# SmartSynchronize - A Short Introduction

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# 1   Introduction

SmartSynchronize is a tool to

- manage files (copy, move, rename, pack, unpack, ...),

- compare text files with the ability to edit the files and to apply changes from one file to the other,

- merge two different changes to one text file back to this file (3-way merge),

- compare directory structures with the ability to apply changes from one side to the other.

This makes it very easy to synchronize files or directory structures, for example, between your home and your office data.

# 2   Starting SmartSynchronize

## 2.1   Using the Welcome Dialog

When you click the SmartSynchronize icon, the Welcome dialog occurs. Here you can select what to do: compare files, perform a 3-way merge or compare directories. For directory comparison you have the choice between comparing two arbitrary directories or to open a previously saved profile, where a profile is a named directory-pair with its settings (e.g. ignored file and directory patterns). For more information, see Section 3.

## 2.2   Using Command-Line Parameters

Alternatively, you can pass the file or directory names as command line parameters. If you pass three file paths, the 3-Way-Merge opens. If you pass two file paths, the File Compare opens, if you pass two directory paths, the Directory Compare opens. If you pass a file and a directory paths together, SmartSynchronize tries to take the opposite file for the File Compare from the specified directory using the name of the specified file. If SmartSynchronize could not find a suitable command to perform directly, the Welcome dialog is displayed with the specified files or directories in the file or directory input fields.

**Example**

```
smartsynchronize.exe C:\path1\left.txt C:\path2\right.txt C:\path\base.txt
```

This will open the 3-Way Merge with `left.txt` on the left, `right.txt` on the right and `base.txt` as the base, where also the merge result will be stored.

```
smartsynchronize.exe C:\path1\file1.txt C:\path2\file2.txt
```

This will open the File Compare with `file1.txt` on the left and `file2.txt` on the right.

```
smartsynchronize.exe C:\path1\dir1 C:\path2\dir2
```

This will open the Directory Compare with `dir1` being the left and `dir2` the right directory.

```
smartsynchronize.exe C:\path1\file.txt C:\path2\dir2
```

This will try to open the File Compare with `C:\path1\file.txt` on the left and `C:\path2\dir2\file.txt` on the right.

### 2.2.1 Command-Line Usage on macOS

To launch SmartSynchronize *without* passing command line parameters, just invoke the SmartSynchronize application (assuming SmartSynchronize is installed in `/Applications`):

```
$ open /Applications/SmartSynchronize.app
```

To launch SmartSynchronize *with* passing command line parameters, invoke the following shell-script embedded in the SmartSynchronize application (assuming SmartSynchronize is installed in `/Applications`):

```
$ /Applications/SmartSynchronize.app/Contents/MacOS/Smartsynchronize
 file1.txt file2.txt
```

To not have to type the full path each time, it is recommended to create a symbolic link to the shell-script in your path (write on one line):

```
$ sudo ln -s /Applications/SmartSynchronize.app/Contents/MacOS/Smartsynchronize
 /usr/local/bin/compare
```

Then it becomes much less typing:

```
$ compare file1.txt file2.txt
```

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# 3   Welcome Dialog

The welcome dialog occurs when launching SmartSynchronize without specifying (all required) command line arguments. Select what you want to do: compare files or directories, merge files or open a stored profile (a named directory compare).

## 3.1   Compare

Select the **Compare** option to perform a file or directory compare. To compare files, select the **Files** option. To compare directories, select the **Directories** option. Depending on this selection, clicking the chooser buttons right beside the text fields will either open the select file dialog or the select directory dialog.

With the triangle button to the right you can open the compare history allowing you to chose previously compares files or directories. If the history button is disabled, no compare history items are present. Selecting an history entry will set the **Left** and **Right** text fields and set the right **Files** or **Directories** option. At the bottom of the history popup menu you can find the menu items **Remove Obsolete Entries** to remove history entries which are (currently) not available any more and **Clear History** to clear the compare history.

## 3.2   3-Way-Merge

Select the **3-Way Merge** option to perform a 3-way merge. Use the chooser buttons right beside the text fields to open the select file dialog.

