(expleo)

Release Notes

PowerDiff Version 14.1

Issue 14.1

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1   PRODUCT IDENTIFICATION

This document contains the release notes for PowerDiff Version 14.1

PowerDiff is a diff tool for IBM® Rational® Statemate®. Statemate® is a system specification tool that utilises graphical elements and charts to model complex systems using the Structured Analysis. PowerDiff analyses the logical and textual differences between two Statemate® charts or two versions of one chart, highlights the differences in the charts and lists the differences in a tree structure (interactive mode). In addition to the visual representation PowerDiff generates reports (batch mode) capturing the differences of multiple charts in one document.

2   INSTALLATION

PowerDiff can be installed on Windows® 10 (64 Bit) operating system. Other operating systems are not supported. In order to install PowerDiff you need administrator privileges on the target computer.

Additionally PowerDiff needs some software to be installed, that is not delivered with the setup. The following list shows those software packages and where they can be downloaded from:

- Microsoft® .NET Framework runtime version 3.5 sp1,
  https://dotnet.microsoft.com/download/dotnet-framework/net35-sp1

- Microsoft® .NET Framework runtime (at least version 4.6.1),
  https://dotnet.microsoft.com/download/dotnet-framework/net461

For further installation information refer to "PowerDiff Setup and Installation Guide".

For further information on using PowerDiff refer to "PowerDiff User Guide".

3   SUPPORTED IBM® RATIONAL® STATEMATE® VERSIONS

PowerDiff works with all chart files generated with IBM® Rational® 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, 4.6.1.11, except Module-charts.

4   STATUS

Supported Features:

- Graphical interactive mode or batch mode used from command line

- Visual colour marked comparison of IBM$^®$ Rational$^®$ Statemate$^®$ chart pairs

- List of differences shown in a tree view with expandable and filterable nodes

- Creation of difference reports in PDF file format

- Supported IBM$^®$ Rational$^®$ Statemate$^®$ chart types

    o Statechart

    o Activity-Chart

    o Use-Case Diagram

    o Sequence Diagram

    o Flowchart

    o Global Definition Set

5   CONTENTS OF DELIVERY

The following items should be included with the PowerDiff delivery:

- Release Notes (this document)

- Readme.txt (Release Notes in ASCII-Text form)

- PowerDiff_Registration.txt (Registration form as ASCII-Text)

  - "InstallPowerDiff.msi" for installing PowerDiff (installs also PowerDiff User Guide)

- "LicenceTools.zip" (Utilities for the PowerDiff licence mechanism)

- PowerDiff Setup and Installation Guide

6   CHANGE HISTORY

Hash-Numbers identify items in the change and defect management system.

Open Issues:

Known Defects:

- Highlighting of Arrows and Connectors cannot be activated / deactivated in interactive mode by checking / unchecking root node "Differences" in DiffTree (#113)

Limitations:

- Module-charts generated by Statemate® 4.0 and higher are not supported
- Only straight lines are supported as arrow style
- Using time stamps to identify comparable IBM® Rational® Statemate® objects (as in PowerDiff 4.2) is cancelled because Statemate® 4.2, 4.3 and 4.4 violates uniqueness of time stamps when function "mass copy and rescope" is employed (#90).
- In some cases table headers are separated from the table by a page break (#309, #694, #702, #704).
- When in a Subroutine a Local Variable is defined with the same name as another Data object in the Scope of the Subroutine, the Sources and the Sinks of the Local Variable are added to the Sources and the Sinks of the Data (#456).
- Because of missing highlighting of space characters long text passages may be declared as Amended without displaying highlighted differences when only differences in space characters are contained. To avoid this, the text diff option "Ignore Space" should be enabled (#463).
- The Source/Sink-Analysis does not evaluate graphic element combinational logic associated with a state or an activity (#561).
- When automatic zooming is enabled the name of the top level state may not be displayed in the chart graphic, when the name position is located on the state's top border (the state's name above the state, #654).
- In some rare cases automatic zooming may produce an unsatisfying zoomed graphic. This may be caused by the implementation of the blinking functionality. The blinking functionality assures that the graphical objects contained as well in the graphic of the BeforeCase as in the graphic of the AfterCase are displayed at the same position in both graphics. This eases identifications of changes in complex graphics by quick switching between graphic of BeforeCase and graphic of AfterCase by which if Amended, New or Deleted graphical objects seem to blink.
- In some rare cases the text in a truth table may overlap the rightmost border line (#701).
- The font size of a user defined text with font style Bold and Italic and Underlined may appear on the front page of the difference report in a larger font size than text with the same size in regular font style (#712).

- For customers with classification licence, when in a chart only differences are contained that are out of the classifications scope specified for the difference report an empty chapter may be generated for these charts which are not included in the classification page counts. As a result for this case the sum of all classification page counts on the front page may be lower than the total page count (#688).
- An "Out of Memory Exception" may occur during the compare phase of extremely large GDS files when the PDF generation is triggered from the PowerDiff interactive mode. In this case the processing is aborted. As a work around it is advised to use the PowerDiff batch mode for PDF generation (#743).
- When long text passages in which syllabication does not work (e.g. not readable long text without spaces) is contained in one of the front page textboxes (middle or bottom), the text may overlap the left or right page margin.

Changes from previous versions to version 14.1

Enhancements:

- PowerDiff is executable on Windows® 10 (64 Bit) operating system with - Microsoft® .NET Framework 3.5 and Microsoft® .NET Framework 4.6.1 (common runtime library version 4.0.0).
- A msi-installer for the Windows installation engine (Windows Installer) is provided.
- The windows licence tools (including the licence server) are upgraded to a newer FlexLM version.

Changes:

- For customers with classification licence, when the top or the bottom margin is set to 0 mm in the page layout options, now the security classification header or footer do not overlap the appropriate page border (#788).
- For customers with classification licence no vertical lines are displayed below the Page Count Box on the front page of the difference report, when ITAR Evaluation is set to None.
- PowerDiff new per default does not write any log messages to a file below the users application data path (%APPDATA%).
- When executing the PowerDiff setup.exe on a Windows7 system without Administrative Privileges the setup.exe crashes with message "An error (5004: 0x80070005) has occurred while running the setup". The solution is to run the PowerDiff setup.exe with Administrator privileges This item has been solved by providing the new msi-installer (#632).
- In some rare system configurations the InstallShield-Deinstallation of PowerDiff freezes after showing "InstallShield is preparing ...". This item has been solved by providing the new msi-installer (#38).
- A Solaris licence server is no longer supported.

