



# Visual Team Foundation Client

## *Software Architecture Documentation*

### Change set

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## **1. Introduction**

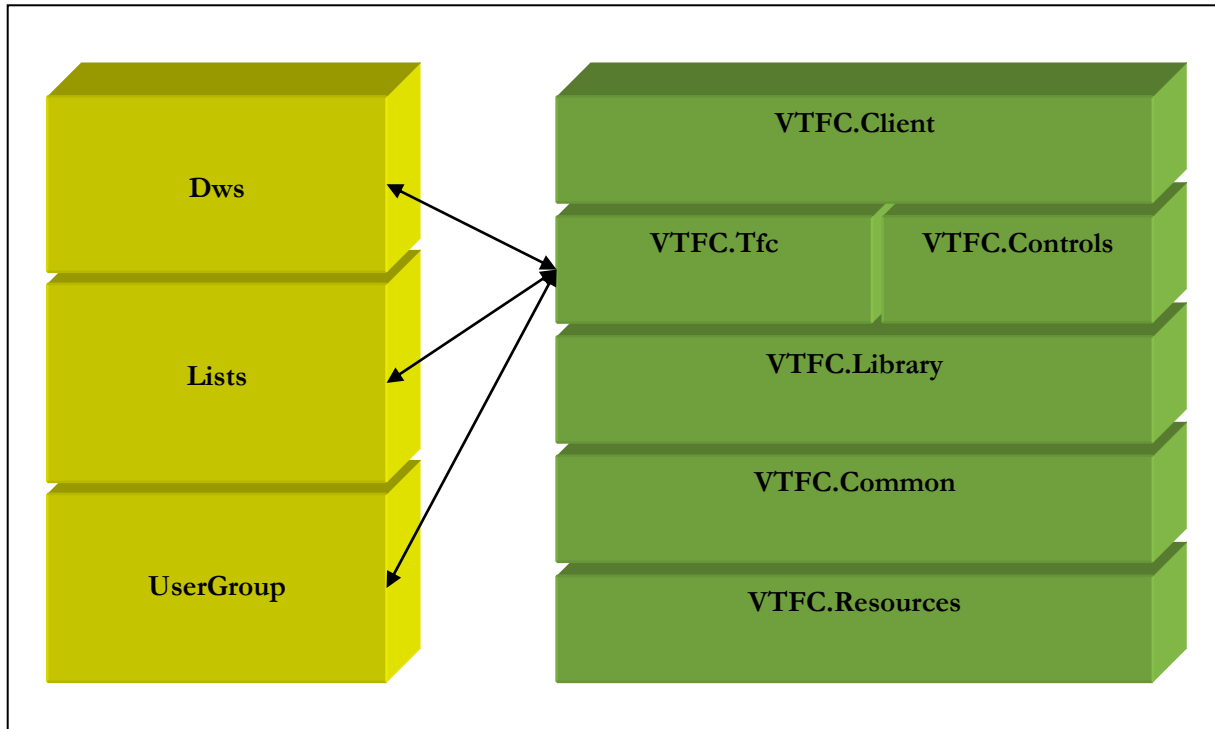
This document introduces system architecture through views below:

- Component view
- Data view
- User Interface view
- Configuration view
- Functionality view



## 2. Component view

This static view introduces components of VTFC with WSS 3.0 web services.



Components in layers

### 2.1 Namespaces

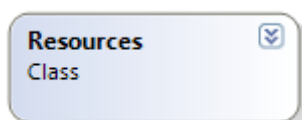
Namespace	Description
SharePoint.Dws	Web methods of <a href="http://&lt;Site&gt;/_vti_bin/Dws.aspx">http://&lt;Site&gt;/_vti_bin/Dws.aspx</a> service.
SharePoint.Lists	Web methods of <a href="http://&lt;Site&gt;/_vti_bin/Lists.aspx">http://&lt;Site&gt;/_vti_bin/Lists.aspx</a> service.
SharePoint.UserGroup	Web methods of <a href="http://&lt;Site&gt;/_vti_bin/UserGroup.aspx">http://&lt;Site&gt;/_vti_bin/UserGroup.aspx</a> service.
VTFC	Namespace of all the VTFC components.

### 2.2 Classes

Detailed information can be found in VTFC.chm developer guide.

