PROOF OF CONCEPT – XMLPROCESSOR

PROBLEM TO BE SOLVED:

Files such as VBO XML documents do not have a structure that supports localization unless they are duplicated for each locale. Localizing this way would significantly increase the complexity of maintaining them.

Changing the document structure to support multiple languages would also involve significant code changes to the application to maintain these and cross-locale usage is not required.

PROPOSED SOLUTION:

To minimize code changes and make maintaining the localized strings more simplistic, a command line tool has been produced, currently titled "**XMLProcessor**".

This iterates through the VBO files and extracts the **Name** and **Narrative** text strings to an external resource file where they can be localized by translators.

This tool could be integrated in to the build process to automatically populate new strings found which need localization as the VBOs are updated.

XMLProcessor uses a new dll currently titled "**LocaleTools**" which has a standardized way to look up resource keys to translate from English to any specified locale using the appropriate translated resource file.

Within the Automate code, where an XML VBO is loaded from disk or processed with matching guid identifiers, the relevant **Name** and **Narrative** text can then simply be translated by calling a static function in **LocaleTools** with the existing English text as the parameter.

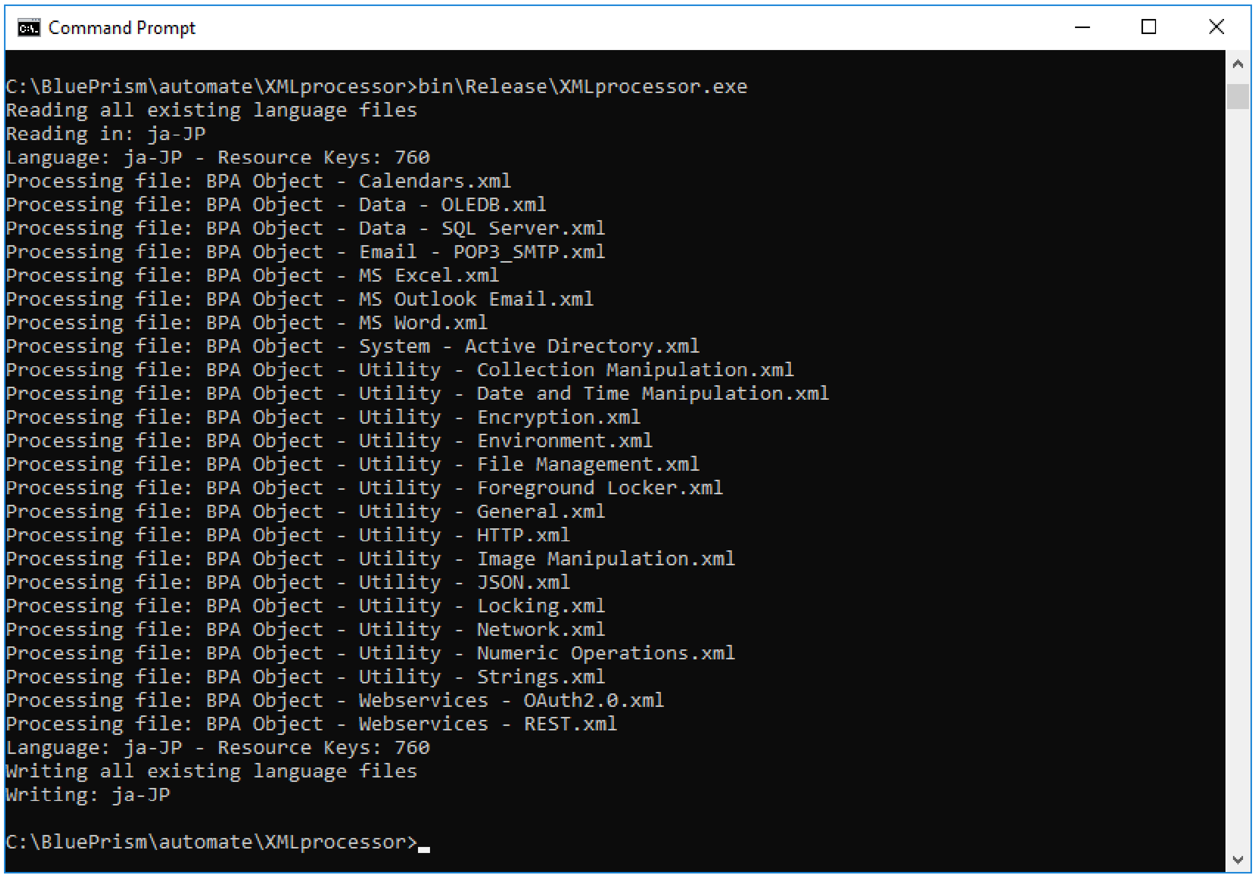
The practical upshot of this is that:

- The VBOs do not need to be modified, they also are maintained using only an English version.
- New Strings to be translated are automatically extracted from new/changed VBOs
- The user sees the localized version of Names / Narratives when working with shipped VBOs
- A list of shipped VBO identifiers ensures that user created VBOs do not get translated.

A very similar method can also be used for database strings and XMLProcessor supports a number of predefined queries to extract hard-coded text items from the database using the *database* parameter or it can also load from an arbitrary text file (using the *textfile* parameter) that could be used by other parts of the build process.

EXAMPLES

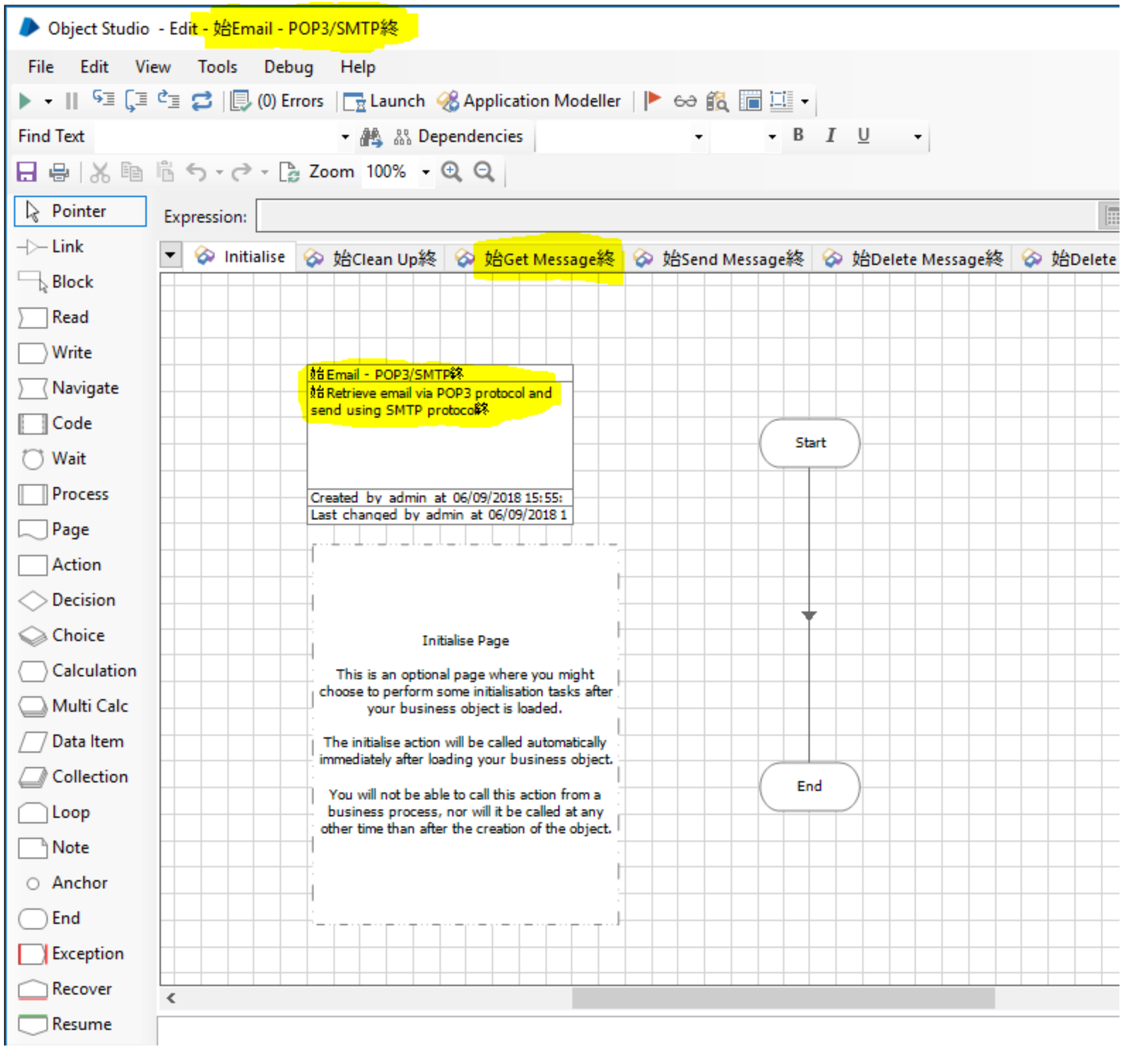
Running the XMLprocessor exe file from the command line, showing it iterating the VBOs looking for strings to add to the resource files.



```
C:\BluePrism\automate\XMLprocessor>bin\Release\XMLprocessor.exe
Reading all existing language files
Reading in: ja-JP
Language: ja-JP - Resource Keys: 760
Processing file: BPA Object - Calendars.xml
Processing file: BPA Object - Data - OLEDB.xml
Processing file: BPA Object - Data - SQL Server.xml
Processing file: BPA Object - Email - POP3_SMTP.xml
Processing file: BPA Object - MS Excel.xml
Processing file: BPA Object - MS Outlook Email.xml
Processing file: BPA Object - MS Word.xml
Processing file: BPA Object - System - Active Directory.xml
Processing file: BPA Object - Utility - Collection Manipulation.xml
Processing file: BPA Object - Utility - Date and Time Manipulation.xml
Processing file: BPA Object - Utility - Encryption.xml
Processing file: BPA Object - Utility - Environment.xml
Processing file: BPA Object - Utility - File Management.xml
Processing file: BPA Object - Utility - Foreground Locker.xml
Processing file: BPA Object - Utility - General.xml
Processing file: BPA Object - Utility - HTTP.xml
Processing file: BPA Object - Utility - Image Manipulation.xml
Processing file: BPA Object - Utility - JSON.xml
Processing file: BPA Object - Utility - Locking.xml
Processing file: BPA Object - Utility - Network.xml
Processing file: BPA Object - Utility - Numeric Operations.xml
Processing file: BPA Object - Utility - Strings.xml
Processing file: BPA Object - Webservices - OAuth2.0.xml
Processing file: BPA Object - Webservices - REST.xml
Language: ja-JP - Resource Keys: 760
Writing all existing language files
Writing: ja-JP

C:\BluePrism\automate\XMLprocessor>_
```

