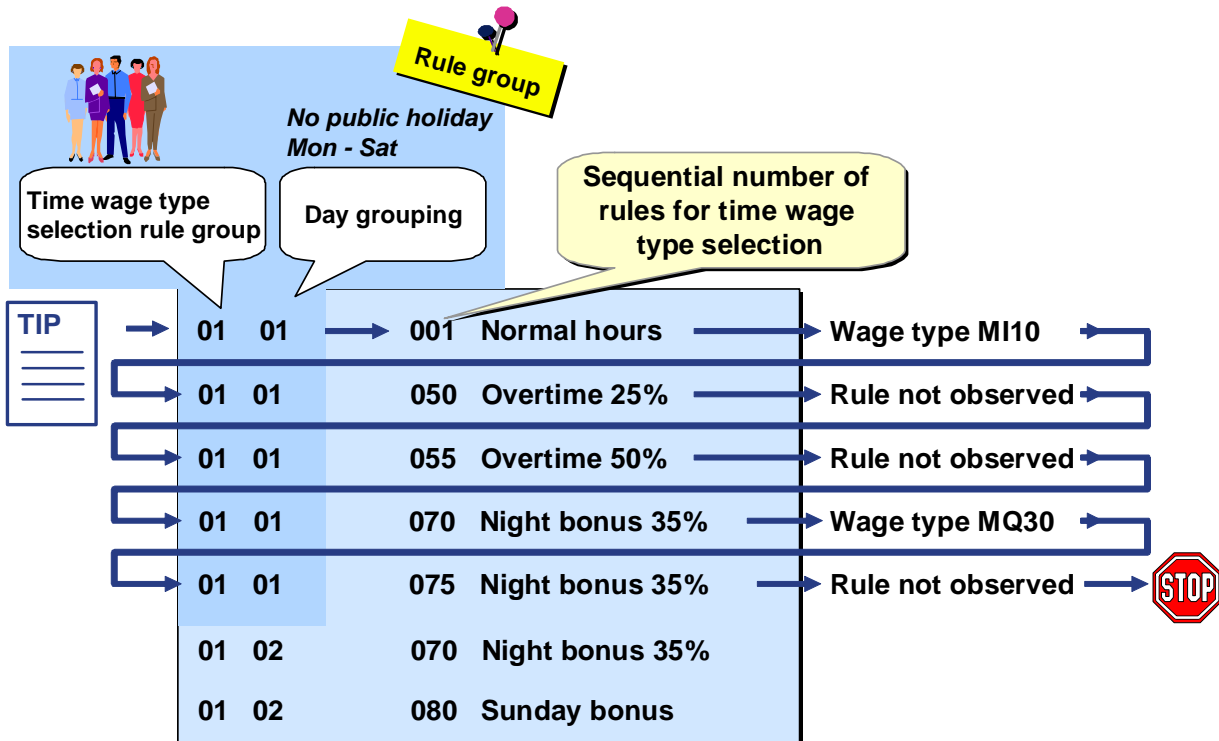
Time Wage Type Selection: Function DAYMO

SAP

Set day grouping for time wage type selection

Condition for the day			
No public holiday Monday - Saturday	No public holiday Sunday	Public holiday Monday - Saturday	Public holiday Sunday
⇩	⇩	⇩	⇩
PAR 1	PAR 2	PAR 3	PAR 4

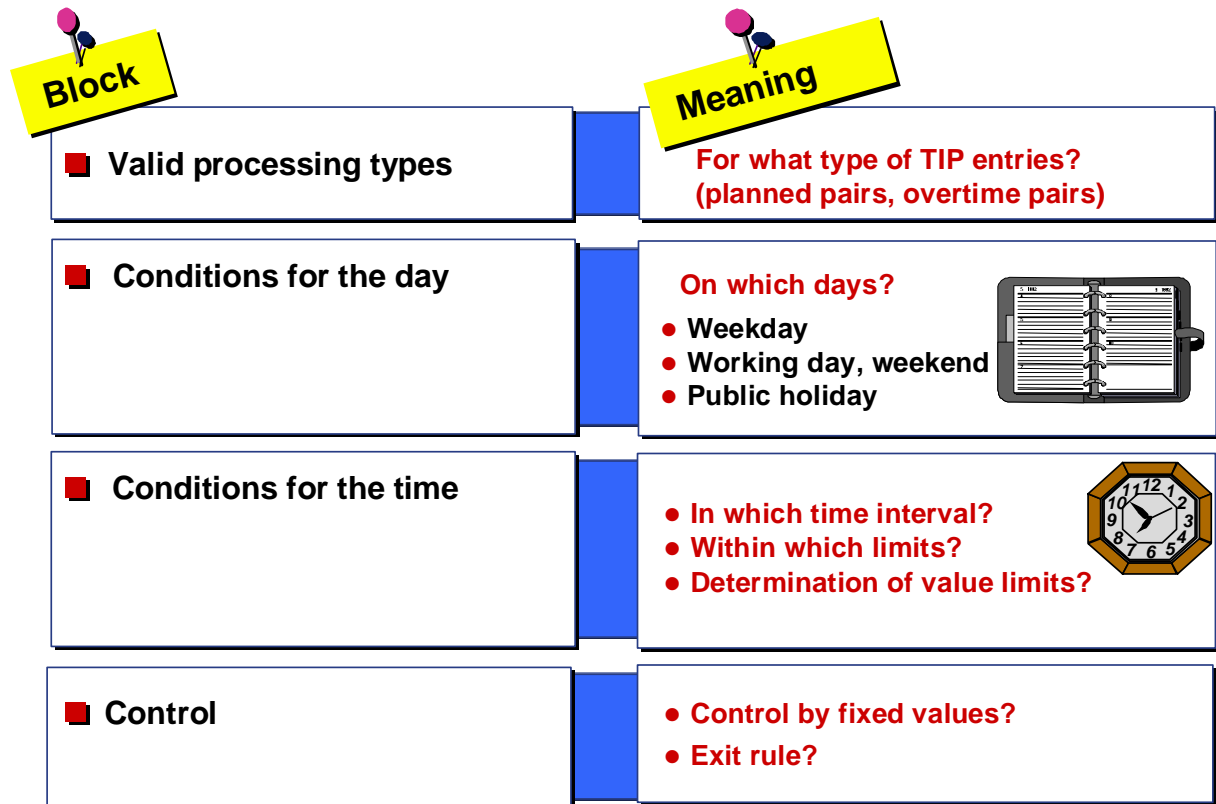| DAYMO | 01 | 02 | 02 | 02 |

Day grouping

© SAP AG 1999

- Function DAYMO sets the day grouping for *time wage type selection* from the *Time Wage Type Selection* table (T510S) to a particular value, depending on the day type.
- If the four day categories are not sufficient for your purposes, you can also set the day grouping in a personnel calculation rule using operation MODIF D=xx.

Principle of the Rule Group: An Example from Time Wage Type Selection

SAP

Rule group

No public holiday Mon - Sat

Time wage type selection rule group

Day grouping

Sequential number of rules for time wage type selection

TIP					
	01	01	001	Normal hours	Wage type MI10
	01	01	050	Overtime 25%	Rule not observed
	01	01	055	Overtime 50%	Rule not observed
	01	01	070	Night bonus 35%	Wage type MQ30
	01	01	075	Night bonus 35%	Rule not observed → STOP
	01	02	070	Night bonus 35%	
	01	02	080	Sunday bonus	

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- Some time management rules for selecting values from tables are so extensive that they can only be represented by grouping individual rules into rule groups. This ensures that all possible business regulations can be represented for one employee group.
- The system has two options for processing the entries in a rule group:
  - It processes the individual rules consecutively until it finds the correct one, and then terminates processing
  - It processes all the individual rules

- In time wage type selection, all the individual rules you have created per time wage type selection rule group and day grouping are processed for all TIP entries.
- You should create the sequential numbers for time wage type selection in multiples of ten, so that you can add lines at a later stage, if necessary.

Block

Meaning

■ **Valid processing types**

For what type of TIP entries?
(planned pairs, overtime pairs)

■ **Conditions for the day**

On which days?
● **Weekday**
● **Working day, weekend**
● **Public holiday**

■ **Conditions for the time**

● **In which time interval?**
● **Within which limits?**
● **Determination of value limits?**

■ **Control**

● **Control by fixed values?**
● **Exit rule?**

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- In time wage type selection, you define in an individual rule several conditions that must be fulfilled before a wage type is selected for the employee. If even one of the conditions specified in the rule is not fulfilled, the wage type is not selected.
- So that time wage type selection rules for which start and end times are specified as a condition can be selected, all the TIP entries for the day being evaluated must contain clock times. If TIP entries without clock times exist for a day, the time wage types for which the time interval is filled are not selected on that day.
- You can use the *Fixed val*. field to assign a certain number, regardless of the hours worked. This enables you to form a rule for guaranteed hours, for example.
- You can use the exit rules in time wage type selection to end processing of a rule or of time wage type selection if a particular time wage type is selected.

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Wage Type Selection and Overtime Compensation -> Define Generation Rules

Conditions for the time

- **Time interval:**

  When?

  | 20:00 | — | 30:00 |

- **Value limits**   **Number of hours**

  explicit   symb.

  From when?   **Lower limit:**   [ ]   **S**   *Plnd hrs acc. to DWS*

  Until when?   **Upper limit:**   [ ]   [ ]

  Determination of value limits?   **Processing types to be counted:**   **S** **M** [ ] [ ]

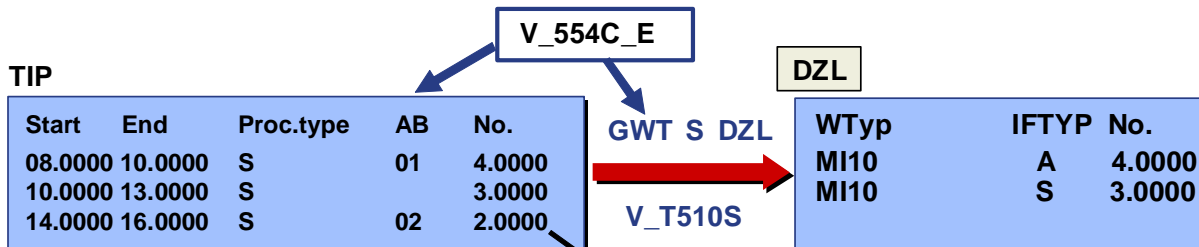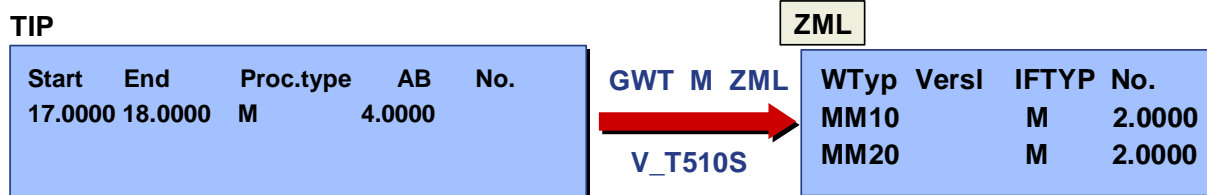 **Interval:**   ✔

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- If you only want the wage type to be selected if the TIP entry lies in a particular time period, you can enter start and end times. This is relevant mainly for selecting night bonuses. Permitted values are between 0:00 and 47:59 (= 23:59 on the following day).
  If a TIP entry lies only partially within the interval, the wage type is generated only for the period within the interval.
- Upper and lower limits:
  - If you want upper and lower limits to be evaluated, you can take account of TIP entries with up to four processing types; these are independent of the processing type used to start GWT. You specify the processing types to be counted in the field of the same name.
  - If you only want the wage type to be selected if there is a certain number of hours in the processing type on the day in question, enter the number of hours in the *Min.* field. If you only want the wage type to be generated up to a certain number of hours in the processing type, enter the number of hours in the *Max.* field.
  - If you want to define rules governing the fulfillment of planned hours, for example, for part-time employees, you can enter predefined symbols instead of a number of hours.
- If you have set upper and lower limits and a time *interval,* you can then activate the *Interval* field to specify that only the TIP entries that lie within the specified interval are used for determining the upper and lower limit.

Selecting Time Wage Types: Function GWT

SAP

Select planned time and overtime wage types

1. Wage type for planned working time:
   Function GWT with parameter S

V_554C_E

TIP

Start	End	Proc.type	AB	No.
08.0000	10.0000	S	01	4.0000
10.0000	13.0000	S		3.0000
14.0000	16.0000	S	02	2.0000

GWT S DZL

V_T510S

DZL

WTyp		IFTYP	No.
MI10		A	4.0000
MI10		S	3.0000

Entry is not processed according to "as if" principle

2. Wage type for overtime:
   Function GWT with parameter M

TIP

Start	End	Proc.type	AB	No.
17.0000	18.0000	M		4.0000

GWT M ZML

V_T510S

ZML

WTyp	Versl	IFTYP	No.
MM10		M	2.0000
MM20		M	2.0000

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- Function **GWT** selects time wage types for TIP entries according to the rules in the *Time Wage Type Selection Rule* view (V_T510S).
  - GWT S DZL: Time wage types for planned work
    TIP entries with processing type S are processed in time wage type selection for planned times. For each time wage type selection rule for planned working time wage types, the system checks which TIP entries observe the rule. If the rule is observed, the relevant wage type is entered in the internal table DZL.
  - GWT M ZML: Time wage type selection for overtime
    All TIP entries with processing type M are processed in time wage type selection for overtime. For each time wage type selection rule for wage types for overtime, the system checks which TIP entries observe the rule. If the rule is observed, the relevant wage type is entered in internal table ZML.
- Function GWT is used in time evaluation to select time wage types for all absences that are valuated on the basis of the "as if" principle. All other absences are valuated in the gross part of Payroll.
  The "as if" principle valuates absences as if the employee had worked (the *Time WType selection* field in the *Absence Valuation Rule* view (V_554C_E) must be activated).
  Absences whose processing type has been changed to S or absences that are evaluated using function GWT A can be valuated according to the "as if" principle.
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Wage Type Selection and Overtime Compensation -> Define Generation Rules

---

Compensating Overtime Wage Types

- Initialization
- Provide time data
- Tolerances and error checks
- Determine planned working times
- Determine overtime
- Select time wage types
- **Compensate overtime wage types**
- Manage time accounts
- Final processing
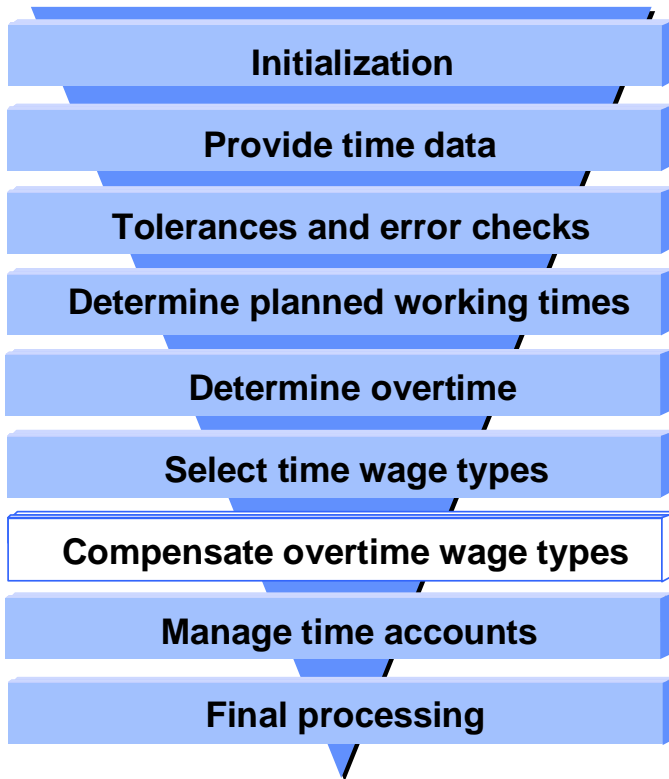
© SAP AG 1999
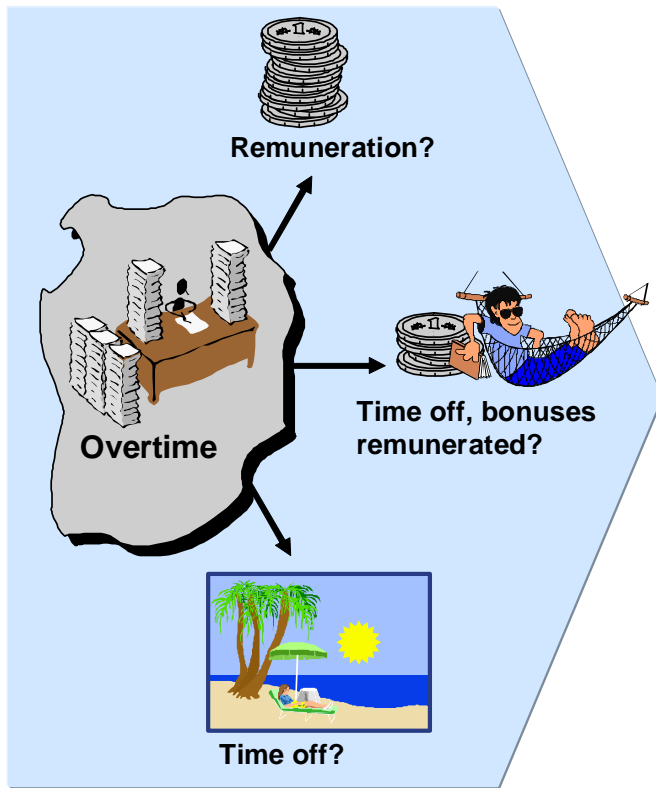
Overtime Compensation

Time recording at subsystem (with overtime approval)

Attendance Quotas **infotype (2007)**

Overtime comp. type

		Depends on wage type
	1	**Basic pay plus overtime rate**
	2	**Time off plus overtime rate**
	3	**Compensation (time off)**

Attendances **infotype (2002)**

Overtime comp. type

		Depends on wage type
	1	**Basic pay plus overtime rate**
	2	**Time off plus overtime rate**
	3	**Compensation (time off)**

Time recording at subsystem (general overtime approval)

Depends on wage type

Remuneration?
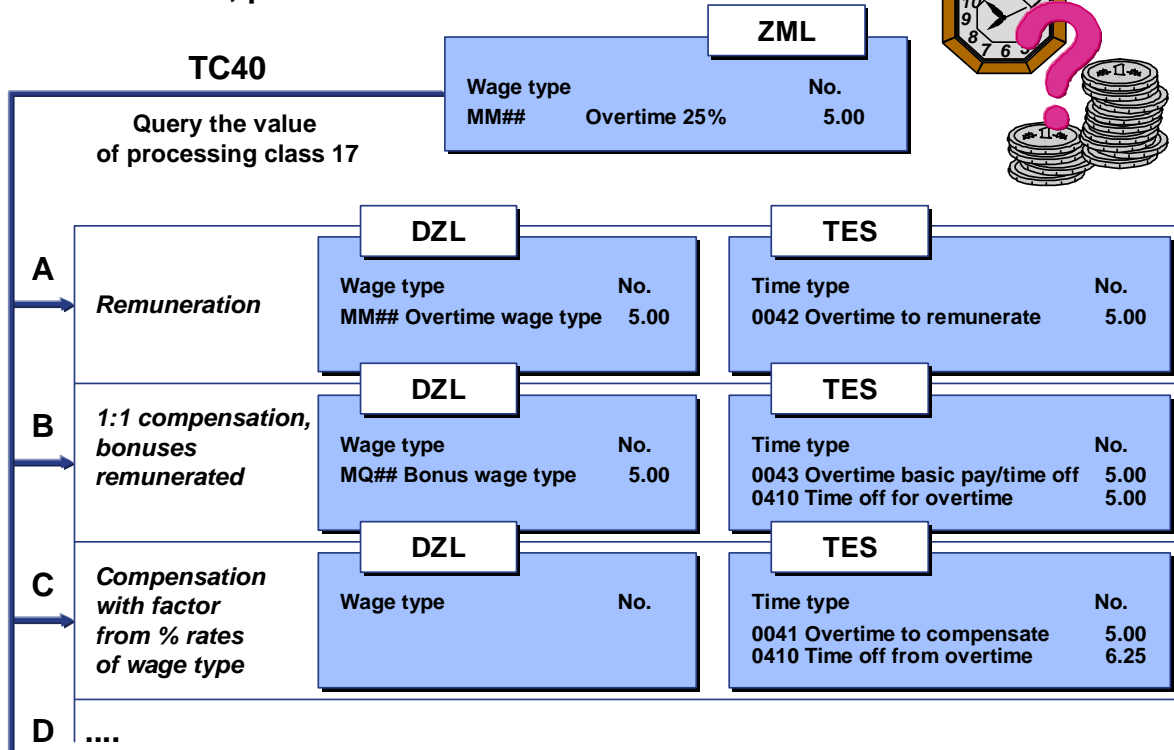
Overtime

Time off, bonuses remunerated?

Time off?

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- To compensate overtime, you can decide whether the overtime hours are to be remunerated or compensated with time in lieu. There are different options for compensation:
  - Remuneration
  - Time off for basic hours, bonuses are remunerated
  - Time off
- You specify the type of compensation for each wage type. You can use the *overtime compensation type* in the *Attendance Quotas* (2007) and *Attendances* (2002) infotypes to control overtime compensation for individual employees and periods.

Compensating Overtime Wage Types

SAP

Function POVT, personnel calculation rule TC40

TC40

ZML

Wage type		No.
MM##	Overtime 25%	5.00

Query the value of processing class 17

A *Remuneration*

DZL

Wage type	No.
MM## Overtime wage type	5.00

TES

Time type	No.
0042 Overtime to remunerate	5.00

B *1:1 compensation, bonuses remunerated*

DZL

Wage type	No.
MQ## Bonus wage type	5.00

TES

Time type	No.
0043 Overtime basic pay/time off	5.00
0410 Time off for overtime	5.00

C *Compensation with factor from % rates of wage type*

DZL

Wage type	No.

TES

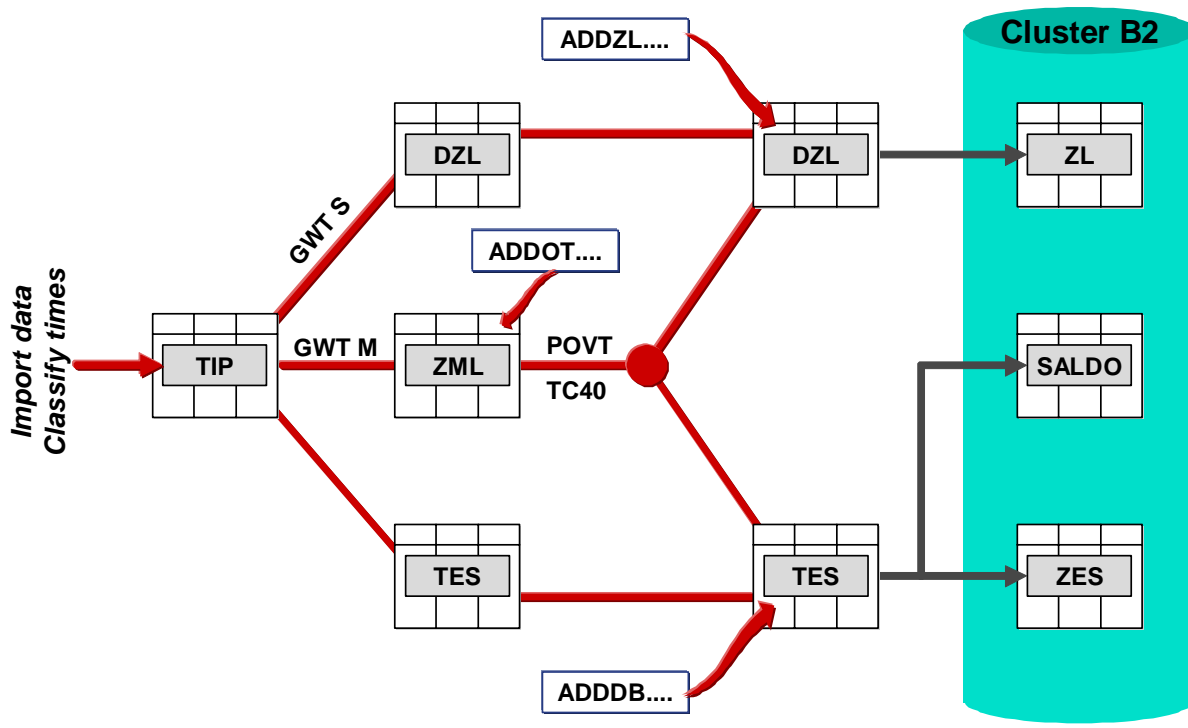| Time type	No.
0041 Overtime to compensate	5.00
0410 Time off from overtime	6.25

D **....**

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- Function POVT processes the overtime wage types consecutively in the specified personnel calculation rule. Processing type 17 determines how the wage type is processed. Specifications D-F of the processing class allow time evaluation to take account of the *overtime compensation type* from the infotypes. If no overtime compensation types are specified, processing follows specifications A-C.
- In personnel calculation rule TC40, specifications A to F of processing class 17 are interpreted as described in the documentation. The factor for compensating overtime is determined from the total of the percentage rates stored for the overtime wage type and the derived wage types in the *Wage Type Valuation* view (V_512W_B).
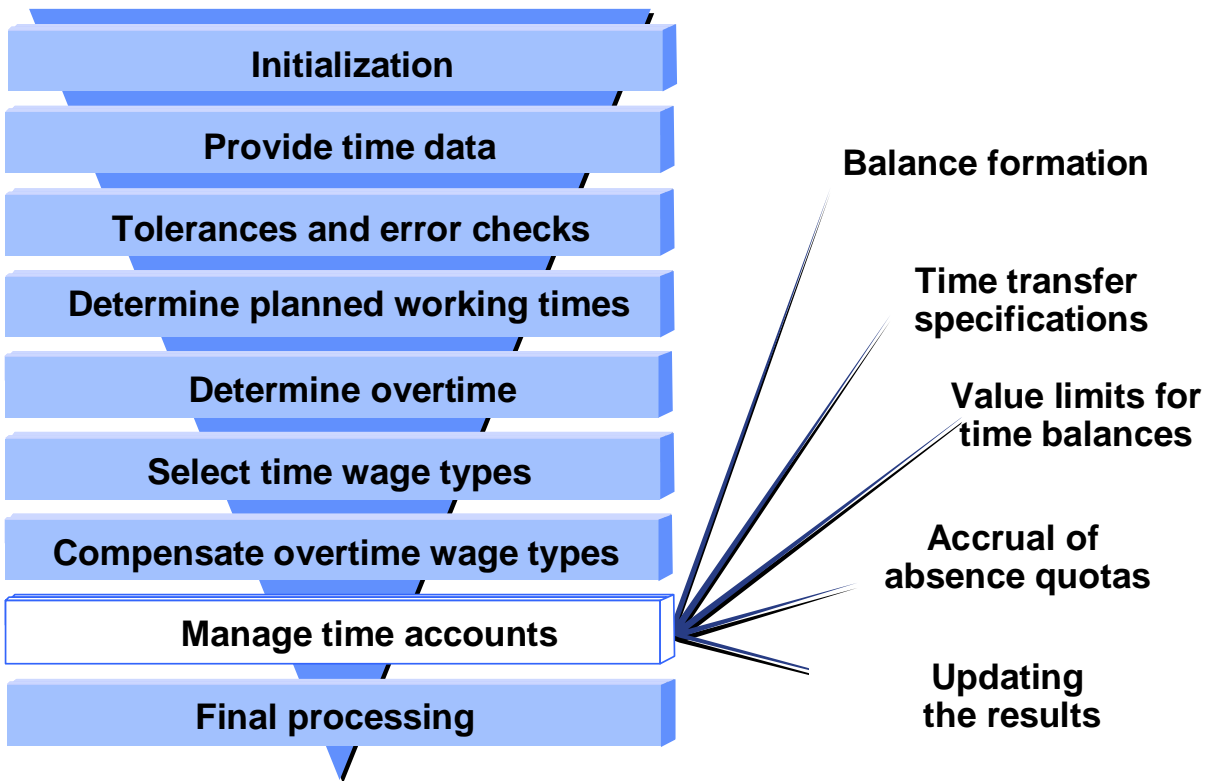
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Wage Type Selection and Overtime Compensation -> Compensate Overtime

Data Flow: Time Wage Types and Balances

Cluster B2

ADDZL....

DZL → DZL → ZL

Import data
Classify times

TIP

GWT S

GWT M

ZML

ADDOT....

POVT
TC40

SALDO

TES → TES → ZES

ADDDB....