With the triangle button to the right you can open the merge history allowing you to chose previously merged files. If the history button is disabled, no merge history items are present. At the bottom of the history popup menu you can find the menu items **Remove Obsolete Entries** to remove history entries which are not available any more and **Clear History** to clear the merge history.

## 3.3   Open Profile

To open a profile, double click it. The **Open Profile** option will be selected automatically.

If the directories were moved to a different location, you can change the profile directories by right-clicking on the profile and selecting **Edit Directories**.

# 4   File Manager

To create, copy, move, delete files or directories, use the File Manager. The File Manager comes as a keyboard-usage oriented dual-pane flavor where either the left or right side

can be source or target of the file operation.

## 4.1 Navigation

With *<Tab>* you can switch between the left and right view. Use the cursor keys for navigation. The **..** directory means the parent directory. *<Left>* moves a directory level up, *<right>* moves into the selected directory or dives into an archive. If the `7z` executable is configured, this works even for executable files. With the *<Enter>* key the first matching command from the Tools section in the preferences will be executed.

Above each pane, there are 3 buttons and the path shown. The left-most button allows to quickly select drives (Windows) or partitions (macOS, Linux), as well as *favorite* directories. The next two buttons allow to access the directory history - a long click will show a popup. Click on a part of the shown path to quickly go to this (grand) parent directory.

Another way of quickly accessing directories you already have navigated to, is to *<Ctrl/Cmd>+<P>*-keystroke and start typing parts of the directory name.

## 4.2 Sorting

Click the table headers in the right order to configure the sorting. Subdirectories are always shown before files. SmartSynchronize can remember different sortings for different directories, and one default sorting. For example, it makes sense to keep the `Downloads` directory sorted by **Time**, so newly downloaded files show up at the top, while for nearly all other directories sorting by **Name** or **Ext.**(ension) might be more appropriate.

Select **View|Remember Sorting for This Path** to use a different sorting for the currently visible path. Unselect it to use the default sorting. If **View|Remember Sorting Automatically** is selected, then the sorting is immediately remembered. If **View|Remember Sorting Manually** is selected, the sorting only is remembered if **View|Remember Now** is selected.

## 4.3 Viewer

*<F3>* opens a simple file viewer. For text files, common encodings like UTF-8 (with or without BOM) or UTF-16 should be detected. Alternatively, a hex viewer is available for binary content. If text viewer is active, you can search or use the mouse to select and copy text.

## 4.4 Editor

*<F4>* searches the editor tools configured in the preferences for the first one matching

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the file name. This means, it is very easy to configure a different editor for graphic files, e.g. `*.png`, than for text files.

## 4.5   Tools

Even more flexible it is to configure several external tools. They can work on selected files or directories, or simply be used to launch another application. Some common features, e.g. **Reveal in Explorer** or **Open Terminal**, are configured this way in the preferences allowing tweaking of the invoked command. The configured tools will be available in the **Commands** menu. Those tools, that apply to files, are also shown in the context menu of each file panel.

# 5   File Compare

To compare or synchronize two files, use the File Compare. You can start it either from the Welcome dialog, by double-clicking a file in the Directory Compare window or by passing the target file paths as command line parameters. If you pass one file and a directory path as command line parameters, SmartSynchronize tries to compare the specified file and the file with the same name in the specified directory.

The File Compare displays the files left to right. At the outer left and right borders the changes are marked with colors. Clicking there with the left mouse button centers the corresponding change within the text editors. Between the two file editors, the changes are linked with colored areas. There you will also find small buttons which allow to synchronize the particular change block from one to the other file. You also can use the menu items **Edit|Take Left Block**, **Edit|Take Right Block**, their accelerators (shortcuts) or their toolbar buttons. To apply individual inner-line changes, right click at the change and select **Apply Left** or **Apply Right**. With **Go To|Next Difference** and **Go To|Previous Difference** (or their accelerators and toolbar buttons) you can navigate from change to change. To create a colored HTML file showing the two compared files as they occur on the screen, use **File|Export as HTML-File**.

