

# **TortoiseMerge**

**A diff/merge tool for Windows**

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# **TortoiseMerge: A diff/merge tool for Windows**

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# Preface



When working on a project, either an open-source project where several people review your code, or a commercial project where you sell a component with your sourcecode, there will be people and customers who find bugs or want to improve your project. To do that they send you patches which you have to review and decide if you want to apply them.

TortoiseMerge helps you with both those tasks:

- Reviewing patches
- Applying the patches

TortoiseMerge also helps you to sort out conflicted files which can occur if you're working with a source control system and others are working on the same files as you.

## 1. TortoiseMerge is free!

TortoiseMerge is free. You don't have to pay for it, you can use it any way you want. It is developed under the GP license (GPL).

TortoiseMerge is an Open Source project. That means you have full access to the source code of this program. You can browse it on this link <http://svn.collab.net/repos/tortoisesvn/> [http://svn.collab.net/repos/tortoisesvn/]. The most recent version (where we're working) is located under `/trunk/`, the released versions are located under `/tags/`.

### Wishlist

Even though TortoiseSVN and TortoiseMerge are free, you can support the developers by sending in patches and play an active role in the development. You can also help to cheer us up during the endless hours we spend in front of our computers.

While working on TortoiseSVN we love to listen to music. And since we spend many hours on the project we need a *lot* of music. Therefore we have set up some wish-lists with our favourite music CD's and DVD's: <http://tortoisesvn.tigris.org/donate.html> Please also have a look at the list of people who contributed to the project by sending in patches or translations.

## 2. Acknowledgments

Stefan Küng  
for the hard work on TortoiseMerge

Lübbe Onken  
for the beautiful icons, logo, bughunting and taking care of the documentation

The Tigris Style project  
for some of the styles which are reused in this documentation