#### 2.2.1 VTFC.Resources

Contains language dependent data.



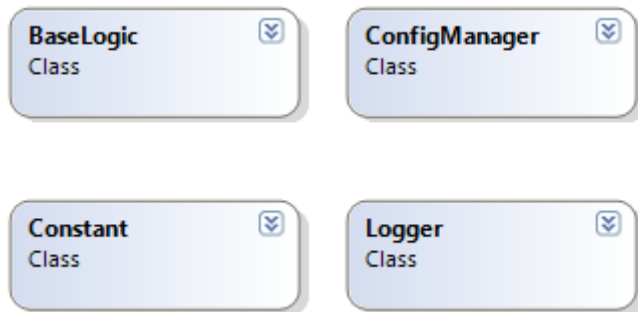
##### 2.2.1.1 Resources

Auto generated resources class.

##### 2.2.2 VTFC.Common



Contains infrastructural logic.



#### 2.2.2.1 *BaseLogic*

Encapsulates IO, Assembly logic, basic transformations.

#### 2.2.2.2 *ConfigManager*

Encapsulates configuration management logic for reading and writing application configuration file.

#### 2.2.2.3 *Constant*

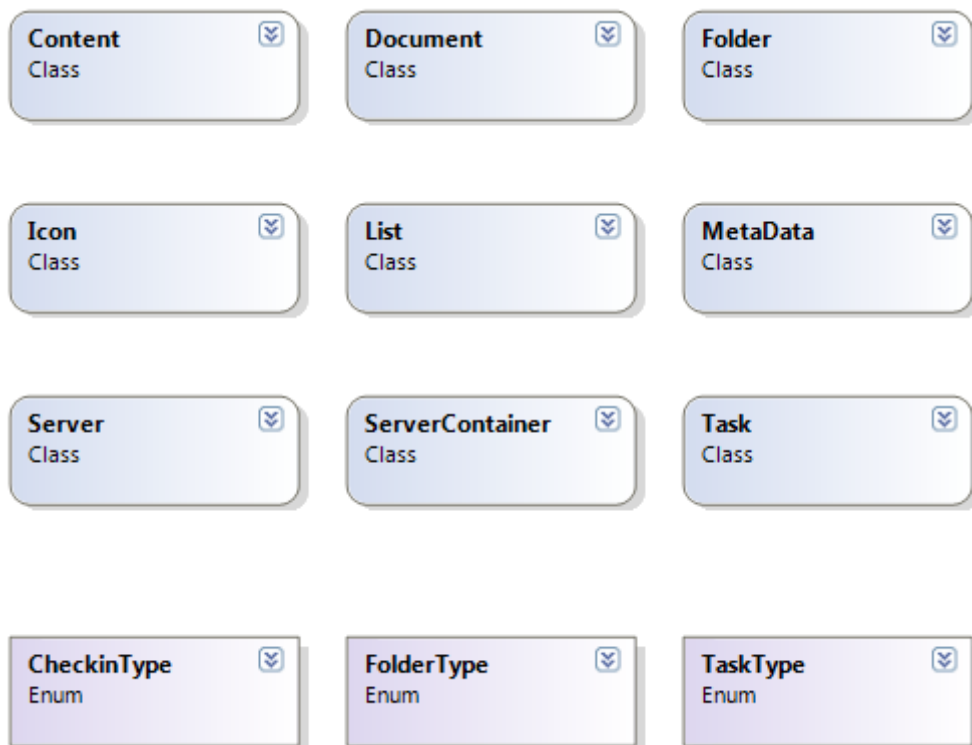
Encapsulates constants, language independent technical system parameters, templates.

#### 2.2.2.4 *Logger*

Encapsulates Windows event log based logic.

### 2.2.3 VTFC.Library

Encapsulates application entity classes and enumerators.



#### 2.2.3.1 *Content*

Contains XML schema of Content.tfc files (see in 3.2).



#### **2.2.3.2 Document**

XML schema for handling SPFile (see in 1) specific data.

#### **2.2.3.3 Folder**

XML schema for handling SPFolder (see in 1) specific data.

#### **2.2.3.4 Icon**

XML schema for handling SPFile (see in 1) icon images.