Changes from previous versions to version 13.2

Enhancements:

- The functionality of the Convert Settings dialog has been increased and the layout has been adapted.
- Within the Convert Settings dialog for each environment variable a lamp, a kind of traffic light, is provided that highlights an estimated accuracy of the specified value. Tooltips associated with the lamp provide additional information concerning the status of the estimated accuracy.
- Within the Convert Settings dialog a test function is provided to test the specified Convert Settings.
- For the Convert Settings a test dialog is provided to display messages and the test status of the Convert Settings.
- Within the Convert Settings dialog an export functionality of the specified Convert Settings to a PowerDiff PCS-Files is provided.
- Within the Convert Settings dialog the import functionality of Windows batch files has been replaced by an import functionality of PowerDiff PCS-Files.
- An entry "CommonConvertSettingsFile" is supported below registry key "HKEY_CURRENT_USER\Software\Expleo-Germany\PowerDiff\x.y" (where "x" is the major and "y" the minor PowerDiff version number) to specify a path to a Common Convert Settings file. If specified correctly this file is used by PowerDiffConvert for the conversion of chart files in the process of generating difference reports.
- Within the Convert Settings dialog, when registry entry "CommonConvertSettingsFile" is specified correctly, a checkbox is provided to enable or disable usage of the Common Convert Settings file.

- The default value for the environment variable "NCDIR" within the Convert Settings has been changed to "%NUTCROOT%".
- The strategy of chart file conversion within the PowerDiffConvert tool has been optimized. The BeforeCase or the AfterCase of a chart pair is converted only, if the chart file format versions of both are differing, and if the chart file format versions of BeforeCase or AfterCase is differing from that of the current Statemate® version.
- For customers with classification licence, the US EXPORT CONTROLLED DATA page count on the front page of the difference report is not displayed when ITAR Evaluation is set to None.
- For customers with classification licence the security classification in the page header and footer of the difference report now is displayed in the same font size as the ITAR classification.

Changes:

- The "Out of Memory Exception" occurring during the compare phase of extremely large GDS files in batch mode has been solved. Within the interactive mode an "Out of Memory Exception" may still occur when a large amount of data are to be processed. In this case it is advised to use the batch mode as a work around (#743).

- The text in both user defined front page textboxes is now printed with the standard line spacing instead of larger line spacing (#785).
- The performance of PDF generation in interactive mode has been increased by reducing messages "determining differences ..." that have been produced during report generation.

Changes from previous versions to version 13.1

Enhancements:

- Within the Front Page Editor a line specific text alignment functionality is provided to specify left, centred (as default) and right alignment. This setting is used to display the user defined text passages in the middle and at the bottom of the front page within the difference report.
- For customers with classification licence the layout of the front page within the difference report has been adapted. When ITAR Evaluation is set to Item Level or Chart Level at the bottom "--US EXPORT CONTROLLED DATA --" or "-- Not US EXPORT CONTROLLED DATA --" (only for ITAR Nation "UK") is displayed according to the evaluated ITAR attributes specified in the chart file. The displayed text can be modified in the interactive mode in the corresponding Front Page Editor.
- For customers with classification licence a national ITAR layout is provided for "UK" and "GE-IT-SP". This national ITAR layout can be set in the interactive mode and is used for difference report generation.
- For customers with classification licence the Page Count Box on the front page of the difference report has been adapted. The page count of the ITAR pages is displayed at the bottom with label "<n> Pages contain US EXPORT CONTROLLED DATA ".
- For customers with classification licence on the "ITAR Layout" tab page three user defined ITAR Header/Footer lines can be specified. As ITAR Header/Footer Line 3 additionally a page specific "ITAR classification" (default) can be selected. Within the difference report these ITAR Header/Footer lines are displayed centred below the standard header (e.g. with the security classification) and below the standard footer. ITAR Header/Footer line 1 and 2 are displayed with size 8pt and line 3 with size 12pt.
- For customers with classification licence when ITAR Evaluation is set to Item Level or Chart Level and "ITAR classification" is specified for ITAR Header/Footer Line 3 the text "US Export Controlled Data" or "Not US Export Controlled Data" (only for ITAR Nation "UK") is displayed within the difference report as ITAR Header/Footer Line 3. This information is evaluated specific for each individual page according to the evaluated ITAR attributes specified in the chart file. A page is declared as "US Export Controlled Data" when at least one Statemate$^®$ element with "US Export Controlled Data" is displayed on this page. Otherwise this page is declared as "Not US Export Controlled Data".
- For customers with classification licence when ITAR Evaluation is set to None no attribute is evaluated for ITAR classification. In this case the ITAR classification has to be done manually.

- For customers with classification licence within the "ITAR Layout" tab page a new setting "Undefined ITAR handling" is provided. When "No Report" (default) is selected no difference report will be generated if missing ITAR attributes are detected for Statemate® elements to be reported. In this case the affected Statemate® elements and their associated charts are listed in a separate text file named "undefined_ITAR.txt". When "Invalid Report" is selected the generated difference report is prefixed by "invalid_" when missing ITAR attributes are detected for reported Statemate® elements. In this case the affected Statemate® elements and their associated charts are listed in a separate text file named "undefined_ITAR.txt" which is provided as attachment to the difference report. Additionally in both cases the user is informed that ITAR classifications are missing on the console and in the log file.

  Changes:

- If the source or the target of a Dataflow, Control-Flow or a Transition is a Diagram Connector the corresponding graphical arrow now starts or ends at the border of the connector on the straight way to the connectors centre point (#572).
- Non-rectangular States within the chart graphic now are displayed with rounded corners but with 90° corners (#634).
- The contour of non-rectangular Control Activities within the chart graphic now is displayed as specified in the chart file instead as a rectangle. (#634).
- The graphic of a Diagram Connector now is displayed correctly when its height is larger than its width (#737).