Our Contributors  
for many hours of joy with the music they sent us



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# Chapter 1. Introduction

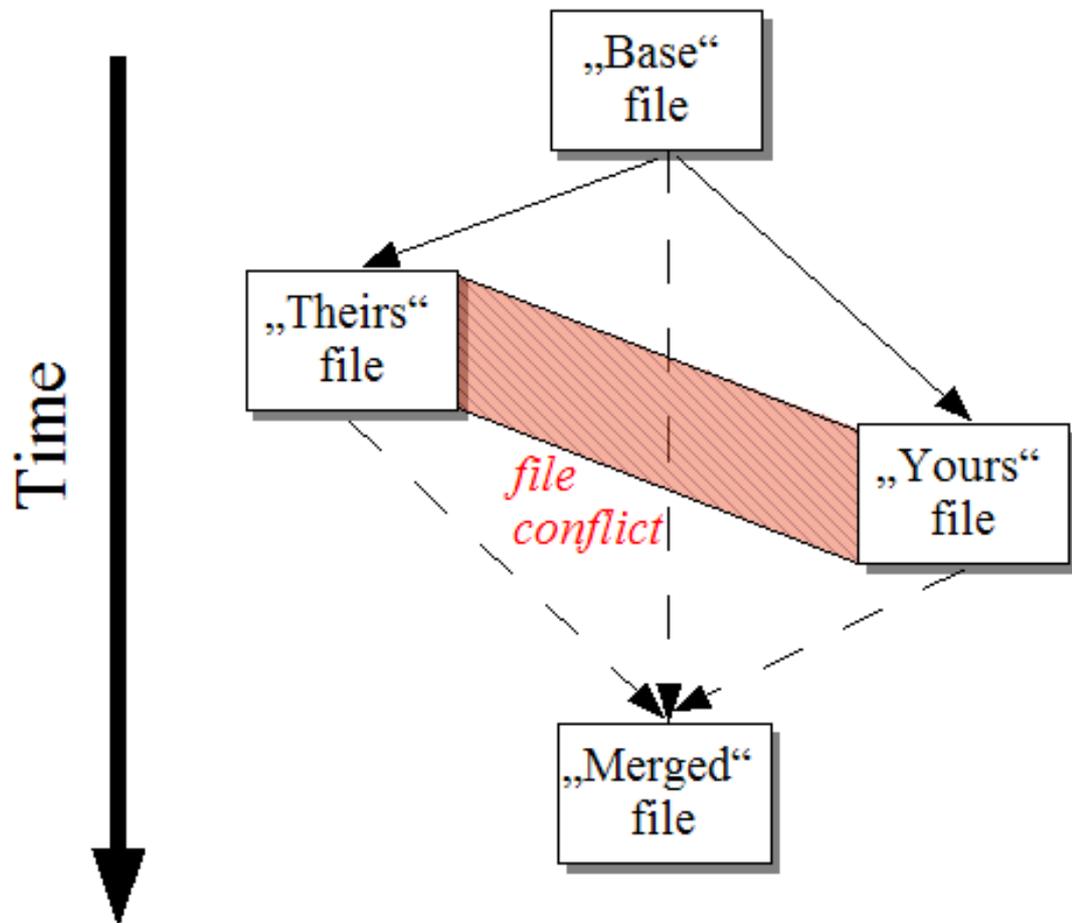
## 1.1. Overview

TortoiseMerge is a free/open-source application. It lets you see differences in text files, merge those changes and even review and apply unified diff files, often called *patches*.

While working on text files, e.g. source files in your favourite programming language, or html/xml files for your documentation or website, you will often have a situation where you need to compare different versions of those files. Sometimes you get a different version from someone else, sometimes you just want to see the changes you've made.

If you're working with a version control system (e.g. Subversion) then you sometimes get *conflicts* when you update your working copy. This happens if someone else changed the same parts of the file you're currently working on as you did. Then you have to resolve those conflicts manually. This is where TortoiseMerge can help you.

The following diagram shows you the relationships between the files involved in a conflict:



**Figure 1.1. File Conflict**

A conflict can also occur if you try to apply an outdated patchfile. In such cases, without TortoiseMerge, you would either have to ask the person you got that patchfile from for a current version or try to apply that patchfile manually.

But now with TortoiseMerge this isn't necessary anymore - at least not if you're working with a version control system like Subversion. TortoiseMerge parses the patchfile for the revision/version the patch was created for and automatically tries to fetch that specific version from your source-control. Then it applies the patch and lets you review both your changes to the file, and theirs. Then you can decide which changes you want to keep.

## 1.2. TortoiseMerge's History

While working on *TortoiseSVN* [<http://tortoisesvn.tigris.org>] we found that whenever users sent in patches to enhance the project or just to fix bugs, we had a lot of work just applying those patches. And many times those patches were outdated and couldn't be applied with the command line patch tool <http://unxutils.sourceforge.net/> [<http://unxutils.sourceforge.net/>] because we were working on those files and had sometimes changed those files already.

This was also the main reason why TortoiseSVN did not originally have a TortoiseSVN->Create Patch implemented: we preferred users to send us the whole files because with those it was easier to apply patches.

So we spent a lot of time, searching the internet for a GUI tool which could apply patchfiles, but all we found was that such a tool didn't exist. So to cut a long story short: We decided that if no-one else could provide such a tool we would have to write our own. That's when TortoiseMerge was born.

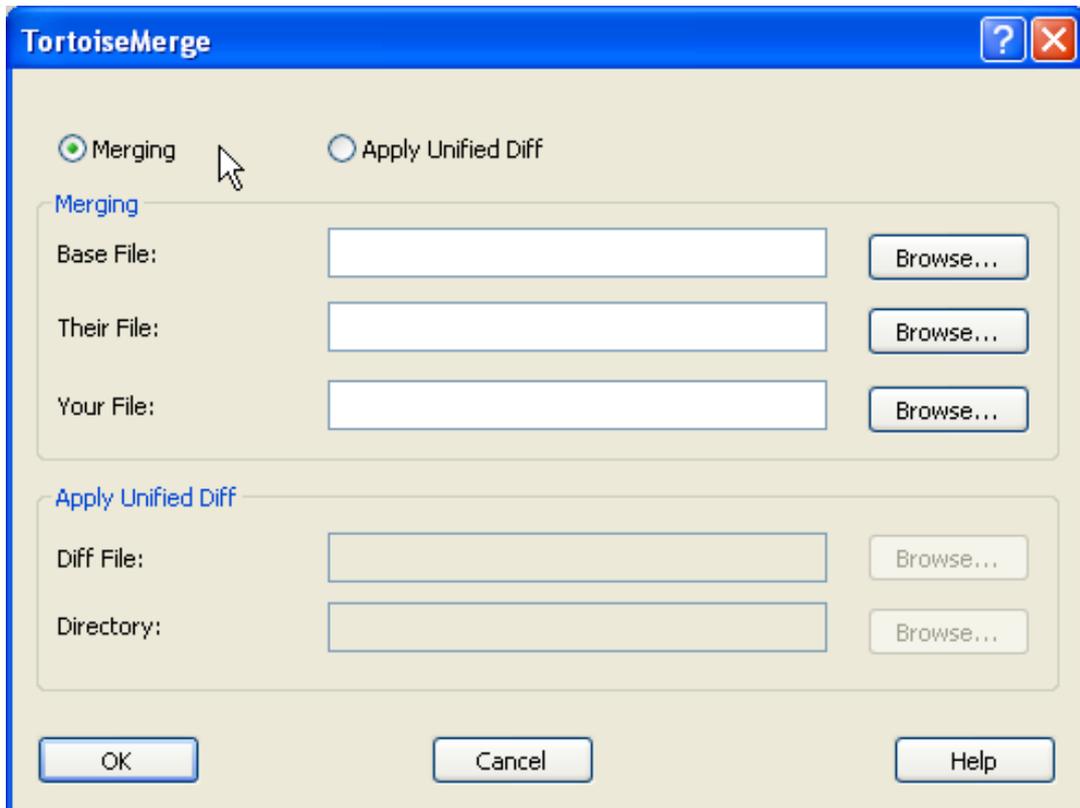
Since TortoiseSVN already uses the Subversion library, which has a nice diffing engine built in, it was just natural to use this library instead of the GNU diff. Also it reduces the size of the executable since TortoiseSVN and TortoiseMerge can both use the same dll's.

