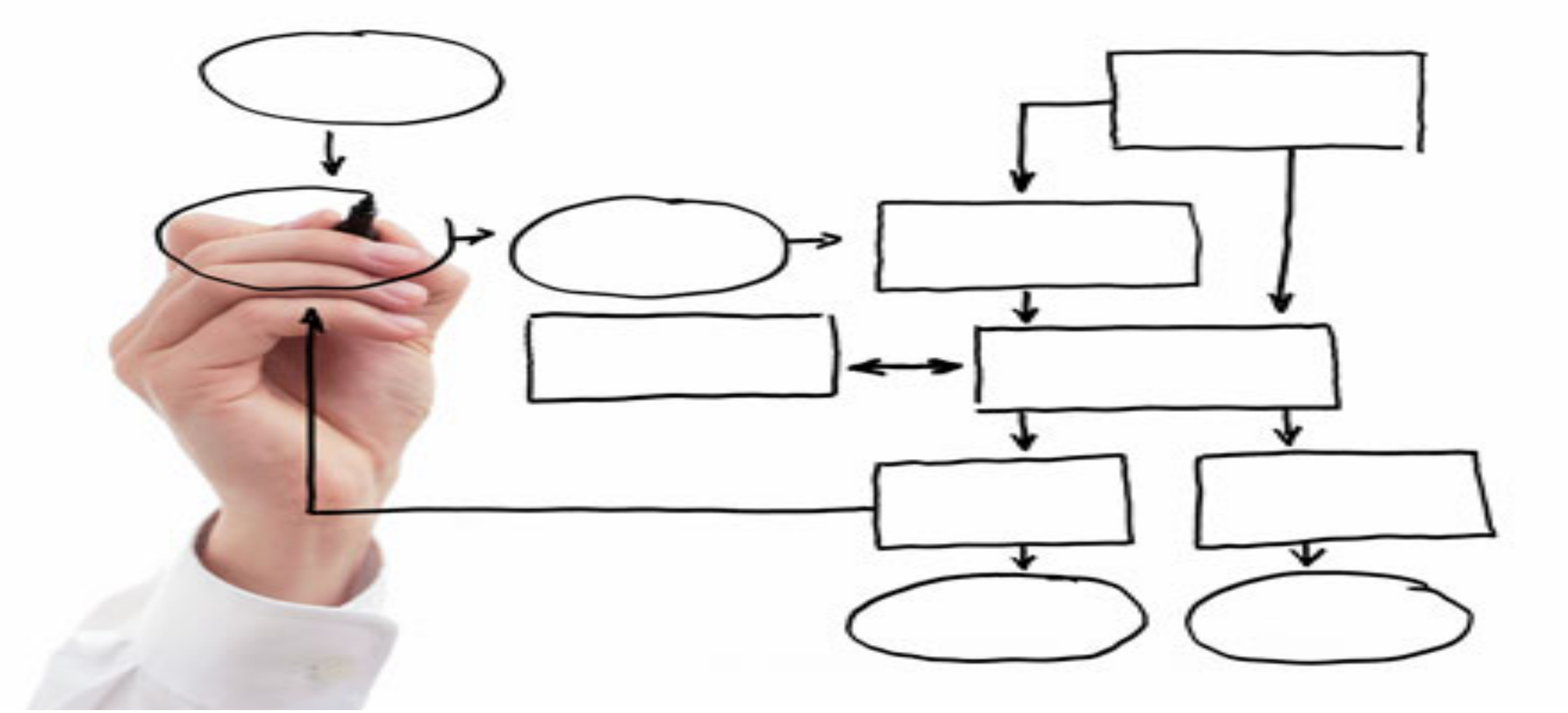

MIS 5121: Business Process, ERP Systems & Controls

Week 9: *Security: User Management, Segregation of Duties (SOD)*

FOX | MIS
Management Information Systems

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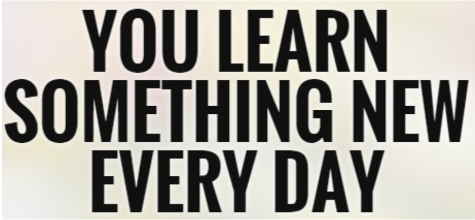
ff

Video: Record the Class

Discussion

❖ Something really new, different you learned in this course in last week



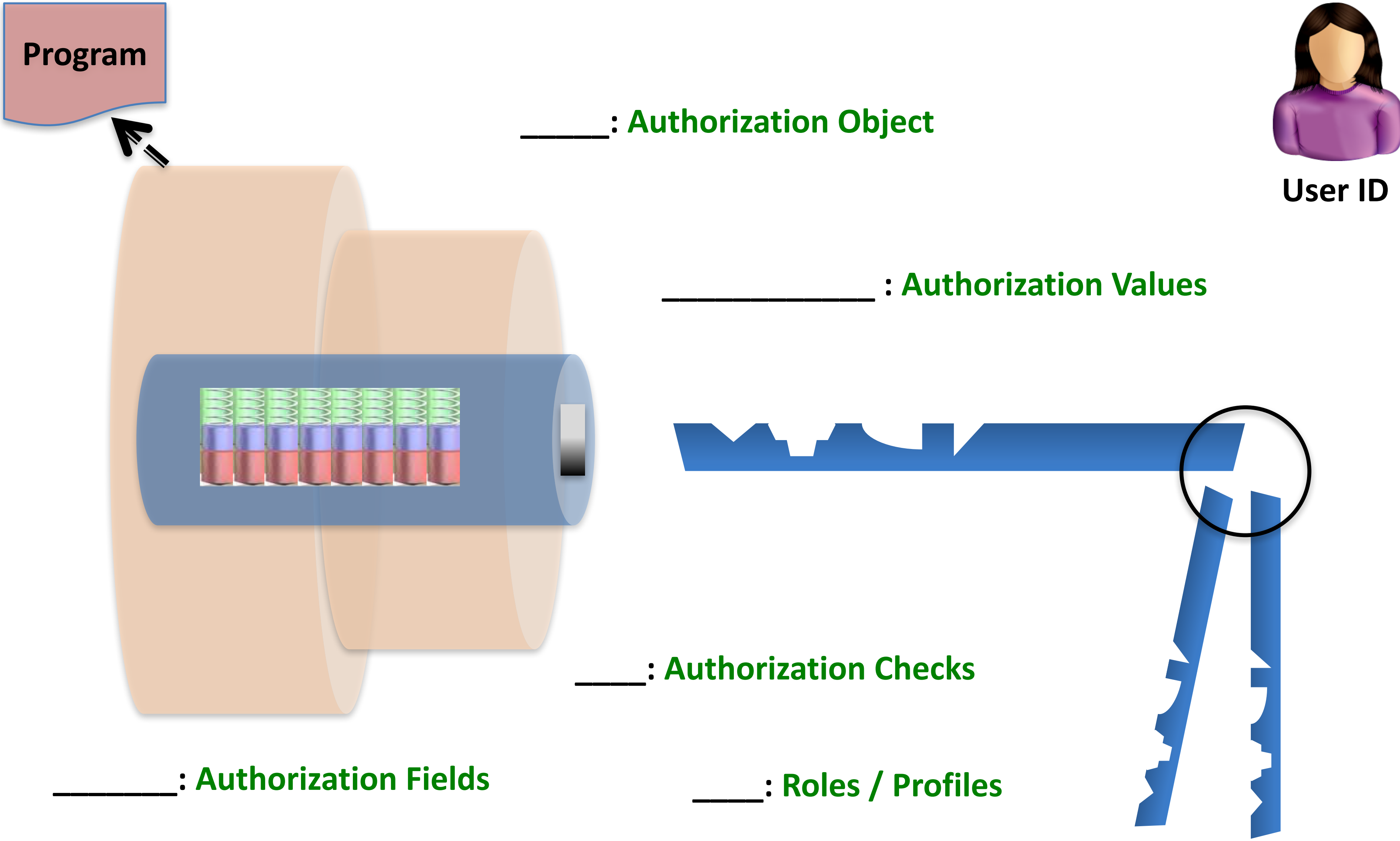
YOU LEARN SOMETHING NEW EVERY DAY

❖ Questions you have about this week's content (readings, videos, links, …)?

❖ Question still in your mind, something not adequately answered in prior readings or classes?

