

Diane McPhee 10/20/2014

# Product Implementation Training (PIT)

Content Platform Engine – Case Foundation 5.2.1

#### Case Foundation Enhancements





#### Introduction

- Course Overview
  - Describe the enhancements for IBM Case Foundation(ICF) environment.
- Target Audience
  - P8 Workflow Designers, Support Personnel
- Suggested Prerequisites
  - Ability to design workflows.
  - General P8 platform and application knowledge
- Version Release Date 10/31/2014



# **Course Objectives**

After this course you will be able to:

 Use the new step enhancements, system instruction and region objects when developing Case Foundation solutions.

#### Enterprise Content Management



### Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
- New and Enhanced Functions
- Course Summary



#### Overview

- New Step Enhancements
  - Reminder expression and submap
  - Before, OnSave and After submaps
- New System Instructions
  - ExpirationTimeTimer
  - SuspendDeadlineTimer
  - ResumeDeadlineTimer
- Region Metadata
  - Region Fields
  - Work Schedule,
  - Service Level Agreements
- New and Enhanced Functions

These features were initially introduced in CPE 5.2.0.3



# Overview (cont.)

- Support Case Foundation and Case Manager customers building date/time base Service Level Agreement fulfillment features in applications
  - Service Level Agreement defines SLA terms, commitments made by a company to provide a response for a service within a defined time period.
  - Work Schedule takes operating time zone and operating hours into consideration
  - Region Fields

     global region fields which are updateable and can be used across all workflows in the isolated region.
  - Reminder map and expression set up deadline/reminder based on SLA and Work Schedule.
  - Pre-On-Post Step maps

     recalculate deadline/reminder, adjust field values and step actions.
  - Suspend/resume timer instructions recalculate deadline/reminder taking SLA and Work Schedule into account.
  - Time Functions date/time functions access region metadata calculation.



# Course Roadmap

- Overview
- Step Enhancements
  - System Instructions
  - Region Metadata
  - New and Enhanced Functions
  - Course Summary



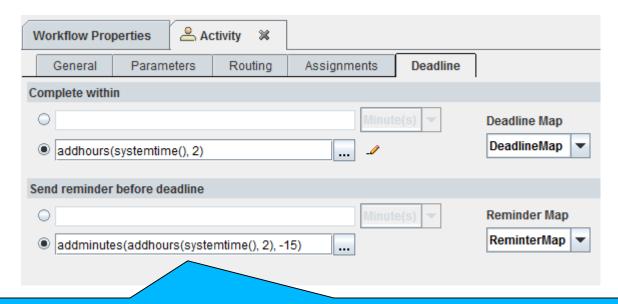
### Use Cases for Step Enhancements

 Designers need to provide the ability to check and set or recalculate field values for work items being processed by their workers. Each Step of the workflow may need to be able to check and re-evaluate the fields by various priority factors when the step is first entered, after a step is updated or after it is dispatched.



### Step Enhancements

- Step Reminder
  - A map that is called when the reminder expires (optional)
  - The reminder value can be specified as expression (optional)
    - Expression is calculated independently from Deadline

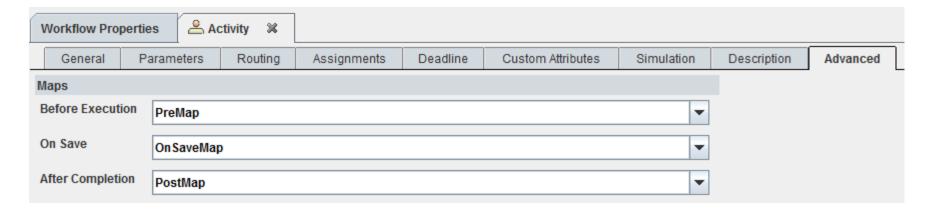


When a reminder expression is used the deadline value will not be used in the calculation. The deadline expression as the start time for the addminutes function. This expression will set the reminder to 15 minutes before the deadline expires.



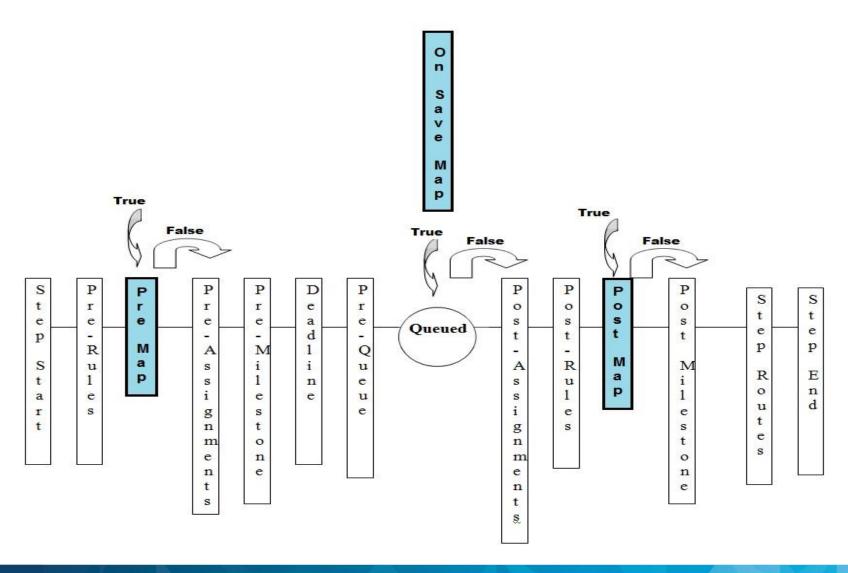
### Step Enhancements (cont)

- Optional maps which can be executed at different step states
  - Before Execution
  - On Save
  - After Completion





# Step Enhancements (cont)





# Course Roadmap

- Overview
- Step Enhancements
- System Instructions
  - Region Metadata
  - New and Enhanced Functions
  - Course Summary



# Use Cases for New System Instructions

- Designer needs to provide the ability to recalculate deadline and reminders for a Step after the work item has been suspended and then resumed.
- Designer needs to provide the ability to calculate deadlines, reminders and other timer fields
- Workers/Administrators need to have the ability to suspend a step timer. The work items
  on a Step with deadlines or reminders need to have the ability to resume and reset the
  suspended deadline.