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# Chapter 2. Using TortoiseMerge

## 2.1. Open Files

When you start TortoiseMerge without any command line switches then you have to open the files manually, using File->Open.



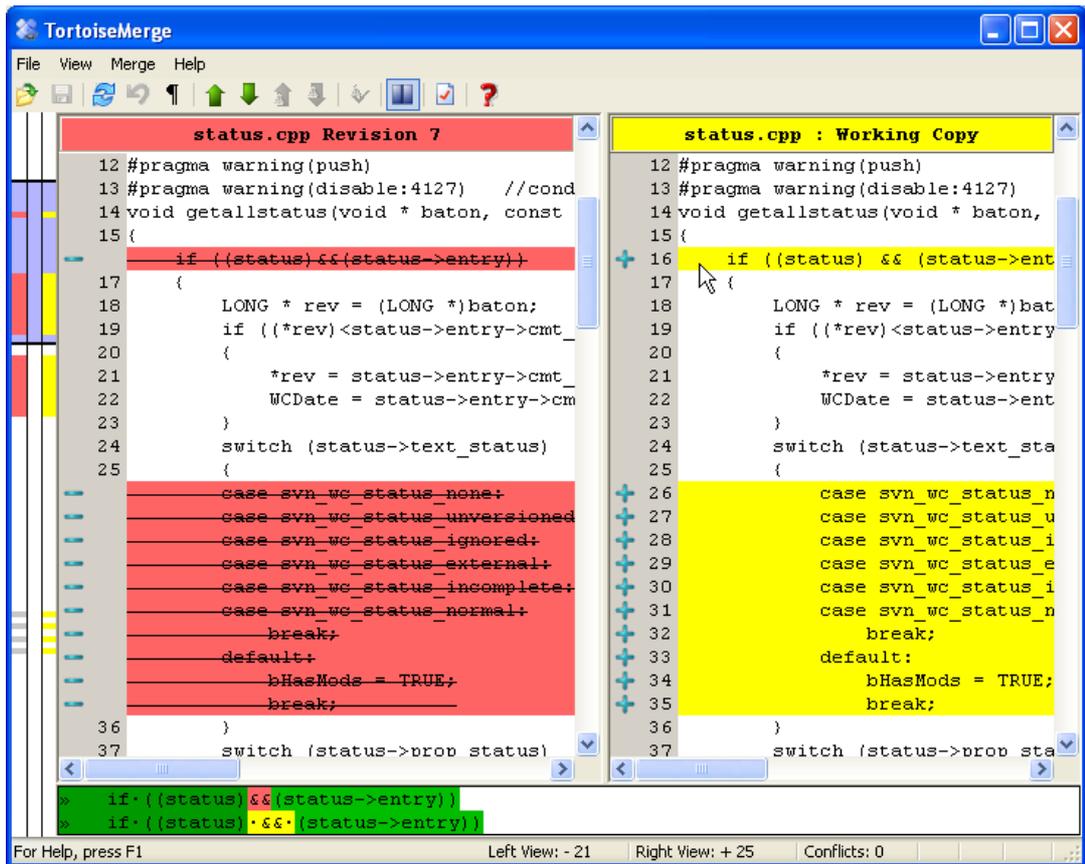
**Figure 2.1. The Open Dialog**

The first thing you have to do is to decide whether you just want to compare/merge files, or whether you want to apply a patchfile. Depending on what you choose, the corresponding edit boxes and browse buttons are activated.