#### **2.2.3.5 List**

XML schema for handling SPList (see in 1) specific data.

#### **2.2.3.6 MetaData**

Document and Task Metadata property.

#### **2.2.3.7 Server**

XML schema for handling TFS server connection specific data.

#### **2.2.3.8 ServerContainer**

XML schema for handling Server (see in 2.2.3.7) collections.

#### **2.2.3.9 Task**

Class for storing results of get latest version (see in 6.3) functions. Task instances are stored in managed memory of workstation.

#### **2.2.3.10 CheckinType**

This enumerator encapsulates check in types of TFS documents.

#### **2.2.3.11 FolderType**

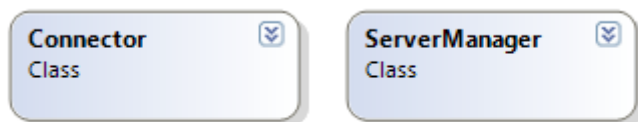
This enumerator encapsulates type of folders in VTFC.

#### **2.2.3.12 TaskType**

This enumerator encapsulates types of Task (see in 2.2.3.9).

### **2.2.4 VTFC.Tfc**

Contains WSS 3.0 web service auto generated WSDL proxy classes (see in 1) and manager classes.



#### **2.2.4.1 Connector**

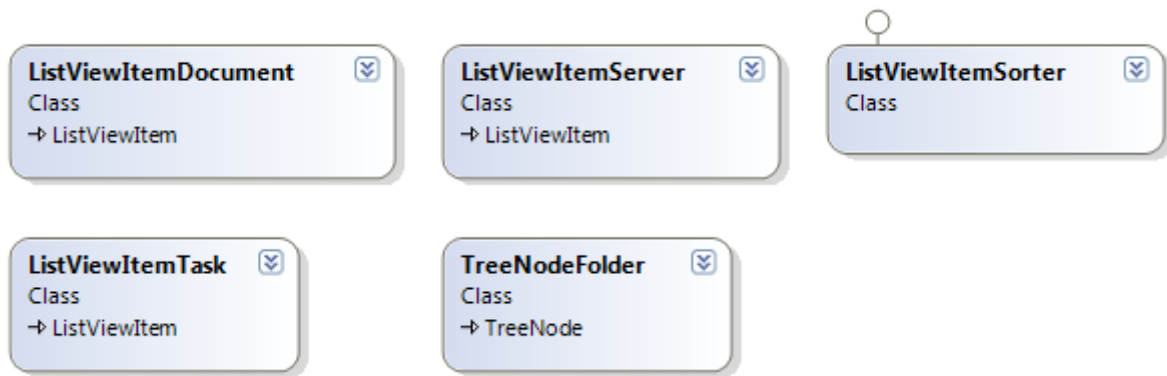
This static class encapsulates interoperability logic with WSS 3.0 web services.

#### **2.2.4.2 ServerManager**

This static class encapsulates Server.xml (see in 3.1) read and write logic, for Connector class (see in 2.2.4.1).

### **2.2.5 VTFC.Controls**

Contains derived controls from System.Windows.Forms built-in controls.



#### 2.2.5.1 *ListViewItemDocument*

Document list (see in 4.2.2) item class for binding Document (see in 2.2.3.2) instances of the selected TreeNodeFolder (see in 2.2.5.5) node.

#### 2.2.5.2 *ListViewItemServer*

TFS Server list (see in 4.5) item class for binding servers from Server.xml (see in 3.1).

#### 2.2.5.3 *ListViewItemSorter*

This is helper class for sorting ListViewItemDocument (see in 2.2.5.1) items.

#### 2.2.5.4 *ListViewItemTask*

Task list item class for binding tasks after get latest version function.

#### 2.2.5.5 *TreeNodeFolder*

TreeNode for binding folder tree of TFS documents.

### 2.2.6 VTFC.Client

WinForms based GUI component.



#### 2.2.6.1 *CustomInstaller*





This class contains custom install logic, will be executed during setup VTFC application.

#### **2.2.6.2 *FrmAbout***

About dialog window.

#### **2.2.6.3 *FrmConfig***

Configuration settings dialog window.

#### **2.2.6.4 *FrmFolder***

Folder properties dialog window.