### System Instructions

- ExpirationTimeTimer
  - Assigns the expiration time of a named timer to a specified workflow time field.
- SuspendDeadlineTimer
  - Suspends the deadline and reminder for a step
    - Deadline and reminder will be suspended on the step where a sub-map containing the instruction has been called.
    - Only active deadline and reminder be will be suspended.
- ResumeDeadlineTimer
  - Resumes the suspended deadline and reminder for a step
  - Allows user to optionally specify a new deadline or reminder expression
    - Timer must not have expired.
    - Recalculation is done at the time the ResumeDeadlineTimer instruction is executed.

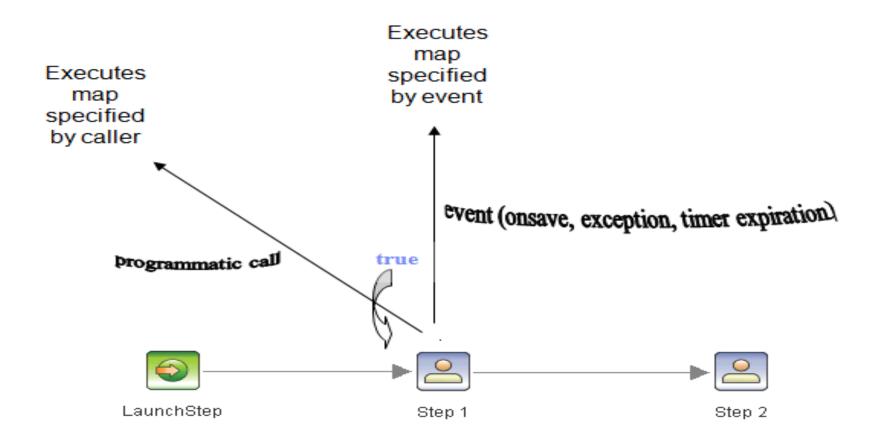


### System Instructions (cont)

- SuspendDeadlineTimer and ResumeDeadlineTimer must reside in a map called from the activity step.
  - Map is called programmatically or by an event which has been previously defined in the workflow.
    - Calling setCallMap method from the VWStepElement or VWWorkobject programmatically
      - wo.setCallMap("ResumeMap");
      - wo.doSave(true);
    - Maps called for On-Save, exceptions, the resume and timer timeouts could be used to affect the deadline and reminder if they are set and have not expired.
      - Implicitly due to an action (onSave submap) or an event (expiration or exception submap) occurrence



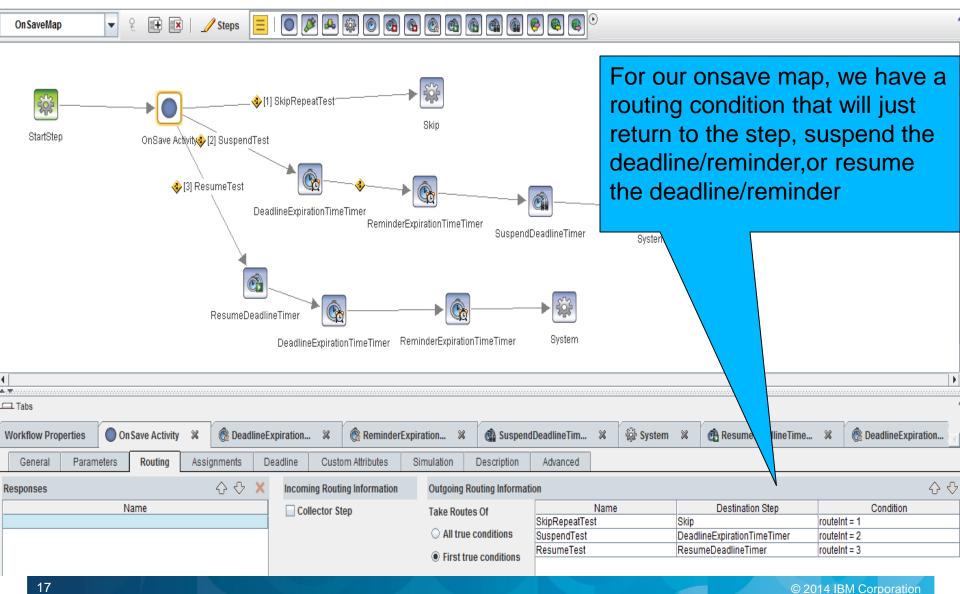
# System Instructions (cont)



#### **Enterprise Content Management**



# Map to Suspend and Resume Reminders and Deadlines





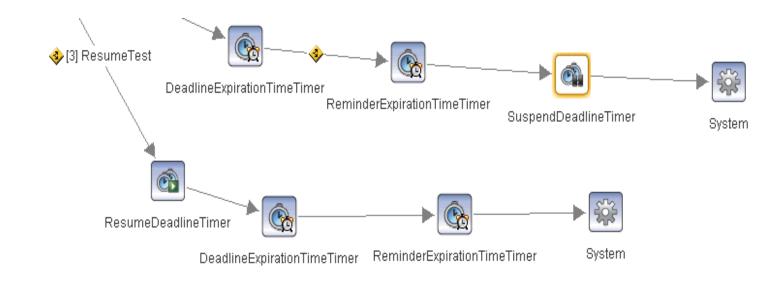
## Assign the Deadline time to deadlineBefore

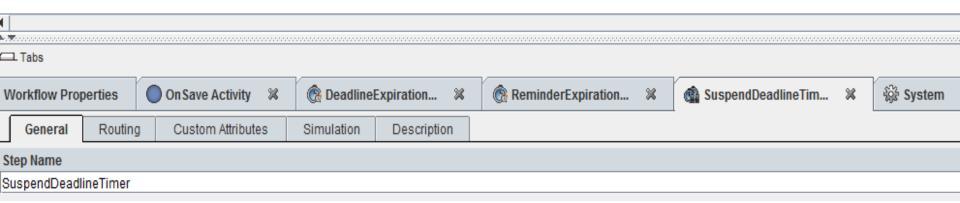
perties (	On Save Activity 🔏	Deadlinel	DeadlineExpiration       X		
Routing	Custom Attributes	Simulation	Description		
DeadlineExpirationTimeTimer					
Timer Type					
Deadline Timer Type					
Timer Name Expression					
Expiration Time Field					
deadlineBefore					
	Routing tionTimeTime Type pression Field	Routing Custom Attributes  tionTimeTimer  Type  spression  Field	Routing Custom Attributes Simulation  tionTimeTimer  Type  spression  Field		

In this example, the Timer Type is for the deadline of the step where the map was executed. The time this deadline is to expire will be set to the deadlineBefore Workflow field. Timer Type deadline and reminder will use values from the step where the map is executed. Named timer can be used within the same map.