Pseudo translations showing on an imported VBO.



始Email - POP3/SMTP終
始Retrieve email via POP3 protocol and send using SMTP protoco終

Created by admin at 06/09/2018 15:55:
Last changed by admin at 06/09/2018 1

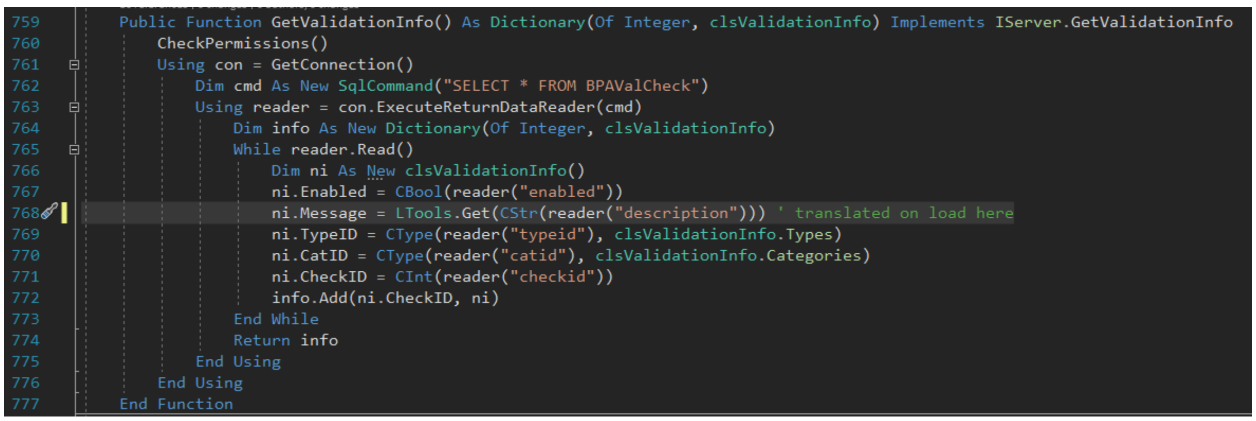
Initialise Page

This is an optional page where you might choose to perform some initialisation tasks after your business object is loaded.

