TIA Add-In for TIA Portal V16: VCI Git Connector

TIA Portal / V16 / TIA Add-In / VCI Git Connector

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Table of Contents

1 Introduction

1.1 Functionality

This TIA Add-In provides the ability to manage files in a workspace (WS) of the TIA Portal Version Control interface (VCI) with Git.

Note

This TIA add-in only executes command-line commands for Git and displays the return text of the executed Git command.

Git is a third-party distributed file versioning software and is not included in this sample application. To use this TIA Add-in, Git must already be installed on the TIA Portal machine.

Knowledge of Git is required. If you have any questions about how to use Git or if you get error messages from Git, please refer to the Git documentation \5\.

Knowledge of TIA Portal Version Control Interface (VCI) is required. You can find information on setting up and using the VCI in the TIA Portal Online Help section or in the manual \4\.

Several automatic and manual executions of Git commands are available in this TIA Add-In.

To work with Git, the workspace on the Windows file system must first be manually converted into a Git repository.

This can be done with the following command-line command:

```
git init "<workspace path>"
```

Alternatively, an existing Git repository for the workspace can be cloned.

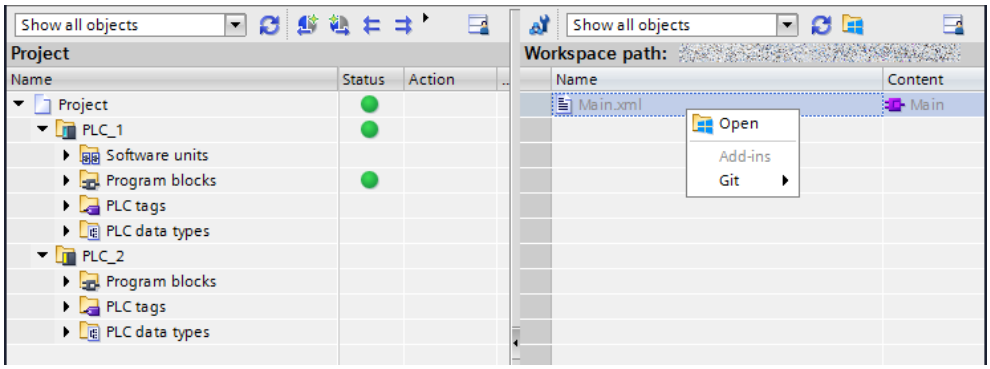
This can be done with the following command-line command:

```
git clone "<repository url>"
```

After Git initialization, files exported by the VCI are automatically added to the Git repository.

Additionally, the TIA Portal Workspace provides other manually executable Git commands.

Figure 1-1: The VCI Git Connector TIA Add-In in the context menu of a file in the VCI WS



1.2 Installation

For information on how to install TIA Add-Ins and integrate them into the TIA Portal environment, refer to the TIA Portal Online Help section or the manual \3\.

1.3 Compatibility

This TIA Add-In can only be used with the TIA Portal V16.

Furthermore, Git must be installed with the Windows environment variable entered.

1.4 System Characteristics

Table 1-1: TIA Add-In created with

Product	Version
Visual Studio	Microsoft Visual Studio Professional 2015, Update 3
Visual Studio Options	Visual C#, .NET Desktop Development
.NET	Microsoft .NET Framework SDK 4.6.2

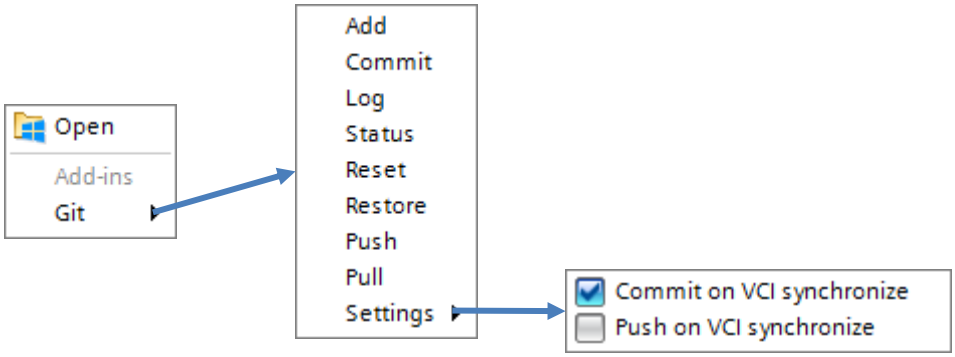
Table 1-2: TIA Add-In tested with

Product	Version
Windows	Microsoft Windows 10, Version 1803
TIA Portal	TIA Portal V16, Update 1
Installed software	STEP 7 Professional
Installed options	TIA Portal Openness TIA Portal Version Control Interface
Git	Git for Windows, Version 2.24.1

2 Handling

2.1 Overview

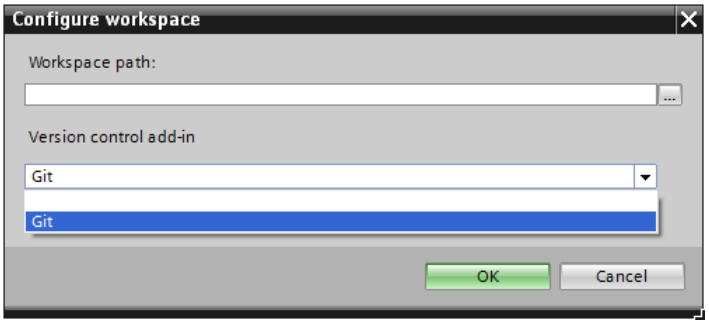
Figure 2-1: Overview of the TIA Add-In menu items



2.2 Operation

After activating the TIA Add-In in the TIA Portal, the VCI Add-In must first be selected as the TIA Add-In to be used in the configuration of the TIA Portal Workspace.