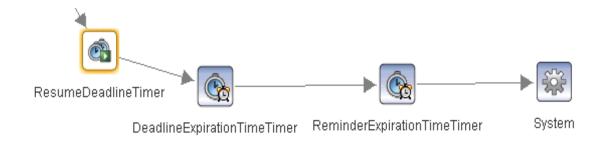
# Suspend the deadline and reminder

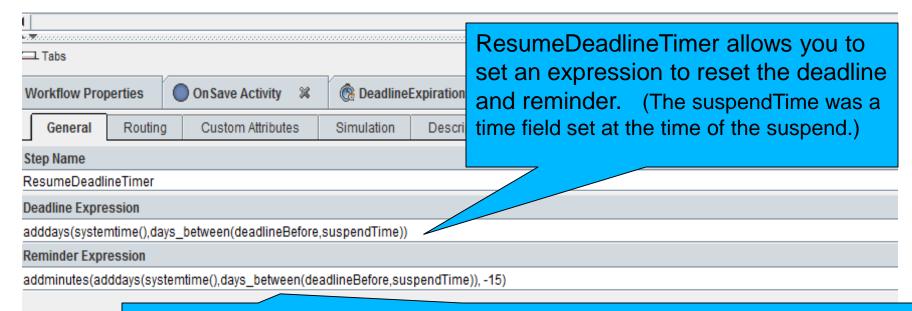






#### Resume deadline





For this example, we are setting the reminder expression start time to the deadline expression for the addminutes and subtracting 15 minutes.



### Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
  - Region Fields
  - Work Schedules
  - Service Level Agreements
- New and Enhanced Functions
- Course Summary



# Region Metadata

- Region Metadata
  - Region fields fields global to the region
  - Work Schedules business calendars
  - Service Level Agreements
- Region metadata is defined by the user
- Global to the isolated region
- Workflow Definition within the region can utilize these objects via expressions.
- Updates (commit) of the Region Metadata will not do an exclusive lock of the isolated region.

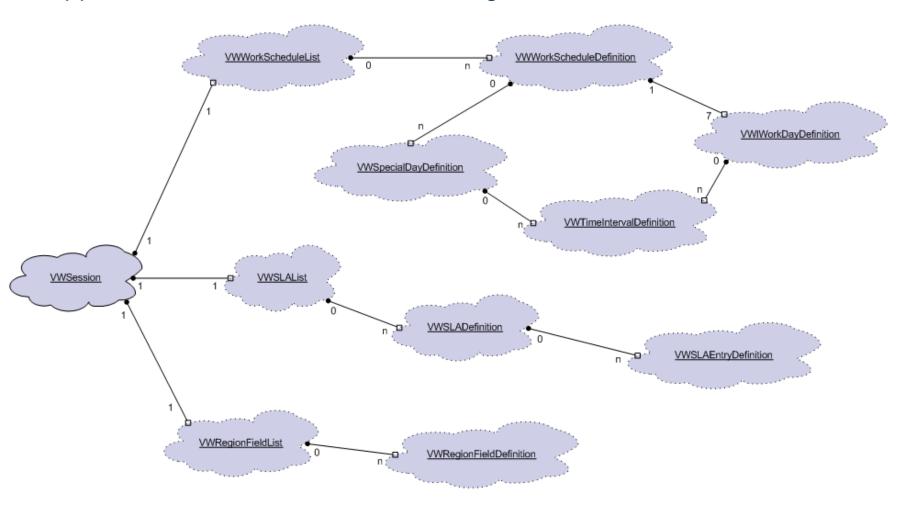


# Region Metadata (cont.)

- PE API Changes for support of SLA, Business Calendar and Region Fields.
  - VWSession has enhancements to retrieve SLA, Work Schedule and Region field collections or "lists" for the region. From the collections, the user has the ability to add, create, update, and delete definitions.
  - New PE Classes created for the support of SLA, Work Schedule, and Region Field
    - VWWorkScheduleList
      - VWWorkScheduleDefinition
        - » VWWorkDayDefinition
        - » VWSpecialDayDefinition
        - » VWTimeInterval used in both the working day and special day
    - VWSLAList
      - VWSLADeifnition
        - » VWSLAEntryDefinition
    - VWRegionFieldList
      - VWRegionFieldDefinition



Region Metadata - PE Java API: new classes and methods added to support SLA, Work Schedules and Region Fields





# Region Metadata (cont.)

- VWTool to import XML
  - vwtool will provide commands which allow the user to import an XML file containing Work Schedule, SLA or Region Field definitions.
    - "sla" views, updates and deletes SLA definitions
    - "workschedule" views, updates and deletes work schedule definitions
    - "regionfield" views, updates and deletes region field definitions by name.

#### Security

 Creating, updating and deleting of SLAs, Work Schedules and Region fields require SysAdmin (vwtool/API), SysConfig (API) or a user with write security on an application space within a region(API).



### Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
  - Region Fields
  - Work Schedules
  - Service Level Agreements
- New and Enhanced Functions
- Course Summary



### Use Cases for Region Fields

- Workers/Administrators need to have the ability to change the a field value so all work items in the region use the new value.
- Designers need to be able to build workflow expressions that reference values that are global within an isolated region.