The initialise action will be called automatically immediately after loading your business object.

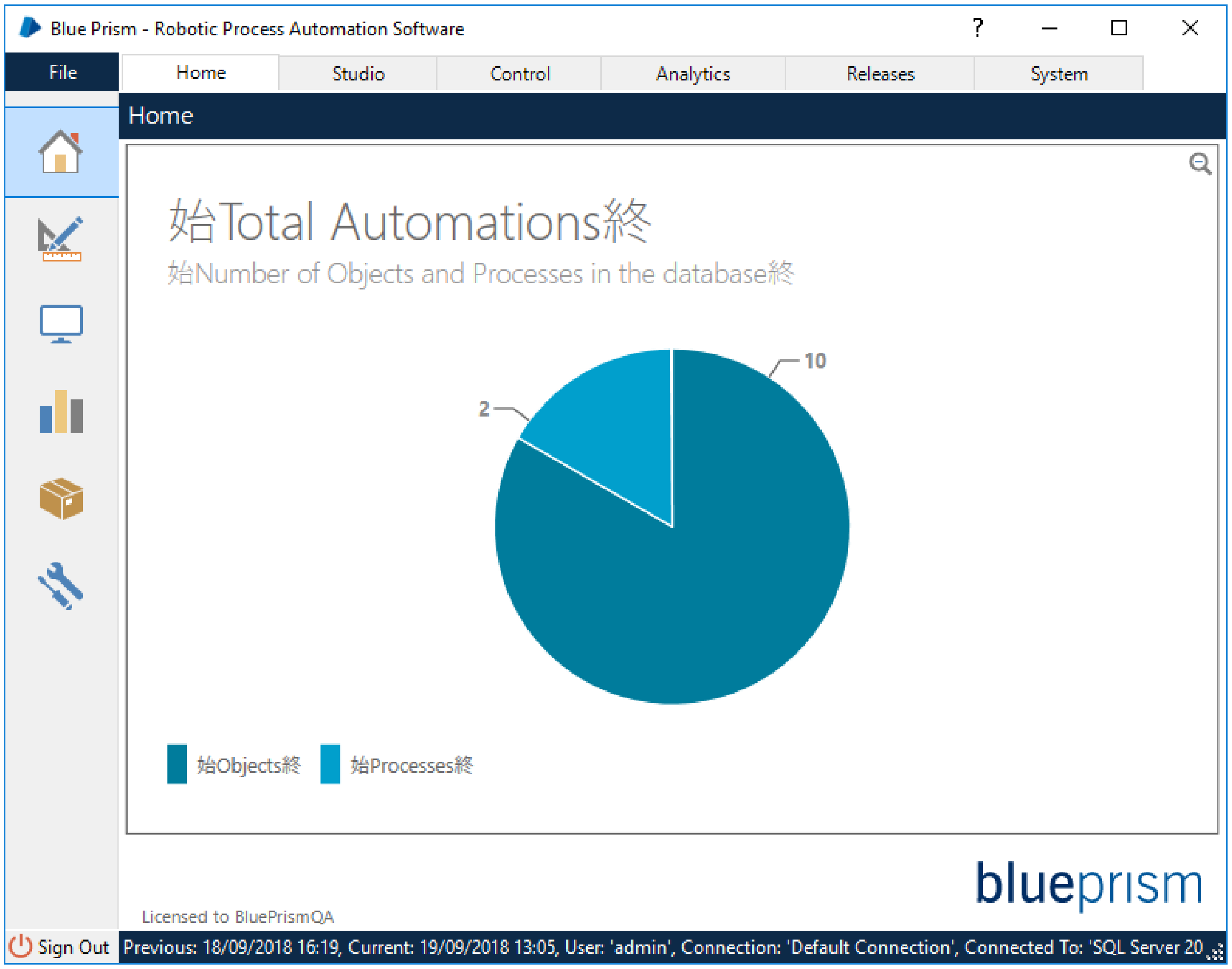
You will not be able to call this action from a business process, nor will it be called at any other time than after the creation of the object.

Example usage of **LocaleTools GetString()** in code.

