



9

User Task Customization and Assignments



Notes: _____

Objectives

- At the end of this section, you will be able to
 - Perform basic customization of a User Task UI using controls
 - Add validations to a User Task UI
 - Implement simple User Task Actions using action flows
 - Configure User Task Events
 - Assign User Tasks to defined MWS users, groups, and roles
 - Configure User Task expiration

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[illegible]

Task User Interfaces

- **Remember:** When you drag and drop Business Data from the Bindings view onto the Data View portlet, UI controls will automatically be generated.
 - This will give you a jump start on development.
 - You can customize the UI further by tweaking the control properties and/or layout
- **Generated view contains Controls:**
 - UI components that present and capture data
 - found under Control in Palette view
- **Designer provides rich CAF tools for code-less UI development:**
 - Visual drag and drop of Controls
 - Properties
 - Wizards
 - ...

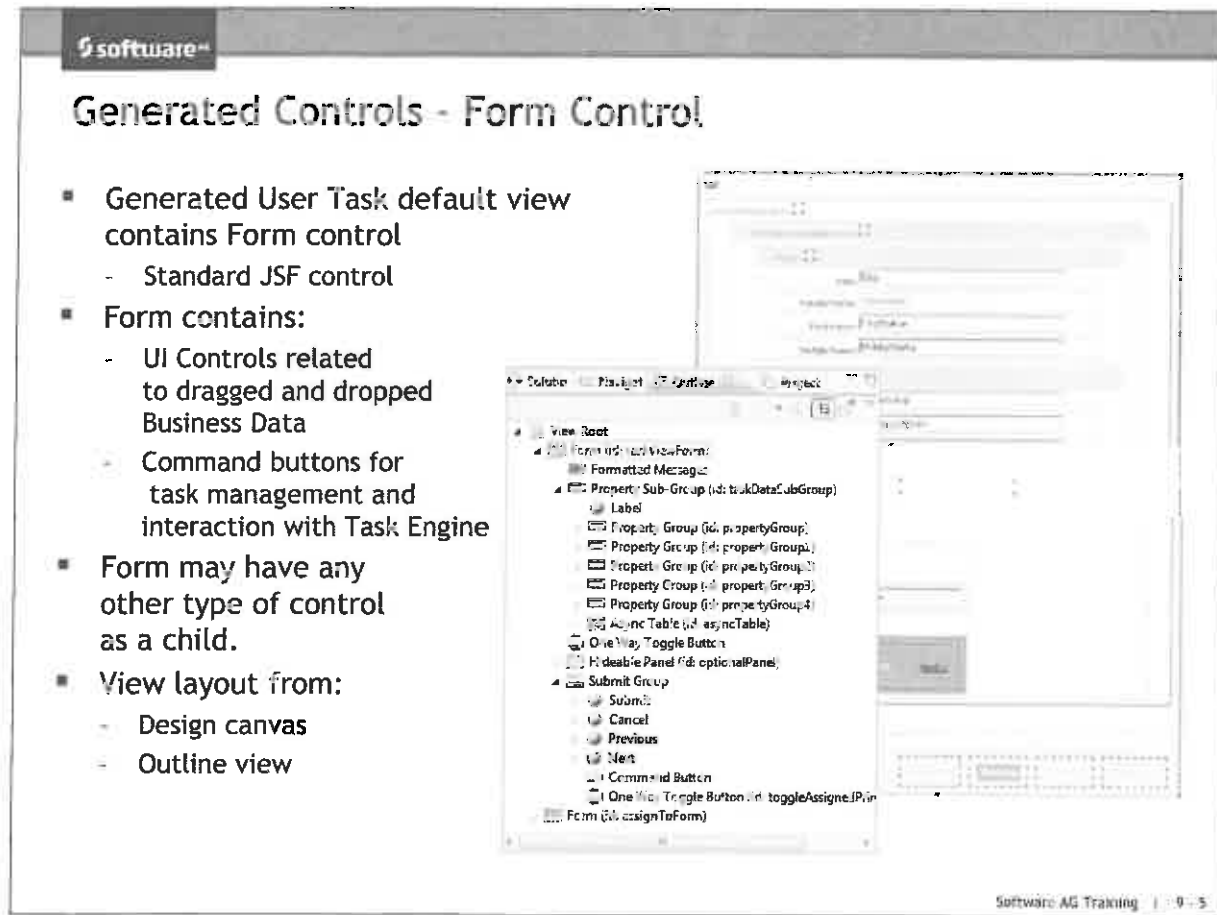


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Controls, Properties and Managed Beans

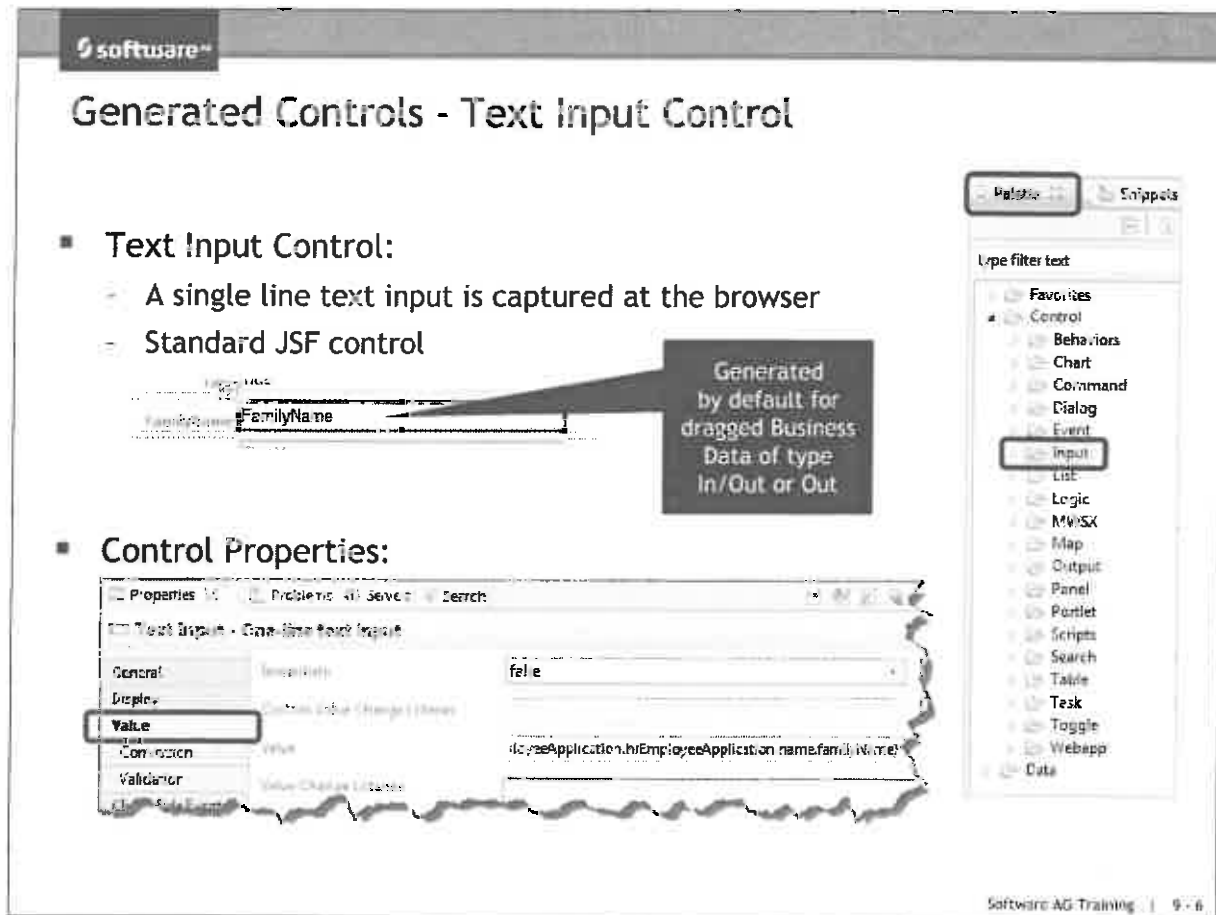
- Components on a User Task/CAF project view are rendered using controls.
- Each control has a set of properties:
 - isVisible, Directionality, Disabled, ...
- Most controls are standard JSF controls, some are webMethods proprietary offering additional functionality over the JSF standard controls
 - Check documentation for details
- Each control can be linked to a Managed Bean component.
 - A Managed Bean is implemented as a Java class
- Managed Beans can be:
 - Generated
 - Developed using wizards
 - Coded by hand
- Software AG provides samples for many JSF/CAF control types that may be imported into Designer
 - Examples include Labels, Buttons, Icons, and Links

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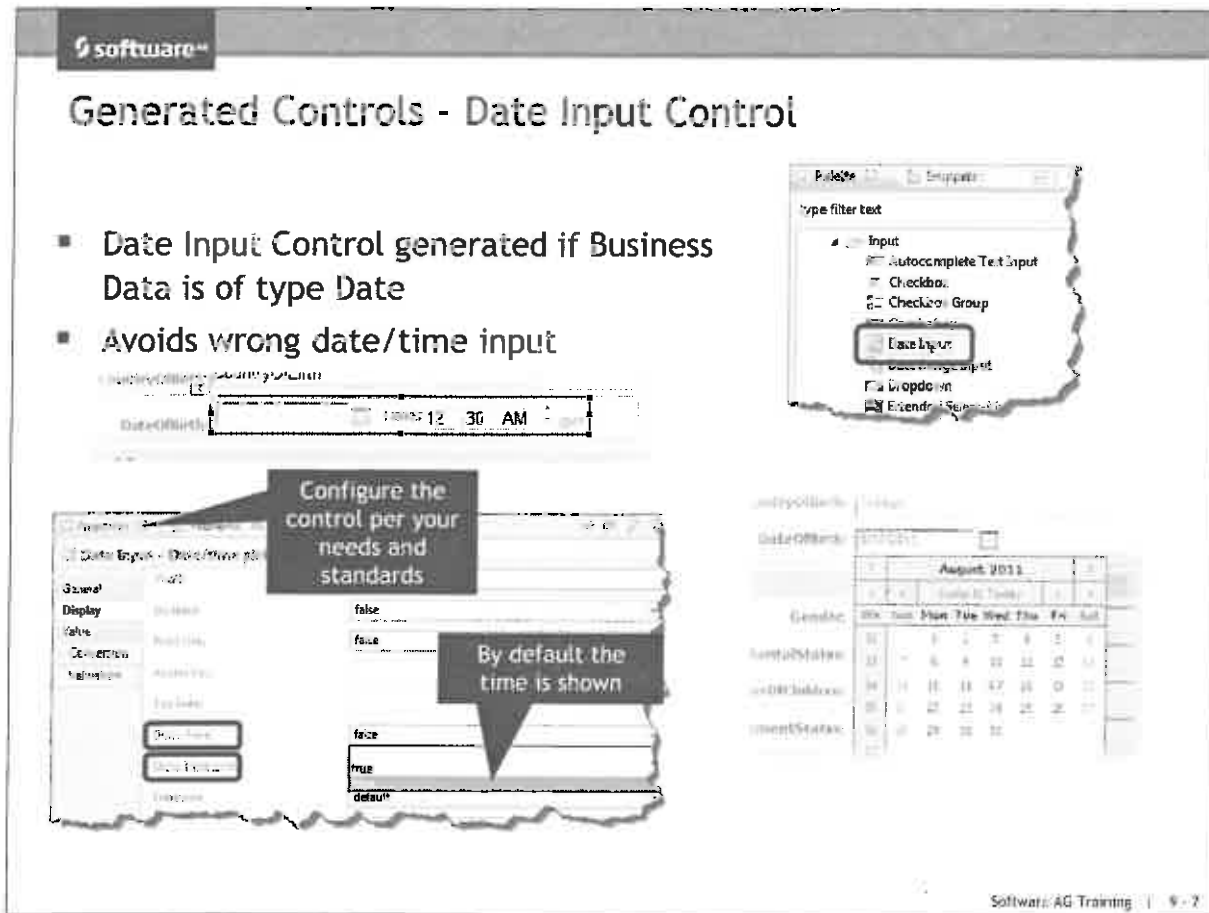


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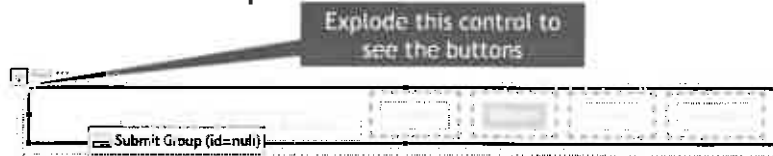
Notes:



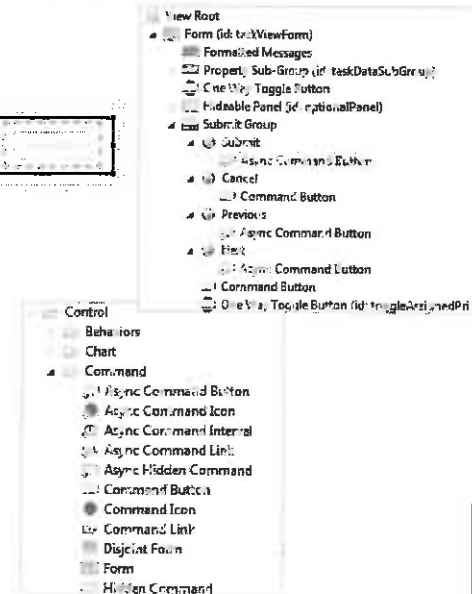
Notes:

Generated Controls - Command Controls

- Generated User Task default view contains various Command Controls* in a Submit Group:



- Command Controls interact with the server, invoking preconfigured User Task actions
- Generated types of Command Controls:
 - **Command Button:**
For synchronously invoking an action or submitting a form to the server
 - **Async Command Button:**
For doing the same, but asynchronously with AJAX



* Exception: Button "Assign to Users..." implemented by a One Way Toggle Control

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Notes:

User Task UI Customization

- Using Designer and UI Development perspective, generated User Task UIs can be customized
 - as per corporate UI design requirements, standards and best practices
 - and be made very appealing to the UI users
- Customization possibilities:
 - Replace (generated) basic controls by more intuitive ones
 - Add more controls
 - Remove controls representing business data to be suppressed
 - Adjust page layout, color, background,...
 - Add validations using Validators
 - ...



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Changing a Control Type...