### Region Fields

- Defined by the user and are global to the isolated region.
- Workflow(s) within the region can get the value of the field by using an expression.
- Region Field Properties:
  - Name: String. Unique name across all region fields of this isolated region.
  - Description: String
  - Type: The five basic scalar types: string, integer, float, boolean, time.
     (includes array)
  - Value: Basic types are supported, same as for workflow field.
    - The region field value cannot be null. Defaults are empty string "" for string, 0 for Integer, 0.0 for Float, true for Boolean and -200000000000 (Thu Aug 16 12:26:40 PST 1906) for time.
- New F\_getRegionFieldValue function
  - F\_getRegionFieldValue(<field\_name>, <field\_type>)

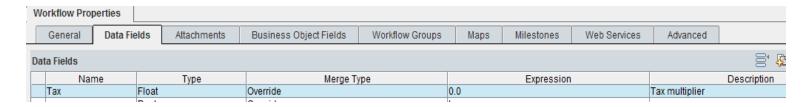


### Region Fields Example

Region Field

Field Name	Description	Туре	Value
Tax_CM_CA	Tax for Costa Mesa, CA	Float	7.75

Workflow Definition – Create data field of same type



- Use the F\_getRegionFieldValue in an expression or assign to a field value
  - Assign: Tax = F\_getRegionFieldValue("Tax\_CM\_CA", float)



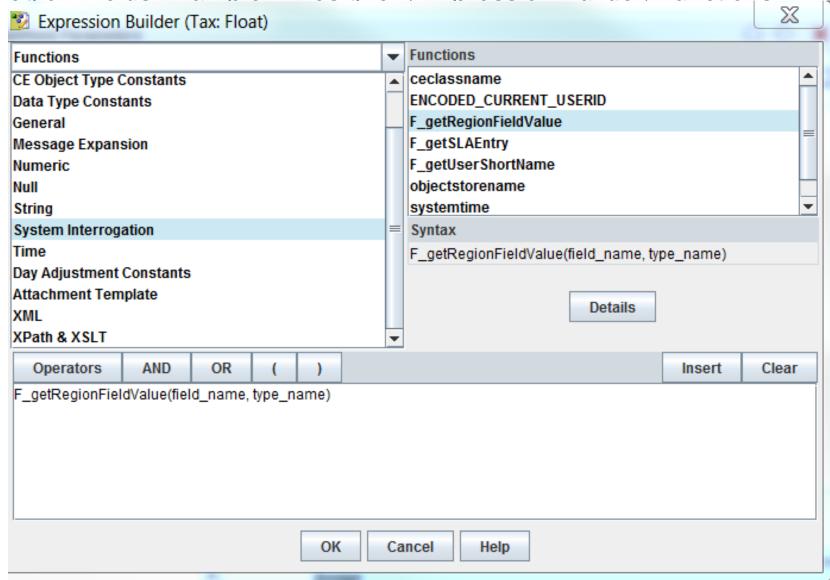
#### Region Fields Example – regionfield vwtool

regionfield option in vwtool to add the new field

```
<vwtool::29>regionfield
Isolated region fields:
              - View list on screen
       d - Dump in XML format to file or screen
       u - Update from an XML file
       r - Remove (delete)
Choice? \langle v, d, u, r \rangle: u
Update options:
             - Create/Replace definitions
          - Create/Merge definitions
Choice? <CR=o, m>: o
XML file name <CR=cancel update>: C:\JAVATEST\regionListOut.xml
Import option: Override
Importing region field definitions
Adding/updating region field: "Tax CM CA".
Imported "1" region field definitions.
Finished parsing the Isolated region metadata information.
```

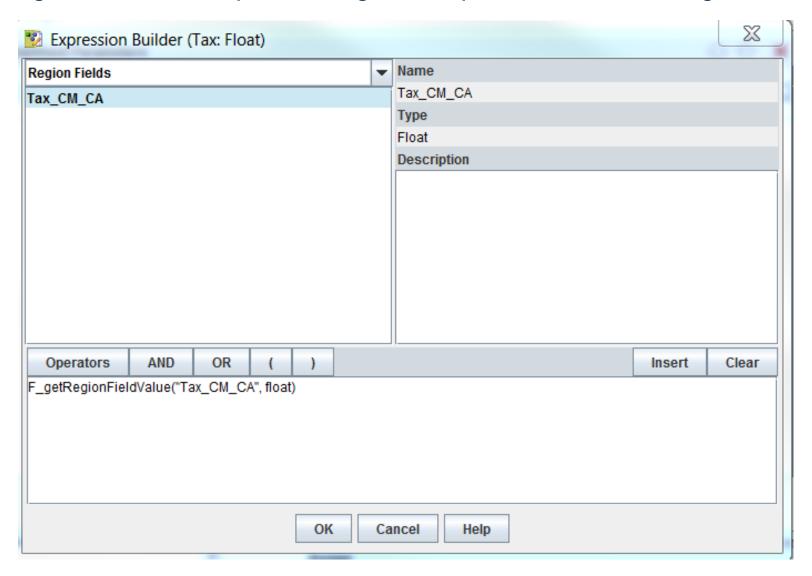


Region Fields Example – Designer . Expression Builder. Functions



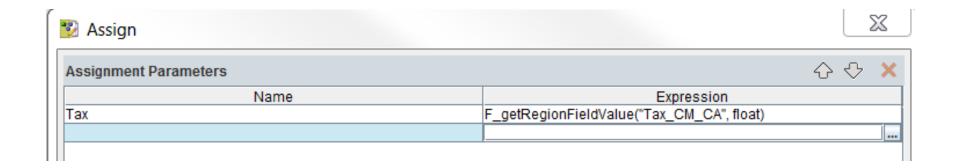


## Region Fields Example – Designer , Expression Builder, Region Fields





# Region Fields Example – Assign





### Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
  - Region Fields
  - Work Schedules
    - Service Level Agreements
- New and Enhanced Functions
- Course Summary



#### Use Cases for Work Schedules

 Designers need to provide the ability to calculate deadlines, reminders and other timer fields using a work calendar to provide appropriate timers and field values for a workers business day. Workers might be located in multiple time zones. Steps are assigned to users in specific time zones.



