Build Your Own Workflow

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Course Goal and Objectives

• **Course Goal**
  • provide the basics of workflow modeling concepts and the Workflow modeling tool

• **Objectives**
  • create and test your own workflow solutions
  • identify possible uses of Workflow as a key UDC component
Course Overview – Day 1

• Overview Workflow
• Steps to developing a workflow model
• Overview of the Workflow Modeler including:
  • Types of activities
  • Business components
  • Context and component parameters
  • Roles
  • Modeling considerations
• Hands-on exercises to build a model
Course Overview – Day 2

- Describe how a trigger is created and how it is used by Events to start a workflow
- Work through the following using your chosen business process:
  - Triggers
  - Banner Events
  - Workflow Events
  - Passing Banner data through required parameters
  - Business Processes
- Test your workflow, starting with the Banner process used to trigger the workflow
Training Agenda – Day 1

• Workflow overview
• Defining the users (who)
• Workflow work (what)
• Parts of a workflow (how)
• Running a workflow
• Hands-on exercises
Training Agenda – Day 2

• Business Component Catalog
• Workflow guidelines
• Custom activities
• Business rules
• Banner integration
• Hands-on exercises
Banner Workflow

Day 1
Workflow Defined

“...the automation of a business process, in whole or in part, during which documents, information, or tasks are passed from one participant to another for action, according to a set of procedural rules.”

Source: Workflow Management Coalition™
What is Workflow?

A toolkit that

• graphically depicts and automates a business process
• automates the flow of work throughout the entire institution
Why Use Workflow?

• **Efficiency**
  • Saves time by sending work automatically to users

• **Consistency**
  • Adheres to defined procedures

• **Better communication**
  • E-mails and notifications sent throughout your entire institution and all your constituents!
Workflow Features

- Provides seamless integration to Banner and/or third-party applications
- Integrated with Luminis
- Provides ability to launch a desktop or web application
- Spans the entire institution
- Includes effective dating of workflows
- Accommodates confidential workflows
- Provides “Proxy” for work assigned
- Provides a clear visibility of work
- Can be deployed quickly
How Does Workflow Work?

May start with…

- Xtender document
- Banner form
- 3rd-party application

Requires Resources

Results in…

- faster response
- rules enforced
- consistent processing
- return on investment

Business Process

Process model
How Does Workflow Work?

Decision: Is person married?

Central Admin

EnterMaritalStatus_SPAPERS

Married

EmergencyInfo_SPAEMRG

Not Married

Parking Permit

ParkingInformation

EnterEmail_GOAEMAL

AA_RetrieveEmailAddr

Email Admin

E-mail Sent!
Workflow Development

- Analyze – explore, understand, improve
- Create – model, components, events
- Test – execute, learn, modify
From Concept to Production

Concept → Business Process Analysis → Workflow Process Analysis

Bad Idea

Good idea

Develop Model → Create Roles → Create Users → Create Components

Create Events → Test Model & Event → Meets Need

Migrate to Production

Doesn’t meet need
Technical and Functional Working Together

- Functional Staff know the process
- Functional Staff know the data

- Technical Staff know the programming
- Technical Staff know the data structure
The Workflow Modeler
Workflow Model

Activity: ApproveCourses
Role: Academic Dean
Workflow:
- ApproveCourses
- EnterCourseDetails
  - NotifyFacilities_EM
  - NotifyRegistrar
- CancelCourses
Basic Building Blocks

Who

Users

Roles

Business Process

When

Events

How

Workflow Model

What

Catalog

Category

Components

Parameters
Distribution of Work – Roles

• Roles are assigned to workflow activities
• All users assigned to the role see the activity in their worklists
• Exception: Directed Activities
Distribution of Work – Directed Activities

• Allows activities to be directed to a specific user within the role

• Purpose
  • Send activity to specific user
  • Send confidential activity to specific user

• Set by the ‘Performer Rule’ on the activity property sheet in the Modeler
Basic Building Blocks

- Users
- Roles
- Business Process
- Events
- Workflow Model
- How
- Catalog
- Category
- Components
- Parameters
- What
- Who
- When
Start

- Indicates the beginning of a workflow
- Every workflow must begin with a Start
- Appears automatically in the Modeler when creating a new workflow
Activities

