SAP notes

Transactions needed in the Favorites folder: (right click on Favorites → Insert transaction)

Introduce the 3 layer architecture of the SAP system

Presentation layer

- The upper layer, the user interface
- Runs on the PC of the user
- SAP logon is this

Application layer

- The middle layer, where the business logic is

Database layer

- The bottom layer where data is stored and managed
    - Application and Database layer can either share a server or have their own one

Restart of the system

Reasons:

- Updates
- Unexpected hardware or software failures
- Hardware or software maintenance
- To change some special profile parameters

Restart documentation:

- Reason of restart
- Planned date and time, and the interval of it
- Affected departments
- Name of the responsible admin (+ their signature)

Steps of the restart:

1. Documentation
2. System message to all affected users (***SM02***)
3. Checking the users, what transactions they are in (***SM04***)
4. Direct message to active users (***SE37***)
5. [End their sessions (***SM04***)]
6. Check the scheduled and active jobs (***SM37***)

SM02 – System messages:

- [Create] button on the top left corner
  - Give the appropriate System message text
  - Select the server
  - Select the client you want to message
  - (Select Date and time)

SM04 – User overview:

- See all logged in users and the transactions they are in
- Ending their sessions here (with [Sessions] button)

SE37 – Function builder (Direct message):

- Function Module: TH_POPUP
- [Test/Execute] button
  - Client: 205
  - User: *Username of user you want to message*
  - Message: *Message you want to send*
  - [Execute] button

SM37 – Jobs overview and administration

- Set the user's name whose background jobs you want to check
- Check the "Sched." checkbox
- Set the date and time interval

Steps of the installation process

- License procedure (?)

Restart procedure

- Documentation
- Sequence
- Timeout interval
- Hard/soft reset

What are the Work Processes (WP)?

Def.: these processes are responsible for the actual processing of the tasks that are transferred to our SAP system.

They may include executing:

- user dialog processes
- background processes

Based on the tasks they are reserved for, WPs are divided into groups:

- Dialog WP (execute ABAP dialog programs)
- Batch WP (execute background jobs)
- Update WP (control database changes)
- Enqueue WP (execute lock operations)
- Spool WP (process print data)

Check current status of WPs

RZ03 **–** current config

- Click on the server's name (lserver2_NSP_00)
- Upper Menu bar: Monitoring → Status details
  - Upper right corner of the window: Current configuration (distribution) of WPs

SM50 **–** current load

- "Dialog 9/8" – we only use 1 dialog WP out of the 9, the rest are free to use
- "Update 1/1" – we don't use any update WP

Operation Modes (OM)

Def.: They are the different configurations of the distribution of Dialog and Background (Batch) WPs.

Operation Modes can be scheduled, for example day and night OMs, with different distributions of WPs, if the load is different at different times of the day.

How to set Operation Modes? (1 admin can be in these transactions at once)

1. Plan
   - Analyze the working hours to know the number of OMs needed, and the schedule and distribution of WPs in them
2. Define the OM itself (***RZ04***)
   - Give it a name and short description
3. Define the distribution of WPs (***RZ04***)
4. Schedule (***SM63***)
   - Assign time intervals to the OMs (The whole 0-24 day must be covered with OMs)

RZ04 – Maintaining OMs

- Upper left [Create Operation Mode] button
  - Operation mode: Name of OM (e.g. Test01)
  - Short description
  - [Save]
- Upper left [Instances/operation modes] button
  - Double click on "Exam01" (or something like this, any entry in the list is good) in list
    - Click [Other operation mode] at the bottom
    - Set the 'Operation mode' name to Test01 with the select button () on the right of the input field
    - Click in the 'Dialog' and 'Background' process input fields and change their values with the [+] and [–] buttons at the bottom
    - [Save] at the bottom
  - [Save] and exit to main menu

SM63 – Scheduling OMs

- "Normal operation (24h)" → [Change] button
- Click on the time when you want your Test01 OM to START → F2 button on keyboard
- Click on the time when you want your Test01 OM to END → F2 button on keyboard
- [Assign] button at the top
  - Choose the Test01 Operation mode in the popup window → [✓] button
- [Save] and exit