Security (Continued): User Management

SAP Security: Review



Program

User ID

_____: Authorization Object

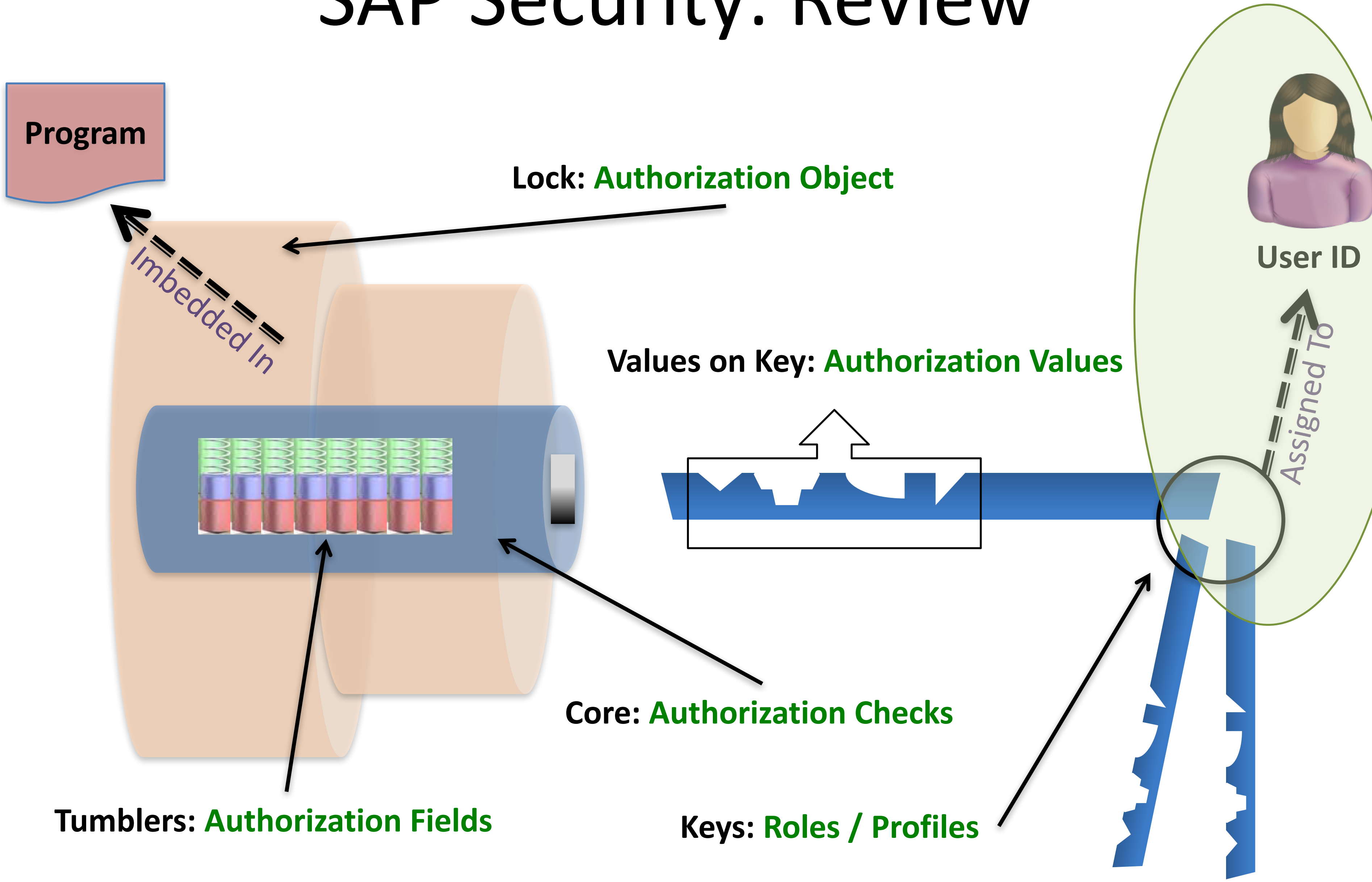
____________ : Authorization Values

____: Authorization Checks

_______: Authorization Fields

____: Roles / Profiles

SAP Security: Review



Lock: Authorization Object

Values on Key: Authorization Values

Core: Authorization Checks

Tumblers: Authorization Fields

Keys: Roles / Profiles

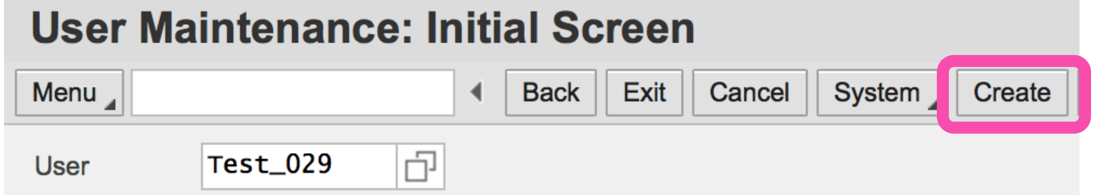
User Administration – SU01

User ID

User Master Record

- Key: User ID *(Same as for other Systems?)*
- Contains privileges of the user
- Roles (and related profiles) assigned
- During SAP logon all assigned authorizations loaded from master record into User Buffer
- Other Data:
  - Address, Contact Info
  - Default Date format, decimal format
  - User Parameter data (can be used to prepopulate Data)
  - User Groups

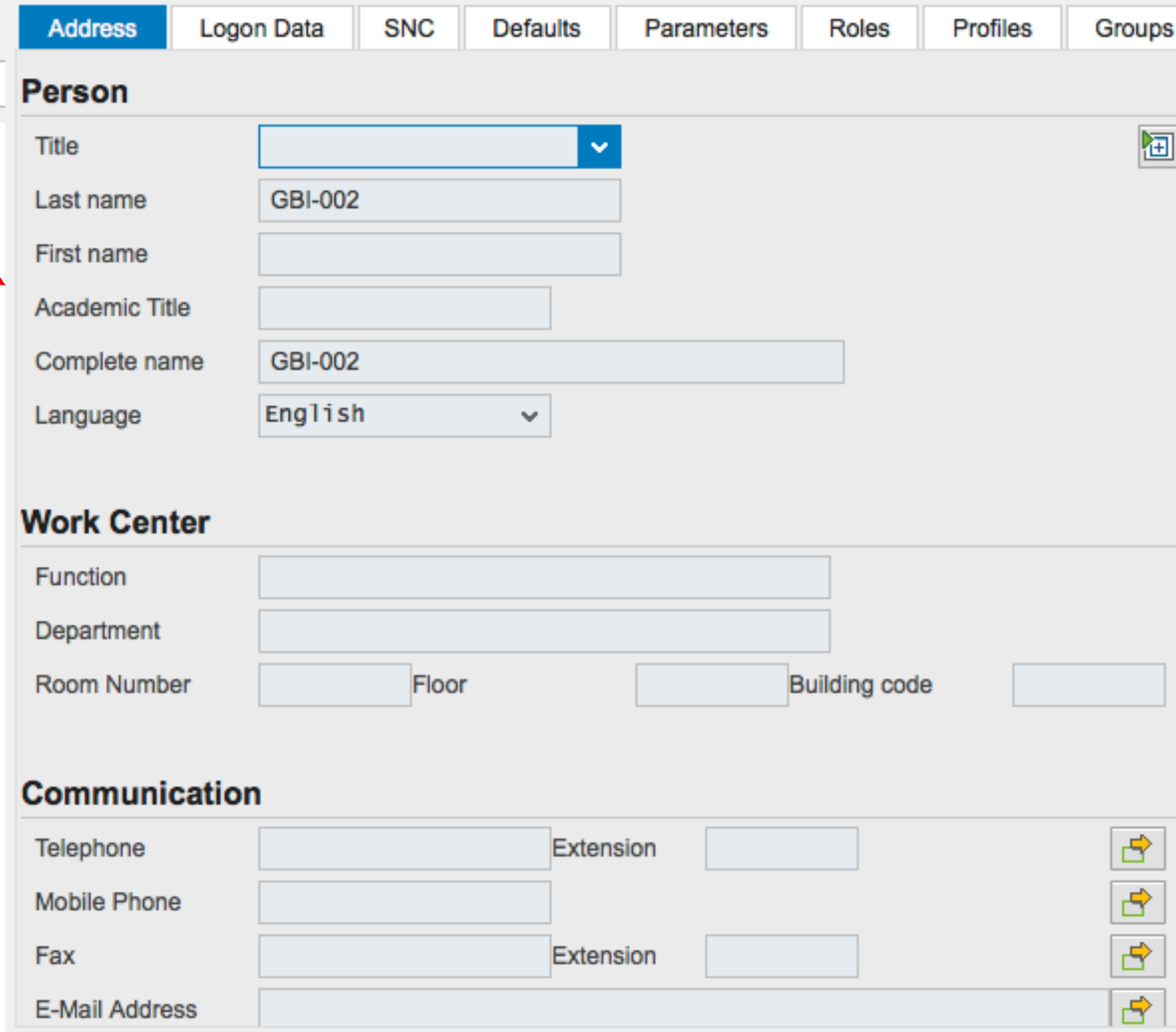
Create user ID – SU01



User Maintenance: Initial Screen

User: Test_029

Alias:



Person

Title:

Last name: GBI-002

First name:

Academic Title:

Complete name: GBI-002

Language: English

Work Center

Function:

Department:

Room Number: Floor: Building code:

Communication

Telephone: Extension:

Mobile Phone:

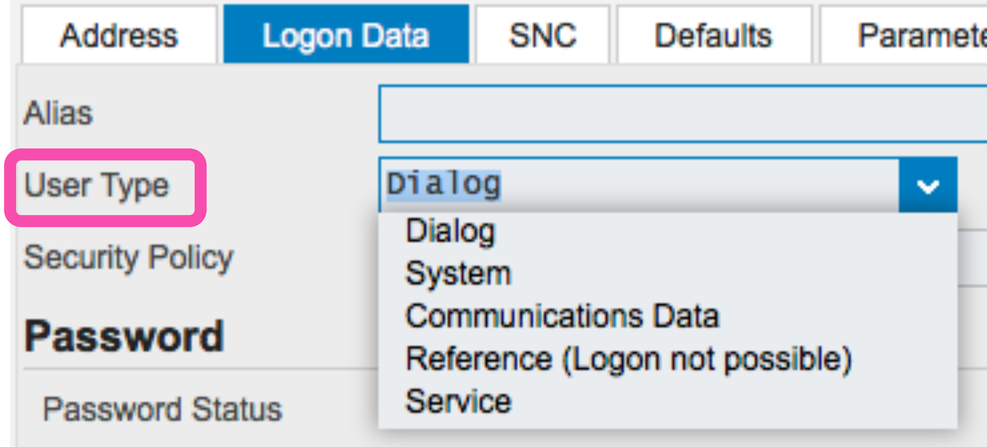
Fax: Extension:

E-Mail Address:

- Complete as many fields as possible (per user administration standards)
- Certain fields may be required

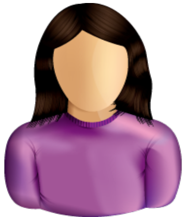
(F5)

Create user ID – SU01: User Type

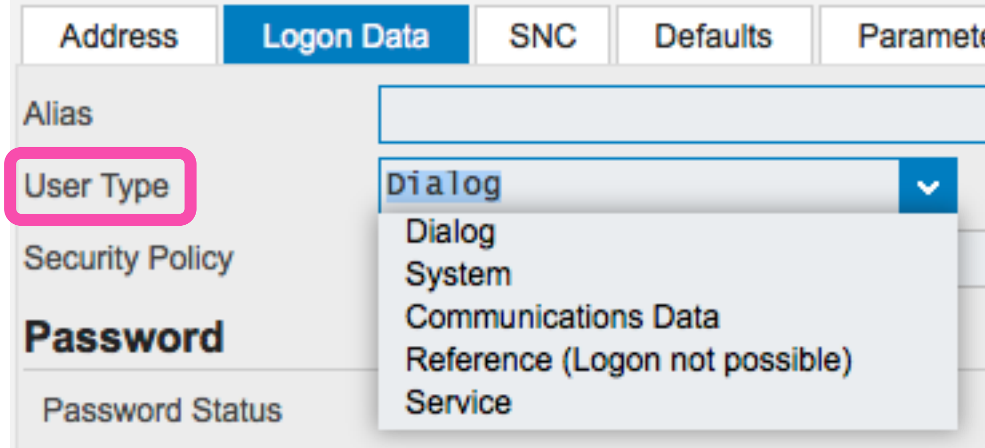


User Type: Dialog

- <u>Dialog</u> (A): Normal type user
  - Password enabled (check, change expired, …
  - Multiple logons checked and logged
- <u>System</u> (B): e.g. Batch User
  - Communication without dialog in one system or
  - Background processing in one system
  - Excluded from general password validity settings (change, expiration, etc.)
- <u>Communication</u> (C): Communication between systems (without dialog)
  - RFC or CPIC service users. E.g. ALE, Workflow, TMS, CUA



Create user ID – SU01: User Type



Address | Logon Data | SNC | Defaults | Paramete

Alias

User Type: Dialog

- Dialog
- System
- Communications Data
- Reference (Logon not possible)
- Service

Security Policy

Password

Password Status

- Reference (L):
  - General user
    not assigned to person
  - Cannot log on using Reference User
  - Used to equip Internet users with identical authorizations
- Service (S):
  - Required for dialog-free communication between central components of SAP via PI
  - Used by Java components of PI
  - PI (Process Integration) is SAP Netweaver integration tool
  - Used between SAP modules (e.g. ECC, GTS, CRM, SRM, …) and non-SAP applications
  - Generally this user is assigned very restricted authorizations

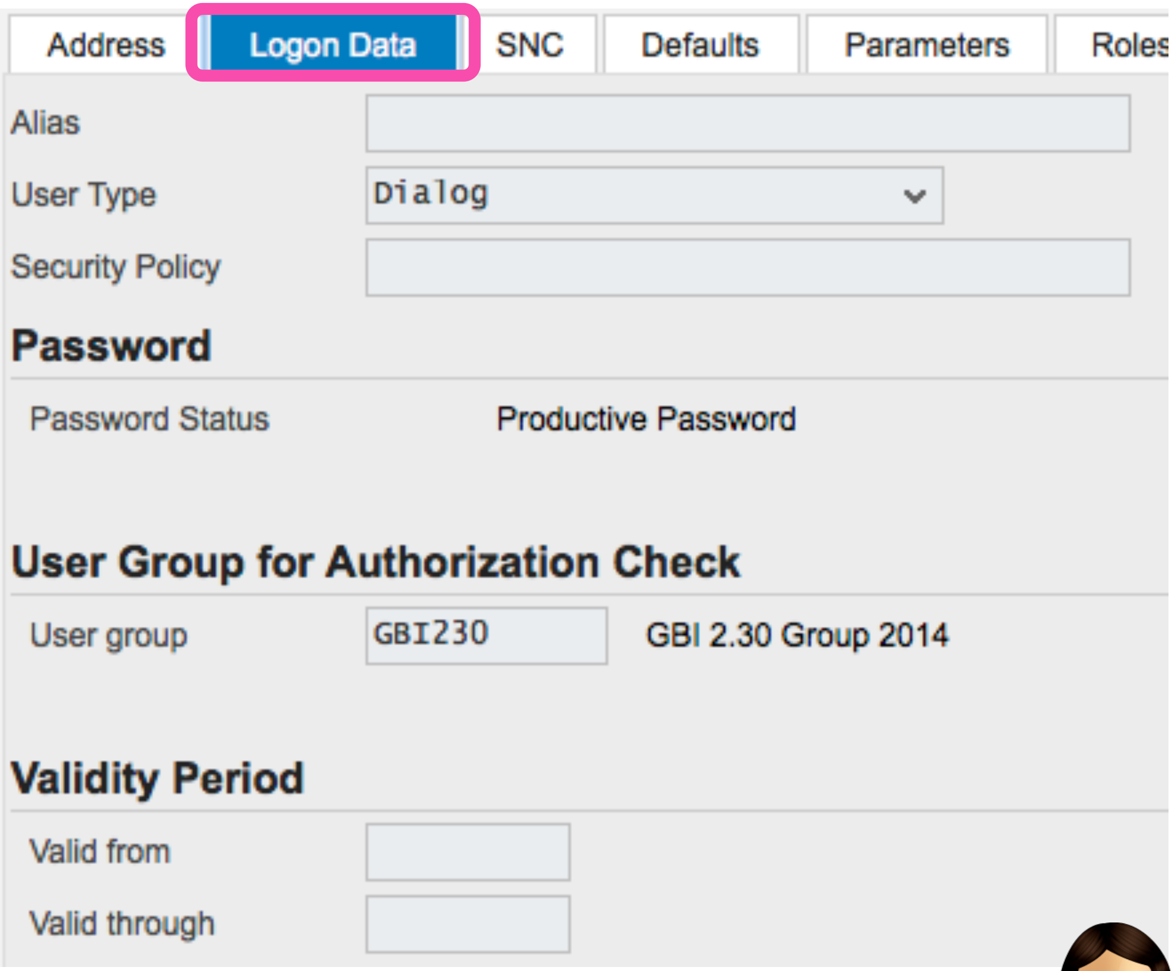
Create user ID – SU01: Logon Data

- Alias: Reference for internet applications / users. Max 40 characters

- Password: Initial password

- User Group: Department, country, …Can be used for security and in SUIM

- Validity Period: For temporary users (e.g. contractors)



