

Assystem Germany GmbH  
Erwin-von-Kreibitz-Str. 3  
D-80807 Munich  
Germany



## User Guide

PowerDiffMerge Version 4.1

Issue 4.1

## Table of Contents

1 Overview.....	4
1.1 Purpose.....	4
1.2 Input Files.....	4
1.3 Interfaces.....	5
1.4 Installation and Registration.....	5
1.5 Definition of the Merge process .....	5
1.5.1 Delta Merge.....	5
2 Getting Started .....	7
3 User Interface Details .....	8
3.1 Licence Dialog .....	8
3.2 Session Initialisation .....	8
3.2.1 Step 1: Choose the session .....	9
3.2.2 Step 2: Determine the branches – Session Settings .....	10
3.3 Chart List Editor .....	12
3.3.1 The branches view.....	12
3.3.2 The merge result view.....	14
3.3.3 Icons, colours and different styles.....	16
3.4 Chart Merge.....	16
3.4.1 Colouring .....	18
3.4.2 Merge Actions.....	18
3.4.3 Finishing the merge of the chart.....	21
3.4.4 Graphics Editor .....	21
3.4.5 Progress Bar.....	21
3.5 Structure of the Menus.....	22
3.5.1 The “File” menu .....	22
3.5.2 The “Settings” menu .....	22
3.5.3 The “Info” menu .....	22
3.5.4 Options Dialog.....	23
4 PowerDiffConvert.....	24
4.1 Overview.....	24
4.1.1 Input File Format.....	24
4.1.2 Output Files .....	24
4.1.3 Installation and Registration.....	24
4.2 Getting started .....	24
4.2.1 Preconditions.....	24
4.2.2 Settings .....	25
4.3 Executing PowerDiffConvert .....	25

4.4 Convert Settings Dialog .....	25
5 Support.....	27

# 1 Overview

## 1.1 Purpose

PowerDiffMerge is a software tool to merge IBM® Rational® Statemate® files. Statemate® is a system specification tool that uses graphical elements and charts to model complex systems using structured analysis methods. PowerDiffMerge automatically analyses the logical and textual differences between a set of Statemate® charts. On this basis, the user may interactively merge changes into a result chart.

## 1.2 Input Files

PowerDiffMerge is intended for Statemate® Version 4.6.1.11. Charts developed with other versions of Statemate® will be converted with PowerDiffConvert to the supported version.

Only Statemate® Statecharts (ending with .sch), Activitycharts (ending with .ach) and Global Definition Sets (ending with .dic) can be merged with PowerDiffMerge. External file types, which can be merged by PowerDiffMerge with the aid of an external text merge tool (see “Setup and Installation Guide”), comprise plain text-files (ending with .txt), matlab files (ending with .m) and ada files (with the file extension .adb). Other file types cannot be merged with PowerDiffMerge.

PowerDiffConvert supports charts created with Statemate® version 3.3.1, 4.0, 4.1, 4.1 MR1, 4.1 MR2, 4.2, 4.3, 4.4, 4.5, 4.5.0.1, 4.6, 4.6.0.1, 4.6.0.2, 4.6.0.3, 4.6.1, 4.6.1.1, 4.6.1.2, 4.6.1.3, 4.6.1.4, 4.6.1.5, 4.6.1.6, 4.6.1.7, 4.6.1.8, 4.6.1.9, 4.6.1.10 and 4.6.1.11.

A chart file may be exported from a Statemate® model by using its export interface. Alternatively, chart files can be used directly from the Statemate® repository, which resides within the “chart” subdirectory of the project database. PowerDiffMerge itself does not modify the input files, but PowerDiffConvert will convert them to a newer version of Statemate® (see section 4).

**Important note:** All chart files have to pass the Statemate® model check successfully before being merged. At least a successfully completed DB diagnostic check is required.

Ideally, the model is also consistent as reported by Check Model. Otherwise, the merged Statemate® model may contain inconsistencies derived from one of the input models. The maturity of the Statemate® model to be merged has to be assessed by the user w.r.t. the expectable merge results; immature models may produce inconsistent merge output.

## 1.3 Interfaces

PowerDiffMerge contains an interface to PowerDiff in order to create reports of the current version of the merge result.

PowerDiffMerge currently supports version 13.1 of PowerDiff to generate these reports (see section 3.5.1 for usage details).

## 1.4 Installation and Registration

The process for installing and registering PowerDiffMerge is detailed in the “Setup and Installation Guide” delivered with the software. It also contains the preconditions for running PowerDiffMerge.

## 1.5 Definition of the Merge process

In a version-controlled project, all modifications of files that belong to the project folders are tracked and as soon as one project member (or group of project members) has made modifications to a set of files, he can commit them to the version control system and thus create a new version of the project. Those modifications can be seen and imported by all project members.

When two people are concurrently working on the same project version, the so-called baseline, both are in fact working on two different branches of the project. In order to consider the modifications made by both parties, the two branches have to be merged and the result is ideally a single collection of files that contains both sets of changes. This merge action can be performed manually and consists of deciding exactly what the resulting files should contain – by picking the wanted modifications from both branches and solving potential conflicts (e.g. when something has been modified by one party and deleted by the other one).

PowerDiffMerge only supports the delta merge.

### 1.5.1 Delta Merge

In case of a delta merge, all branches consist of a so-called Before-Case (BC: the original state of the branch) and a so-called After-Case (AC: the current state of the branch after modifications). The differences between the Before-Case and After-Case are called the delta. Each branch has its own delta, independent from any common baseline.

The After-Case of one of the branches is considered as default merge result for the merge action, all deltas from the other branches can be propagated or not to this merge product. It is recommended that the branch designated as merge result contains all charts of the current stage of development.

An example is given in Figure 1. The contribution of Branch3 in the example shows that the content of the branch itself is not relevant for the merge action (Before-Case of Branch3 is not the same as Before-Case of Branch1 and Branch2), but only the deltas between the several Before-Cases and After-Cases are considered. In this example, all deltas or modifications have been propagated to the merge result. The default merge result is the After-Case of Branch1.

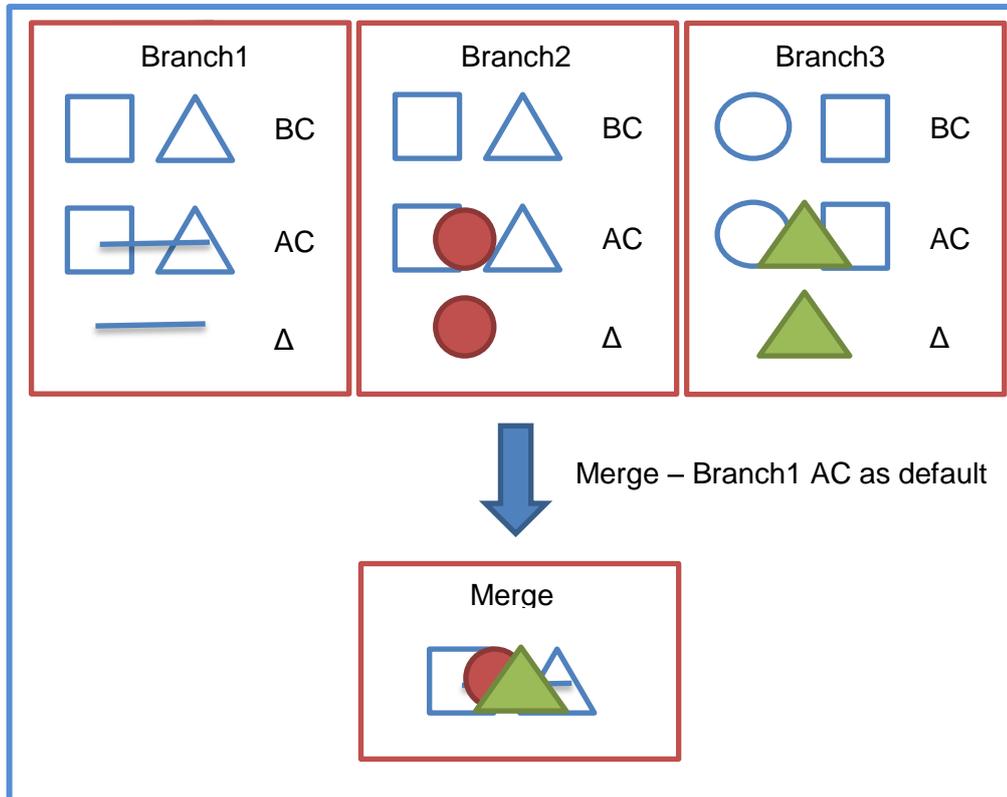


Figure 1: Definition of the delta merge process

## 2 Getting Started

This chapter provides a concise overview of the functionality realized by PowerDiffMerge. Please refer to chapter 3 “User Interface Details” for a more detailed description.