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- Balances and time wage types can also be formed or changed in personnel calculation rules:
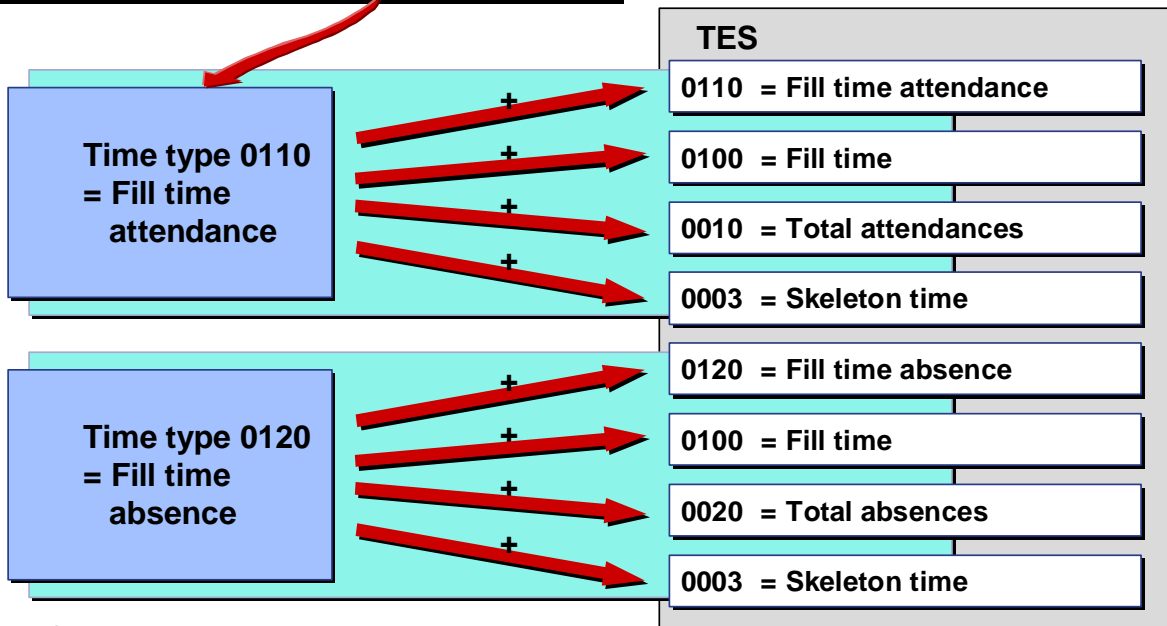 - Time wage types using operation ADDZL/ADDOT
  - Balances using operation ADDDB

Managing Time Accounts

- Initialization
- Provide time data
- Tolerances and error checks
- Determine planned working times
- Determine overtime
- Select time wage types
- Compensate overtime wage types
- **Manage time accounts**
- Final processing

Balance formation

Time transfer specifications

Value limits for time balances

Accrual of absence quotas

Updating the results

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Forming Day Balances: Rule TR10

TIP

Start	End	Time type	No.
12.5000	16.5000	0110	4.0000

Time type 0110 = Fill time attendance

TES

+ → 0110 = Fill time attendance
+ → 0100 = Fill time
+ → 0010 = Total attendances
+ → 0003 = Skeleton time

Time type 0120 = Fill time absence

+ → 0120 = Fill time absence
+ → 0100 = Fill time
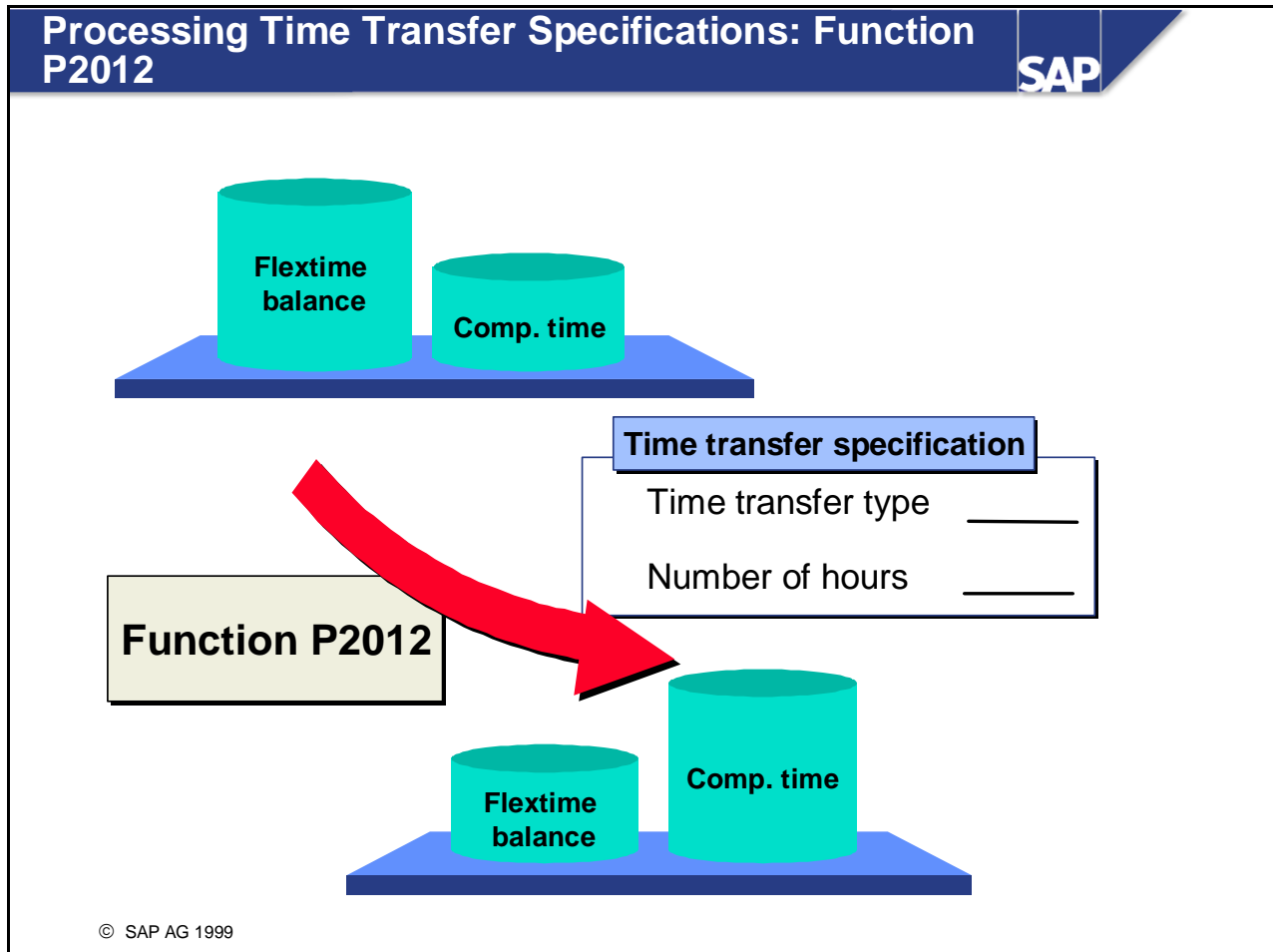+ → 0020 = Total absences
+ → 0003 = Skeleton time

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- Personnel calculation rule TR10 adds the number of hours in the TIP entries to various comprehensive time types (time balances) to form day totals. The results of processing are entered in table TES (day balances).
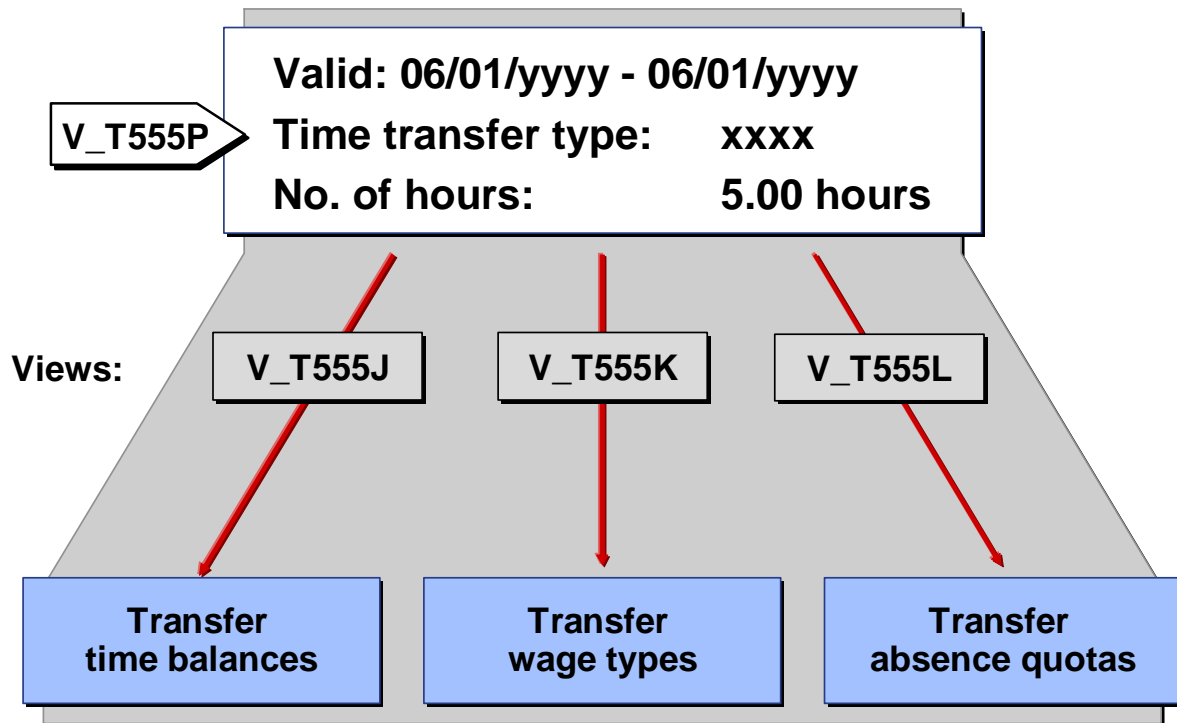
Balance Formation and Time Type Determination

TIMTP
Time type determination (V_T555Z)

	Pair type			
	0	1	2	3
ID				
01		...		
02		0110	0120	0130
03		0210	0220	0230
04		0510	0520	0530

Rule TR10
Form day totals
      Time type:

0003   Skeleton time

0500   Break

Rule TR10
      0010   0020   0030
Attendance
Absence
Off-site work

© SAP AG 1999
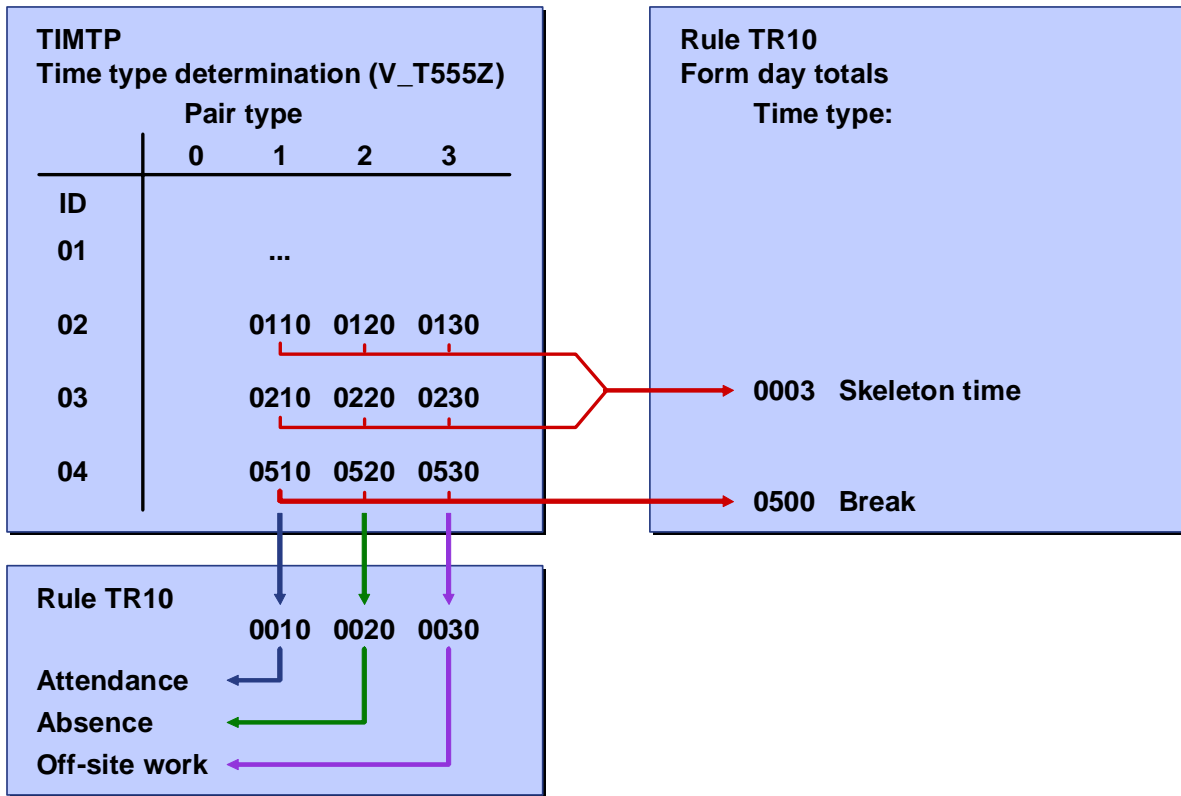
■ Time pairs in TIP have been split using function TIMTP and classified by a time type and a processing type.
Personnel calculation rule TR10 now adds the number of hours in the respective time type to various comprehensive time types (time balances). You should read the entries in the *Time Type Determination* view (V_T555Z) as follows:

• Horizontally to determine balances that relate to points of time in the day (for example, breaks, overtime hours)

• Vertically, to determine balances that are based on employees' attendance and absence statuses.

Flextime balance

Comp. time

Time transfer specification

Time transfer type _____

Number of hours _____

Function P2012

Comp. time

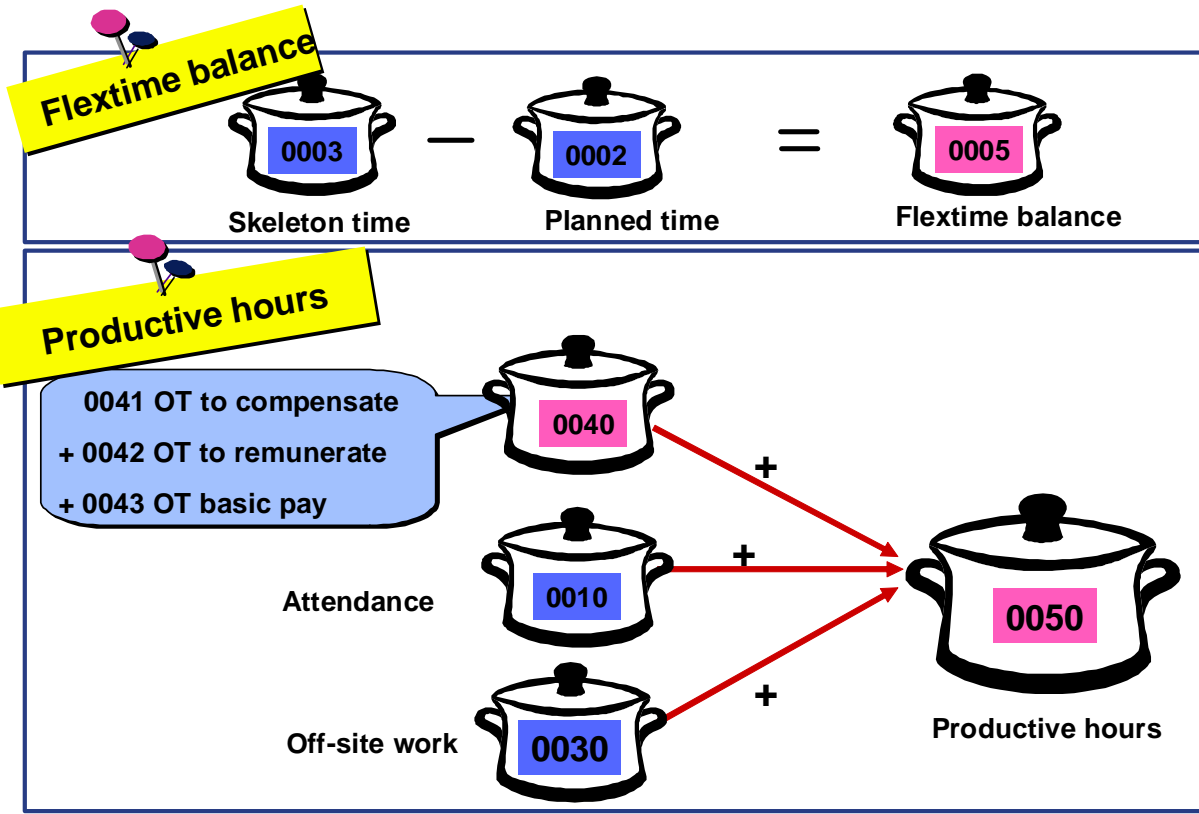**Flextime balance**

© SAP AG 1999

- Time transfer specifications allow you to change the results determined by time evaluation.
- You can use time transfer specifications to transfer hours from a time type, time wage type, or an absence quota to a:
  - Time type
  - Time wage type
  - Absence quota
  You can also set time types to a fixed value.
- Function P2012 processes the time transfer specifications for the current day using tables.

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Processing Balances -> Time Transfer

Valid: 06/01/yyyy - 06/01/yyyy

V_T555P

Time transfer type: xxxx

No. of hours: 5.00 hours

Views: | V_T555J | | V_T555K | | V_T555L |

| Transfer time balances | Transfer wage types | Transfer absence quotas |

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- The time transfer specifications are processed for each day of the infotype's validity period.
- Up to three processing steps (transfer time balances, wage types, and absence quotas) can be performed for each time transfer type. It is therefore possible, for example, to reduce a time type and an absence quota by five hours and to pass on a wage type with five hours to Payroll.

Forming Important Balances: Rule TR30

Flextime balance

0003 − 0002 = 0005

Skeleton time — Planned time — Flextime balance

Productive hours

0041 OT to compensate
+ 0042 OT to remunerate
+ 0043 OT basic pay

0040

Attendance — 0010

Off-site work — 0030

+ + + = 0050

Productive hours

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- Personnel calculation rule TR30 provides an example of how you can use arithmetical operations in a personnel calculation rule to form important day balances from the balances determined until that point. Personnel calculation rule TR30 determines the following balances:
  - Current day's flextime balance
    This is done by subtracting the planned working time in the daily work schedule from the skeleton time (planned hours worked)
  - Hours of overtime worked
  - Productive hours

Value Limits for Time Balances: Function LIMIT
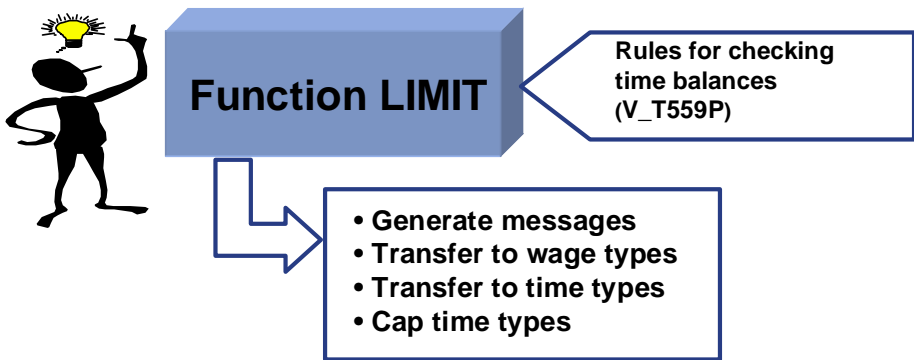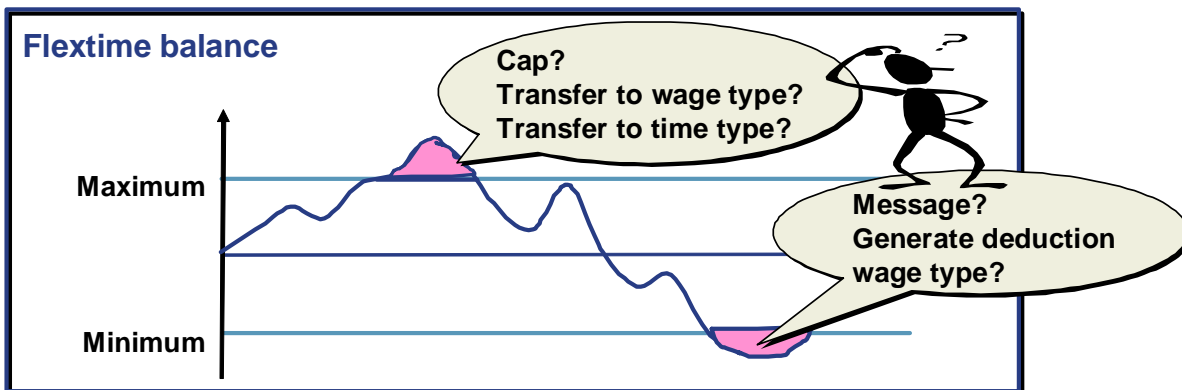
■ Many working time regulations, company agreements and so on stipulate that value limits must be checked. You can use function LIMIT to process rules for checking the balances determined by time evaluation. This allows you to check whether time balances exceed or fall short of the individual balance limits, and to determine appropriate system reactions. A flexible Customizing table is available for determining the rules. You can use it to meet the following requirements, for example:

- Determining the value limits according to fixed values or employees' master and transaction data (for example, number of planned hours, maximum working time)
- Checking value limits within flexibly defined periods
- Generating messages to give advance warning, even when the value limit has not yet been exceeded
- Transferring the excess to another time balance or another wage type
- Storing time balances in another time type over freely-definable periods, for example, weekly balances
- Limiting the validity of the rule depending on the employee's age

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Processing Balances -> Balance Formation -> Balance Limits

Operation MODIF L=xx → **Time balance rule group** → **Rules 001 002 ...**

Determination

Rule nnn:

■ **Set value limit**		● **Value? Type?**
■ **Set time balance to be compared**		● **Which time balance?** ● **Period to be processed?** ● **Processing?**
■ **Process if value limit** ● **Exceeded** ● **Reached**		● **Generate messages?** ● **Store excess?**
■ **Control**		● **Store determined time balance?** ● **Check point?**
■ **Age**		● **Dependent on employee's age?**

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- Function LIMIT determines the balances to be compared with the value limit for a fixed processing period. It can process the balances in the following ways:
  - Add (cumulate) day or period balances
  - Find the highest value (maximum)
  - Find the lowest value (minimum)
- You can use different processing periods and check points, depending on whether you are processing day or period balances. The check point is the time at which the system applies the rule, for example, at the end of the evaluation period. Function LIMIT can therefore be placed in the following positions in the schema:
  - Processing day balances in day processing
  - Processing period balances in final processing
- When it checks the value limits, time evaluation runs through all the balance rules belonging to a time balance rule group, and processes the ones that meet the specified conditions.
- You can also use function LIMIT to perform a particular type of processing at a particular point in the schema. The processing is then performed for all employees identically. You can set a time balance rule group in parameter 2 of the function. Note that you must use operation MODIF to reset the original time balance rule group after this processing block.

Day balances
TES

Day total   1   Transfer

*Time Types view
V_T555A*

Period balance   1   Transfer

Day balances
Table ZES

Period balance
Table SALDO

Day wage types
DZL
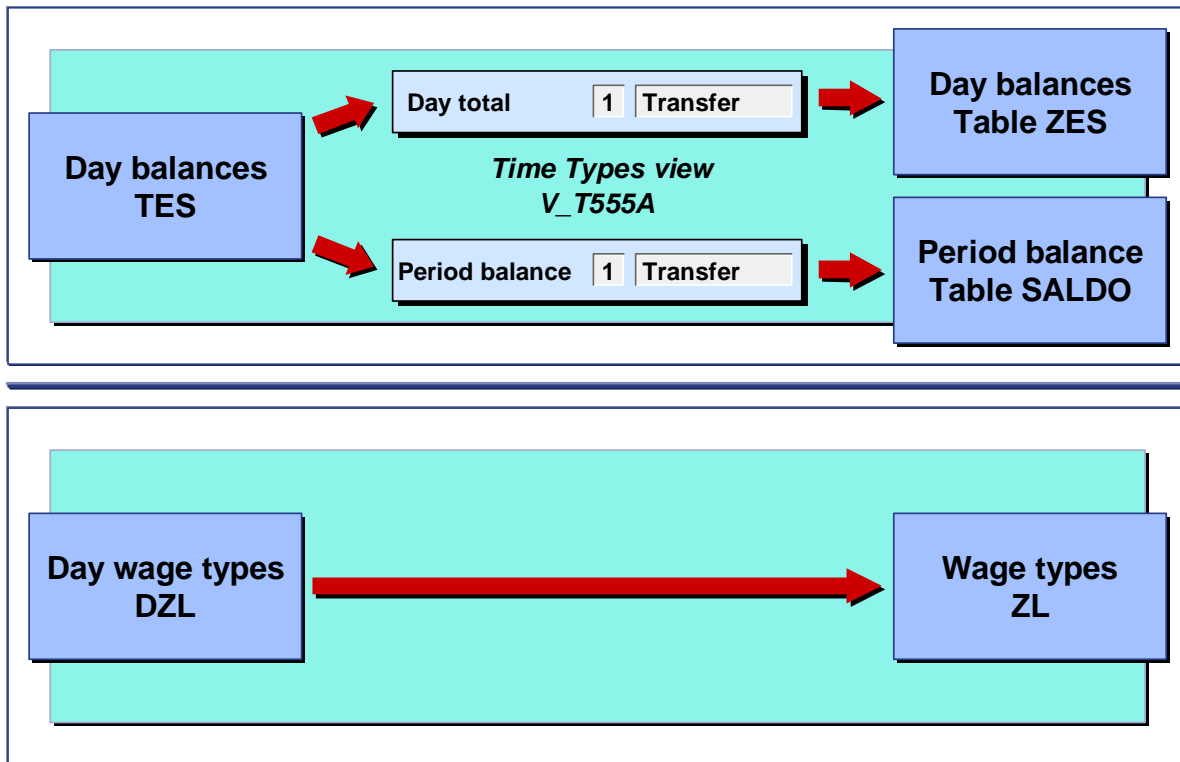
Wage types
ZL

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- Function CUMBT cumulates time types from table TES into tables ZES (day balances) and SALDO (month balances) according to the rules in the *Time Types* view (V_T555A). All time wage types are transferred via function CUMBT (without additional control) from table DZL to table ZL.
- Tables ZES, SALDO, and ZL are tables from Cluster B2 in file PCL2.
- **Note:**
  In order to ensure an error-free recalculation, SALDO may only be filled using table TES, or at the end of the time evaluation period.
  To do this, proceed as follows:
  1. Use function IF EOM to query the end of the time evaluation period.
  2. Use operation ADDMB in a personnel calculation rule to enter balances in SALDO.
  3. Exit processing with ENDIF.

  *IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times ->
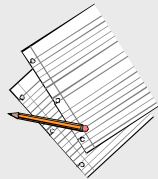 Processing Balances -> Balance Formation -> Update Cumulated Balances*

Accruing Absence Entitlements Automatically

General entitlement for an entire period
(for example, a leave year), granted in advance

Leave credit 2000

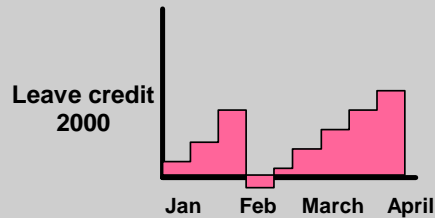Jan   Feb   March   April
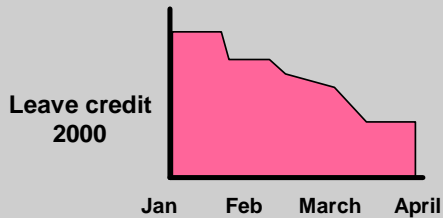
➡ Time off credit is accrued once for each leave year
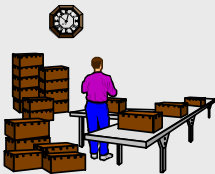
Entitlement based on work performed in the previous year

General annual leave

Proportionate entitlement determined after a calculation period

Leave credit 2000

Jan   Feb   March   April

➡ Time off credit is accrued proportionately, periodically

Time off for overtime

Realtime calculation of entitlement based on work performed

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- You can grant absence entitlements to comply with the following business requirements and legal and contractual regulations:
  - General absence entitlement for a particular period, for example, general annual leave granted in advance for one leave year
  - Periodic, proportionate absence entitlement, for example, annual leave calculated proportionately for each month or for each payroll period
  - Proportionate, performance-related absence entitlement, for example, based on the time worked in the previous period
  - Absence entitlement based on special activities, for example, time in lieu of overtime

  The R/3 System enters the absence entitlements as a deductible quota in the *Absence Quotas* infotype (2006).
- You can use flexible Customizing tables to represent all your requirements covering the accrual of leave and other absence entitlements.

  IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Calculating Absence Entitlements

Methods for the Automatic Accrual of Absence Entitlements

SAP

General entitlement for an entire period (for example, a leave year), granted in advance

Proportionate entitlement determined after a calculation period

→ RPTQTA00: Generate Absence Quotas	→ Function QUOTA: Time evaluation RPTIME00, Schemas TM00, TM04, TQTA
Master data and completed time data for past periods	Current time data
Entitlement accrued once for a following entitlement period	Regular, proportionate accrual
Available immediately after accrual	Point of availability for employee can be determined flexibly
Automatic recalculation	Automatic recalculation

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- You can choose between two procedures to accrue absence entitlements:
  - Generation of default values for the *Absence Quotas* infotype (2006):
    The absence entitlement is generated either for multiple employees using report RPTQTA00 *Generate Absence Quotas,* or online when you create an infotype record.
  - Automatic accrual:
    The absence entitlement is generated by time evaluation. Even if you do not perform time evaluation for particular employees (who have a *Time Management status* other than 1, 2, or 9), you can use schema TQTA to have quotas accrued in time evaluation. The relevant employees must be assigned the *Time Management status* 7 in the *Planned Working Time* infotype (0007).

Automatically Determining Absence Entitlements in the *Absence Quotas* Infotype (2006)

SAP

Change Absence Quotas (Infotype 2006)

Determine validity interval

00001234   Mary Miller   ….
Valid   05/01/2000 ····· 05/31/2000

Manage absence entitlements in hours or days

Absence quota

Determine quota number

Type   Time off for overtime
Time   ·····
Quota number No.   43.00000   Hours
Deduction   22.25000

Determine deduction period

Deduction from   06/01/2000
Deduction to   06/30/2000

Neg. deduc. to
16.00000

Jan   March   April
Negative deduction permitted

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- Entitlement to absence quotas (infotype 2006) can be accrued automatically in time evaluation for individual employees in the following ways:
  - The system recalculates the entitlement each time and overwrites the previous value in the *Absence Quotas* infotype (2006).
  - The system calculates the entitlement and increases the value in the infotype record.
    You cannot manually change the quota number accrued by time evaluation. It is managed and processed in the quota overview.
    Menu: *Human Resources -> Time Management -> Administration -> Time Data -> Quota Overview*
- Automatic accrual also determines the validity and deduction periods in addition to the quota number.