#### **2.2.6.5 *FrmList***

New list (see in 2.2.3.5) properties dialog window.

#### **2.2.6.6 *FrmMain***

Main window which includes menu (see in 4.1), folder tree (see in 4.2.1) and document list (see in 4.2.2).

#### **2.2.6.7 *FrmServerList***

Server list dialog window.

#### **2.2.6.8 *FrmServerShow***

Server properties dialog window.

#### **2.2.6.9 *FrmTaskList***

Get latest version task list dialog window.

#### **2.2.6.10 *Program***

Main entry point of the application.

#### **2.2.6.11 *WriteOutputEventArgs***

Custom event class for accessing output control (see in 4.2.3) writing function on FrmMain (see in 2.2.6.6).



### 3. Data view

This chapter describes data content of VTFC.

#### 3.1 Server parameters

Contains TFS connection parameters in format XML using schema 2.2.3.7.

Parameters can contains sensitive data, therefore it is stored in user's Application data folder:

c:\Users\[user name]\AppData\Local\VTFC\Servers.xml

Passwords must store in an encrypted form.

#### 3.2 Workspaces

All TFS servers have local workspace, which contains the Content instance in format XML (see in 2.2.3.1.)

[Server].WorkDirctory\Content.tfc

It is relevant to store the Content.tfc file here, because there are not any files on the first level.

Workspace will contain all files from TFS server documents site.

[Server].WorkDirctory\\*\*\\*.\*



## 4. User interface view

This chapter introduces windows and the main menu.

### 4.1 Main menu

#### 4.1.1 File

##### *4.1.1.1 Exit*

Close application.

#### 4.1.2 Team

##### *4.1.2.1 Connect*

Shows server manager dialog window 4.5.

##### *4.1.2.2 Get latest version*

Shows change management dialog 4.6

##### *4.1.2.3 Disconnect*

Calls disconnect function 6.2.

#### 4.1.3 Tools

##### *4.1.3.1 Configuration*

Shows configuration dialog 4.7.

#### 4.1.4 Help

##### *4.1.4.1 About*

Show about information.