Switching between OMs manually

RZ03

- [Choose operation mode] button at the top
- Click on Test01
- [Choose] button at the top

User Administration (UA)

Tasks of the AU:

- Create, change, delete users
- Deactivating users
- Create naming conventions
- Create user templates

User creation

Documentation:

- User request form
  - Username
  - Personal info (name, address)
  - Requested authorization
  - Department (position there)
    + signature of the leader of the department
  - Signature of the user
  - Signature of the admin
  - Date and time of
    - the creation
    - the validity

How can we create a new user?

1. Create a new user (typically for template) (***SU01***)
2. Copy template or existing user (***SU01***)
3. Mass maintenance (***SU10***)
   - Create in batch (more at a time)
   - Delete in batch
   - Lock/unlock in batch (for a certain area of the system for system maintenances)
   - Change/set user groups
   - Set the defaults
   - Set validity period

1. Create a new user template
   Name: *TSUPER##TEST*, given authorization: SAP_ALL
   SU01
   - User: Enter name of the new template (*TSUPER##TEST*)
   - [Create] button at the top
     - Address tab:
       - Last name is needed only
     - Logon data tab:
       - Initial password
     - Profiles tab
       - In the first cell enter SAP_ALL, press Enter
     - [Save]

2. Create a new user (*EMP01U##TEST*) by copying a user template (*TSUPER##TEST*)
   SU01
   - User: Enter name of the new user (*EMP01U##TEST*)
   - [Copy] button at the top
     - From *TSUPER##TEST*
     - To *EMP01U##TEST*
     - [Copy] button at the bottom
       - Initial password
       - [Save]

3. Mass maintenance/create
   Create 3 new users (*EMP02U##TEST*, *EMP03U##TEST*, *EMP04U##TEST*) by copying *TSUPER##TEST* ((This copying doesn't really happen))
   SU10
   - In the first column enter the new users' names
     - *EMP02U##TEST*
     - *EMP03U##TEST*
     - *EMP04U##TEST*
       - [Create] button at the top left corner
         - Profiles tab
           - In the first cell enter SAP_ALL, press Enter
           - [Save], [Yes]
             - Here is a report with the initial passwords of the users
             - Double click on the 'Date and time' line
             - [Export] button () at the bottom middle → Local file
               - Spreadsheet → [✓]
               - Give name and extension to the file (pass.CSV)
               - [Generate] → [Allow]

User Groups

Def.: a logical summary of users

- A user can belong to several groups
- A user can only be assigned to a group that was previously crated (so you can't create a group in the user maintenance window)

Special user groups:

- TERM: group for terminating users (deleting them)
- SUPER: for administrators (users with full authorizations)
- TEMPLATE: for template users to set up actual users

Ways to assign users to groups:

- When creating a group, you must assign at least one user to it
- Within the user maintenance transaction
- Within the user mass maintenance transaction

Create user group:

Create *TERM##TEST* user group with the 4 already existing users in it (*EMP01U##TEST* ... *EMP04U##TEST*)

SUGR

- User group: Name of the user group (*TERM##TEST*)
- [Create]
  - Text: Short description
  - Write the users' names in the first column
  - [Save]

Adding a user to a group:

SU01

- User: User's name
- [Change] button
  - Groups tab
    - Enter the User group's name in the first cell
    - [Save]

Authorization role

- A way to assign authorization profiles to the users
- Up-to-date form for assigning authorization to users

(Role concept: to collect authorizations required for a specific task/position)

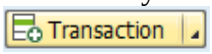
Types of authorization roles:

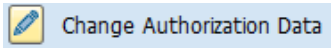
- Single role – collection of required authorization profiles for a particular position
- Composite role – collection of single roles

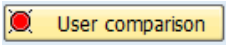
Creation of Single role

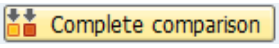
Role name: *ZUSERMTN##TEST*, authorized transactions: {SU01, SU10, SUGR}, assigned user: *EMP01U##TEST*