### 2.1.1. Viewing / Merging

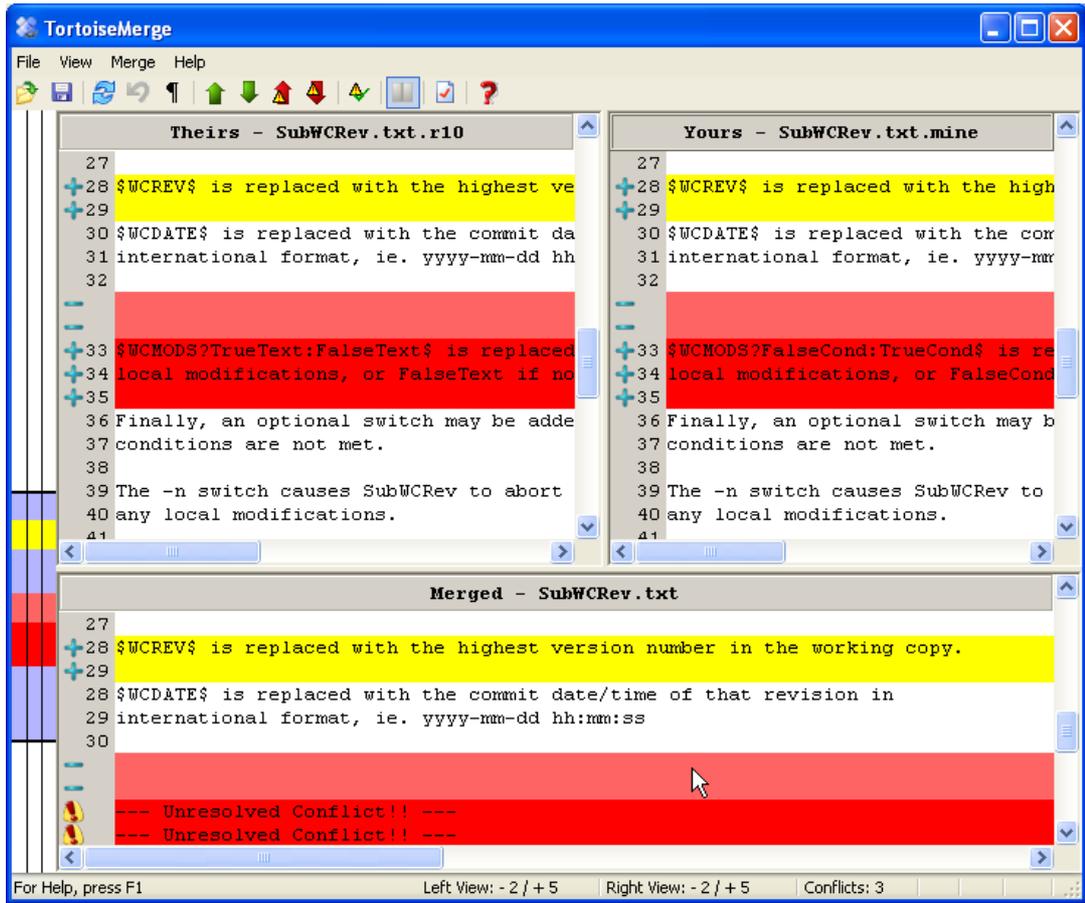
If you want to compare/merge files you have to set at least two of the three possible paths for Base, Yours and Theirs. If you select only two files, then TortoiseMerge will show you the differences between those two files, either in a two pane view or in a one pane view. You can switch between those two views with the menu command View->Oneway Diff