- Steps in a workflow
- Several types:
  - Component
  - E-mail
  - Manual
  - Approval
  - Custom
- Activity details (e.g., activity name, role) defined on the property sheet
Transitions

- Represent the flow of work
- All Objects must transition to and/or from a start, another activity, parallel, branch, stop
- Self connectors can be used to repeat activities
Branching

• The flow of work is based on business rules
• Business rules must use data from the workflow to determine flow of work
• Guard conditions are the statements attached to each path that determine which path the workflow will take
Parallel Activities

- Activities that occur simultaneously
- Begins and ends with parallel bars
Parallel Activities

- Activities in parallel paths are independent of other parallel paths
Stop

• All workflows must have at least one stop to indicate the work is complete
• Workflows can have more than one stop
Workflow Definition

- **Definition**
  - Name Description, Version

- **Management**
  - Administrator and Owner

- **Supplemental**
  - Context Parameters, Document Tags, Confidential, Status, Best Practice, Attribute Mappings

- **Tracking**
  - Metrics Tracking, Work Calendar, Estimated Time and Lagging Percentage

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Workflow Activities

- Steps within a workflow
- Five different activity types
Component Activity

- Component is defined in the Business Component Catalog (discussed on Day 2)
- Examples:
  - Open Banner form
  - Run sql Query
  - Open desktop application
- Properties default from BCC
- Notification of work item can be emailed to users in role
Manual Activity

- Used to give message or instructions to user
- Message can include context parameters
- Notification of work item can be emailed to users in role
Approval Activity

- User can review activity before approving
- Notification of work item can be emailed to users in role
Email Activity

- Email specifics are defined within activity
- Can use context parameters in any email field
- Can provide e-mail error detection and alerts
Custom Activity

- Define Custom Form (more on Day 2)
- Used to enter additional information into workflow
  - Data fields
  - Text
  - Radio Buttons
  - Lists & Drop-downs
  - Comments
  - Attachments
Parameters

- Parameters contain the data used in a workflow
- Context parameters define all of the data fields used at any time in the workflow
  - Context parameters are defined in the workflow model
- Component parameters define data fields used in particular activity
  - Component parameters are defined in the business component used by the activity
Parameters

- **Attributes**: Internal data that can be used in a workflow model
  - **Examples**: Initiator Logon, Start Date/Time, Performer, Performer E-mail
- **Component parameters and attributes must be mapped to context parameters**
Parameters: Context and Component
Context Parameters – ID, CITIZEN, LNAME

Activity

Business Component
ID, LAST_NAME

Activity

Business Component
ID, CITIZEN

ID = ID

LAST_NAME = LNAME

ID = ID

CITZ_CODE = CITIZEN
Context Parameters

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<thead>
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Component Parameters

- Defined with component in BCC

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Required and Guaranteed Parameters

• Context Parameters are *Required* if they must have a value at the start of the workflow

• Component Parameters are *Required* if they must have a value when the activity starts

• Component Parameters are *Guaranteed* if a value is expected at conclusion of the activity

• “RINGO” – *Required IN, Guaranteed Out*
Parameter Mapping

- Parameter is mapped FROM context TO component if data value is passed to the component
- Parameter is mapped FROM component TO context if data value is set or updated in the component
Modeling Considerations

• Activity inputs
• Parallel path transitions
• Distinct parallel paths
• Stops for alternate paths
Activity Inputs

• Input into each activity, decision, and stop may have one or more sources
Parallel Path Transitions

• The number of paths leading from the first parallel bar must equal the number going into an ending parallel bar.
Distinct Parallel Paths

• Activities within a parallel path cannot cross into other parallel paths
Distinct Parallel Paths - Data

- Workflow context parameters which are output from an activity on a parallel path can not be mapped for input or output to an activity or guard condition on another parallel path.
Stops for Alternate Paths

- Alternate paths do not have to be joined prior to a Stop…
Stops for Alternate Paths

- ...except when part of a parallel path
Guard Conditions

- Guard conditions determine the appropriate path to take in a workflow model
- Guard condition is placed on transition between activities

- Guard conditions determine if a workflow should be started when an event is processed
- Guard condition is placed on Business Process Associated Event
Define a Guard Condition