#### Work Schedule

- Defines the working hours of the day for each day of the week.
  - Each work schedule has a unique name for the region.
  - There can be multiple work schedules defined for the region.
- Work Schedule specifies:
  - The daily working hour intervals.
    - There can be more than one interval for a working day.
    - Intervals must be in a time order and not overlap.
    - The Cut off time which specifies a time threshold for accepting new work, is optional.
  - (Optional) Special days including holiday and special working day hours.
  - (Optional) A daylight savings can also be defined.
  - The time zone so each work schedule can be defined for a location and time zone.



# Work Schedule Example

#### Work Schedule definition

Calendar name:	CalExample
Java timezone:	Singapore

	Sun	Mon	Tue	Wed	Thur	Fri	Sat
Working day		yes	yes	yes	yes	yes	
Start		8am	8am	8am	8am	10am	
end		12pm	12pm	12pm	12pm	2pm	
Start		1pm	1pm	1pm	1pm		
End		5pm	5pm	5pm	5pm		
Cut-off time		3pm	3pm	3pm			

#### Holidays and special dates

Name	Date	Holiday	Working hours
4 of July	07/04/2013	Yes	
5 of July	07/05/2013		10am - 2pm



# Work Schedule (cont)

- New expression functions support Work Schedules
  - F\_calculateDeadline
  - F\_calculateReminder
- Existing time functions added optional support
  - addminutes, addhours, addseconds, seconds\_between, days\_between, adddays, addmonths and addyears.
    - addseconds(time\_expr, no\_of\_seconds{, work\_schedule\_name\_expr}opt {, use\_cutoff\_expr}opt)
    - addminutes(time\_expr, no\_of\_minutes{, work\_schedule\_name\_expr}opt {, use\_cutoff\_expr}opt)
    - addhours(time\_expr, no\_of\_hours{, work\_schedule\_name\_expr}opt {, use\_cutoff\_expr}opt)
    - adddays (time\_expr, no\_of\_days{, work\_schedule\_name\_expr}opt {, day\_adjustment\_expr}opt {, use\_cutoff\_expr}opt)
    - addmonths(time\_expr, no\_of\_months{, work\_schedule\_name\_expr}opt {, day\_adjustment\_expr}opt {, use\_cutoff\_expr}opt)
    - addyears (time\_expr, no\_of\_years{,work\_schedule\_name\_expr}opt {, day\_adjustment\_expr}opt {, use\_cutoff\_expr}opt)
    - days\_between(later\_time\_expr, earlier\_time\_expr{,workschedule\_string\_expr}opt)
    - seconds\_between(later\_time\_expr, earlier\_time\_expr{,workschedule\_string\_expr}opt)



# Work Schedule Example (cont)

- Define a Work Schedule
  - xml and vwtool workschedule option
  - PE Java API

```
<vwtool::29>worksch
Work schedules:
               - View list on screen
             - Dump in XML format to file or screen

    Update from an XML file

    Remove (delete)

Choice? \langle v, d, u, r \rangle: u
Update options:

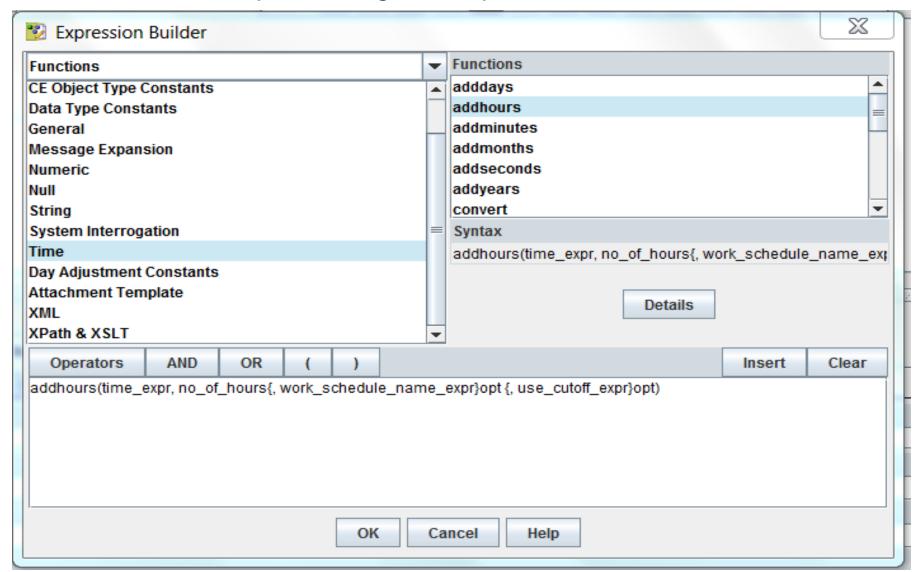
    o - Create/Replace definitions

               - Create/Merge definitions
Choice? <CR=o, m>: o
XML file name <CR=cancel update>: C:\Javatest\workScheduleListOut.xml
Import option: Override
Importing Work Schedule definitions
Adding/updating Work Schedule definition: "CalExample".
Adding/updating Work Schedule definition: "WorkSchedule2".
Imported "2" Work Schedule definitions.
Finished parsing the Isolated region metadata information.
```

39

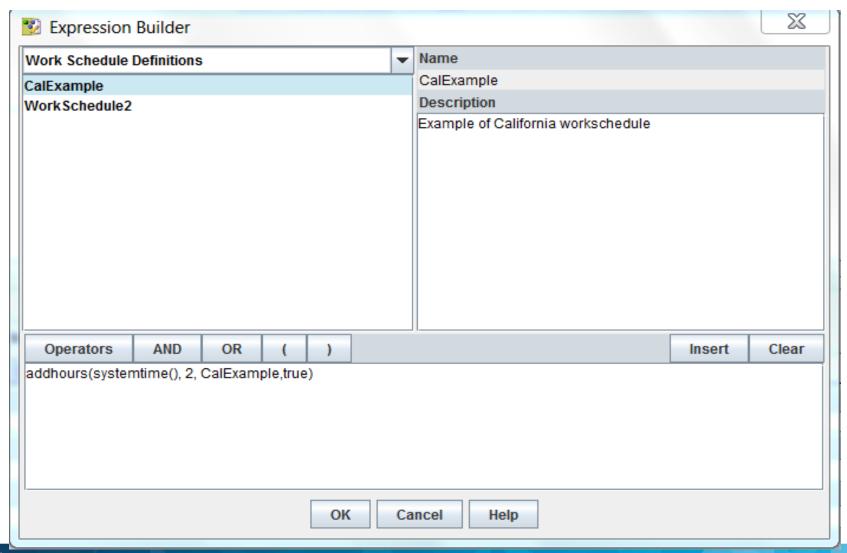


# Work Schedule Example – Designer , Expression Builder, Functions





# Work Schedule Example - Designer, Expression Builder, Work Schedule





# Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
  - Region Fields
  - Work Schedules
  - Service Level Agreements
- New and Enhanced Functions
- Course Summary