- Dragging Business Data of type In/Out or Out onto a User Task view generates by default Text Input Controls bound to the task data elements:

FamilyName:

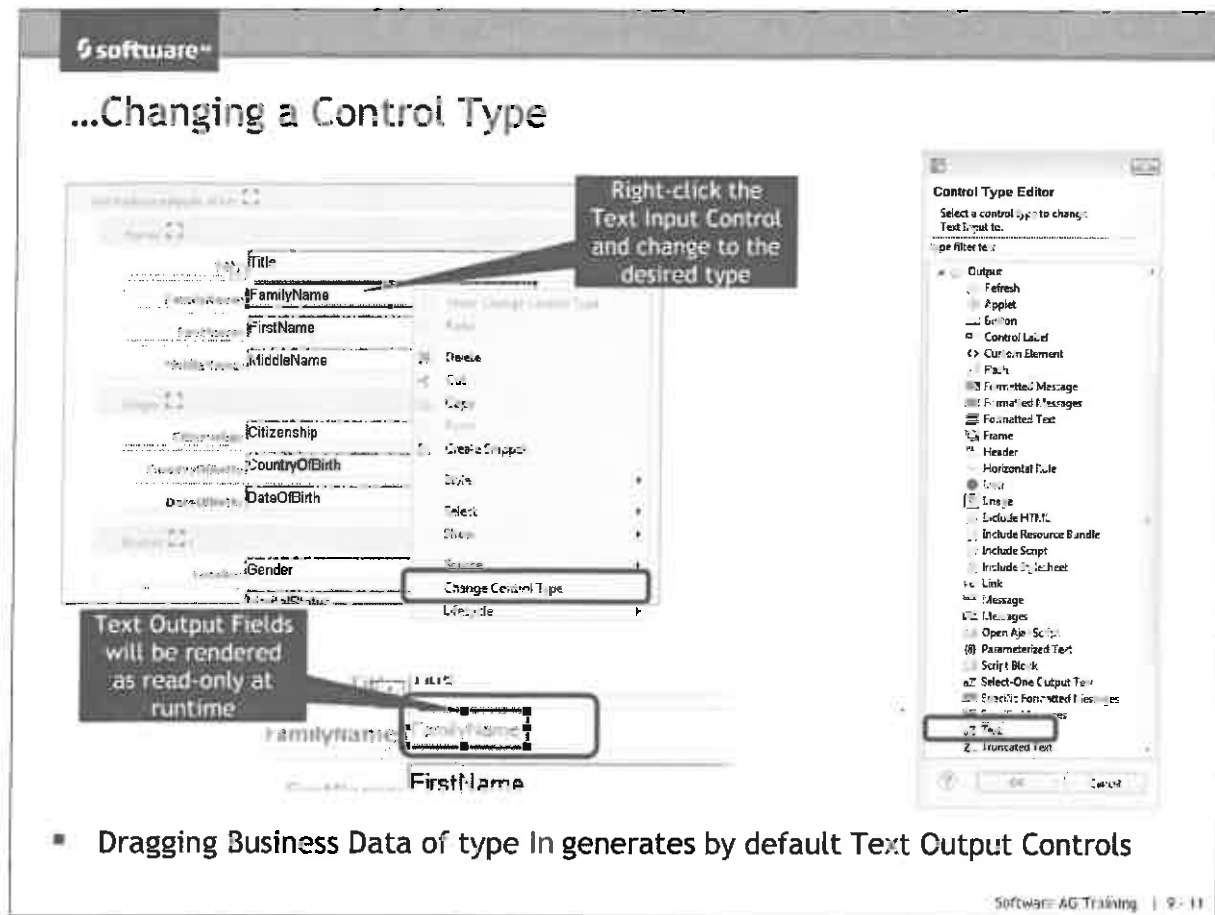
FirstName:

MiddleName:

Text Input (id=htmlInputText1)

- Context menu enables you to change the control type (e.g. from Text Input to Text Output)
- Alternatively, controls may be configured by hand, dragging them from the Palette and binding them to business data from their properties

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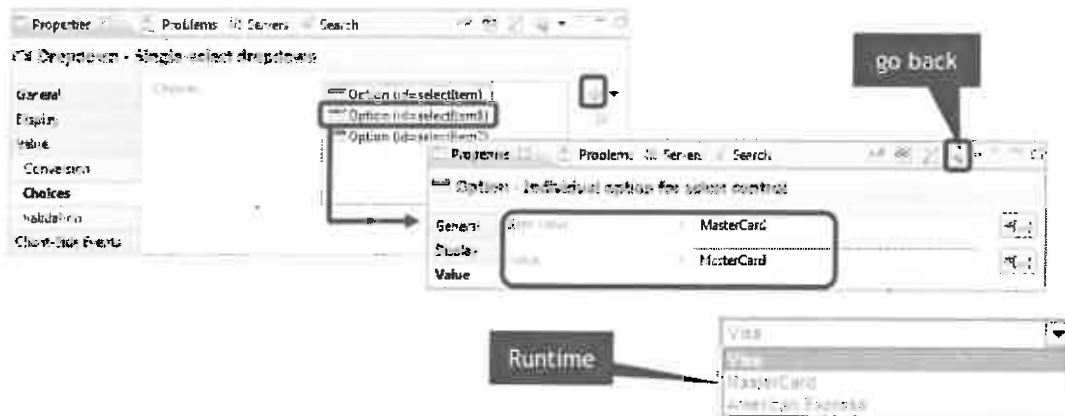


Notes:

Alternative Input Controls: Dropdown



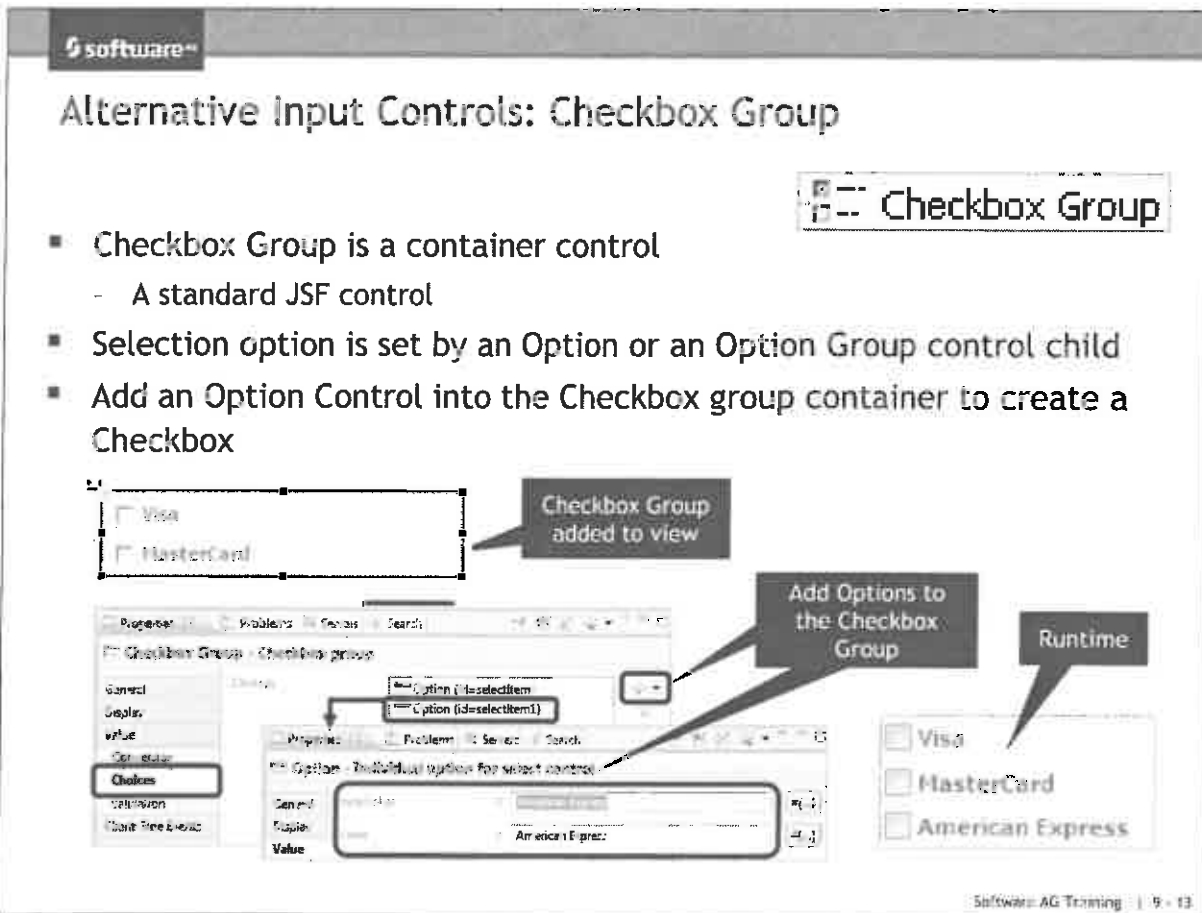
- Dropdown provides a single select dropdown list
- Dropdown is a container control
 - It must contain a child of type Option or Option Group



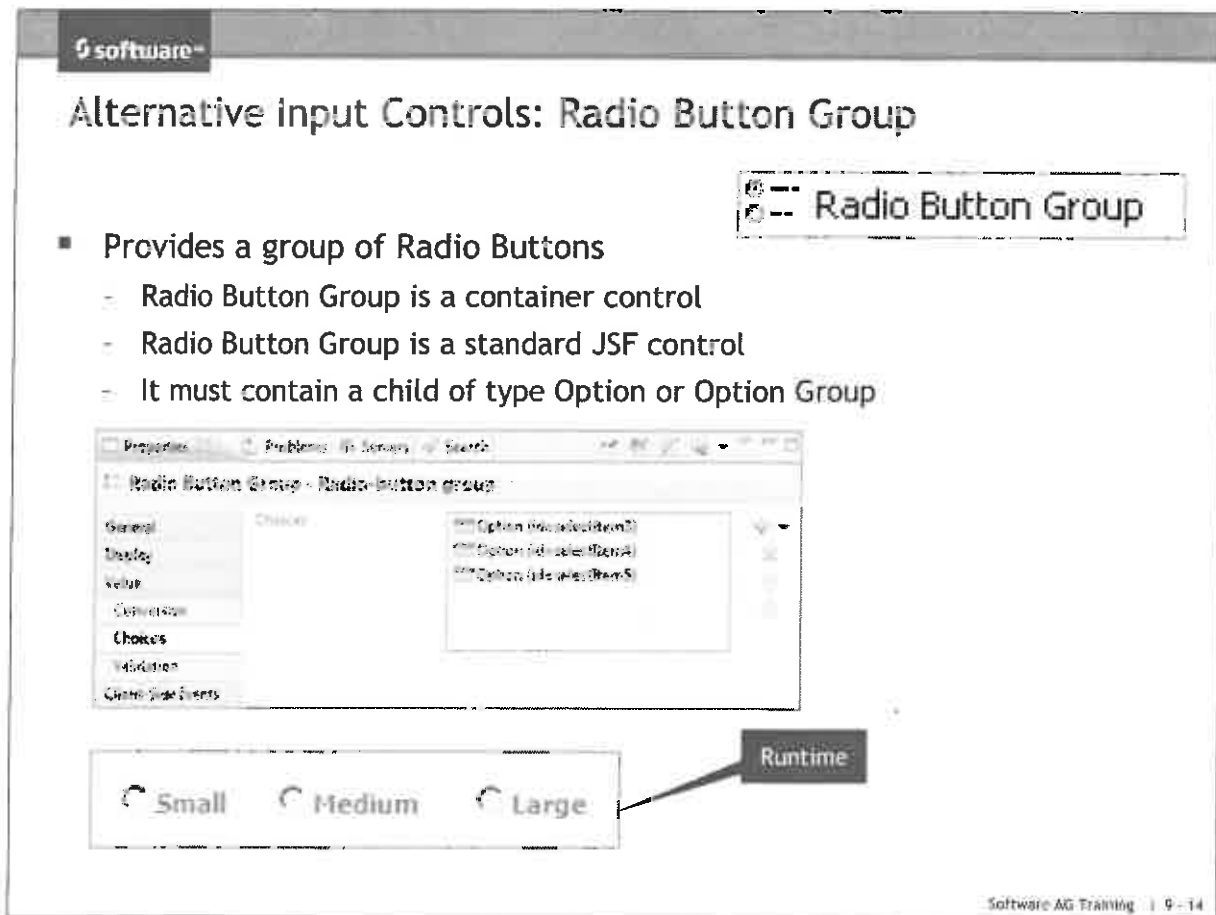
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Notes: _____

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Notes:



Notes:

Alternative Command Controls: Command Link, -Icon

- **Command Button**

- makes a synchronous call to the server
- standard JSF control
- must be enclosed within a Form
- can include other type of control as child
 - would be used as the button label
 - *Examples:* Text output control, image output control



Not all other control types
would make sense!

