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TFS Event Workflows Documentation

The TFS Event Workflows consists of the following components:

- **TFSEventWorkflowServerPlugin** - The Sever Plugin subscribes to the Team Foundation Sever events and executes the proper workflow.
- **TFSActivityLib** – Collection of activities to build a custom workflow.
- **LoggingLib** – Responsible for writing errors to a log file using Log4Net.

1. Installation of the plugin on the Team Foundation Server

Build the TFS Event Workflow project and copy the assemblies from the output to the plugins folders of the TFS.

Path to plugins folders:
…\Microsoft Team Foundation Server 2010\Application Tier\Web Services\bin\Plugins
…\Microsoft Team Foundation Server 2010\Application Tier\TFSJobAgent\plugins

Files to copy:

- artiso.TFSEventWorkflows.LoggingLib.dll
- artiso.TFSEventWorkflows.TFSActivitiesLib.dll
- artiso.TFSEventWorkflows.TFSEventWorkflowsServerPlugin.dll
- artiso.TFSEventWorkflows.TFSEventWorkflowsServerPlugin.dll.config
- log4net.dll

TFS Event Workflows Setup:
The TFS Event Workflow can also be installed by executing the "TFSEventWorkflowsSetup.msi". Set the installation path to the plugins folder of the TFS.
(…\Microsoft Team Foundation Server 2010\Application Tier).

2. Configuration of the TFSEventWorkflowServerPlugin

To subscribe to a Team Foundation Server event it must be configured in the configuration file (artiso.TFSEventWorkflows.TFSEventWorkflowsServerPlugin.dll.config).
In the tfsEventConfig section the following values must be set:

name:
A name for the entry. Must be unique.
fullTypeName:
The full name of the TFS event.
eventAssemblyName:
The full name of the assembly which contains the TFS event.
workflowFileName:
The path of the workflow file which will be executed with the event. If the workflow file is in the same directory as the server plugin dll the workflow file name is sufficient (e.g. MyWorkflow.xaml).

Example configuration which subscribes to the CheckinNotification and WorkItemChangedEvent:

```
<tfsEventConfig>
  <tfsEvents>

        <add name="workItemChangedEvent1"
        fullTypeName="Microsoft.TeamFoundation.WorkItemTracking.Server.WorkItemChangedEvent"
        eventAssemblyName="Microsoft.TeamFoundation.WorkItemTracking.Server.Dataaccesslayer"
        workflowFileName="AddTaskToNewUserStory.xaml" />
  </tfsEvents>
</tfsEventConfig>
```

3. Description of the workitem activities in the TFSActivityLib

3.1. GetWorkItemChangedEventData

Purpose:
Gets the data of the WorkItemChangedEvent and returns them to the workflow.

Arguments:

Name	Type	Direction	Description
WorkItemChangedEvent	WorkItemChangedEvent	in	
TeamFoundationRequestContext	TeamFoundationRequestContext	in	
WorkItem	WorkItem	out	The saved workitem.
TFSCollectionUrl	string	out	Url of the TFS collection.

3.2. GetWorkItem

Purpose:
Gets a workitem by the workitem id.

Arguments:

Name	Type	Direction	Description
TFSCollectionUrl	string	in	Url of the TFS.
WorkItemID	int	in	ID of the workitem.
WorkItem	WorkItem	out	The wanted Workitem.

3.3. SaveWorkItem

Purpose:
Saves the given workitem.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	The Workitem to save.

3.4. ReadWorkItemField

Purpose:
Reads the given workitem field and returns the value.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	
FieldReferenceName	string	in	The reference name of the field.
Value	object	out	The value of the Field.

3.5. GetValidationOfWorkItem

Purpose:
Checks if the given workitem is valid and returns a list of invalid fields.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	The workitem to validate.
CollectionOfNotValidFields	List<Fields>	out	List of invalid fields.

3.6. GetParentWorkItem

Purpose:
Gets the parent workitem of the given workitem.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	The child workitem.
ParentWorkItem	WorkItem	out	The parent workitem.

3.7. GetChildWorkItems

Purpose:
Gets all child workitems of the given parent workitem.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	The parent workitem.
ChildWorkItems	List<WorkItem>	out	List of all child workitems

3.8. CreateNewWorkItem

Purpose:
Creates a new workitem.

Arguments:

Name	Type	Direction	Description
TeamProjectName	string	in	The team project name.
TFSCollectionUrl	string	in	Url of the TFS collection.
WorkItemType	string	in	The type of the new workitem.
NewWorkItem	WorkItem	out	The new workitem.

3.9. CreateLink

Purpose:
Creates a link between two workitems.

Arguments:

Name	Type	Direction	Description
ParentWorkItem	WorkItem	in	The parent workitem.
ChildWorkItem	WorkItem	in	The child workitem.
LinkType	string	in	The type of link between the two workitems.

