About the Speakers

Speaker Name
• Martin Maguth
• Managing Partner at MaxECM Solutions LLC and long-time ASUG Volunteer
• Fun fact: Workflow Hacker

Speaker Name
• Susan Keohan
• Senior Workflow Developer at Lincoln Labs and long-time ASUG Mentor
• Fun fact: Workflow Authority
Key Outcomes/Objectives

1. Key components of SAP Workflow engine on SAP S/4HANA
2. How to build a real workflow process
3. Key tools for SAP Workflow administration
Agenda

1. Introduction
2. Workflow architecture
3. Container concept
4. Event concept
5. Workflow administration
Introduction – OnPremise Vs. Cloud Platform

- SAP Suite
- SAP S/4HANA On-Premise
- SAP S/4HANA Cloud

Customer hosted | Standard Workflows | BPMN Processes
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ABAP | SAP Business Workflow | Flexible Workflow

Customer hosted | Standard Workflows | Public Cloud
---|---|---
ABAP | SAP Business Workflow | Flexible Workflow

Public Cloud | Standard Workflows | Flexible Workflow
---|---|---
ABAP | SAP Business Workflow | Flexible Workflow
Introduction – Fiori integration

- Work items can be accessed via SAPGUI and Fiori out of the box.
- Note: Workflows created on-premise with SAPGUI development are available for configuration in ‘Manage workflows’ app in Fiori, but not vice versa.
Agenda

1. Introduction
2. Workflow architecture
   - Object types
   - Single step tasks
   - Workflow templates
   - Responsibilities
3. Container concept
4. Event concept
5. Workflow administration
Object types

- Represent a “real-world” object that exists in the business environment
- Stored in SAP Object Repository (Transaction SWO1)
- Object type components are
  - Interfaces (where does the object apply)
  - Key (how is it identified)
  - Attributes (how is it described)
  - Methods (what can be done with it)
  - Events (what can happen to it)
Object types

Example: Object BUS2081 (Incoming invoice)

Key consists of document number, and fiscal year

Many standard methods and events to process invoice in workflow
Single step task

• Represents a specific step in a workflow process
• Access with transaction PFTC
• Key components of single step tasks are
  – Object type (what is worked on)
  – Method (what is done with the object)
  – Possible users (who may execute the task in general)
  – Work item text (task headline that appears in inbox)
  – Descriptions (texts for inbox and deadline notifications)
  – Triggering/terminating event (when is task started/complete)
Single step task

- Example: TS20000704 (Display invoice)
- Work item text (?)
- Object method reference: Use BOR object or ABAP Class
- Define task container
- Assign events and default rules
- Determine execution type
Workflow template

• Represents a chain of single step tasks and events
• Access with transaction SWDD (Workflow Builder)/SWDD_SCENARIO (New Workflow Builder)
• Multi step task components are
  – Control
    • Single step task
    • Dialog vs. background
  – Responsibility
    • Selected agents at runtime
  – Deadlines
    • Earliest/latest requested start/end
    • Notifications
Workflow template

- Example: WS1000062 (Leave of absence with HTML)
- Shown in Workflow Builder
Responsibilities

• Represent the possible and the selected user(s) for the execution of a task
• Can be assigned statically or dynamically
• Generally defined based on the HR organizational structure
• Users can be excluded
Responsibilities

- General task assignment for single step as possible users
- Rule 1000003 assigned for agent determination at runtime in workflow template definition
- Many other options possible …
Rules

Rules allow for the dynamic agent determination to a task in a workflow at runtime.

Rules are created and maintained with transaction PFAC.
Rules

- **Rule definition categories:**
  - **Responsibility**
    Allows the use of elements in the rule container to determine agents at runtime without programming
  - **Organizational data**
    Assign an object from HR organizational model as selected user, such as organizational unit, position, or job
  - **Function module**
    Create and assign a function module that will execute at runtime to determine selected users
Workflow architecture

Multi step task

Single step tasks
- Agent
  - Single step task
- Agent
  - Single step task
- Agent
  - Single step task
- Agent
  - Single step task

Business object repository
- Business object
- Business object
- Business object
- Business object
Workflow architecture - Demo

Step 1: Explore BUS2081 object
Step 2: Create single step task
Step 3: Create workflow template
Agenda

1. Introduction
2. Workflow architecture
3. Container concept
   • Definition
   • Container types
   • Architecture
4. Event concept
5. Workflow administration
Container definition

**Containers** store information and allow the exchange of that information among the different components of a workflow process.

The information is stored as a data element and processed at runtime through **bindings**.

Bindings administer the flow from one container to another. Bindings are defined at time of implementation and are used at runtime.
Container types

- **Workflow container**: Contains all variables of the workflow definition.
- **Task container**: Contains all variables of the task display and completion.
- **Role parameter container**: Contains all variables of the role determination.
- **Event container**: Contains all variables of the event trigger and receiver.

**Method parameter container**: Contains all variables for method execution.
Workflow architecture
Agenda

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3. Container concept
4. Event concept
   • Definition
   • Event types
   • Event creation
5. Workflow administration
Events

An event is an occurrence on an object in the system.

Events are published and managed by the event manager who creates the link between creator and receiver and transfers the information between the two.
Event types

Triggering event
• Triggers a single step or a multi step task
• Has to be defined in task
• Has to be activated in the event link table

Terminating event
• Terminates a single step task
• Has to be defined in task
Event creation

• Events are published by the “Event Creator” and transferred to the “Event receiver” by the “Event manager”

• Events can be created in multiple ways
  • Program code with function module (SWE_EVENT_CREATE)
  • Link to change management
  • Link to status management
  • Link to message system
  • Link to HR tables (administration of info-types)

• Event has to be defined for a business object in the SAP object repository
Container & Events - Demo

Step 1: Create workflow container element BUS2081
Step 2: Integrate with task container
Step 3: Integrate with work item description and mail
Step 4: Link event BUS2081.CREATED to workflow template
Step 5: Test workflow
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Workflow administration

• Access workflow administration by using transaction SWLD, then go to Administration->Workflow runtime

• Important administrative transactions
  – SWI2_ADM1: Work items without agents
  – SWI2_DIAG: Diagnosis of workflow errors
  – SWPR: Restart workflow after error
  – SWU3: Basic workflow customizing
  – SWEQADM: Manage event queue
  – RSWWERRE: Execute workflow error monitoring
  – SWW_SARA: Archive work items
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Presentation Materials

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Q&A

For questions after this session, contact us at martinm@maxecm.com and skeohan@mit.edu
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