# Use Cases for Service Level Agreements

- Designers need to provide the ability for a Step to use the Service Level Agreement (SLA)
  and a SLA priority to calculate the urgency of the deadline and reminders. There must be
  a way to reset the expiration of the reminder or deadline and the ability to recalculate field
  values or possibly increase the SLA priority.
- Workers/Administrators need the ability to change the priority of the SLA referenced by a Step, which changes the deadline and reminder expiration values.



# Service Level Agreement (SLA)- Overview

- Service Level Agreement (SLA) defines deadline and reminder computational settings which can be used for Workflow Step level deadline and reminder
- The SLA name is unique for the region
- The SLA is a collection of SLA Entries possibly organized in a priority order.



# Service Level Agreement (SLA)- Overview (Cont)

- Each SLA Entry defines properties to be used in calculations of deadlines and reminders.
- If business calendar (Work Schedule) should be used to calculate values
- Deadline properties
  - Day or Hour option
    - Day option has options for day adjustments(end of day, end of business day, fixed time, same time, adjusted time). Default is same time.
  - (Optional) use of cutoff time
    - Cutoff time is specified in WorkSchedule
- Reminder amount of time (minutes) from deadline calculation in entry



### Service Level Agreement - Deadline, Day Adjustment

- Day adjustment is ONLY used for day calculation
  - The time is calculated to the appropriate day then the time is adjusted based on the option.

### Options:

- "EndOfDay" \*\*- adjusts time to end of the day (11:59 pm)
- "EndOfBusinessDay " -adjusts time to the end of the working day.
  - The last time interval of the work schedule.
- "FixedTime" < minutes\_from\_midnight\_(integer)>
- "SameTime" . \*\* adjusts time to start time hour specified in expression
- "AdjustedTime" adjusts time to start time expression hour within the working hours. The start time calculated from the time expression parameter will be adjusted with in the working time closest to the initial time expression.
  - Within the valid work time, use the input time. (similar to same time)
  - Before the valid work time, use the next available work time.
  - In between valid working intervals, move to the next available.
  - After the last working time interval, move to the next available work time.

<sup>\*\* -</sup> may fall outside the workschedule



# SLA Example

#### Service Level Agreement (SLA) Definition

SLA name:	SLA Example		
Index	Deadline	Reminder (time before deadline)	Calendar?
1	■ Days 3  Use Cut-off Time  ■ End of Business Day □ End of Day (midnight) □ Fix Time 0 □ Start Time □ Adjust Time □ Hours 0 Minutes 10	Hours 0 Minutes 10	Yes
2	● Days 3  ☐ Use Cut-off Time  ☐ End of Business Day ☐ End of Day (midnight) ☐ Fix Time ☐ Start Time ☐ Adjust Time ☐ Hours 0 Minutes 10	Hours 0 Minutes 10	
•••			
n			



# SLA Example – vwtool sla option

```
<vwtool::29>sla
Service level agreements:
            - View list on screen

    d - Dump in XML format to file or screen

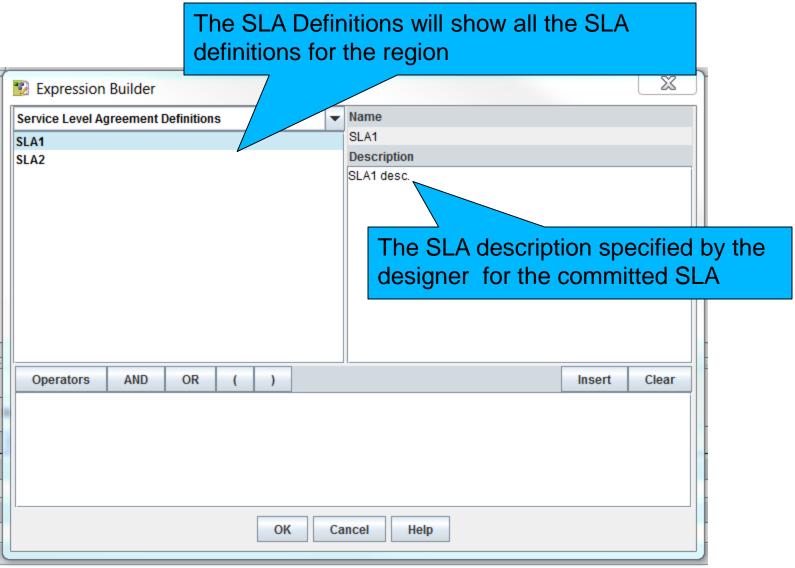
       u - Update from an XML file
       r - Remove (delete)
Choice? <v, d, u, r>: u
Update options:

    o - Create/Replace definitions

       m - Create/Merge definitions
Choice? <CR=o, m>: o
XML file name <CR=cancel update>: C:\Javatest\slalistout.xml
Import option: Override
Importing SLA definitions
Adding/updating SLA definition: "SLA1".
Adding/updating SLA definition: "SLA2".
Imported "2" SLA definitions.
Finished parsing the Isolated region metadata information.
```



