Deltek VisionXtend™

Extending Data Validation Business Logic for Timesheets

Deltek Vision 6.1

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Overview

When timesheets are submitted in Vision, the data validation business logic can be extended to process custom validation rules using Web services. The custom validation process is treated as a part of single ‘submit’ transaction. In other words, based on the success or failure of the extended custom data validation, the entire submit operation is either completed or stopped.

The custom data validation process can return back messages as errors or warnings, and those messages are displayed in Vision. If no messages are returned, it is interpreted as the custom data validation was successful, and the timesheet is submitted and saved.

All of the custom data validation rules need to be encapsulated in one single Web service and one Web method is designated to be invoked when timesheets are submitted. In Vision, a timesheet configuration option is available to specify the Web service and the Web method that need to be invoked when timesheets are submitted (see below).

The Web service associated with the timesheet-data validation can also be used to launch other events and services that are outside and independent of Vision. At this time, it is not possible to invoke any internal workflow processes in Vision.

Implementation Details

When the timesheet is submitted, after processing standard data validation rules, the specified Web service is called and the designated Web method is passed the following parameter:

Parameter For The Web Method That Is Invoked When A Timesheet Is Submitted	
Timesheet Record (String - Entire timesheet record in XML format)	The entire timesheet record, which includes data from multiple timesheet-related tables in the Vision database represented in XML format.

Timesheet Record in XML

As mentioned above, the entire timesheet record in XML format is passed to the Web method to process custom data validation business logic. A single timesheet record consists mainly of data from two tables in the database:

- **tkMaster** — This table consists of a single row with master information for the record, and the tkDetail table consists of multiple rows for different days of the timesheet period. See the Data Dictionary for descriptions of fields in tables.
- **tkDetail** — This table is comprised of timesheet details for each of the days in the timesheet period. The custom data validation logic can be structured to validate any of the pieces of data in either the master or detail table. The XML format of the timesheet record that is passed to the Web method is given below.

```
- <ROOT>
- <tkMaster>
- <ROW>
  <EndDate>2009-08-31</EndDate>