A wizard leads the user through the merge process. At first, the merge session has to be initialised by choosing a session and defining the branches to be merged.

The branches as well as their configuration will persist throughout the whole merge session.

After the basics for the current merge session have been established, the belonging charts and external files have to be selected. This is accomplished in the “Chart List Editor”, which contains a view of each branch in the file system at the top and a view of the folder structure at the bottom, which results from the merge process.

All files from all branches are initially automatically assigned by name. These assignments may be removed and re-assigned manually – by selecting single files from one or more branches and pressing the “Assign” button.

Buttons used to influence the result are located at the bottom of this dialog. They allow renewing the assigned file tuples or reverting all results and starting with a new session. Files, which are not part of an assignment, are not reflected in the merge result.

There are two types of file assignments, which can be merged in more detail (by selecting the assignment and pressing “Merge Next” or selecting the assignment and one of its branches in the branches list and pressing “AutoMerge”):

- Assignments of state and activity charts or global definition sets, which are merged in a PowerDiffMerge-specific “Chart Merge” window
- Assignments of external files (see section 1.2 for supported files), which are merged in an external text merge tool

When the merge is finished, the result can be written to a specified location (by pressing the “Export Results...” button in the “Chart List Editor”).

## 3 User Interface Details

PowerDiffMerge requires user interaction to determine the merge result. Details of this user interface are described within this chapter.

### 3.1 Licence Dialog

A licence dialog appears when starting PowerDiffMerge. If no licence is configured (i.e. when PowerDiffMerge is started for the first time) or the configured licence is no longer valid, the user needs to specify either

- the address of a licence server or a triad of licence servers, or
- a file containing a valid PowerDiffMerge licence



Figure 2: PowerDiffMerge licence dialog

PowerDiffMerge will not ask the user for entering a valid licence, as long as the currently set licence is valid. The licence dialog will still appear when starting PowerDiffMerge, but automatically close shortly afterwards.

For more details, please refer to the “Setup and Installation Guide”.

### 3.2 Session Initialisation

The Session Initialisation is started at the beginning of each merge session. A merge session considers a specific version of selected branches to be merged into a merge result. A change of branches requires a new merge session to be started.

### 3.2.1 Step 1: Choose the session

The first decision when starting PowerDiffMerge is whether to start a new merge session or continue the previous session. Starting a new merge session will discard all information about the previous merge session.

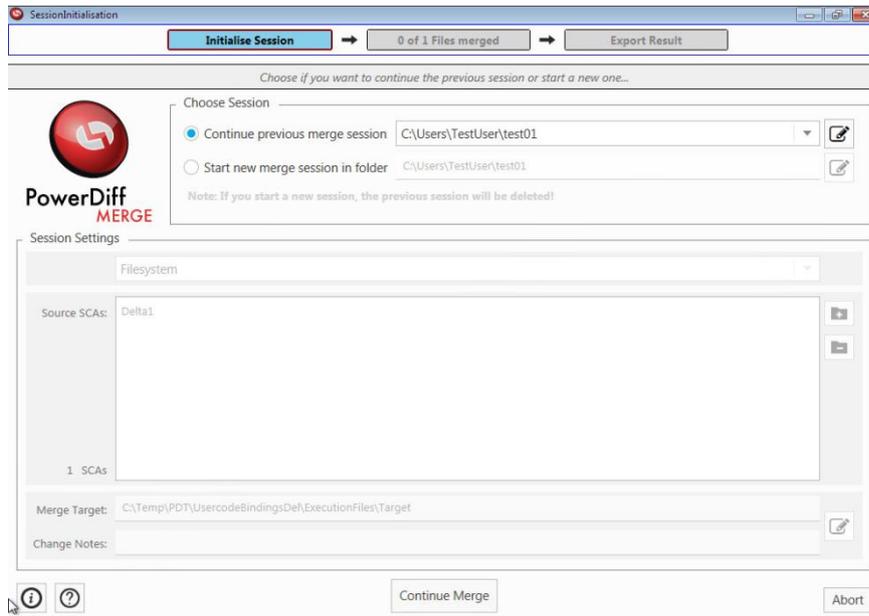


Figure 3: Choose Session: Upper Part in the Session Initialisation

Selecting “Continue previous merge session” in the upper part of the screen displayed in Figure 3 and pressing the “Continue Merge” button leads directly to the “Chart List Editor”. All settings from the previous session are taken from the information stored in the directory selectable next to the “Continue previous merge session” radio button.

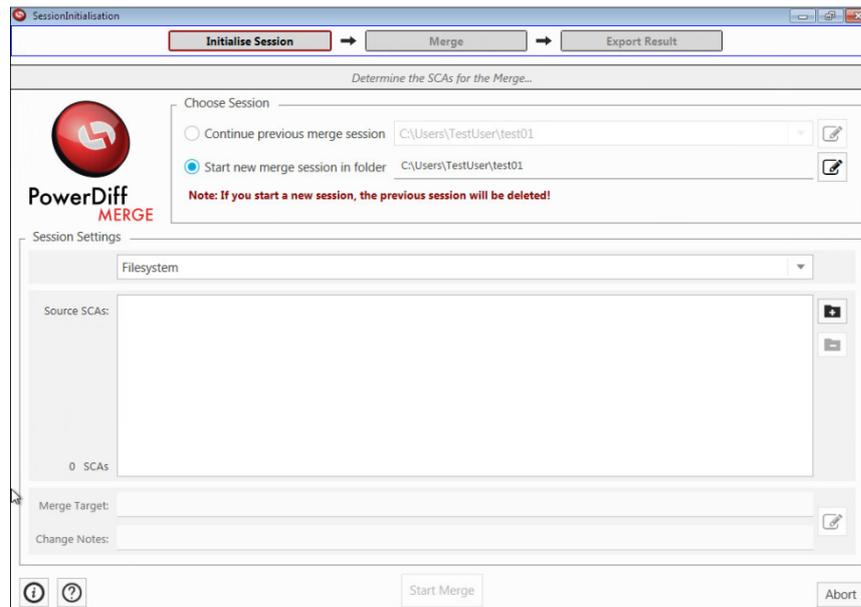


Figure 4: Choose Session: Upper Part in the Session Initialisation

The selection of “Start new merge session in folder” on the same screen means to start a new merge session without the use of older temporary results.

The temporal folder, in which folders and files needed by the current session will be stored, can be set by clicking the Edit icon  and selecting the folder within the file system explorer. The user must have read and write access to this temporal folder. The default path for this temporal folder lies within the current user profile. The content of this temporal folder must not be manually modified and is for internal use of PowerDiffMerge only. The result of the merge session can be written to any other location.

The “Info” button  opens the “About” Window containing the version and support information for PowerDiffMerge (see 3.5.3).

By clicking the “Help” button , a picture is shown for understanding the delta merge process as described in chapter 1.5.1

Pressing the “Abort” button or the “X” in the upper right corner of the Window stops the configuration of the merge session and closes PowerDiffMerge.

### 3.2.2 Step 2: Determine the branches – Session Settings

In order to be able to merge, the branches (source and target) have to be determined (as shown in the lower part of Figure 3). Branches are separate folders, which contain subfolders and files to be merged.

Usually branches are created in a version control system and describe different versions of Statemate® models or parts thereof. Branches to be merged are usually not entirely separate from each other, but have a common history and some additional changes.

At first, the list of branches (Source SCAs) is empty. All branches have to be added through the “+” button on the right side of the list of branches. The “Add SCA Dialog” opens.

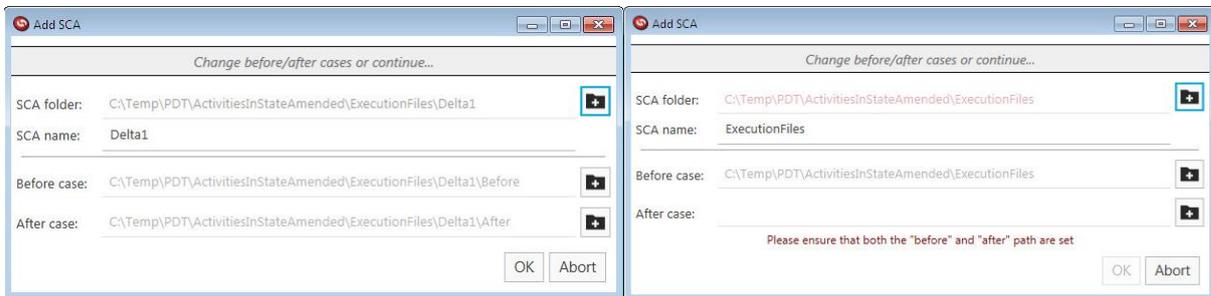


Figure 5: Add SCA Dialog

With the “Select Folder” button  the source SCA can be selected. If the selected folder contains subfolders named “Before” and “After”, the tool expects the before and after models in the matching folders and fills in this information automatically. If the folder structure does not match (see the right screenshot in Figure 5), the user has to select the Before and After case manually. Both, Before and After case, have to be set to be able to proceed.