PFCG

- Role: Name of the role (*ZUSERMTN##TEST*) → ENTER
- [Single Role] button to the right
  - Description: short description of the role
  - The red star-like symbols () on the tabs mean they are not finished
  - Menu tab (Click [yes] to save)
    - It is to create the easy access menu to the users with this role
    - Click the 

button
      - Enter the transaction names that the user with this role can run
      - SU01, SU10, SUGR → [Assign transactions] button
    - You can also create folders to organize the transactions with the [Create folder] button, and drag the transactions into them one by one
  - Authorizations tab
    - Click the  button
    - Click the 

button, click [yes]
      - Click on the first yellow symbol () in the list, if there is any
      - Click the [✓]
      - Do this with other(s) yellow symbol(s) as well
      - If done [Save], and click  , then go back
  - User tab
    - Here you enter the users that need to be assigned to this role
    - Enter *EMP01Z##TEST* in the first cell, press ENTER
    - Click 

button, 

button, [Yes]
  - [Save] and exit

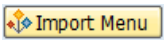
!) Create 2 more Single roles:

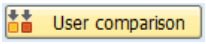
- *ZMONITORING##TEST* (transactions: {RZ20}, assigned user: *EMP02U##TEST*)
- *ZSYSMTN##TEST* (transactions: {RZ10, RZ11}, assigned user: *EMP03U##TEST*)

Creation of Composite role

Rolne name: *ZMONANDMTN##TEST*, assigned user: *EMP04U##TEST*, single roles: {*ZMONITORING##TEST*, *ZSYSMTN##TEST*}

PFCG

- Role: Name of the role (*ZMONANDMTN##TEST*) → ENTER
- [Comp. Role] button to the right
  - Description: short description of the role
  - Roles tab (Click [yes] to save)
    - In the first cell: *ZSYSMTN##TEST* → ENTER
    - In the second cell: *ZMONITORING##TEST* → ENTER
  - Menu tab
    - Click 

button, [yes]
  - User tab
    - Enter *EMP04U##TEST* in the first cell, press ENTER
    - Click 

button, [yes]
  - [Save]

Authorization trace

Def.: logfile/report of the successful and unsuccessful transaction executions of a user (based on whether they had the authorization to run something or not)

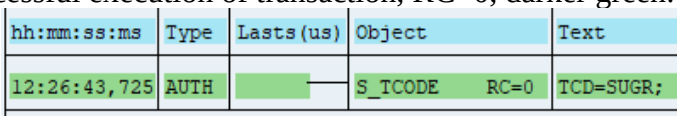
Turn the authorization trace on and off

ST01 → [Trace on] and [Trace off] buttons on the top left

Listing the authorization traces of the users

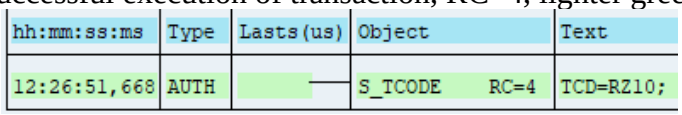
ST01

- Click the Analysis button
  - User name: the user's name you want to check the traces of (you can try: EMP01U10)
  - 'From' and 'To': time period of the trace check
  - [Start Reporting] button on the top left corner
  - Successful execution of transaction, RC=0, darker green:



hh:mm:ss:ms	Type	Lasts(us)	Object	Text
12:26:43,725	AUTH		S_TCODE RC=0	TCD=SUGR;

  - Unsuccessful execution of transaction, RC=4, lighter green:



hh:mm:ss:ms	Type	Lasts(us)	Object	Text
12:26:51,668	AUTH		S_TCODE RC=4	TCD=RZ10;

Profile parameters

What are profile parameters used for?

To control basic technical settings, e.g.:

- Total number of work processes
- Different password requirements
- Allows of multiply logins
- etc.