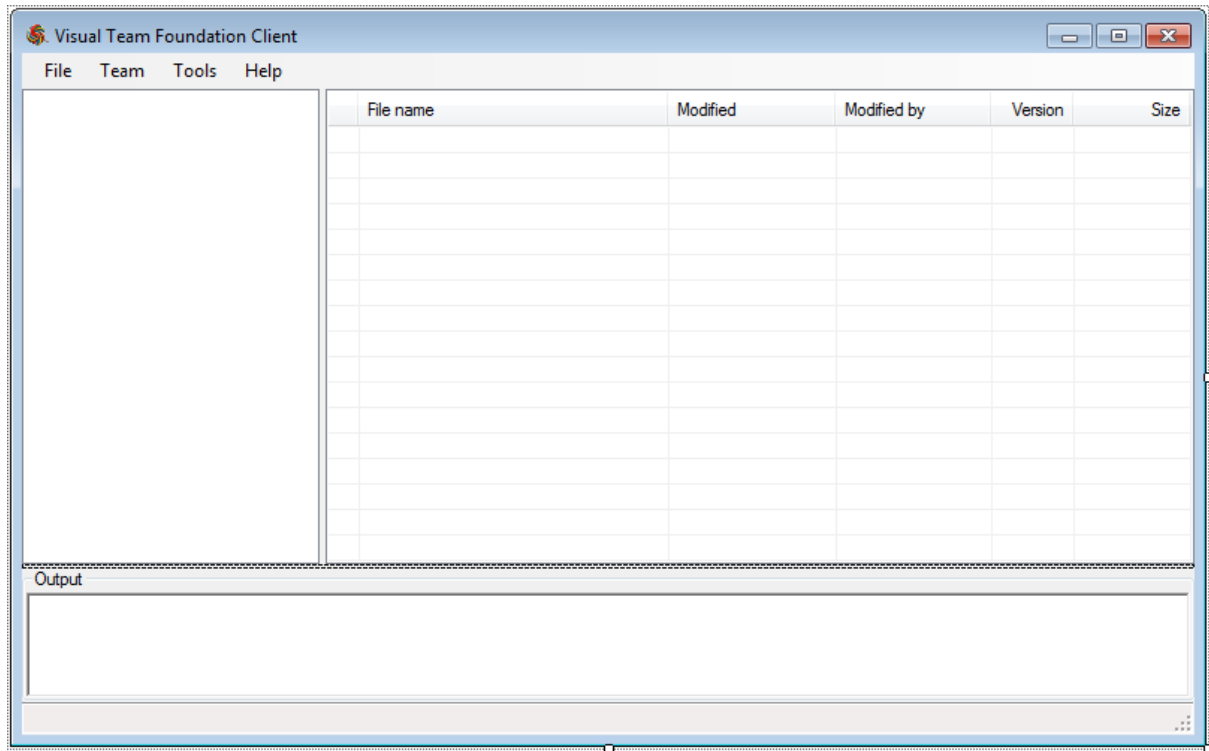
### 4.2 Main window

Main window initialized in the main entry point.



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#### 4.2.1 Folder tree

Folder tree is a TreeView control to display document libraries and sub folders.

Data bindings are explained below:

##### 4.2.1.1 List

Column name	Data	Description
Text	Title	Lists.GetListCollection() web method.

##### 4.2.1.2 Folder

Column name	Data	Description
Text	ows_FileRef	Lists.GetListItems() web method.

Node images must include in the application resources as static data (see in 4.8).

#### 4.2.2 Document list

Document list is a ListView control.

Data bindings are explained below:

Column name	Data	Description
File icon	ows_DocIcon	/_layouts/images/ic[ows_DocIcon].gif
File name	ows_LinkFilename	
Modified	ows_Modified/ows_CheckoutUser	Whether is checked out?
Modified by	ows_Editor	
Version	ows_UIVersionString	
Size	ows_FileSizeDisplay	



File icons must download from TFS server dynamically in function 6.3.

#### 4.2.3 Output

This control lists executed commands for the user.

Each one message must include a timestamp by the workstation clock.

### 4.3 List properties

This dialog window appears in “Create new list” function (see in 6.4).

The 'List properties' dialog box has a title bar with a close button. It contains two text input fields: 'Name' and 'Description'. Below these are two checked checkboxes: 'Enable versioning' and 'Quick launch'. At the bottom right are 'OK' and 'Cancel' buttons.

#### 4.3.1 Data binding

Data bindings are explained below:

Field name	Data	Required	Readonly	Description
Name	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Description	-	<input type="checkbox"/>	<input type="checkbox"/>	
enable versioning	-	<input type="checkbox"/>	<input type="checkbox"/>	
Quick launch	-	<input type="checkbox"/>	<input type="checkbox"/>	

#### 4.3.2 Functions

##### 4.3.2.1 OK

Call the “Create new list” function (see in 6.4) whit current data.

##### 4.3.2.2 Cancel

Dispose the dialog window.

### 4.4 Folder properties

This dialog window appears in the “Create new folder” function (see in 6.5).

The 'Folder properties' dialog box has a title bar with a close button. It contains a single text input field labeled 'Name'. At the bottom right are 'OK' and 'Cancel' buttons.

#### 4.4.1 Data binding

Data bindings are explained below:



Field name	Data	Required	Readonly	Description
Name	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