The SCA name can be edited by clicking on it. This name is used throughout the session and may help with identifying the branches later. By default, the name of the last folder of the selected path is used, e.g. “Delta1” as outlined in the left screenshot of Figure 5.

By clicking the “OK” button, the selection of the SCA is written to the session settings, with “Abort” the user returns to the session dialog without adding this branch.

In the Session Settings a selected branch can be removed by pressing the “-” button  on the right. Several branches can be added to the Source SCA list.

Merge Target and Change Notes can be determined by clicking on the edit button  on the right, which opens the “Define Merge Target” dialog shown in Figure 6.

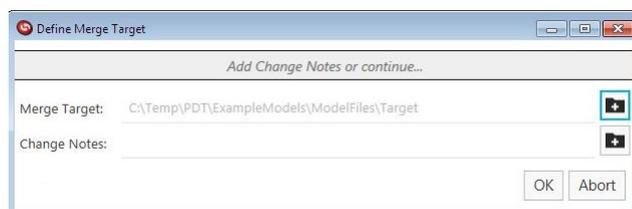


Figure 6: Define the Merge Target Dialog

To determine a location of the Merge Target is mandatory, otherwise the merge session cannot be started.

Also the Change Notes, a text file containing comments or notes regarding the modifications that have been executed on the current merge result, can be associated to the current session within this dialog

(see Figure 6), but this is only an optional feature. Similar to the SCA folder, the Merge Target folder and the Change Notes file can be added to the session setting by clicking the “OK” button. When all needed information is given in the session settings the “Start merge” Button becomes active. Pressing it leads to the Chart List Editor.

The “Abort” button closes the tool without creating the merge session.

### 3.3 Chart List Editor

The Chart List Editor (see Figure 7) integrates on the one hand the branches view (red box) that displays the content of all branches defined within the session settings (cf. section 3.2), and on the other hand the merge result view (green box) and a branches list (blue box).

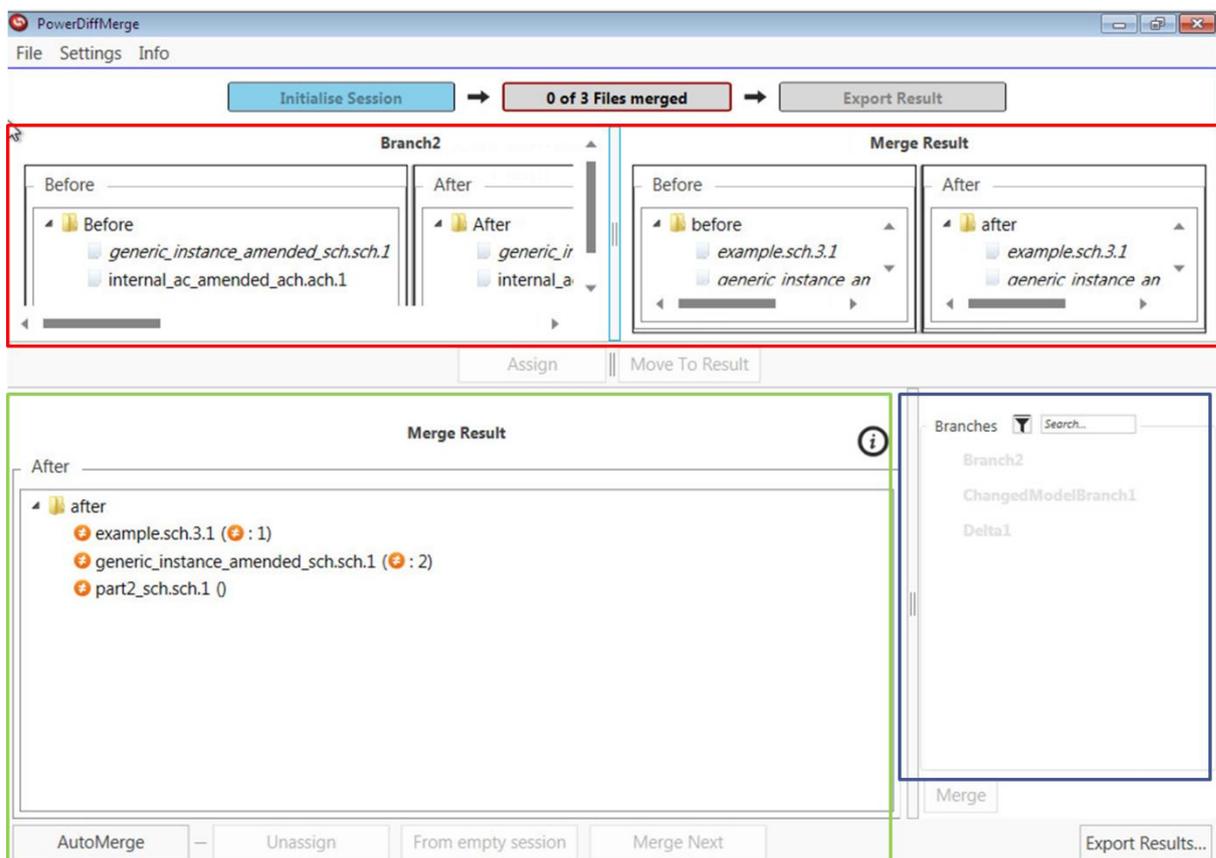


Figure 7: The Chart List Editor – branches view and merge result view

#### 3.3.1 The branches view

To perform a merge, the files to be merged have to be determined. This process is called assignment and can be done within this dialog (see section 3.3.1.1).

For every Source SCA selected in the session settings the corresponding Before and After paths with the containing files are displayed in a tree view. The same stands for the Merge Target.

### 3.3.1.1 Assignment of files to be merged

New tuples of files to be merged together may be created by the following operations:

1. The automated assignment of the files contained in selected folders from different branches.
2. The manual assignment of files from different branches.

The **automated assignment** has taken place while opening this chart. All contained files that can be matched by their names have already been assigned. To distinguish them from the not assigned ones, they are displayed italic.

The tool tries to assign as many files as possible. It may happen that only 2 or 3 of the 4 files could be assigned automatically by the name. To complete the assignment it is necessary to unassign them and reassign them manually.

The **manual assignment** of files from different branches requires the selection of 4 files in at least two branches (SCA and Result) followed by a click on “Assign”. This assigns exactly the selected files and removes all previous tuples of files in which they were referenced.

If there is no corresponding file available in the result branch, unassigned files can also be copied to the result branch by selecting them and clicking the “Move To Result” button (see Figure 8). The view that results from this operation is demonstrated in Figure 9.