Alias

User Type: Dialog

Security Policy

Password

Password Status: Productive Password

User Group for Authorization Check

User group: GBI230 GBI 2.30 Group 2014

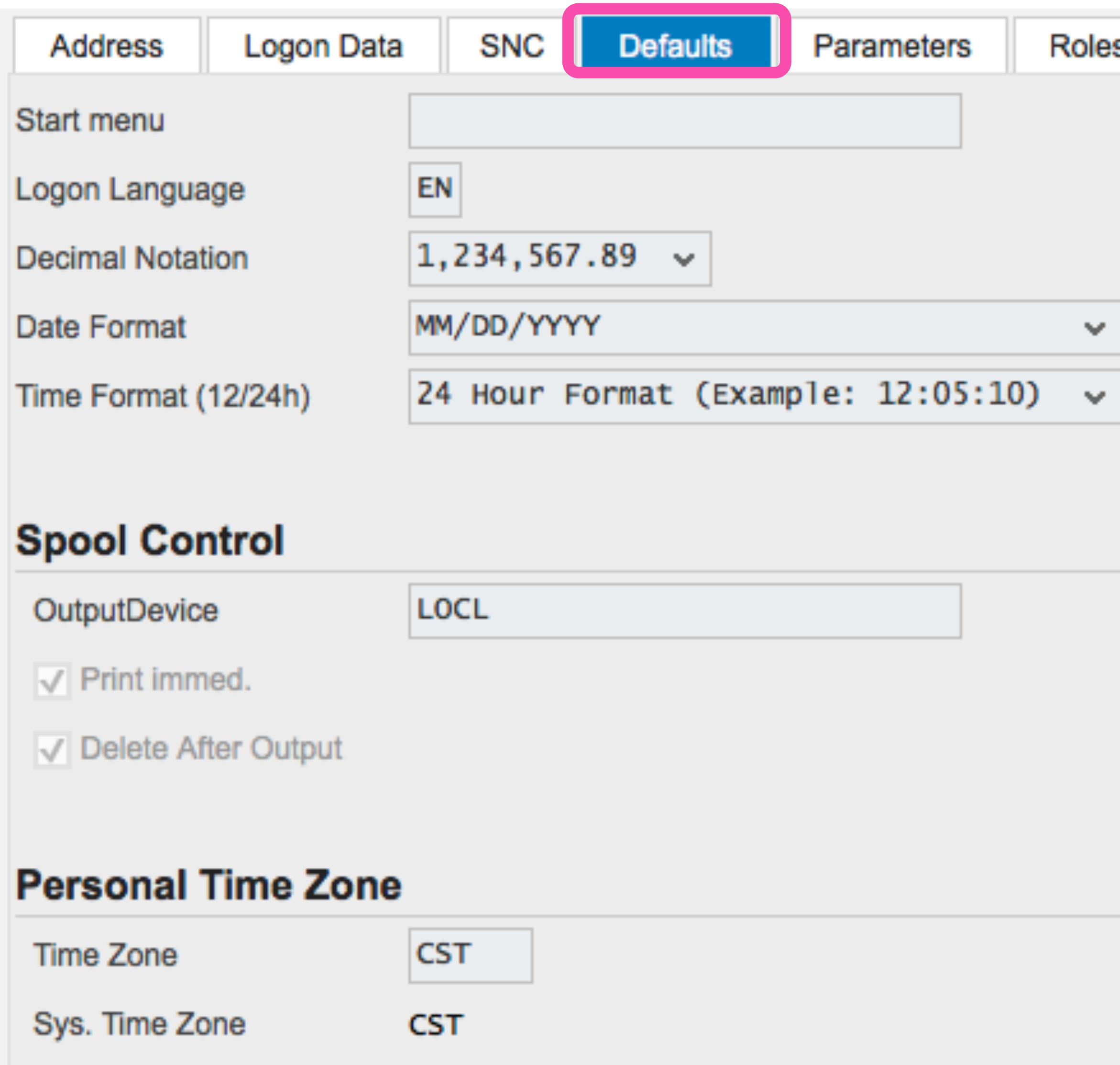
Validity Period

Valid from

Valid through

Create user ID – SU01: Defaults Tab

- Complete fields per User Administration Standards
- Formatting: Changes what appears on screen, not what's stored in system (display format only)
  - Language
  - Decimal Notation
  - Date Format
  - Time Format
- Output Device: Default printer / output parameters LOCL – uses PC's default printer (can be formatting issues)
- Time Zone: Display only? Note system time zone



Start menu	
Logon Language	EN
Decimal Notation	1,234,567.89
Date Format	MM/DD/YYYY
Time Format (12/24h)	24 Hour Format (Example: 12:05:10)

Spool Control

OutputDevice	LOCL

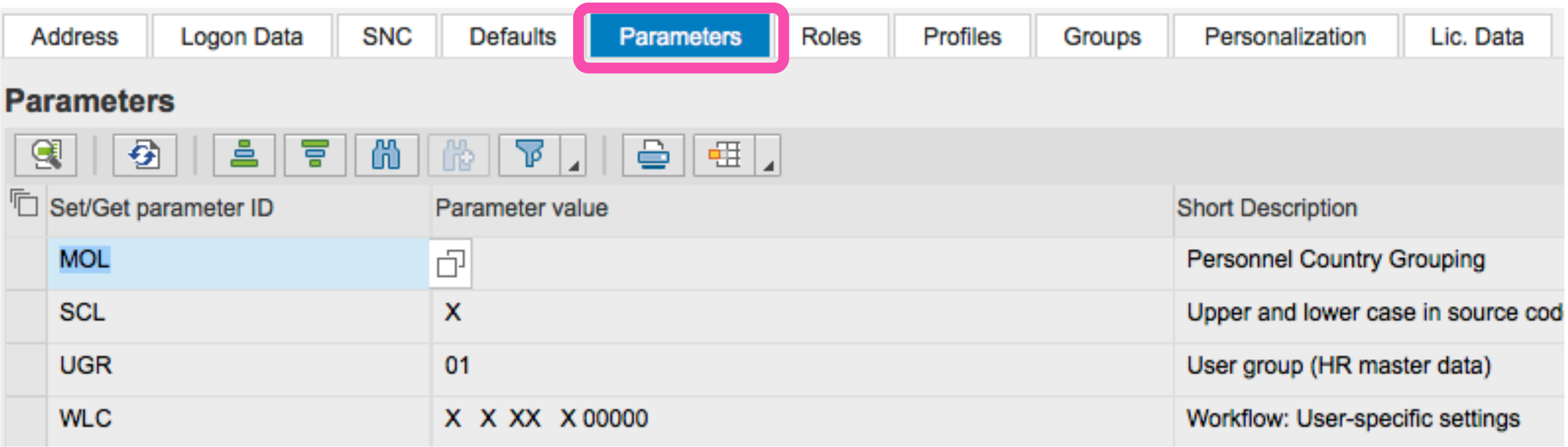
☑ Print immed.

☑ Delete After Output

Personal Time Zone

Time Zone	CST
Sys. Time Zone	CST

Create user ID – SU01: Parameters

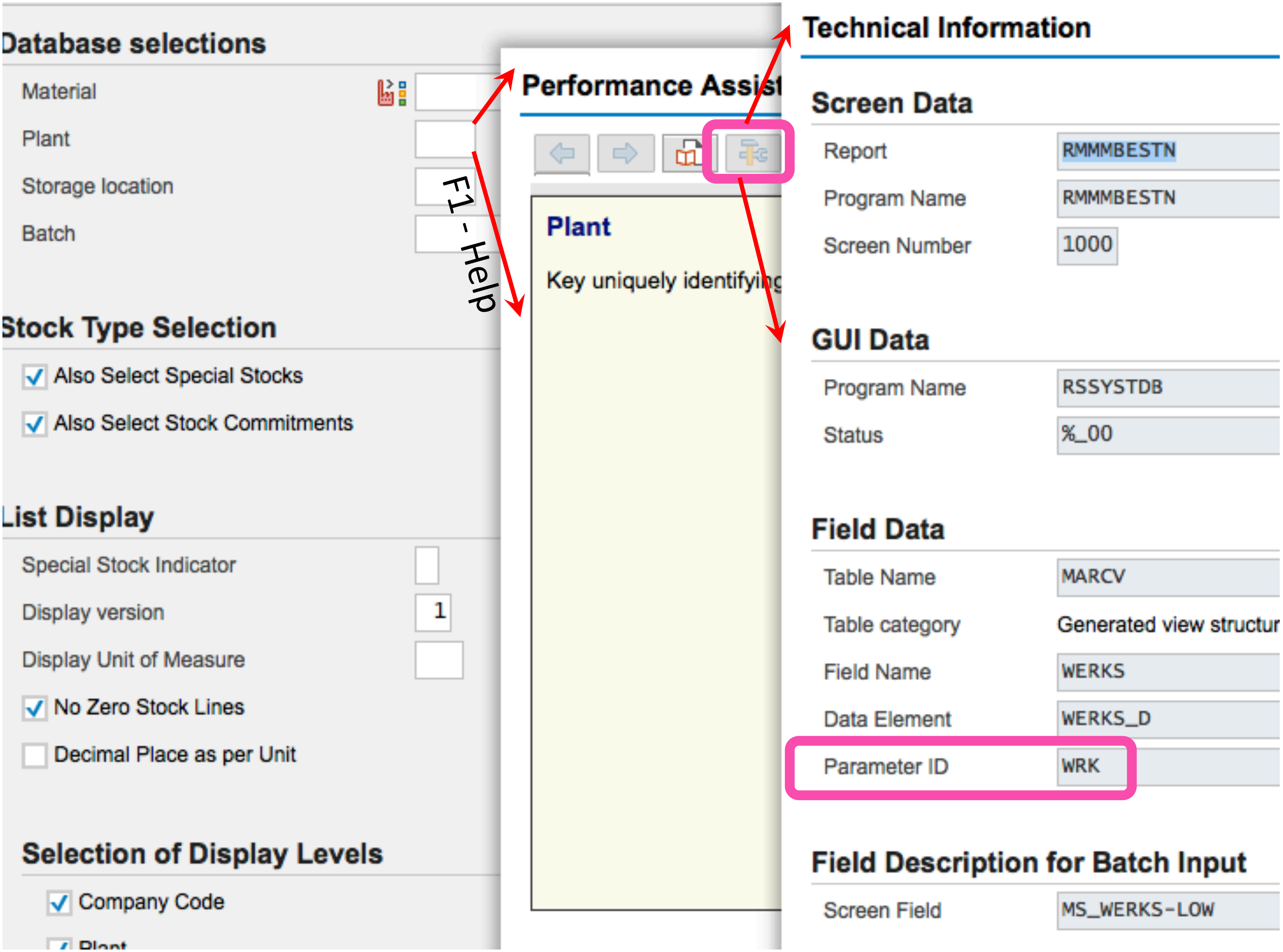


Parameters

Set/Get parameter ID	Parameter value	Short Description
MOL		Personnel Country Grouping
SCL	X	Upper and lower case in source cod
UGR	01	User group (HR master data)
WLC	X X XX X 00000	Workflow: User-specific settings

- Parameters: Screen independent data
- Usually linked to a field (e.g. plant, sales org, …)
- Useful to automatically provide a default value for a field
- Also used to manage via user settings how SAP works (e.g. ability to save OTC variants

Parameters: Most fields Have one



F1 - Help

Database selections

Material	
Plant	
Storage location	
Batch	

Stock Type Selection

☑ Also Select Special Stocks

☑ Also Select Stock Commitments

List Display

Special Stock Indicator	
Display version	1
Display Unit of Measure	

☑ No Zero Stock Lines

□ Decimal Place as per Unit

Selection of Display Levels

☑ Company Code

☑ Plant

Performance Assist

Plant

Key uniquely identifying

Technical Information

Screen Data

Report	RMMMBESTN
Program Name	RMMMBESTN
Screen Number	1000

GUI Data

Program Name	RSSYSTDB
Status	%_00

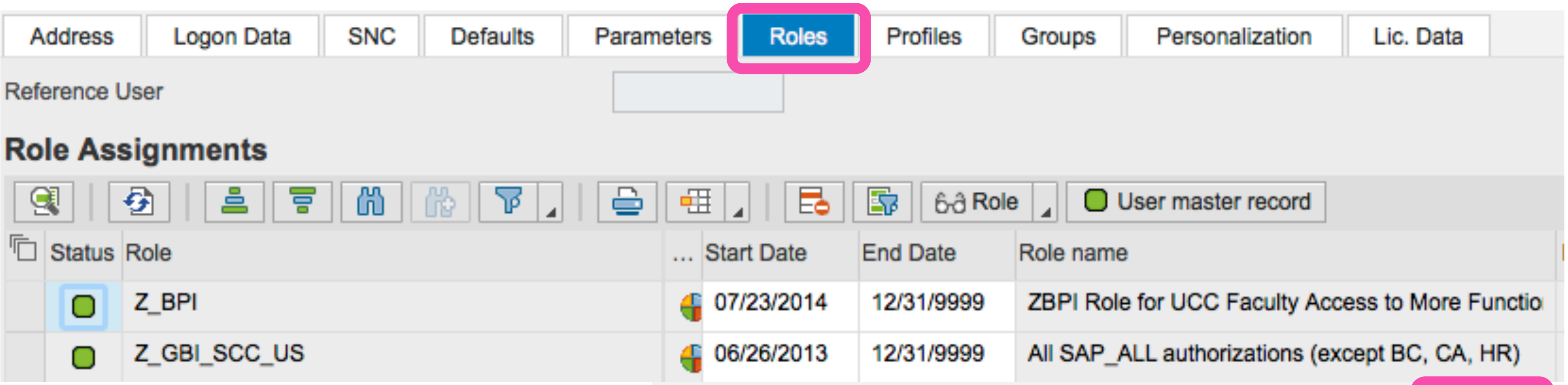
Field Data

Table Name	MARCV
Table category	Generated view structur
Field Name	WERKS
Data Element	WERKS_D
Parameter ID	WRK

Field Description for Batch Input

Screen Field	MS_WERKS-LOW

Create user ID – SU01: Roles / Profiles

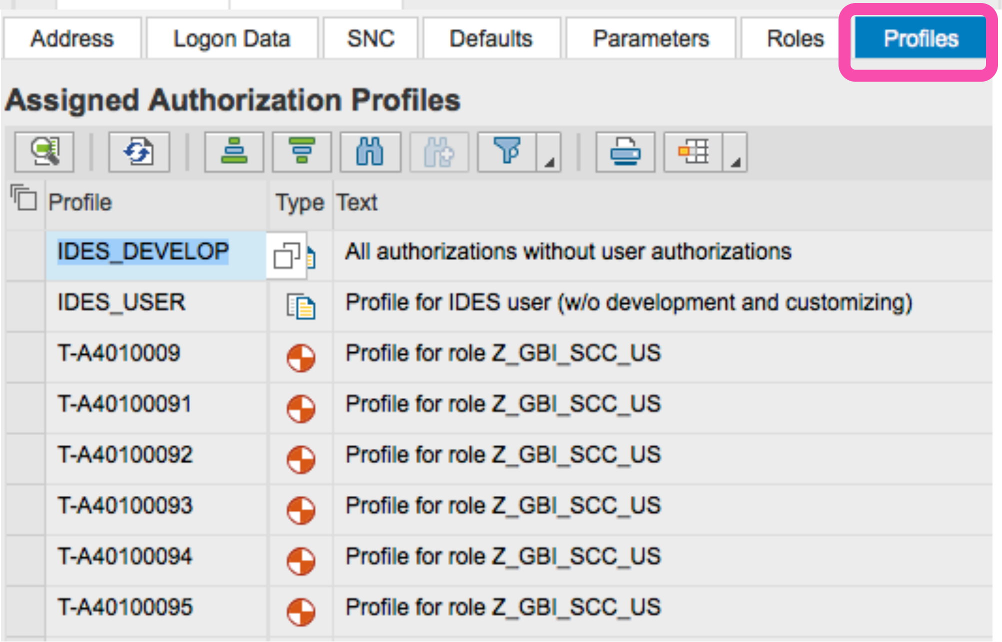


Reference User

Role Assignments

Status	Role	…	Start Date	End Date	Role name
🟩	Z_BPI		07/23/2014	12/31/9999	ZBPI Role for UCC Faculty Access to More Functio
🟩	Z_GBI_SCC_US		06/26/2013	12/31/9999	All SAP_ALL authorizations (except BC, CA, HR)

- Security Repository for User
- Note: Effective dates for Roles
- Profiles tab auto-populated based on Roles Assigned
- Details from these tabs pulled into User Buffer during Logon



Assigned Authorization Profiles

Profile	Type	Text
IDES_DEVELOP		All authorizations without user authorizations
IDES_USER		Profile for IDES user (w/o development and customizing)
T-A4010009		Profile for role Z_GBI_SCC_US
T-A40100091		Profile for role Z_GBI_SCC_US
T-A40100092		Profile for role Z_GBI_SCC_US
T-A40100093		Profile for role Z_GBI_SCC_US
T-A40100094		Profile for role Z_GBI_SCC_US
T-A40100095		Profile for role Z_GBI_SCC_US

Leftover Question: SAP Roles vs. Profiles

- Profiles: (e.g. T-I3550199 - Profile for role SAP_AUDITOR_ADMIN)
  - Only contain the authorization objects and values
  - Means of assigning authorizations prior to 4.0 versions that introduced Roles
  - Assignable to users in user master record
  - Max 150 authorizations in user master record

- Roles: (e.g. SAP_AUDITOR_ADMIN - AIS - Administration)
  - Includes assignment of transactions and related auth objects
  - During role creation (PFCG) when you select transactions, the related profiles are system generated (not directly assignable) to pull the auth objects to the role
  - Can be assigned to users

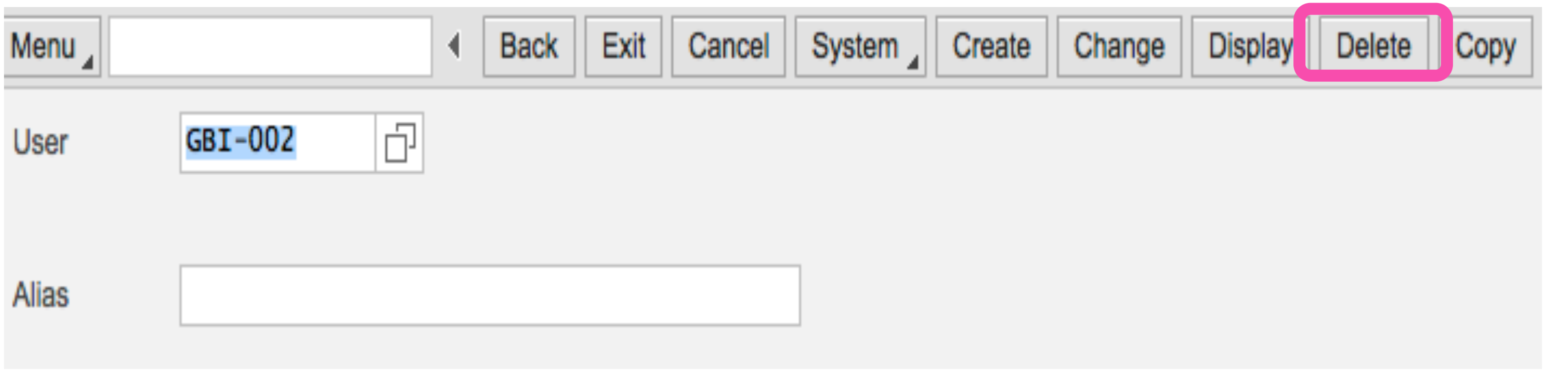
Leftover Question: SAP Roles vs. Profiles

- Positions: (e.g. ZSAP_AUDITOR - AIS - Audit Information System)
  - Defined grouping of roles
  - Can be assigned to User (which pulls along the roles)
  - Profiles cannot be assigned to a position

Delete user ID – SU01

- Deleting ID’s impacts items associated with ID
  - Parked documents
  - Workflow requests
  - Batch Jobs

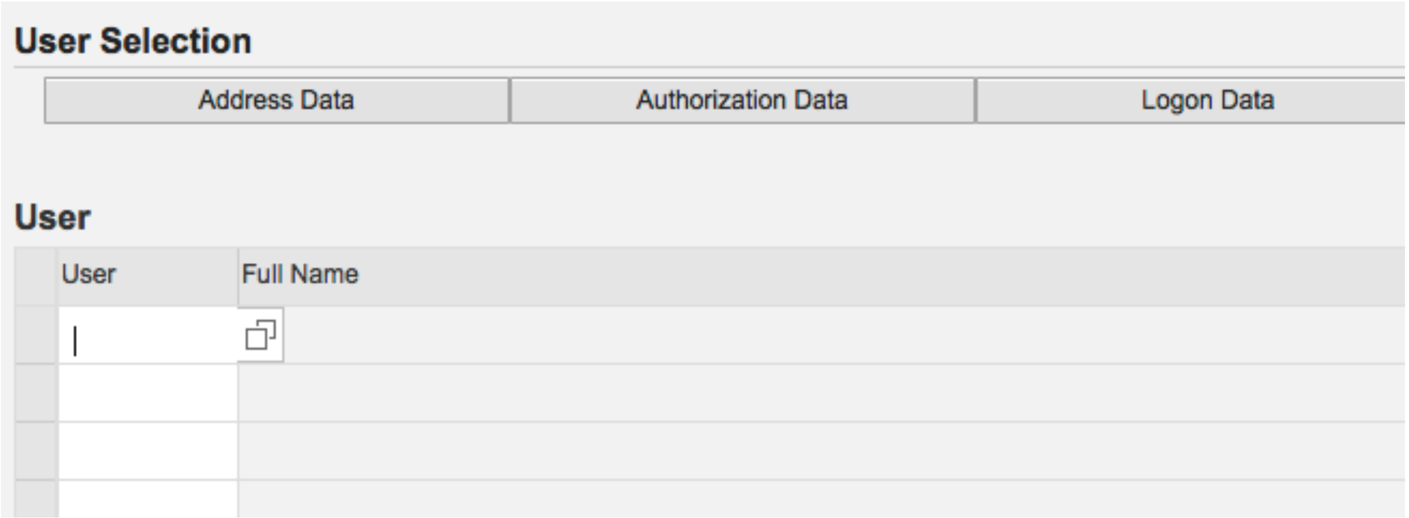
- Recommend inactivating rather than deleting in production (e.g. for defined transition period of time)
  - Inactivate by ‘Locking’ the user



User GBI-002

Alias

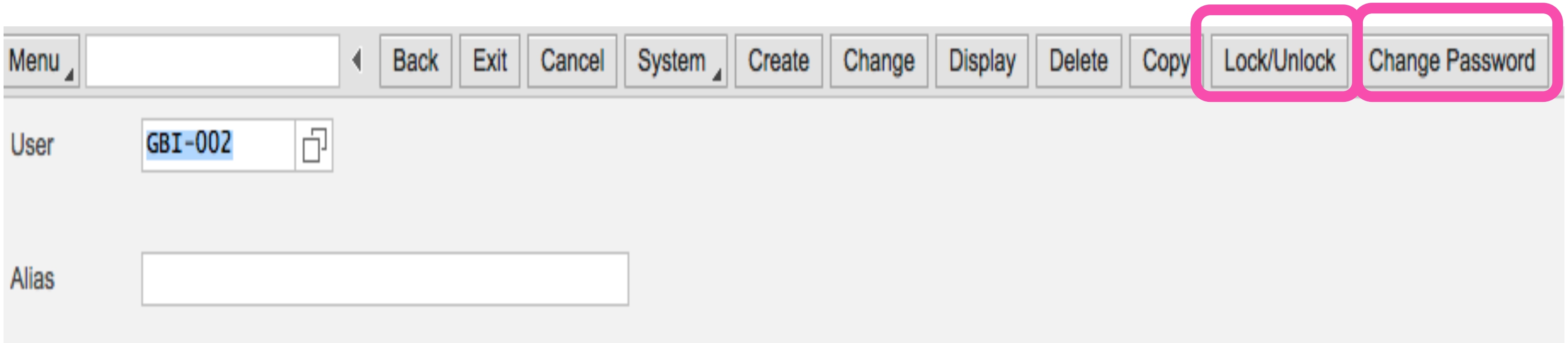
SU10: Mass User Maintenance



User	Full Name

- Same action – multiple IDs
- Limited data tabs (e.g. Address, Authorizations, …)
- When would you use?

SU01 / SU10: Lock / Unlock

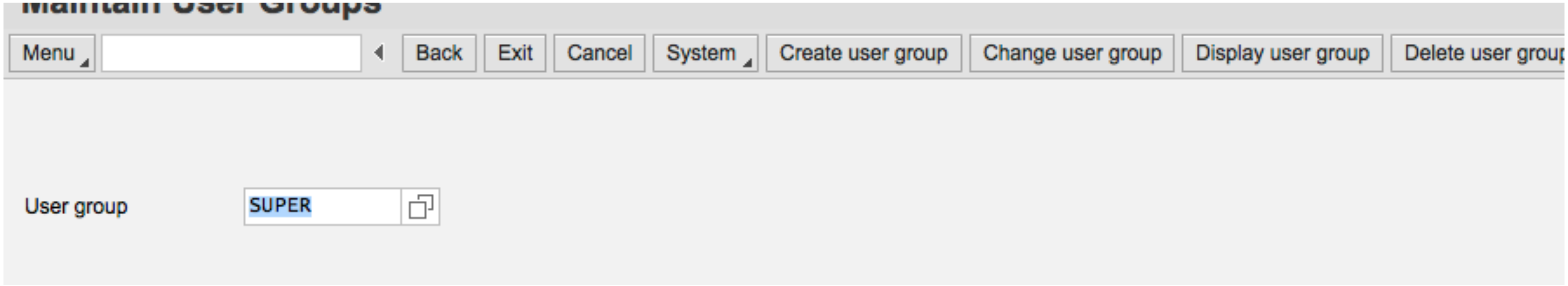


User GBI-002

Alias

- User / Password Administration
- Recommend Users manage their own passwords / sign-on credentials when possible
- Change password – for dialog users requires resetting at next logon session
- SU01 – single User ID
- SU10 – Multiple ID's

SUGR: User Groups



User group SUPER

- Define user groups with SUGR
- Assign Users to groups in SU01, SU10, ???
- Can do following with User Groups
  - Segregate users by technical teams (e.g. Basis, development, training, etc.) or process teams
  - Pull ID’s into SU10 (Mass Maintenance) by user groups
  - Reporting: can help with auditing

User Authentication

And You are Who ??!?

- Designed to protect system availability, integrity and privacy
- Authentication methods provided in SAP include:
  - Logon with password (Dialog user)
  - Secure Network Communications (SNC) (Single sign on?)
  - Client Certificates (interfaces?)
  - SAP Logon Tickets
  - Pluggable Authentication Services

Alignment of client policies and auditor judgment is important

Logon with Password Security

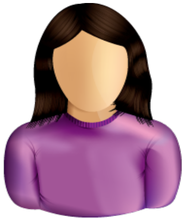
- Initial password must be assigned to user
- Passwords must meet internal requirements set by system (SAP Password Rules)
  - Cannot be more than 8 characters
  - First character not ‘ , ? or space
  - First three (3) characters not same order as User ID
  - First three (3) characters not identical
  - Password cannot be ‘Pass’ or ‘SAP’
  - User can change password maximum of once per day
  - User defined password cannot be same as last five (5) passwords

Logon with Password Security

Password parameters that Can be set by Customer (Customer Password Rules)

- May not be in a list of impermissible passwords (table USR40)
- Must be at least 6 characters long
  - System profile parameter *login/min_password_ing*
- At least one (1) character in the new password must be different from old password (can’t shuffle same characters)
  - *login/min_password_diff*
- Must be changed periodically (e.g. every 60 days)
  - *login/min_expiration_time*
- Password Contents
  - *login/min_password_uppercase*
  - *login/min_password_letters*
  - *login/min_password_specials*

  login/min_password_lowercase
  login/min_password_digits



Access Other than User ID / Password

Secure Network Communication (SNC)

- Available when using SAP GUI for Windows or Remote Function Call
- Uses external security product to authenticate

Client Certificates

- Used for Web applications such as SAP Web AS ABAP
- Authenticate by user presenting X.509 client certificate
- Authenticate takes place on Web server using Secure Sockets Layer (SSL) protocol
- Transfer of passwords not needed
- ‘Single Sign-On’

Access Other than User ID / Password

SAP Logon Tickets

- Single Sign-on to multiple SAP Systems
- Authenticate once and SAP logon ticket is issued
- Log in to other systems (SAP / non-SAP) via ticket

Pluggable Authentication

- Delegates authentication to external system
  - E.g. Windows Domain Controller or a Directory Server
- External system obtains SAP User ID from mapping table USREXTID
- If successful: User issued a logon ticket (see above)

User Management Overview

- User Types (examples, why different)
- User Maintenance (Create / Change / Delete)
  - Examples of data maintained and why
- Password Options
  - Couple Examples of SAP password rules and why useful
  - Couple Examples of Customer Password Rules (configuration options and why useful)

Security and
Segregation of Duties (SOD)

Segregation of Duties

Definition

‘ensuring that at least two individuals are responsible for the separate parts of a task’

Goal: prevent error and fraud

Segregation of Duties

Implementation

- Break down tasks that might reasonably be completed by a single individual into multiple tasks
- No one person is solely in control
- Prevent one person from having 2 of:
  - access to / custody of assets (operational responsibility)
  - Responsibility for asset's accounting / reconciling
  - Approval
- Prevent opportunity to commit and hide errors, fraud, theft

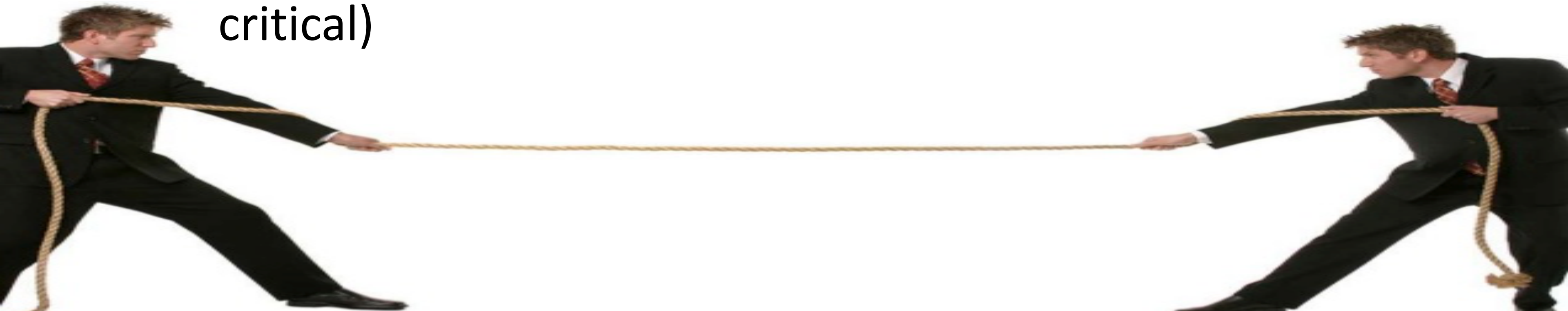
Segregation of Duties

Other names

- Separation of duties
- Four eyes / two-man / two-person principle: two individuals approve some action before it can be taken

Implications

- Break down can make process less efficient, require more people
- Choose where to implement (high risk, mission critical)



SOD Examples

Examples of SOD related risks **and** controls in each area discussed

- Procure to Pay Process
- Order to Cash Process
- Master Data
- Financial Processes
- Inventory

Person who ________________ should not be the person who ________________ .

SOD Examples

Procure to Pay

- Person who requisitions the purchase of goods or services should not be the person who approves the purchase.
- The person who approves the purchase of goods or services should not be the person who reconciles the monthly financial reports.
- The person who approves the purchase of goods or services should not be able to obtain custody of checks.