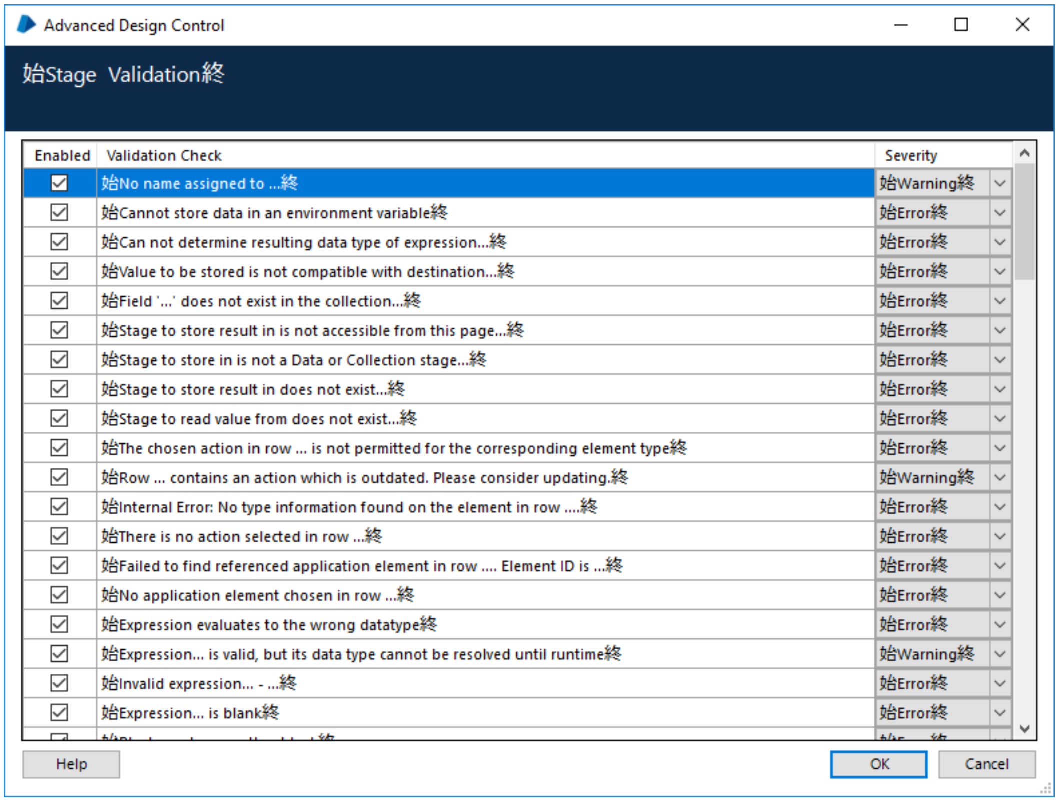


```
Public Function GetValidationInfo() As Dictionary(Of Integer, clsValidationInfo) Implements IServer.GetValidationInfo
    CheckPermissions()
    Using con = GetConnection()
        Dim cmd As New SqlCommand("SELECT * FROM BPAValCheck")
        Using reader = con.ExecuteReturnDataReader(cmd)
            Dim info As New Dictionary(Of Integer, clsValidationInfo)
            While reader.Read()
                Dim ni As New clsValidationInfo()
                ni.Enabled = CBool(reader("enabled"))
                ni.Message = LTools.Get(CStr(reader("description"))) ' translated on load here
                ni.TypeID = CType(reader("typeid"), clsValidationInfo.Types)
                ni.CatID = CType(reader("catid"), clsValidationInfo.Categories)
                ni.CheckID = CInt(reader("checkid"))
                info.Add(ni.CheckID, ni)
            End While
            Return info
        End Using
    End Using
End Function
```

Dashboard tile localization using the same XMLprocessor and LocaleTools technique but with strings originating from the Database.