- **Command Link and Command Icon**

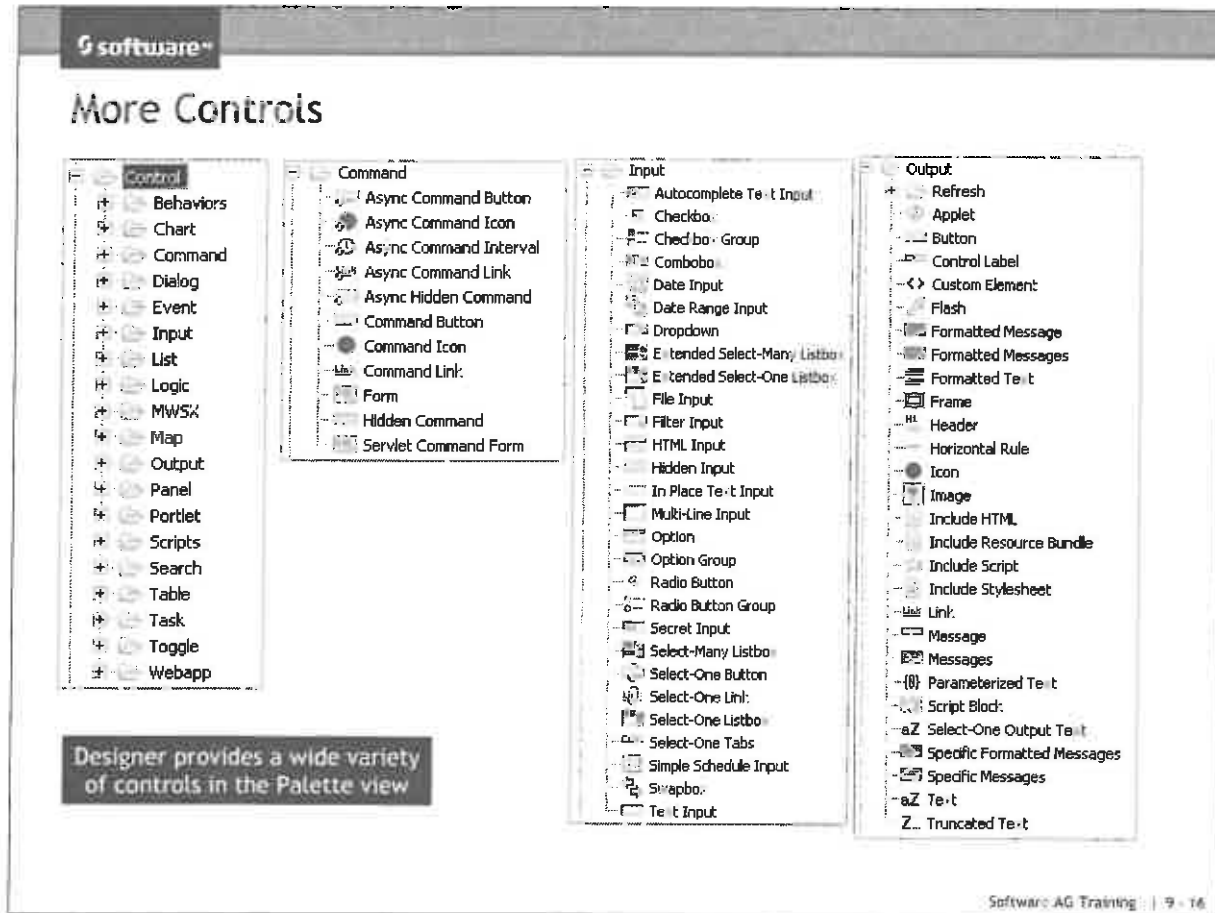
- similar to the Command Button
- standard JSF controls
- must be enclosed within a Form
- can include other type of control as child
 - would be used as the label, after the value property
 - *Examples:* Text output control



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Notes: _____

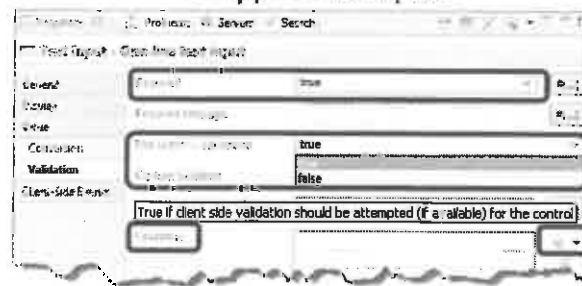
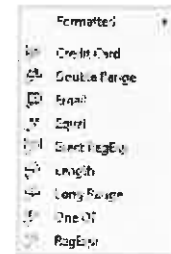
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Notes:

Add Validations

- Validation of user input in a User Task UI can be performed in two places:
 - Browser
 - Data can be validated without the form within the User Task UI being submitted
 - Client computer resource usage: JavaScript executing in the browser consumes memory as well as CPU of the client machine
 - Server side
 - : Reduces the browser resource usage on the client machine
 - : Requires form within the User Task UI to be submitted before data is validated
- webMethods offers various types of validation to be applied to input controls
 - some allow Browser and Server-side validation, some Server-side only
 - some are JSF standard, some are webMethods proprietary



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Notes:

Validations using Validators...

- **Email Validator:**
 - Checks that the text matches the BNF (Bakus-Naur Form)
 - Does not test the email account
 - Validation at Server only, webMethods proprietary
- **Credit Card Validator:**
 - Checks that the input String of numbers matches one of the card number styles for:
 - MasterCard
 - Visa
 - American Express
 - Discover
 - Does not invoke any back end application to test
 - Validation at Server only, webMethods proprietary

- Formatted
- Credit Card
- Double Range
- Email
- Expi
- Exact RegExp
- Length
- Long Range
- One Of
- RegExp

For testing your credit card validations:

- Master Card
5105105105105100
- VISA
4111111111111111
- American Express
37828246310005
- Discover
6011111111111117

Notes: _____

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...Validations using Validators

- **Regular Expression Validator:**
 - Data kept in controls can be validated based on regular expressions
 - Can be used for validation of:
 - Strings
 - Numbers
 - Phone Numbers
 - Booleans
 - Email addresses
 - Dates
 - Validation at Server-only, webMethods proprietary
 - Regular expressions are described in "Developer User Guide"
- Many more...



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Notes: _____

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The screenshot shows the SAP Validation Runtime configuration interface. On the left, the 'VALIDATION' tab is active, displaying a list of validation rules. A callout box labeled 'Custom error messages' points to the 'Show Details' and 'Show Details' buttons. On the right, a 'VALIDATION ERROR MESSAGE' dialog box is shown, displaying a custom error message: 'Company ID field is required, and cannot be empty. ###'.

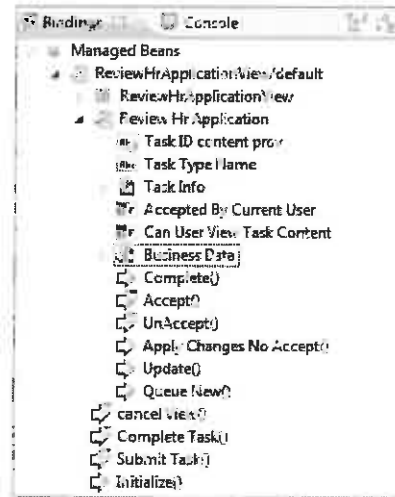
- Provide custom error messages to avoid unfriendly system error messages
- As the fields are correctly completed, the error messages disappear from the view

Notes:

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Actions

- Methods belonging to views or other managed beans
- Can be added as required for useful UI logic
- Can invoke each other
- Triggered by UI Command Controls or other Actions
- Implemented with code-less Data Flow or in Java
 - Support a series of assignments and actions
 - Data Flow implementations can be developed visually
- Generated User Tasks already offer preconfigured Actions, e.g. invoked by Command Controls



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Notes: _____

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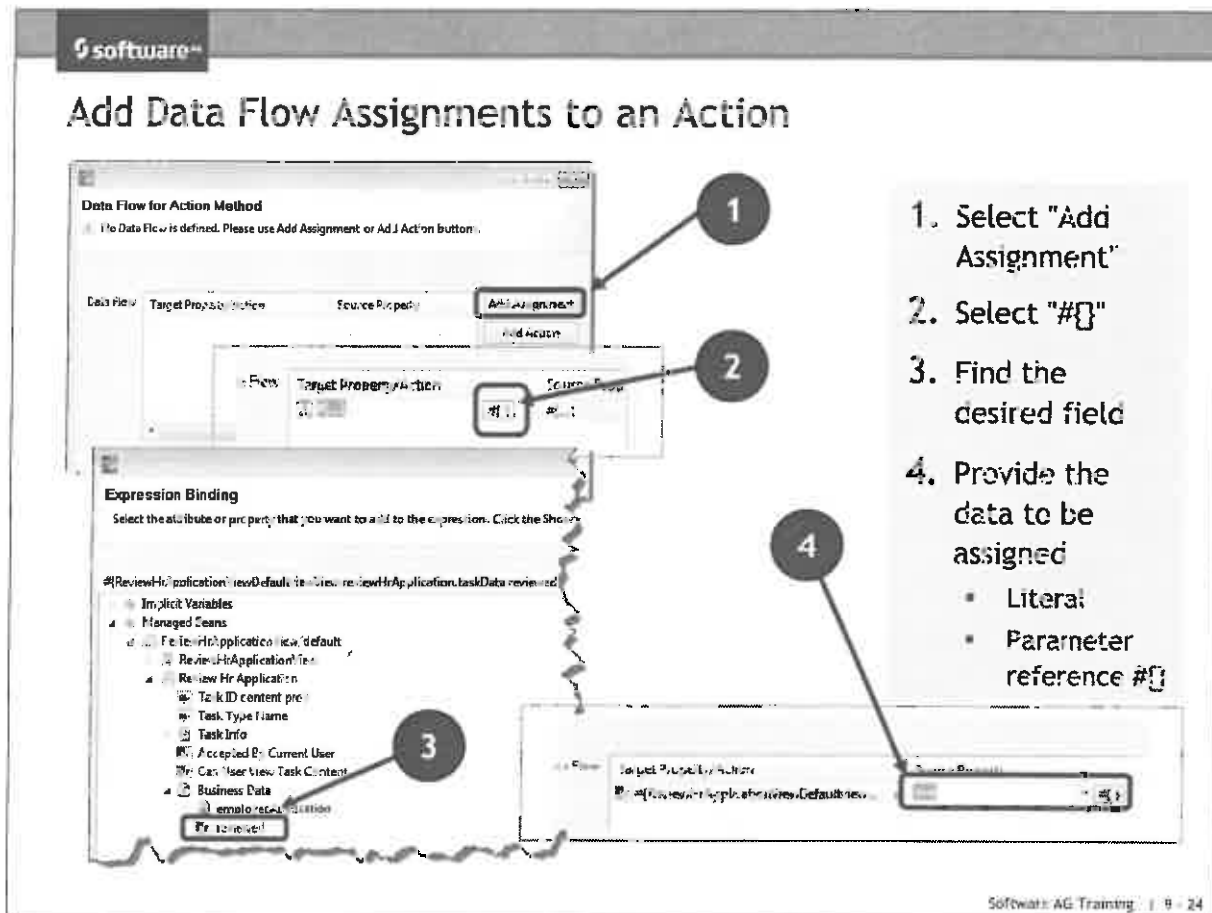
5 software

Add an Action to a User Task

- Right-click the User Task view related managed bean
- Choose Add->Action
- Provide an Action name
- Check the "Data Flow" check box
- Click "Next>"

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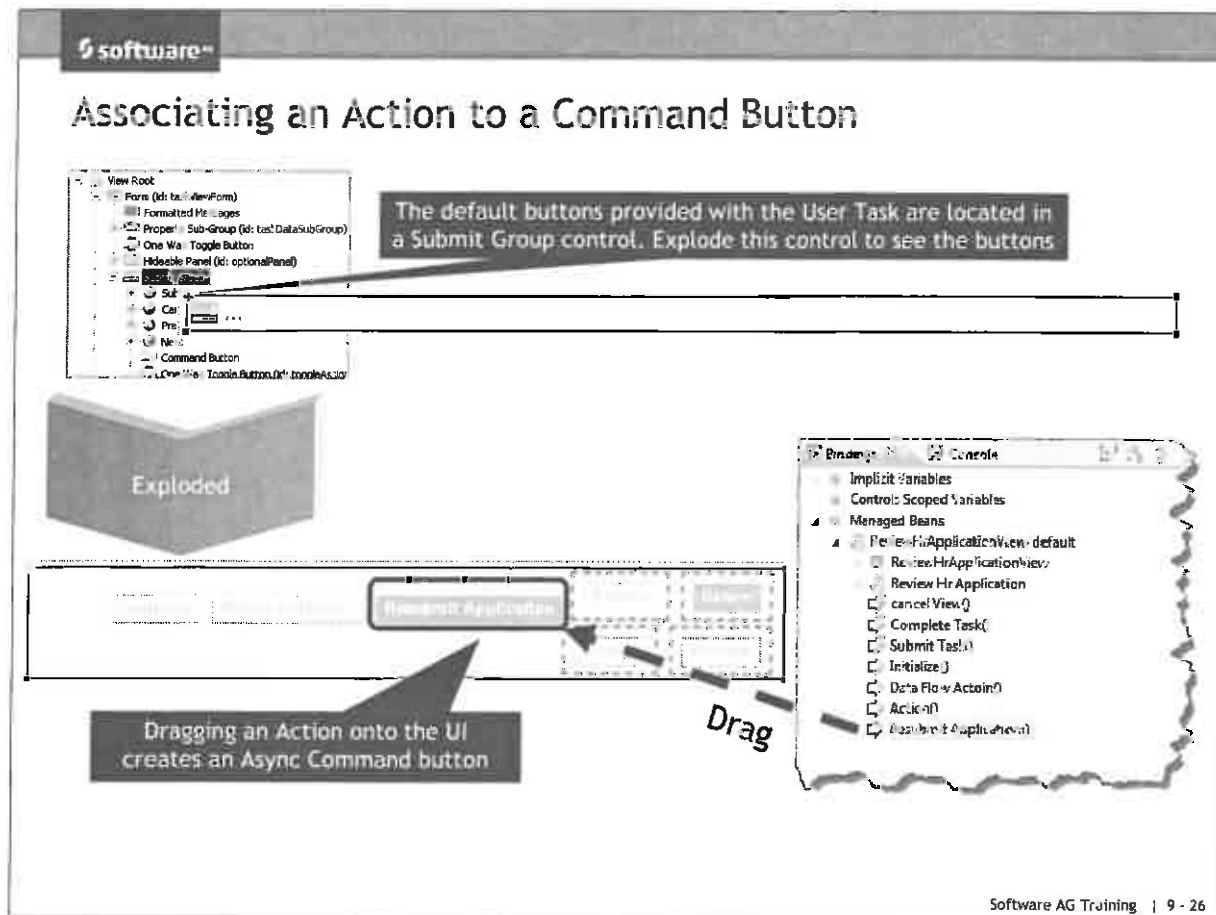
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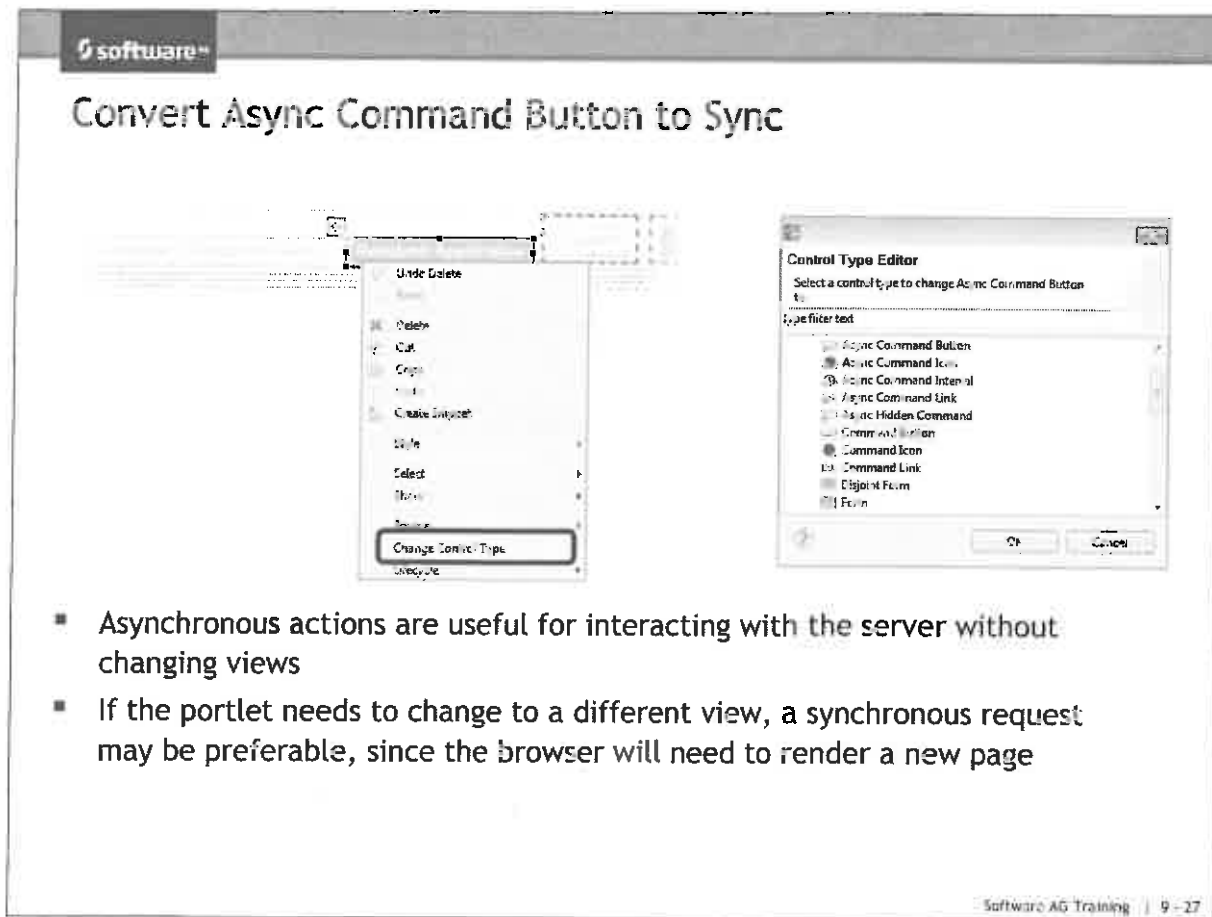
Add an Action Invocation to an Action