- **Statement that is either true or false**
- **Statement contains:**
  - Context parameter or Event parameter
  - Operator (\(=, \langle\rangle, <, >\), etc)
  - Hard coded value or comparison to other parameter
- **One and only one guard condition must be true when the workflow runs**
- **Only guaranteed parameters can be used in a guard condition**
Guard Condition Statements

Examples:

- **Admit_Decision = “A”**
  - Where Admit_Decision is a context parameter
- **Term = “Spring 2003”**
  - Where Term is an event parameter
- **Amount <= Balance and Balance > 0**
  - Where amount and balance are context parameters
Guard Conditions

• There can be multiple transitions from a decision
Guard Conditions

- One and only one condition must be true at run time
- Assume: StuLevel = “CE”
Basic Building Blocks

- **Users**
- **Roles**
- **Business Process**
- **Workflow Model**
- **Events**

**Who**: 

**How**: 

- **Catalog**
- **Category**
- **Components**
- **Parameters**

**When**

**What**
Business Component Catalog

- Repository for Business Components
- Allows for logical organization of Business Categories
- Category – Used to logically organize Business Components
  - Name
  - Description
  - List of Business Components
- Naming Convention will help search
Business Components

• A unit of work
• Work that gets done in a workflow activity
  • launch a Banner form
  • perform a sql query or procedure
  • launch a desktop application
• Reusable in workflow activities
Business Components

• Contain properties about what will be launched
• Contain parameters that will later be mapped to workflow activities
• Display any Workflows using the component
Business Component Catalog Demonstration

- Elements of a component
- Categories
- Usage
  - Launch a Banner form
  - Run a SQL query
  - Run a stored procedure
Interactive Components

• Require a user to perform activity
• Typically opens a Banner form and populates key block information
• Must have a role assigned

• Examples of when to use an interactive activity
  • Entering new data on a Banner form
  • Updating information on a Banner form
Internal Components

- Activities that occur without any user intervention
- Typically run SQL queries and stored procedures created by a technical resource
- No associated role

Examples of when to use an internal activity
- Extract additional data
- Calculate values
- Update a record in the database
Delivered BCC

• Workflow delivered with a component to launch each Banner form
  • Added during install
  • Approximately 1200 components
• Components are categorized by product and module
Retrieving Banner Data

- Single occurrence data fields can be returned from a Banner form to Workflow
- Parameter name is blockname.fieldname
  - Example:
    - Form: SPAIDEN
    - Field: Last Name
    - Parameter: SPRIDEN_CURRENT.PERS_LAST_NAME
Banner Form SPAIDEN

Last Name occurs once on SPAIDEN
Retrieving Banner Data

- **Multiple occurrences of data fields can NOT be returned from a Banner form to Workflow**
- **Look for scroll bar or fields with same underlying field names**
- **Use a sql statement or procedure to return data**
- **Example:**
  - **Form:** GOAEMAL
  - **Field:** Email Name
  - **Multiple Email data fields are displayed on form**
Banner Form GOAEMAL

- Email Address fields occur three times on GOAEMAL
When to Modify Components

- Add parameters to a component to return additional data from a Banner form
- Revise sql or stored procedures
- Before modifying a delivered component, copy it to a institution specific category
When to Add Components

• Run new SQL queries or stored procedures
• Run desktop applications
• Launch a local custom Banner forms

Note: Custom Banner forms must be Workflow-enabled. Refer to the *Workflow Technical Integration Guide*.
Welcome Workflow Demonstration

- Worklist
- Work item details
- Workflow status
- Banner
Review of the Workflow Workspace

• Users receive activities in their worklist according to their roles
• Launch items from worklist
• View status
Banner Data Entry

Workflow Submit and Release icons
Do Your Own

1. Create a new Workflow model
2. Model the business process
3. Add roles
4. Add components
5. Validate the workflow
6. Test the workflow
Follow-up

• Problems encountered?
• Questions or comments?
Questions

Day 1
Build Your Own Workflow

Day 2
Review of Day 1

• Workflow overview
• Workflow model
• Testing a workflow
Training Agenda – Day 2

• Business Component Catalog
• Banner Integration
• Triggers and Scripts
• Banner Events
• Workflow Events
• The Event/Business Process/Workflow Model Triangle
• Creating Events
• Running our Workflow Models
Questions
Basic Building Blocks

- Users
- Roles
- Catalog
- Category
- Components
- Parameters

Workflow Model

Who

Business Process

When

Events

How

What
Business Processes and Events

• **Business Processes**
  • define what work should be done
  • associated with workflow model
  • associated with business events