Accruing Absence Entitlements: Function QUOTA
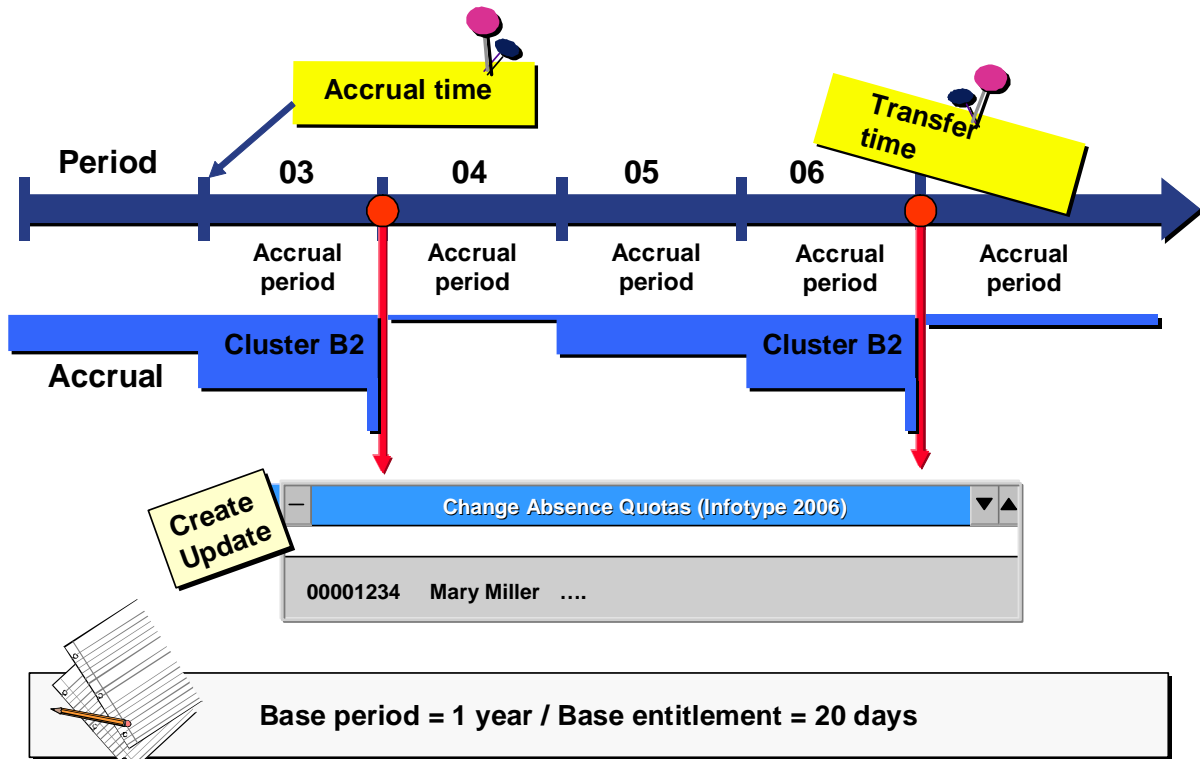
- ■ *Base entitlement/period:* You can store a total entitlement (in days or hours) in relation to a fixed period (for example, a calendar year) for each absence quota type. This total entitlement (base entitlement) forms the calculation basis on which the proportionate absence entitlement per accrual period is calculated. The base entitlement relates to a base period.
- ■ *Accrual period/time:* The time interval for which the absence credit is calculated. At the end of each accrual period (accrual time) the new value increases or replaces the existing entitlement.
- ■ *Accrual entitlement:* The accrual entitlement is defined as the calculated absence entitlement for an accrual period. It is calculated on the basis of the base entitlement. A comparison of the base period and the accrual period converts the base entitlement to the accrual period.
- ■ *Transfer time:* The cumulated accrual entitlement is transferred to the *Absence Quotas* infotype (2006):
  - Once a defined key date is reached
  - When the accrual entitlement exceeds a fixed value limit

- ■ Absences cannot be deducted from the cumulated entitlement until it has been transferred.

Determining Quota Type Selection Rule Group

SAP

Feature QUOMO

Determine using selected organizational data

Initialization

Function MOD
PC rule MODT
MODIF Q=XX

Determine using master data from the *Organizational Assignment* (0001), *Planned Working Time* (0007), and *Basic Pay* (0008) infotypes

Day processing

Function ACTIO
PC rule XXXX
MODIF Q=XX

Determine using master data and information on the day being evaluated

- You can use the quota type selection rule group to specify rules for absence quota type selection based on the employee's organizational assignment.
- You can determine the quota type selection rule group using the following procedures. You can select the appropriate procedure based on the specific information you require for selection rules:
  - Using feature QUOMO. The feature allows you to determine the quota type selection rule group based on employees' organizational assignments. It is queried by function QUOTA.
  - Using function MOD in the time evaluation schema. Function MOD accesses the personnel calculation rule MODT. You can use operation MODIF Q=xx to determine for each of these groupings the quota type selection rule group. Time evaluation uses the rule group to access the entries from the *Absence Quota Type Selection* table for the employees in question.
  - Using an individually created personnel calculation rule in day processing. The quota type selection rule group is determined by operation MODIF Q=xx.
- Function QUOTA first queries the day processing. If there is no entry there for the employee's quota type selection rule group, the function checks whether the rule group was set during initialization. If there is no suitable entry here either, it queries the feature.

Absence Quota Type Accrual (I)

Block

Meaning

Applicability
- What is the earliest date an employee can accrue entitlements?
- For which entry date should a rule be selected?
- Is leave for challenged persons involved?

Accrual period
- For which accrual period should the entitlements be cumulated?

Base entitlement
- Which rule for the base entitlement should be processed?
- Which key date should be used to determine age and seniority?

Base entitlement (I)
- Should the accrual entitlement be based on hours worked?
- Which time type should be used to multiply the entitlement?

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■ The generation rules for absence quota selection are processed by function QUOTA.
QUOTA stores the accrual entitlements generated in the time evaluation runs in table QTACC (quota accrual) in Cluster B2. It stores the cumulated accrual entitlements that are ready for transfer in table QTTRANS (transfer pool) in Cluster B2.

IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Calculating Absence Entitlements -> Rules for Generating Absence Quotas -> Define Generation Rules for Quota Selection

Absence Quota Type Accrual (II)

SAP

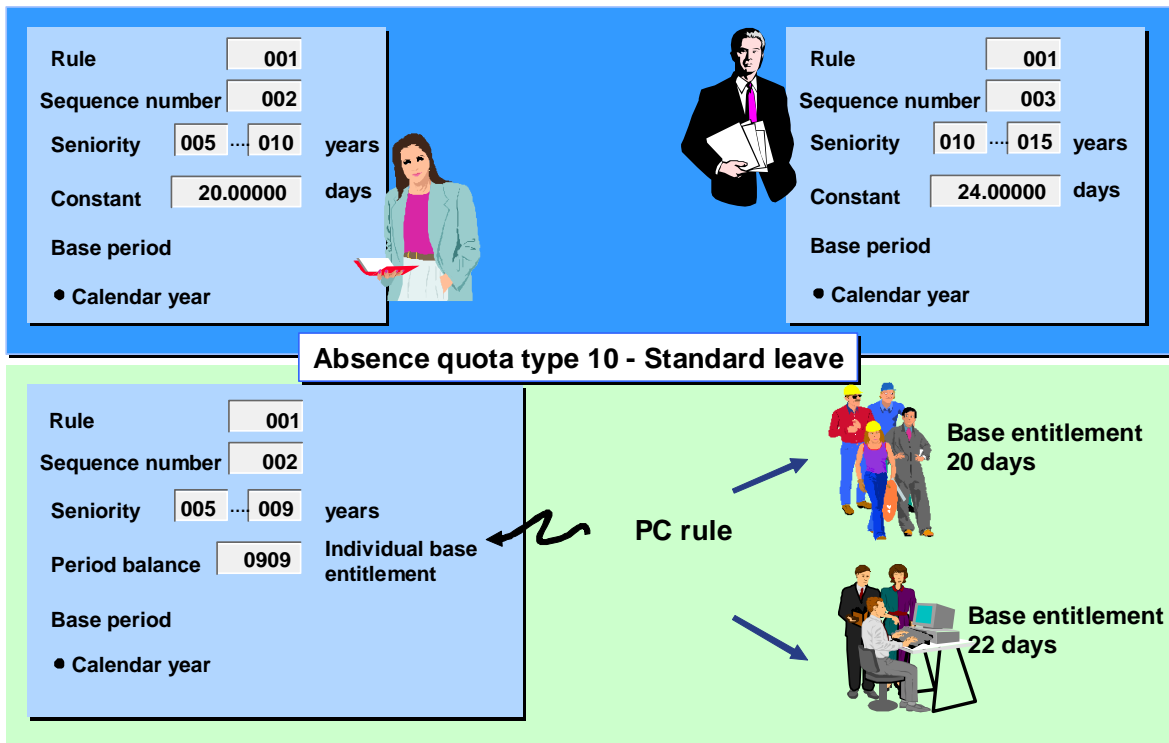|	
■ **Accrual entitlement (II)**	**Which rule should be used to reduce the entitlements (for example, for part-time work)?**
	Should entitlements be rounded?
	Should there be a maximum entitlement for each accrual period which must not be exceeded?
	Should differences that arise from a maximum value being reduced or exceeded be posted to a special quota?
■ **Transfer time to the** *Absence Quotas* **infotype (2006)**	**How often should the accrual entitlements be transferred?**
	What is the minimum entitlement that should be reached before the entitlement is transferred?
■ **Total entitlement**	**Should the absence quotas be rounded before they are transferred?**
	What should the maximum total entitlement for the quota be?

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- You can use the SAP enhancement HRPTIM03 to fine-tune the criteria for absence quota accrual for many areas.

Determining the Base Entitlement

Rule **001**
Sequence number **002**
Seniority **005** ··· **010** years
Constant **20.00000** days
Base period
● Calendar year

Rule **001**
Sequence number **003**
Seniority **010** ··· **015** years
Constant **24.00000** days
Base period
● Calendar year

Absence quota type 10 - Standard leave

Rule **001**
Sequence number **002**
Seniority **005** ··· **009** years
Period balance **0909** Individual base entitlement
Base period
● Calendar year

PC rule

Base entitlement
20 days

Base entitlement
22 days

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- The base entitlement forms the calculation basis that is used to calculate the proportionate absence entitlement per accrual period.
- The base entitlement can be determined on the basis of an employee's age or seniority. If the differentiation of the employee's age or seniority is not sufficient, or you want to use other criteria, you can modify the rule. You can create personnel calculation rules in the time evaluation schema in which you fill your own time type with the base entitlement according to employees' organizational assignment or the results of time evaluation.
- If you want to define different base entitlements for each age or seniority interval, you can group them together in a rule. You can differentiate the individual intervals in the rule by assigning them a sequential number.
- The base entitlement is related to a fixed period. It can be:
  • Related to a calendar year or a period of your choice (for example, start of April 2000 to end of March 2001)
  • Determined on the basis of the time evaluation or payroll period
  • Determined on the basis of the accrual period

IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Calculating Absence Entitlements -> Rules for Generating Absence Quotas -> Define Generation Rules for Quota Selection

Validity and Deduction Intervals

Change Absence Quotas /In

00001234   Mary Miller   ....

Valid   01/01/2001 .... 12/31/2001

Absence quota

Type   10   Standard

....

Deduction from   01/01/2001

Deduction to   03/31/2002

Absence Quotas
infotype (2006)

View: "Validity/Deduction Interval for Absence Quotas"

Absence quota type   10   Standard leave

Validity interval

Valid from
- Calendar year
- ○ ...
- From   ○ To

Valid to
- Calendar year
- ○ ...
- ○ From   To

Deduction interval

Deduction from
- Start of validity interval
- ○ End of validity interval

Relative position [   ] [   ]

No deduction before   01   Expiry of probation

Deduction to
- ○ Start of validity interval
- End of validity interval

Relative position   3   months

No deduction after   02   Temporary contract

Evaluation of information for individual employees from the *Monitoring of Tasks* **infotype (0019)**
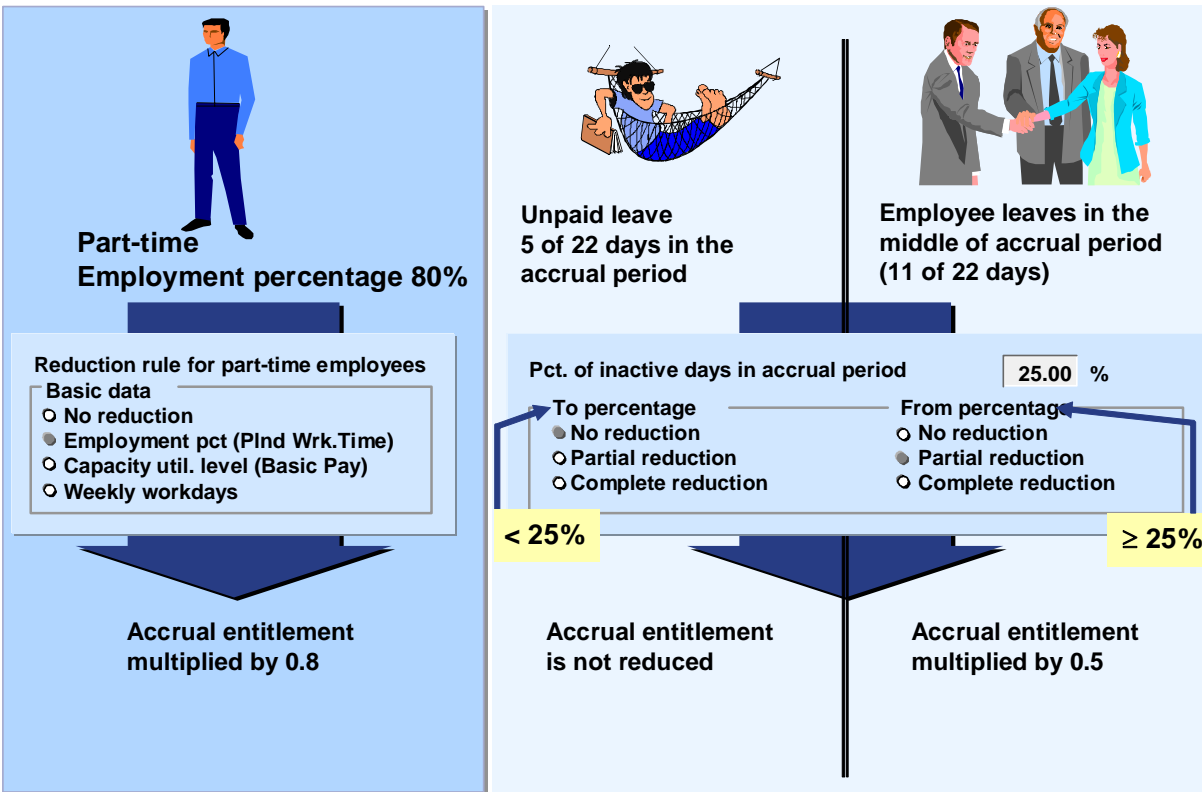
Refining the deduction interval

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- For each absence quota type, you can determine which validity and deduction periods are applied to a record from the *Absence Quotas* infotype (2006) that has been created by the system.
- The validity period of an absence quota type record refers to the period for which time evaluation fills the quotas in an individual infotype record. If the valid from date lies outside the validity period of an existing infotype record, time evaluation creates a new record.
- The validity period can be defined flexibly. You can use the following options:
  - Fixed periods, such as the calendar year or the time evaluation period
  - Periods depending on employees, such as the payroll period or the date type
  - Periods that are defined in the quota selection rule, such as the accrual period
  - Periods that you have defined in Customizing, such as the period parameter
- The deduction from and deduction to dates define the period within which the absence quota can be deducted by an absence. It need not be identical to the validity period.

IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Calculating Absence Entitlements -> Rules for Generating Absence Quotas -> Determine Validity and Deduction Periods

---

SAP

Part-time
Employment percentage 80%

Reduction rule for part-time employees
Basic data
○ No reduction
● Employment pct (Plnd Wrk.Time)
○ Capacity util. level (Basic Pay)
○ Weekly workdays

Accrual entitlement
multiplied by 0.8

Unpaid leave
5 of 22 days in the
accrual period

Employee leaves in the
middle of accrual period
(11 of 22 days)

Pct. of inactive days in accrual period   **25.00** %

To percentage
● No reduction
○ Partial reduction
○ Complete reduction

From percentage
○ No reduction
● Partial reduction
○ Complete reduction

< 25%   **≥ 25%**

Accrual entitlement
is not reduced

Accrual entitlement
multiplied by 0.5

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- You use **reduction rules** to shorten the generated accrual entitlements for part-time employees or employees with inactive days within an accrual period.
  If you use reduction rules, you do not need to set up any absence quota type selection rules of your own for part-time employees.
- You can take account of particular absences in the calculation of inactive time. They can lead to a reduction of the accrual entitlement. You define in the absence type (*Absence: Reduction for Quota Generation* view (V_554S_M)) whether an absence is valuated as inactive time.
- You use the absence quota type selection to determine whether the remainder for a reduction is no longer relevant, or whether it is stored in an additional absence quota.

IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Calculating Absence Entitlements -> Rules for Generating Absence Quotas -> Define Rules for Reducing Quota Entitlements

Rounding Rules

SAP

Round value determined to a whole number

	RoRul	Name	No.	Lower limit	Incl.	Upper limit	Incl.	Tgt value	Roll.	
5.21343 days	01	Rule 01	001	0.50000	☑	1.50000	☐	1.00000	☑	5.00000 days

Lower limit is also rounded

Rounding rule also valid for the interval
- 1.5 - 2.5
- 2.5 - 3.5
- ....

Set value determined to the value limit

	RoRul	Name	No.	Lower limit	Incl.	Upper limit	Incl.	Tgt value	Roll.	
35.3409 days	05	Maximum value	001	30.00000	☑	99,999.99999	☑	30.00000	☐	30.00000 days

Sequence number

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- When the system calculates values, these values often have many decimal places, and are therefore not easy to use. You can use rounding rules to:
  - Round values up or down
  - Check value limits
  - Set fixed values
- You define rounding rules using concrete figures. You can specify:
  - Whether only values within the interval should be rounded, or whether the interval should be rolled over
  - Whether the specified upper and lower limits should also be rounded

- You can define several subrules for each rounding rule. They should be distinguished using sequence numbers. The system runs through the subrules consecutively until a rule applies.

IMG: Personnel Time Management -> Time Data Recording and Administration -> Managing Time Accounts Using Attendance/Absence Quotas -> Calculating Absence Entitlements -> Rules for Generating Absence Quotas -> Define Rules for Rounding Quota Entitlements
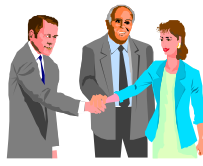
Quota Corrections Infotype (2013)

SAP

An employee is hired
➡ *Transfer 10 days of leave from previous job*

Valid	mm/dd/yyyy
Quota correction	
Absence quota type	10 Standard leave
Quota number	10.00000

⬇

● **Increase generated entitlement**

An employee leaves
➡ *Evaluate remaining leave and transfer the value directly to the infotype*

Valid	mm/dd/yyyy
Quota correction	
Absence quota type	10 Standard leave
Transfer	Transfer collected

⬇

● **Increase generated entitlement**

Correction
➡ *Correct the excess entitlement*

Valid	mm/dd/yyyy
Quota correction	
Absence quota type	02 Time off
Quota number	2.50000

⬇

● **Reduce generated entitlement**

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- You can use the *Quota Corrections* infotype (2013) to increase, reduce, or replace entitlements accrued in time evaluation. This is necessary, for example, if you want to:
  - Make corrections for periods that are no longer relevant for a recalculation
  - Have the generated entitlements transferred immediately to the infotype.
- The changes are processed in the next time evaluation run. The quota corrections are not taken into account immediately in the *Absence Quotas* infotype (2006), since time evaluation only updates the infotype at the next transfer time.
  In exceptional cases - for example, when an employee leaves the company - you can make time evaluation transfer immediately the total accrued entitlement or the value of the quota correction. Choose your preferred option in the *Transfer* field.
- The function *Transfer collected entitlement immediately* is now available for quotas that have been customized to replace existing entitlements.

Quota Overview

Find out about absence entitlements

Project future entitlements

Evaluate employees' attendances and absences

Transfer time accounts manually

Remaining leave

Annual leave

Quota Overview

Check deduction

15 → 3

Inform employees

Time accounts

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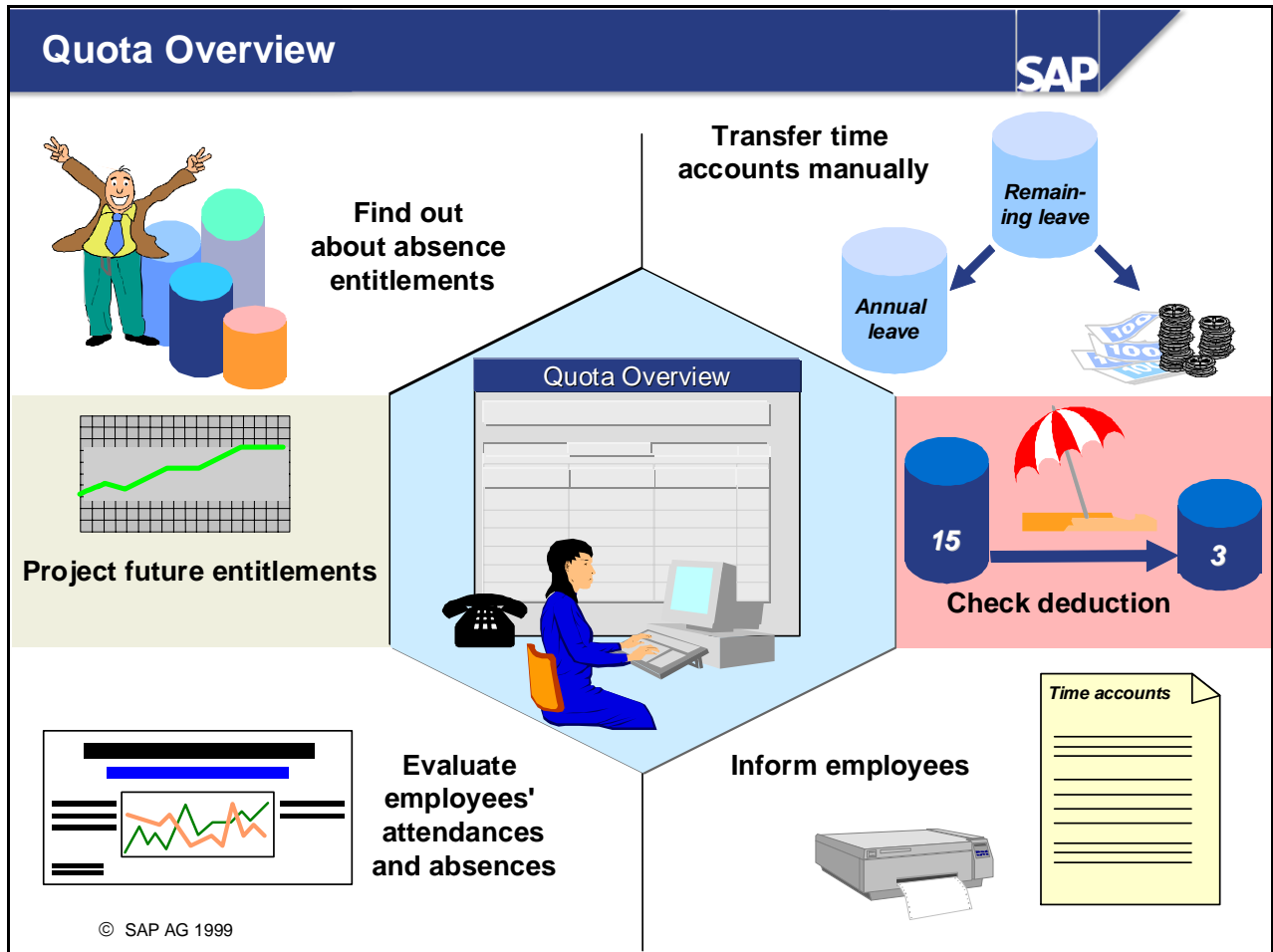
- The quota overview (transaction PT50) provides all the information and program functions from the attendance and absence quota management environment.
- Menu: *Human Resources -> Time Management -> Administration -> Time Data -> Quota Overview*

Final Processing

SAP

- Initialization
- Provide time data
- Tolerances and error checks
- Determine planned working times
- Determine overtime
- Select time wage types
- Compensate overtime wage types
- Manage time accounts
- **Final processing**
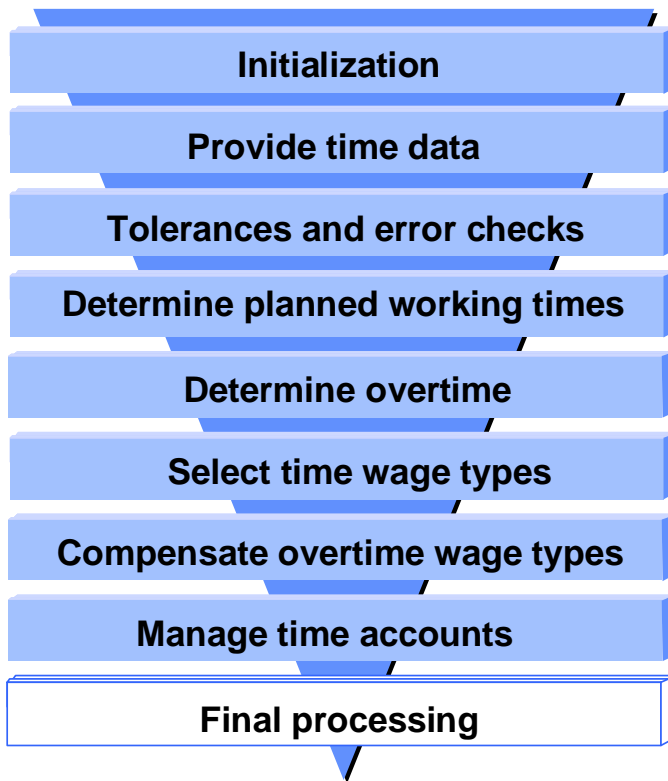
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Overview: Data Flow During Time Evaluation

SAP

Time evaluation input

| Personal work schedule | PCL 1 Cluster B1 | P2nnn | PCL 2 Cluster B2 | PAnnnn Organiz- ational infor- mation |

Planned pair   TIP entries

Rule processing

Import data

TZP   TIP   SALDO

PAnnnn General status information

Process internal tables

TOP   TIP   TES

ZML   DZL   TES

Time evaluation output

| | | | Update infotypes |

ZL   ZES   SALDO

PCL 2 Cluster B2

	Update infotypes	
0003 2006	2007	
New records		
2001	2002 2006	

- Function EXPRT exports the time evaluation results to the database. The function can be placed at any position in the schema.

Using Functions and Operations to Process Work Tables

SAP

		Filled by (operation)		**Processed by (function)**	
TIP (TOP)	Time Pairs	COLOP	Collect in TOP	PTIP	Process TIP
TES	Day Balances	ADDDB	Add in Daily Balance Table	PDB	Process Daily Balances
SALDO	Period Balances	ADDMB	Add in Monthly Balance Table	PMB	Process Monthly Balances
ZML	Overtime Wage Types	ADDOT	Add in Overtime Table	POVT	Process Overtime Table
DZL	Time Wage Types	ADDZL	Add in ZL (time wage types)	PZL	Process ZL

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- There are special functions and operations that you can use to process work tables.
- The names of the operations and functions give an indication as to their use.

Personnel Calculation Schema TM00: Summary
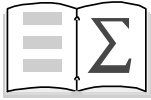
You are now able to:

- **Describe standard schema TM00 step by step, and explain how time balances and time wage types are formed from a day's time data**

- **Explain simple personnel calculation rules, and write your own**

- **Identify parts of the schema that you may have to modify to suit your customer-specific requirements, and perform this customizing**
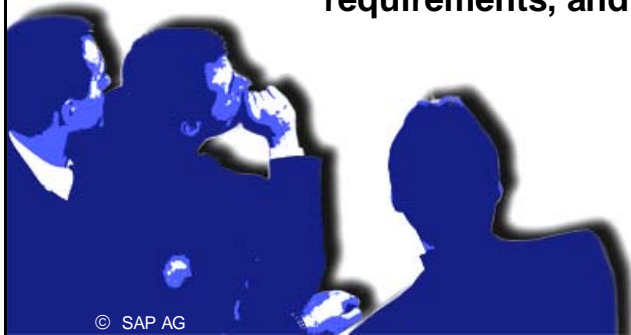
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Personnel Calculation Schema TM00 Exercises

Unit: **Personnel Calculation Schema TM00**

Topic: **Time Evaluation Steps in Schema TM00**
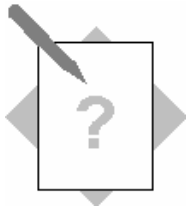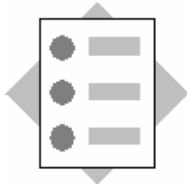
- Creating and Customizing Personnel Calculation Rules
- Representing Special Business Requirements in Time Evaluation

1   Accruing a compensation time account

A reduction of working hours is introduced in your enterprise.
The employees work their normal planned working hours from the daily work schedule.
On each working day, employees receive a time credit (compensation time) if they are at work. If an employee has a partial day absence, the time credit is halved.
The compensation time is specified in the daily work schedule. The compensation time credit is accrued in time type 90## (## = your group number).

1-1   Create a personnel calculation rule Z2## (## = your group number), in which the time credit is accrued.

1-2   Copy personnel calculation schema TM00 and name it ZM## (## = your group number). Incorporate personnel calculation rule Z2## in your personnel calculation schema ZM##.

1-3   What further option do you have for specifying a time credit in Customizing and representing it in a personnel calculation rule? For the solution to this task, check the documentation for operation HRS.

2 Break processing

Variable breaks are defined in work break plan FLEX. Create solutions for the following problems by customizing the parameters of function PBRKS in schema ZM##:

2-1 In an enterprise, employees make clock-in and clock-out entries when they go for a break.

- Employees are required to adhere to the break times strictly or else the time will be deducted.

- If an employee takes a shortened break, the time is deducted from the day's attendances or absences, without any prioritizing.

    Customize the parameters of function PBRKS in schema ZM## to represent this requirement.

2-2 Check the position of the midday break in work break schedule FLEX.

2-3 Enter time events for one day where your employee takes an extended break.

2-4 Run time evaluation for the day, using program option *Display log*. Check the effects of the parameter entries.

2-5 Repeat this exercise, taking into account the following business requirements:

    In an enterprise, employees do not normally make entries at a time recording terminal when they take a break. Unrecorded times are used to determine the position of the break, along with the partial-day absences. Which options do you have of representing this situation in the system?
    Record an additional absence in the break environment. Check how the different parameter settings affect break processing.

3   Processing special times

In your enterprise, employees receive special bonuses for working time spent on works council activities. These bonuses are to be assigned to cost center *2200 – Human Resources*.

To record times spent on works council activities, use the time data ID **BR** in the *Time Manager's Workplace*. This ID represents the attendance type 0440.

On working days, the wage type *MD70 - Works council bonus* is selected for the times in time wage type selection.

3-1   The easiest way to represent these requirements is to assign a special processing type for the times. Define the processing type *Y - Works council activity* in the IMG under *Personnel Time Management → Time Evaluation→ Time Evaluation With Clock Times → Time Wage Type Selection and Overtime Compensation→ Define Processing Types*.

3-2   In the step → *Define Generation Rules* (see above for menu path), define a time wage type selection rule. Check first which *time wage type selection rule group* has been assigned to your employee in the schema by function MOD.
Define that the time wage type selection rule is processed only for times with processing type Y.

3-3   Create a personnel calculation rule Z3##. It is used to assign processing type Y to TIP entries that have been generated according to attendances that have attendance type 0440 and that are not within a work break.