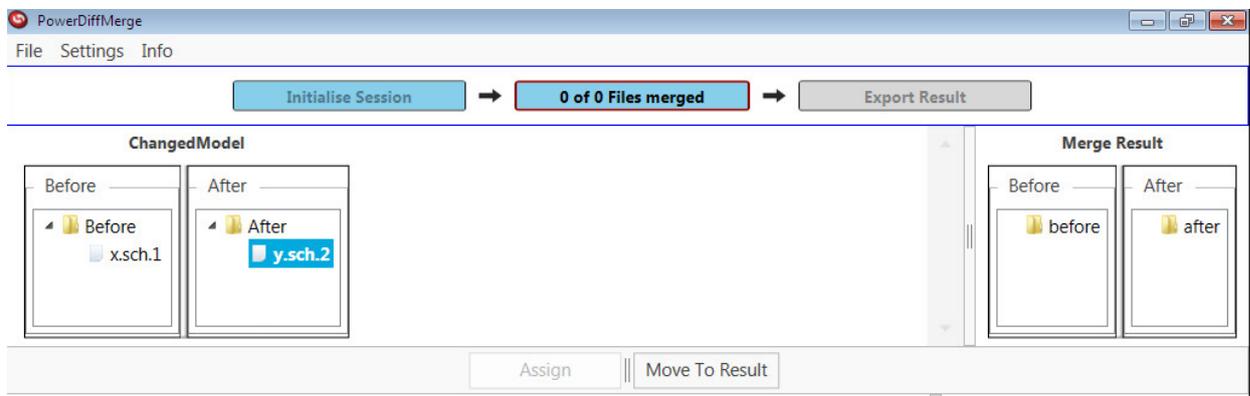


Figure 8: “Move To Result” – file selected and button active

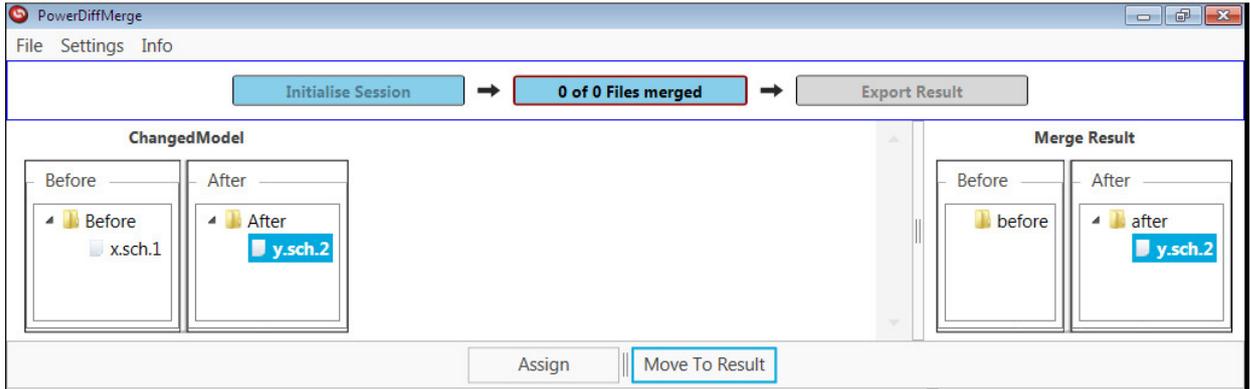


Figure 9: “Move To Result” – file copied

### 3.3.2 The merge result view

#### 3.3.2.1 Display of the merge result view

In the merge result view (see the green box in Figure 7), the information for the Merge Result after case are displayed.

This information consists of the file name, an icon representing the current status of the merged file, and, in brackets, icons representing the number of files in the tuple with a specific status.

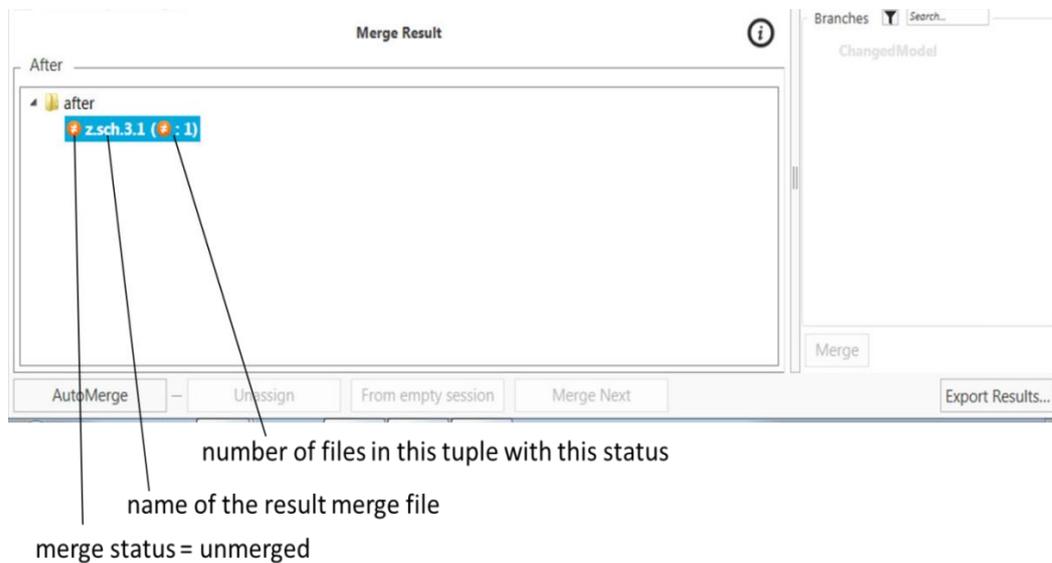


Figure 10: Example of the display of a tuple in the merge result

The definition of the icons is given in 3.3.3.

### 3.3.2.2 Actions in the merge result view

All tuples displayed in the Merge Result View may be **merged automatically** by clicking the “AutoMerge” button, which will prompt PowerDiffMerge to merge all non-conflicting changes.

**Note:** Conflicting changes have to be resolved by the user manually and will be marked with an elaboration status of “In Progress” (see Table 1: The elaboration status for tuples of files) after the AutoMerge.

The location of tuples of files in the view of the Merge Result marks the place at which the resulting file will be available in the Merge Result. It can be changed by drag and drop of the tuples into other folders. Folders can also be **moved within the Merge Result**.

Folders and the resulting files of tuples can be **renamed** by right-clicking the file or folder to rename and selecting “Rename” from the context menu. A new name can then be entered and confirmed by clicking outside the editing area.

A **tuple may be merged**, either by selecting the tuple and clicking the “Merge Next” button, double-clicking the tuple, or by selecting the branch of the tuple to use for the merge in the merge result branches list to the right of the merge result view, and clicking the “Merge” button. This opens either the DiffMerge tool (see “[Setup and Installation Guide](#)”) in case of merging text files, or the Chart Merge dialog (cf. 3.4) in case of merging Statemate® charts.

The merge operations already performed on a **tuple may be reset** by clicking the “From Empty Session” button. This reverts the tuple to the status it had after its initial assignment and all modifications made to the files are discarded.

**Writing the current merge result** to a defined place in the file system, which is accessible to the user, can be accomplished by clicking the “Export Results...” button and selecting a location in the explorer window, which is opened by clicking the “Select Folder...” button.

### 3.3.2.3 Filter in the Branches List

The filter  allows displaying or hiding all branches that do not belong to the selected tuple in the Merge Result View.

When entering a string in the text box next to the icon, only the branches with a name containing the given string are displayed. The entry box and the filter can be combined.

### 3.3.2.4 Actions in the merge result branches list

At the right part of the Merge Result view, the branches list displays the list of branches considered in the tuple currently selected in the Merge Result display. If a branch is not considered in the tuple, the branch name element is greyed out in the list and no operation can be realized on this element.

For all branches considered in the currently selected tuple, the branch name element can be selected in the list and the buttons at the bottom of the list (“Unassign”, “From Empty Session” or “Merge Next”) may be activated depending on the state of the tuple. With a right click on the element, the files can be re-named.

### 3.3.3 Icons, colours and different styles

Several pieces of information in the “Chart List Editor” are expressed by different icons, colours or font styles.

Files, which are assigned to a tuple are written in italics (within the branch views at the top). The tuples of files contain an icon indicating their current elaboration status. It can take on the following values (displayed with their belonging icons):

Table 1: The elaboration status for tuples of files

Elaboration status	Description	
Equal	Single chart/tuple without any changes – no merge has to take place	
Unmerged	The files contain differences and have not yet been merged	
In Progress	The chart/tuple is currently being merged	
Aborted	The “Chart Merge” for the chart/tuple has been aborted.	
Merged Automatically	The “Chart Merge” for the chart/tuple has been completed by an AutoMerge.	
Merged	The “Chart Merge” for the chart/tuple has been completed.	

## 3.4 Chart Merge

The “Chart Merge” dialog can be opened for one tuple of Statemate® charts from the “Chart List Editor” as described before. Figure 11 represents the “Chart Merge” dialog for a Statemate® Activitychart.

It displays chart contents as list of objects. The left two columns represent the models and their changes in the source branch. The right two columns show the models in the Merge Result branch. Differences are colour-coded (see section 3.4.1 for further details).