SLA Example – Designer , Expression Builder, Service Level Agreement



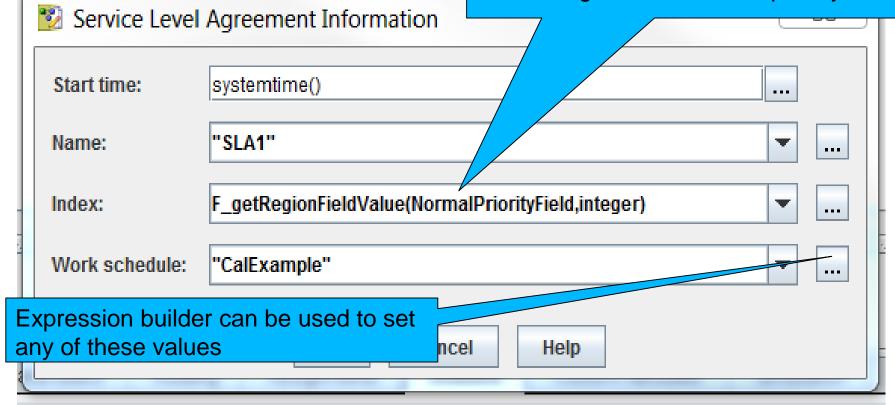
### Enterprise Content Management



SLA Example – Designer , Activity Step, Deadline, (pencil), Service Level

Agreement

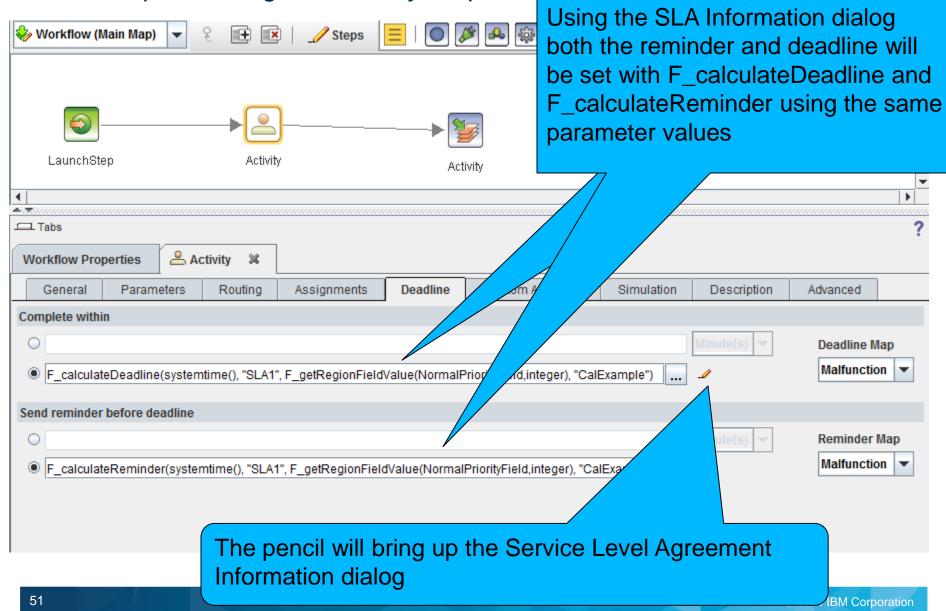
The index into the SLA ("SLA1") would use a region field named NormalPriorityField. The index would identify the SLA entry which user may have designated as normal priority.

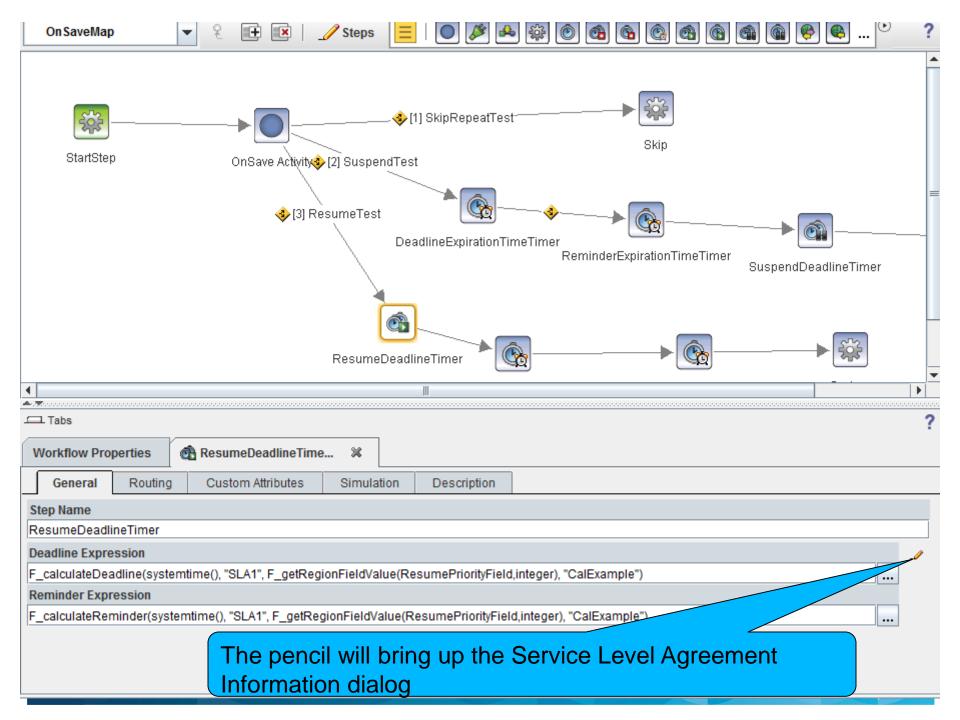


### **Enterprise Content Management**



SLA Example - Designer , Activity Step, Deadline

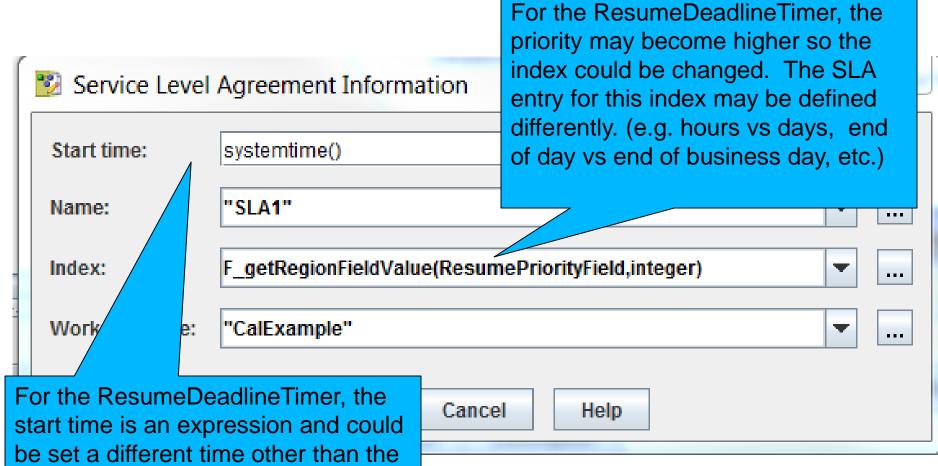




### Enterprise Content Management



SLA Example - Designer, Service Level Agreement Information



start time is an expression and could be set a different time other than the systemtime() when the ResumeDeadlineTimer instruction is processed.