• **Business Events**
  • start a Business Process
  • pass data into workflow models
Business Events Overview

- Database change
- Fires DB trigger
- Writes the Event data
- Picked up by Event Dispatcher
- Starts a workflow
**Business Event Overview**

- **Banner**
  - Enter New Data
  - Banner Event Tables
  - Database Trigger

- **Workflow**
  - Model
  - Workflow Event
  - Model

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Data from application loaded into the event tables

Banner Event data passed to Workflow Event

Workflow Event data passed into model’s context parameters
Event and Business Process Relationship

- Event parameters passed into context parameters
- Guard condition determines if process should start
- Effective dates determine if workflow should start
- Business Event
- Workflow Model
- Business Process

Event parameters passed into context parameters

Guard condition determines if process should start

Effective dates determine if workflow should start
Database Triggers & Scripts

• Define criteria for creating event
• Capture data to be passed to Workflow
• Write the event/parameters values to the event tables in Banner

• Triggers fire in real-time
• Scripts are usually run on a schedule
Business Events

- **Steps to configuring Business Events and Processes**
  - Create Event Definition in Banner
  - Create Event Definition in Workflow
    - use the Event Wizard
  - Associate your Model with the Event
    - associate all required parameters
  - Create Business Process in Workflow
    - associate model with process
    - associate event with process
    - add any guard conditions
Workflow Event Definition

• Event is first defined in Banner
• Workflow Event Wizard retrieves event definition from Banner
• Event parameters define data passed from the external event into Workflow
Event Definition in Banner

- Define event name and associated parameters
- Event Status must be ‘active’
- Event Definition tables store the event definitions
  - GTVEQTS
  - GTVEQPM
  - GOREQPG
- Event Queue tables store all actual events and the parameter values
  - GOAEQRM
  - GTVEQNM
  - GTVEQPG
  - GOREQNM
Event Definition in Workflow

- **Use Event Wizard to retrieve event definition from Banner**
- **Associate Workflow(s) to business event**
  - Map event parameters to workflow context parameters
Event Parameters

• Parameters pass data from the business event into Workflow
• Parameters are defined on Banner form GOREQPM (Parameter Group Definitions)
• Same parameters are copied into the Workflow Business Event by the Business Event Event wizard
Workflow Model Association

- Associate Workflow model to business event
- Map event parameters to workflow context parameters
- One event can start one or more workflows
Event Parameters

- Event parameters are mapped to workflow context parameters
Business Process

- Business Processes are defined under Enterprise Management
- Associate Workflow to business process
- Set effective dates
- Only one effective workflow at a time
- Associate event(s) to the business process
- Set guard conditions
Questions
Do Your Own

• Banner trigger
• Banner Event tables
• Workflow Events
• Associate Workflow model with event
• Associate model and event with business process
• Test your model
Documenting a Workflow

• **Workflow models can be documented using the Modeler Print option**

• **Documentation includes**
  • Model
  • Property details
  • Parameters
  • Component details

• **Custom forms can be documented**
Workflow Services

• **Workflow Process Modeling**
  • In-depth training on the use of the Workflow Modeler, Components, Events, Processes

• **Workflow Process Analysis**
  • Techniques for gathering and analyzing information about a business process to develop workflow model and business event

• **SQL for Workflow**
  • How to create triggers, scripts, procedures to support your Workflows

• **Workflow and 3rd Party Applications**
  • Using Workflow with other applications and the Web

• **Production Readiness**
  • Organizational readiness for a successful Workflow solution center
Workflow Documentation

• Analyst / Administrator Handbook
  • “Functional” workflow information for users

• Functional Integration Guide
  • Banner
    • Events
    • Examples
  • Luminis Channels

• Technical Integration Guide
  • Installation
  • Administration

• Release Guide
  • What’s New
Additional Support

• **Workflow Implementation Questions**
  • Product Issues
    • Contact Customer Support
    • 1-800-522-4827
    • http://www.sungardhe.com  Client Support Center
  • Consulting Issues
    • Contact Project Manager or Account Manager

• **WORKFLOW listserv**
Questions

Day 2
Thank You!

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Please complete the online evaluation form
Thank you for your participation

Build Your Own Workflow