Order to Cash

- The person who negotiates Customer Prices should not be the person who approves the prices
- The person who negotiates or approves Customer Prices should not be the person who enters the prices used on orders
- The person who opens the mail and prepares a listing of checks received should not be the person who maintains the accounts receivable records.

SOD Examples

Master Data

- Person who creates / maintains customer master data should not be the person who processes customer orders or receives payment.
- Person who creates / maintains vendor master data should not be the person who processes purchase orders or processes vendor payments.

Financial Processes

- The person who approves journal entry values should not be the person who enters or reconciles the journal entries
- The person who maintains and reconciles the accounting records should not be able to obtain custody of checks.
- The person who opens the mail and prepares a listing of checks received should not be the person who makes the deposit.

SOD Examples

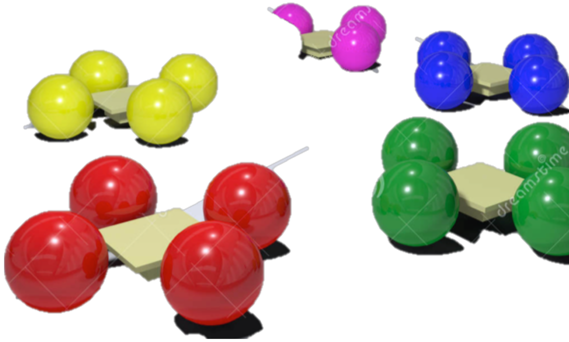
Inventory Controls

- Person who physically handles inventory should not be the person who enters inventory related transactions
- The person who counts inventory stock should not be the person who reconciles vs. system inventory records not enters inventory adjustments.

Segregation of Duties (SOD) Overview

- SOD Definitions
- SOD Implementation Concepts
- SOD Examples
  - 1 or 2 in each area
  - How phrased

Breakout Activity – Rules



- Break into teams – max of 5 people / team
  - Diversity a must.
- Assignment – return via WebEx Notes or Word Document
- How: WebEx breakout?
- Time: assigned today 20 min (including break)
  - Start back **on-time**

Breakout Question

Security

What has been your Experience?

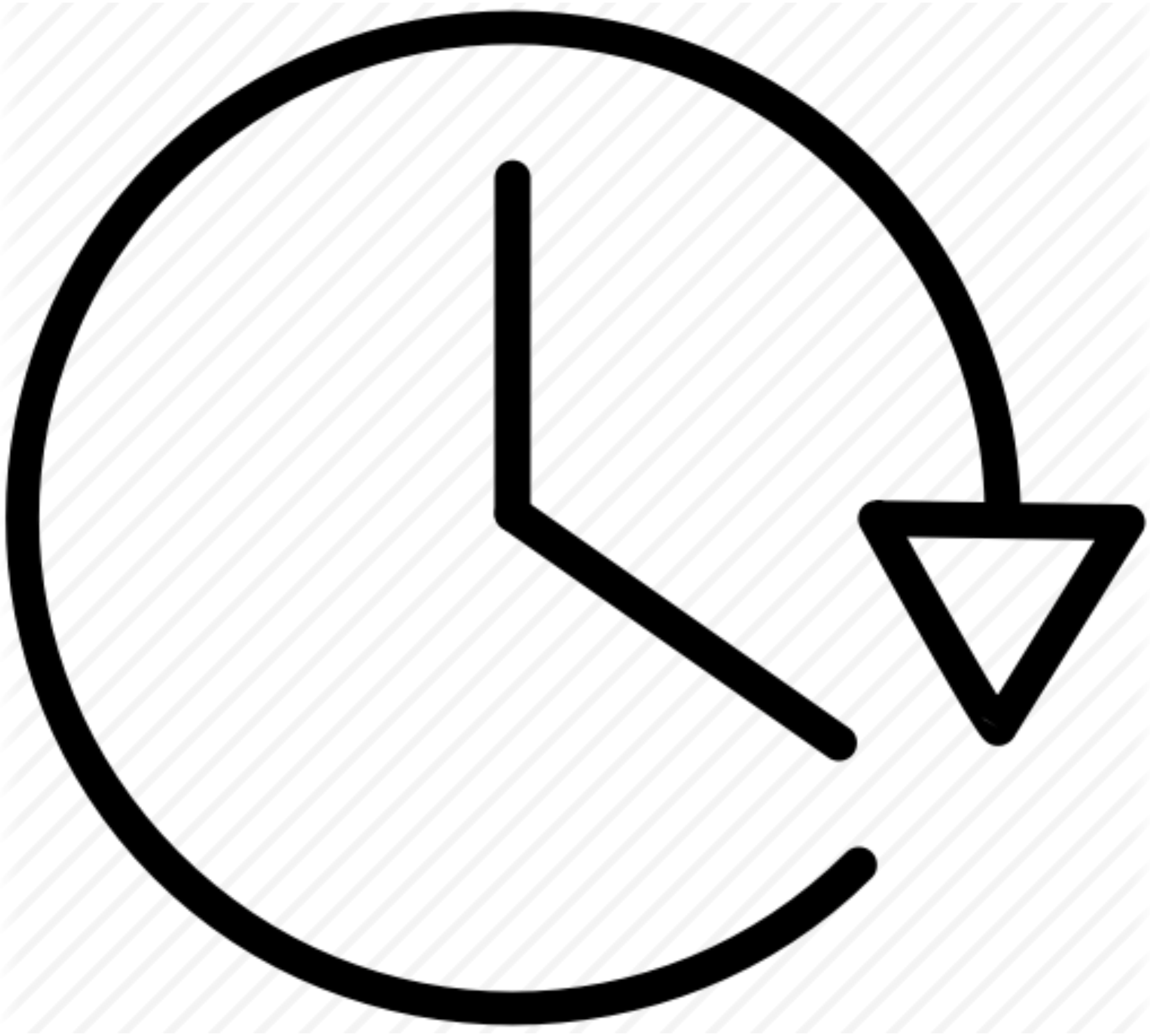
- ______________
- ______________
- ______________

Why is Security so Complex?

- _________________
- _________________
- _________________

What about SAP Security don’t you Understand?

- _________________
- _________________
- _________________



Report Back

Segregation of Duties Exercise 4

- Primary learning objectives are:
  - Experience specifying controls to address known business risks
  - Review and assign positions appropriate to handle process tasks
  - Make choices to manage the tension of SOD controls vs. excess personnel costs
  - Translating process tasks assignments to computer task assignments
  - Creating authorization design details necessary to implement security that enforce SOD

Segregation of Duties Exercise 4

Steps

1. Determine appropriate controls to mitigate defined business process risks. You will also be asked to assess additional risks associated with this business process.
2. Using the risk analysis as a base, examine assigned positions within the organization to be sure that there is adequate segregation of duties without incurring excess personnel costs.
3. Develop an authorization matrix that specifies the extent of computer access for each of the employees designated in the previous step (transitioning from paper-based to integrated ERP System environment)
4. Examine the SAP authorizations where you will see how to establish rules that enforce segregated duties.

Segregation of Duties Exercise 4

- Agenda
  - **This Class *(October 31)*: Steps 1 – 2 (Risks / Control & Organizational design with SOD)**
  - Next Class *(November 7)*: Step 3 - 4 (Paper process to system process with SOD and authorizations to design)
  - *Due November 10 11:59 PM:* Assignment Submission

Segregation of Duties Exercise 4

Step 1: Determine appropriate controls to mitigate defined business process risks. You will also be asked to assess additional risks associated with this business process.

a) For first 5 listed risks – Identify from suggested list the top 3 Controls to use

b) Identify for GBI 3 additional risks for the process defined (an Order to Cash example). Then from suggested list choose top 3 Controls you recommend using

Segregation of Duties Exercise 4

Step 2: Using the risk analysis as a base

a) Examine matrix of assigned positions within the organization vs. each process task

b) Adjust (including adding positions) to be sure that there is adequate segregation of duties for the process without incurring excess personnel costs.

Extra Slides

Segregation of Duties Exercise 4

Step 3:

a) Examine the list of ERP System documents required to execute the process (from Step 2)

b) Develop an authorization matrix for each document and each organization position who uses document (e.g. specifies the extent of computer access for each of the employees)

Segregation of Duties Exercise 4

Step 4: Examine the SAP authorizations where you will see how to establish rules that enforce segregated duties.

a) *Tools -> Administration -> User Maintenance -> Role Administration -> Roles* (**PFCG**) View predefined roles and related authorizations (Page 18 of guide)

b) Answer questions related to your review / analysis