3-4   Insert personnel calculation rule Z3## into your schema, and add the time wage type selection for processing type Y. Decide on the best position for it in the schema.

3-5   Run time evaluation, and check the time wage types that are selected.

4   Determining and compensating overtime

The employees in your enterprise are required to work a week of overtime at short notice to get an order completed. The overtime must be completed by two hours after the end of the planned working time. A special approval is required. The overtime worked is to be remunerated in full.

4-1   Create the necessary overtime approval for your employee.

4-2   Enter time events to represent the employee's actual times.

4-3   Run time evaluation for your employee and use the log to check the generation and compensation of overtime.

5 Time transfers

You want to allow your employees the option of transferring a flextime excess to a compensation time account.

5-1 Create the time transfer specification 40## (## = your group number), which reduces the flextime by the specified amount and increases the compensation time by the same amount of hours.

5-2 Enter the newly created time transfer specification for an employee. In the *Time Manager's Workplace,* use the generic time data ID **T**, and specify the time transfer type in the detail area.

5-3 Evaluate the employee's times, and check the result.

6 Balance limits

At the end of the week, you want to check whether your employees have completed their weekly working hours according to the *Planned Working Time* infotype (0007). If they have not completed them, you want a message to be generated.

6-1   Check which *time balance rule group* function MOD has set for your employee in the schema.

6-2   In the IMG step *Personnel Time Management → Time Evaluation → Time Evaluation With Clock Times → Processing Balances → Balance Formation → Balance Limits,* set the rule for balance formation 9## (## = your group number). This is used at the end of the week (*Period* field) to cumulate the time type 0003 (skeleton time) over the week, and to compare the result with the weekly working hours according to the *Planned Working Time* infotype (0007). If an employee's working time falls short of the weekly working hours, you want a note (message number Z0) to be issued.

6-3   Change your employee's time events so that they fall short of the weekly working time.

6-4   Run time evaluation for your employee.

6-5   Check whether the message is generated.

7   Automatic accrual of a compensation time account

You want an absence quota to be accrued automatically at the end of each month from the compensation time account 90## (## = your group number). After it has been transferred to the *Absence Quotas* infotype (2006), you want the quota to be available for deduction for three months.

Make the necessary Customizing settings in the IMG section: *Personnel Time Management* → *Time Data Recording and Administration* → *Managing Time Accounts with Attendance/Absence Quotas* → *Calculating Absence Entitlements*.

7-1   Check first whether automatic accrual is permitted for the absence quota.
       An absence quota type has been set up for you for this exercise. For your absence quota type, add 50 to your group number. (Example: Group number 12 plus 50 -> absence quota type 62).

7-2   The *quota type selection rule group* for your employee is 01. Check whether this grouping is specified in feature QUOMO.

7-3   Specify the information to be used to determine the absence entitlement. The basis for the calculation of the accrual entitlement is the employee's base entitlement. Decide the validity period for the base period.

7-4   Specify the validity and deduction periods for the records from the *Absence Quotas* infotype (2006). How do you determine that a new infotype record that can be deducted for 3 months is generated every month?

       Note:
       If there is still a valid record for the absence quota when accrual entitlements are transferred to the infotype, the existing record is changed accordingly. A new record is only generated if no valid infotype record exists.

7-5   In the *Define Generation Rules for Quota Selection* step, create the selection rule 9## for your absence quota type 50+##. You want it to be accrued on a daily basis and then transferred to the infotype at the end of the month. The quota selection rule group is 01.

7-6   Check the quota accrual by running time evaluation for the whole of January. Use the *quota overview* to check the status of the generated quotas.

7-7   The absence quota 50+## can be deducted using the absence type 9000. Enter this absence type for your employee for the following month, and check the deduction in the *Time Manager's Workplace*. Use the time data ID **VA**.

Personnel Calculation Schema TM00 Solutions

Unit: Personnel Calculation Schema TM00

Topic: Time Evaluation Steps in Schema TM00

1 Accruing a compensation time account

1-1 For the solution, see the slide *Personnel Calculation Rule Z2##* in the appendix.

You can use operation **HRS=SADV** to enter the daily *compensation time* from the daily work schedule in the current number of hours field.

1-2 Schema entry ZM## (## = your group number)

You are advised to enter the new personnel calculation rule under *dynamic daily work schedule assignment,* since the daily work schedule may possibly still be changed by personnel calculation rule TD30.

Insert a PRINT TES so that you can track whether table TES is filled.

Note: It is possible to specify for functions which information you want to be displayed automatically in the log. To do so, use the *Input parameters* and *Output parameters* buttons in the *Maintain Functions and Operations* transaction (PE04). In this case, you do not need the PRINT function in the schema.

Fct	Par1	Par2	Par3	Par4	D	Text
ACTIO	TD30					Dynamic daily work schedule assignment
ACTIO	Z2##					HR310: Ex.: Accrual of Compensation Time Account
PRINT		TES				

1-3   Alternative solutions

HRS=SADD: Enter the daily *additional hours* from the daily work schedule in the current hours field.

In personnel calculation rule Z2##, the two calls of HRS=SADV must be replaced by HRS=SADD.

HRS=Czzzzz: Enter the value of constant zzzz in the current hours field.

In personnel calculation rule Z2##, the two calls of HRS=SADV must be replaced by HRS=CZ##XX.

View V_T511K (Payroll constants)

Constant	Payroll constant	From	To	Value
Z##XX	Compensation time credit	01/01/1990	12/31/9999	0.40

2   Break processing

2-4   If employees make clock-in and clock-out entries when they take a break, these times are entered in TIP as non-recorded times. The duration of the entire break is assigned processing type K.

Schema entry ZM##

Fct	Par1	Par2	Par3	Par4	D	Text
PBRKS		1				Evaluate break duration

If the employee reduced the break, for example, only took 30 minutes, the missing times are deducted at the start of the break frame..

2-5   If you use partial-day absences as well as non-recorded times to determine the position of the break, you can set parameter 2 of function PBRKS as follows:

Parameter 2	
2	First absences, then non-recorded times, then chronologically This parameter presumes the following: If planned absences are included in the break times, the break times are taken into account when the absence is recorded. Example: The employee has a flexible break of 45 minutes between 12 noon and 1 p.m. He or she notifies the administrator of a doctor's appointment between 11 a.m. and 12.30 p.m. The administrator takes account of the 45-minute break and records an absence of 11 a.m. to 1.15 p.m.
4	First non-recorded times, then absences, then chronologically This parameter presumes the following: The break times are not taken into account when the absence is recorded. If the employee extends the break time by the break duration, the time is flagged as non-recorded time. It is used first when break times are calculated. If the employee does not have sufficient non-recorded times, the system presumes that his or her doctor's appointment, for example, was shorter than expected. The break times are deducted from the absence accordingly.

3   Processing special times

3-1   The processing types Y and Z are available for customer names.

3-2   In the IMG step *Define Generation Rules,* create a time wage type selection rule for processing type Y, which selects the wage type MD70 irrespective of the day being evaluated. Create this rule for *day grouping* 01. The rule is processed by function DAYMO only on working days. The time wage type selection rule is only processed for the employee if you have defined the corresponding *time wage type selection rule.* This is done using function MOD in personnel calculation rule MODT.

3-3   The appendix includes the tree display for the personnel calculation rule (slide entitled *Personnel Calculation Rule Z3##*).

3-4   Personnel calculation rule Z3## is processed after function GWT M. This allows the processed attendance times to be included in overtime compensation.

Entry in schema ZM## (## = your group number)

Fct	Par1	Par2	Par3	Par4	D	Text
DAYMO	01	02	02	02		Set day grouping for T510S
GWT		S	DZL			Time wage type selection for planned work
GWT		M	ZML			Time wage type selection for overtime
PTIP	Z3##	GEN				Exercise: Handling special times
GWT		Y	DZL			Time wage type selection PTYPE Y

4 Determining and compensating overtime

4-1 Create an attendance quota of type 01 for your employee for the selected week. You can specify more information on the overtime approval in the detail area of the *Time Manager's Workplace*:

Time:	From the end of planned working time to 2 hours after the end of planned working time
Overtime compensation type:	1

4-3 Technical flow within time evaluation:

- Function GOT flags overtime in table TIP with the processing type "M".

- Function GWT creates overtime wage types.

- Function POVT performs the compensation for the overtime wage types; the bonuses are generated now.

5 Time transfer specifications

5-1 Choose the IMG section *Personnel Time Management → Time Evaluation → Time Evaluation With Clock Times → Processing Balances → Time Transfer*.

→ *Define Time Transfer Types*

PSGrpg	Tran	Time transfer type text	From	To	TmTyp	Con
01	40##	Transfer comp. time	01/01/1990	12/31/9999		

→ *Define Rules for Transfer to Time Types*

PSGrpg	Tran	Time transfer type text	Time type	Time type text	+/-	%	Min
01	40##	Transfer comp. time	0005	Flextime balance	-	100.00	999.99
01	40##	Transfer comp. time	90##	Comp. time	+	100.00	999.99

5-2 You can specify the time transfer type 40## in the detail area of the *Time Manager's Workplace*.

6   Balance limits and error messages

In the initialization block of the schema, function MOD must set the time balance rule group (MODIF L) to 01.

In the step *Personnel Time Management* → *Time Evaluation* → *Time Evaluation With Clock Times*→ *Processing Balances* → *Balance Formation* → *Balance Limits*, create the rule 9## (## = your group number) under the *time balance rule group* 01.

The weekly working hours from the *Planned Working Time* infotype (0007) are the value limit with which the actual working hours are compared. You set the value limit under *Value limit,* using operation HRS with the **origin indicator I** and **parameter WEHRS**. Since the rule is only used to check whether the employee has fallen short of the weekly working hours, the specified value limit is the lower limit for processing.

You want function LIMIT to cumulate the day balance *Skeleton time* (time type 0003) over one week. To do this, make the following entries:

- Under *Time balance*, enter the **time type 0003**.

- Under *Day balance processed over*, enter the period parameter **03 - 1-weekly**.

- Under *Processing in period*, activate the **Cumulate** field.

If the value limit is not reached, you want a note to be issued, which the time administrator can process later in the message processing function in the *Time Manager's Workplace.* Under *Processing if value limit is exceeded*, enter **Message Z0**.

The balances that are compared in this processing are day balances. Therefore, the time at which the *value limit* is compared with the *balance* is within day processing.
To compare the working hours per week, enter under *Check point - During day processing* the **period parameter 03 - 1-weekly**.

You do not want function LIMIT to carry out further processing, so no additional entries are necessary.

7 Automatic accrual of a compensation time account

You make the necessary Customizing settings in the following section: *Personnel Time Management → Time Data Recording and Administration → Managing Time Accounts with Attendance/Absence Quotas → Calculating Absence Entitlements*.

7-1   To find out whether automatic accrual is permitted for absence quota 50+##, check the IMG step *Automatic Accrual of Absence Quotas → Permit Generation of Quotas in Time Evaluation*. Automatic accrual is permitted for the quota if either the *Increase* or *Replace* field is selected.
Since the absence quota is only generated once in our example, it is irrelevant whether it is to be increased or replaced. However, if you want to accrue an absence quota over a period of time, the method of accrual depends on the specifications in the rule.

7-2   In feature QUOMO, a decision tree must have been created for *quota type selection rule group* 01.

7-3   In the *Rules for Generating Absence Quotas → Set Base Entitlements* step, you determine the information on which the accrual entitlement is calculated.

         Create the rule 001. To provide the values for the time-off account, enter the **Day balance 90##** under *Entitlement*.

         In our example, the base period corresponds to the accrual period. This is because no proportional entitlement is calculated. You want the cumulated value for the day balance to be transferred to the accrual entitlement without further calculations, so enter the **Accrual period** under *Base period*.

7-4   In the *Define Validity and Deduction Periods* step, enter under *Validity interval* the **Transfer time** as the valid from and valid to dates. This ensures that the absence quota is filled only once.

         Under *Deduction interval*, enter the **Start of validity interval** as the start date for the deduction. The transfer of time off entitlements to the infotype allows the employee to start deduction.
You want to make the absence quota deductible for 3 months. Set the end date for deduction to **3 months** after the **Start of validity interval**. (Since the start and end of the validity interval are identical for this rule, you can also enter the **End of validity interval**.)

7-5   In the *Define generation rules for quota selection* step, create the selection rule 9##
       for your absence quota type 50+##. You can set the accrual entitlement to *daily* so
       that it can always be changed manually in the *Quota Corrections* infotype (2013)
       if, for example, an employee leaves your enterprise.
       Choose the time evaluation period as the transfer period (in the standard system,
       this corresponds to period 01 - monthly); for the base entitlement, select rule 001.

7-6   To access the quota overview, choose *Human Resources* → *Time Management* →
       Administration → *Time Data* → *Quota Overview*. It provides a detailed overview
       of the quota's status and accrual information.

7-7   After entering an absence in the *Time Manager's Workplace* you can check the
       deduction directly, by choosing the *Time Accounts* tab page in the *Employee
       information* area.

Special Solutions

SAP

Contents:

- **Dynamic daily work schedule assignment**
- **Minimum breaks regulations**
- **Guaranteed hours processing**
- **Comparison: The hypothetical earnings principle and overtime on public holidays**
- **Weekly overtime analysis**
- **Processing instructions for a day**

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SAP
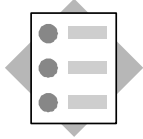
At the conclusion of this unit, you will be able to:

- **Describe solutions to the special business tasks presented**

- **Incorporate these solutions in your personnel calculation schema**

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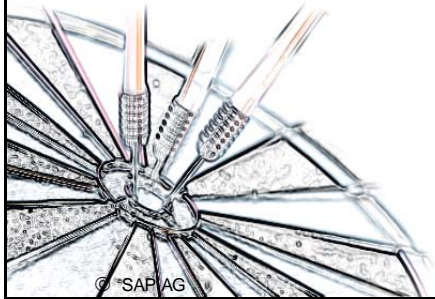
- For additional special solutions not mentioned in this unit, see the Implementation Guide:
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Special Problems and Solutions in Time Evaluation

Course Overview Diagram

Business Overview of Time Evaluation

Time Evaluation in the SAP System

Concept of the Time Evaluation Driver RPTIME00

Time Evaluation Messages

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Data Collection in Time Evaluation

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Personnel Calculation Schema TM00

Special Solutions

Alternative Time Evaluation Schemas

Integration with Payroll

Time Statement and Reporting

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Dynamic Daily Work Schedule Assignment Based on an Overlap: Function DYNWS
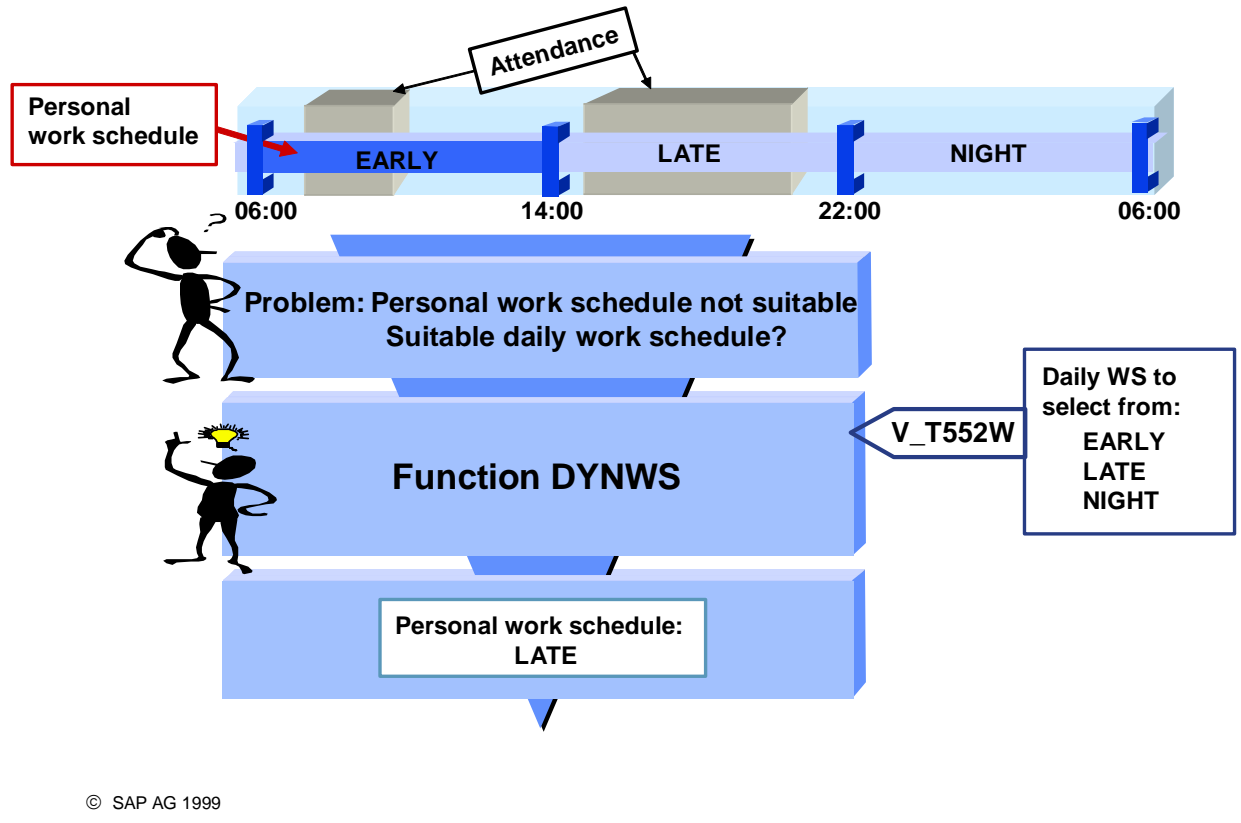
- In this form of dynamic assignment of the daily work schedule, the employee's new daily work schedule is determined from a group of daily work schedules as the one that shows an optimum overlap of the planned specifications with the actual times.
- The dynamic assignment is accessed using function DYNWS. The assignment is made if the TIP entries for the employee on the day being evaluated come from the following data only:
  - Time events
  - Records from the *Attendances* infotype (2002)
  - Records from the *Overtime* infotype (2005)
  - Records from the *Availability* infotype (2004)
- In parameter 3 of function DYNWS, you determine whether substitutions should be taken into account in the dynamic assignment.

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Providing Time Data -> Work Schedule and Time Events -> Dynamic Assignment of Daily Work Schedules -> Dynamic Assignment Based on Planned/Actual Overlap

Minimum Break Regulation: Subschema TF20

Attendance (> 9 hours)

Personal work schedule

08:00   12:00 12:30   16:30 18:00
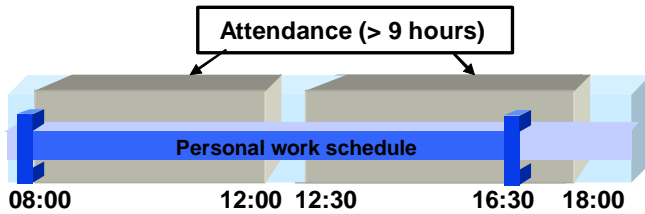
Minimum break regulation based on hours worked:
- **Between 6 - 9 hrs worked min. 30 mins break**
- **More than 9 hrs worked min. 45 mins break**

Minimum break regulation observed?

Subschema TF20
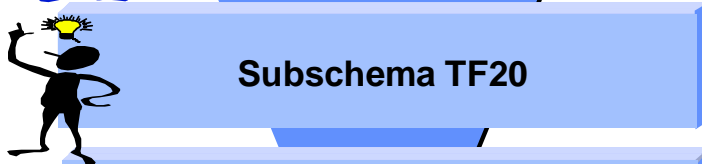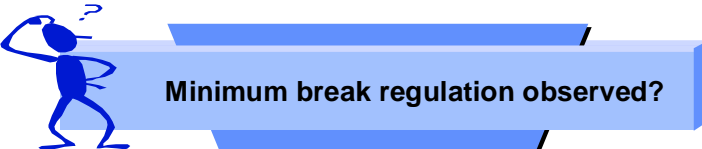
Check:
- **Report violations**
- **Carry out additional break deduction**

TIP	Start	End	P	ID	P	TTyp	Number	
	08.0000	12.0000	1	02	P	0110	4.0000	
	12.0000	12.5000	0	02	K	0000	0.5000	Interruption to work
	12.5000	16.5000	1	02	P	0520	4.0000	
	16.5000	17.7500	1	01		0310	1.2500	
	17.7500	18.0000	1	05	K	0510	0.2500	Additional break deduction

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- Some working time regulations stipulate that minimum breaks must be observed, depending on the working hours actually performed. Subschema TF20 allows you to:
  - Check that the minimum break durations have been observed
  - Report violations of the break duration
  - Perform an additional break deduction

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Break Processing -> Determine Minimum Breaks Based on Hours Worked

Processing Guaranteed Overtime Hours: Subschema TG00

SAP

Attendance

Personal work schedule

06:00   14:00   19:00 - 20:00

Guaranteed hours regulation:
Lengthen isolated pair?

Constant GROVT (V_T511K)
(= 4 hours)

Subschema TG00

TIP	Start	End	Proc.type	Number
	06.0000	14.0000	S	8.0000
	14.0000	14.5000	M	0.5000
	19.0000	20.0000	M	1.0000
	20.0000	23.0000	G	3.0000

V_T510S:

Special time wage types
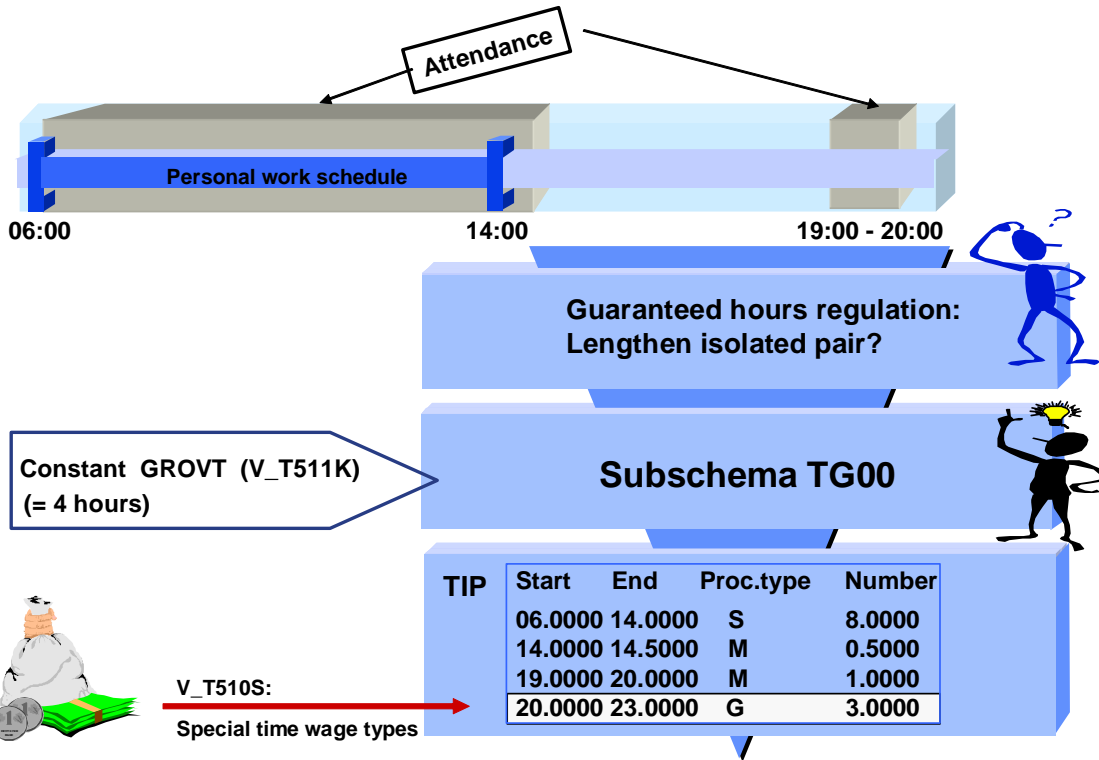
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- If your company has a guaranteed hours regulation for overtime that is not worked immediately after the planned working time, you can use the personnel calculation schema TG00 to represent this in the system.
- You can define the number of guaranteed hours in constant GROVT. In schema TG00, isolated overtime pairs are extended by a TIP entry of processing type G, until the value defined in constant GROVT is reached. You can select special wage types for working hours with processing type G in time wage type selection.

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Determining Overtime -> Process Guaranteed Overtime

Overtime on Public Holidays: Subschema TOH0

Attendance on public holiday

Personal work schedule

08:00   13:00   17:00   18:00

Problem:
Attendance 13:00 - 17:00 within planned working time
Special processing or time wage types?

Subschema TOH0
(Compare attendance with planned working time)

TIP

Start	End	Proc.type	Number
08.0000	12.0000	S	4.0000
12.0000	13.0000	K	1.0000
13.0000	17.0000	X	4.0000
17.0000	18.0000	M	1.0000

V_T510S:
Special time wage types

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- Subschema TOH0 is based on a hypothetical earnings principle: Employees are normally paid for work on a paid public holiday in the same way as for a normal working day. If an employee now works on a paid public holiday, he or she should be paid for the hours worked within the planned working time at a higher rate than colleagues who have not worked on the public holiday.
- In schema TOH0, you flag the times that the employee worked within the planned working time with the processing type X. This enables you to define your own time wage type selection rules for these hours of work.
  Any hours worked outside of the planned working time are assigned processing type M. You can select special wage types for work on a public holiday for these hours in the *Conditions for the day* in the *Time wage type selection* view.
- If you want to take breaks on a public holiday into consideration, you can use schema TOB0.

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Determining Overtime -> Compensate Overtime Worked on a Public Holiday

Variants of Weekly Overtime Analysis

SAP

■ **Higher bonuses as of *n* hours of overtime per week**

Subschema TW00

■ **Overtime as of *n* hours worked per working week**

Subschema TW30

■ **Weekly overtime analysis on a daily basis**

Subschemas TPOW TPOP

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Weekly Overtime Analysis (1): Subschema TW00

Time wage type selection
GWT M ZML

	Overtime 25% MM10	Overtime 50% MM20
Mo	2 hrs	1
Tu	2	1
We	2	1
Th	2	0
Fr	2	1

Downstream processing:
Generation of higher bonuses

Week from mm/xx/ - mm/xx/yyyy

ZML

	MM10	MM20
	2	1
	2	1
	2	1
	1	1
	0	3

Subschema TW00

After 10 hours of overtime per week, a higher bonus is generated
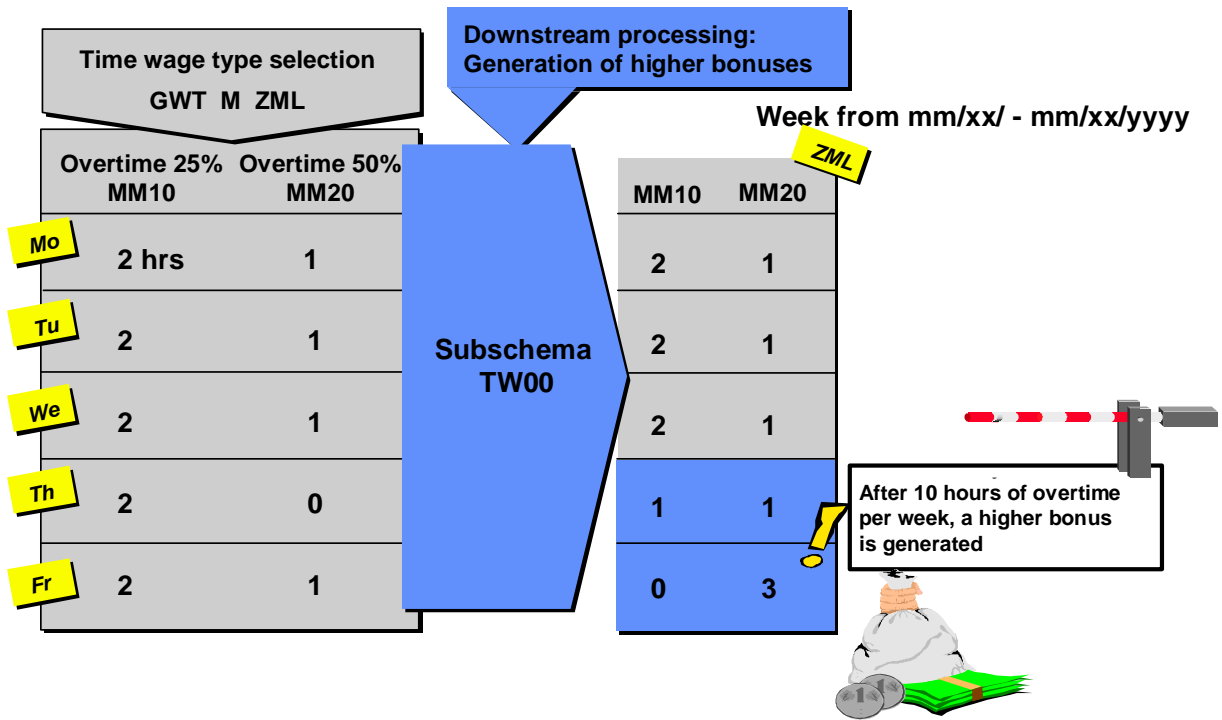
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■ In schema TW00, a higher bonus is generated as of the 10th overtime hour per week.

**"Overtime starts after n hours
have been worked in one working week"**

Working Weeks View (T559A)

Working week	Name	Length	Start date	Time
01	Week with clock times	07	12/29/1996	00:00
02	Week without clock times	07	12/29/1996	

**As of 40 hours
per working week
(constant OVERT)**

Planned Working Time
Infotype (0007)
PersNo 3446 Mark Miller

Working week   02

Week from mm/xx/ - mm/xx/yyyy

	Mo	Tu	We	Th	Fr	Sa	Su
Work. time	10	11	10	10	2		
Overtime				1	2		

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- You can use schema TW30 to determine overtime pairs per working week, after a certain number of hours is reached. The number of hours is set in constant OVERT.
- You can define the length, start date and start time (optional) of the *working week*. It is stored for each employee in the *Planned Working Time* infotype (0007). You can define a default value for the *working week* in feature WWEEK.
- Alternatively, you can use the subschema TW20. To use it, the following conditions must be met:
  - You do not need clock times for the working week
  - You want to define only the start day of a 7-day working week for the whole of your enterprise
  If you use subschema TW20, the assignment for individual employees in the *Planned Working Time* infotype (0007) is no longer used.
- **Note**:
  In the standard system, absence times are not included when overtime is determined.

