

ERP- Oracle Apps

Lesson 20: Workflow

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Lesson Objectives

To understand the following topics:

- **Workflow**
 - Overview of Oracle Workflow
- **Components**
 - Workflow Engine
 - Workflow Monitor
 - Workflow Builder
 - Notification Mailer
 - Directory Services
- **Workflow Examples (Using Workflow Builder)**
 - Creation Of new Workflow
 - Approaches for tracking Errors
- **Workflow Related screens/Programs in APPS**



What is Oracle Workflow

- Graphically represents a business process using drag and drop process designer.
- Oracle Workflow comprises of a set of tables , PL/SQL packages, Procedures ,front-end tools and back-end processes that are initiated automatically in the background as and when required according to the business rules modeled.

Why Workflow ?

- **Flexibility in modeling, automation, and continuous improvement of business processes, routing information of any type according to user-defined business rules.**

- **Benefits from Oracle Workflow**

- Routing Information
- Defining and Modifying Business Rules
- Delivering E-Notifications
- Integrating Systems by using Business Event Manager.

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Oracle Workflow Overview

➤ **Oracle Workflow accomplishes three important business requirements :**

- Routes information
- Defines any business rule
- Delivers electronic notification

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Workflow Components

- Workflow Engine
- Workflow Monitor
- Workflow Builder
- Notification Mailer
- Directory Services

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Oracle Workflow Engine

- The Workflow Engine embedded in the Oracle database server, implements process definitions at runtime.
- The Workflow Engine monitors workflow states and coordinates the routing of activities for the process.
- Changes in workflow state, such as the completion of Workflow activities, are signaled to the engine via a PL/SQL API or a Java API.

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Oracle Workflow Engine Features

- **Based on flexibly-defined workflow rules, the engine determines which activities are eligible to run, and then runs them.**
- **The Workflow Engine**
 - supports sophisticated workflow rules, including looping, branching, parallel flows, and sub flows.
 - Can defer costly function activities to background engines for processing
 - Maintains a history of completed activities
 - Detects error conditions and runs error processes

Initiating a Workflow Process

➤ **To start a workflow process:**

- Your application must execute a procedure that calls the following Workflow Engine API's
 - WF_ENGINE.CreateProcess
 - WF_ENGINE.StartProcess
- The procedure must identify the value of the process item type and item key for these API's
- These API's can be called from Forms,PLL's back-end procedures ,functions,triggers and packages

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Workflow Engine Processing

➤ **Upon starting a process , the workflow engine:**

- Identifies and executes the Start activity
- Determines the next activity to transition to after completing the prerequisite activity or activities
- Drives through the process, automatically executing all function activities, until it comes to a notification activity or blocking activity
- Calls the notification system to notify the performer
- Continues driving through the process until it encounters an End activity.

Example: Initiating a Workflow Process

```
procedure StartProcess (RequisitionNumber in varchar2,  
                        RequisitionDesc in varchar2,  
                        RequisitionAmount in number,  
                        RequestorUsername in varchar2,  
                        ProcessOwner in varchar2,  
                        Workflowprocess in varchar2 default  
null,  
                        item_type in varchar2 default null) is  
  
    ItemType varchar2(30) := nvl(item_type,'WFDEMO');  
    ItemKey    varchar2(30) := RequisitionNumber;  
    ItemUserKey varchar2(80) := RequisitionDesc;
```

Example: Initiating a Workflow Process (Contd...)

```
begin
    wf_engine.CreateProcess(...);
    wf_engine.SetItemUserKey      (...);
    wf_engine.SetItemAttrText    (...);
    wf_engine.StartProcess (...);
exception
    when others then
        wf_core.context (...);
        raise;
end StartProcess;
```

Background Engine

- **The Background Engine is a PL/SQL procedure which executes the deferred activities.**
- The Background Engine checks for and executes any deferred or timed out activities that satisfy the arguments of the procedure at the time the procedure is invoked.
 - The procedure ends once all matching activities are executed.
 - If new activities are deferred or timed out after the initiation of the current Background Engine procedure, they will be processed when the next Background Engine procedure is initiated.

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Background Engine (Contd...)