1. Select "Add Action"
2. Select "#[]"
3. Select the Action
4. Verify and finish the Action Flow

Notes:



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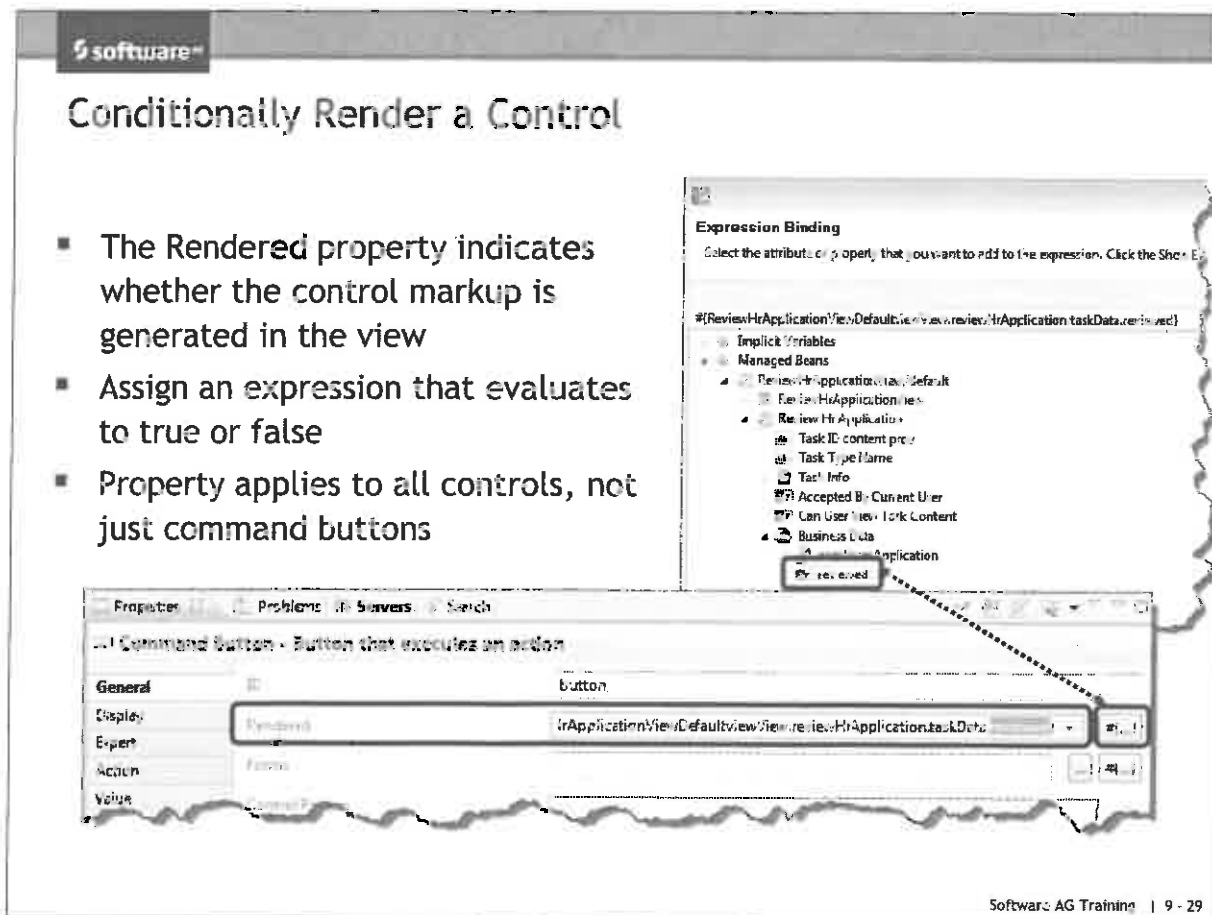
Notes:

Customize Task Management Command Controls on Task UI

- Generated Task Data View portlet provides default buttons for manipulating a User Task at runtime:
 - **Accept:**
Locks the User Task, allowing updates only by the accepting user
 - **Submit:**
Updates User Task data, User Task state is unchanged
 - **Complete:**
Completes the User Task, returning execution control back to the process and returning the browser to the Task List Management page
 - **Release:**
Releases the user lock, allowing another user to accept it subsequently; undoes former Accept
 - **Return:**
Does not affect the User Task, returns the browser to the Task List Management page
- The UI developer can add, modify and/or remove buttons



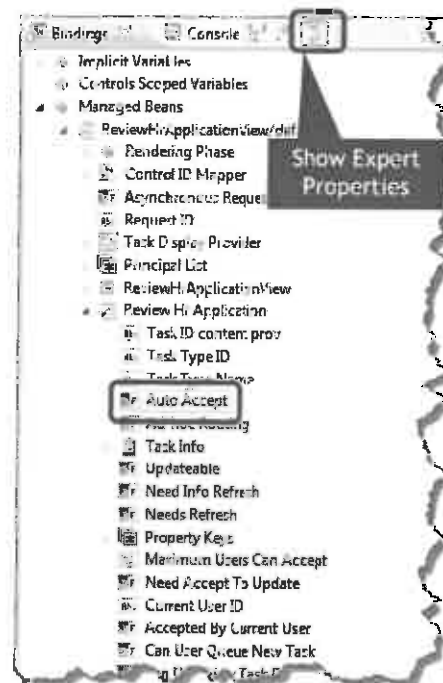
Notes: _____



Notes:

Advanced User Task Properties

- Bindings view offers advanced boolean properties to tailor runtime behavior of a User Task
- Examples:
 - ***AutoAccept:***
Allows a user to accept a User Task just by clicking on the task link
 - ***Can User Cancel Task:***
Enables/disables User Task canceling
- Prerequisite:
Enable "Show Expert Properties"



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Notes: _____

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User Task Events

- User Task Events provide dynamic policies that are evaluated on User Task instances in a certain state within the Task Engine
 - Events do not affect the Process Engine
 - Events may affect User Task state and Business Data
- User Task Events enable Task Engine to execute business logic:
 - Task may intelligently transition through states based on configured logic contained entirely in the task definition
 - Task events may call out to external services, but usually they will operate locally on task state and data



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Notes: _____

User Task Event Components

- User Task Events are defined by:
 1. General Information
 2. Event Type (with optional extra conditions)
 3. Event Actions
- Configure User Task Events using Events tab in Task Editor



Notes: _____

1. General Information

■ User Task Event's General Information:

- Event Name
- Event Description
- Task Control Set

The screenshot shows a configuration window with a 'General' tab selected. Under the 'General Information' section, there are three fields: 'Event Name' with the value 'CustomIdPriority', 'Event Description' with the text 'This User Task Event will set the CustomID and the Priority of the User Task', and 'Task Control Set' which is a dropdown menu.

General	
General Information	
Event Name:	CustomIdPriority
Event Description:	This User Task Event will set the CustomID and the Priority of the User Task
Task Control Set	

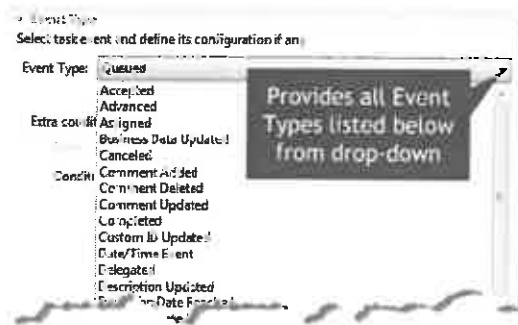
Notes: _____

2. Event Types

- **Event Type** specifies the condition under which the Event should fire

- Select from pre-defined Event Types:

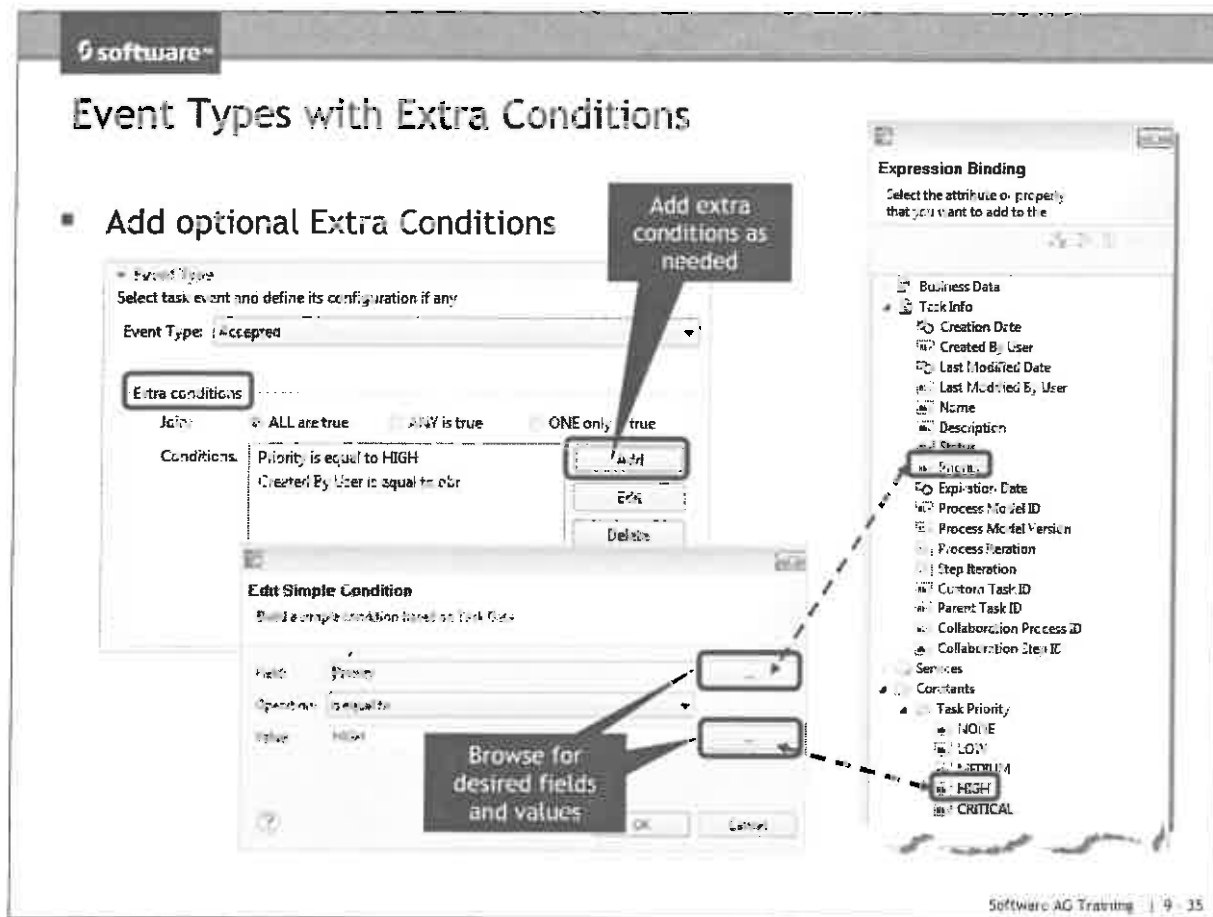
- Accepted
 - Assigned
 - Canceled
 - Completed
 - Delegated
 - Queued
 - Re-assigned
 - Resumed
 - Suspended
 - Task Deleted
 - Task Updated
 - Name Updated
 - Description Updated
 - Comment Added
 - Comment Deleted
 - Comment Updated
 - Priority Updated
 - Business Data Updated
 - Custom ID Updated
 - Date/Time Event
 - Expiration Date Reached
 - Expiration Date Updated
 - On Error
 - Filter Inbox - Accepted Tasks
 - Filter Inbox- Custom Filter
 - Filter Inbox- User Activity
 - Advanced



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Notes: _____

[illegible]



Notes: _____

[illegible]

Event Type "Advanced"

- Event Type "Advanced": Ability to create custom Event triggers
- Add/Edit Advanced Event Condition Expression, built with Edit Expression dialog box

Event Type: **Advanced**

Advanced event condition expression

Condition: `{#new Task.taskInfo.status == "active" && #old`

Edit

Edit Expression

Click a button to select and add a field, operator, or action to the expression. You can also modify the expression.

Add Field Add Operator Add Action

`(new Task().getStatus() == 'active') && (oldTask.getStatus() == 'new')`

Custom Java methods in the managed beans are available for use in expressions

All expressions are checked for validity as they are created and syntax errors are displayed as they are entered

Ok Cancel

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Notes: _____

[illegible]



Useful User Task State Fields...