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Determining Overtime -> Determine Overtime According to the Working Week

Weekly Overtime Analysis (3): Subschema TPOW

SAP

Week from mm/xx/ - mm/xx/yyyy

	Mo	Tu	We	Th	Fr	Sa	Su	Total
Plnd hours worked	8	8	8	6	6	0	0	36
Overtime	2	3	2	0	0	0	0	7

Weekly planned working hours not completed

Subschema TPOW

Correction balance 4 hours

- Automatic recalculation
- Conversion of overtime

	Mo	Tu	We	Th	Fr	Sa	Su	Total
Plnd hours worked	10	10	8	6	6	0	0	40
Overtime	0	1	2	0	0	0	0	3

Final overtime

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- Personnel calculation schema TPOW performs weekly overtime analysis on a daily basis. The daily overtime is recognized only after the employee has completed the weekly planned hours.
- If the employee does not complete the weekly planned working hours, the hours of overtime already issued are retracted, and time evaluation evaluates the week again in the same evaluation run.
- The incorrectly issued hours of overtime are identified in the time balance 0928 *OT/Wk: Transfer spec.(wk)*.

  IMG: *Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Determining Overtime -> Analyze Overtime on a Weekly Basis*

- Subschema TPOP represents a more general processing method of subschema TPOW. It determines overtime on the basis of a general period.

  IMG: *Personnel Time Management -> Time Evaluation -> Time Evaluation With Clock Times -> Time Data Processing -> Determining Overtime -> Calculate Overtime on the Basis of General Periods*

Processing Instructions for a Day

SAP

Simplify routine tasks in the *Time Manager's Workplace*

Time data maintenance in the Time Manager's Workplace

Overtime approved

✔

Example: To approve overtime, the time administrator selects a checkbox

Record of *Time Transfer Specifications* infotype (2012) is generated → **Function P2012 in time evaluation reads processing instruction** → **Customer-specific processing triggers deduction of overtime approval** → **Overtime approval is issued**
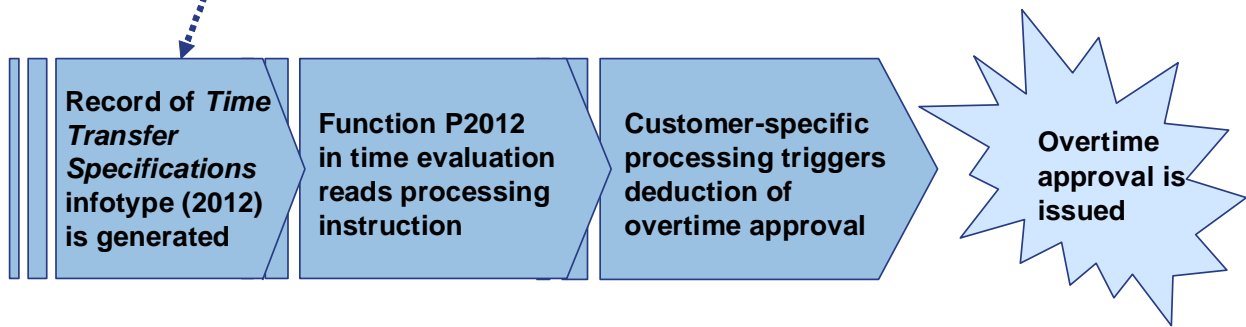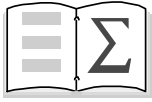
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- You can use processing instructions for a day to simplify some of the tasks that time administrators carry out frequently. Instead of explicitly entering time data, time administrators simply select a checkbox. You can define the meaning of each checkbox in Customizing.
- You can use processing instructions to:
    - Issue backdated overtime approvals
    - Grant general time bonuses
    - Indicate that the day has been processed, for example
- In time evaluation, you can use personnel calculation rules to set up customer-specific processing steps, for example to
    - Fill time types and wage types
    - Generate or update infotype records
- To do so, call function P2012 as often as needed in the schema. Enter the required personnel calculation rules in parameter 1 of the function.
- *IMG: Personnel Time Management -> Time Manager's Workplace -> Basic Settings -> Define Processing Instructions*

Groups of Processing Instructions

Profile for Time ~~ator:~~

Profile for Time ~~r:~~

Profile for Time Administrator: Production

Profile for Time Administrator: Secretarial

Profile for Time Administrators with Approval Authorization

Group of processing instructions:

Time bonus/Day has been processed

☑ **Day has been processed**

☑ **General time bonus**

Group of processing instructions:

All processing instructions

☑ **Day has been processed**

☑ **General time bonus**

☑ **Overtime approved**

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- Processing instructions for a day are managed in groups. A *group of processing instructions* can contain up to 7 processing instructions. You organize the groups using field selection.
- You assign the *group of processing instructions* to *profiles for the Time Manager's Workplace.* Each profile can contain only one group.
- Depending on the view in which the checkboxes are to be displayed, the processing instructions appear:
    - Within the time data table in the *Multi-Day View* and the *Multi-Person* view, or
    - In a line above the time data table in the *One-Day View*

Special Solutions: Summary

You are now able to

- **Discuss solutions for special business requirements**

- **Describe how you can use the proposed solutions in your personnel calculation schema**

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Alternative Time Evaluation Schemas

SAP
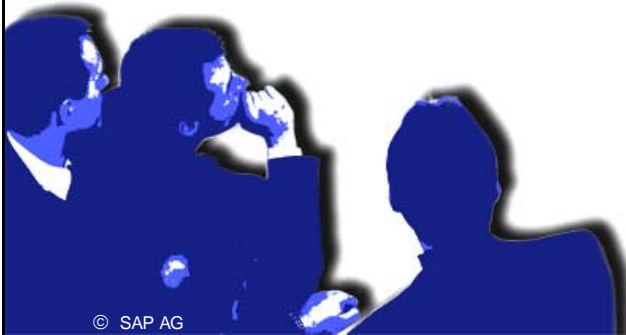
Contents:

- **Time evaluation schema TM01 for deviations from the work schedule**

- **Time evaluation schema TM04 for time evaluation without clock times**

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Alternative Time Evaluation Schemas: Objectives

SAP
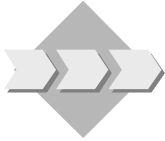
At the conclusion of this unit, you will be able to

- **Describe the special features of the time evaluation schemas TM01 and TM04**

- **Explain the differences between them and time evaluation schema TM00**

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Course Overview Diagram

SAP

Business Overview of Time Evaluation

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Alternative Time Evaluation Schemas: Business Scenario

SAP

- **Scenario 1 (schema TM01):**
  You record only deviations from the work schedule and want to use time evaluation to manage time accounts for your employees.

- **Scenario 2 (schema TM04):**
  You record employee's attendance times manually in the *Attendances* infotype (2002). You do not use clock times for evaluating time data.

Criteria for Selecting a Schema
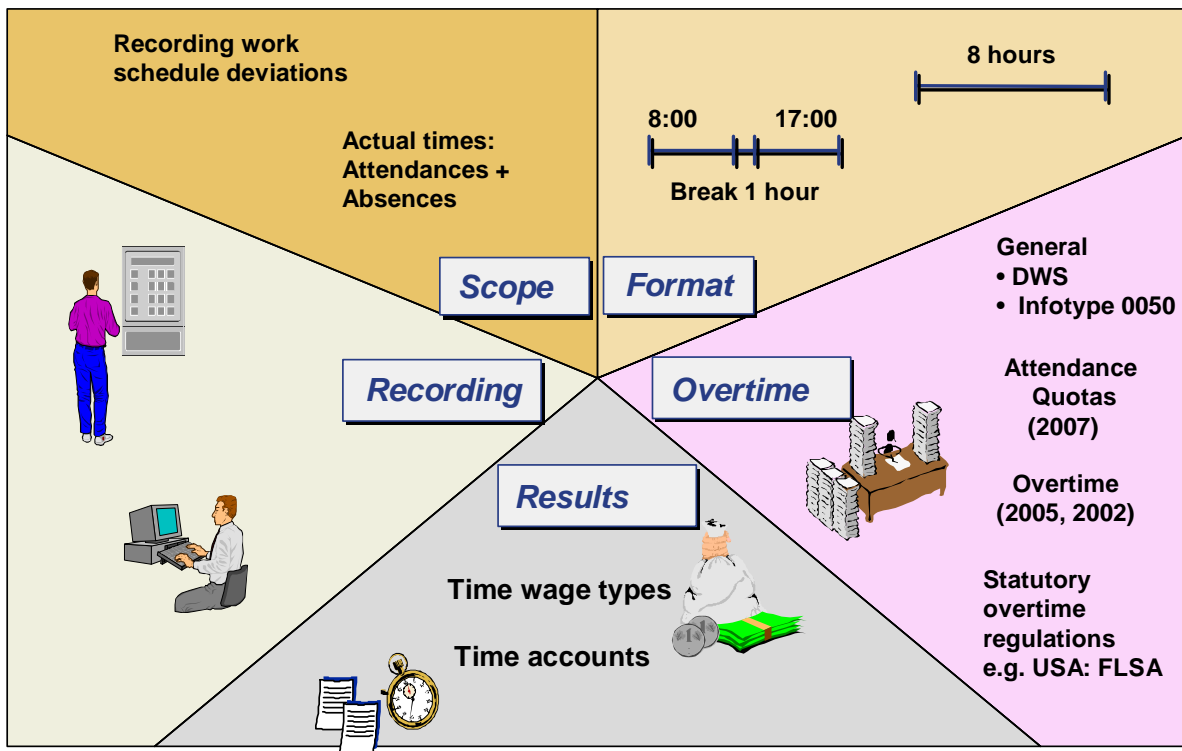
- The standard system supplies three schemas, which cover many requirements. You can use them as templates and customize them to suit your customer-specific requirements. The three schemas require different forms of time data for evaluation and pursue different strategies in evaluating the time data.
- The schema you decide to use depends on several factors. However, when you opt for one particular schema, you are not committing yourself to one particular method of processing the time data. You can copy functions that are provided by another standard time evaluation schema to your chosen schema and modify the processing accordingly.
- The SAP standard schema you choose to use as a template to customize to suit your user-specific requirements generally depends on the method of time recording you use and the requirements you make of time evaluation:
  - Which time evaluation results are required
  - How the time data is recorded
  - The context in which the time data is recorded
  - The format in which the time data is recorded
  - How the planned specifications from the daily work schedule are checked
  - How overtime is determined and approved

Time Evaluation for Work Schedule Deviations (Schema TM01)

SAP

Results	**Time wage types**	**Time accounts**
Recording		
Scope	**Recording work schedule deviations**	
Format	8:00 17:00 **Break 1 hour**	
Overtime	**Attendances outside planned time**	
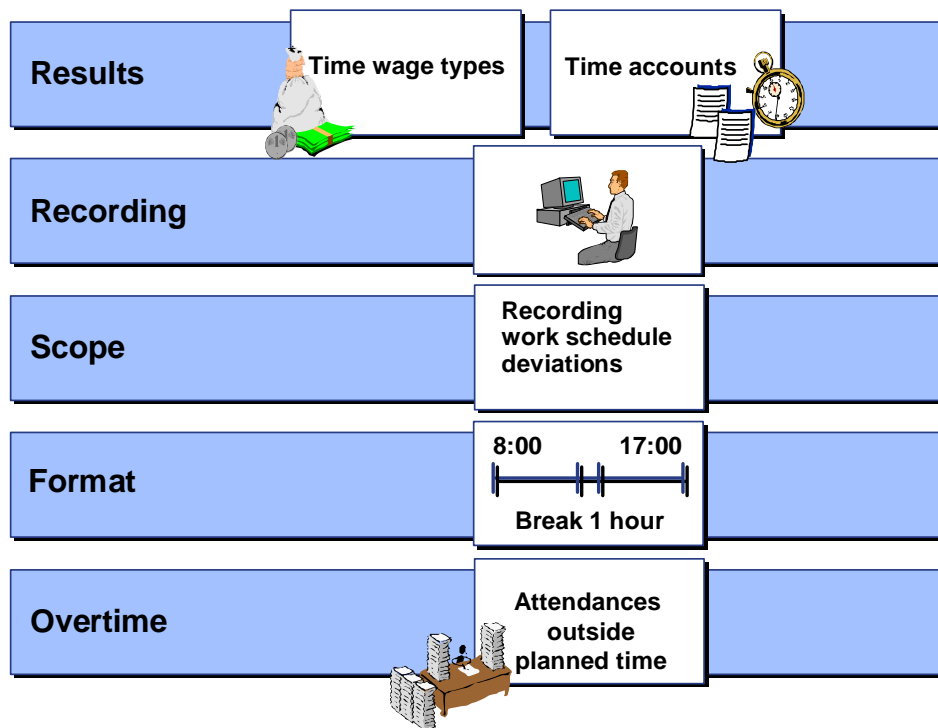
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- Schema TM01 assumes the following prerequisites and goals:
  - TM01 forms time wage types and time accounts. It is processed by the time evaluation driver RPTIME00.
  - Schema TM01 is used to import and process time data recorded online (that is, in the Time Management infotypes).
  - It was developed for evaluating time data, where only the deviations from the work schedule are recorded. In this case, the actual working times are not recorded.
  - All the time data recorded online must be clock times and must be full-day records.

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PC rule TMON

Z PAYTP A
Rule accessed according to the
employee subgroup grouping for the personnel calculation rule

ES grouping: 1	ES grouping: 2	ES grouping: 3
Time type: ****	Time type: ****	Time type: ****

Modif W = 02 Modif T = 01 Modif A = 01 Modif L = 02	Modif W = 02 Modif T = 02 Modif A = 01 Modif L = 02	Modif W = 03 Modif T = 02 Modif A = 01 Modif L = 02

MODIF W : Time wage type selection rule group (V_T510S)
MODIF T : Time type determination group (V_T555Z)
MODIF A : Employee grouping for absence valuation (V_T554C)
MODIF L : Time balance rule group (V_T559P)

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- Before day processing (initialization block of the schema) the function MOD determines that, depending on the employee grouping, only certain time wage types and time types are formed, and that absences are valuated differently. It determines the groupings with which the time evaluation driver accesses the corresponding tables during processing.
  To do this, function MOD accesses the personnel calculation rule TMON.
- A personnel calculation subrule is accessed in rule TMON according to the employee's *employee subgroup grouping for the personnel calculation rule*. The groupings for table access are defined here. Groupings for accessing tables are generally determined in relation to other organizational assignments, such as the personnel subarea, employee subgroup, and so on.
- Processing can also be determined individually via the *employee grouping for the time evaluation rule* in the *Time Recording Information* infotype (0050); the organizational assignments in the standard system are not relevant in this case. This is done using PAYTP S. Note the effects on table access (for example, in time wage type selection for hourly wage earners, salaried employees, and so on) in time wage type selection.
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation Without Clock Times -> Initial Steps -> Define Groupings

Providing Time Data in Schema TM01

Planned working time		
Start of plnd work	08:00
End of plnd work	17:00
Plnd working hrs	8.00

Absence

| Absence type | 0230 |
| Time | 08:00 — 10:00 |

Attendance

| Attendance type | 0420 |
| Time | 17:00 — 18:30 |

Function P2000 — TZP

Function P2001

Function P2002

TIP

Start	End	1	P	ID	Ct	P	TTyp	BR	ER	C	O	I	BPin	EPin	PT	ALP	C1	AB	Number
08.0000	10.0000	0	2		02	A					A							01	2.0000
10.0000	17.0000		1		00						D								7.0000
17.0000	18.5000	0	3		03	P					P								1.5000

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- To enable the planned pair formed by function P2000 to be overwritten by attendances/absences in table TIP, parameter 2 of functions P2001 and P2002 must have the value **1**.

Time Evaluation for Work Schedule Deviations - Function P2005: Provide Overtime

SAP

Overtime (infotype 2005)

Time	17:00 − 20:30	
Unpaid break	18:45 − 19:00	

Function P2005

TIP

Start	End	1	P	ID	Ct	P	TTyp	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	Number
08.0000	17.0000	1			00						D								9.0000
17.0000	18.7500	1		01	00						O								1.7500
18.7500	19.0000	1		07	00						O								0.2500
19.0000	20.5000	1		01	00						O								1.5000

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■ Function P2005 enters recorded overtime with the time identifier 01 (overtime hours) in the internal table TIP. If the infotype record was recorded with breaks, the breaks are entered with the time identifier 07 for unpaid and 08 for overtime breaks.

PS grpg PTB for time recording	Zeitarten-findungs-gruppe	Time identifier	Not at work	Planned pair	Absent (IT2001)	At work (IT 2002)
01	02	Overtime hours		M 0310	M 0320	M 0330
01	02	Fill time	-	S 0110	S 0120	S 0130
		. . .				
01	02	Fill time break	- 0000	K 0510	0520	K 0530
01	02	Break, paid	S 0540	S 0540	S 0540	S 0540
01	02	Overtime break, unpaid	K 0000	K 0510	0520	K 0530
01	02	Overtime break, paid		M 0540	M 0540	M 0540

Set in the schema by function MOD

Processing type

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- In time evaluation for work schedule deviations, the time type determination block is set to 02 in the initialization block. All times within the planned working time are assigned the processing type S (excluding the breaks). All attendances outside the planned working time (time identifier 01) are assigned the processing type M.
- The following processing types are used for time wage type selection:
  - S : The TIP entry is included in the daily calculation of planned time, without a maximum daily working time.
  - M : The TIP entry is valuated as overtime; the time is not included in the daily planned working time.
  - "-" : The TIP entry is deleted later.
  - " " : The TIP entry is not valuated as productive time.
  - K : Core night work (Germany only).
- You can also use personnel calculation rule TO13 to check the daily maximum working time in TM01. If it is exceeded, the processing type of the relevant TIP entries are set to blank. This means that no time wage types are selected for these TIP entries.

Section of Schema TM01

Fct	Par1	Par2	Par3	Par4	D	Text
. . .						
P2000			N	SAVE		Generate planned pair/load daily WS
A2003						Process work center substitution
P2001		1				Provide absence data of the day
RTIPA	TD70	GEN				Correct attendance flag
P2002		1				Provide attendance data of the day
P2005		1				Provide overtime data of the day
. . .						
PTIPA	TE10	GEN				Adjust absences
ACTIO	TE20					Check for day with errors
. . .						
TIMTP						Assign time type to time pair
PBRKS		3	ALL			Evaluate breaks
RTIPA	TP20	GEN				Absences with time compensation
PTIP	TO13	GEN				Check maximum daily working time
. . .						
DAYMO	01	02	02	02		Set day grouping for T510S
GWT		S	DZL			Wage type selection for planned work
GWT		M	ZML			Wage type selection for overtime

- The principal differences in comparison with TM00 are in the following processing steps:
  - Data collection
  - Error checks
  - Classification of planned hours and overtime
- Function DEFTP is not required in schema TM01, since planned hours and overtime are classified completely in Customizing for time type determination.

Time Evaluation Without Clock Times (Schema TM04)
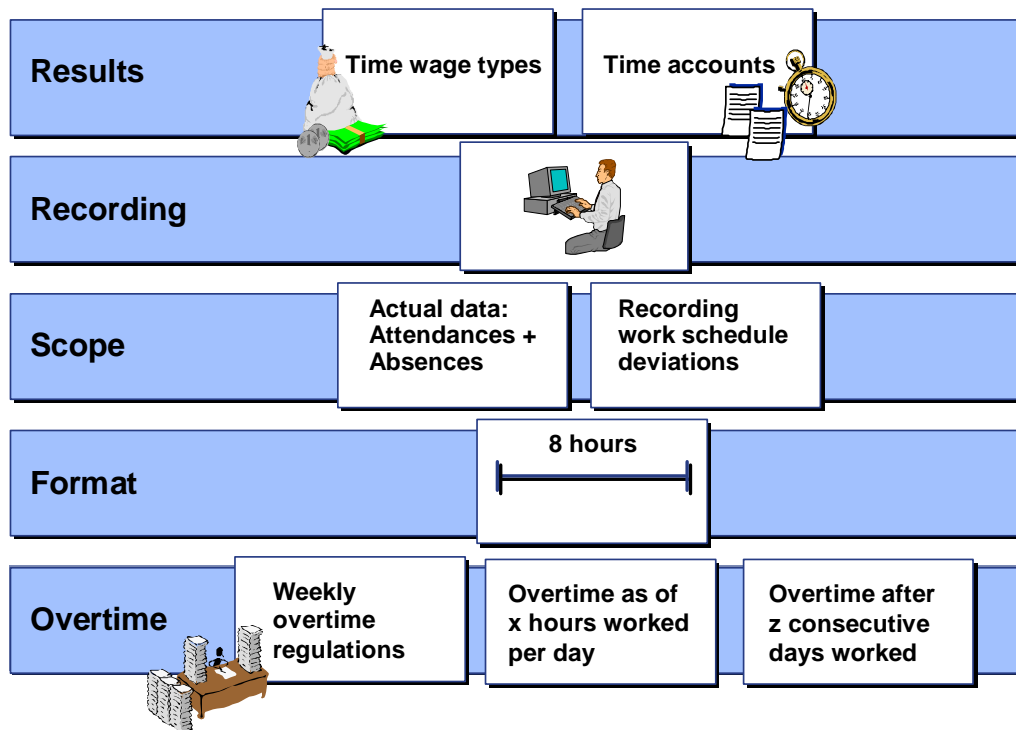
- Schema TM04 assumes the following prerequisites and goals:
  - Schema TM04 forms time wage types and time accounts. It is processed by the time evaluation driver RPTIME00.
  - It is used to import and process time data recorded online. The employee's working time is recorded in the *Attendances* infotype (2002).
  - It can be used if you record work schedule deviations and if you record all actual working times.
  - You do not use clock times for evaluating time data. The clock times in the daily work schedule are therefore irrelevant.
  - All recorded times are counted as working times for the purposes of determining overtime. The following types of overtime regulations are possible:
    - Overtime starts after x hours per day
    - Overtime starts after y hours per week
    - Overtime starts after z consecutive days worked

  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation Without Clock Times

PC rule TMON

Z PAYTP A

Rule accessed according to the
employee subgroup grouping for the personnel calculation rule

ES grouping: 1	ES grouping: 2	ES grouping: 3
Time type: ****	Time type: ****	Time type: ****

Modif W = 02	Modif W = 02	Modif W = 03
Modif T = 01	Modif T = 02	Modif T = 02
Modif A = 01	Modif A = 01	Modif A = 01
Modif L = 02	Modif L = 02	Modif L = 02

MODIF W : Time wage type selection rule group (V_T510S)
MODIF T : Time type determination group (V_T555Z)
MODIF A : Employee grouping for absence valuation (V_T554C)
MODIF L : Time balance rule group (V_T559P)

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- Before day processing (initialization block of the schema) the function MOD determines that, depending on the employee grouping, only certain time wage types and time types are formed, and that absences are valuated differently. It determines the groupings with which the time evaluation driver accesses the corresponding tables during processing.
  To do this, function MOD accesses the personnel calculation rule TMON.
- A personnel calculation subrule is accessed in rule TMON according to the employee's *employee subgroup grouping for the personnel calculation rule*. The groupings for table access are defined here. Groupings for accessing tables are generally determined in relation to other organizational assignments, such as the personnel subarea, employee subgroup, and so on.
- Processing can also be determined individually via the *employee grouping for the time evaluation rule* in the *Time Recording Information* infotype (0050); the organizational assignments in the standard system are not relevant in this case. This is done using PAYTP S. Note the effects on table access (for example, in time wage type selection for hourly wage earners, salaried employees, and so on) in time wage type selection.
  IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation Without Clock Times -> Initial Steps -> Define Groupings

Providing a Planned Pair: Function P2000

No recording of actual times?

R/3 **Planned pair according to daily work schedule is entered in TIP**

Actual times recorded?

Import from infotypes 2001, 2002 and/or 2011 fills TIP

Schema excerpt TM04

Fct	Par1	Par2	Par3	Par4	D	Text
CHECK		FUT				Allow evaluation for future periods
IF			POS			If Time Management status = 1, 2 (actual times)
IF		NOT	SIMF			and if it is not a simulation
PERT	TD20					Evaluate errors from pair formation
P2011						Provide time pairs and daily WS
ACTIO	TD10					End if the daily work schedule still active
A2003						Process work center substitution
P2001						Provide absence data
P2002						Provide attendance data
ELSE						Otherwise simulation
COPY	TDT0					Provide daily WS and time data
ENDIF						Endif (simulation)
ELSE						If time recording <> 1, 2 (actual times)
COPY	TDT0					Provide daily WS and time data
ENDIF						Endif (time recording)
. . .						

Fct	Par1	Par2
P2000		
A2003		
P2001		1
P2002		1
RTIPA	TD70	GEN

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- In the standard system, function P2000 enters a planned pair in TIP for all employees with a *Time Management status* other than 1 or 2 (parameter 4 = BLANK).
- If the employee has a *Time Management status* of 1 or 2, the work table TIP is filled by functions P2002, P2001 or P2011 (if you use a time recording system).

Assigning a Time Type and Processing Type

Function P2002

Grp	A/A ty.	Attendance type	From	To	CI P/T	V_554S_E
01	0800	Attendance type / Attendance hours	01/01/1990	12/31/9999	01	V_554S_F

TIP

From	To	1	P	ID	Ct	P	Tty	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	No.
		0	3		01	P					P								8.0000

Function TYPES

PSgrpg	Group	CI P/T	From	To	PairType1	PairType2	PairType3	T555Y
01	02	01	01/01/1990	12/31/9999	S 1101	S 1201	S 1301	

(MODIF T = 02)

TIP

From	To	1	P	ID	Ct	P	Tty	BR	ER	C	O	I	BPIN	EPIN	PT	ALP	C1	AB	No.
		0	3		01	S	1301				P								8.0000

Wage types ← Processing type   Time type → Time accounts

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- If employees' times are recorded as a number of hours, the time data cannot be valuated using the planned specifications from the daily work schedule. In this case, the *Processing type/time type* class enables the time data to be classified.
- You can use the *Processing type/time type class* to group attendance and absence types into categories, for example, all absences that concern a period of leave or all absences that relate to a period of illness.
- Function TYPES is used to assign a time type and a processing type to each TIP entry depending on the pair type and the *Processing type/time type class*. If there is a TIP entry without a *Processing type/time type class*, the system applies the value 00.

  IMG: Personnel Time Management ->Time Evaluation -> Time Evaluation Without Clock Times -> Time Data Processing -> Assign Time Types and Processing Types

Structure of View T555Y

PS grouping for time recording	Time type determination group	PType/ TType class	PType/TType for pair type 1	PType/TType for pair type 2	PType/TType for pair type 3
01	02	00	S 1100	S 1200	S 1300
01	02	01	S 1101	S 1201	S 1301
01	02	02	S 1102	S 1202	S 1302
01	02	05	M 0040	S 1204	M 0040

Processing type — Time type

Set in the schema by function MOD

Pair type 1: Attendance, imported by P2000 or P2011

Pair type 2: Absence, imported by P2001

Pair type 3: Attendance or off-site work, imported by P2002 or P2011

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■ The *personnel subarea grouping for time recording* is a grouping of personnel areas that use the same
  • Time types
  • Time transfer specifications
  • Access control groups
  • Error definitions

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation Settings -> Set Personnel Subarea Groupings for Time Recording

■ You set the *time type determination group* in personnel calculation rule TMON, using operation MODIF T. The time type determination group 02 (MODIF T=02) is used in the standard system for *time evaluation without clock times.*

Evaluating Break Periods: Function PBRKS

SAP

Parameter 4: NOTI

Definition of work break schedule:
After 4 hours, 0.5 hours unpaid break

TIP without clock times after function TYPES

Start	End	P	ID	CT	P	TTyp..	Number
		3		01	S	1301	2.0000
		3		01	S	1301	3.0000
		3		01	S	1301	3.0000

TIP without clock times after function PBRKS

Start	End	P	ID	CT	P	TTyp..	Number
		3		01	S	1301	2.0000
		3		01	S	1301	2.0000
		3	05	01	K	0530	0.5000
		3		01	S	1301	0.5000
		3		01	S	1301	3.0000

Parameter 4: OWTI

Definition of work break schedule:
12:00 - 12:30   0.5 hours unpaid break or
After 4 hours   0.5 hours unpaid break

TIP with clock times after function TYPES

Start	End	P	ID	CT	P	TTyp..	Number
08.0000	10.0000	3		01	S	1301	2.0000
10.0000	13.0000	3		01	S	1301	3.0000
13.0000	16.0000	3		01	S	1301	3.0000

TIP with clock times after function PBRKS

Start	End	P	ID	CT	P	TTyp..	Number
08.0000	10.0000	3		01	S	1301	2.0000
10.0000	12.0000	3		01	S	1301	2.0000
12.0000	12.5000	3	05	01	K	0530	0.5000
12.5000	13.0000	3		01	S	1301	0.5000
13.0000	16.0000	3		01	S	1301	3.0000

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- For time evaluation without clock times, only parameter 4 of function PBRKS is specified:
  - NOTI: Only *after x hour* breaks are evaluated via parameter NOTI. The duration of the break is deducted from the number of attendance hours within the period.
  - OWTI: Parameter OWTI can be used to evaluate all types of break.
    The TIP entries that specify clock times are aligned with the breaks in the daily work   schedule. Entries without clock times are passed on unchanged.
- You can call function PBRKS twice, if you want to take account of entries that specify hours and those that specify clock times. You can use function SORT to sort the TIP entries before function PBREAKS.
- In time evaluation without clock times, time pairs are entered automatically in TIP in the following cases:
  1. The system generates a planned pair from the daily work schedule:
     - If the employee is assigned the *Time Management status* 9 (function P2000)
     - For an evaluation of a future period or a simulation
     - If the day being evaluated is a paid public holiday, for example (operation GENTG, personnel calculation rule TE20)
  2. The system enters time pairs with the planned specifications from the daily work schedule in TIP if full-day records have been recorded for an employee (for example, functions P2001 and P2002).