Changes from previous versions to version 12.1.1

  Changes:

- For customers with classification licence when ITAR Nation "GE" or "UK" is selected the Security Classification on following pages of the Summary of Changes, the Contents and all lists of charts at the beginning of the DiffReport are displayed correctly (#728).

Changes from previous versions to version 12.1

  Enhancements:

- Functionality File After Front Page, to integrate an external pdf document behind the front page, is now provided by use of a new MiKTeX package. By this new implementation the usage of Adobe Acrobat is no longer required.
- On the Front Page tab page a second user defined textbox is provided in which formatted text to be displayed on the front page of the difference report below the page count can be entered. The user defined text is displayed horizontally centred as well in

the textboxes in the GUI on the Front Page tab page as on the front page of the difference report.

- On the Front Page tab page two front page layout illustrations are provided in which the location of each specific user defined text box is highlighted in yellow colouring.
- All text passages on the front page of the difference report are arranged in an equidistant order.
- For customers with classification licence a separate ITAR Layout tab page is provided below the Options tab page to enter the ITAR specific settings.
- For customers with classification licence on the ITAR Layout tab page an additional setting is provided to select the ITAR evaluation from the whole chart file "Chart File Level" or from each specific item "Item Level".
- For customers with classification licence on the ITAR Layout tab page two additional textboxes are provided to enter a specific ITAR Front Page Headline.
- For customers with classification licence on the ITAR Layout tab page a front page layout illustration is provided in which the location of the user defined text for the ITAR Front Page Headline is highlighted in yellow colouring.

Changes:

- Space characters and empty lines are considered within the front page text also at the beginning (#703).
- Text is no longer divided from its heading by a page break (#130, #264).
- External PDF documents are now accounted for page numbering (#224).
- In some cases table headers are no longer separated from the table by a page break (#307, #688).
- Elements or lines are no longer displayed lonely on a page (#597, #571).
- The spaces between text passages in the whole difference report have been harmonized (#667, #693).
- For customers with classification licence the Page Count Box is no longer displayed on a separate page. When the text on the front page becomes too large the size of the contents is scaled down (#699).

Changes from previous versions to version 11.2

Enhancements:

- Some explanatory tool tips have been added to the graphical user interface.
- The user defined formatted text to be displayed on the front page of the DiffReport has been extended by a user selectable font size.
- The user defined formatted text is now displayed above the page count on the front page. The size has been increased to width 16cm and height 6cm. The font size is definable by the user. As default for the font size 8pt is set.

- If the size of the user defined formatted text exceeds the height of the reserved space on the front page the text size is scaled down to a convenient size.
- Support of IBM® Rational® Statemate® version 4.6.1.10.
- For customers with classification licence a German and a British Itar layout has been realized for the front page and additional Itar specific page headers within the DiffReport. This functionality can be controlled by selection of a nation specific Itar layout vie new Itar dropdown boxes within the classification tab page of the ChartListEditor.
- For customers with classification licence a new dropdown box is provided on the classification tab page to select "-empty-" or "ITAR Classification" as Itar header for the DiffReport.
- For customers with classification licence when "ITAR Classification" is selected as Itar header then page specific Itar information is displayed in an additional Itar page header within the DiffReport.
- For customers with classification licence when British Itar layout is selected and any Itar page is contained within the DiffReport the text "This report contains ITAR Controlled information" is displayed on the front page in the font style and the font size of the heading "Difference Report".
- For customers with classification licence on the front page above the heading "Difference Report" a summary of all Itar licences contained within the DiffReport is displayed. If the size of the list exceeds the height of the reserved space on the front page the text size is scaled down to a convenient size.
- For customers with classification licence within the page count box located on the front page of the DiffReport a new page count for Itar pages is provided. When the British Itar layout is selected this page count always is displayed even if no Itar page is contained within the DiffReport. When German Itar layout is selected this page count is not displayed when no Itar page is contained within the DifReport.
- For customers with classification licence all Statemate® objects with undefined Itar licences are listed in the undefined list which is attached to the DiffReport.

Changes:

- Comments in the chart file format behind elements "Binding" are ignored during the comparison (#663).
- In some cases spaces or carriage returns characters within the user defined formatted text for the front page has not been interpreted correctly. This effect has been solved by a new formatting feature introduced in the representation within the pcl-file (#682, #683, #684).

Changes from previous versions to version 11.1

Enhancements:

- Internal preparations for side by side reporting in PDF format (not visible for the user).
- Support of IBM® Rational® Statemate® version 4.6.1.9.
- An internal MiKTeX application is installed during the setup procedure and is used by the PowerDiff PDF generator. A separate installation of MiKTeX is no longer required.
- The header centre dropdown box on the Options tab page "Page Layout" is oriented to the centre of the dialogue and is resized with the width of the dialogue.
- PowerDiff is capable to display non rectangular states within the chart graphic.
- For customers with classification licence only chart graphics in scope of the document's Security Classification are contained within the DiffReport. In older versions of PowerDiff if either the graphic of the BeforeCase or the graphic of the AfterCase is in scope of document's Security Classification both graphics have been displayed. Now only that graphic of both is displayed that is in scope of the document's Security Classification.
- The created PDF documents are initialised to be opened in single sided mode.

Changes:

- During creation of the first PDF report after MiKTeX installation PowerDiff might generate a warning like "Creation of LaTeX fmt file failed!". In this case the generated PDF report might be erroneous especially in case of large PDF reports. Subsequent PDF generation works well. (#551).
  This item has been solved by PowerDiff 11.1 using its own MiKTeX installation.
- Missing package Upquote after MiKTeX installation has been solved by PowerDiff 11.1 using its own MiKTeX installation (#584, #614).
- No space characters are added beside a control character in a charts graphic in Interactive Mode (#609).

Changes from previous versions to version 10.1

Enhancements:

- Support of IBM® Rational® Statemate® version 4.6.1.7, 4.6.1.8.
- PCL and PDF files with character '#' in the name are supported.
- A free user defined text can be displayed on the front page of the Diff Report. As formatting boldface, italic and underline is supported.
- A Front Page Editor is provided to edit a user defined text to be displayed on the front page of the Diff Report. Various import as well as formatting facilities for boldface, italic and underline are supported. As import format the rich text format (rtf) is supported.