- User Task State fields can be referenced from:
 - Simple Extra conditions
 - Advanced Event Condition Expression
 - ...
 - Useful User Task State Fields:
 - **SimpleTask ID:**
Read-only string field containing the ID of the User Task instance
 - **Custom Task ID:**
Searchable and indexed string available for use as a business identifier of a User Task
 - **Status:**
String field containing the User Task status
(NEW, ACTIVE, COMPLETED, ERROR, CANCELLED, or EXPIRED)
 - **Priority:**
String available for specifying the User Task priority
(CRITICAL, HIGH, MEDIUM, LOW, or NONE)
- Selection of Task State fields supported by Browse functionality in:

 - Simple Condition dialog box
 - Edit Expression dialog box

Selection of Task State fields supported by Browse functionality in:

- Simple Condition dialog box
- Edit Expression dialog box

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Notes:

...Useful User Task State Fields

- **Useful User Task State Fields (cont.):**

- **Accepted By Current User:**
Boolean indicating if the current user is in the accepted list
- **Accepted By User List:**
String list of users that have accepted the User Task
- **Assigned To User List:**
String list of user and role assignees
- **Expiration Date:**
Time stamp (`java.util.Date`) specifying when a Use Task will expire
- **Error Code:**
String error code useful when state is "Error"
- **Error Message:**
String error message useful when state is "Error"

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[illegible]

Expression Operators

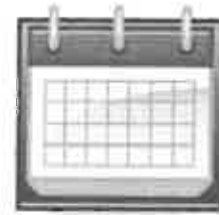
Operator	Definition	Operator	Definition
+	Add	<=	Less than or equal
-	Subtract	and	Logical AND (&&)
*	Multiply	or	Logical OR ()
/	Divide	not	Logical NOT (!)
%	Modulus	contains	The preceding string, collection, or object array contains the following string
^	Exclusive OR	does not contain	The preceding string, collection, or object array does not contain the following string
>	Greater than	is empty	The preceding string, collection, or object array is empty
<	Less than	not empty	The preceding string, collection, or object array is not empty
==	Equals	matches	The preceding string matches the following regular expression
=	Assignment (sets a value)	starts with	The preceding string starts with the following string
!=	Does not equal	ends with	The preceding string ends with the following string
>=	Greater than or equal	;	Statement separator

[illegible]

Date or Time Values in Expressions

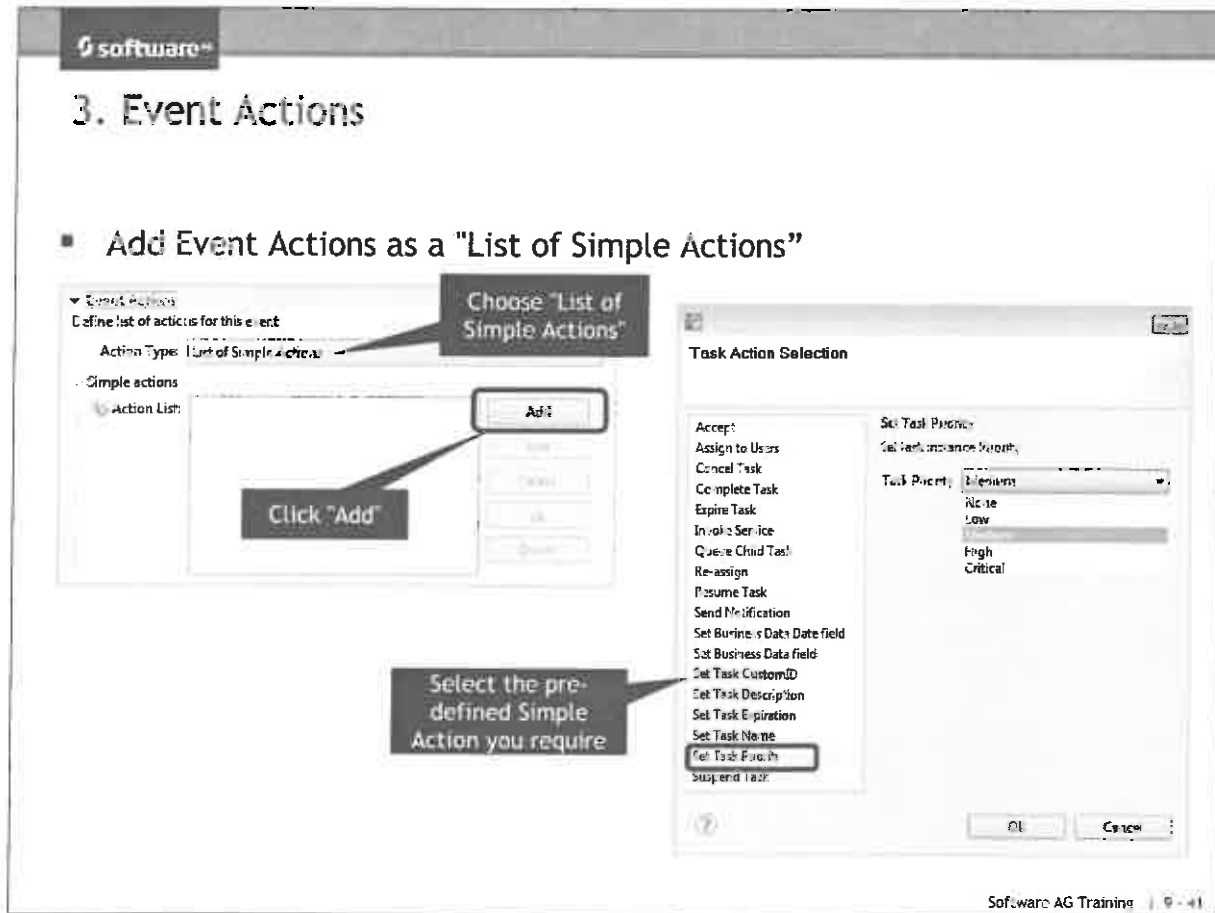
- `java.util.Date` data elements are evaluated in expressions as their millisecond epoch time (type `long`)
- All arithmetic and comparison operators can be applied to that value, as it now exists as a long number
- **Example:** Check if the User Task is within an hour of its expiration:

```
#{System.currentTimeMillis} >  
  (#{currentTask.taskInfo.expireDate} - 3600000)
```



Use parentheses to build complex expressions!

Notes: _____



Notes:

Advanced Event Actions

- Event Action Type "Advanced action expression":
Ability to create custom event actions

- Add/Edit Advanced action expression using the Edit Expression dialog box

Define list of actions for this event

Action Type:

Advance | action: ...

☐ Result:

- **Example:**

Simple actions

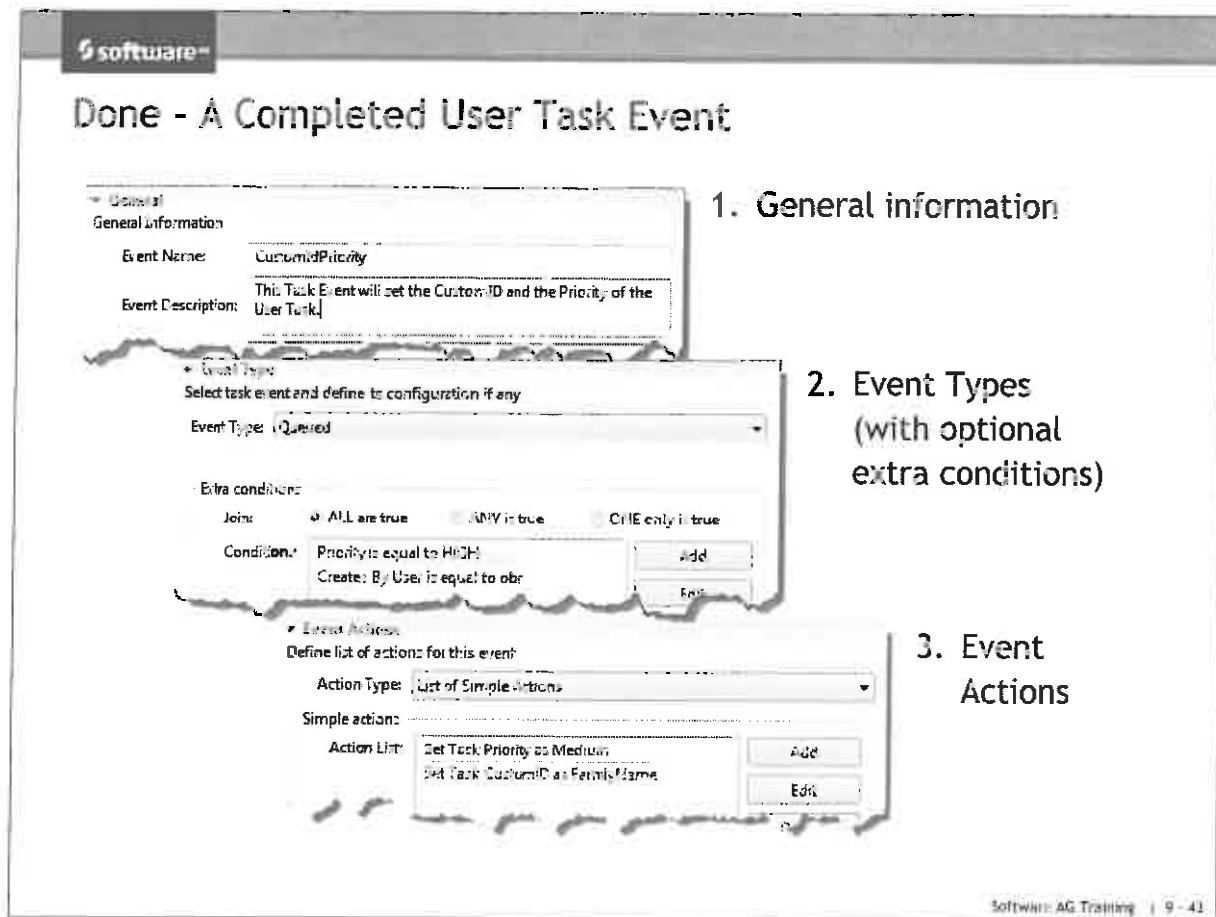
Action List:	Set Task Priority as Medium Set Task CustomID as LName
--------------	---

```
# {currentTask.taskInfo.priority} = "medium";
# {currentTask.taskInfo.customTaskID} =
    # {currentTask.taskData.taskApplication.lname};
# {currentTask.applyChangesNoAccept}
```

equivalent

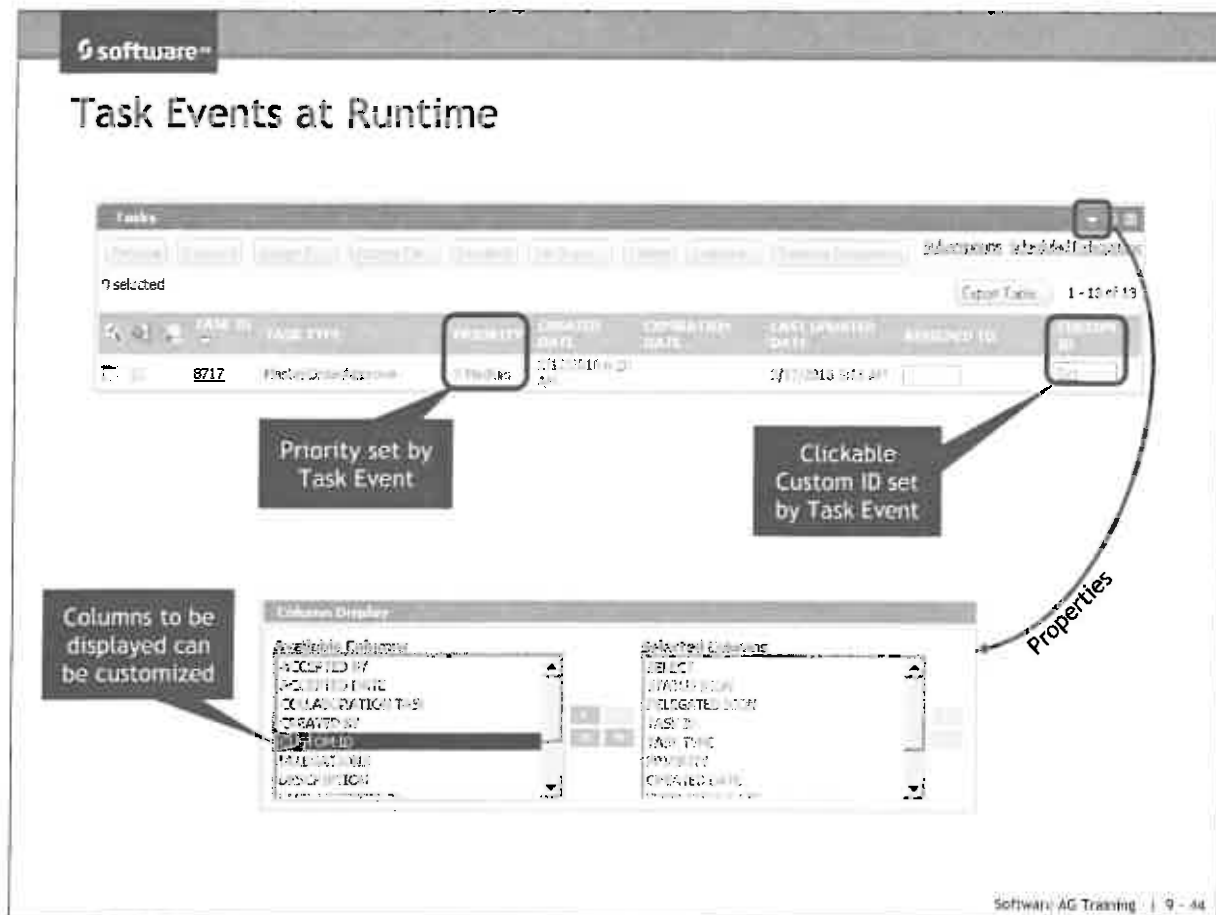
Suggested practice:
Generate as much as you can with Simple Actions and then modify

Notes:




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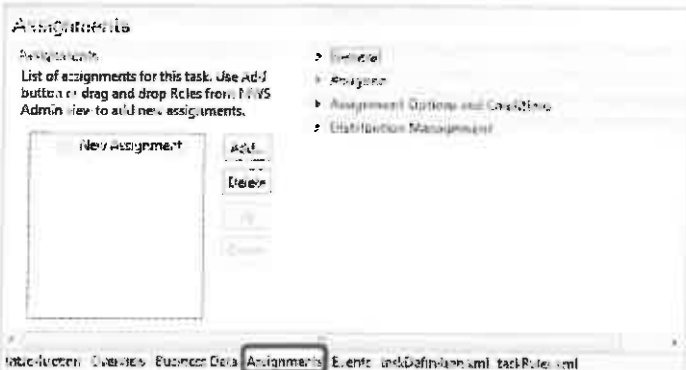
[illegible]