  <Employee>00001</Employee>
  <TransDate>2009-08-18</TransDate>
  <MealStartDateTime>2009-08-18T12:00:00.000</MealStartDateTime>
  <MealEndDateTime>2009-08-18T12:30:00.000</MealEndDateTime>
  <Meal2StartDateTime />
  <Meal2EndDateTime />
  <BreaksTaken>0</BreaksTaken>
    </ROW>
    </tkMaster>
- <tkDetail>
  <EndDate>2009-08-31T00:00:00-07:00</EndDate>
  <Employee>00001</Employee>
  <Seq>4</Seq>
  <TransDate>2009-08-17T00:00:00-07:00</TransDate>
  <Category />
  <WBS1>1-9950-9700</WBS1>
  <WBS2 xml:space="preserve" />
  <WBS3 xml:space="preserve" />
  <LaborCode>022</LaborCode>
  <RegHrs>4.0000</RegHrs>
```

```
<OvtHrs>0.0000</OvtHrs>
<SpecialOvtHrs>0.0000</SpecialOvtHrs>
<BillCategory>2</BillCategory>
<RegAmt>0.0000</RegAmt>
<OvtAmt>0.0000</OvtAmt>
<SpecialOvtAmt>0.0000</SpecialOvtAmt>
<RegAmtProjectCurrency>0.0000</RegAmtProjectCurrency>
<OvtAmtProjectCurrency>0.0000</OvtAmtProjectCurrency>
<SpecialOvtAmtProjectCurrency>0.0000</SpecialOvtAmtProjectCurrency>
<ProjectExchangeInfo><parms><Memo>Direct from
   amount</Memo></parms></ProjectExchangeInfo>
<BillExt>0.0000</BillExt>
<OvtPct>100.0000</OvtPct>
<SpecialOvtPct>0.0000</SpecialOvtPct>
<Rate>0.0000</Rate>
<OvtRate>0.0000</OvtRate>
<SpecialOvtRate>0.0000</SpecialOvtRate>
<RateProjectCurrency>0.0000</RateProjectCurrency>
<OvtRateProjectCurrency>0.0000</OvtRateProjectCurrency>
<SpecialOvtRateProjectCurrency>0.0000</SpecialOvtRateProjectCurrency>
<StartDateTime>2009-08-17T08:30:00-07:00</StartDateTime>
<EndDateTime>2009-08-17T12:00:00-07:00</EndDateTime>
  </tkDetail>
- <tkDetail>
<EndDate>2009-08-31T00:00:00-07:00</EndDate>
<Employee>00001</Employee>
<Seq>4</Seq>
<TransDate>2009-08-18T00:00:00-07:00</TransDate>
<Category />
<WBS1>1-9950-9700</WBS1>
<WBS2 xml:space="preserve" />
<WBS3 xml:space="preserve" />
<LaborCode>022</LaborCode>
<RegHrs>5.0000</RegHrs>
```

```
<OvtHrs>0.0000</OvtHrs>
<SpecialOvtHrs>0.0000</SpecialOvtHrs>
<BillCategory>2</BillCategory>
<RegAmt>0.0000</RegAmt>
<OvtAmt>0.0000</OvtAmt>
<SpecialOvtAmt>0.0000</SpecialOvtAmt>
<RegAmtProjectCurrency>0.0000</RegAmtProjectCurrency>
<OvtAmtProjectCurrency>0.0000</OvtAmtProjectCurrency>
<SpecialOvtAmtProjectCurrency>0.0000</SpecialOvtAmtProjectCurrency>
<ProjectExchangeInfo><parms><Memo>Direct from
   amount</Memo></parms></ProjectExchangeInfo>
<BillExt>0.0000</BillExt>
<OvtPct>100.0000</OvtPct>
<SpecialOvtPct>0.0000</SpecialOvtPct>
<Rate>0.0000</Rate>
<OvtRate>0.0000</OvtRate>
<SpecialOvtRate>0.0000</SpecialOvtRate>
<RateProjectCurrency>0.0000</RateProjectCurrency>
<OvtRateProjectCurrency>0.0000</OvtRateProjectCurrency>
<SpecialOvtRateProjectCurrency>0.0000</SpecialOvtRateProjectCurrency>
<StartDateTime>2009-08-18T13:00:00-07:00</StartDateTime>
<EndDateTime>2009-08-18T18:00:00-07:00</EndDateTime>
  </tkDetail>
  </ROOT>
```