- All PowerDiff settings (Options, Chart Hierarchy, Front Page Text, etc.), except the Convert Settings, are stored in the PowerDiff Chart List (PCL file). If not modified the default values are stored. For example if no Chart Hierarchy has been defined in the ChartListEditor, an empty hierarchy xml-node is stored in the PCL-file. By this feature it is guaranteed that in every system, with the same PCL file, a unique Diff Report is generated.
- "Before" and "After" is displayed for elements reported on multiple pages, above the detailed differences description on each following page.
- The PowerDiff User Guide has been advanced by the section "6 Helpful information about PowerDiff" in which the highlighting behaviour of PowerDiff with some examples is described.
- If no Customised Settings are defined, the Customised Settings from PowerDiff 9.1 (if defined) are copied to be used by the current PowerDiff version.
- Via the "Save As…" button, contained in the "File" menu of the ChartListEditor, the settings of the current Chart List can be saved as Customised Settings file (pcs-file). Included are the Options, the Chart Hierarchy and the Front Page Text defined for the current Chart List. This Customised Settings file can be imported as Customised Default via button "Import as Default..." located in the "Customisation" menu.

Changes:

- When not supported characters occur in a chart file the PDF generation may fail with exit code (#603).
- The complete arrow label now is displayed when graphic option "Automatic Zoom" is enabled (#617).
- Identification of data flows over joint or junction connectors adapted to provide the correct highlighting (#613).
- Uppercase letters in the chart hierarchy now are supported (#618).

Changes from previous versions to version 9.1

Enhancements:

- Support of IBM® Rational® Statemate® version 4.6.1.4, 4.6.1.5, 4.6.1.6.
- Types with a Tick Notation are completely reported (including Tick Character) independent if the Compare option is checked or not.
- The Tick character "'" is printed in the Diff Report as character 0x27. This enables copy and paste in a mini spec opened with the IBM® Rational® Statemate® internal text editor.
- Italic bookmarks for unchanged charts within the chart hierarchy are linked to the chart hierarchy page. This allows opening and saving the Diff Report with Adobe Acrobat (#564).

- Elements within the Diff Report that span over more than one page (e.g. long descriptions, mini specs, truth tables, attributes tables etc.) are given a specific heading for the following pages in which the corresponding element and the owning object is included. This enhances the readability of large elements in the Diff Report.
- The PowerDiffConvert tool creates its own project and work area when chart versions are converted to a consistent version. This frees the user from configuring and managing IBM® Rational® Statemate® work areas and projects for the charts conversion.
- A new Graphical Option "Automatic Zoom" is provided to enable automatic zooming when the charts object do not fill the hole surface of the graphic.
- A new Compare Option "Structural description ..." is provided that inserts a list of Record and Union Fields in order of their definition in the Diff Report. This list is compared with a TextDiff tool to enable highlighting of New and Deleted Fields.
- The Convert Settings Dialogue can be opened via a new menu item in the Main Window of the interactive mode.
- A Customisation menu is provided to import, export, save and reset customised default values (Options, Hierarchy) for new Chart Lists and the Convert Settings.
- The Chart Hierarchy Editor is integrated as Tab Page in the ChartListEditor.
- The Options Dialogue is integrated as Tab Page in the ChartListEditor. This allows displaying Options of different Chart Lists side by side.
- For customers with classification licence the Classification Dialogue is integrated as Tab Page in the Options Tab Page.
- After uninstalling an older version of PowerDiff a message box is displayed to restart setup.exe for installation of the new version of PowerDiff.

Changes:

- The IBM® Rational® Statemate® internal version number of external files is excluded from comparison.
- Links in off page Activities and Off page States are no longer directed to the implementing chart but to the @Activity or @State object. This harmonises links of off page objects with links of other graphical objects and prevents confusion with inconsistent linking.
- The obsolete command line arguments "-cset", "-convertsettings", "ConverterProject" and "ConverterWorkarea" have been removed (#554).
- Truth Table Cells that span over more than one page are no longer overlapping the page footer (#565).
- Adaptation of the scaling algorithm in the charts graphics prevent objects from overlapping, when the graphic is scaled down (#250, #568).
- Displaying page headers and footers in large documents on a page before instead of displaying them on the corresponding page has been prevented by a third MiKTeX call. This results in an increased Diff Report generation time by an approximated factor of 1.5 (#567).
- The Options Tab Page is marked by a '*' character only if there are real changes on Tab Page Classification (#472).

- The ChartListEditor caption is marked by a '*' character only if there are real changes on Tab Page Chart Hierarchy (#473).

Changes from previous versions to version 8.1

Enhancements:

- Support of IBM® Rational® Statemate® version 4.6.1.1, 4.6.1.2, 4.6.1.3.
- The supported MiKTeX version is upgraded from MiKTeX 2.7 to MiKTeX 2.9. By this enhancement also MiKTeX 2.7 warning "! LaTeX source files more than 5 years old !" is handled (#538).
- A warning is displayed in case of using a not supported MiKTeX version.
- The tool is executable on Windows® 7 operating system.
- A warning is displayed in case of using a not supported operating system.
- Report options "External Activity" and "Environment Activity" are provided to enable or disable reporting of differences in external activities or environment activities. The default value is do not report.
- The comparison of truth tables has been enhanced that New or Deleted lines now are highlighted as New or Deleted and not as Amended.
- Header cells of New or Deleted columns in truth tables now are highlighted as New or Deleted.
- A compare option to find differences in usage of Tick Notation ("'") is provided. The default value is do not compare.
- A compare option to find differences in Referenced Sequence Diagrams in a Sequence Diagram is provided. The default value is do not compare.
- For Life Lines and External Life Lines in a Sequence Diagram rhe reporting of element "selected implementation" is disabled.
- Element termination type of an Activity is now reported as follows:
  "Reactive-Self",
  "Reactive-Controlled"   or
  "Procedure-Like".
- When two States are connected by more than one Transition the Transitions are identified beside their Source and Target by the Trigger and the Guard on its Label. By this the textual highlighting of differences on transition labels is enhanced.
- Transition Priorities are now supported.
- The text diff option "Ignore Space" now also includes space differences between word expressions and control characters
- The mandatory variables in the Dataport Environment dialogue of the PowerDiffConvert utility are limited to the following:
  LM_LICENSE_FILE,
  NCDIR,
  PATH,
  PMDB_NAME,

STM_PREFERENCES_DIR,
STM_ROOT and
XCMSDB.

- The variables in the Dataport Environment dialogue of the PowerDiffConvert utility can be displayed in an order sorted by name or by value.

- The Auto Assign functionality of the ChartListEditor now supports chart files with version numbers as suffix of its file name.

- As file after front page in the ChartListEditor a PDF document can be specified with relative path.

- As graphic element combinational logic associated with a state or an activity is supported.

- Support of Generalization Relation in Use-Case Diagrams.

- Associations, Generalization Relations, Extend Relations and Include Relations in a Use-Case Diagram are combined with the associated Textual Note.

- Order Insignificant Lines, Timing Constraints and Partition Lines in a Sequence Diagram are combined with the associated Textual Note.

Changes:

- A Dataflow with a change in scope of the referenced Data is now highlighted consistently (#562).

- A branched Dataflow is now highlighted consistently (#528).

- The text alignment in the charts graphic has been adapted (#540).

- Chart properties in the PDF report are now displayed with their change status (#537).

- In the text field for the licence server of the licence dialogue now dot-notation (".") is supported (#532).

- Import of chart hierarchy files has been adapted that now xml files without file header are supported (#322).

- Objects and text at the left border of a Sequence Diagram are no longer truncated in the graphic of a Sequence Diagram (#315).

- The PowerDiffConvert utility does now collaborate with IBM® Rational® Statemate® version 4.6.1. IBM® Rational® has delivered a workaround for the defect in the Dataport Library (#525).

- The chart graphics in interactive mode are correctly updated after moving split control (#539).

Changes from previous versions to version 7.2

Enhancements:

- The dependency to the Adobe SVG Viewer has been solved. An installation of the SVG Viewer is no longer required.
- When no compare partner for element "data structure" with value "SINGLE" is found in the corresponding compare object; this element "data structure" is NOT highlighted (displayed as unchanged) instead of highlighting as New or Deleted.
- Most report options have been removed. The reporting of most objects can be controlled by enabling compare option "Graphic Information".
- Changed names in generic chart references and offpage references are highlighted as New or Deleted.
- The corresponding PCL file is attached to the generated PDF report.
- Instead of reporting as Activity; a Referenced Sequence Diagram is reported as specific object type Referenced Sequence Diagram.
- In comparison of element "initial value" the changes in tick notation are ignored when the owning object is assigned a user defined type.
- The name of an activity with an implementation (e.g. as truth table or subroutine binding) is displayed with a following ">" character in the chart graphic.
- Button "prior" has been renamed as "previous" in the graphical user interface.
- Tooltips are provided in the ChartListEditor.
- A function to import settings from another PCL file is provided.
- When a PCL file is processed the user is informed when not supported settings are contained.
- The default value of the compare option "Statemate Linefeeds" has been changed from enabled to disabled.
- For customers with classification licence no classification attribute is evaluated for actor references and use-case references.
- For customers with classification licence an option is provided to switch off the evaluation of classification attribute in offpage references.
- For customers with classification licence the reporting of German classification has been adapted.

Changes:

- Linefeed changes in labels of external routers or offpage activities do involve objects highlighting in the graphic (#316, #347, #452).
- After creating a PDF report by the ChartListEditor located in a different drive as the corresponding PCL file, the files in the chart list are not marked as "not found", when switching between absolute and relative paths (#487).
- Actors and use-cases are highlighted when their long description has changed (#491).

- Checkbox enable/disable highlighting in tree view now works for external activities, external routers, use-cases and actors (#497).
- Enumeration of sections local data, parameter, scenarios or fields in the PDF report (when present) has been corrected (#490).
- When a cell of a truth table contains a large number of characters the data of this cell now is displayed in the correct column (#526).
- Truth tables with a deleted action column are compared correctly (#506).

Changes from previous versions to version 7.1

Enhancements:

- The external text diff tool has been replaced by a more current algorithm.
- The graphical user interface (GUI) has been redesigned to enhance the usability by the Developer of Statemate® charts.
- A report option for external routers is provided.
- Generation of a PDF report can be triggered directly from the interactive mode.
- The graphical user interface is implemented as a multi document interface (MDI). Multiple ChartListEditor dialogues can be opened at the same time, each with its individual set of options and settings.
- A verbatim text diff is provided for long text passages in the graphical user interface.
- To ease usability the checkbox to enable/disable verbatim text diff functionality is removed from the Options dialogue. The verbatim text diff is performed always as default.
- The layout of tabular data in the graphical user interface has been enhanced.
- The menu structure of the graphical user interface has been restructured.
- The ChartListEditor now is the control centre of the interactive mode.
- When no chart pair is contained in a PCL file a log message is generated when PDF generation is requested for this file.
- The element "Mode" is not reported textually for any object in which it is contained.
- For the items in menu File, Settings and Info as well as for the icons on the toolbar a short helping text is displayed in a tool tip.

Changes:

- When a Deleted or a New line in a long text passage occurs before or after an Amended line, both lines are highlighted as Amended consistently in BeforeCase and AfterCase (#235, #361).
- A correct result in differences of text is shown, even if the length of a word or line exceeds 1024 characters (#448).

- For customers with classification licence no headings are displayed for modified record or union fields and for scenarios that do not correspond to the documents security classification (#289).
- When in the PDF document a text with words "warning" or "error" is contained the PDF generator do not write needless error or warning messages to the console (#295).
- When resizing the windows size of the detailed information view (e. g. for a Long Description) the scroll bars are displayed correctly (#343).
- Multi occurrence of the same attribute in an object is supported (#238, #362).
- The label of a Boundary Box in a Use-Case Diagram is displayed as "Boundary Box" (#434).
- The heading of instance data binding is named as in Statemate® (#437).
- The chart graphics uses the complete graphic panes (#13, #341).
- Amended Subroutine Parameter without any highlighted Diff is solved by always displaying the value of element "data-structure" (#466).