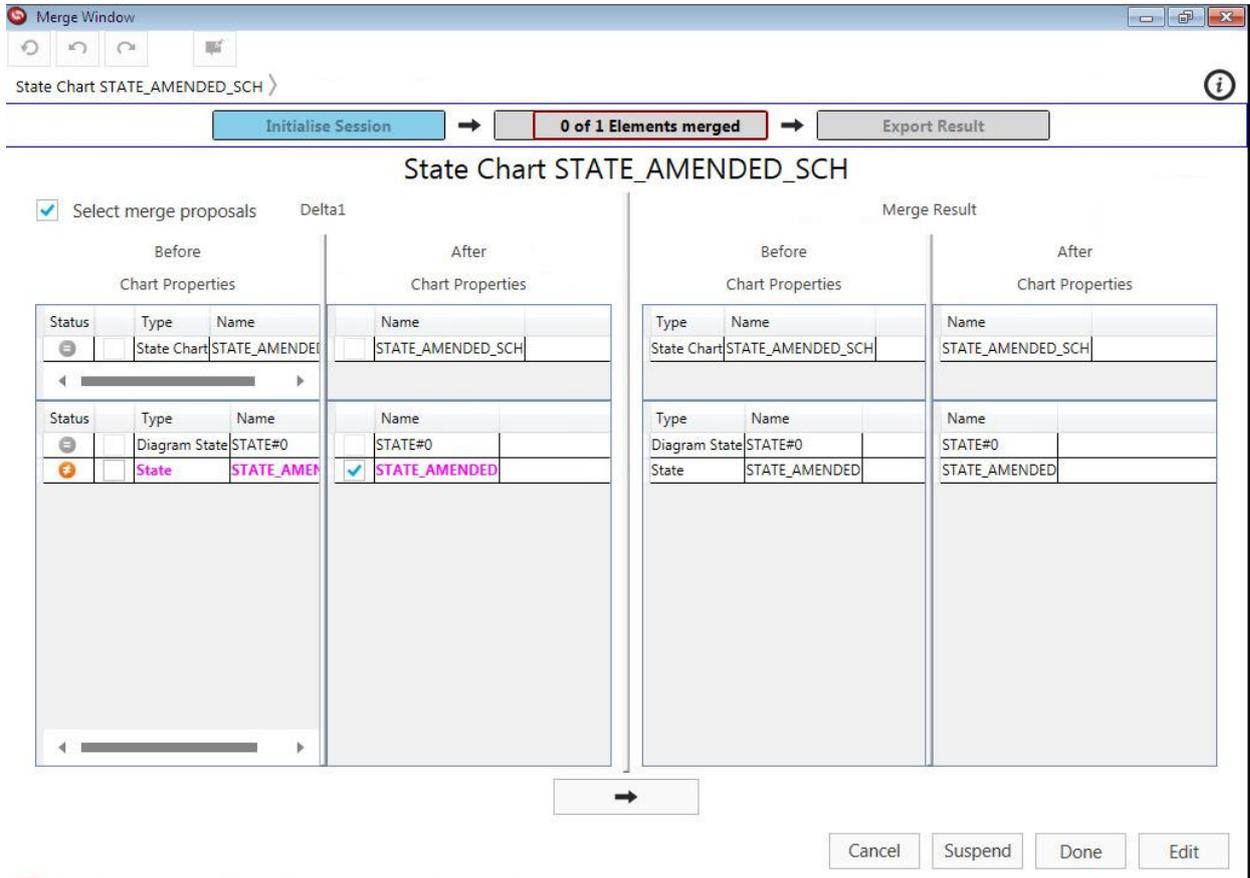


Figure 11: The Chart Merge dialog

Objects in the lists at the bottom are assigned to one another, if they are in the same row within their tables. An empty row means that the object is not present within the branch or within the Merge Result. To determine which object state shall be merged from the source branch to the result the user can check this object state in the corresponding checkbox (see Figure 12).

Several states to be merged can be selected at the same time.

By clicking the “→” button all selected object states are merged and thus shown in the Merge Result after column. If no object state is checked the “→” button is not active.

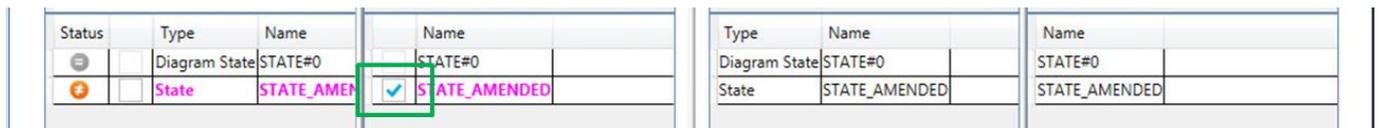


Figure 12: Select an object state to be merged

Merges can be performed on several levels – on object level and on a more detailed level (see. 3.4.2.2 unterhalb).

### 3.4.1 Colouring

Both parts are marked with special colours, which indicate the differences between the chart in the branche’s After-Case and Before-Case, respectively. By default, the following colours are used to indicate the difference status of both the objects contained in the chart as well as their properties:

Difference status	Description	Default Colour
Undefined	A special status for items, which have to be created given the merge decisions from all branches without explicitly being part of one of the branches.	black
Unchanged	The item is equal to the Before-Case.	black
Amended	The contents of the item are different to the Before-Case.	magenta
New	The item cannot be found in the Before-Case.	blue
Deleted	The item was present in the Before-Case, but cannot be found in the branch.	red

Table 2: The difference status for items in Statemate® charts

The mapping of difference status to colour can be seen in the application by moving the mouse cursor to the “info” icon  in the top right corner as shown in Figure 11.

### 3.4.2 Merge Actions

#### 3.4.2.1 Merge on Object Level

For a merge on object level, all changes in this object are merged into the result. After a successful merge the elaboration status for this object changes.

#### 3.4.2.2 Merge on Details Level

If not all changes for an object shall be merged but the user wants to decide the object properties to be merged, the merge can be performed on the details level. The object details merge chart dialog can be reached by double clicking on the respective object and is shown in Figure 13. The several changes to be merged can be selected by checking them. Clicking the “→” button performs the merge. The “Cancel” button cancels all changes made in this view, closes this dialog and returns to the chart merge dialog. Clicking the “Done” button keeps the changes, closes the dialog and returns to the chart merge dialog.

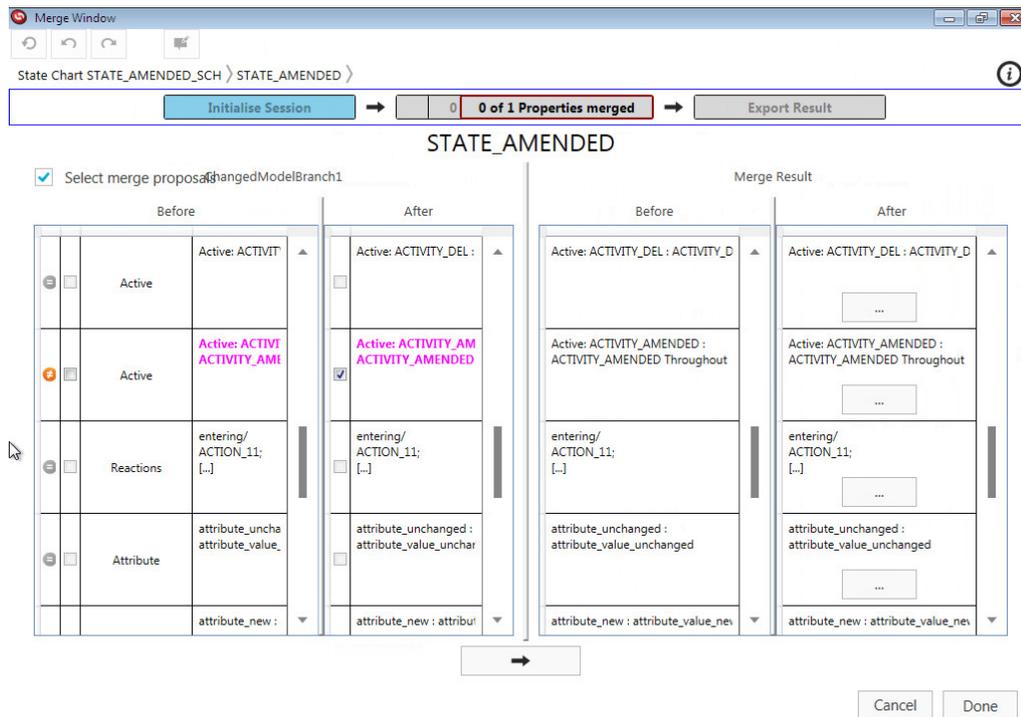


Figure 13: Object Details Chart

All properties of the selected objects are displayed in this view. They may contain free textual descriptions, references to other objects, restricted values or longer texts that may be merged using the external text merge tool.

Some properties may again be displayed as lists, which allow actions similar to those on the lists of objects in the chart.

For longer texts, the button “...” is available, which starts the external text merge of the texts. The external merge has to be saved by clicking the “Done” button in order to use the value as merge result.