Notes:

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User Task Assignments






User Administration

- **User Tasks may be assigned to a list of defined users, groups and/or roles**
 - User Task assignment typically determines whose inboxes can see queued tasks
 - User Task assignment is not required, but is typical
 - Users, groups and roles must be configured in My webMethods before User Task assignment
- **User Task assignment may be performed:**
 - Design time: Designer's Task Editor through Assignment tab
 - Runtime: My webMethods Monitoring console through the Task List Management page

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Notes: _____

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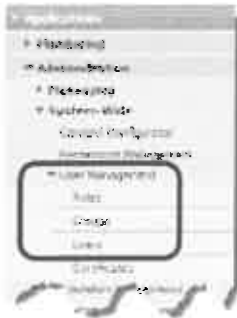
Configuring Users, Groups, and Roles in MWS

- My webMethods Server supports user identification for:
 - Access control of presentation services
 - User Task Assignments

- My webMethods Server manages three security concepts:
 1. *User*: an individual person interacting with the server
 2. *Group*: a collection of users and groups in an organization
 3. *Role*: a collection of users and groups and roles with similar responsibilities

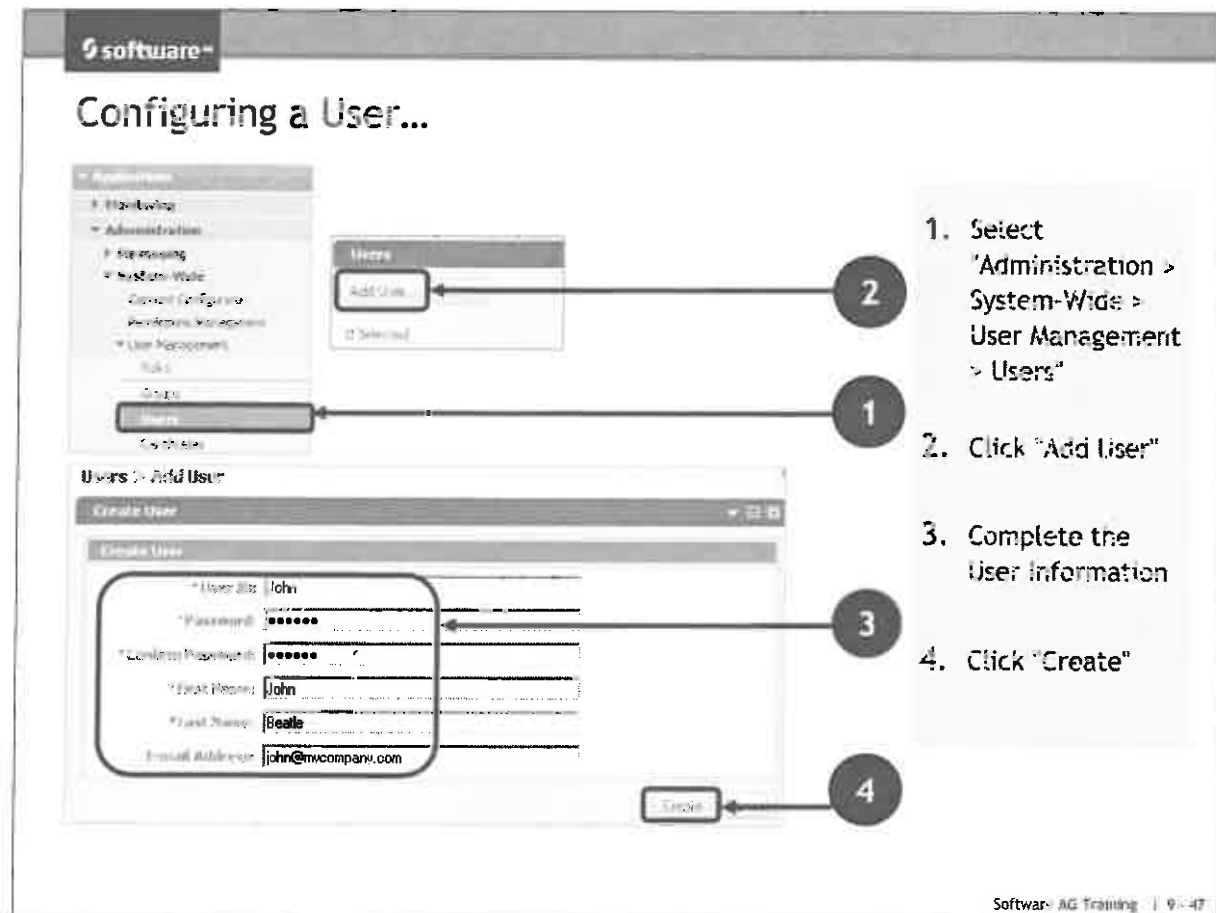
- User configuration done within MWS Administration console.

- MWS User information stored in
 - local directory
 - shared directory (LDAP)

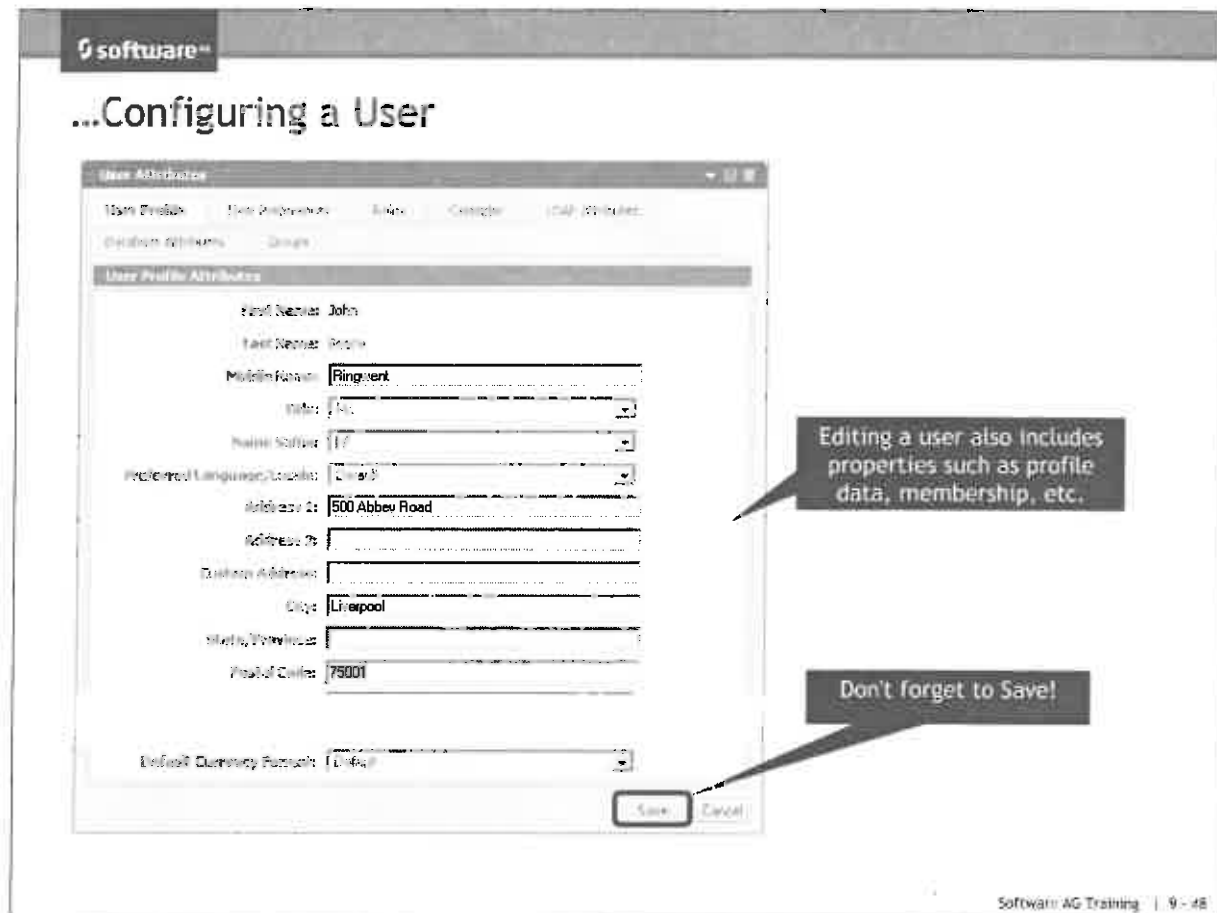


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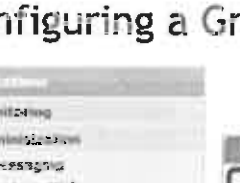
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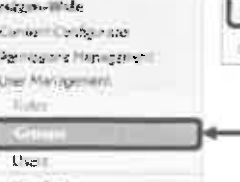


Notes:




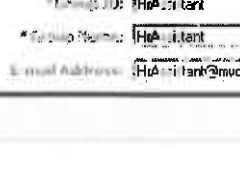
Notes:






1. Select "Administration > System-Wide > User Management > Groups"





2. Click "Add Group"
3. Complete the Group information
4. Click "Create"



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Notes:



Notes:

The screenshot shows the SAP Role Configuration Wizard. The left sidebar has a tree view with 'Administration' expanded, showing 'System-Wide' and 'User Management'. The 'Roles' button is highlighted. The main area shows 'Roles: Add Role' with a 'New Role' button. Below this is a table for 'Role Attributes' with columns 'Attribute' and 'Value'. The 'Attribute' column lists 'Role Name', 'Role Provider', 'Role Description', and 'Role Type'. The 'Value' column is empty. A 'Create Role' button is at the bottom right.

1. Select "Administration > System-Wide > User Management > Roles"
2. Click "Add Role"
3. Provide a Role name
4. Select a Role Provider
5. Click "Create Role"

Notes:

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Configuring Role Membership

1. Select the "Members" tab

2. Click "Edit Members"

3. Search for the Groups or Roles you wish to add and move them to the "Selected" column

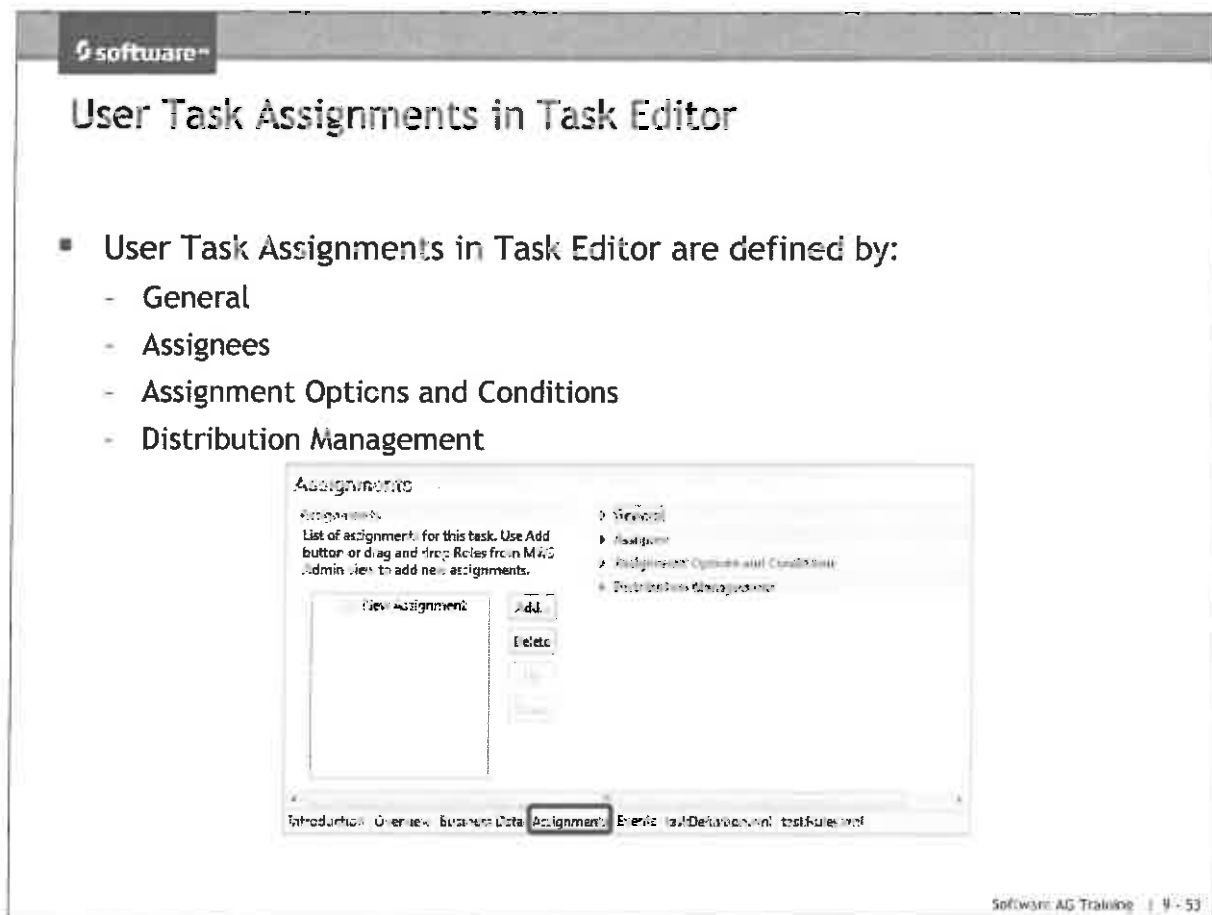
4. Click "Apply"

5. Click "Save"

It is considered poor practice to assign users directly to a role; instead, assign users to groups, and have the groups assigned to roles