**Figure 2.3. Two Pane View**

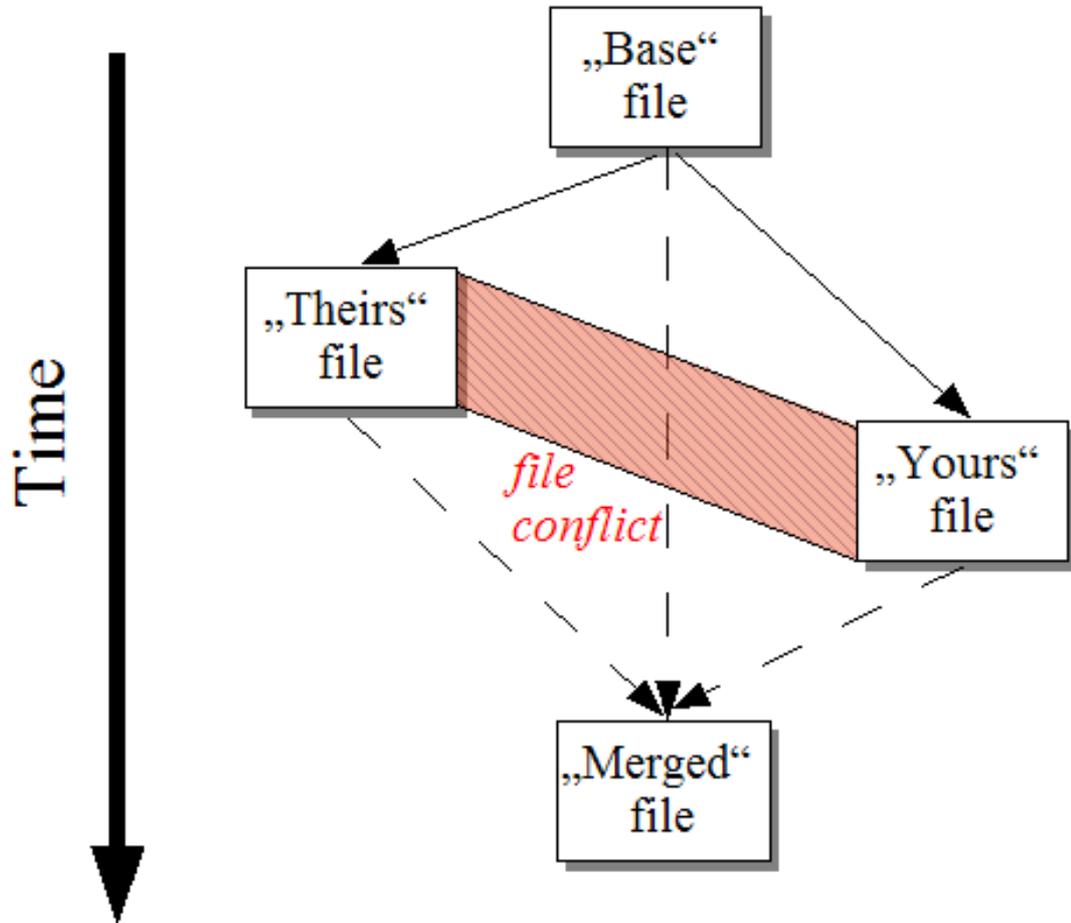
If you want to compare/merge three files, TortoiseMerge will show you the differences in a three pane view. This view is also used if you need to resolve conflicted files.



**Figure 2.4. Three Pane View**

The left pane shows you the differences between `Theirs` file and the Base file, while the right pane shows you the differences between `Yours` file and the Base file. The bottom pane shows you the result of merging Base, `Yours` and `Theirs` with possible conflicts.

The relationships between the three files are explained in the diagram below:



**Figure 2.5. File Conflict**

The base file represents the oldest version of a file, from where You and They start making changes. *Yours* represents the base file with all the changes *you* made, and *Theirs* is the file with all the changes *someone else* made to the file.

### 2.1.2. Applying Patches

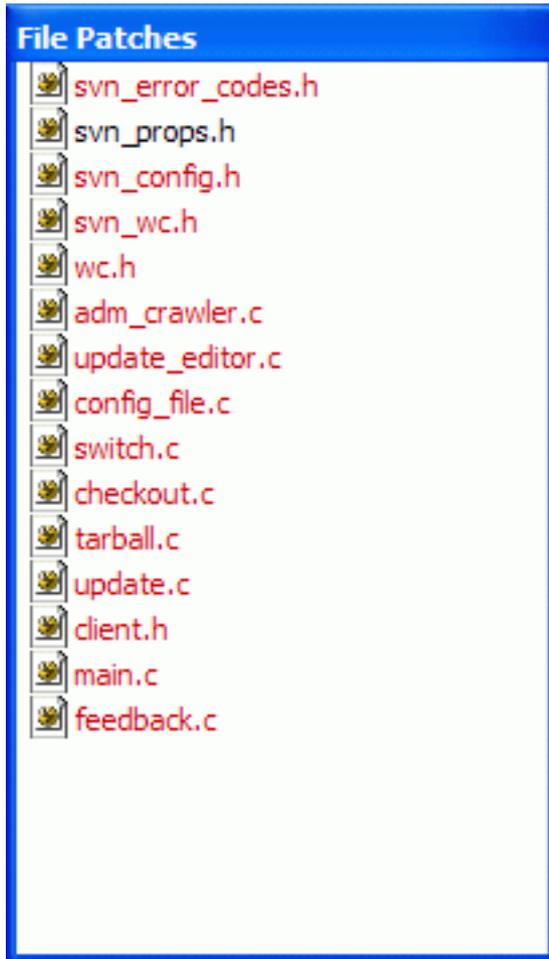
If you want to apply a patchfile you have to set both the path to the patchfile itself and the path to the folder where the patchfile should be applied.