### 3.4.2.3 Select Merge Proposals

All merges that can be performed by the tool automatically are selected by checking the “Select merge proposals” checkbox. This can be done in the chart merge dialog as well as in the object details chart. By default, this checkbox is checked and thus merge proposals are already selected when opening the merge dialog.

### 3.4.2.1 Merge of long texts

The following attributes are longtexts and for this not auto mergeable:

- Long Description
- Change
- Mini Spec
- Lookup Table

- C Code
- Ansi C Code
- Ada Code
- Label
- VHDL Code
- Verilog Code
- External Tool Code
- Definition
- Reactions
- Combinatorial Logic
- Callback Bindings

### 3.4.2.1 Cancel

Pressing the “Cancel” button undoes all made changes in this dialog, closes this dialog and returns to the next higher level – the chart list editor.

### 3.4.2.2 Suspend

Pressing the “Suspend” button saves the state of the merge to be continued later on.

### 3.4.2.3 Done

Pressing the “Done” button keeps all changes made within this dialog, closes this dialog and returns to the next higher level – the chart list editor.

### 3.4.2.4 Edit

Pressing the “Edit” button opens the graphics editor.

### 3.4.2.5 Undo all changes

Pressing the “undo all” button  in the upper left corner of the dialog undoes all changes. To be enabled a change must have been done.

### 3.4.2.6 Undo last change

Pressing the “undo last change” button  in the upper left corner of the dialog undoes the last change. To be enabled a change must have been done.

### 3.4.2.7 Redo last change

Pressing the “redo” button  in the upper left corner of the dialog redoes the undo. To be enabled an undo action has to be performed before.

### 3.4.3 Finishing the merge of the chart

The merge of one tuple of charts can be accepted by clicking on the “Done” button at the bottom of the window. Alternatively, the merge of the charts can be aborted by clicking on “Suspend”. If the changes made since opening the chart merge shall be discarded, clicking on “Cancel” will also close the merge.

Button	Save changes?	Elaboration status
OK	yes	Merged
Suspend	yes	Aborted
Cancel	no	Previous status

Table 3: Finishing a chart merge

This effectively sets the elaboration status of the tuple, saves the changes (or not) and returns to the “Chart List Editor”.

### 3.4.4 Graphics Editor

The graphics of the resulting Chart File can be displayed by pressing the “Edit” button in the Chart Merge dialog (see Figure 11).

### 3.4.5 Progress Bar

All merge dialogs contain progress and orientation information in the upper part of the dialog below the undo / redo buttons (see the green box in Figure 14).

For orientation purposes, the breadcrumb at the top left of the window displays the current level, in which the merge occurs.

A progress bar shows which step of the merge process is reached.

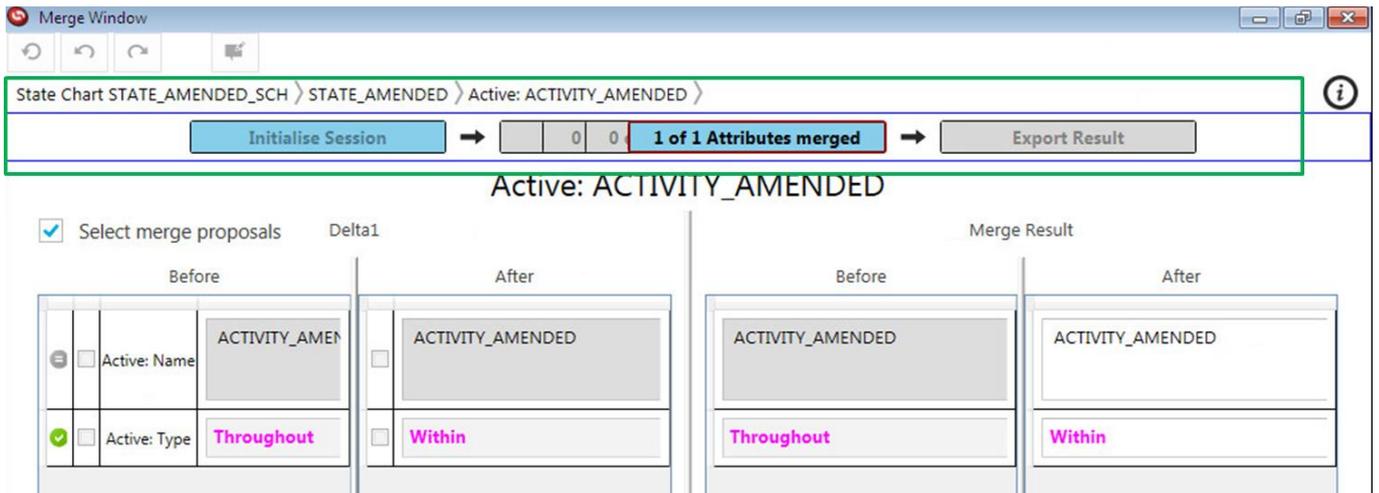


Figure 14: Progress bar and breadcrumb for orientation purposes

### 3.5 Structure of the Menus

The menu bar of PowerDiffMerge is visible at the top of the “Chart List Editor”. It contains the submenus, which are detailed in the following subsections.

#### 3.5.1 The “File” menu

The “File” menu contains actions regarding the application handling and session management:

- “Create Protocol...” – creates the merge protocol for the current state of the session.
- “Create PowerDiff Report” – calls PowerDiff to create a report of the current merge result compared to the Before-Case contents of the Merge Result.
- “Export Results...” – writes the merge result to the specified files.
- “Open Change Notes” – opens the change notes associated with the session (c.f. section 3.2.2)
- “Exit” –asks whether to save and exit the current merge session or not.

#### 3.5.2 The “Settings” menu

All configuration options are accessible through the “Settings” menu. It contains

- “Options” – the options available for PowerDiffMerge (see section 3.5.4).

#### 3.5.3 The “Info” menu

The “Info” menu contains

- “User Guide” – opens the pdf-file version of this user guide. A suitable pdf reader software has to be installed.
- “About” - opens the “About” Window with the version and support information for PowerDiff-Merge.

### 3.5.4 Options Dialog

All options for PowerDiffMerge are contained in the options dialog. It is accessible through the menu (Settings → Options).

Figure 15 displays the current options of PowerDiffMerge.

The chart display within the „Chart Merge“ can be configured by the options subsumed under the headings “Chart Options” and “Merge Options”. These are the options:

- “Use Statemate colours by default” – activating this checkbox leads to states, activities, arrows, etc. in charts, which are displayed in the same way, Statemate would currently colour this chart. Deactivating this checkbox leads to all-grey charts (with only difference –related colouring).
- “Visibility of Elements” – the visibility of each element can be chosen through a drop down menu, while the options for visibility are “Always”, “Never” or “If Different”, however, the settings for the visibility does not influence any dialog at the moment, so it shall not be used.

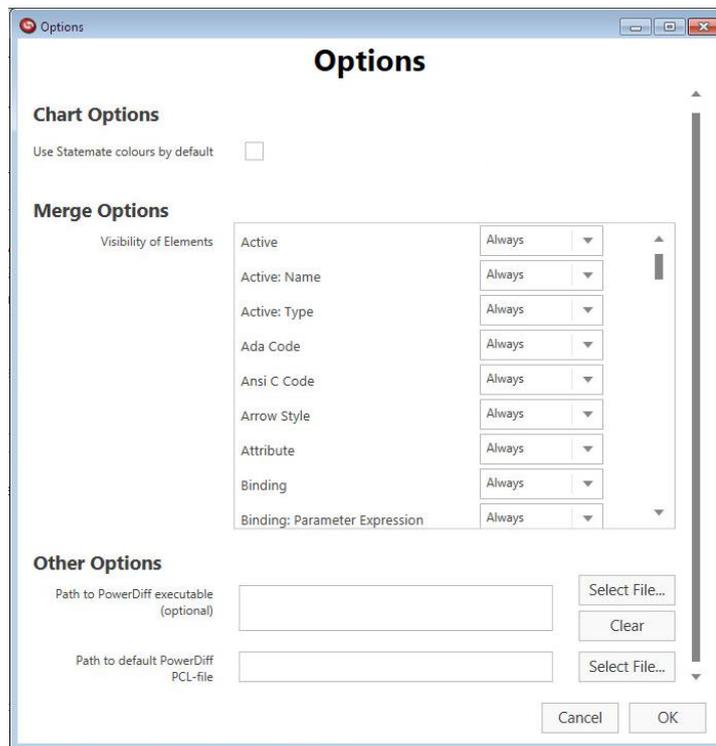


Figure 15: PowerDiffMerge options dialog

# 4 PowerDiffConvert

## 4.1 Overview

Different versions of Statemate<sup>®</sup> generate chart files using different formats for numerical and conditional values as well as for enumerations. These differences affect only the representation of these values but not their semantics. Chart files have to be pre-processed by the PowerDiffConvert utility to ignore this kind of differences.