Changes from previous versions to version 6.2

Enhancements:

- The tool PowerDiffFlow is integrated to perform a Source/Sink-Analysis of a complete Statemate®. Model in the before case and in the after case according to the specification in document BMS-PowerDiffFlow-SRS_1_1.
- The difference of the Source/Sink-Information is contained in the PDF report when in the Options/Environment Settings the checkbox "Source/Sink-Analysis" is enabled.
- When double clicking a chart pair in the ChartListEditor the differences are displayed.
- In the PDF report comments are added at every change bar to ease navigation.
- For Information-Flows the heading of consist list is repeated on every page.
- Parameters and Local Data of a Subroutine are listed in a table to enhance readability.
- The layout of Truth Tables has been adapted. The columns width is set dependent on the columns content. To fit all columns on one page the page is prepared in landscape orientation and the font size is reduced.
- For customers with classification licence, a list of objects with undefined classification is attached to the PDF document in file "undefined_list.txt",
- The highlighting of a Data Flow in an Activity Charts graphic is now referencing the change status of the concerning Data or Information-Flow object.
- A hyper link is generated in the PDF report from a Data-Item to the assigned user defined type (if present in the document).
- A hyper link is generated in the PDF report from the consist list of an Information-Flow to the referenced Data objects (if present in the document).
- For customers with classification licence PDF reports with national classification information is provided.
- All console output in BatchMode is printed to the PDF log file.

Changes:

- Following chart elements are represented now as one elements in the difference list (#43):
    o External Activities (Activity-chart)
    o External Router (Activity-chart)
    o Life Line (Sequence Diagram)
    o External Life Line (Sequence Diagram)
    o Actor (Use-Case Diagram)
    o Usecase (Use-Case Diagram)
- Long text is now compared correctly (#340).
- Unnamed Activities are not listed in the summary of the PDF report.

Changes from previous versions to version 6.1

Enhancements:

- The Microsoft® .NET Framework 3.5 now is supported.
- Chart files with an alphanumeric version string as suffix are supported.
- The PowerDiffConvert utility is integrated in the PowerDiff tool suite to perform conversion of Statemate® chart files generated with different Statemate® versions.
- The PowerDiffConvert utility overwrites write protected chart files.
- FlexLM is integrated in the PowerDiff tool suite as licence mechanism.
- Floating licences are supported.
- Node locked licences are supported.
- Licencing with redundant licence servers is supported.
- Licencing with client and server in different sub networks within the same domain is supported.
- For the Compare and Report Filters in the Options Dialogue a helping text is provided.
- In the header of the ChartListEditor the name of the loaded or saved PCL file is displayed.
- The ChartListEditor displays relative paths in the ChartList view of loaded PCL files which have been saved with relative paths before.

Changes:

- Graphical representation of non rectangular activities is supported.
- Page headers and footers are now displayed on all pages of the chart hierarchy, and all other lists (Amended / New Model Charts, Deleted Model Charts, Amended / New UML Charts / Deleted UML Charts etc.) (#325, #331),
- The page counters on the title page of the PDF report have been corrected (#305).

- A message box is displayed when a PCL file with invalid path names to chart files is loaded in the ChartListEditor. Additional these entries in the ChartList view are displayed with red background colour and tool tips (#327).
- A truth table now is highlighted correctly when the first cell is amended (#328).
- Truth tables with repeated input and output column headers are supported (#329).
- A link from the graphic to an Offpage Chart is supported with contained linefeed "\n" also (#330).
- For customers with classification licence the classification of a records or union field list and a scenario list, are set according to the classification of the object the elements belong to (#5, #312, #333, #334).
- Defining highlighting colours in the Options Dialogue now works properly (#337).
- The labels of the highlighting colours in the Options Dialogue, has been adapted to the PowerDiff nomenclature (Amended, New and Deleted) (#238).
- Handling of Report Options "External Activity" and "Environment Activity" has been adapted (#351).

Changes from previous versions to version 5.2.1

Changes:

- The security classification is displayed on all pages of Amended, New or Deleted chart lists (#325).
- Handling of relative paths with chart files in ChartListEditor adapted (#326).

Changes from previous versions to version 5.2

Enhancements:

- Support of relative paths stored in a PCL file.
- Import and export of chart hierarchy.
- Support of page specific security classifications.
- Evaluation of security classification only for specific objects.
- Text layout in the graphic is displayed according to the settings in the chart file.
- Italic bookmarks in the chart hierarchy for unchanged charts with modified sub charts.
- Fixed order of object elements in the Diff report.
- Only name and value is displayed for attributes.
- Information flows are displayed as plain text.
- Support of large Diff reports by disabled links.
- Support of Statemate® 4.5.

Changes:

- Heading "Chart Properties" is displayed above the corresponding status (#291).

Changes from previous versions to version 5.1.1

Changes:

- In graphic information numbers are not displayed with multi decimal digits, if they are not necessary (#290).
- In graphic rounded corners of states have now a different size, than in previous version.
- Line skip in text in graphic is smaller.
- Wrong representation of and-states is fixed.
- State#0 states are not visible in the graphic.

Changes from previous versions to version 5.1

Enhancements:

- MiKTeX 2.7 is used as external tool for PDF generation.
- Generation of large PDF documents is supported.
- Difference reports are not splitted in multi documents because of their size.
- Modified text is not highlighted with underlines or strike through.
- No context information is reported for unchanged record fields, union fields, unchanged local data, unchanged parameters and unchanged scenarios.
- Record fields, union fields, local data, parameters and scenarios are reported in the same order they are read from the Statemate® chart file. This causes unchanged or amended elements may be highlighted as deleted and new if only the order of these elements has changed.
- A summarizing list is displayed in the report for records and unions containing all field names (highlighted if modified).
- A summarizing list is displayed in the report for local data, parameters and scenarios containing the names (highlighted if modified) of the corresponding element.
- Detailed differences of record fields, union fields, local data, parameters, scenarios are displayed in the report in separate subsections of the owning object.
- If no differences are found no document is generated (#132). Instead a message is printed on the cmd shell and in the log file.
- No messages for not supported arrow styles are displayed.