#### 4.4.2 Functions

##### 4.4.2.1 *OK*

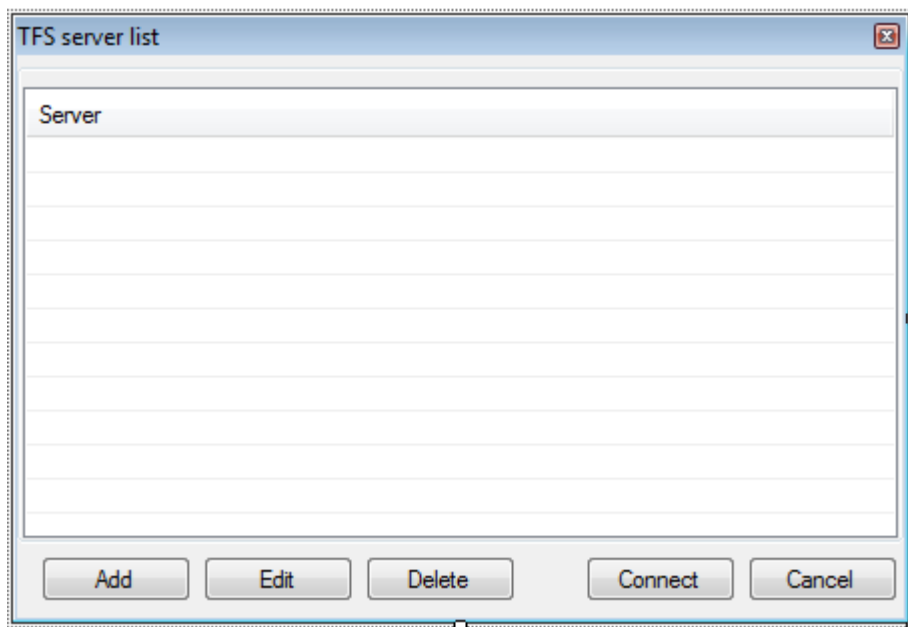
Call the “Create new folder” function (see in 6.5) with current data.

##### 4.4.2.2 *Cancel*

Dispose the dialog window.

#### 4.5 Server manager

This dialog window appears in “Connect” function (see in 6.1).



##### 4.5.1 Data binding

This list will display the data source “Server parameters” (see in 3.1).

Column name	Data	Description
Server	Server.Name	From data source 3.1.

#### 4.5.2 Functions

##### 4.5.2.1 *Add*

Open server parameters window for add a new TFS server data.

##### 4.5.2.2 *Edit*

Open the server parameters window for editing selected TFS server data.

##### 4.5.2.3 *Delete*

If it is confirmed, deletes selected TFS server parameters from data source 3.1.

##### 4.5.2.4 *Connect*



Call the “Get latest version” function (see in 6.3).

#### 4.5.2.5 Cancel

Dispose the dialog window.

#### 4.5.3 Data binding

Field name	Data	Required	Readonly	Description
ServerUrl	Server.Url	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Url of TFS project portal.
Work directory	Server.WorkDirectory	<input type="checkbox"/>	<input type="checkbox"/>	Local work directory of TFS server.
Network authentication	Server.UseDefaultCredentials	<input type="checkbox"/>	<input type="checkbox"/>	Use current credential to authenticate user.
User name	Server.UserName	<input type="checkbox"/>	<input type="checkbox"/>	User account name to authenticate.
Password	Server.Password	<input type="checkbox"/>	<input type="checkbox"/>	User password to authenticate.
Domain	Server.Domain	<input type="checkbox"/>	<input type="checkbox"/>	User domain name to authenticate.
Check in type	Server.DefaultCheckinType	<input type="checkbox"/>	<input type="checkbox"/>	Equivalent with SPCheckinType
Show uncontrolled files	Server.ShowUnControlledFiles	<input type="checkbox"/>	<input type="checkbox"/>	Show un controlled files from local work directory if exist.

#### 4.5.4 Functions

##### 4.5.4.1 OK

Persist data to Server.xml (see in 3.1.)