Return Message

The Web method in the Web service is expected to return a string that is processed by Vision application code to either continue with the submit operation or to abort it. If an empty string or empty error-XML is returned, it means that there were no errors or warnings during custom data validation, and the timesheet is saved and marked as submitted. However, if any of the custom data validation rules fail, the Web method is expected to return error/warning messages as a string (in a specific format explained below) and those messages are displayed in Vision for the user submitting the timesheet. In such an event, the timesheet is not saved and the 'submit' transaction is not completed.

The return message is required to be in XML format to process and display it in Vision. The required format for the return XML message is as shown below.

Error Message

```
<errors>
        <error>Error Message 1</error>
        <error>Error Message 2</error>
        <error>Error Message 3</error>
</errors>
```

Error messages 1, 2, and 3 are actual messages that will be displayed in Vision.

Warning Message

Returned message can also be designated as warning rather than as error. An XML attribute 'warning' is used to indicate that the message returned is to be displayed as a warning in Vision. The XML format for warning messages is exactly the same as the format used for error messages, but an extra attribute is used, as shown below.

```
<errors warning="y">
        <error>Warning Message 1</error>
        <error>Warning Message 2</error>
        <error>Warning Message 3</error>
</errors>
```

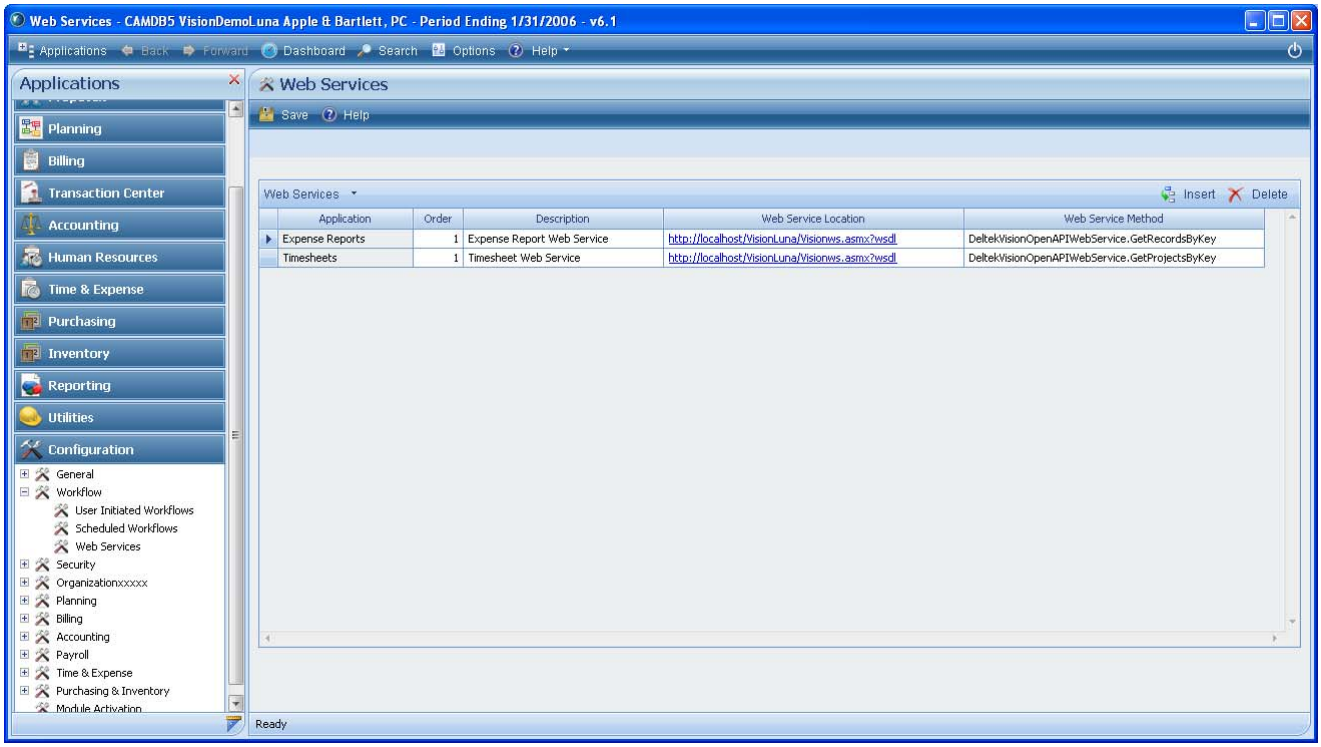
Return Message to Indicate Successful Completion of Custom Data Validation

An empty string (") or the following empty error XML message is returned.

```
<errors></errors>
```

Vision Timesheet Data Validation Options

Use the **Web Services** options to associate a Web service and a Web method with timesheet data validation during 'submit' operation.



- **Web Service Location** — This can be either a location or file-path of the WSDL file generated for the Web service or it can be a URL to the WSDL located on a Web server. For Web services written in ASP.NET, it can also be a URL to the Web service asmx page with "?WSDL" added at the end. This parameter will generate the WSDL information automatically. The following are some examples:

  WSDL File Location: \\Serv1\Share1\Proj1\VisionTSheetValidation.wsdl

  WSDL File URL: http://Serv1/VisionTSheetValService/VisionTSheetVal.wsdl

  ASMX page URL: http://Serv1/VisiontSheetValService/VisionTVal.asmx?wsdl

- **Web Service Method** — Based on the information contained in the WSDL file, a list of available Web methods in the Web service is loaded into the dropdown. From the displayed list of Web methods, an appropriate method for expense report validation is selected.