

Reference Manual for the CZT Eclipse Interface

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The CZT (Community Z Tools) project provides an Eclipse plugin that allows Eclipse users to edit Z specifications in a familiar environment. It supports the LaTeX and Unicode markups of Z, and the Unicode markup provides a WYSIWYG editing environment for Z. One of the main issues for editing a Unicode Z specification is to insert a Z-specific Unicode character into the editor, but the ZCharMap panel provided by this plugin makes it easy to insert Z characters and templates with a single click. It also provides a wide variety of browsing, outlining, folding and cross-reference facilities, plus constant background typechecking to detect syntax and type errors in the Z specification.

Installation

Installation of Eclipse SDK: download it from www.eclipse.org and install it by extracting it somewhere you prefer.

Installation of CZT plug-ins: <http://www.cs.waikato.ac.nz/~marku/czt/eclipse.html> contains the link for downloading the CZT plug-in. For installing the CZT plug-in, you need download and copy it into the plug-ins folder called “plugins” inside your Eclipse SDK root directory.

Installation of CZT Font (optional): Ideally, you can have the CZT font installed on the computer if you have the privilege to do that. Otherwise, you may not have all Unicode characters recognized by the editor when you are editing a Unicode Z specification.

Running Eclipse: if you are running into some problems, try to start Eclipse with “-clean” parameter, that is “eclipse -clean”. Due to the lazy start nature of Eclipse, the old configuration will remain unchanged inside Eclipse even you have remove some of the plug-ins you installed before. What the “-clean” parameter does is to clean all previous configuration before Eclipse start and to configure it with the installed plug-ins only.

Creating Z Specifications

CZT project creation wizard: the wizard can be started using the menu entry *File* → *New* → *CZT Project*. If you are asked whether you want to open the CZT perspective, just select “Yes”. Opening the CZT perspective will help you start editing Z specifications with some useful views or panels opened automatically.

Z specification creation wizard: the wizard can be started using the menu entry

are hovering above it.

Z partitions: a Z specification is partitioned based on its containing paragraphs. When the cursor position is changed, a vertical indicator on the left of the editor (the blue vertical bar in the picture) shows you the range of the paragraph that the cursor is in.

Hiding/showing paragraphs: on the left-top corner of each paragraph is a “+” or “-” sign. Each click on it will result in hiding or showing the corresponding paragraph.

Syntax highlighting: The editor shows you the contents of the Z specification with syntax highlighted. You can change the colors under “CZT/Editor/Syntax Highlighting” category in the preferences page.

Variable references: When the cursor is positioned on a variable, all references to the variable will be highlighted. The menu bar command “*edit/Go To Declaration*” can lead you to select the declaration part of the variable.

Brackets matching: when the cursor is positioned after a bracket, the matched open or close bracket will be highlighted.

Selection by double click: As shown in the above picture, the selected text is presented with white foreground and blue background. Double click in the editor will enable a selection of a syntactical word at the current cursor position in the editor. Specifically, if double click after a bracket, you can select the contents inside the matched brackets.

Term highlight: you can execute the command “*edit/Highlight/Enclosing Term*” to highlight the text associated with the enclosing element containing the element at current position of the cursor. The highlight mode is different from normal text selection as shown in the above picture. The corresponding term is presented with yellow background and its normal foreground. The command “*edit/Highlight/Restore Last Highlight*” is used for highlighting the term which is highlighted previously.

Problems report: when a Z specification is being edited, it is parsed constantly in the background without interrupting the editing. Once any problems, such as errors or warnings, are found, they are immediately reported to the user in a variety of ways. Particularly, there is a Problems view at the bottom of the window, in which you can see a list of problems found. You can also see some red crosses on both side of the editor. The crosses on the left indicate there are errors corresponding to the lines they are positioned on. The crosses on the right indicate the same errors, but corresponding to the relative position to the whole document. On the top-right corner is a special indicator which shows the number of problems found in the specifications.

Editor hover support: When the mouse is hovered above the editor, the editor will present some information to users if there is any useful information which could be concerned with by the users at current position of the mouse. If a term is highlighted there, the information about it will take the highest priority. The priority sequence for other information is error/warning, type, something else.

Z Conversion View: A specification can be browsed using another markup or encoding in a view at the bottom, so that users can make comparison of the specification between different markups and/or encodings. Their corresponding commands are in the “*edit/Convert To*” menu entry. The conversion view also shows

you the converted contents with syntax highlighting so that you can compare them easily.