#### Caution

Currently, only patchfiles in *Unified Diff Format* are supported. And only files which were generated from a Subversion working copy. Other formats like patchfiles generated by CVS are currently not supported!

If TortoiseMerge is able to parse the patchfile it will show you a small window with all the files which have changes according to the patchfile.



**Figure 2.6. Patch Filelist**

If the filename is shown in black, then the patch can be applied without any problems. That means the file is not outdated according to the patch. However, if the filename is shown in red, then the patch can't get applied directly because you already changed that file.

But don't worry. If you're working with Subversion you can retrieve an older version of the file and resolve the conflict. In fact, TortoiseMerge automatically tries to get that older version of the file and then shows you the diff between *Base* (the older version of the file), *Yours* (your file as it is currently in your working copy) and *Theirs* (the older version of the file with the patch already applied). Then you can resolve possible conflicts manually.

Depending on whether TortoiseMerge can apply the patch directly or by fetching an older version of the file first, it shows you a two pane view (patch can be applied directly) or a three pane view (older version of file fetched).

## 2.2. Buttons and Other Controls

Below the menu bar lies the tool bar. This provides easy access to the most commonly used tools, which are

- **Open** accesses the file-open dialog. What else?
- **Save** saves any changes you have made. If you have selected **Resolve conflicted Subversion status on save** in the settings dialog, then Subversion's conflict working files will be deleted automatically if all conflicts were resolved.

- **Reload** discards any changes you have made and reloads the original files.
- **Show Spaces** toggles the option to display space and tab characters as symbols so you can distinguish white space changes.
- **Prev/Next Difference** jumps directly to the next point where the files differ. This saves scrolling through all the unchanged parts of the file.
- **Prev/Next Conflict** jumps directly to the next point where the file differences are in conflict and need to be resolved.
- **Switch View** selects between one-pane and two-pane view. Disabled in 3-pane view.
- **Settings** takes you to TortoiseMerge's settings dialog.

On the left side of the window is a locator bar. This provides a quick visual reference as to where the changes lie within the file. The bar has three columns. The left column refers to the left pane, the right column to the right pane, and the centre column to the bottom pane (if present). In one-pane view only the left column is used. The locator bar can also be used as a scroll bar to scroll all the windows simultaneously.

Below the bottom window is the status bar. This shows the number of lines added and deleted in *Theirs* and *Yours*, and the number of unresolved conflicts remaining. The left side of the status bar is used to display hints when you hover the mouse over a control.

## 2.3. Merging / Editing Conflicts

TortoiseMerge not only *shows* you the differences between files but also let's you resolve conflicts or apply changes.

If you're in two pane view, then you can only edit the file in the right pane (*Yours*). To apply changes made in the left file (*Theirs*), right-click on the changed lines and select **Context Menu->Use text block from "theirs"**. Then the changes from the left file are added to the right file.

If you're in three pane view (sometimes called *merge view*) you can only edit the file in the bottom view (*Merged*). As in two pane view, you can right-click on conflicted lines and either select **Context Menu->Use text block from "theirs"** or **Context Menu->Use text block from "yours"**. In addition, if you want *both* blocks, you can select **Context Menu-> Use text block from "yours" before "theirs"** or **Context Menu-> Use text block from "theirs" before "yours"**. According to the command you've selected, the changes are used in the resulting *Merged* file.

Sometimes the conflict is too difficult to resolve by simply picking *Theirs* and *Yours* and it requires hand editing. TortoiseMerge allows you to do all the easy changes visually first and then save the file, leaving only the difficult changes to be resolved by hand-editing.



### Important

Note that if you use TortoiseMerge on the same files again, any changes to your working copy, whether in TortoiseMerge, or by hand-editing, *will be discarded* and the file will appear as it did when conflict-editing first started.