To configure the tab size, whether linenumbers or whitespaces should be displayed, use the menu item **View|Settings**. For detailed option description, please refer to View Settings (Section 8.2).

Use **Edit|Set Left Encoding** or **Edit|Set Right Encoding** to set the encoding used to read and write the corresponding text file.

Use **File|Refresh** if the files have changed on disk and you want to reload them. If you have made changes to the files, you will be asked whether to store them.

# 6   3-Way Merge

To merge two different changes of one file back to the original file, use the 3-Way Merge. You can start it either from the Welcome dialog or by passing the base file and the two different changed files (left and right) as command line parameters.

If SmartSynchronize detects, that it can merge conflicting changes automatically, it will ask you immediately after opening the 3-Way Merge. To auto-merge later, use the menu item **File**|**Auto-Merge Changes**.

With the **View**|**Layout** options or their toolbar buttons you can switch between different types of showing the three files. By default all three files are shown, but sometimes it is useful to just see one pair of them, e.g. when editing.

# 7   Directory Compare

To compare two directory structures recursively or merge changed files between them, use the Directory Compare. You can start it either from the Welcome dialog or by passing two directory names as command line parameters.

## 7.1   Directory Compare Display

SmartSynchronize combines the content of both directory structures visually so they appear as one directory structure. To the left the combined directory structure tree is displayed. If a subdirectory is only available in the left or right directory structure, only the corresponding part of the icon is displayed. If a directory icon is painted fully red, this directory contains modified, left-only or right-only files. If only the back part of the directory icon is red, it contains at least on red subdirectory.

To the right you can see the files and their states. By default, all files from subdirectories are displayed. A partially red icon indicates a file which is only available in one directory structure. The value in the **Changes** table column which is only shown for text files, displays the kind of detected changes. `+9 -3 ~4`, for example, means 9 added, 3 removed and 4 changed lines, when you think of the older directory structure to the left and the newer one to the right. If you want to see the detailed changes, double click the file to open the File Compare.

Use **Edit**|**Synchronize Left to Right** or **Edit**|**Synchronize Right to Left** menu items to synchronize the change of the selected file pairs to the other side.

| Note | This does not just copy files, but also creates new or deletes obsolete files, depending on the file's existence and the direction of the synchronization. |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------|

### 7.1.1   Automatic Synchronization

To synchronize directory structures easily, use the menu item **File|Synchronize**. A dialog will open which lets you specify the time of the last synchronization (there is also an option to remember this date automatically) and shows suggestions how to copy or delete files.

The suggestions are based on the specified time of the last synchronization, the file existance and file times. For example, if left and right files exist, the left file time is not later than the last synchronization time, but the right one is, the file will be copied from the right to the left. If the left file is missing and the right one older than the last synchronization time, the right file will be deleted.

Be sure to verify the suggestions in the dialog before clicking **OK**!

## 7.2   Directory Compare Settings

With **View|Files From Subdirectories** and **View|Unchanged Files** or the corresponding toolbar buttons, you can define what files should be shown.

With **File|Settings** you can edit directory compare settings. These settings will be stored with the profiles, so they can be different for different profiles. In the Preferences (see Section 8.1) you can define their defaults.

### Compare

Select, whether SmartSynchronize should compare files by comparing the file contents or by comparing only the file sizes and modification times. If the **Quick Compare** option is selected, SmartSynchronize optionally can skip files with modification times older than the specified number of days.

If **Inspect EOL for building change overview** is selected, SmartSynchronize will detect also files, which just differ by their line separators in the left or right directory, and displays the file state accordingly. If **Evaluate line-based changes (in background)** is selected, SmartSynchronize will start a detailed analysis of the file content to display the count of added, removed and changed lines.

### Display

When option **Show Settings before Refresh**, these settings dialog will be shown before starting to (re)compare these directories. When option **Display detailed state based on file time**, SmartSynchronize shows different file states (and file icons) for changed files, depending on whether the left file is newer than the right one or visa versa.