Types:

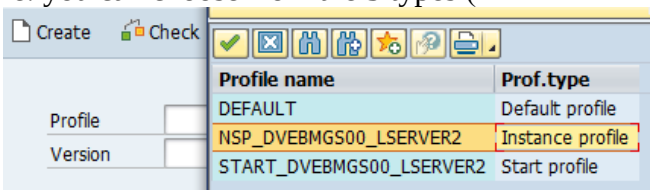
- start profile
  - services that should be started when starting the SAP
- default profile
  - parameters that must be identical for all instances
- instance profile
  - configuration of a particular instance

Steps of changing a profile parameter

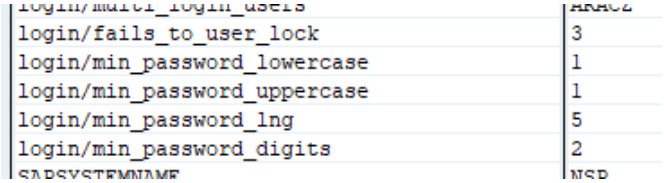
1. Creating a backup (***RSPFPAR***)
2. Check the documentation of the profile parameter (which are the allowed values, dependent parameters) (***RZ10***)
3. Set the new value and copy it into the profile parameter (***RZ10***)
4. Activate and save
5. [Restart the system if required]

RZ10 – checking the contents (profile parameters) of the 3 types of profiles

- Profile: you can choose from the 3 types (choose now the 'Instance profile')



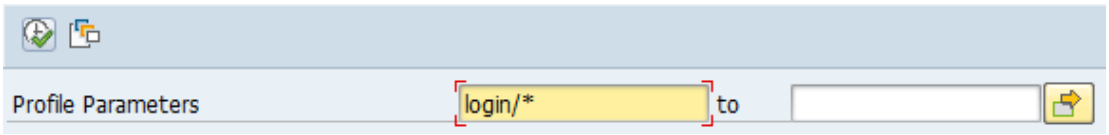
- Choose the "Extended maintenance" radio button
- [Display] button

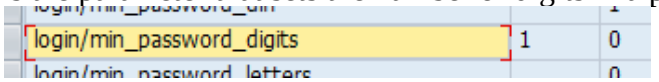


  - Double click on a row to display the history of how its value was changed by the users

Task: search for a parameter that has to do with a topic (like "login")

RSPFPAR

- 

- [Execute] on the top left
- ?) What is the parameter that sets the number of digits in a password?
  - 

  - Double click on the Parameter name
    - [ ] button on the bottom right → documentation of the parameter
    - Scroll down in the documentation window → Dependent parameters and Valid input of the parameter:

```
Other Parameters Affected or Dependent:
- login/min_password_lng
- login/min_password_diff
- login/min_password_letters
- login/min_password_specials
- login/min_password_lowercase
- login/min_password_uppercase
- login/disable_password_logon
- login/password_charset
- login/password_downwards_compatibility
- login/password_compliance_to_current_policy
```

```
Valid Input, Formats, Areas : 0 - 40
(if login/password_downwards_compatibility = 5 : only 0 - 8)
```

Change a parameter

Task: change the minimum number of digits in a parameter to 3.

1. Create backup (already have it)
2. Check the parameter's documentation (we did that in the previous task in ***RSPFPAR***)
3. In ***RZ10***:
    - Choose the 'Instance' profile
    - Choose 'Extended maintenance' radio button
    - [Change] button
        - Double click on 'login/min_password_digits'
            - Set the Parameter value to 3
            - [Copy] button on the top left corner
            - Go back
            - [Copy] button on the top left corner
            - Go back (you need to be on the "Edit profiles" screen)
4. [Save]
    - "Do you want to display incorrect values?" → [No]
    - "Do you want to activate the profile?" → [Yes]
    - [✓] to continue
    - [✓] to continue
    - "Do you want to perform a consistency check?" → Double click on <No>

Background jobs

Def.: reports that are executed without user interaction, whether it is logged in or not.