3.10. ChangeWorkItemField

Purpose:
Changes the value of a workitem field.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	
FieldReferenceName	string	in	The reference name of the workitem field.
NewValue	object	in	The new value of the field.

3.11. GetLastWorkItemHistoryComment

Purpose:
Gets the last history comment of a workitem.

Arguments:

Name	Type	Direction	Description
WorkItem	WorkItem	in	
HistoryComment	string	out	The history comment.

4. Description of the workspace activities in the TFSActivityLib

4.1. CopyDirectory

Purpose:
Copies a directory and all of its content to another directory.

Arguments:

Name	Type	Direction	Description
SourceFolder	string	in	Path of the folder to copy.
TargetFolder	string	in	Path of the target folder.
OverrideExisitingFiles	bool	in	If true overrides all existing files in the target folder.

4.2. CopyDirectory

Purpose:
Copies a file to another path.

Arguments:

Name	Type	Direction	Description
SourcePath	string	in	Path of the file to copy.
TargetPath	string	in	Path of the target destination.

4.3. CreateWorkspace

Purpose:
Creates a workspace and maps a local folder to source control folder.

Arguments:

Name	Type	Direction	Description
TFSCollectionUrl	string	in	Url of the TFS collection.
ServerPath	string	in	Path to the mapping folder in the source control.
LocalPath	string	in	Path to local mapping folder.
WorkspaceName	string	in	Name of the new workspace.
WorkspaceComment	string	in	Comment of the new workspace.
Workspace	Workspace	out	The new workspace.

4.4. DeleteWorkspace

Purpose:
Deletes a workspace.

Arguments:

Name	Type	Direction	Description
Workspace	Workspace	in	The workspace to delete.

4.5. SetWorkspaceMapping

Purpose:
Sets a new mapping for a workspace.

Arguments:

Name	Type	Direction	Description
Workspace	Workspace	in	The workspace to map.
ServerPath	string	in	Path to the mapping folder in the source control.
LocalPath	string	in	Path to local mapping folder.

4.6. GetFromSourceControl

Purpose:
Loads files from source control to the local folder.

Arguments:

Name	Type	Direction	Description
Workspace	Workspace	in	
ServerPath	string	in	Path to the mapping folder in the source control.

4.7. AddToSourceControl

Purpose:
Performs a "Checks out for edit" on all files in the local workspace. Then copies all files from the upload directory in the local workspace and performs a "Checkin pending changes".

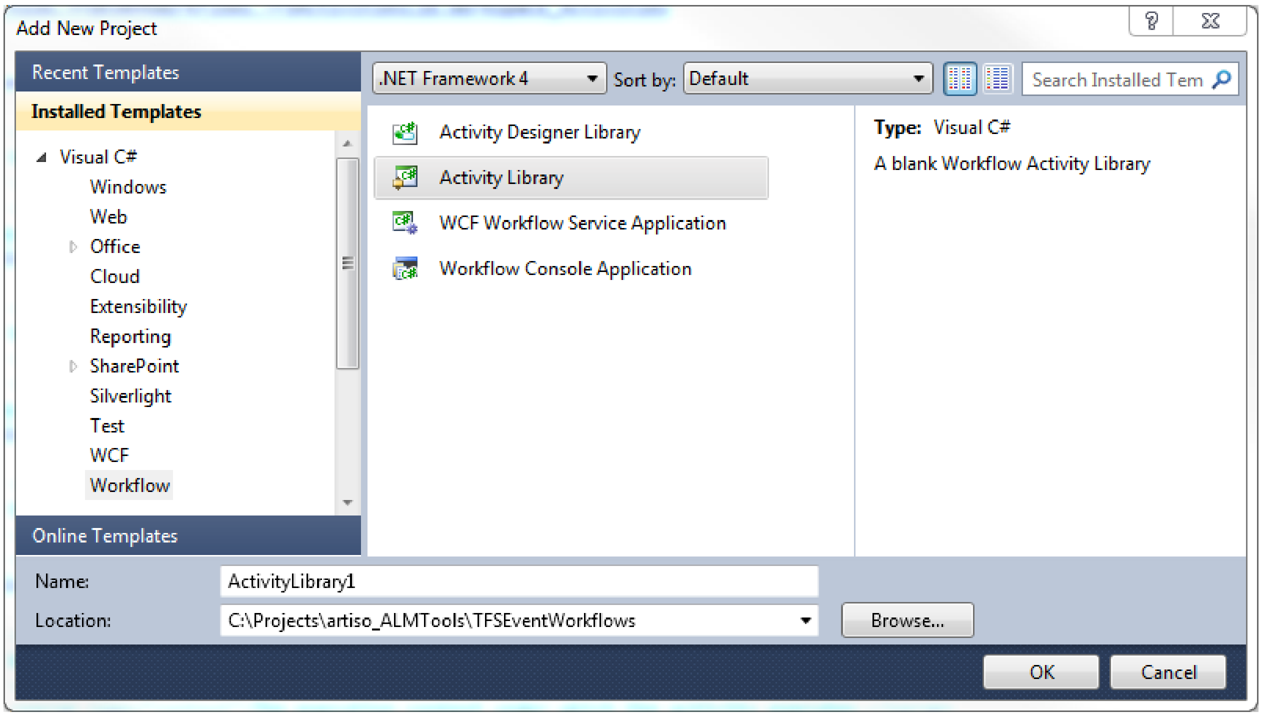
Arguments:

Name	Type	Direction	Description
Workspace	Workspace	in	
DirectoryToUpload	string	in	Path to the directory which contains the files to upload.
CheckInComment	string	in	Comment of the checkin.

5. How to create a custom workflow with the TFSActivitysLib in Visual Studio 2010

5.1. How to add TFSActivitysLib to the workflow designer

1. Create a new solution. Add a new "Activity Library" project from the "Workflow" template.



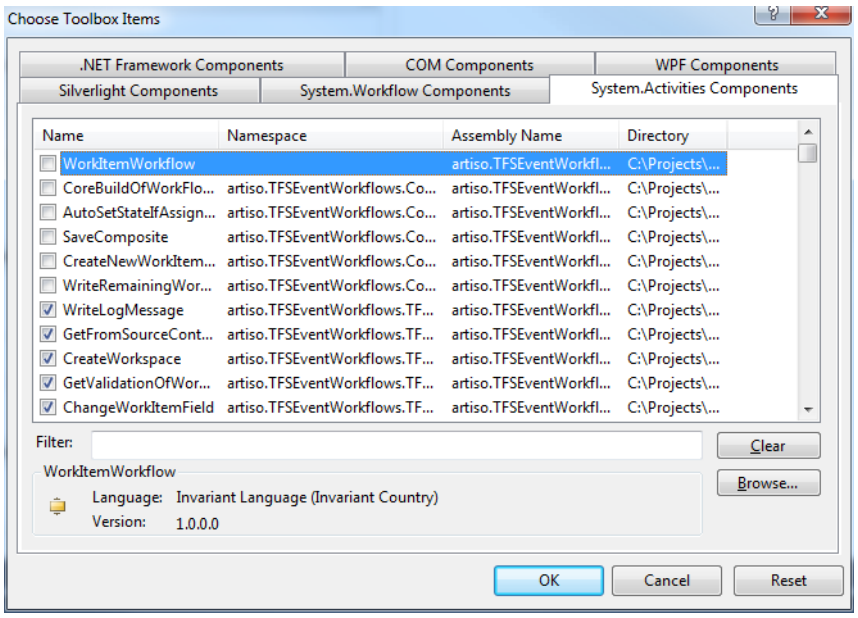
Type: Visual C#

A blank Workflow Activity Library

Name: ActivityLibrary1

Location: C:\Projects\artiso_ALMTools\TFSEventWorkflows

2. To add a reference to the TFSActivitysLib (artiso.TFSEventWorkflows.TFSActivitiesLib.dll).
3. Open the workflow XAML file.
4. Add the TFSActivitysLib to the Toolbox by right-click on the Toolbox and select "Choose Items…"



Name	Namespace	Assembly Name	Directory
☐ WorkItemWorkflow		artiso.TFSEventWorkfl...	C:\Projects\...
☐ CoreBuildOfWorkFlo...	artiso.TFSEventWorkflows.Co...	artiso.TFSEventWorkfl...	C:\Projects\...
☐ AutoSetStateIfAssign...	artiso.TFSEventWorkflows.Co...	artiso.TFSEventWorkfl...	C:\Projects\...
☐ SaveComposite	artiso.TFSEventWorkflows.Co...	artiso.TFSEventWorkfl...	C:\Projects\...
☐ CreateNewWorkItem...	artiso.TFSEventWorkflows.Co...	artiso.TFSEventWorkfl...	C:\Projects\...
☐ WriteRemainingWor...	artiso.TFSEventWorkflows.Co...	artiso.TFSEventWorkfl...	C:\Projects\...
☑ WriteLogMessage	artiso.TFSEventWorkflows.TF...	artiso.TFSEventWorkfl...	C:\Projects\...
☑ GetFromSourceCont...	artiso.TFSEventWorkflows.TF...	artiso.TFSEventWorkfl...	C:\Projects\...
☑ CreateWorkspace	artiso.TFSEventWorkflows.TF...	artiso.TFSEventWorkfl...	C:\Projects\...
☑ GetValidationOfWor...	artiso.TFSEventWorkflows.TF...	artiso.TFSEventWorkfl...	C:\Projects\...
☑ ChangeWorkItemField	artiso.TFSEventWorkflows.TF...	artiso.TFSEventWorkfl...	C:\Projects\...