Figure 2-2: Workspace Configuration in the TIA Portal



This TIA Add-In can then be executed for the following elements in a VCI workspace via the context menu of the TIA Portal interface:

- Selecting a file
- Selecting a file folder
- Selecting multiple files
- Selecting multiple file folders

In addition, the TIA Add-In automatically executes Git commands during synchronization or initialization of an object in the VCI.

2.3 Automatically Executed Git Commands

When a TIA Portal object is initialized in the VCI, the TIA Add-In first runs the Git “add” command to add the exported file to the Git repository. Then a Git “commit” command is executed, in which a message should be entered in an input window.

The Git commands that are executed during initialization by the TIA Add-in look like this:

```
git add "<selected files/directories>"
git commit -m "<commit message>" "<selected files/directories>"
```

When synchronizing objects in the VCI, only the Git “commit” command is executed because the corresponding files have already been added to the Git repository by this time. This also opens an input window in which a message should be entered.

The Git command, which is executed when the VCI is synchronized, looks like this:

```
git commit -m "<commit message>" "<selected files/directories>"
```

2.4 Manually Executable Git Commands

Below is a list of all manually executable Git commands, including a brief description and the respective Git command that the TIA Add-In executes.

Add

With the “add” command you can add files/changes to the Git repository.

The command line call executed by the TIA Add-in looks like this:

```
git add "<selected files/directories>"
```

Commit

With the “commit” command, changes to files can be added to the Git repository as a new “work status”. After executing this command, an input window is opened where a message should be entered.

The command line call executed by the TIA Add-in looks like this:

```
git commit -m "<commit message>" "<selected files/directories>"
```

Log

The “log” command can be used to view a log of the commits already made.

The command line call executed by the TIA Add-in looks like this:

```
git log "<selected files/directories>"
```

Status

With the “status” command, the current status of the Git repository can be queried.

The command line call executed by the TIA Add-in looks like this:

```
git status "<selected files/directories>"
```

Reset

The “reset” command can be used to undo changes added to Git with the “add” command. The content of the selected files remains unchanged.

The command line call executed by the TIA Add-in looks like this:

```
git reset HEAD "<selected files/directories>"
```

Restore

The “restore” command resets the selected files to the state of the last commit.

NOTICE	**Data loss** The unintentional use of this command can lead to data loss in your local VCI repository. Before this Git command is executed, a message pop-up appears in which the execution of this command must be confirmed.

The command line call executed by the TIA Add-in looks like this:

```
git restore "<selected files/directories>"
```

Push

With the “push” command, local changes can be transferred to a server.

The path to the remote directory on the server must be manually entered in Git’s configuration file.

The command line call executed by the TIA Add-in looks like this:

```
git push
```

Pull

With the “pull” command, changes can be transferred from a server to the local directory.

The path to the server’s remote directory must be manually entered in Git’s configuration file.

The command line call executed by the TIA Add-in looks like this:

```
git pull
```

2.5 Settings

This chapter describes the settings of this TIA Add-In. The settings can be changed using the context menu of the TIA Add-In.

Commit on VCI synchronize

This setting is taken into account when synchronizing (exporting) TIA Portal objects to the VCI workspace. This setting determines whether a Git commit command should be automatically executed after a synchronization.

This setting is disabled by default.

Push on VCI synchronize

This setting is also taken into account when synchronizing (exporting) TIA Portal objects to the VCI Workspace. This setting determines whether a Git push command should be automatically executed after a synchronization and subsequent commit.

This setting is disabled by default.

3 Appendix

3.1 Service and support

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https://support.industry.siemens.com/cs/ww/en/sc/2067

3.2 Links and literature

Table 3-1:

No.	Subject
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to the article page of the application example https://support.industry.siemens.com/cs/ww/en/view/109773999
\3\	Manual “SIMATIC STEP 7 Basic/Professional V16 and SIMATIC WinCC V16” Chapter on “Extending TIA Portal Functions with Add-Ins”. https://support.industry.siemens.com/cs/ww/en/view/109773506/128474251915
\4\	Manual “SIMATIC STEP 7 Basic/Professional V16 and SIMATIC WinCC V16” Chapter on “Using TIA Portal Version Control Interface”. https://support.industry.siemens.com/cs/ww/en/view/109773506/129126268427
\5\	Git https://git-scm.com/ https://gitforwindows.org/

3.3 Change documentation

Table 3-2

Version	Date	Change
V1.0.0	03/2020	First edition