Deducting Attendances and Absences from the Planned Pair

Affects:

⇨ **Recording work schedule deviations:** *Time Management status 9*
⇨ **Work on paid public holidays**

Example: Partial-day absence: 2-hour doctor's appointment

2 hours: Increase the number of hours worked?

| 08:00 ————— Planned pair: 8 hours ————— 17:00 |
| Absence: 2 hours |

Subschema TP01, personnel calculation rule TP06

| **Absence: 2 hours** | 10:00 ———— Planned pair: 6 hours ———— 17:00 |
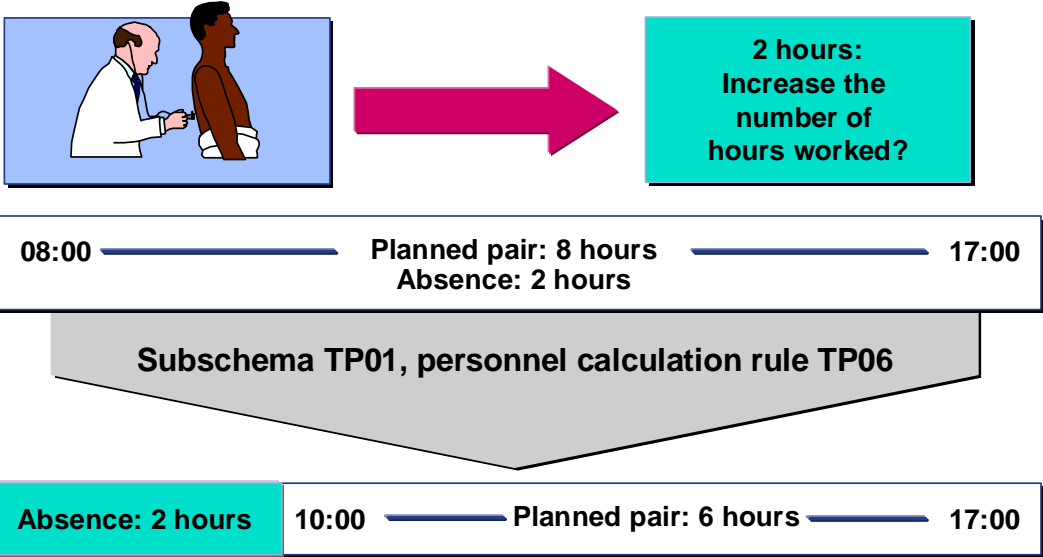
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- If a planned pair is generated for an employee via function P2000 or for paid public holidays (personnel calculation rule TE20), certain attendances and absences recorded without clock times, such as a doctor's appointment, should not increase the hours worked.
- Subschema TP01 deducts the absences recorded without clock times from the planned pairs. It also reduces the attendances recorded without clock times where the attendance type has the *Time evaluation class* 01.

IMG: Personnel Time Management -> Time Evaluation -> Time Evaluation Without Clock Times -> Providing Time Data -> Deduct Attendances/Absences from Generated Planned Time Pair

Determining Overtime

Times that count as overtime are determined

Determining overtime in time evaluation

⇨ **Overtime after x hours worked per day**
 Subschema TW15

⇨ **Overtime after y hours worked per working week**
 Subschema TW30

⇨ **Overtime after z consecutive days worked**
 Subschema TW10

Overtime is assigned processing type M

Overtime: Online data entry

Overtime based on special attendance types *Attendances* infotype (2002)

Overtime wage types are generated in time wage type selection

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- The times that qualify as overtime are determined and assigned the processing type M.
- Processing type M is used so that special time wage types (basic remuneration for overtime, bonuses) can be selected for these times in a later processing step.
- Overtime can also be recorded online instead of being determined automatically in time evaluation. There are two methods of doing this:
  - Overtime can be recorded using special attendance types. If the attendance types meet the following criteria, they are assigned processing type M in time evaluation:
    - They are grouped in their own *processing type/time type class* (V_554S_F).
    - They are assigned the processing type M in view T555Y for *processing type for pair type 1* or *processing type for pair type 3*.
  - Overtime can be entered in the *Overtime* infotype (2005). The standard schema TM00 contains an example of this method of processing:
    P2005   Provide overtime data of the day
    PTIP   TD40   GEN   Set PTYPE/TTYPE for overtime

Balance Formation: Rule TR11

TIP

Start	End	Time type	No.
		1301	4.0000

TES

Time type 1301 = normal working time

+ → 1301 = Normal working time
+ → 1501 = Total for Cltim = 01
+ → 0030 = Total attendances
+ → 0003 = Skeleton time

Time type 1202 = illness times

+ → 1202 = Period of illness
+ → 1502 = Total for Cltim = 02
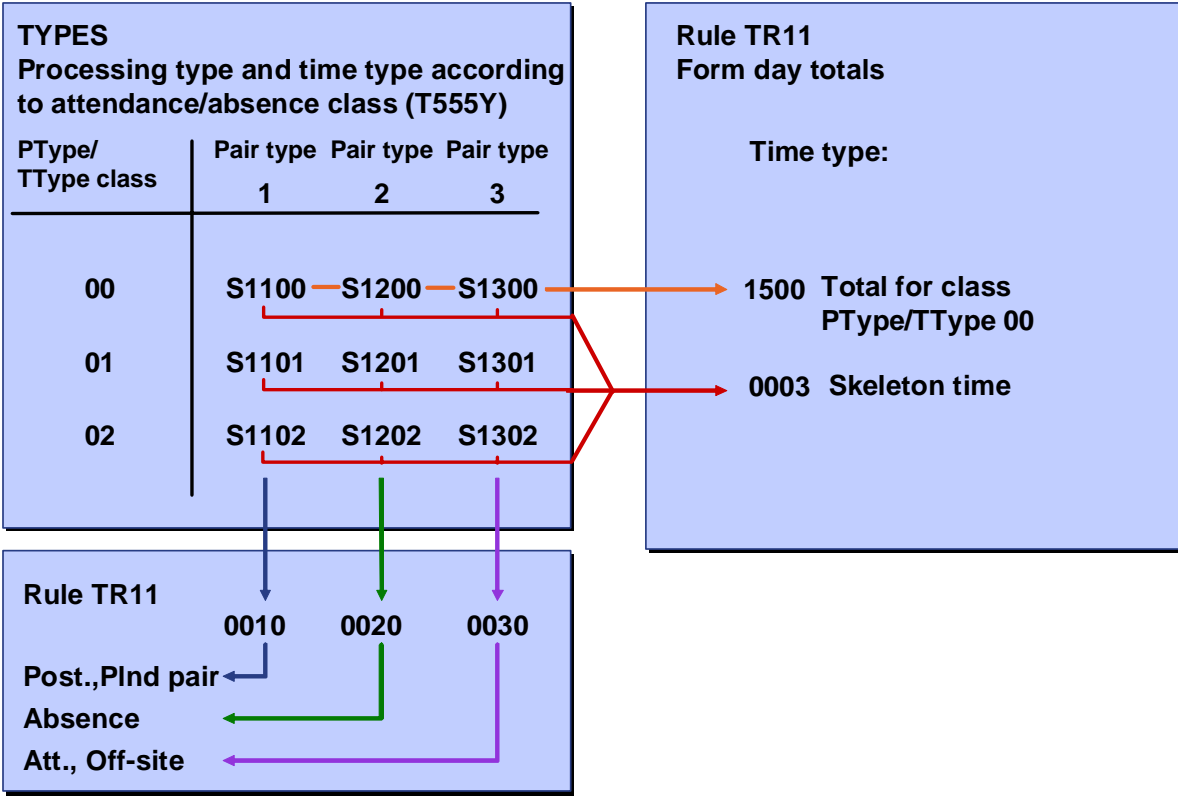+ → 0020 = Total absences
+ → 0003 = Skeleton time
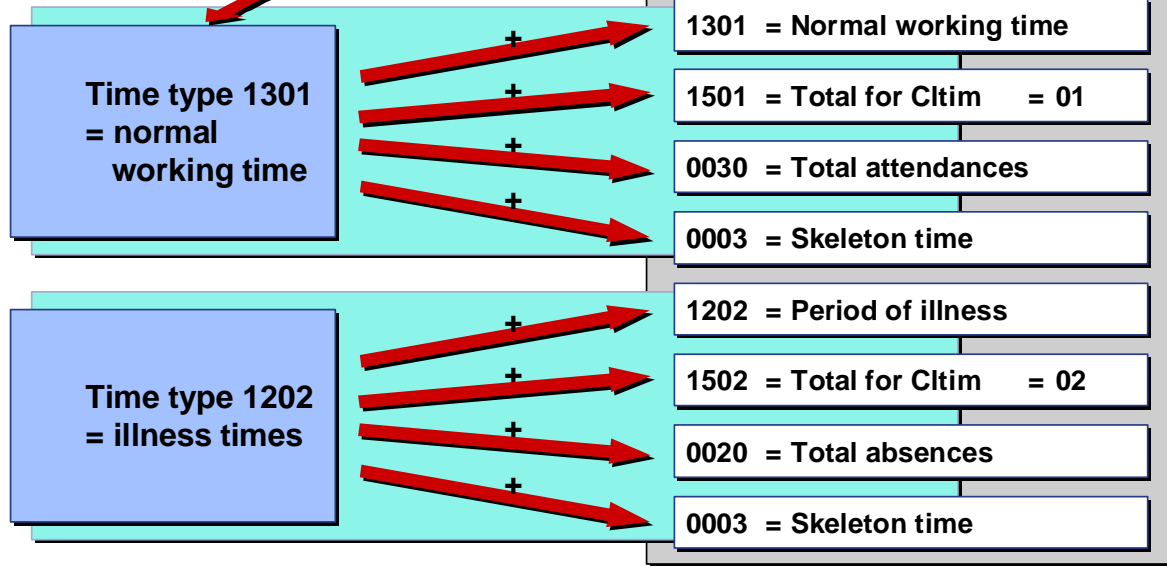
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- Personnel calculation rule TR11 adds the number of hours in the TIP entries to various comprehensive time types (time balances) to form day totals. The results of processing are entered in table TES (day balances).

Balance Formation and Time Type Determination (TM04)

TYPES
Processing type and time type according to attendance/absence class (T555Y)

PType/ TType class	Pair type 1	Pair type 2	Pair type 3
00	S1100	S1200	S1300
01	S1101	S1201	S1301
02	S1102	S1202	S1302

Rule TR11
Form day totals

Time type:

1500 **Total for class PType/TType 00**

0003 **Skeleton time**

Rule TR11

	0010	0020	0030
Post.,Plnd pair			
Absence			
Att., Off-site			

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- Function TYPES assigns the TIP entries a time type. Personnel calculation rule TR11 then cumulates the number of hours in the TIP entries in various comprehensive time types (time balances). You can read the entries in the view *Proc. Type and Time Type acc. to Attendance/Absence Class* (V_T555Y) in the following ways:
  - Horizontally, to determine balances that are based on the classifications of the attendances and absences by the *Processing type/time type class*
  - Vertically, to determine balances that are based on employees' attendance and absence statuses.

Alternative Time Evaluation Schemas: Summary

SAP
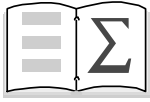
You are now able to

- **Discuss the personnel calculation schemas TM01 and TM04**

- **Describe their special features, and the differences between them and personnel calculation schema TM00**
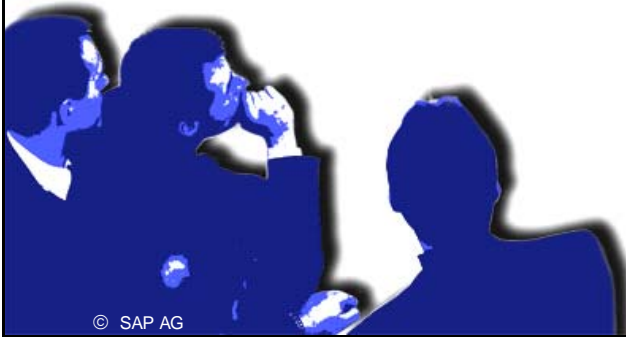
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Alternative Time Evaluation Schemas Exercises

Unit: **Alternative Time Evaluation Schemas**

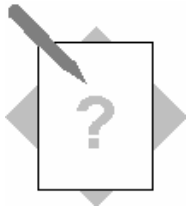**Topic:** **Introduction to Time Evaluation Schemas TM01 and TM04**

- Creating a Schema

1   In your enterprise, different groups of employees use different methods of time recording:

- Employees who record all actual times. These employees are assigned the *Time Management status* 1 in the *Planned Working Time* infotype (0007).

- Employees who only record deviations to the work schedule. These employees are assigned the *Time Management status* 9 in the *Planned Working Time* infotype (0007).

  Time evaluation is run nightly for all employees. Since only employees with *Time Management status* 1 can be evaluated with your schema ZM## (or standard schema TM00), and only employees with *Time Management status* 9 can be evaluated with standard schema TM01, schemas ZM## and TM01 have to be combined in a comprehensive schema, Z2## (## = your group number).

  1-1   Copy the processing steps from day processing in schemas ZM## and TM01 into new partial schemas. To do so, copy ZM## to schema Z0##, and TM01 to Z1##. In schemas Z0## and Z1##, delete all processing steps that are not performed within day processing (that is, those before the *Provide time data* block and after the *Manage time accounts* block).
  Ensure that schemas Z0## and Z1## have the attribute *Cannot be executed.*

  1-2   Copy the initialization section of schemas ZM## and TM01 to the day processing section. Use the appropriate standard personnel calculation rules. Incorporate them in schemas Z0## and Z1## using function ACTIO.

  1-3   Set up the comprehensive schema Z2##. You can use schema Z299 as a guide, or copy it, if necessary.
  Use function CHECK to ensure that your schema Z2## can be used to evaluate employees with a *Time Management status* of 1 or 9.

1-4   Use function COPY to call schemas Z0## and Z1## within day processing in your schema Z2##. Use function IF to control that

- For employees with *Time Management status* 1, schema Z0## is executed

- For employees with *Time Management status* 9, schema Z1## is executed

1-5   Use the personnel action *Time recording (Mini-master)* to create the personnel number 310012## (## = your group number):

Entry date	01/01/yyyy (yyyy = current year)
Personnel area	1400
Employee group	1
Employee subgroup	DU (Salaried employees)
Work schedule rule	NORM

Do not assign a position in the *Organizational Assignment* infotype (0001). This employee participates in time evaluation, and should be assigned the *Time Management status* 9.

1-6   Run time evaluation using schema Z2## for employees 310011## and 310012##. Use the time evaluation log to check processing.

Alternative Time Evaluation Schemas Solutions

	Unit:	**Alternative Time Evaluation Schemas**
	Topic:	**Introduction to Time Evaluation Schemas TM01 and TM04**

1   Creating a schema

1-1 and 1-2:
In the attributes for schemas Z0## and Z1##, the field *Schema can be executed* should not be activated.

Schema Z0##:

Schema Z0## contains the processing steps from day processing of schema ZM##. Personnel calculation rule MODT is called by function ACTIO. TMON sets the groupings for employees with the *Time Management status* 1.

Fct	Par1	Par2	Par3	Par4	D	Text
ACTIO	MODT					Define groupings
BLOCK	BEG					Provide time data
IF		NOT	SIMF			No simulation for future period
. . .						
. . .						
QUOTA						Generate absence quotas
BLOCK	END					****************

Schema Z1##:

Schema Z1## contains the processing steps from the day processing of schema TM01. Personnel calculation rule TMON is called by function ACTIO. TMON sets the groupings for employees with the *Time Management status* 9.

Fct	Par1	Par2	Par3	Par4	D	Text
ACTIO	TMON					Define groupings
BLOCK	BEG					Provide time data
P2000			N	SAVE		Generate planned pair/provide daily WS
. . .						
. . .						
QUOTA						Generate absence quotas
BLOCK	END					****************

1-3 and 1-4: Schema Z2##:

You use function CHECK, with parameter 2 = PON, to ensure that employees with a *Time Management status* of 1 or 9 are selected in time evaluation. Using function IF with parameter 3 = POS or NEG, you control which processing steps are performed for employees with a *Time Management status* of 1 or 9.

Fct	Par1	Par2	Par3	Par4	D	Text
COM						Time Evaluation With Clock Times
COM						for Time Management status 1 and 9
**						
BDAY						Day processing
**						Options
CHECK		PON				Select TM statuses 1 and 9
CHECK		RPR				Set retro. accounting for payroll, if required
CHECK		FUT				Allow evaluations for future periods
DKG						Process reduced hours
OPTT	MAIL	1				Mail to administrator if errors occur
**						
IF			POS			If Time Mgmt status = 1
COPY	Z0##					Execute schema Z0##
ENDIF						
IF			NEG			If Time Mgmt status = 9
COPY	Z1##					Execute schema Z1##
ENDIF						
EDAY						End of day processing
**						
BEND						Final processing
ACTIO	TS10					Update leave balance
IF			EOM			If last day of period
LIMIT						Adjust flextime balance
ENDIF						Endif (last day of period)
EXPRT						Export evaluation results
EEND						End of processing block

1-5   Assign the employee the *Time Management status* **9 – Time evaluation (planned)** in the *Planned Working Time* infotype (0007).

1-6   Run time evaluation using schema Z2## in **one** run for both your employees, 310011## and 310012##.

Integration with Payroll

Contents:

- **Table ZL as the interface between time evaluation and payroll**
- **Retroactive accounting recognition**
- **Time wage type selection in SAP Payroll**
- **Supplying a third-party payroll system**

Integration with Payroll: Objectives

SAP
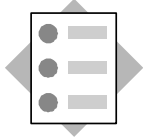
At the conclusion of this unit, you will be able to:

- **Describe how the results of time evaluation are passed on to Payroll**

- **Explain how to trigger retroactive accounting without gaps**

- **Describe how SAP Payroll processes time data**

- **Discuss how data is supplied to a third-party payroll system**

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Course Overview Diagram

SAP

Business Overview of Time Evaluation	Operations as Tools of Time Evaluation
Time Evaluation in the SAP System	Personnel Calculation Schema TM00
Concept of the Time Evaluation Driver RPTIME00	Special Solutions
Time Evaluation Messages	Alternative Time Evaluation Schemas
Customizing Time Evaluation	**Integration with Payroll**
Data Collection in Time Evaluation	Time Statement and Reporting

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Integration with Payroll: Business Scenario

- **The time wage types formed in time evaluation are transferred to Payroll and valuated in the gross part of payroll.**

Integration Between Time Evaluation and Payroll

- The results of time evaluation can be supplied to SAP Payroll or a third-party payroll system.
- The time wage types in tables ZL, ALP and C1 (cluster B2) form the interface between time evaluation and payroll. If time wage types have already been formed in the course of time evaluation, SAP Payroll imports them from cluster B2 and valuates them. The time data for days in the payroll run that have not been processed by time evaluation is evaluated in Payroll according to schema TC00 or TC04.

Time Evaluation Period and Payroll Period

SAP

Time Evaluation	Payroll
Stored by period ➡️ Cluster B2 ➡️	**Payroll** **Retroactive accounting**
Time evaluation period - **Global setting for the evaluation of time data for all employees**	**Payroll period** - **Depends on payroll area**
Set periods	
Time evaluation period: **= monthly**	**One payroll** - **Two-weekly for all payroll areas** **Several payroll periods** - **Payroll area D1 : Weekly** - **Payroll area A2 : Two-weekly** - **Payroll area E2 : Monthly**

Query in time evaluation schema

IF EOM If the end of the time evaluation **... period has been reached** **ENDIF**	**IF EOP If the end of the payroll** **... period has been reached** **ENDIF**

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- The results of time evaluation are stored by time management period in Cluster B2.
- You can determine regulations in the schema that relate to the end of the payroll or time evaluation period.
- The time evaluation and payroll periods do not have to be the same length, since Payroll processes the data it requires irrespective of the time evaluation period.

IMG: Personnel Time Management -> Time Evaluation -> General Settings -> Determine Time Evaluation Period

Interaction Between Time Evaluation and Payroll
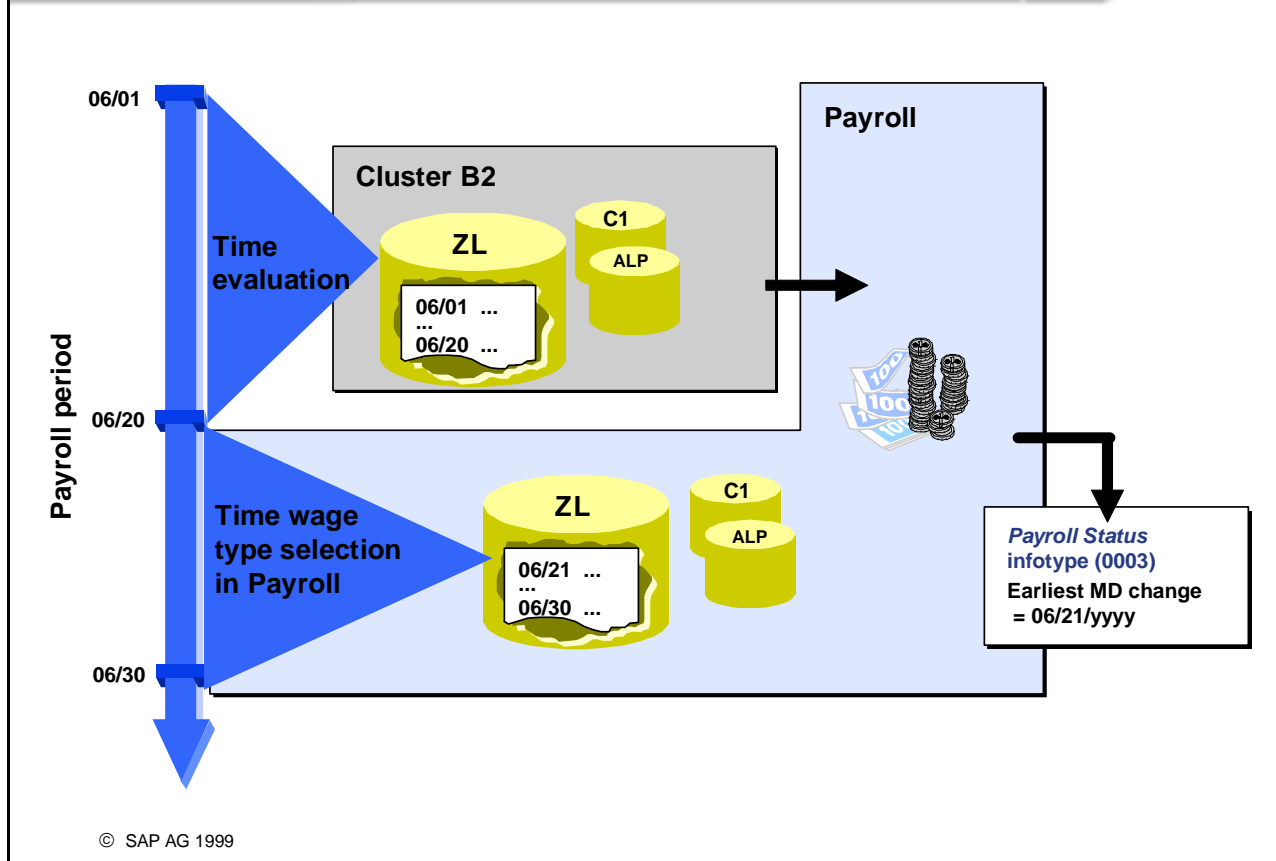
- The internal tables ZL, C1, and ALP represent the interface between time evaluation and payroll.
  - ZL: contains the time wage types
  - C1:   contains the data relevant for cost assignment
  - ALP: contains information for a different payment
- Table ZL contains only the number of hours per time wage type; amounts are not calculated until the payroll is run.
- If the payroll is run before the end of the time evaluation period, time evaluation passes on only the time wage types generated up to this point. For the rest of the payroll period, Payroll generates time wage types on the basis of the work schedule and any existing Time Management infotypes for the period that has not been evaluated.
- If Payroll generates time wage types, it sets a retroactive accounting indicator in the *Earliest MD change* field in the *Payroll Status* infotype (0003). This is done only if the employee takes part in time evaluation *(Time Management status* other than 0).

Retroactive Accounting

Accounted up to

Payroll

Payroll period 06 | Payroll period 07

Next payroll run

Period 07

Valid 06/17/yyyy – 06/17/yyyy
Attendance type 0800
Time 17:30 19:00

Retroactive accounting for payroll

Period 06

17.06

Time evaluation

Cluster B2
ZL
06/17 ...
...
C1
ALP

Payroll Status infotype (0003)
Earliest MD change = 06/17/yyyy
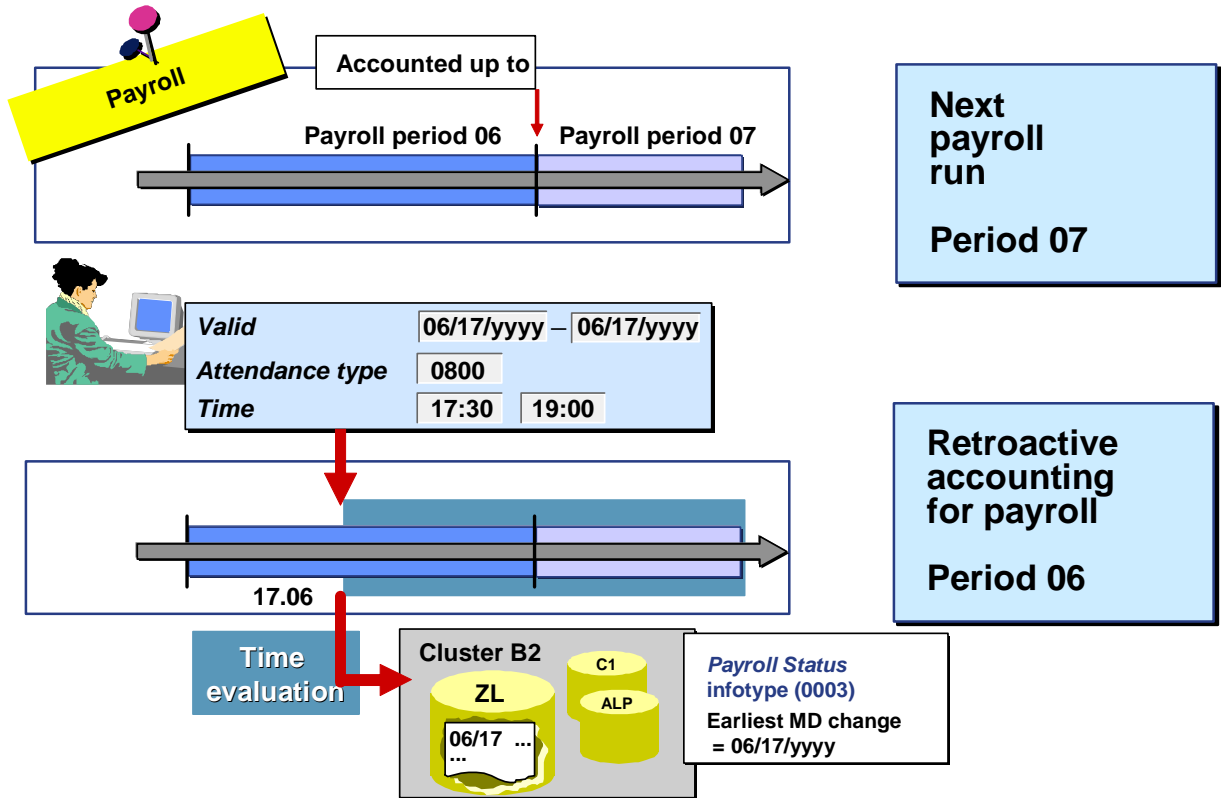
© SAP AG 1999

■ If time infotypes such as absences or attendances are recorded for a past payroll period that has already been accounted, time evaluation can set a retroactive accounting run in the *Earliest MD change* field in the *Payroll Status* infotype (0003).
■ The following conditions must be fulfilled for time evaluation to set a retroactive accounting run for Payroll:
  • The relevant time infotypes must be flagged as relevant for retroactive accounting for time evaluation
  • Function CHECK must feature in the time evaluation personnel calculation schema with 'RPR' as the value of parameter 2

  IMG: Personnel Management -> Personnel Administration -> Customize Procedures -> Infotypes -> Define Fields Relevant for Retroactive Accounting

Calling Time Wage Type Selection

SAP

Schema xT00: Gross time data processing

Call subschema: TC00

Fct	Par1	Par2	Par3	Par4	D	Text
.						
IF			PDC			Time evaluation active?
IMPRT	B2					Import results (cluster B2)
PRINT	NP	ZL				Print ZL after import
DAYPR	TC00	PDC				Day processing of time data
ELSE						Time evaluation not active in period
DAYPR	TC00					Day processing of time data
ENDIF						
.						

Call subschema: TC04

Fct	Par1	Par2	Par3	Par4	D	Text
.						
IF			PDC			Time evaluation active?
IMPRT	B2					Import results (cluster B2)
PRINT	NP	ZL				Print ZL after import
DAYPR	TC04	PDC				Day processing of time data
ELSE						Time evaluation not active in period
DAYPR	TC04					Day processing of time data
ENDIF						

- In Payroll, time evaluation is called in the personnel calculation schema XT00, or in the relevant country-specific standard personnel calculation schema (for example, UT00). Personnel calculation schema XT00 is an international personnel calculation subschema of X000.
- Function DAYPR calls a subschema with parameter 1 (TC00 or TC04). The main task of the subschema is time wage type selection. DAYPR ensures that the schema is processed once daily for each employee. If "PDC" is specified as the value of parameter 2, function DAYPR takes the results of time evaluation into account.
- Additional time-related functions in the gross part of payroll:
  - Absence valuation (function PAB)
  - Shift change compensation (personnel calculation rule X064)
  - Valuation bases for different payments (function PALP)
  - Transfer of time data from ZL to IT (function ZLIT)

Provide data
- Planned pair acc. to DWS
- Absences
- Attendances

Classify times
- Breaks
- Planned working times
- Overtime

Select time wage types

Compensate overtime wage types
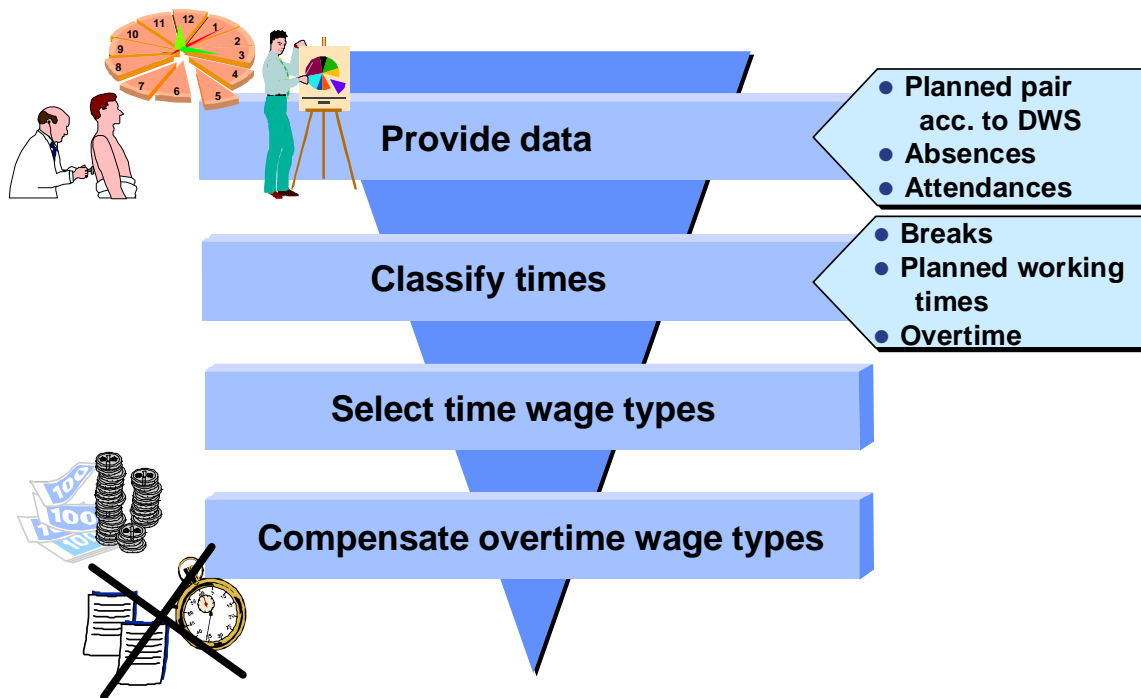
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- The steps and rules according to which day processing handles time data in Payroll are set in schema TC00 or TC04.
- The main task of TC00 and TC04 is time wage type selection. The same process is used to determine time wage types for planned work and overtime in the *Time Wage Type Selection Rule* view (V_T510S) and function GWT as for day processing in RPTIME00.
- In Payroll, you have the same options as in time evaluation for maintaining time data in table TIP and forming your own regulations within day processing of time data. Only time evaluation functions and operations are used for day processing. You use personnel calculation rule TMOD to set the same groupings for table accesses as in schema TM01 for initialization.
- The option of managing time balances and maintaining quotas is unique to time evaluation. Function POVT in schema TC00 (or TC04) only generates time wage types; it cannot form balances or update quotas.
- For all days that have not been processed by time evaluation, all times within the planned working time period become planned work and all times outside the planned working time become overtime in TC00 or TC04.