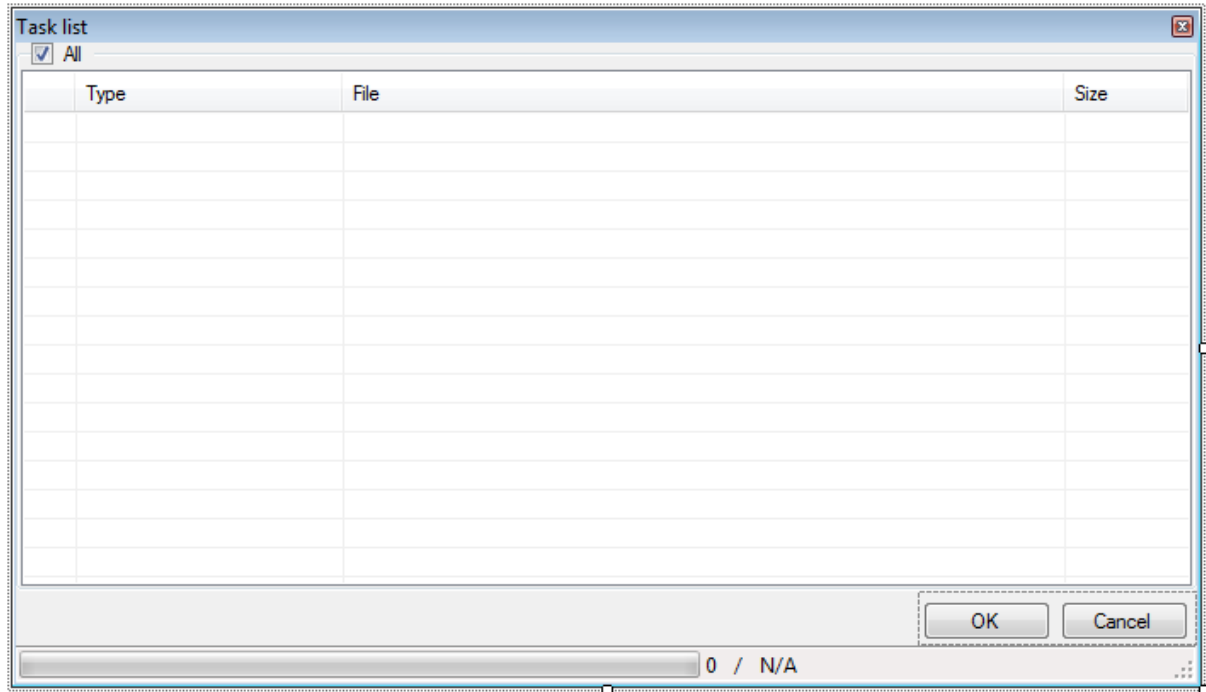
##### 4.5.4.2 Cancel



Dispose the dialog window.

## 4.6 Change management

This dialog window appears in function 6.3.



### 4.6.1 Data binding

In this form can be enabled get latest version generated tasks.

Column name	Data	Description
<Enabled>		Is the task enabled to execute?
Type		Type of the task which can be <ul style="list-style-type: none"><li>○ Replace document</li><li>○ New document</li><li>○ Newer version</li></ul>
File		File relative path by TFS server.
Size		Transformed (Kb/Mb) file size.

### 4.6.2 Functions

#### 4.6.2.1 All

By default, this checkbox is checked. If you uncheck it, all tasks will be disabled for execution.

#### 4.6.2.2 OK

Execute the enabled tasks.

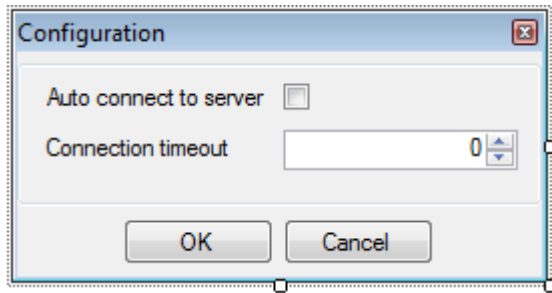
#### 4.6.2.3 Cancel

Dispose the dialog window.

## 4.7 Configuration

Using this dialog window, configuration parameters of application (app.config) can be changed.





#### 4.7.1 Data binding

All parameters, explained in chapter 5.

Field name	Data	Required	Readonly	Description
Auto connect to server	AutoConnect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Connection timeout	ConnectionTimeout	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

#### 4.8 Resource sources

Displayed command and special node (project/selected folder) images source is the VS2008ImageLibrary, which library can be found here: c:\Program Files\Microsoft Visual Studio

9.0\Common7\VS2008ImageLibrary\1033\VS2008ImageLibrary.zip

List node icon: [TFS project site]/\_layouts/images/itdl.gif

Folder node icon: [TFS project site]/\_layouts/images/folder.gif

Unknown file format icon: [TFS project site]/\_layouts/images/icgen.gif

Checked out file icon: [TFS project site]/\_layouts/images/checkoutoverlay.gif



## 5. Configuration view

This chapter contains descriptions of configuration parameters located in app.config file included in the “VTFC.Client” component (see in 2.2.6).

Key	Type	Description
AutoConnect	Boolean	Connect to the last connected TFS at start of application.
ConnectionTimeout	Int32	Connection time out of web services connections in millisecond.

Configuration parameters contain user and business independent system parameters.



## 6. Functionality view

In this chapter functionalities of VTFC application are introduced.