Changes:

- The page content does not overlap with the footer region (#4).
- Highlighted arrowheads and arrow lines do not interfere each other in graphics (#94).
- Arrowheads are aligned correctly (#72).
- Hyphenation in table columns does work as expected (#232).
- When text exceeds the left or right most border of all graphic elements in a Sequence Diagrams the text is not truncated (#97).
- No empty page is left at the end of the diff report (#131).
- Links in graphic are kept working even if the report document is renamed (#223).

Changes from previous versions to version 4. 2.1

Enhancements:

- For customers with classification licence the name of a PDF document containing Statemate® objects without an assigned classification is prefixed by "Error_".
- For customers with classification licence "UNDEFINED" is displayed as classification in header and footer of a PDF document when Statemate® objects without an assigned classification are included even if Statemate® objects with other classifications are contained in the report.
- For customers with classification licence a special character font is provided for the number of "UNDEFINED" pages in the classification table on the front page of a PDF document containing Statemate® objects without an assigned classification.
- For customers with classification licence a message is generated on the DOS command line during PDF generation when Statemate® objects without an assigned classification are added to the Diff report.
- For customers with classification licence disabling of some report options (e.g. Arrows, Connectors, Notes etc.) is recommended during the detection of Statemate® objects without an assigned classification.
- For customers with classification licence the default value for the creation of the classification table on front page is set to enabled (#229).
- For customers with classification licence additional values for the classification attribute are supported.
- Both Statemate® objects (activity and activity occurrence) of a use case are listed as "behavioural elements" in the summary.
- Multiple occurrence of "ICD_MESSAGE" as attribute name in a single Statemate® object is supported. In this case changes are highlighted as "New" and "Deleted" attributes.

Changes:

- Special characters are supported in long text passages (#230).
- The available memory is detected by dint of a Windows kernel32.dll call (#228).

- Detailed differences of record and union fields, scenarios, local data and parameters of subroutines are reported (#231).
- For all unchanged charts in the chart hierarchy bookmarks are created (#236).
- Graphics of before case and after case are displayed at the same position of the page in the Diff report (#237).

Changes from previous versions to version 4. 2

Enhancements:

- Structure of PDF bookmarks enhanced.
- Each Statemate® object listed in the summary is listed with the page number and linked to the page where the differences are described.
- Each Statemate® object listed in the table of contents is listed with the page number and linked to the page where the differences are described.
- In charts generated with Statemate® version 4.2 and higher a time stamp is used to identify comparable Statemate® objects in before case and in after case. This makes sure that e.g. states with a change in the name can be reported as changed (#90).
- In the graphic links are provided from a changed graphical Statemate® objects to the textual description of the changes.
- Relative path for external files is supported (#150).
- On front page the defined headers and footers are displayed.
- For customers with classification licence the classification of an external file is evaluated.
- For customers with classification licence the classification dialogue is moved from the Options Dialogue to the ChartListEditor dialogue.
- For customers with classification licence all not classified Statemate® objects are listed in a selectable report.

Changes:

- No thin line appears in graphics close to an arrowhead (#95)
- No empty characters '' are generated in diff report as name of partition lines in a Sequence Diagram. (#133).
- Spaces e.g. in long descriptions are correctly mapped as fixed space font (#138, 148).
- Data flows over joint or junction connectors are highlighted correctly (#139, #140, #141, #142, #143).
- Names of charts that have not been reported because of their security classification are not listed in summary and in table of contents (#145).
- Line width of deep history connector and dashed lines of external routers corrected (#35, #135).
- Confusing chart date messages and PDF error messages removed (#127,).

Changes from previous versions to version 4. 1

Enhancements:

- The structure of the diff report has been revised fundamentally.
- A summary is provided in the diff report listing all changed objects.
- If a diff was found in an object the unchanged elements of the object are displayed also.
- States and control Activities are displayed with rounded edges in graphical view (#55).
- PowerDiff automatically avoids memory overflow in PDF generation (#3).
- Long text passages are presented in a fixed spaced font in the diff report.
- An option is provided to enable reports with monochrome graphics.
- Differences displayed in the report are marked by change bars at the page margin.
- The order of the charts presented in the diff report can be defined by a hierarchical structure.

Changes:

- No empty long descriptions are displayed as added or removed (#79, #123).
- In page header and footer "page <i> of <total-pages>" is displayed correctly also if a graphic is on last page (#119).
- Comparison of external files linked to an object (e.g. an activity) is enabled or disabled by a compare option.
- Statemate^{®.} line feed "\n" is ignored now in labels of offpage states and activities also. This functionality can be enabled or disabled by a compare option.
- The objects of a deleted chart are reported (#118).
- A compare option is provided to enable or disable reporting of arrow labels and notes body textually (#126).

Changes from previous versions to version 3. 1

Enhancements:

- Path settings for Before files, After files and PCL files are stored automatically, when open file dialogues are closed with "OK". (#88).
- Highlighting settings are configurable (#59).
- Verbatim diff is provided for long text passages (e.g. long description, static reactions etc.) in batch mode.
- An option to ignore Statemate® linefeed "\n" in names and labels is provided.
- Graphics without any highlighting are excluded from report.
- Options are stored in PCL file.
- For customers with classification licence multiple report generation is provided.

- For customers with classification licence the classification filter functionality for report generation has been advanced.
- For customers with classification licence a classification summary is provided on the title page of the generated report.

Changes:

- Clarical mistake in OpenLicenceFile Dialogue fixed (#114).
- Readability of differences enhandec by configurable highlighting (#116)
- Displaying empty lines in tables fixed (#96).

Changes from previous versions to version 2.2.1

Changes:

- New Berner & Mattner address added to PowerDiff dialogs and documentation.
- Readability of highlighted text in graphics advanced (#115, #122).
- Button "Directory..." in 'ChartListEditor' dialogue renamed as "Add Folder..." (#89).
- Value of "Highlighted Line Width Offset" is now displayed correctly (#121).

Changes from previous versions to version 2.2.0.0

Enhancements:

- Support of Statemate® Version 4.2
- Configurable accentuation by line width of graphical differences
- Selectable Compare Option for element "parent"
- Selectable Compare Option for element "Word Size"
- Selectable Compare Option for element "LSB"
- Selectable Compare Option for element "Extension Point"
- Creation of difference section "Connectors" is optionally selectable

Changes:

- Complete data flow over joint connectors is highlighted when label has been changed
- No message "Restricted Security Classification" is reported when arrows do not match the selected security classification filter.