53



# Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
- New and Enhanced Functions
  - Course Summary



### **New Functions**

### Data Type Conversion

ceobjecttoattachment - Returns an attachment object of the specified type \*\*

### System Interrogation

- ceclassname Returns the class name of the CE object referenced by the supplied attachment \*\*
- F\_getRegionFieldValue returns the region field value specified by the name.
- F\_getSLAEntry based on the SLA name and index, returns a string XML representation of an SLA entry
- F\_getUserShortName- Returns the short name of the current user as defined in LDAP.
- objectstorename Returns the symbolic name of the object store that is associated with the current isolated region. This information is retrieved from the GCD. If no object store is associated with this isolated region, then an empty string is returned. \*\*

#### Time

- F\_calculateDeadline provides the ability to calculates a deadline time using SLA and Work Schedule.
- F\_calculateReminder provides the ability to calculates a reminder time using SLA and Work Schedule.
- \*\* These functions were added in CPE 5.2.0.2



### **New Constants**

- Day Adjustment Constants
  - ADJUST\_TIME "AdjustedTime"
  - END\_OF\_DAY "EndOfDay"
  - END\_OF\_BUSINESS "EndOfBusinessDay"
  - SAME TIME "SameTime"
- CE Object Type Constants
  - CUSTOM\_OBJECT\_TYPE "custom object"
  - DOCUMENT\_TYPE "document"
  - FOLDER TYPE "folder"
  - TASK TYPE "task"

- Data Type Constants
  - BOOLEAN\_TYPE "boolean"
  - BOOLEAN\_ARRAY\_TYPE "boolean[]"
  - FLOAT\_TYPE "float"
  - FLOAT\_ARRAY\_TYPE "float[]"
  - INTEGER\_TYPE "integer"
  - INTEGER\_ARRAY\_TYPE "integer[]"
  - STRING\_TYPE "string"
  - STRING\_ARRAY\_TYPE "string[]"
  - TIME\_TYPE "time"
  - TIME\_ARRAY\_TYPE "time[]"



### **Enhanced Functions**

- Existing time functions will have the option to take a Work Schedule
  - days\_between and seconds\_between
- Existing time functions will have the option to take a Work Schedule and Use Cut Off Time
  - addminutes, addseconds, addhours
- Work Schedule, Day Adjustment and Use Cut Off are additional options for these functions
  - adddays, addmonths, addyears
    - Example:
    - adddays(systemtime(), 2) adds 2 days from the current time/day using 24x7 calendar.
    - adddays(systemtime(), 2, MyWorkSchedule) adds 2 working days using the working schedule.
    - adddays(systemtime(), 2, MyWorkSchedule, "EndofDay") adds 2 working days using the working schedule and adjusts the time for day to 11:59 pm.
    - adddays(systemtime(), 2, MyWorkSchedule, "EndofDay",true) evaluates if systemtime() is
      within cutoff from work schedule, if not moves to next working day, then adds 2 working days
      using the working schedule and adjusts the time for day to 11:59 pm.
    - adddays(systemtime(), 2, "", "EndofDay") adds 2 days from the current time/day using 24x7 calendar.and adjusts the time for day to 11:59 pm.
    - adddays(systemtime(), 2, MyWorkSchedule, "EndofBusinessDay", true) evaluates if systemtime() is within cutoff from work schedule, if not moves to next working day, then adds 2 working days using the working schedule and adjusts the time for day to last working



# Course Roadmap

- Overview
- Step Enhancements
- System Instructions
- Region Metadata
- New and Enhanced Functions
- Course Summary



# **Course Summary**

You have completed this course and can:

List, describe and use the new features

- New Step Enhancements
  - Reminder expression and submap
  - Before, OnSave and After submaps
- New System Instructions
  - ExpirationTimeTimer, SuspendDeadlineTimer, ResumeDeadlineTimer
- Region Metadata
  - Region Fields, WorkSchedule, Service Level Agreements
- New and Enhanced Functions
  - F\_getRegionFieldValue, F\_calculateDeadline, F\_calculateReminder,
     F\_getSLAEntry, ceobjecttoattachment,objectstorename,ceclassname
  - Workschedule and property options added as options to existing time functions



### Contacts

- Product Marketing Manager: William (Doc) Mills
- Product Manager: Mike Fannon
- Subject Matter Experts (SME)/Area of Expertise: Diane McPhee, Darik Siegfried, Van Vuong



# Product Help/Documentation/Resources

# Service-Level Agreement and Work Schedule-based Deadline and Reminder for Content Platform Engine 5.2 FP3- Tech Doc

http://www-01.ibm.com/support/docview.wss?uid=swg27041333

### **System Interrogation Functions**

http://www.ibm.com/support/knowledgecenter/SSNW2F\_5.2.1/com.ibm.p8.pe.user.doc/bpf e007.htm

#### **Time Functions**

http://www.ibm.com/support/knowledgecenter/SSNW2F\_5.2.1/com.ibm.p8.pe.user.doc/bpfe013.htm?lang=en

### Time limits for work item processing (System Instructions)

http://www.ibm.com/support/knowledgecenter/SSNW2F\_5.2.1/com.ibm.p8.pe.designerui.d oc/bpfdh048.htm?lang=en



# Questions?