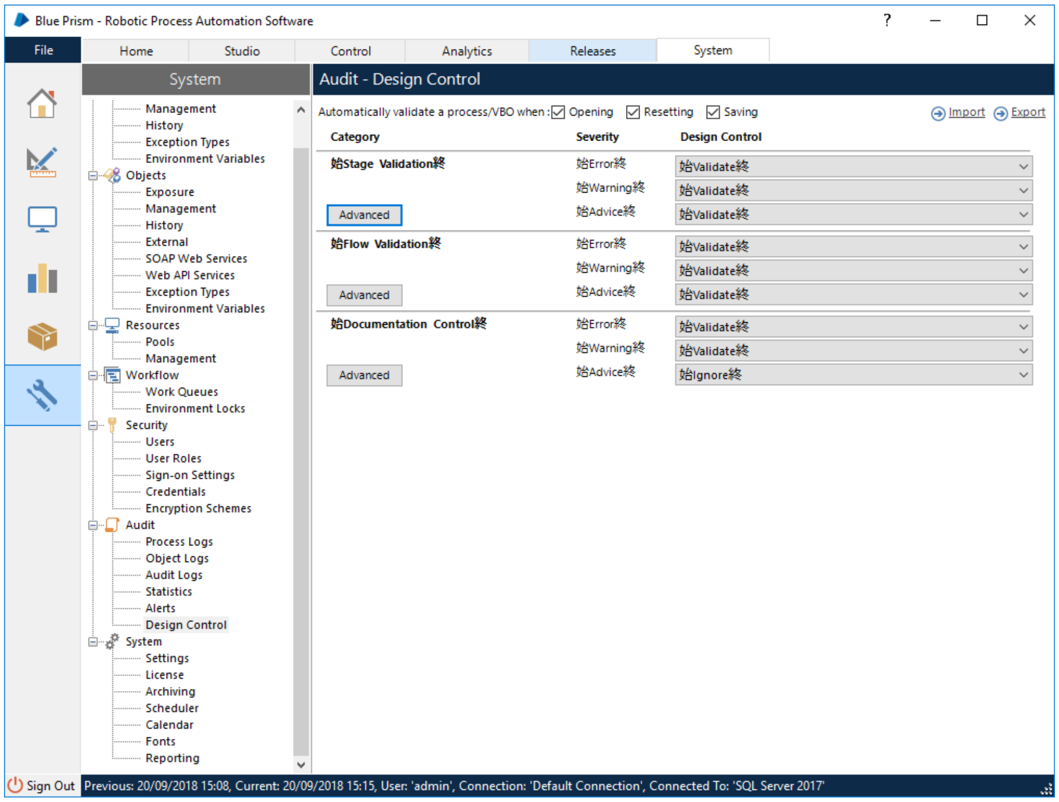


Previous: 18/09/2018 16:19, Current: 19/09/2018 13:05, User: 'admin', Connection: 'Default Connection', Connected To: 'SQL Server 20



始Stage Validation終

Enabled	Validation Check	Severity
☑	始No name assigned to ...終	始Warning終
☑	始Cannot store data in an environment variable終	始Error終
☑	始Can not determine resulting data type of expression...終	始Error終
☑	始Value to be stored is not compatible with destination...終	始Error終
☑	始Field '...' does not exist in the collection...終	始Error終
☑	始Stage to store result in is not accessible from this page...終	始Error終
☑	始Stage to store in is not a Data or Collection stage...終	始Error終
☑	始Stage to store result in does not exist...終	始Error終
☑	始Stage to read value from does not exist...終	始Error終
☑	始The chosen action in row ... is not permitted for the corresponding element type終	始Error終
☑	始Row ... contains an action which is outdated. Please consider updating.終	始Warning終
☑	始Internal Error: No type information found on the element in row ....終	始Error終
☑	始There is no action selected in row ...終	始Error終
☑	始Failed to find referenced application element in row .... Element ID is ...終	始Error終
☑	始No application element chosen in row ...終	始Error終
☑	始Expression evaluates to the wrong datatype終	始Error終
☑	始Expression... is valid, but its data type cannot be resolved until runtime終	始Warning終
☑	始Invalid expression... - ...終	始Error終
☑	始Expression... is blank終	始Error終



Audit - Design Control

Automatically validate a process/VBO when : ☑ Opening ☑ Resetting ☑ Saving

Category	Severity	Design Control
始Stage Validation終	始Error終	始Validate終
	始Warning終	始Validate終
	始Advice終	始Validate終
始Flow Validation終	始Error終	始Validate終
	始Warning終	始Validate終
	始Advice終	始Validate終
始Documentation Control終	始Error終	始Validate終
	始Warning終	始Validate終
	始Advice終	始Ignore終

Previous: 20/09/2018 15:08, Current: 20/09/2018 15:15, User: 'admin', Connection: 'Default Connection', Connected To: 'SQL Server 2017'

Database based localization for validation checks