### 6.1 Connect

Show the “Server list” dialog window (see in 2.2.6.7) to select a TFS server and initializes the Connector 2.2.4.1 instance.

### 6.2 Disconnect

Save TFS server register XML (see in 3.1) and clears Main window (see in 4.2) data.

### 6.3 Get latest version

The “Get latest version” is the main functionality of VTFC, which can be divided in to two parts:

1. Open 2.2.6.9 form and collects change sets (tasks [2.2.3.9]) using WSS 3.0 web service methods:
  - Lists.GetListCollection
  - Lists.GetListItems
2. Execute enabled tasks using System.Net.WebClient.

### 6.4 Create new list

Show the List properties dialog window (see in 2.2.6.5) and creates new list instance (2.2.3.5) using WSS 3.0 web services, see below:

- Lists.AddList
- Lists.UpdateList

### 6.5 Create new folder

Show the “Folder properties dialog window (see in 2.2.6.4) and creates new Folder (2.2.3.3) instance, using WSS 3.0 web services, see below:

- Dws.CreateFolder

### 6.6 Add Items

Combine functionalities for batch attaching, below:

- Create new list (see in 6.4)
- Create new folder (see in 6.5)
- Upload document (see in 6.7)

### 6.7 Upload document

Show OpenFileDialog window to select file(s) from local file system and update to TFS server using WebClient (see in 2) instance.

After updating, WSS 3.0 web service method below, updates the metadata of file(s):

- Lists.UpdateListItems

### 6.8 Edit document

Execute or open selected document (see in 2.2.3.2) from Document list (see in 4.2.2) as an individual process on the local workstation.



## 6.9 Save as document

Show SaveFileDialog window and save selected document (see in 2.2.3.2) in the document list (see in 2.2.6.6) as a new one.

## 6.10 Rename document

Helper TextBox control will be positioned to the document list item to edit the file name property of document instance (see in 2.2.3.2).

After pressing return, following WSS 3.0 web service method will be called:

- Lists.UpdateListItems

## 6.11 Check out

Check out the selected document(s) (see in 2.2.3.2) on TFS server using WSS 3.0 web service method, below:

- Lists.CheckOutFile

Checked out files will be marked with a red foreground color in the document list (4.2.2).

## 6.12 Check in

Upload selected document to TFS server using WebClient (see in 2) instance.

Check in selected document on TFS server using WSS 3.0 web service method, below:

- Lists.CheckInFile

Checked in files will be marked with the default foreground color in the Document list (4.2.2).

## 6.13 Undo pending changes

Undo the selected document(s) on TFS server calling WSS 3.0 web service method, below:

- Lists.UndoCheckOut

Download and overwrite selected document from TFS server using WebClient (see in 2) instance.

Files will be marked with the default foreground color in the Document list (4.2.2).

## 6.14 Delete document

Delete selected document(s) on TFS server using WSS 3.0 web service method, below:

- Lists.UpdateListItems

After confirmation, delete documents on local file system.

## 6.15 Delete folder

Delete the selected folder (2.2.3.3) on TFS server using WSS 3.0 web service method, below:

- Dws.DeleteFolder

After confirmation, delete the folder on local file system.

## 6.16 Delete list



Delete the selected list (2.2.3.5) on TFS server using WSS 3.0 web service method, below:

- Lists.DeleteList

After confirmation, delete the folder on local file system.

## **6.17 Command line arguments**

Application handle \*.Content.tfc argument. In this case, the server instance will be selected by the Content.ServerUrl parameter.

Command line: VTFC.exe c:\Sources\VTFC\Docs\Content.tfc

After installation, extension “.tfc” will be associated with VTFC application: a new key will be created under HKEY\_CLASSES\_ROOT, named “.tfc” (see in 2.2.6.1).



## **7. References**

1. WSS 3.0 API: [http://msdn.microsoft.com/en-us/library/dd878586\(v=office.12\).aspx](http://msdn.microsoft.com/en-us/library/dd878586(v=office.12).aspx)
2. WebClient: [http://msdn.microsoft.com/en-us/library/system.net.webclient\(v=VS.90\).aspx](http://msdn.microsoft.com/en-us/library/system.net.webclient(v=VS.90).aspx)