RPTIME00

| Time evaluation | ZL WType ... IFTYP ... | Interface toolbox
Differences are formed if there is a retroactive run | Seq. file |
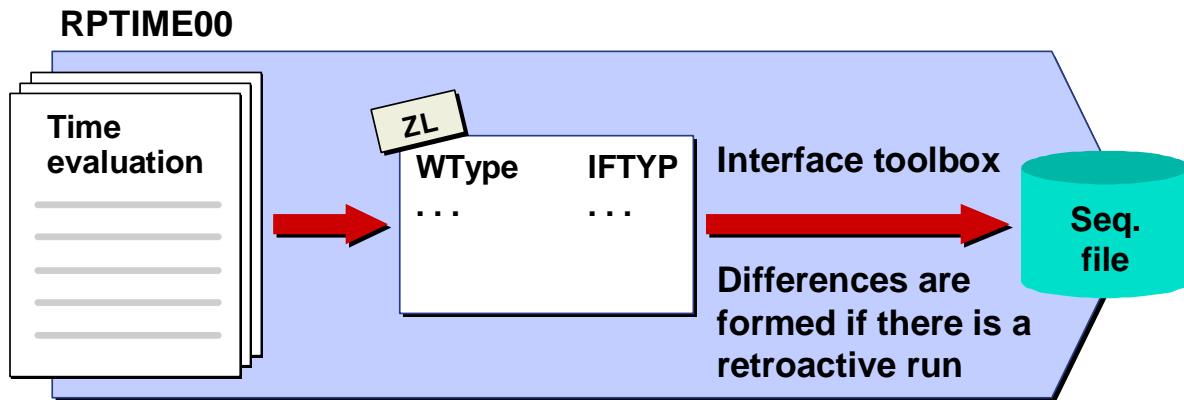
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- Table ZL also serves as the interface between time evaluation and a third-party payroll system.

  Menu: *Human Resources -> Time Management -> Administration -> Environment -> Third-Party Payroll*

- The export program retrieves the data from the internal table ZL in cluster B2 to supply the third-party payroll system. The wage types are written to a sequential file, which can then be imported into the third-party system. If there is a retroactive calculation, the difference between the wage types already exported and the new wage types is written to the sequential file.
- The third-party payroll system uses the IFTYP to determine whether the wage type is a planned, overtime or absence wage type.
- The *Interface Toolbox* transaction (PU12) is used as an export program. The interface format "TIME" is used as a reference. If the time evaluation period is identical to the payroll period, you can use the report RPTEZL00 as an alternative method of supplying the third-party payroll system.

  IMG: Personnel Time Management -> Time Evaluation -> Integration with Payroll ->Prepare Payroll Using a Third-Party System

Integration with Payroll: Summary

You are now able to

- **Describe the interaction between time evaluation and payroll**

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Time Statement and Reporting
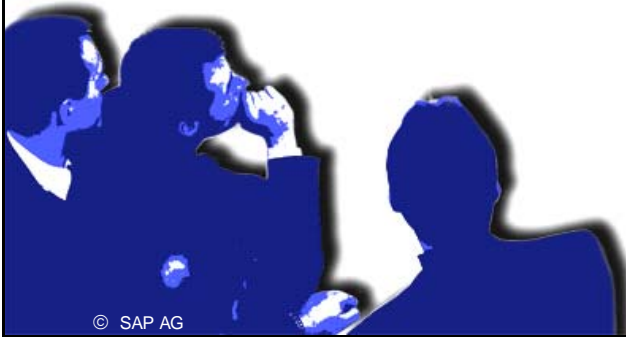
Contents:

- **Customizing a time statement form**
- **Time Management report tree**
- **Querying time data**
- **Business Information Warehouse**

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At the conclusion of this unit, you will be able to

- **Use special techniques to customize a time statement form**

- **Use various options for running reports on time recording data and time evaluation results**

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Course Overview Diagram

SAP

Business Overview of Time Evaluation	Operations as Tools of Time Evaluation
Time Evaluation in the SAP System	Personnel Calculation Schema TM00
Concept of the Time Evaluation Driver RPTIME00	Special Solutions
Time Evaluation Messages	Alternative Time Evaluation Schemas
Customizing Time Evaluation	Integration with Payroll
Data Collection in Time Evaluation	**Time Statement and Reporting**

Time Statement Form and Reporting: Business Scenario

SAP

- **You want your employees to receive an overview of the time accounts and time wage types formed in time evaluation.**

- **Management wants to find out the amount of overtime worked in your enterprise.**

- **Management wants to create statistics on employee productivity in the different areas of the enterprise.**

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The Time Statement - RPTEDT00

Inform employees	Check results	Display overviews

Inform employees

Answer queries

Time statement

Send statements

Up-to-date information online

Form class TEDT

Check results

Check time evaluation run

Display overviews

Display totals overview

PersNo	Name	WrkTime	FLEX
01234	Helga Martin	148.00	- 3.24
02786	Uri Kwan	148.00	12.50
03897	Sang Won	74.00	3.50

Output cappings

PersNo.	Name	OT	Capp.
01234	Helga Martin	15.50	5.50
02786	Uri Kwan	2.00	0.00
03897	Sang Won	12.25	2.25

Form class TELU

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- You can use report RPTEDT00 (Time Statement) to present the time accounts and time wage types determined by time evaluation in a clear layout. The statement creates an overview of the time evaluation results for each day in a time evaluation period.
  Menu: Human Resources -> Time Management -> Administration -> Time Evaluation -> Time Statement
- Time data administrators can use the time statement as a method of monitoring employee times, and they can send statements to employees to keep them informed. Using the self-service application, employees can access the time statement themselves in the Internet or intranet.
- You can use the time statement to check the results of the time evaluation run. To do this, you must enter a variant for RPTEDT00 in the parameters for RPTIME00.
- You set up the time statement form in Customizing. There are two form classes, designed to cover different requirements:
  - TEDT: Output of time accounts and time wage types for each employee
  - TELU: Output of special time accounts for a group of employees

Attributes

Wage types and address layout

Individual or totals overview?

Country grouping `10` USA
Form class `TELU` Time statement form overview list

Attributes

Form name `TFL1` Standard form: Time balance overview
Person responsible `_____`
☐ Changes only by person responsible

Form name of corresponding TEDT form `TF02`

Maximum length
Lines `99`
Columns `76`

Current length
Lines `99`
Columns `76`

Can branch to individual overview

Output languages

Form layout →
Edit → Language

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■ Because of the address layout and the output of wage types, time statement forms are country-specific. You can also output the time statement in the language of the employee, the administrator, or the personnel subarea, regardless of the country for which the time statement is designed.
In the area menu for the form layout, choose *Edit ->Copy language* for an existing form to create another language version of the form, then translate the text elements and headings. The system reads the employee's language from the *Personal Data* infotype (0002), and the language of the personnel subarea from feature SPRSL.

■ You can assign time statement forms of form class TELU to a form of form class TEDT. This allows you to double-click a TELU form in the output list to branch to a TEDT form, that is the detail view for one employee.

■ Forms are specific to one client. To copy a form from one client to another, choose *Extras -> More tools* in the initial screen of the form editor.

IMG: Personnel Time Management -> Time Evaluation -> Evaluations and the Time Management Pool -> Time Statement Form -> Set Up Time Statement Form Using Form Editor

---

Form Layout

SAP

Windows for arranging form layout

Header

ED .... Individual results per day

Day 1

Day 2

Day 31

LP	Totals overview
SK	Time transfer specifications
ZL	Time wage types
AN	Attendance quotas
AB	Absence quotas
FE	Messages

Groups for displaying information objects

HD *Set up header*

F1 *Output results*

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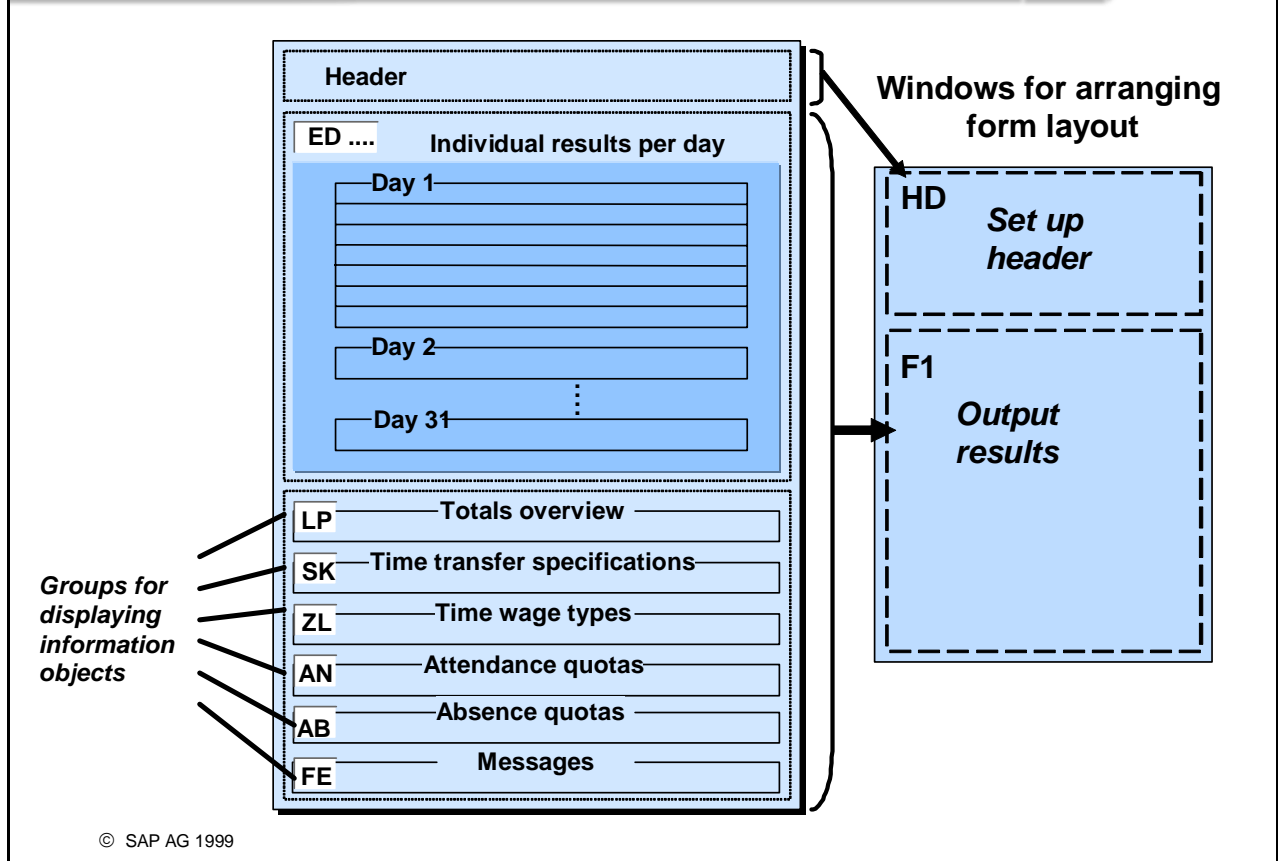
- You should always copy a standard SAP form when you create a time statement form.
- You create the layout for the time statement form in two windows:
  - In the **HD window**, you create the form header. General data, such as the employee's name, address, personnel area, cost center, and so on, is displayed here.
  - In the **F1 window**, you create the information objects that you want to display on the time statement. Groups are defined for the different business units. You can use them to output individual results for each day, totals overviews, or summarized time wage types, for example. The information and individual fields you can output in the different groups are predefined.

The Form Editor

Text elements

Window + group HD

```
Window
GR
HD --------------------------------------------------------------------
HD                           Time statement  list
HD Printed on: DATUM_____                                Page PA
HD --------------------------------------------------------------------
HD Employee        : PERNR____    ENAME_____
HD Administrator: SACHZ
HD --------------------------------------------------------------------
HD Personnel area: WERK            Personnel subarea: BTRT
```

Table	P0001	Org. assignment	Condition
Table field	SACHZ	Time data administrator	
Output length			
Conversion	26	Name of administrator	
Rule			
Offset			
Selected field	P0001-SACHZ	Double-click t	

Specification of output

Input help single fields

Single field origin	Single fields

▽ 📁 Window
  ▽ 📁 Block HD - Header data
    ▷ 📁 General fields
      📄 SCHLW-BEGINN — Start date in current period
      📄 SCHLW-PAGE — Page counter
      . . .
      📄 P0001-SACHZ — Administrator for time recording

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- The window display corresponds to the subsequent layout on the form. You enter all text elements and table fields you want to be output on the user interface, as if writing on the form directly.
  You can copy the table fields from the modeless window *Input help single fields*. To insert a field into the form layout, double-click on it. You can also copy fields or lines. You can create text elements, which are stored automatically (area menu of form layout: *Goto -> Text modules*).
- For detailed information on a single field, double-click on the field.
- You can specify the following factors:
  - Output length:
    You should specify this in the *Output length* field, except for texts, for which the output length can be entered directly in the window.
  - Conversion:
    You can determine the format used to display the data.
  - Rule:
    You can specify conditions to determine the situations in which information is displayed.
  - Print offset:
   You can hide leading characters (such as leading zeros).

Day Data

Group ED

Individual results

Day	Text	InT	OutT	St. time	End time	Rec.	PInd	Skel. time	Flex.	OT	DWS
02	Attendance hours			00:00	07:30	7 .40					
	Off-site work			08:00	10:00	2 .00	7.75	9.50	1.75	0.00	GLZ
03	Attendance hours			08:00	18:15	10.25	7.75	8.50	0.75	0.00	GLZ
04	Attendance hours			08:00	18:15	10.25	7.75	8.50	0.75	0.00	GLZ
	Weekly total					37.25	40.50	3.25	0.00		

Groups: Individual results per day

ED - Indiv. results, TM status 1-9
EP - Indiv. results, TM status 1, 2
EN - Indiv. results, TM status 9

PD - Prelim. ind. results, TM status 1-9
PP - Prelim. ind. results, TM status 1, 2
PN - Prelim. ind. results, TM status 9

ZT - Daily time wage types
ST - Weekly time transfers
WS - Weekly totals
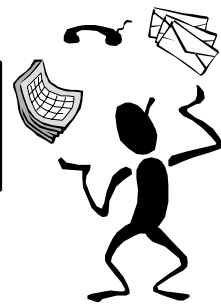
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- Individual results for each day: Data for each day, such as the daily actual times, the day balances formed, and so on, are listed.
- A number of groups are available for displaying the day data:
  - You can display different information according to employees' *Time Management status*.
  - If required, you can display preliminary day results that have been determined by time evaluation.
- You can display the individual results for each day, with the date and weekday. You determine the last day of the week in feature LDAYW.
- You use table TP to output the time pairs or the number of hours for the following types of time data:
  - Time pairs (table PT)   -   Attendances
  - Absences   -   Substitutions
  - On-call duties

  You use the TEXT field of table TP to display the text belonging to the corresponding subtypes of the infotypes.
- At the end of each calendar week, you can display a weekly total of the day balances that have been output. This is done using group WS.

Prioritizing the Information Displayed

SAP

What is the most important information for a particular day?

Day	Text	InT	OutT	St. time	End time	Rec.	Plnd	Skel. time	Flex.	OT	DWS
01	Public holiday			EE not at work			4.00	4.00	0.00	0.00	FLEX E
02	Thursday			07:45	09:55	2.17					
	Doctor's visit <1 day			10:00	14:00	4.00					
				14:06	17:05	2.98	8.00	8.00	0.23	0.00	FLEX
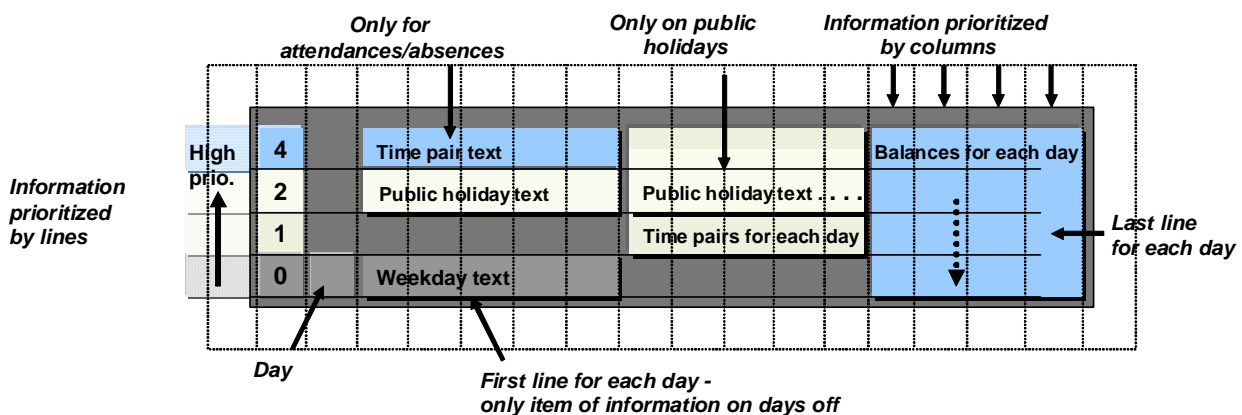
It is possible for several, conflicting items of information to exist on the same day (for example, an absence and a public holiday). You can determine which information is displayed on a particular day by assigning priorities within the groups ED and PD.

- You can assign priorities from 1 - 9 and from A - Z, whereby 9 has a higher priority than 1, and Z has a higher priority than A.
- Information for each day is superimposed character by character. This means that information with the low priority is output if there is no information of a higher priority on that day. When you create a form, you are recommended to create blocks to put all information that is to be overwritten if required in the same position.
- Before information for a day can be output, the corresponding data must exist for that day (for example, a day's time pairs are only displayed if time pairs exist for that day).
- If, on one day, several items of information exist in table TP, several lines are displayed in the time statement form.
- You can use *rules* to limit the situations in which information is displayed (for example, only on public holidays or only on workdays where attendances exist).
- If you want to display particular information only once for each day, you can use rules FL or LL to display it in only the first or last line.

Totals Overview / Time Wage Types per Day

Group LP

Totals Overview			
Time type	**Number**	**Time type**	**Number**
Flex. balance prev. period	0.00	Overtime to compensate	0.00
Flex. balance curr. period	5.25	Overtime to remunerate	2.50
Flex. balance total	5.25	Overtime basic/time off	0.00
Productive hours cumul.	42.50	Total overtime	2.50
Remaining leave	10.00		

Group ZL

Time wage types					
Day	**OTime BR**	**OT 25%**	**OT 50%**	**OT total**	**Night bonus**	**Hol. bonus**
09/06/1999		2.00	0.30	2.30		

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- In group LP (totals overview), you can display time balances in relation to periods. The system reads the time account statuses from table SALDO. In field SCHLW-QUOTAA, you can display information on an absence quota, and in field SCHLW-QUOTAP information on an attendance quota.
- In group ZL, you can display the time wage types that are determined daily. If you output more than than one time wage type in each line, the results are compressed for each time wage type, for each day.
- If you have a separate line for each time wage type,
  - You can display cost information from tables C1 and ALP beside the time wage type
  - You can use report RPTEDT00 (Time Statement) with the parameter *Compress time wage types* to display summarized TL entries for a day. In this case it is not possible to display cost information.

Compressing Time Balances and Wage Types

SAP

Display table SALDO in Cluster B2

Time type		No.
...		...
0002	Planned time	157.45
0003	Skeleton time	156.45
0005	Flextime balance	10.00
0008	Flextime previous period	7.00
...		...

Change layout of total GLZA

Total ID **GLZA**

Tables ZL and SALDO from cluster B2

Table	ID	Long text	RZ
SALDO	0005	Flextime balance	+
SALDO	0008	Flextime previous month	-

Group LP

Time statement list

Totals Overview

Time type	No.	Time type	No.
FLEX balance prev. period	7.00	Overtime to compensate	0.00
FLEX balance curr. period	3.00	Overtime to remunerate	0.75
FLEX balance total	10.00	Overtime basic/time off	0.00
Productive hours cumul.	41.50	Total overtime	0.75
Remaining leave	14.00	Total overtime	

- To summarize time balances or time wage types, choose *Goto -> Sums* from the form layout. You can display the summarized information in the time statement in the day view, the totals overview (group LP), and the time wage types, just as you can display the original data.
- You can use this procedure to form totals or differences, without having to modify the corresponding personnel calculation rules in the time evaluation schema. However, the values calculated are temporary, and are not stored in the database.

Additional Groupings for Arranging Information

Group AV — On-call duties

Groups AN and AB — Attendance and absence quotas

Group SK — Time transfers

Group FE — Messages from time evaluation

Date	Messages
02/13/2001	Partial-day absence exceeded
02/22/2001	Core time violation

Group ZM — Time wage types cumulated over the period

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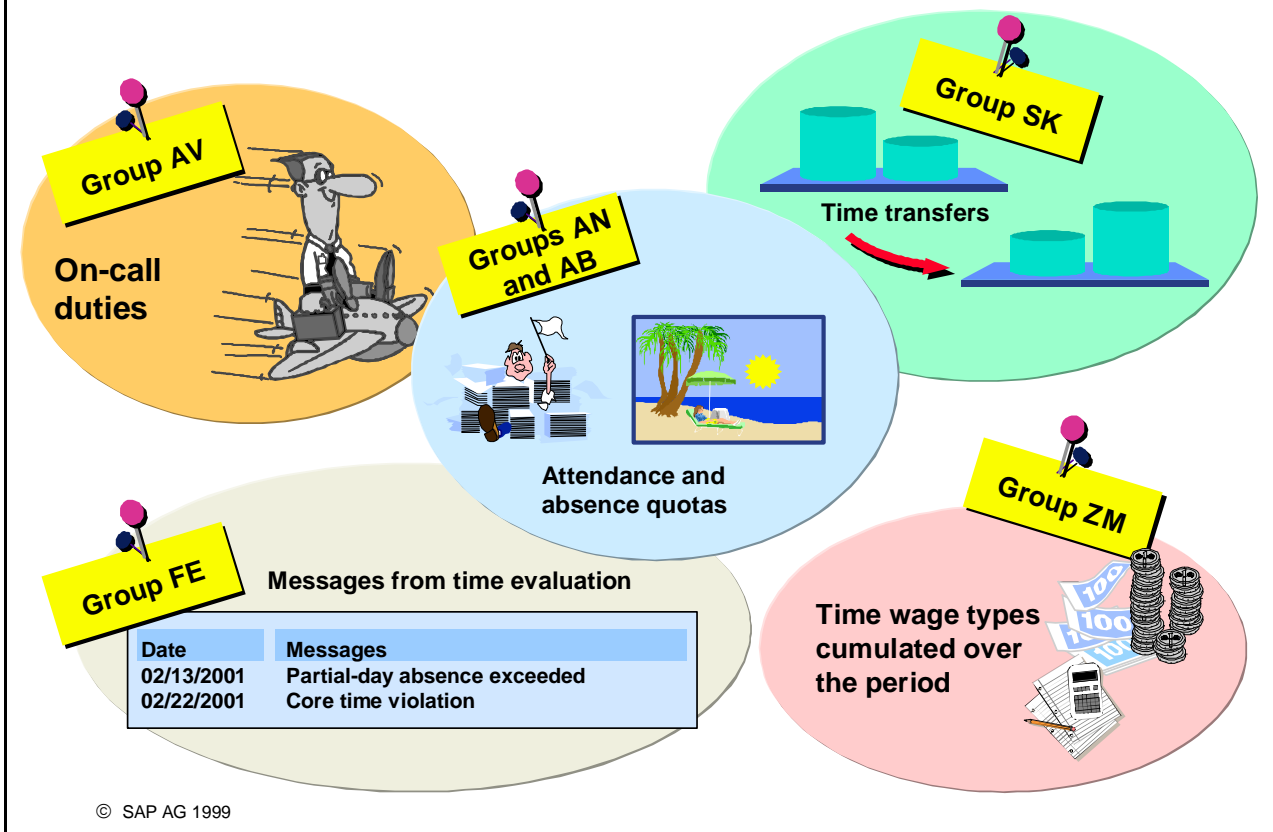
- You can specify *conditions* to control how information is displayed. For example, you can use them to:
  - Limit the amount of information to be displayed. You can specify, for example, that only messages from time evaluation are displayed (error types 1 and 5).
  - Specify more details on a wage type or balance. Use the ANZHL field as a print field, and the wage type and balance as a condition field.
- If you edit form class TEDT, you can only use the relational operator EQ (equals). If you edit form class TELU, you can use LT (less than) and GT (greater than), in addition to EQ.

Converting Output Data

SAP

Date format

SCHLW-CDATUM

Conversion

	13
↓	↓
05	**09/05/1999**
Day of the month	*Date in full*

Long texts for fields

ZL-ANZHL
Condition: LGART EQ MM10

	LT
↓	↓
0.30	**Overtime 25%**
Number field	*Long text*

Absence quotas

SCHLW-QUOTAA

Time accounts

DF	**RD**	**OR**	**. . .**
↓	↓	↓	
05.00	**12.00**	**02.00**	
Quota reduced by	*Quota remainder on key date*	*Quota requested*	
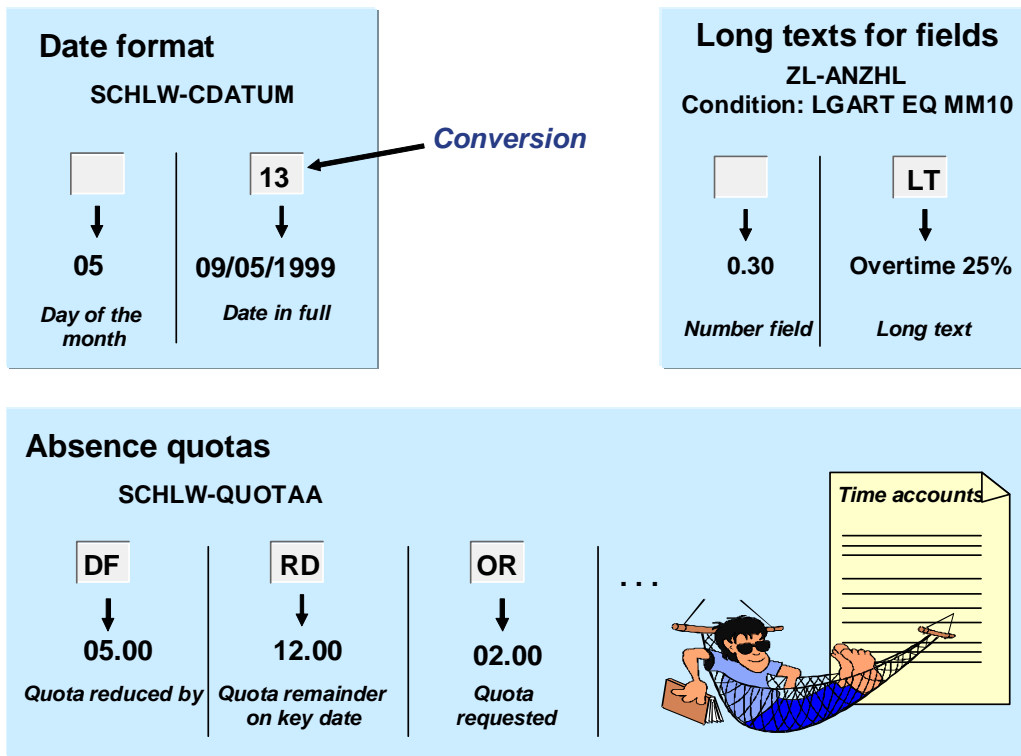
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- In the *Conversion* field, you can specify when you create the form how the field is to be laid out, for example, the output of quota statuses, short and long texts for fields, amongst other things.

Creating Text Conversions

SAP

Display weekday texts

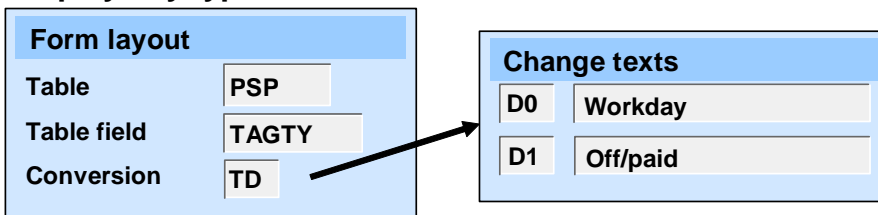| Form layout	
Table	SCHLW
Table field	WEEKDAY
Conversion	TW

Change texts	
W1	Monday
W2	Tuesday
W3	Wednesday
. . .	