WorkItemWorkflow

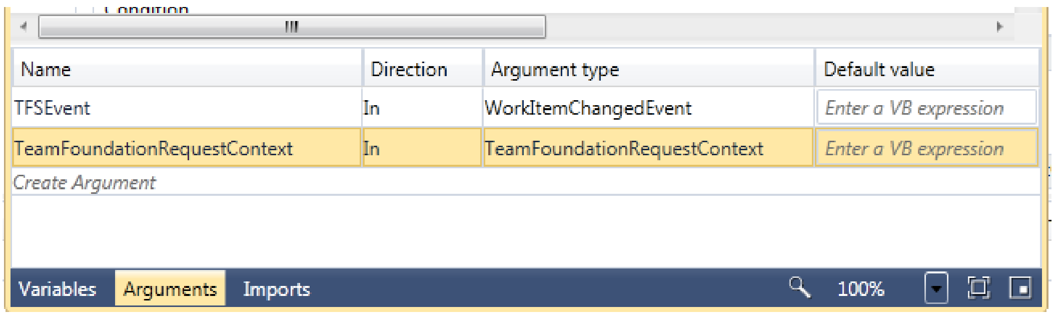
Language: Invariant Language (Invariant Country)
Version: 1.0.0.0

5. In the "Choose Toolbox Items" window click "Browse…" and select the artiso.TFSEventWorkflows.TFSActivitiesLib.dll
6. The activities from the TFSActivitysLib are in the Toolbox and can be dragged in the workflow designer.

5.2. InArguments for a workflow

To invoke a new workflow with the TFSEventWorkflowServerPlugin the workflow must accept two InArguments:

Name	Type	Direction	Description
TFSEvent	depends on the TFS Event	in	The event which triggered the workflow (e.g. WorkItemChangedEvent)
TeamFoundationRequestContext	TeamFoundationRequestContext	in	



Name	Direction	Argument type	Default value
TFSEvent	In	WorkItemChangedEvent	Enter a VB expression
TeamFoundationRequestContext	In	TeamFoundationRequestContext	Enter a VB expression
Create Argument			

Arguments for the workflow

7. Sample Configuration:

```xml
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <configSections>
    <section name="log4net" type="log4net.Config.Log4NetConfigurationSectionHandler,log4net"/>
    <section
      name="tfsEventConfig" type="artiso.TFSEventWorkflows.TFSEventWorkflowsServerPlugin.TFSEventConfig
, artiso.TFSEventWorkflows.TFSEventWorkflowsServerPlugin"/>
  </configSections>

  <tfsEventConfig>
    <tfsEvents>
      <add
        name="checkInEvent"
        fullTypeName="Microsoft.TeamFoundation.VersionControl.Server.CheckinNotification"
        eventAssemblyName="Microsoft.TeamFoundation.VersionControl.Server"
        workflowFileName="CreateNewWorkItemAfterCheckIn.xaml" />
      <add
        name="workItemChangedEvent1"
        fullTypeName="Microsoft.TeamFoundation.WorkItemTracking.Server.WorkItemChangedEvent"
        eventAssemblyName="Microsoft.TeamFoundation.WorkItemTracking.Server.Dataaccesslayer"
        workflowFileName="AddTaskToNewUserStory.xaml" />
      <add
        name="workItemChangedEvent2"
        fullTypeName="Microsoft.TeamFoundation.WorkItemTracking.Server.WorkItemChangedEvent"
        eventAssemblyName="Microsoft.TeamFoundation.WorkItemTracking.Server.Dataaccesslayer"
        workflowFileName="EmptyWorkflow.xaml" />
    </tfsEvents>
  </tfsEventConfig>

  <log4net>
    <appender name="OfficeFile" type="log4net.Appender.FileAppender">
      <!--Path of the log file. The file name must contain a wildcard for the date patern: %date{yyyy-
MM-dd}-->
      <file type="log4net.Util.PatternString" value="C:\Temp\TFSEventWorkflow_Log_%date{yyyy-MM-
dd}.log"/>
      <layout type="log4net.Layout.PatternLayout">
        <param name="ConversionPattern" value="%date{yyyy-MM-dd HH:mm:ss.fff} %-5level [%3.3thread] %-
50.50logger{2}  | %message %exception %newline"/>
      </layout>
    </appender>
    <root>
      <!--Logging level:
      ALL: Shows all messages
      ERROR: Only critical erros in the workflow-->
      <level value="ALL"/>
      <appender-ref ref="OfficeFile"/>
    </root>
  </log4net>

  <appSettings>
  </appSettings>

</configuration>
```