Advantages:

- Jobs can be executed after work hours
- Execution without locking a user session
- Can be scheduled and automatically repeated
- Jobs that take a lot of time are not canceled as soon as they exceed a certain time limit

Examples:

- Cleanup jobs
- Collecting information (performance, user) for statistics

Documentation of a background job:

- Creator of the background job
- Day and time of execution
- Contact person in case of errors
- Expected duration
- Restart or troubleshooting procedure manual

Remark:

If the user who created and scheduled the background job is locked or deleted, the background job will no longer be executed

- To avoid this use special users as creators
    - Like: BATCH_BC (system jobs)
      BATCH_FI (financial accounting)
      BATCH_WH (warehouse)

Steps of creating a background job:

1. Create the report(s)/code(s) and its variant(s) of which we want to schedule (in BCUSER - ***SE38***)
2. Define the background job (in ADM## - ***SM36***)
    - Name
    - Priority (A, B, C (highest to lowest))
    - Steps
    - Start conditions, period (monthly, weekly, daily)
        - Date and time
        - After a certain job/event
        - At the beginning of a certain operation mode
3. Monitoring (in ADM## - ***SM37***)

What is the variant of a report?

Def.: predefined setting of the input(s).

Example code (done in BCUSER – ***SE38***):

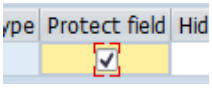
Report which lists the usernames and the lock status of the users, who have been inactive in the past [*input*] days.

```
TABLES: USR02.
PARAMETERS daysmin TYPE i.

SELECT * FROM USR02.
  IF SY-DATUM - USR02-TRDAT  >= daysmin.
    WRITE:/  USR02-BNAME.
    CASE USR02-UFLAG.
      WHEN 0.
        WRITE:  '- Not locked'.
      WHEN 32.
        WRITE:  '- Locked by central user administration'.
      WHEN 64.
        WRITE:  '- Locked by administrator'.
      WHEN 128.
        WRITE:  '- Locked by the system'.
    ENDCASE.
  ENDIF.
ENDSELECT.
```

Make variants of this code based on the input value

40 days → moderate time; 100 days → long time; 365 days → very long time

- Save and activate your previously written code
- Execute the code
- Enter the first input you want to save (40)
- [Save as Variant] button
    - Give name and description
    - Check in the 'Protected filed' checkbox: 

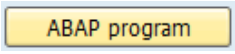
    - [Save]
- Go back to the code
- Start again from the "Execute the code", and do the same with 100 and 365.

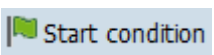
Edit a variant of a code:
SE38

- Enter the code's name
- Select the 'Variants' radio button
- [Change]
    - Select the variant you want to alter
    - [Change]
        - Change the input value
        - [Save]

Defining the background job (done in ADM##)
SM36

- Job name: background job's name
- Job class (priority)
- Click 

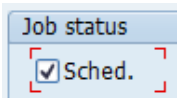
button
    - Click 

button
    - Name: name of the ABAP code where you saved your report and its variants
    - Variant: choose one with the  button
    - Click [Check] button at the bottom → no errors
    - Click [Print specifications] button at the bottom → set the output device to a printer's name in the network (LP01), [✓] button (maybe twice)
    - [Save] at the bottom
    - Go back
- Click 

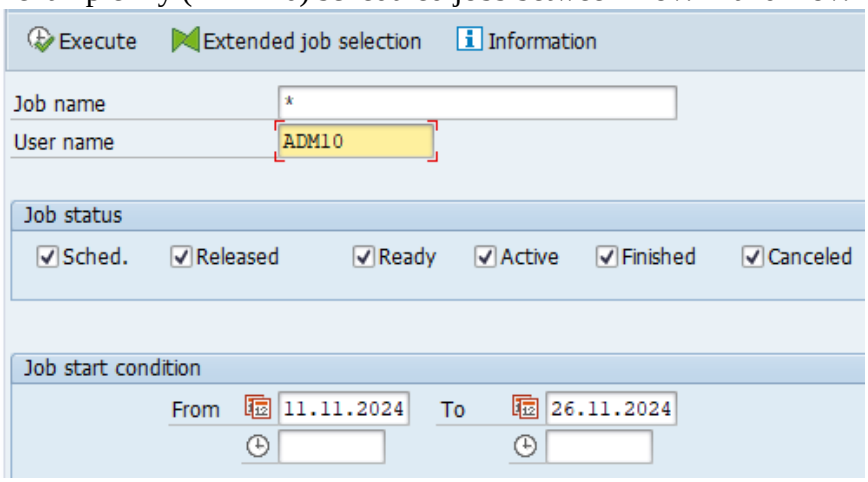
button
    - Click [Date/Time] button
    - Set the starting (and ending) dates
    - Click [Period values] button at the bottom to set whether the report should run hourly, daily, weekly, etc.
        - Choose one, [Check] and [Save] at the bottom
    - [Check] and [Save] at the bottom
- [Save]