### 7.2.1   File Filters and Directory Filters

When working with projects, they often contain files or directories which you don't want to synchronize, because they are of temporary nature or specific to the particular directory structure. These are, for example, files with the extension `.obj` or `.class` or directories with version control information like `CVS` or `.svn`.

For directories you can define include and exclude patterns. Use the include patterns to cherry-pick only a few parts out of the directory structures. With the exclude patterns you can define directories which should not be scanned. For files you just can define exclude pattern for files which should be ignored.

To define a filter pattern, use the known wildcards '*' (zero or more arbitrary characters) and '?' (one arbitrary character). If the pattern contains at least one slash, it will be tried to match with the file or directory *path* relative to the correspodning directory structure's root directory. Otherwise it will be tried to match with the file or directory *name*.

#### Example

`*.class`

This pattern matches files (or directories) whose names end with the text ".class", e.g., `Foo.class` or `Bar.class`, but not `Foo.classes` or `Bar.txt`.

`.*`

This pattern matches files (or directories) whose name is starting with a period, e.g. `.classes`. Those are considered hidden files on Unix based operating systems.

`/*/foo/bar`

This pattern matches files (or directories) in subdirectories whose path end with "/foo/bar" (or "\foo\bar"), but not the file or directory "/foo/bar" itself.

#### File Encoding

Here you can define the text file encodings which should be used for the left and right directory structures. By default the system encoding is used. Changing these options can be necessary when comparing files from different operating systems (independent of the possible different line separators).

## 7.3   Working with Profiles

If you need to compare or synchronize the same directory pairs multiple times, you can save them as a named profile, which can quickly be selected from subsequent directory

comparisons. When the directory compare is open, click **File|Save Profile** and enter the name of the profile. With **File|Profile Manager** you can rename, delete or reorder your saved profiles.

# 8   Configurations

SmartSynchronize has different types of configuration: *preferences*, *view settings* and *directory compare settings*. View settings define how the editors of the current file compare or file merge window should compare or display something. Directory compare settings (see Section 7.2) define how the directory compare of the current window should perform the comparison and what files or directories should be ignored. Preferences apply to the whole applications and contain default view settings as well as default directory compare settings. Preferences you usually have to configure one time, but view settings might be changed for different viewed file types and directory compare settings for different directory compares.

## 8.1   Preferences

On macOS you can open the preferences dialog from the application menu. On other operating systems, you can open it from the Welcome dialog or with the **Edit|Preferences** menu item from the **File Compare**, **Directory Compare** and **File Merge** windows.

### Text Editors

On the **Font** tab you can define the font which should be used in the compare and merge text editors. Note, that only fixed-size fonts can be choosen. Depending on the font and size, selecting or unselected the **Use Antialiasing** option may result in a better looking.

On the **Colors** tab you can define the foreground and background colors which should be used in the compare and merge text editors.

On the **Editor** tab you can customize the behaviour of different keyboard commands.

After clicking **OK** these changes will be applied to all open compare or merge windows.

### Directory Compare Defaults

On this card you can define the defaults which are used for new directory compares. Please refer to the Directory Compare Settings (Section 7.2) for detailed description.

**Accelerators**

Use this card to customize the accelerators of the compare and merge windows. Double click the menu item row, press the key combination and click the **Assign** button. To remove an assigned accelerator, e.g. because you want to reuse it for a different menu item of the same window, click the **Clear** button. To get the original accelerator, click the **Reset** button.

**Check for Update**

Select the option "Automatically check for available updates" if SmartSynchronize should check daily for new SmartSynchronize updates on the syntevo.com-website.

## 8.2   View Settings

Depending on the window, the view settings can be changed with different menu items. Use the menu item **View|Settings** in the File Compare and File Merge windows. Use the menu item **Preview|Settings** in the Directory Compare window.

On the **General** card, you can define the tab size, whether whitespaces or line numbers should be shown. On the **Compare** card, define whether changes in whitespace should be ignored, whether and how to detect inner-line changes. Select the option **Store as default** to remember the settings as default for new opened windows.