Changes from previous versions to version 2.1.1.0

Enhancements:

- Scalable font size of text in graphics is provided (#111)

Changes:

- Default font size of text in graphics reduced (#111)

Changes from previous versions to version 2.1.0.0

Enhancements:

- Bookmarks are provided in generated PDF report to ease online navigation (#100)
- Chart graphics in PDF report are presented in landscape orientation when graphics height is smaller than graphics width (#101)
- More PDF reports than one are generated when the number of chart pairs with differences exceeds a configurable maximum value (#102)
- An overview PDF document containing links to the corresponding child reports is provided when more than one PDF reports have been generated (#102)
- Joint connectors are excluded from comparison (#103)
- For classification filter additionally relation "=" is provided (#104)
- Tab character indents in text are replaced by a configurable number of space characters (#57, #86)
- Scalable line width in graphics are provided (#106)
- Textual changes on chart graphics are highlighted with colour coding (#107)
- Creation of difference section "Arrows" is optionally selectable (#108)
- In activity charts all data flows connected to joint or junction connectors are combined in one flow path (#109)

Changes:

- Size of generated PDF report considerably reduced to approximately 6% to 10&, refer to Table 1 (#105)
- Time of generating the PDF report considerably reduced to less than a third refer to Table 1
- Highlighting colour coding of added and changed objects has been inverted to advance readability of cold prints (#110)

- To provide more difference information per page font sizes and text spaces are reduced.

	Options/Settings/ Environment/Memory	PowerDiff V. 2.1	PowerDiff V. 1.1.1.0
PDF generation time (70 chart pairs)	512 MB	5 minutes	15 minutes
PDF generation time (100 chart pairs)	768 MB	10 minutes	35 min
PDF file size (70 chart pairs)	512 MB	3 MB	50 MB
PDF file size (100 chart pairs)	768 MB	5 MB	80 MB

Table 1   Improvement in performance
(tested on a System with 1 GB RAM, a P4 2,60Ghz processor and Windows XP SP2)

Defects fixed:

- Alignment of arrowheads in most cases has been advanced (#72)
- Graphic elements toward the right-hand edge of the chart are displayed completely (#81, #82,)
- The resolution of dotted lines has been increased (#80)
- Hyphenation of long text is supported (#70, #85)
- The last page of the generated PDF report is not empty (#76)

Changes from previous versions to version 1.1.1.0

Changes:

- Shorter dashes in dashed lines to enhance readability in interactive mode

Defects fixed:

- Empty 'long description' element causes an exception (#78)

Changes from previous versions to version 1.1.0.0

Enhancements:

- A 'ChartListEditor' is provided for creating and managing PowerDiff Chart Lists (#46)
- New and deleted charts are supported in PowerDiff Batch Mode (#44, #45)

- A colour coding scheme is added to the difference report
- Open Chart Files dialogue can now be resized for better interactive mode of long filenames (#9)
- PowerDiff supports comments in Chart Lists for BatchMode (#48)

Changes:

- The structure of the difference report has changed to improve readability:
  - At the beginning of the PDF report listings of Changed, New and Deleted charts are available (#45).
  - The difference report lists the charts in each of the above given classes in alphabetical order.
- Only Statemate® related files (files with an extension related to Statemate®) will be considered in PowerDiff Batch Mode
- For added elements the before case no longer appears in the difference report
- For deleted elements the after case no longer appears in the difference report
- Errors and warnings arising during a diff process in batch mode no longer appear in the difference report but instead are written to a separate log file
- The difference report no longer contains the filenames for before and after files
- The 'id' of a Statemate® element is no longer subject of comparison because the id is Statemate® internal and hence not subject for enter or change by the user
- The difference report no longer contains the originator reference "Prepared by <originator_name>" on the title page.

Defects fixed:

- Typo in Open Chart Files dialogue (#36)
- Missing ellipses ("...") in menu items (#42)
- Charts without graphic create "Figure..." entries in PDF Report (#73)
- Blank lines in input file for BatchMode (#61)
- Non existent files in batch input file causes crash (#63)

Changes from previous versions to version 1.0.0.1

Defects fixed:

- User don't need administrator access rights to run PowerDiff anymore

Changes from previous versions to version 1.0

Enhancements:

- Created a setup package for easy install und uninstall
- Added user documentation
- Fully supported Windows® XP styles
- Support of Statemate® 4.0 chart files

Defects fixed:

- When PowerDiff is terminated via Ctrl-C in batch mode, the sub process for generating the PDF is not also terminated
- Tables are not overlapped by text in the bottom line anymore

Known Defects:

- If there are too many file pairs (more than approx. 100) in an input file (in batch mode) the PDF output file may grow too big and a out of memory warning appears
- When PowerDiff is terminated via Ctrl-C in batch mode, an error message appears
- When altering the column width in the detailed information view (e. g. truth tables) then the scroll bar is only resized after a resize of the whole window

Limitations:

- Due to the internal Statemate® file format the following chart elements are represented as two elements (the second one is of type "Reference") in the difference list:
    o External Activities (Activity-chart)
    o External Router (Activity-chart)
    o Life Line (Sequence Diagram)
    o External Life Line (Sequence Diagram)
    o Actor (Use-Case Diagram)
    o Usecase (Use-Case Diagram)

Changes from previous versions to version 0.9

Enhancements:

- Usage: Graphical interactive mode or batch mode used from command line
- Visual colour marked comparison of Statemate® chart pairs
- List of differences shown in a tree view with expandable and filterable nodes
- Creation of difference reports in PDF file format

Defects fixed:

- Validity of page layout settings is checked to avoid crash of the PDF-Tool
- When using classification filters then the page headers/footers (when selected) are changed accordingly
- No empty nodes are shown when notes are disabled in the compare filter settings
- When using generic elements then the internal name is not displayed anymore. Now the element type is shown.
- Fixed problems on displaying charts with different sizes
- When generating PDF files, the charts are scaled to fit completely on the page
- After setting graphical filters the changes are updated immediately after leaving the dialogue
- Fixed problem that the status (removed/added/changed) of an element only depends the status of the first attribute

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