Monitoring the background job (done in ADM##)

SM37

- Here you can set filters for: job name, creator's username, date and time interval, status of the job
- Check this Sched. checkbox: 

- For example my (ADM10) scheduled jobs between Nov.11 and Nov.26:



- [Execute] button

Job	Spool	Job doc	Job CreatedB	Status	Start date	Start time
INACTIVEU10			ADM10	Released		
INACTIVEUSERS10			ADM10	Released		
INACTIVEUSERS10			ADM10	Canceled	18.11.2024	20:00:17
INACTIVEUSERS10			ADM10	Finished	11.11.2024	20:00:40

  - The first 2 rows are "Released" background jobs, they haven't been executed
  - The 3rd row was cancelled
  - The 4th row was successfully done
  - By double clicking on the [ ] icon in a Finished job's row we can see the report's **output**
    - Click on a row
    - Click the button to see the output of the code
  - By clicking on a Canceled/Finished job's row and pressing the Job log button we can see the **job log**
  - By double clicking the name of a job (like INACTIVEUSERS##) we can see its details, like planned start and frequency, and job class. It DOES matter which line we double click, it will show different dates

Graphical job scheduling monitor

RZ01

- Double click on a green job symbol ( ) for the job's information

Some coding examples:

```
TABLES: agr_define, agr_users. "check tables in SE12
PARAMETERS rolename LIKE agr_define-agr_name. "input for a role name

SELECT * FROM agr_define WHERE agr_name = rolename.
   WRITE:/ agr_define-agr_name, '-', agr_define-create_dat.
   ULINE.
   SELECT * FROM agr_users WHERE agr_name = rolename ORDER BY from_dat.
      WRITE:/ agr_users-uname, ' - ', agr_users-from_dat.
   ENDSELECT.
ENDSELECT.

IF sy-subrc <> 0. "0, if previous statement (SELECT listed at least 1 record) was succesful
   MESSAGE e004(zmessadm##) WITH rolename. "status bar error, or i004() for an info box
ENDIF.

############################################

TABLES: agr_users, usr02.
PARAMETERS myuser LIKE agr_users-uname.

"What roles does the user have?
SELECT * FROM agr_users WHERE uname = myuser.
   WRITE: 'Roles of ', myuser, ':'.
   WRITE: / agr_users-agr_name.
ENDSELECT.

"Is the user locked?
SELECT * FROM usr02 WHERE bname = myuser.
   IF usr02-uflag = 0.
      MESSAGE E003(ZMESSADM##) with myuser. "User not locked "SE91 to change message
                                              or double click on message name
   ELSEIF usr02-uflag = 64 OR usr02-uflag = 128.
      MESSAGE E002(ZMESSADM##) with myuser. "User locked
   ENDIF.
ENDSELECT.

############################################

"What are the parameters with the highest version number (tpfet-versnr)?
TABLES: tpfet.
DATA max_vn LIKE tpfet-versnr.

SELECT MAX( versnr ) FROM tpfet INTO max_vn. "only one returned value, not a loop,
                                               no endselect needed

WRITE: 'Highest version number: ', max_vn.

SELECT * FROM tpfet
   WHERE versnr = max_vn.
   WRITE:/ tpfet-parname.
ENDSELECT.
```