➤ Background Engine API

```
WF_ENGINE.BACKGROUND(  
  itemtype      in varchar2,  
  minthreshold   in number default null,  
  maxthreshold   in number default null,  
  process_deferred in boolean default TRUE,  
  process_timeout in boolean default TRUE);
```

Deferred Processing

- Set the Workflow Engine threshold cost to control which activities get deferred.
- The default threshold cost of the workflow engine is set to 50.
- The workflow engine threshold is an externalized constant.
- Add the command to a PL/SQL stored procedure or execute the command in sql*plus to change the threshold : WF_ENGINE.THRESHOLD := n;

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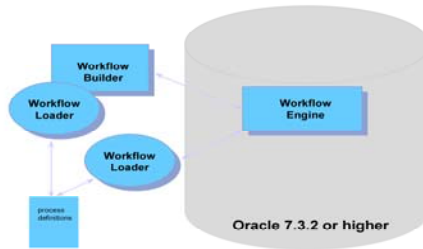
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Workflow Definitions Loader

- The Workflow Definitions Loader is a utility program that moves workflow definitions between database and corresponding flat file representations.



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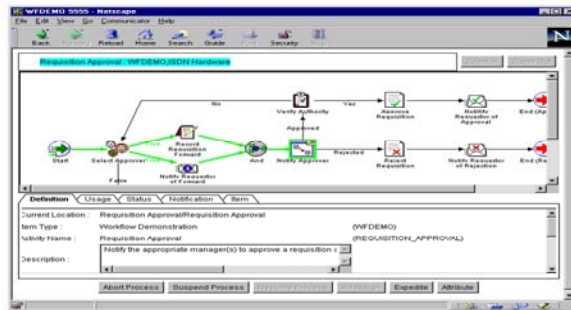
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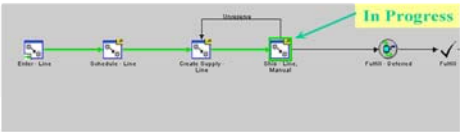
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Workflow Monitor

- The Workflow Monitor displays an annotated view of the process diagram for a particular instance of a workflow process, so that users can get a graphical depiction of their work item status.



Workflow Monitor: Process Diagram



Color	Status
Green	In Progress
Red	Error
Yellow	Hold
<None>	Complete

Workflow: Notifications

- **Automatically Notify Users**
 - Alert users of exception conditions
 - Respond to events that require human judgment
- **Send Notifications to individuals or roles**
 - Change the participants in a role without changing the process
- **Automatic Notification Forwarding**
 - When user is unavailable (vacation, sick leave)
 - When user wants to temporarily delegate a task

Overview of the Workflow Directory Service

- Workflow uses Directory Service to resolve the performers and email addresses for sending the notifications
- Oracle Workflow ships a unified directory service for Oracle Applications- wfdirhrv.sql. The unified directory service maps:
- WF_USERS to Oracle HRMS employees, Oracle Application/Oracle Self-service application users, oracle receivables customer contacts and WF_LOCAL_USERS.
- WF_ROLES to users in WF_USERS , Oracle HRMS positions, oracle applications responsibilities, oracle engineering approval lists and WF_LOCAL_ROLES

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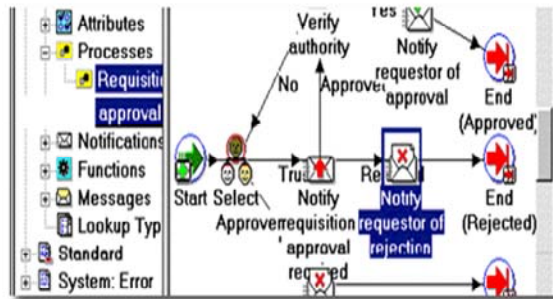
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Directory Service Views And Local Tables

- WF_USERS
- WF_ROLES
- WF_USER_ROLES
- WF_LOCAL_USERS
- WF_LOCAL_ROLES
- WF_LOCAL_USER_ROLES

Workflow : Workflow Builder

➤ Graphical Drag & Drop Designer Tool



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Notifications

- A notification activity sends a message to a user or role.
- Oracle Workflow sends a notification to a role when the Workflow Engine executes a notification activity in a workflow process. The notification activity may designate the role as being responsible for performing some human action or may simply relay process-related information to the role.
- Messages lists the messages that a notification activity is associated with. the current item type can send to a user or role. A message can have message attributes associated with it.

Summary

- Oracle Workflow manages business processes according to rules that you define
- Define your business rules using Oracle Workflow Builder and PL/SQL
- The Workflow Engine and the Notification System carry out your business rules
- Any Oracle Applications user and anyone with access to the internet can participate in the workflow.
- Use the Workflow Monitor to check and/or administer the status of your workflow processes.



Review Questions

- **Question 1: Which of the following activity cannot be done using Form Personalization :**
- Create new items
 - Move items between canvases
 - Disable Items
 - Hide the item that currently has focus



Review – Questions

➤ **Question 1: Which of the following is NOT the component of workflow?**

- Workflow Engine
- Workflow Monitor
- Workflow Tracker
- Notification Mailer