The PowerDiffConvert performs a file conversion on all chart files: PowerDiffConvert executes the Statemate<sup>®</sup> application, loads the chart files into a Statemate<sup>®</sup> work area and exports the charts one at a time.

### 4.1.1 Input File Format

PowerDiffConvert uses the Statemate<sup>®</sup> Dataport Interface to convert chart files. Consequently, PowerDiffConvert works for all chart files that can be used by the installed Statemate<sup>®</sup> version except for Module-Charts. For the supported Statemate<sup>®</sup> versions please refer to section 1.2.

**Note:** A chart name and the name of its corresponding chart file (except for the file ending) must be identical.

### 4.1.2 Output Files

PowerDiffConvert will convert Statemate<sup>®</sup> chart files. As a consequence, the input chart files will be overwritten.

**Note:** Even write-protected chart files will be overwritten by PowerDiffConvert!

### 4.1.3 Installation and Registration

PowerDiffConvert will be installed with PowerDiffMerge. For information about installing and registering PowerDiffMerge please refer to the “Setup and Installation Guide”.

## 4.2 Getting started

### 4.2.1 Preconditions

PowerDiffConvert uses the Statemate<sup>®</sup> Dataport Interface to convert chart files. Consequently the following preconditions must be fulfilled:

- Statemate<sup>®</sup> must be installed. Supported versions are 4.6.1.3, 4.6.1.4, 4.6.1.5, 4.6.1.6, 4.6.1.7, 4.6.1.8, 4.6.1.9, 4.6.1.10, 4.6.1.11.  
<http://www-01.ibm.com/software/awdtools/statemate/>

- A valid licence for the installed Statemate® version must be available.

## 4.2.2 Settings

Some settings have to be made before PowerDiffConvert can be used for the first time:

- Dependent on the installation of Statemate®, PowerDiffConvert sets environment variables during its execution. For this reason, the environment variables which have to be set must be defined in the Settings Dialog of the PowerDiffConvert utility. For more information see chapter 4.4 "Convert Settings Dialog".

## 4.3 Executing PowerDiffConvert

PowerDiffConvert is executed directly by PowerDiffMerge for each merge session.

## 4.4 Convert Settings Dialog

PowerDiffMerge provides the Convert Settings dialog to configure the settings, which are required to use PowerDiffConvert.

The Convert Settings dialog can be from the windows menu.

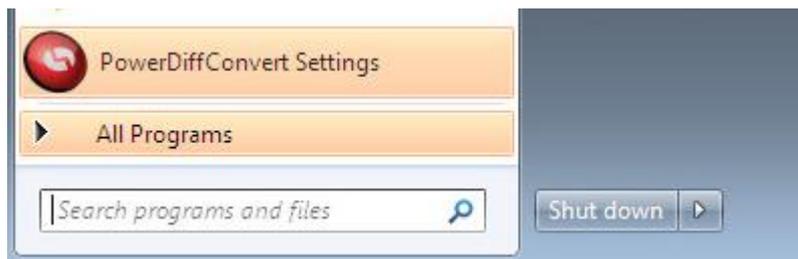


Figure 16open the convert settings dialog from the windows menu

Using the Convert Settings dialog (see Figure 17) the environment variables which are required to execute the Statemate® Dataport Interface can be defined and adapted. A list of these environment variables can be found in the file "run\_stmm.bat" located in the Statemate® directory %STM\_ROOT%\bin. When one required environment variable is missing, the execution of the Statemate® Dataport Interface may fail, which will cause in failing the execution of PowerDiffConvert.

In most executing systems the specified default values for the listed environment variables do not have to be adapted.

**Note:** For environment variable "STM\_ROOT" no default value is provided. This variable has to be set to the path in which the Statemate® bin directory is located (see the example in Figure 17).

The "DATAPORT\_DLL\_PATH" environment variable is used to extend the "PATH" environment variable with the path to file dataport.dll and all additionally needed files. File dataport.dll should be located in folder %STM\_ROOT%\bin, which is specified as default value.

The folder referenced by environment variable "STM\_PREFERENCES\_DIR" is temporary copied to a location below folder "%APPDATA%". The reason is that the Statemate® Dataport Interface writes preferences files located in this folder and in some environments no write access is provided for the

“%STM\_ROOT%\preferences” directory. Due to this fact please assure that write permission is given to folder “%APPDATA%” and all its subfolders.

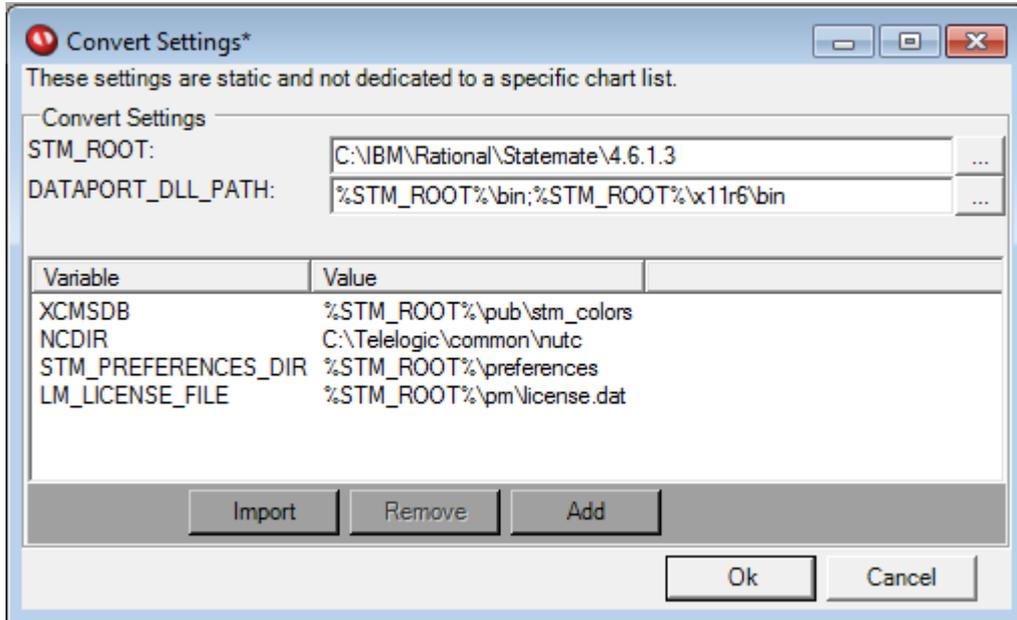


Figure 17: Convert Settings Dialog (with default values and an example for value STM\_ROOT)

To import the required environment variables (e.g. from file “run\_stmm.bat” that starts the StateMate® application) please click button “Import and select the batch file to import in the Open File Dialog. Click “OK” and the environment variables contained in the batch file are listed in the Convert Settings Dialog. To add a new environment variable please click button “Add” and fill in the Environment Variable Editor (see Figure 18). The name and the value of an environment variable can be specified in this dialog. By clicking button “OK” the new environment variable is added to the list in the Convert Settings dialog. To delete variables please select a single or a range of variables in the list and click button “Remove”. To edit an existing variable please double click the concerned entry in the list and the Environment Variable Editor is opened to edit the value of the environment variable.

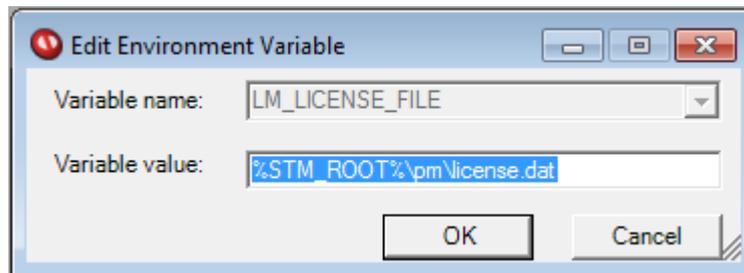


Figure 18: Environment variable Editor

After editing, the Convert Settings are stored by clicking button “OK” in a user specific file.

## 5 Support

For updates and additional information about PowerDiffMerge check our web page [www.assystem-germany.com](http://www.assystem-germany.com) and browse to the PowerDiffMerge section.