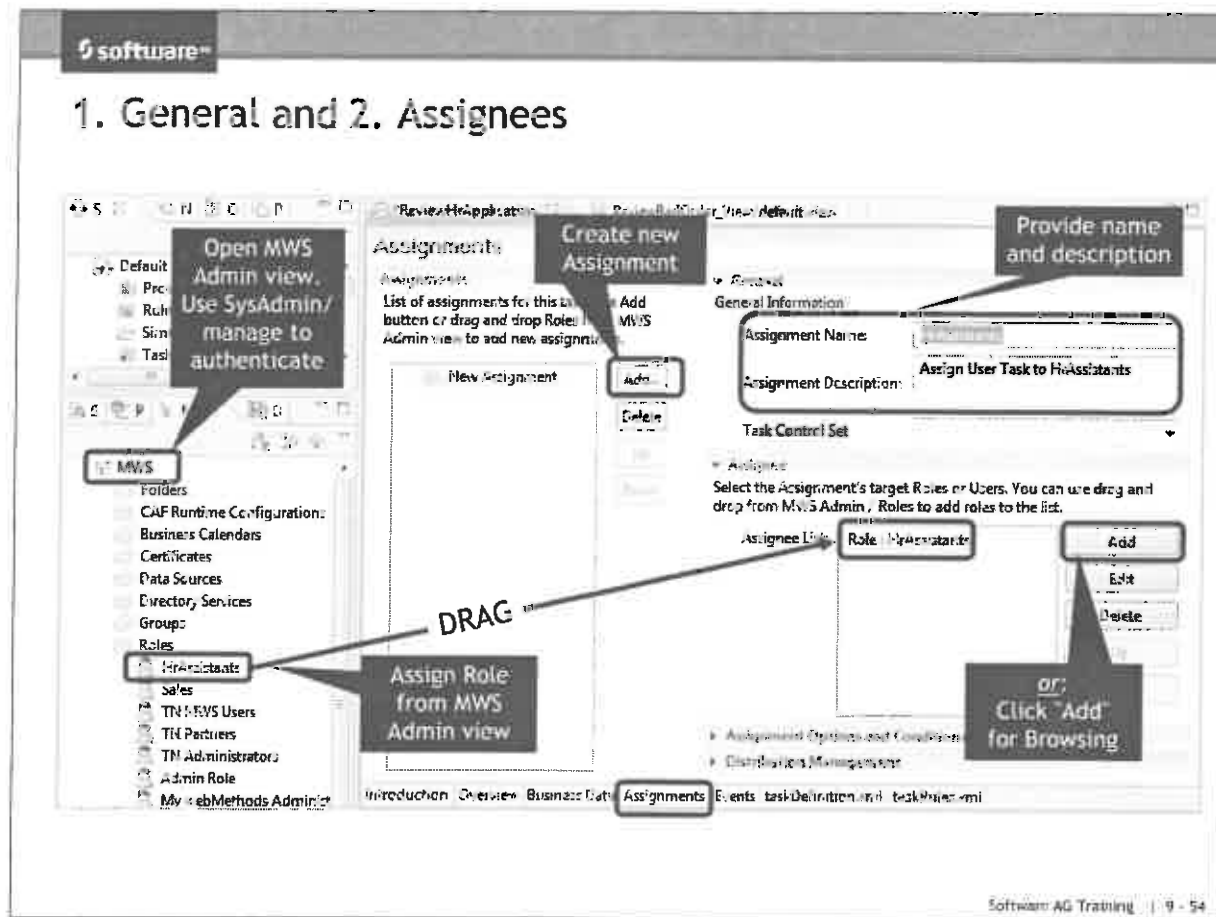
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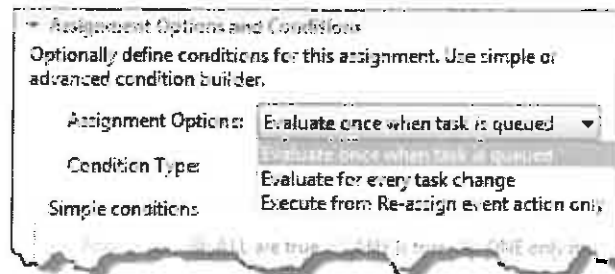
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Notes:

3. Assignment Options and Conditions...

- Assignments determines to whom a User Task will be assigned
- Assignment may happen once or many times depending on options
- Available Assignment Options:
 - **Evaluate once when task is queued:**
Assignment only happens once (default)
 - **Evaluate for every task change:**
Assignment may happen many times when the task system or business data changes
 - **Execute from Re-assign event action only:**
Assignment may happen many times when the User Task is reassigned

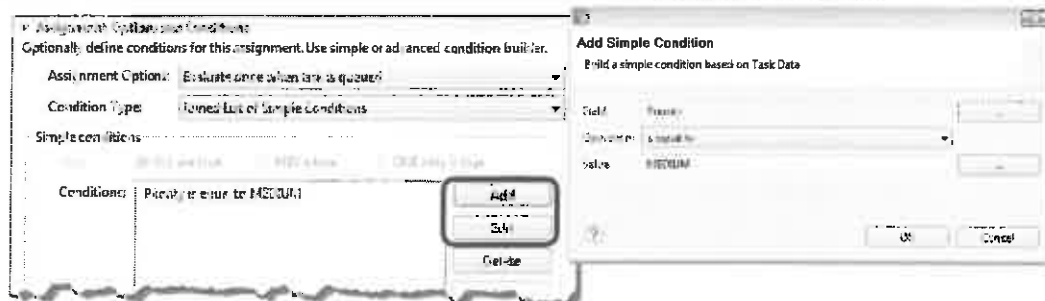


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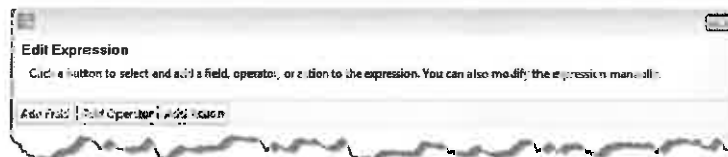
This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

... 3. Assignment Options and Conditions

- Assignment may optionally be based on a condition
- The Condition Type may be:
 - Joined List of Simple Conditions, built by Simple Condition editor



- Advanced Condition Expression using the expression language



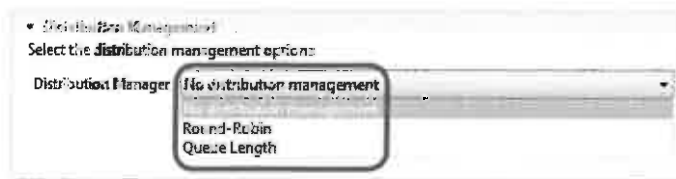
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Notes: _____

[illegible]

4. Distribution Management

- User Task Assignments may be distributed depending on Distribution Management
- Task Distribution strategies:
 - No Distribution Management (default)
 - All assigned users and roles will be affected

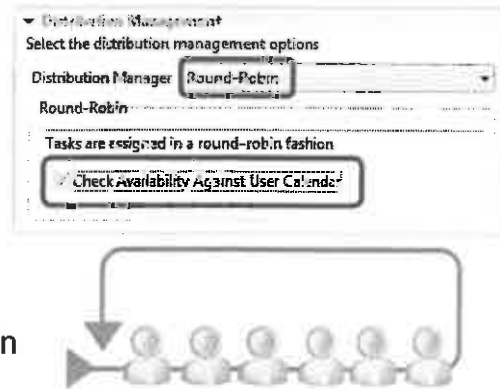


- Round-Robin
- Queue Length

Notes: _____

Round Robin Distribution

- For round-robin, the assignee list must contain only:
 - MWS Roles
 - IS Services that return Roles
 - Security Roles Not covered by this class.
- Individual user names CANNOT be in the assignee list for the round-robin distribution management methods
- Group members of a role are considered a single entry in the role
- The expected round robin behavior may be effected if the "Check Availability Against User Calendar" option is checked



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Notes: _____

[illegible]

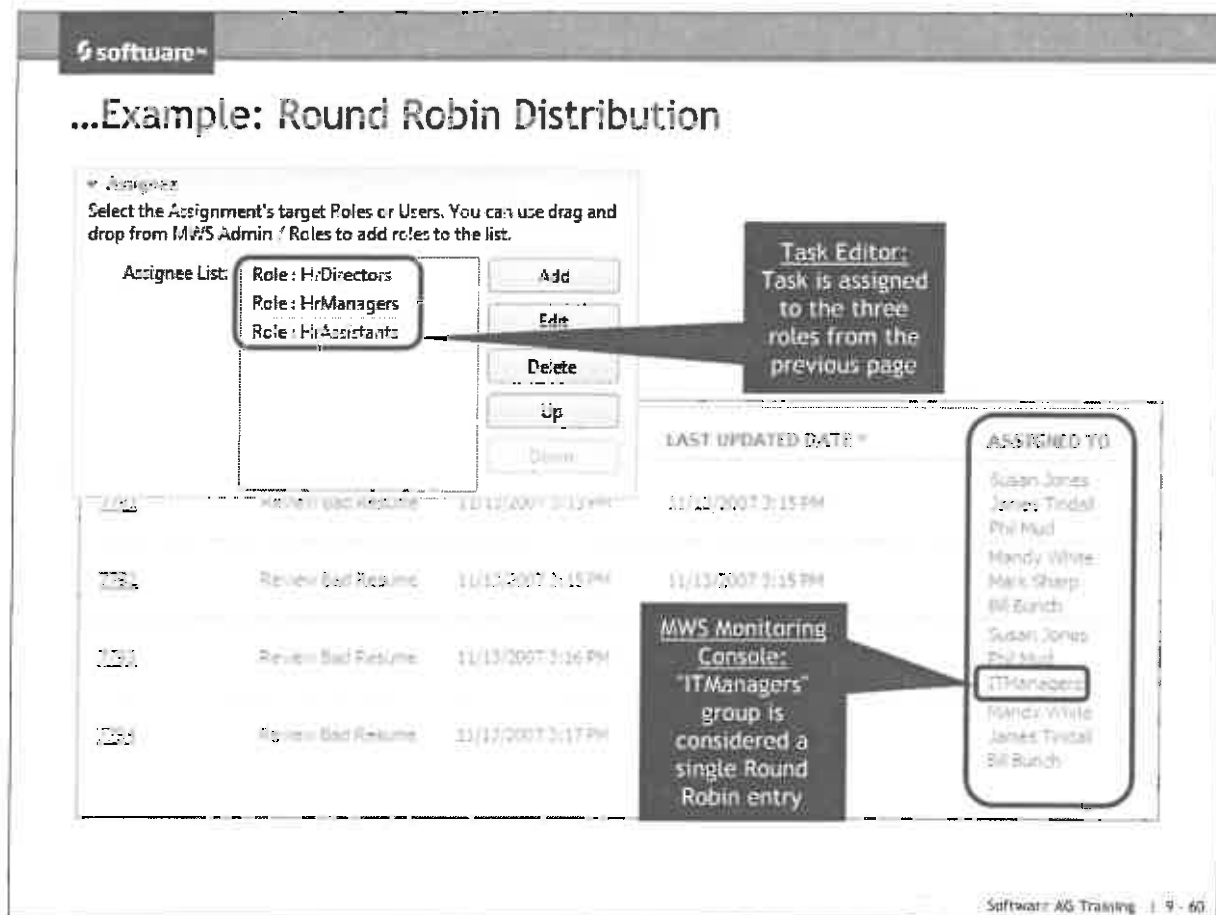
Example: Round Robin Distribution...

HrAssistants (Role)	HrManagers (Role)	HrDirectors (Role)
Mandy White	Mark Sharp	Phil Mud
Susan Jones	James Tindall	Bill Bunch
	ITManagers (Group)	

The "ITManagers" Group contains two members: "Jason" and "Donna"

Notes: _____

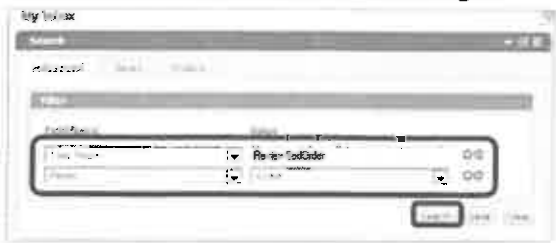

8.1

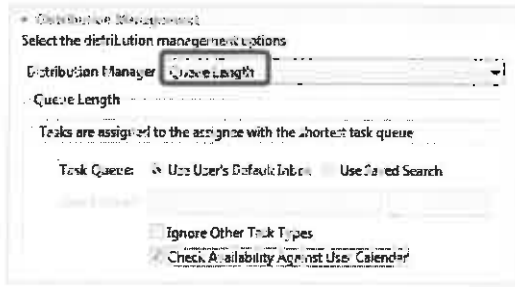
[illegible]

software

Queue Length Distribution

- Tasks may be distributed based on the users queue length
- The queue length may:
 - Use the User's Default Inbox
 - Leverage a Saved Search created using the MWS console:



- Options:
 - Ignore Other Task Types
 - If checked, only Tasks of this type will be considered in the queue length calculation
 - Check Availability Against User Calendar
 - If checked, the User calendar will be used to determine if the user is available

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Notes: _____

User Calendars

- User Task Assignment can also be hooked to User Calendars
- Define User Calendar in MWS and hook to personal calendars stored in:

- IBM Lotus Notes

- Microsoft Exchange

The screenshot shows the Joomla! 1.5.23 Administration Control Panel. The 'Global Configuration' tab is selected. The 'Email Settings' section is highlighted, showing the following fields:

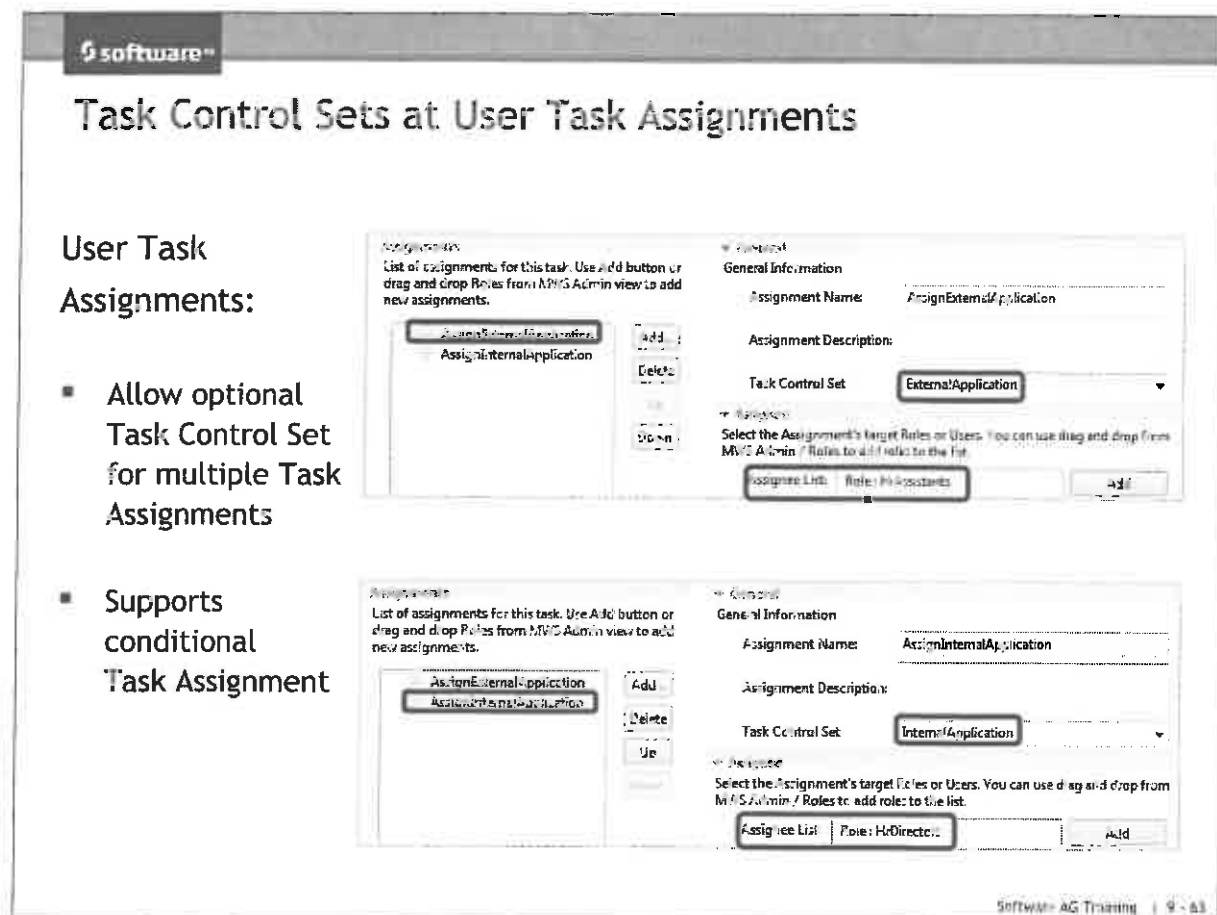
- SMTP Host:** smtp.mcomcast.com
- SMTP Port:** 587
- SMTP Username:** email
- SMTP Password:** (masked with asterisks)
- Email:** email

The 'Email' field is highlighted with a red box. The 'SMTP Username' field is also highlighted with a red box. The 'SMTP Password' field is masked with asterisks. The 'Email' field is set to 'email'.