Display day type text

Form layout	
Table	PSP
Table field	TAGTY
Conversion	TD

Change texts	
D0	Workday
D1	Off/paid
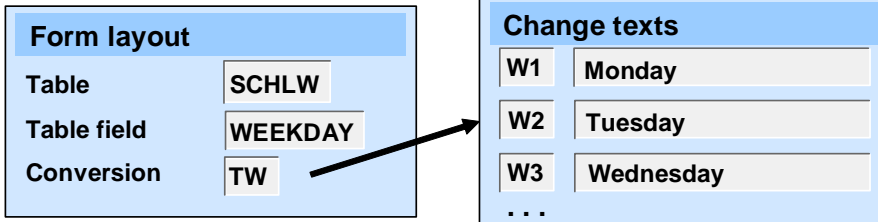
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- If you want specific texts to be displayed according to the date, day evaluated, and so on, you can define text conversions for a field in the form. Note that only the first character of a table field can be evaluated. Text conversions are all conversions that begin with "T".
- To create the texts for the text conversions, choose *Goto -> Text modules* from the form layout view.
- When weekday texts are displayed, the system reads the last day of the week (text module W7) from the specifications in feature LDAYW.
- Other common text conversions:
  - Pair type: TP-PTYPE
  - Time Management status: WPBP-ZTERF

SAP

Work
schedule

Absences

*Time Leveling
RPTCMP00*

*Time Statement RPTEDT00
(Form class TEDT)*

Attendances

Time
balances

*Time Balance Overview
RPTEDT00 (Form class
TELU)*

*Cumulated Time Balances
RPTBAL00*

*Time Balances for Download
RPTDOW00*
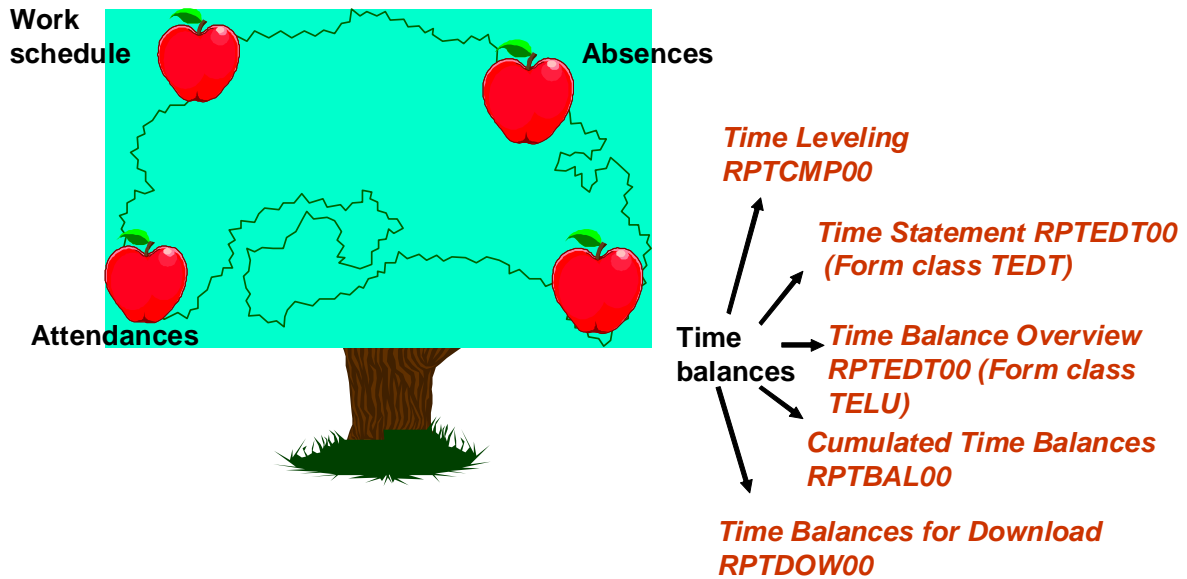
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■ The Time Management report tree gives you easy access to the most important reports in Time Management. To access the report tree, choose *Human Resources -> Time Management -> Administration -> Information System -> Report Selection.*

■ All the important reports from the time evaluation environment are listed under the *Time Accounts* node. You can evaluate the balance statuses of individual employees, and find information on the time accounts of several employees in summarized views.

■ The standard Time Management reports enable you to run evaluations over individual sources of data, such as individual infotypes or clusters. It is not possible to evaluate infotype data and cluster data simultaneously. Therefore, the standard reports may often provide only a section of the relevant data.

Time Types and Quota Types for Reporting

Quota Statuses

- Absence quotas
- Leave types
- Infotype data
- Attendance quotas

Reporting quota types

Time and Labor

- Attend-ances
- Absences
- EE remun-eration info
- Infotype data

- Table ZES
- Table ZL
- Time evaluation results

Reporting time types

Personal Work Schedule

- Planned working time
- Substit-utions
- Work schedule data

Simulated infotypes for SAP Query
InfoSources for Business Information Warehouse
Display objects for the Time Manager's Workplace
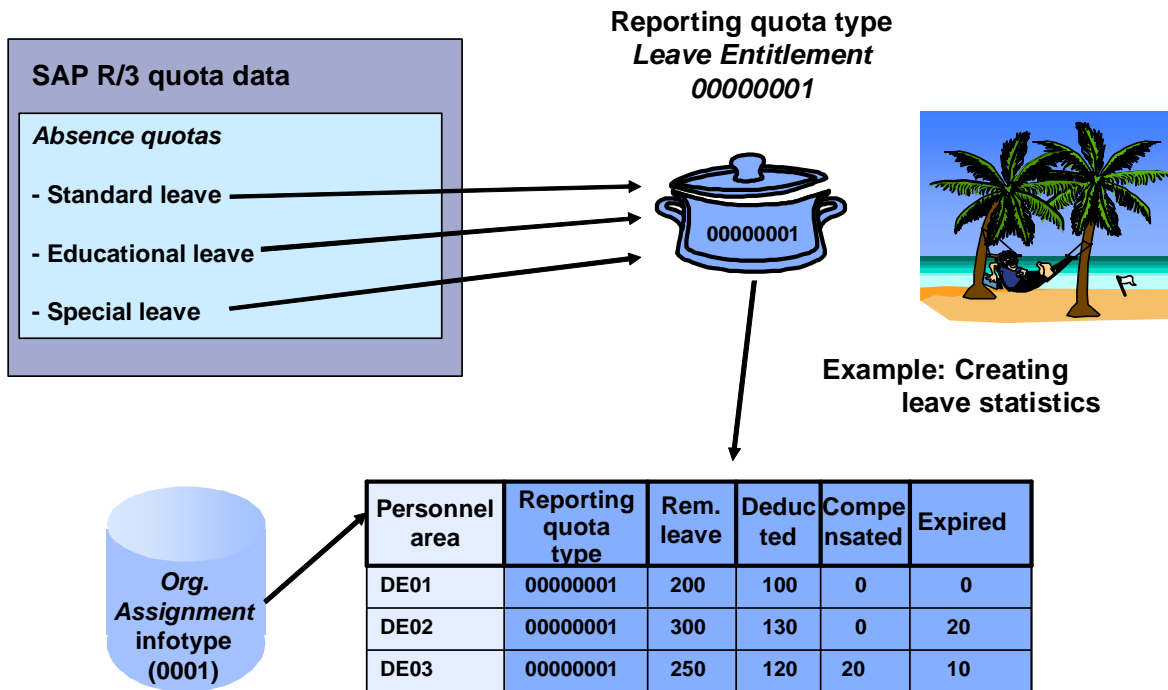
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- *Reporting time types* (also referred to as time types for reporting) enable you to create a uniform view on time data from various Time Management datasets (infotype and cluster data). *Reporting quota types* (also referred to as quota types for reporting) enable you to create a uniform view on quota data from various Time Management infotypes.
- *IMG: Personnel Time Management -> Information System -> Settings for Reporting*
- Depending on employees' organizational assignments, you can include other values in the reporting time types and reporting quota types. To do so, maintain feature **GRDWT** for reporting time types, and feature **GRDWK** for reporting quota types.
- *Simulated infotypes* enable you to evaluate data from various sources (infotype data, time evaluation results (cluster tables ZES, ZL with ALP and C1), and data from the personal work schedule. The data is not made available from the various database tables until the evaluation runtime. You can use *simulated infotypes* for your own ABAP programs and evaluations using SAP Query, in the same way as standard infotypes.
- **Note:** Previously, when evaluating attendances and absences of more than day, each report had to count the attendance and absence records itself. This is no longer the case with *simulated infotypes,* since the attendance and absence records are counted and made available for each day.

Time and Labor Simulated Infotype (2501)

SAP R/3 time data

Employee with Time Management status 1:

• Time type 0040 - Overtime worked

Salaried employee with Time Management status 0:

• Wage type MM00 - Overtime basic remun.
• Wage type MM10 - Overtime 25%
• Wage type MM20 - Overtime 50%

Reporting time type *Overtime* 10000004

10000004

Org. Assignment infotype (0001)

Master cost center	Reporting time type	Act. time	Unit	Debited cost center
4711	10000004	1000	Hrs	4711
4711	10000004	100	Hrs	4712
4711	10000004	12	Hrs	4713

• *Organizational Assignment* infotype (0001)
• *Planned Working Time* infotype (0027)
• Cluster table C1
• Interface table ASSOB

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- The *Time and Labor* simulated infotype (2501) groups together the following data:
    - Data from the *Organizational Assignment* (0001) and *Planned Working Time* (0007) infotypes
    - Time and labor data such as the *reporting time type* (field REPTT) with the number of hours and days
    - Cost assignment data
    - Activity allocation data
    - Data on a different payment
- For more information, see the SAP Library by choosing *Human Resources -> Personnel Time Management -> Information System -> Reports Using SAP Query.*

Quota Statuses Simulated Infotype (2502)

SAP

Reporting quota type
Leave Entitlement
00000001

SAP R/3 quota data

Absence quotas

- Standard leave
- Educational leave
- Special leave

00000001

Example: Creating leave statistics

Org. Assignment infotype (0001)

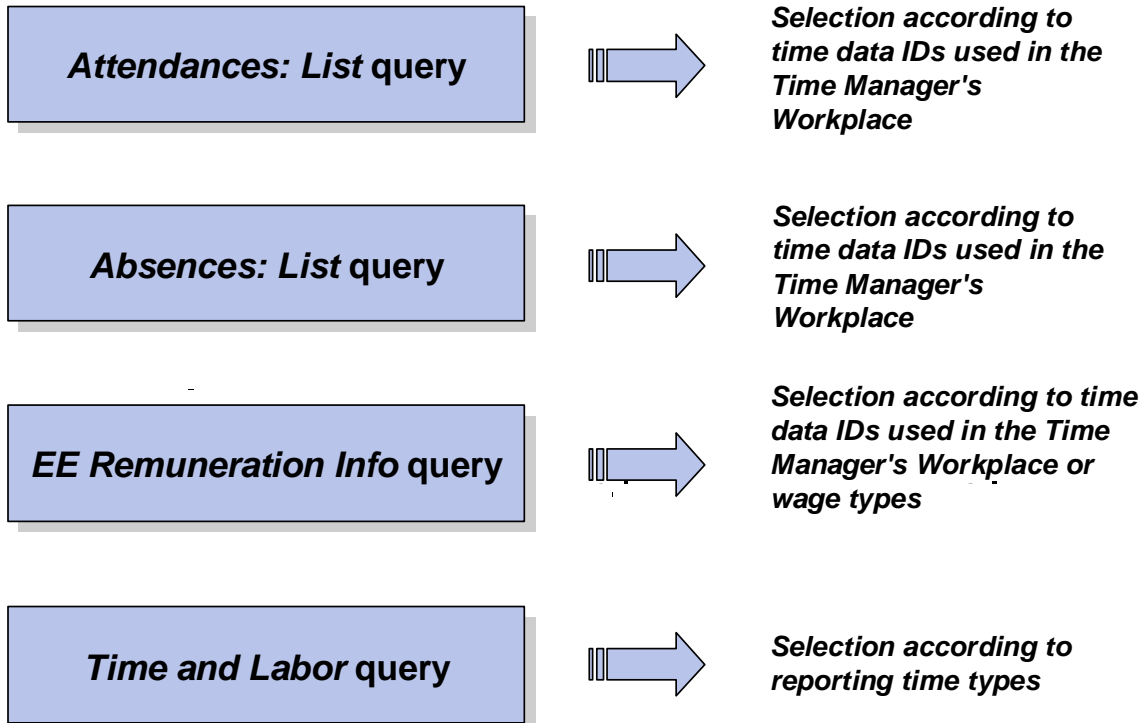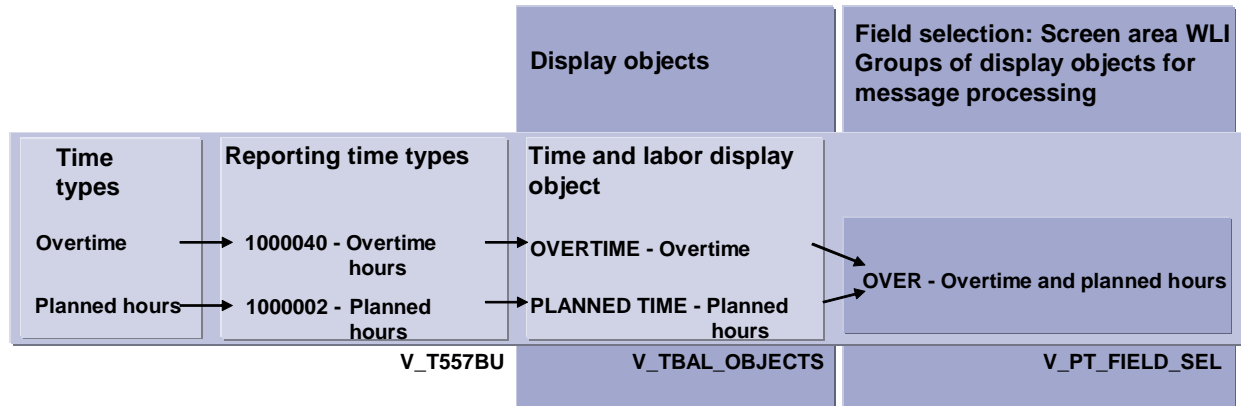| Personnel area	Reporting quota type	Rem. leave	Deducted	Compensated	Expired
DE01	00000001	200	100	0	0
DE02	00000001	300	130	0	20
DE03	00000001	250	120	20	10

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- ■ The *Quota Statuses* simulated infotype (2502) groups together the following data:
  - Data from the *Organizational Assignment* (0001) and *Planned Working Time* (0007) infotypes
  - Quota transaction data:
    - *Reporting quota type* (field QUOTA)
    - Data from the *Absence Quotas* infotype (2006)
    - Data from the *Attendance Quotas* infotype (2007)
    - Data from the *Leave Entitlement* infotype (0005)

SAP

Attendances: List query	⇒	*Selection according to time data IDs used in the Time Manager's Workplace*
Absences: List query	⇒	*Selection according to time data IDs used in the Time Manager's Workplace*
EE Remuneration Info query	⇒	*Selection according to time data IDs used in the Time Manager's Workplace or wage types*
Time and Labor query	⇒	*Selection according to reporting time types*

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- You can use SAP Query to define your own reports quickly and effectively, without having to do any programming. You can select data from any SAP R/3 tables. SAP delivers standard queries, which you can use as a basis for your own customer-specific queries.
- *Attendances: List* query: Overview of each employee's attendances, displaying attendance days and hours and account assignment information (such as the cost center and order debited)
- *Absences: List* query: Overview of each employee's absences, specifying the absence days and hours. It also displays a set of statistics showing the total quota deduction.
- *Employee Remuneration Information* query: Overview of each employee's remuneration information, specifying the wage type and the number of hours, or the rate, or the amount, and cost assignment information.
- *Time and Labor* query: Overview of each employee's time and labor data, specifying the actual times, the account-relevant time, and cost assignment information
- **Time and labor** data is attendances, absences, time balances, and time wage types that have been grouped together in a reporting time type.
- **Account-relevant** time data is counted attendances and absences that deduct from a quota.
- Menu: *Tools -> ABAP Workbench -> Utilities -> SAP Query -> Queries*

Display Objects for the Time Manager's Workplace

Using reporting time types for message processing

		Display objects	Field selection: Screen area WLI Groups of display objects for message processing
Time types	**Reporting time types**	**Time and labor display object**	
Overtime	→ 1000040 - Overtime hours	→ OVERTIME - Overtime	→ OVER - Overtime and planned hours
Planned hours	→ 1000002 - Planned hours	→ PLANNED TIME - Planned hours	
	V_T557BU	**V_TBAL_OBJECTS**	**V_PT_FIELD_SEL**

Message list

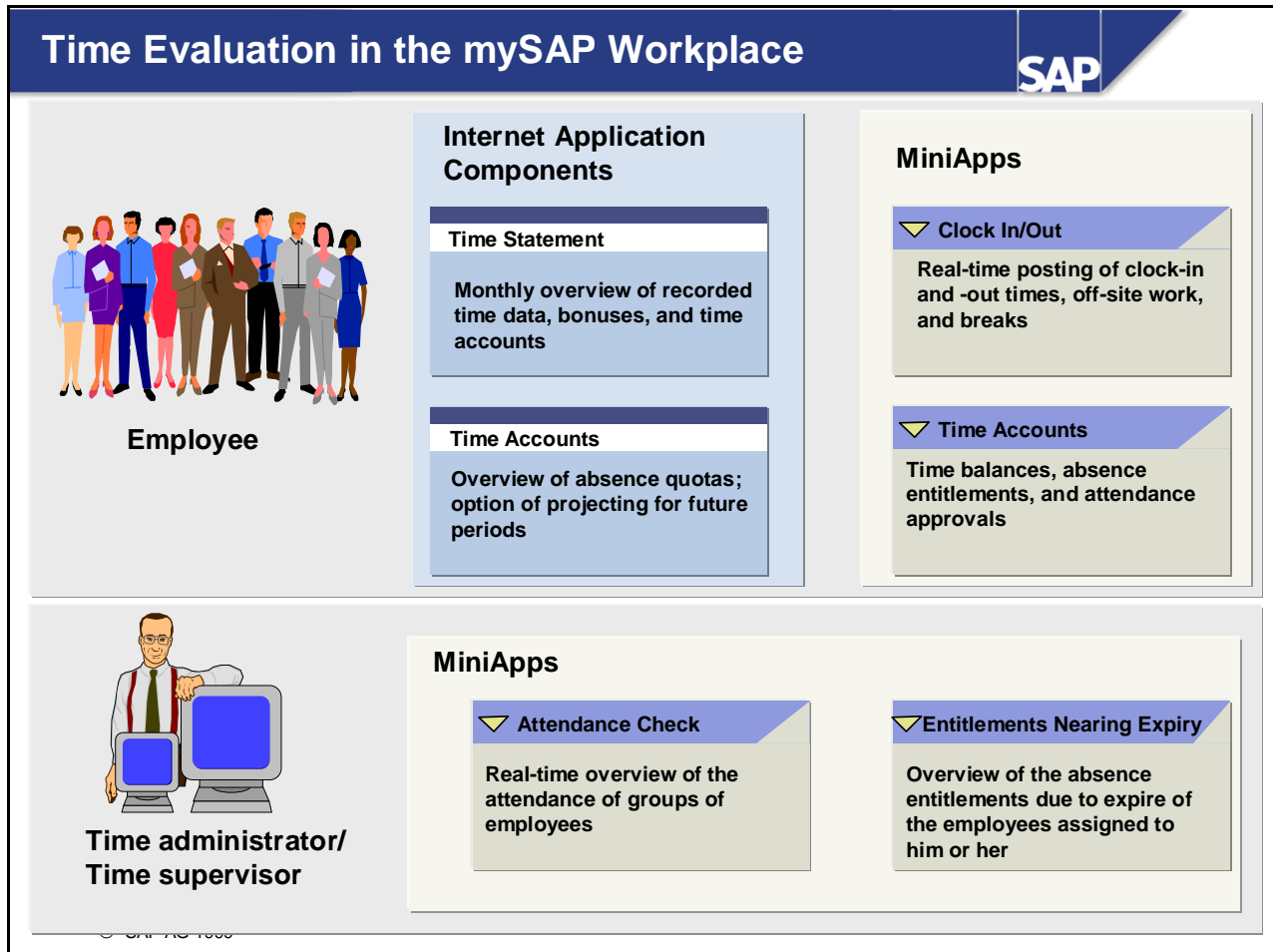| Cat.	Status	Name	Date	Message text	Additional information	Msg
⚠		Kai Wishids	15.04.2000	Unapproved overtime exists	Unapproved OT 4.15 hrs	🚩
⚠			15.04.2000	EE at work although OFF	OT 0.00//Plnd 0.00	🚩

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- You can use reporting time types to output contextual information in the message processing function of the *Time Manager's Workplace.* In addition, you can display contextual information from the employee's master data or from reporting quota types.
- If required, you can also output information from various sources, such as reporting time types and master data, for example, alongside the contextual information, by arranging display objects into groups.
- *Personnel Time Management -> Time Manager's Workplace -> Basic Settings -> Select HR Master Data and Time Data*
- *Personnel Time Management -> Time Manager's Workplace -> Set Up Message Processing -> Create Groups of Display Objects*

Business Information Warehouse
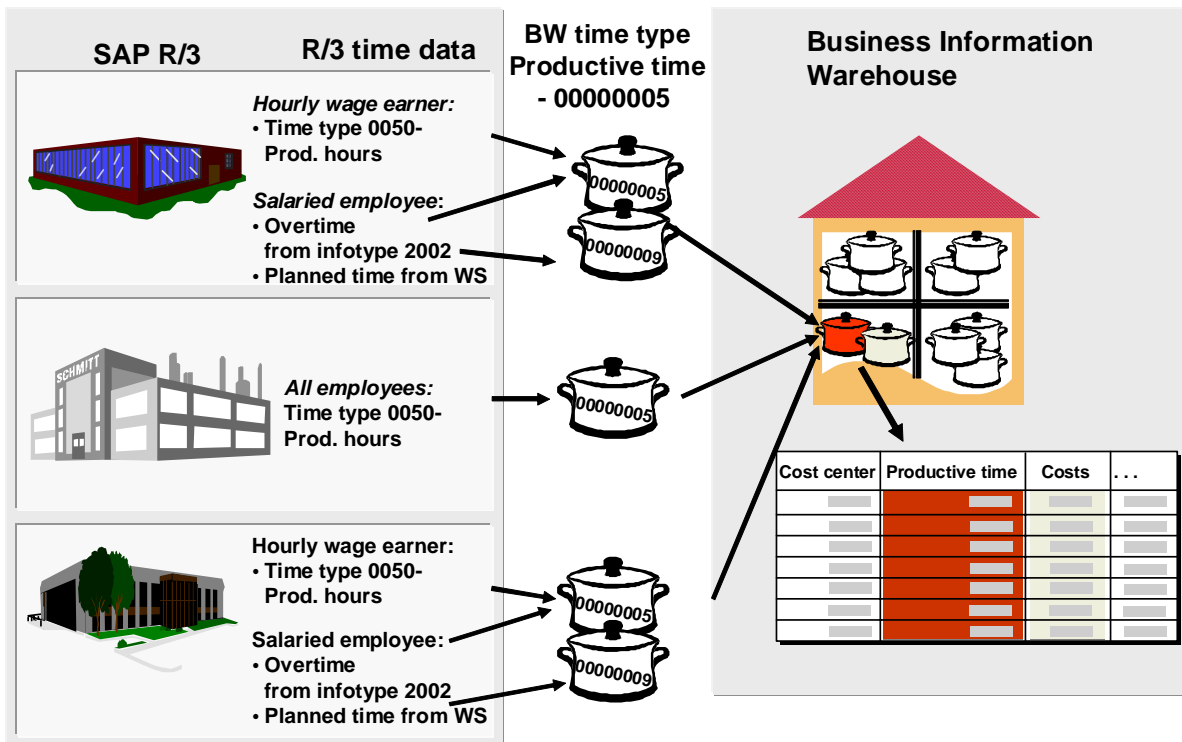
- The Business Information Warehouse (BW) is a stand-alone SAP product. It is a data warehouse application, integrated with predefined business contents.
- The business content of the SAP R/3 applications is carried by what are known as InfoSources. InfoSources contained compressed data from R/3 applications.
- In addition, you can customize summarization rules to suit your individual requirements.
- To customize the Business Information Warehouse, use transaction SBIW.

Time Evaluation in the mySAP Workplace

SAP

Internet Application Components

Time Statement

Monthly overview of recorded time data, bonuses, and time accounts

Employee

Time Accounts

Overview of absence quotas; option of projecting for future periods

MiniApps

▽ **Clock In/Out**

Real-time posting of clock-in and -out times, off-site work, and breaks

▽ **Time Accounts**

Time balances, absence entitlements, and attendance approvals

MiniApps

▽ **Attendance Check**

Real-time overview of the attendance of groups of employees

▽**Entitlements Nearing Expiry**

Overview of the absence entitlements due to expire of the employees assigned to him or her

**Time administrator/ Time supervisor**

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- The *mySAP Workplace* contains several Employee Self-Service applications and MiniApps that provide your employees and time administrators/time supervisors with the current input and output of time evaluation:
- Employee Self-Service applications
    - Time Statement (PZ04)
    - Time Accounts (PZ09)
- MiniApps
    - Time Accounts (PT_TimeBalances)
    - Clock In/Out (MA_PT_TIMEREC)
    - Entitlements Nearing Expiry (PT_ExpireQuota)
    - Attendance Check (MA_ATTCHECK)
- The above-mentioned ESS applications and MiniApps represent only a selection of the services currently available. Additional services may be available in future Web Add-On releases. For up-to-date information, see SAPNet.

Time Statement and Reporting: Summary
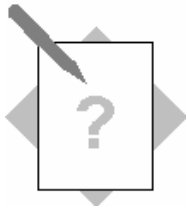
SAP
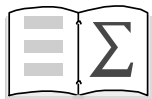
You are now able to

- **Customize the time statement form to suit your requirements**

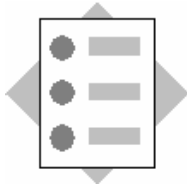- **Explain the various options for running reports on time recording data and time evaluation results**

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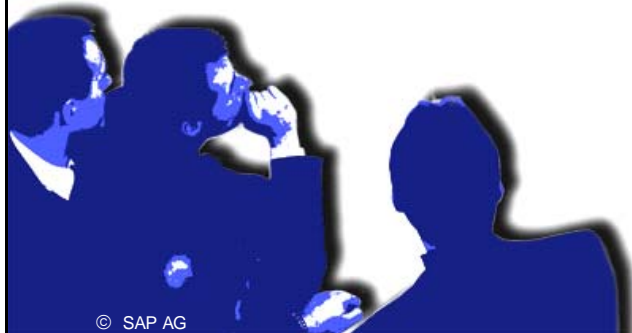
Time Statement and Reporting Exercises

Unit: Time Statement and Reporting

Topic: Customizing a Time Statement Form

- Customizing the Standard Time Statement Form TF02

1   Customizing the time statement form

In your enterprise, you want the standard time statement form TF02 to be customized to cater to your special requirements. You want the employee's *employment percentage* and the status of compensation time account 90## to be displayed.

You make the required Customizing settings in the step *Personnel Time Management →
Time Evaluation → Evaluations and the Time Management Pool → Time Statement Form
→ Set Up Time Statement Form with Form Editor*.

1-1   Copy form TF02 to form ZF## (## = your group number).

1-2   Display the *Employment percent* field from the *Planned Working Time* infotype (0007) in the form header. To do so, add another line to the form header.

1-3   In the individual results (group ED), replace the planned working time with the day balance 90##.

1-4   In the totals overview (group LP), enter the period balance 90## in an additional line.

Time Statement and ReportingSolutions

	Unit:	**Time Statement and Reporting**
	Topic:	**Customizing the Time Statement Form**

1   Customizing the time statement form

You set up the form in the step: *Personnel Time Management → Time Evaluation → Evaluations and the Time Management pool → Time Statement Form → Set Up the Time Statement Form with the Form Editor.*

1-1   To copy form TF02, choose *Extras → Other tools.* In the dialog box, enter the name of the form to be copied (TF02). In the dialog box that follows, enter the name of the new form (in the *Form name* field). Ensure that you do not copy between two different clients.

1-2   From the initial screen of the form editor, you can branch to the form layout by choosing the *Change* button. You can branch from the form layout to the maintenance of the form header (group HD) by double-clicking window HD.

To display the *Employment percentage* from the *Planned Working Time* infotype (0007), you have to insert a new line:

- Enter "*Employment percentage*" directly, and confirm by choosing ENTER.

- To enter the output field, select the field *Employment percentage* (WPBP-EMPCT) from the group *Payroll Results: Work Center/Basic Pay* in the *Input help single fields* window.

- In window HD, double-click the position where you want the field to be displayed.

Exit the maintenance of the form header by choosing *Transfer*.

1-3   In the F1 area, double-click to branch to window F1:

- Change the heading line in group ED by overwriting *PTime* with your own text.

- Replace the planned working time by the compensation time account 90## by double-clicking the column in which the planned working time is displayed, then double-clicking the field ANZHL.
Replace the *condition* ZTART EQ 0002 with condition ZTART EQ 90## (## = your group number).

1-4   To customize the totals overview, scroll in window F1 to group LP. At the end of the group, insert a new line to include period balance 90##:

- To enter the name of period balance 90##, position the cursor at the place where you want it to appear, and write the required text directly. Choose ENTER to confirm your entry.

- To enter the value of period balance 90##, proceed as described in 1-2. In the *Input help single fields,* choose in block LP under *Time balances per period* the field *Number of time balances in period* (ANZHL). Insert the field into the new line. Set the *condition* ZTART EQ 90## (## = your group number). Choose ENTER to confirm your entry.

Exit maintenance of window F1 by choosing *Transfer*. Save your form.
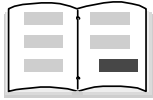
Contents:

- **Personnel calculation rule Z2##**
- **Personnel calculation rule Z3##**

Personnel Calculation Rule Z2##


```
Z200 HR310: Comp. time accrual
  └─□ *
    └─□ ****
      └─□ VARSTFREE   Planned hrs DWS = 0 ?
        └─□ N
          └─□ VARSTDAYTY   Day type
            ├─ *
            └─□ 0
              └─□ VARSTPRSNT   Employee at work
                ├─ N
                └─□ Y
                  └─□ VARSTABSCE   Employee absent
                    ├─□ N
                    │   ├─ HRS=SADV      Set
                    │   └─ ADDDB9000     Add day balance
                    └─□ Y
                        ├─ HRS=SADV      Set
                        ├─ HRS/2         Divide
                        └─ ADDDB9000     Add day balance
        └─ Y
```

Personnel Calculation Rule Z3##

```
Z300 HR310: Processing special times
  └─ *
     └─ ****
        └─ OUTTPPRTYP  Attendance type
           └─ *
              └─ COLOP*       TIP ->TOP current time type
           └─ **
              └─ COLOP*       TIP ->TOP current time type
           └─ ***
              └─ COLOP*       TIP ->TOP current time type
           └─ ****
              └─ COLOP*       TIP ->TOP current time type
           └─ 0440
              └─ OUTTPVTYPE Processing type
                 └─ *
                    ├─ FILLPVV    Processing type
                    └─ COLOP*     TIP ->TOP current time type
                 └─ K
                    └─ COLOP*     TIP ->TOP current time type
```