## Copyright

Copyright © 2014-2018 by Assystem Germany GmbH, Munich, Germany.

All rights reserved. This document may not be copied in whole or in part or otherwise reproduced without the prior written permission Assystem Germany GmbH. The software described in this document and the associated documentation are furnished under a license agreement. The software and documentation may be used or copied only in accordance with the terms of the agreement.

## Trademarks

Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Rational® and Statemate® are trademarks or registered trademarks of IBM Corporation. IBM is a trademark of International Business Machines Corp. in the United States and/or other countries.

Other products mentioned may be trademarks or registered trademarks of their respective companies.

## Third Party Licences

### Textdiff algorithm implementation licence:

Software License Agreement (BSD License)

Copyright (c) 2005-2009 by Matthias Hertel, <http://www.mathertel.de/>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the copyright owners nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

### Logging implementation licence:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

#### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all

other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative

Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,

use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
  - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

### Enhanced User Dialogs licence:

MICROSOFT SOFTWARE LICENSE TERMS  
MICROSOFT WINDOWS API CODE PACK FOR MICROSOFT .NET FRAMEWORK

---

These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft

- updates,
- supplements,
- Internet-based services, and
- support services

for this software, unless other terms accompany those items. If so, those terms apply.

---

BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS. IF YOU DO NOT ACCEPT THEM, DO NOT USE THE SOFTWARE.

If you comply with these license terms, you have the rights below.

#### 1. INSTALLATION AND USE RIGHTS.

- You may use any number of copies of the software to design, develop and test your programs that run on a Microsoft Windows operating system.

## User Guide PowerDiffMerge Version 4.1

---

• This agreement gives you rights to the software only. Any rights to a Microsoft Windows operating system (such as testing pre-release versions of Windows in a live operating environment) are provided separately by the license terms for Windows.

### 2. ADDITIONAL LICENSING REQUIREMENTS AND/OR USE RIGHTS.

a. Distributable Code. You may modify, copy, and distribute the software, in source or compiled form, to run on a Microsoft Windows operating system.

ii. Distribution Requirements. If you distribute the software, you must

- require distributors and external end users to agree to terms that protect it at least as much as this agreement;

- if you modify the software and distribute such modified files, include prominent notices in such modified files so that recipients know that they are not receiving the original software;

- display your valid copyright notice on your programs; and

- indemnify, defend, and hold harmless Microsoft from any claims, including attorneys' fees, related to the distribution or use of your programs or to your modifications to the software.

iii. Distribution Restrictions. You may not

- alter any copyright, trademark or patent notice in the software;

- use Microsoft's trademarks in your programs' names or in a way that suggests your programs come from or are endorsed by Microsoft;

- include the software in malicious, deceptive or unlawful programs; or

- modify or distribute the source code of the software so that any part of it becomes subject to an Excluded License. An Excluded License is one that requires, as a condition of use, modification or distribution, that

- the code be disclosed or distributed in source code form; or

- others have the right to modify it.

3. SCOPE OF LICENSE. The software is licensed, not sold. This agreement only gives you some rights to use the software. Microsoft reserves all other rights. Unless applicable law gives you more rights despite this limitation, you may use the software only as expressly permitted in this agreement.

4. EXPORT RESTRICTIONS. The software is subject to United States export laws and regulations. You must comply with all domestic and international export laws and regulations that apply to the software. These laws include restrictions on destinations, end users and end use. For additional information, see <http://www.microsoft.com/exporting>.

5. SUPPORT SERVICES. Because this software is "as is," we may not provide support services for it.

6. ENTIRE AGREEMENT. This agreement, and the terms for supplements, updates, Internet-based services and support services that you use, are the entire agreement for the software and support services.

### 7. APPLICABLE LAW.

a. United States. If you acquired the software in the United States, Washington state law governs the interpretation of this agreement and applies to claims for breach of it, regardless of conflict of laws principles. The laws of the state where you live govern all other claims, including claims under state consumer protection laws, unfair competition laws, and in tort.

b. Outside the United States. If you acquired the software in any other country, the laws of that country apply.

8. LEGAL EFFECT. This agreement describes certain legal rights. You may have other rights under the laws of your country. You may also have rights with respect to the party from whom you acquired the software. This agreement does not change your rights under the laws of your country if the laws of your country do not permit it to do so.

9. DISCLAIMER OF WARRANTY. THE SOFTWARE IS LICENSED "AS-IS." YOU BEAR THE RISK OF USING IT. MICROSOFT GIVES NO EXPRESS WARRANTIES, GUARANTEES OR CONDITIONS. YOU MAY HAVE ADDITIONAL CONSUMER RIGHTS UNDER YOUR LOCAL LAWS WHICH THIS AGREEMENT CANNOT CHANGE. TO THE EXTENT PERMITTED UNDER YOUR LOCAL LAWS, MICROSOFT EXCLUDES THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

10. LIMITATION ON AND EXCLUSION OF REMEDIES AND DAMAGES. YOU CAN RECOVER FROM MICROSOFT AND ITS SUPPLIERS ONLY DIRECT DAMAGES UP TO U.S. \$5.00. YOU CANNOT RECOVER ANY OTHER DAMAGES, INCLUDING CONSEQUENTIAL, LOST PROFITS, SPECIAL, INDIRECT OR INCIDENTAL DAMAGES.

This limitation applies to

- anything related to the software, services, content (including code) on third party Internet sites, or third party programs; and

• claims for breach of contract, breach of warranty, guarantee or condition, strict liability, negligence, or other tort to the extent permitted by applicable law.

It also applies even if Microsoft knew or should have known about the possibility of the damages. The above limitation or exclusion may not apply to you because your country may not allow the exclusion or limitation of incidental, consequential or other damages.

Please note: As this software is distributed in Quebec, Canada, some of the clauses in this agreement are provided below in French.

Remarque : Ce logiciel étant distribué au Québec, Canada, certaines des clauses dans ce contrat sont fournies ci-dessous en français.

EXONÉRATION DE GARANTIE. Le logiciel visé par une licence est offert « tel quel ». Toute utilisation de ce logiciel est à votre seule risque et péril. Microsoft n'accorde aucune autre garantie expresse. Vous pouvez bénéficier de droits additionnels en vertu du droit local sur la protection des consommateurs, que ce contrat ne peut modifier. La ou elles sont permises par le droit locale, les garanties implicites de qualité marchande, d'adéquation à un usage particulier et d'absence de contrefaçon sont exclues.

LIMITATION DES DOMMAGES-INTÉRÊTS ET EXCLUSION DE RESPONSABILITÉ POUR LES DOMMAGES. Vous pouvez obtenir de Microsoft et de ses fournisseurs une indemnisation en cas de dommages directs uniquement à hauteur de 5,00 \$ US. Vous ne pouvez prétendre à aucune indemnisation pour les autres dommages, y compris les dommages spéciaux, indirects ou accessoires et pertes de bénéfices.

Cette limitation concerne :

- tout ce qui est relié au logiciel, aux services ou au contenu (y compris le code) figurant sur des sites Internet tiers ou dans des programmes tiers ; et
- les réclamations au titre de violation de contrat ou de garantie, ou au titre de responsabilité stricte, de négligence ou d'une autre faute dans la limite autorisée par la loi en vigueur.

Elle s'applique également, même si Microsoft connaissait ou devrait connaître l'éventualité d'un tel dommage. Si votre pays n'autorise pas l'exclusion ou la limitation de responsabilité pour les dommages indirects, accessoires ou de quelque nature que ce soit, il se peut que la limitation ou l'exclusion ci-dessus ne s'appliquera pas à votre égard.

EFFET JURIDIQUE. Le présent contrat décrit certains droits juridiques. Vous pourriez avoir d'autres droits prévus par les lois de votre pays. Le présent contrat ne modifie pas les droits que vous confèrent les lois de votre pays si celles-ci ne le permettent pas.

### Handling of long paths licence:

Copyright (c) 2008-2009 Peter Palotas

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## Contact:

---

Assystem Germany GmbH

Erwin-von-Kreibitz-Str. 3

D-80807 Munich

Germany

Tel. +49 (0)89 608090-0

Fax +49 (0)89 609 81 82

E-Mail: [info-de@assystem.com](mailto:info-de@assystem.com)

Internet: [www.assystem-germany.com](http://www.assystem-germany.com)

### Support

Tel. +49 (0)89 608090-333

Fax +49 (0)89 608090-399

E-Mail: [Support\\_PowerDiff@assystem.com](mailto:Support_PowerDiff@assystem.com)

---