## 2.4. Settings

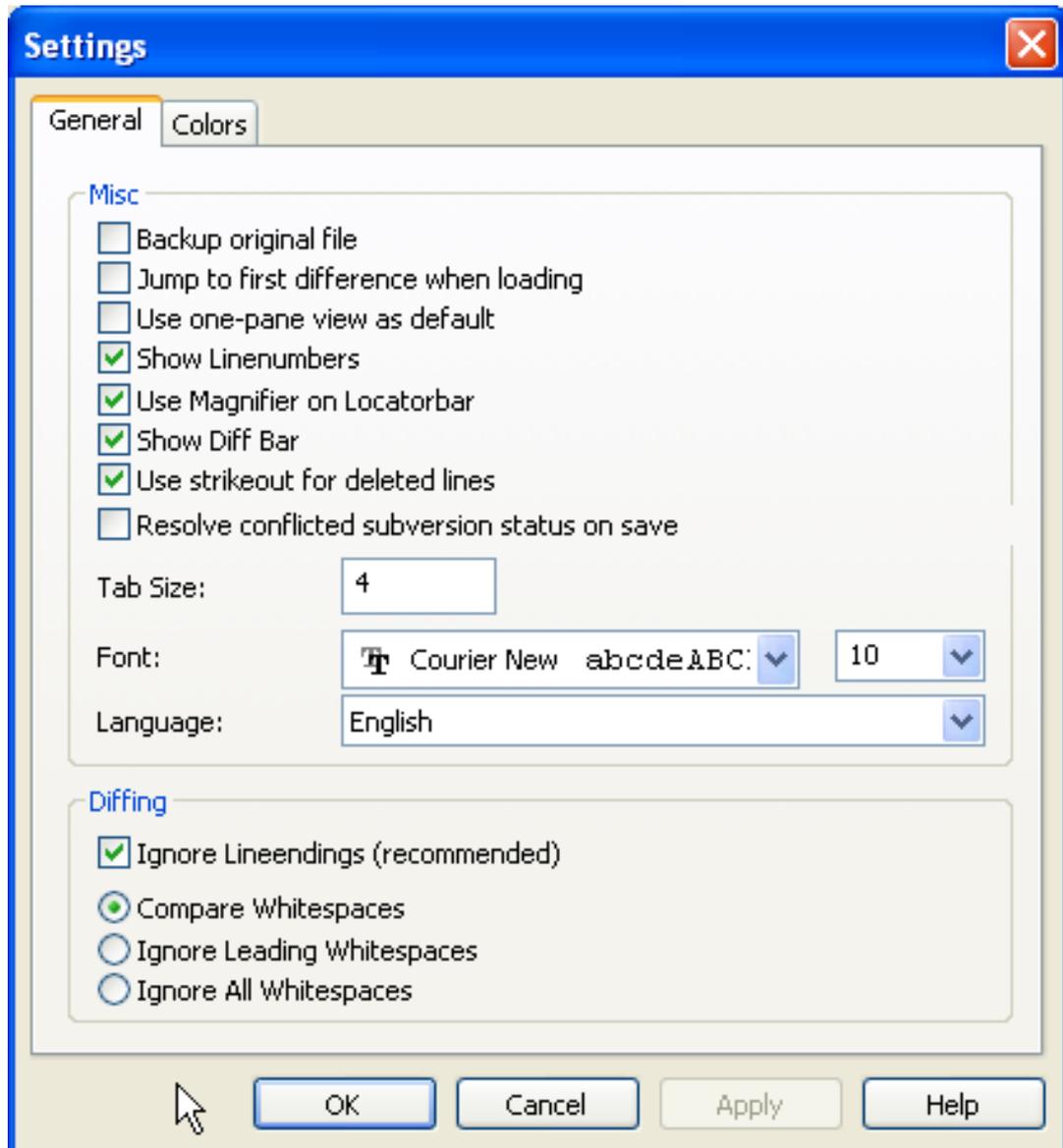


Figure 2.7. The Settings Main Page

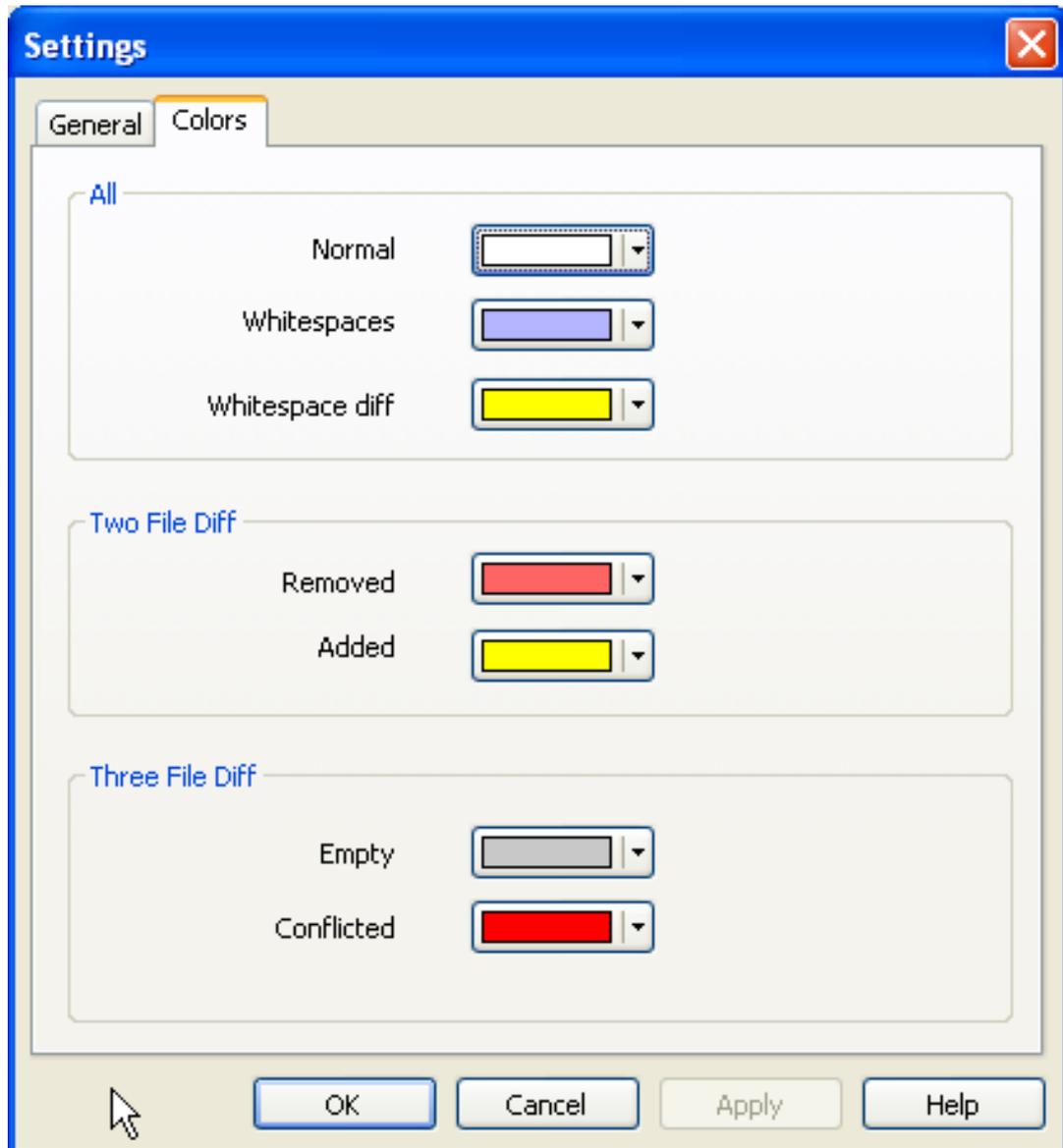


Figure 2.8. The Settings Color Page

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# Appendix A. keyboard shortcuts

List of keyboard shortcuts and commands.

## A.1. Keyboard shortcuts

- Ctrl-Q  
Quit the program
- Ctrl-C  
Copy the selected line(s) to the clipboard
- Ctrl-F  
Open the Find dialog for text searches
- Ctrl-O  
Open files to diff/merge
- Ctrl-S  
Save the changes
- Ctrl-Shift-S  
Save as...
- F7 or cursor-right  
Go to next difference
- Shift-F7 or cursor-left  
Go to previous difference
- Ctrl-D  
Toggle between one-pane diff and two-pane diff
- Ctrl-R  
Reload the files and revert all changes made
- Ctrl-T  
Toggles between showing whitespaces or not

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# Appendix B. Command Line Parameters

TortoiseMerge can be started with different command line parameters to load files directly at program startup.

## B.1. Command Line Parameters

- `/?`  
Shows an info dialog with all possible command line parameters.
- `/base:"path/to/basefile"`  
load the base file
- `/basename:name`  
Sets the string for the view title.
- `/theirs:"path/to/theirfile"`  
load their file
- `/theirname:name`  
Sets the string for the view title.
- `/yours:"path/to/yourfile"`  
load your file
- `/yourname:name`  
Sets the string for the view title.
- `/merged:"path/to/mergedfile"`  
Specifies the merged file where the result of the merge is saved to.
- `/mergedname:name`  
Sets the string for the view title.
- `/diff:"path/to/unified_diff_file"`  
Specifies the unified diff file (patchfile).
- `/patchpath:"path/to/patchfolder"`  
Specifies the path to the folder where the patchfile is applied to.
- `/oneway`  
If set, TortoiseMerge starts with the one-pane-view.