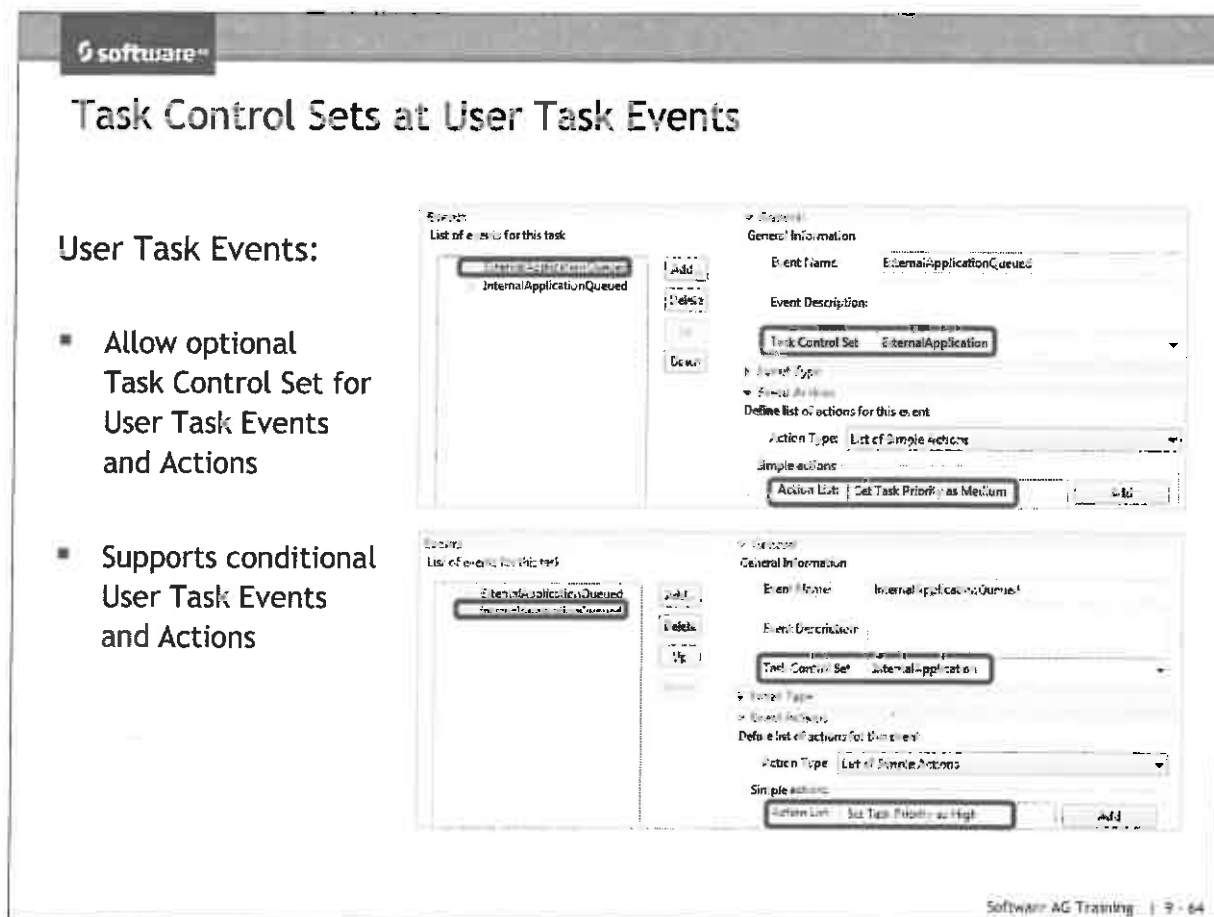
[illegible]

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[illegible]

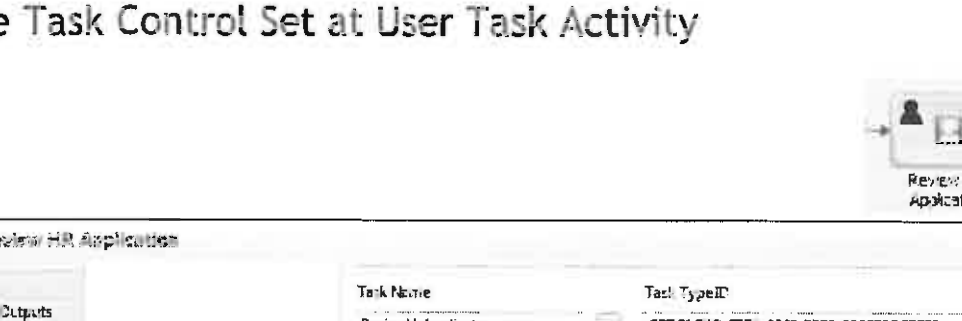


Notes:



Notes:

Use Task Control Set at User Task Activity



The screenshot shows the configuration for the 'Review HR Application' User Task Activity. The 'Task Information' tab is selected, displaying the following details:

- Task Name:** ReviewHRApplication
- Task TypeID:** CR7CLGHC-C7DL-1068-3252-992FF6CC7FFF
- Task Control Set:** External Application
- None:** Selected from the dropdown menu.
- Internal Application:** Section visible with icons for configuration.

[illegible]

Task Expiration

- User Task instances wait for human interaction
 - ➡ Associate an expiration date/time with a User Task
- User Task Expiration can be set by a Task Event
- Task Engine does NOT expires User Tasks when their expiration date is exceeded.
When a User Task expires:
 - Its User Task status has to be set to "Expired"
 - Can be implemented by a Task Event of Event Type "Expiration Date Reached"
 - Its process resumes



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Notes: _____

[illegible]

Revisited: Business Calendars

- Like Join and Process timeouts, User Task expiration can be based on Business Calendars
 - Allows User Task expiration to be based on "business" hours, not clock hours

User Task Timeout of one business hour



User Task is queued
at 10:00PM



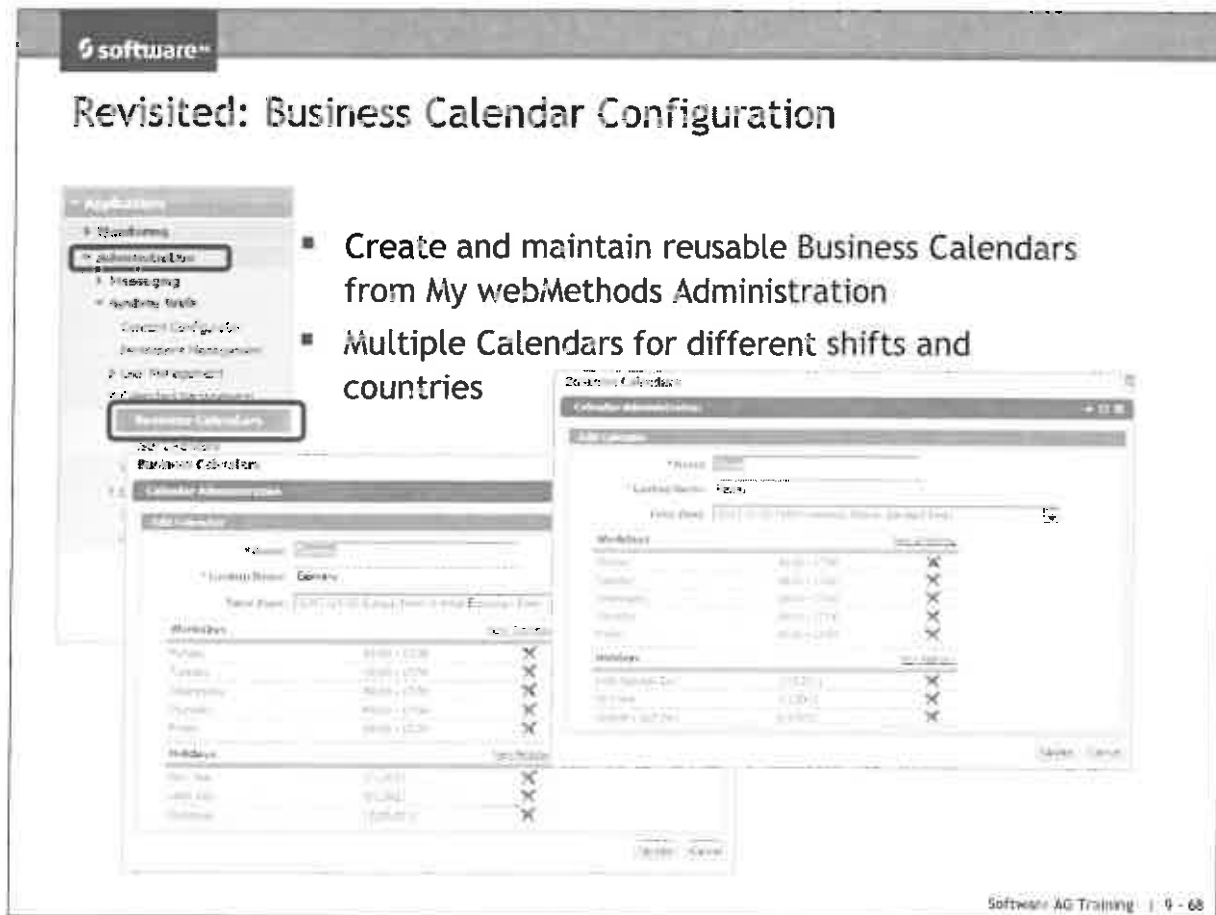
Employee start
work at 8:00AM



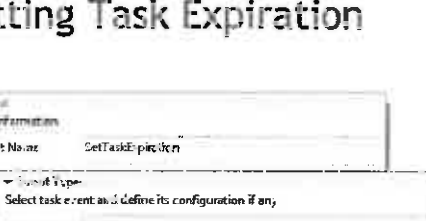
User Task expires
at 9:00AM

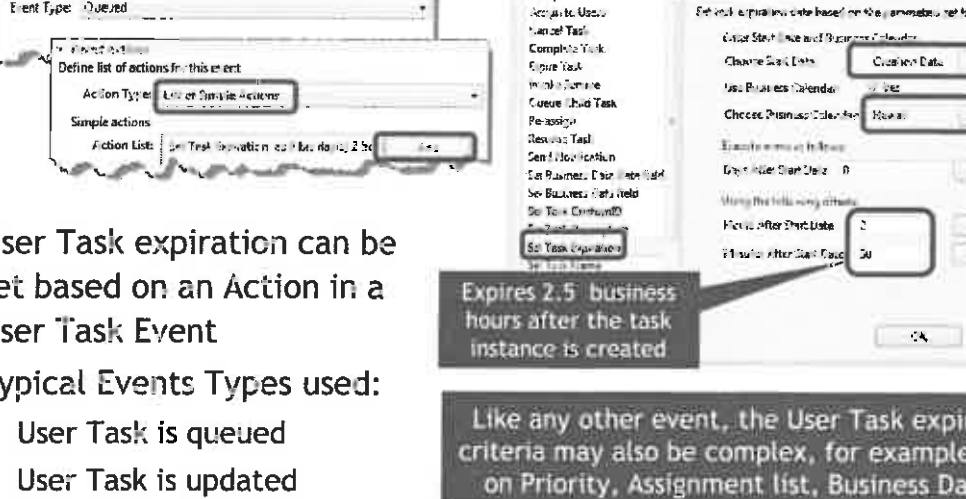
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Notes: _____



Notes:





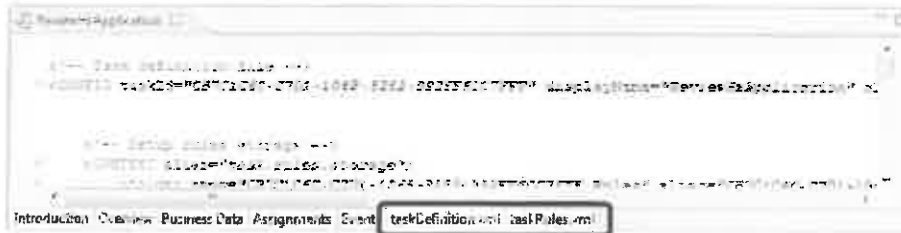
- User Task expiration can be set based on an Action in a User Task Event
- Typical Events Types used:
 - User Task is queued
 - User Task is updated

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[illegible]

More Advanced User Task Topics

- User Task definitions made in Task Editor stored in xml files



- User Tasks with e-mail notifications with/without reply
- User Task collaboration
 - configure and execute Task workflows for optional runtime collaboration
- Tasks supporting e-forms and CSP* documents
 - enable User Task UIs to handle e-form data or CSP documents
 - download/upload User Task data into/from e-forms or CSP documents

* webMethods Content Service Platform

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Notes: