MapleV

A GNU Emacs Mode for Maple Developers
MapleV Version 2.37
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MapleV

MapleV is a GNU Emacs major mode for developing source code for Maple, a computer algebra system (CAS) from Waterloo Maple Inc. MapleV is written entirely in Emacs-Lisp and is distributed under the GNU General Public License.

This manual is for MapleV version 2.37.

1 Introduction

MapleV is a GNU Emacs major mode for developing source code for Maple, a computer algebra system (CAS) owned by Waterloo Maple Inc. In this manual *MapleV* refers to the Emacs major mode and *Maple* to the CAS. MapleV is written entirely in Emacs-Lisp and is distributed under the GNU General Public License.

1.1 Summary

Following is a brief tour of MapleV's major features.

1.1.1 Indentation

Maple source code is grammatically indented, either as you enter it or all at once. Customizable variables permit a limited control of the indentation style. The default settings produce a result that is very close to the pretty printed output of Maple.

1.1.2 Font Lock

Maple reserved words, special words, initial variables, built-in functions, and top-level procedure assignments are font locked. Comments and quotes are syntactically highlighted. The amount of "decoration" can be customized.

1.1.3 Comments

Commands are provided for inserting and aligning Maple comments. Auto-filling can be enabled so that comments automatically wrap.

1.1.4 Shortcuts

Abbreviations for common Maple words are defined and automatically expanded, if enabled. A blank procedure template, including your copyright statement, can be inserted into the source. It queries for the name of the procedure, optional arguments, and a description.

1.1.5 Mint interface

All or portions of the buffer can be sent to `mint`, Maple's syntax checker. The output is displayed in a buffer with a mode that highlights and activates warnings and error messages. Clicking on the activated text either moves the cursor to the appropriate point in the source code or queries to automatically correct the error.

1.1.6 Maple interface

All or portions of the buffer can be sent to the command line version of Maple, which is run in its own buffer. You can work directly in that buffer to exercise the source code.

1.1.7 Online help

Help pages from Maple help databases can be called up and displayed in a buffer. The buffer has a mode that font locks section headings and provides commands for viewing other help pages and recalling previously visited pages.

1.1.8 Viewing library code

Modules and procedures from Maple libraries can be displayed in a buffer. They are font-locked the same as in a MapleV buffer. A history provides a convenient means to return to previously displayed code.

1.2 Requirements

MapleV has been used with Maple version from 4 to 2015, with GNU Emacs 22 to 24, and on Linux, Mac, and Windows machines.

2 Basics

For MapleV to properly locate, fontify, and index *top-level procedures*, that is, non-nested procedure assignments, the procedure name *must* be flush left. Indenting the buffer moves top-level procedures to the left margin.

There are a few exceptional cases in which what should be top-level procedures are, in fact, not. The primary example is a Maple script in which procedures are conditionally assigned. See Section 3.3.2 [Preventing indentation], page 6, for an illustration and a method to automatically indent these procedures to the left column.

Most of the higher-level MapleV functions, those that do more than edit text, are available on the menu-bar.

3 Indentation

Maple source code is indented according to its grammar. The indentation can occur either as you enter the code or all at once; the latter action is useful when working with non-indented source code. A grammatical error, typically an out-of-place keyword or parenthesis, generates an error and moves the cursor to the place where the error was detected.

3.1 Commands

`TAB` Indent the current line (`maplev-electric-tab`).

C-j Indent the current line, insert a new line, and indent that line (`maplev-indent-newline`).

C-c TAB TAB

C-c TAB b Indent the buffer (`maplev-indent-buffer`).

C-c TAB k Clear the indentation information (`maplev-indent-clear-info`). To increase speed, MapleV's indentation algorithm stores the last valid indentation point. Moving the point may occasionally cause indentation errors; use this procedure to recompute the indentation point.

C-c TAB p Indent a procedure (`maplev-indent-procedure`). The smallest procedure, or module, at point is indented.

C-c TAB r Indent the region (`maplev-indent-region`). The selected region is indented.

3.2 Customizing

The following variables affect indentation:

`maplev-indent-level`
: The amount a subblock is indented. The default is 4.

`maplev-indent-tabs-mode`
: Non-nil means tabs may be used to indent. The default is nil.

`maplev-indent-declaration-level`
: This value is used to initialize the buffer-local variable `maplev-indent-declaration`, which sets the amount Maple procedure declarations (`local`, `global`, `option`, and `description`) are indented. The default is 0.

`maplev-dont-indent-re`
: A regular expression or nil. If non-nil then lines that begin with a match are not indented. The default, '`"#"`', prevents flush left comment lines from being indented.

`maplev-tab-width`
: This integer value is used to initialize the value of `tab-width`.

`maplev-get-tab-width-function`
: If assigned, this function is called, with the filename of the current buffer, when `maplev-mode` is executed. It should return the desired value of `tab-width`. If not assigned, `maplev-tab-width` is used as the value.

3.3 Indentation Tricks

The indentation algorithm is not perfect. It can fail to indent code that should be indented or it may indent code that should not be indented. The following sections give examples and demonstrate workarounds.

3.3.1 Forcing indentation

MapleV's indentation algorithm does not (currently) handle continued expressions. It aligns continuations with the left most character in the preceding line. In an assignment it is preferable to align with the right side of the assignment.

Problem

Indenting the following code causes the continued line to be left aligned with the preceding line, as the following illustrates:

```
---------- Buffer: foo ----------
y := a + ( ... )
     + b;⋆
---------- Buffer: foo ----------

TAB
   ⇒
---------- Buffer: foo ----------
y := a + ( ... )
+ b;⋆
---------- Buffer: foo ----------
```

Solution

Use extra parentheses to prevent the continuation line from being aligned with the opening column:

```
---------- Buffer: foo ----------
y := ( a + ( ... )
       + b );
---------- Buffer: foo ----------
```

3.3.2 Preventing indentation

Problem

Consider an installation script in which the procedures '`foo1`' and '`foo2`' are assigned only when the flag `assign_procs` is '`true`'. The following example shows what happens when the buffer is indented.

```
---------- Buffer: foo ----------
if assign_procs then
foo1 := proc() ... end:
foo2 := proc() ... end:
fi:
---------- Buffer: foo ----------
```

M-x maplev-indent-buffer

⇒

```
---------- Buffer: foo ----------
if assign_procs then
    foo1 := proc() ... end:
    foo2 := proc() ... end:
fi:
---------- Buffer: foo ----------
```

Because `foo1` and `foo2` are no longer flush left they are not recognized as top-level procedures. Their names are not properly font locked and MapleV commands that operate on top-level procedures do not work on them.

Solution

Because MapleV ignores comment continuations that Maple respects (Chapter 5 [Comments], page 10), we can use the following technique to prevent '`foo1`' and '`foo2`' from being indented.

```
---------- Buffer: foo ----------
if assign_procs then       #\
fi                         # Maple does not see this line
foo1 := proc() ... end:
foo2 := proc() ... end:
#\
if then                    # Maple does not see this line
fi:
---------- Buffer: foo ----------
```

MapleV ignores the comment continuations and determines that each `if` statement is completed on the following line. The procedures `foo1` and `foo2` are not indented. Maple, however, continues the comments and so matches the initial `if` to the final `fi`; it ignores the dummy statements.

3.4 Indentation Details

A grammar table (`maplev--grammar-alist`) defines the grammar used to indent Maple code.

MapleV parses the source to compute the appropriate indentation for each line. To speed this process, information from the last parse is saved and reused. This method allows it to indent entire buffers reasonably quickly; the largest file in the Maple R5 share library (`gdev.mpl`, 160K, by Bruno Salvy) took twelve seconds to indent on a PC running NTEmacs. During editing, if the buffer is modified above the last indentation location then

the indentation information is lost; consequently, you may occasionally notice small delays as the source is reparsed.

4 Font Lock

The amount of syntactical highlighting, or "decoration", is controlled by the global variable `font-lock-maximum-decoration`, which you may set in your `.emacs` file. See Info file `emacs`, node '`Font Lock`', for information. MapleV mode provides three levels of decoration:

1. Comments, quotes, top-level procedure names and Maple reserved works are highlighted.
2. Everything in level 1 plus Maple special words, initial variables, and the ditto operators are highlighted.
3. Everything in level 2 plus Maple built-in functions are highlighted.

Execute *M-x maplev-reset-font-lock RET LEVEL RET* or use the menubar, *MapleV -> Setup -> Decoration*, to change the decoration in a MapleV buffer. `LEVEL` is an integer from 1 to 3.

5 Comments

MapleV uses standard Emacs commands to enter, align and fill Maple comments. See Info file `emacs`, node '`Comments`'. The commands are reproduced here for convenience.

M-; Insert or align an inline comment (`indent-for-comment`). The comment character is inserted at column `comment-column`.

C-x ; Set comment column (`set-comment-column`).

C-u - C-x ;
Kill comment on current line (`kill-comment`).

M-q Fill a comment (`fill-paragraph`). Wrap lines at column `fill-column` and insert new comment characters, aligned with the original comment character.

The following variables affect comments:

`maplev-auto-fill-comment-flag`
A boolean flag. If non-nil, the default, comment lines wrap as they are typed. Wrapping, however, does not automatically start in an inline comment; it must be invoked with `fill-paragraph`.

`maplev-comment-string`
String variable inserted by `indent-for-comment`. The default is '`#` '.

`maplev-comment-column`
Initial value of `comment-column`. The default is 40.

`maplev-comment-fill-column`
Initial value of `fill-column`. The default is 79.

Maple comment lines can be continued to the next line by ending them with a backslash. MapleV does *not* recognize this continuation and interprets the following line as code. This can fool the MapleV indentation grammar; however, it can also be used to achieve certain effects. See Section 3.3.2 [Preventing indentation], page 6, for an example.

6 Shortcuts

6.1 Abbreviations

Abbreviations are available for common or lengthy Maple keywords. They are expanded whenever `abbrev-mode` is active. See Info file `emacs`, node '`Abbrevs`'. The command `maplev-abbrev-help` displays a list of the available abbreviations.

The following variables affect the expansion of abbreviations:

`maplev-initial-abbrev-mode-flag`
: If non-nil `abbrev-mode` is activated when MapleV is started. The default is '`t`'.

`maplev-expand-abbrevs-in-comments-and-strings-flag`
: If non-nil then the Maple abbreviations are expanded in comments and strings. The default is '`nil`'.

6.1.1 Customizing Abbreviations

The predefined MapleV abbreviations are stored in the abbreviation table `maplev-mode-abbrev-table`. The following code may be added to your `.emacs` file to assign '`simp`' as an abbreviation for '`simplify`'.

```
(define-abbrev maplev-mode-abbrev-table
        "simp" "simplify" 'maplev--abbrev-hook)
```

The function '`'maplev--abbrev-hook`' prevents the abbreviation from being expanded inside a comment or quote.

To remove an abbreviation from the table assign it `nil`. For example, to prevent '`lib`' from expanding to '`libname`', add the following to `emacs`:

```
(define-abbrev maplev-mode-abbrev-table "lib" nil nil)
```

6.2 Templates

C-c C-p
: Insert a procedure template (`maplev-template-proc`). The user is queried for the name, arguments, and a description of the procedure. Any of the entries can be left blank. If the name is blank then an anonymous procedure is inserted, otherwise an assignment is inserted with the procedure assigned to the given name. Backquotes are added automatically to procedure names if required by Maple.

C-;
: Insert an assignment operator at the end of the current line (`maplev-insert-assignment-operator`).

The following variables affect the shortcuts:

`maplev-insert-copyright-flag`
: If non-nil then a copyright notice is inserted in the `option` declaration of the procedure template. The default is `t`.

`maplev-copyright-owner`
: String inserted as the copyright owner.

`maplev-comment-end-flag`
: If non-nil then the name of the procedure is inserted as a comment to the right of the closing `end` statement.

`maplev-assignment-operator`
: The string inserted by `maplev-insert-assignment-operator`. The default value is ‘ `:=` ’.

7 Imenu support

Executing *maplev-add-imenu* or selecting *MapleV -> Add Index* from the menubar creates an indexed menu of the top-level Maple procedures, global variables, and macro assignments. The menu appears under the 'Index' heading in the menubar. Clicking on an item in the menu moves point to the assignment of that item.

The assignments must be flush left to be indexed. Only the first macro in a `macro` assignment is indexed.

8 Miscellaneous features

8.1 Include statements

Maple include statements, such as `$include <somefile>`, are font-locked and active. Clicking on them, or typing *C-c C-o*, calls *maplev-find-include-file-at-point*, which searches for the file and, if successful, opens it. If the path exists, but the file does not, the user is asked whether to create the file.

The include path can be assigned, as a list of strings, to the variable *maplev-include-path*. The paths are searched in the order of occurrence in the list.

The customizable variable *maplev-include-file-other-window-flag* determines whether the file is opened in the current window or another window.

8.2 Indent trace output

The Maple `trace` command causes Maple to print the assignments that occur in selected procedures. The following commands can be used to hierarchically indent the resulting output in an Emacs buffer. To be sensible, the output should be created with `interface(prettyprint=0)`.

`maplev-trace-indent-buffer`
: Hierarchically indent all Maple trace output in the buffer.

`maplev-trace-indent-region`
: Hierarchically indent selected region in the buffer.

`maplev-trace-indent`
: Emacs variable that sets the indentation level for trace output. The default is four spaces.

9 Configuration

When Maplev-mode is called, a search is made for a `.maplev` file if the flag `maplev-load-config-file-flag` is non-nil. The search begins in `default-directory`, which is typically the directory associated with the current buffer, and moves upward through the file hierarchy, stopping when the file is found or root is reached. If the file is found, it is loaded as an Emacs lisp file.

The `maplev-config` function can be used in the `.maplev` file to create an object that configures MapleV on a per-project basis.

9.1 Configuration Object

The function `maplev-config` constructs an `eieio` object of class `maplev-config-class` and assigns it to the eponymous buffer-local variable `maplev-config`. For details about objects, see *The EIEIO Manual*. The following fields are defined.

`:compile` Shell command to build and install a Maple archive. If assigned, the string is assigned to the Emacs lisp variable `compile-command`, which is then made buffer-local. Executing the Emacs function `compile` in a MapleV buffer that uses this configuration runs the assigned shell command. Typically assigned to a `make` command. See Section 9.2 [Configuration Example], page 16.

`:include-path`
A string or list of strings of directories to search for files specified with `$include` statements in Maple source files. Used by `mint`, Maple's syntax checker, by hyperlinked `$include` statements, and by the `mpldoc` tester, see the `:tester` entry, below.

`:maple` Shell command to execute tty (command-line) Maple. The default is '`maple`'. See Chapter 11 [Maple], page 19.

`:mapledir`
The path to the installation of Maple. If left nil, the default, this field is automatically assigned by the function `maplev-config`.

`:maple-options`
A string of options to pass to `maple`. The default is '`-B -A2 -e2`'. See the Maple help page for `maple` for a description of the available options.

`:mint` Shell command to execute Mint, the Maple syntax-checker. The default is '`mint`'. See Chapter 10 [Mint], page 17.

`:mint-options`
A string of options to pass to `mint`. The default is '`-i2 -q -v -w 100`'. The use of the verbose option, '`-v`', is necessary so that `mint` output for include files shows the path to the file; the information is used to jump to the source location of a mint warning. Maplesoft developers: be aware that `smint` use '`-V`' for the verbose option. See the Maple help page for `mint` for a description of the available options.

`:tester` Shell command to execute Maplesoft `tester`. Used by `mpldoc-test-run-tester`, which is part of the `mpldoc` package. See Section "Testing" in *The Mpldoc Manual*. Use of this requires access to Maplesoft's `tester` facility.

:tester-options
: A string of options to pass to `tester`. See above. The default is the empty string.

9.2 Configuration Example

Following is a typical example of the content of a `.maplev` file, for a Maple package/project named `Bark`.

```
(let ((proj-root (concat (getenv "HOME") "/maple/Bark")))
  (maplev-config
   :maple-options "-B -A2 -e2"  ; configure libname and error/warning levels of Maple
   :mint-options "-l"           ; ignore leading underscore
   :include-path proj-root      ; add proj-root to the include path for Maple and Mint
   :compile (format "make -C %s mla-install" proj-root)))
```

The `:compile` value in this example is a shell command that passes the `mla-install` target to a project-specific `Makefile`. The associated rule in the `Makefile` presumably builds and installs the Maple library archive, `Bark.mla`.

10 Mint

Mint is Maple's syntax checker. It analyzes a Maple program and produces a report about the syntax and variable usage. MapleV can run `mint` on the entire buffer or a portion of it. The output of mint is displayed in a buffer with a special mode, `mint-mode`, that provides a convenient means for locating and correcting syntax errors.

To allow Emacs to run `mint`, the `:mint` and `:mint-options` fields of `maplev-config` must be properly configured. See Chapter 9 [Configuration], page 15.

10.1 Running mint

The following commands send source code in the buffer to `mint`:

C-c RET b Run `mint` on the buffer (`mint-buffer`).

C-c RET p Run `mint` on the current procedure (`mint-procedure`).

C-c RET r Run `mint` on the marked region (`mint-region`).

C-c RET RET
: Rerun the previous `mint` command (`mint-rerun`).

These commands are available through the menubar, *MapleV -> Mint*. The following variables affect the output of `mint`:

`mint-info-level`
: An integer from 0 to 4 that selects the amount of information displayed by `mint`. 0 displays no information, 4 displays the most. The default value is 3. This value can be set through the menubar, *Maplev -> Mint -> Mint level*.

`mint-coding-system`
: Symbol that defines the coding system used by `mint`. The default value is `undecided-dos`.

10.2 Mint mode

Mint mode is applied to mint's output buffer. Warnings and errors are font locked and activated. Moving the mouse pointer over active text highlights it; clicking it (*mouse-1*) either moves the cursor to the appropriate point in the source code or queries to automatically correct an error.

The following commands are available:

s Incremental forward search (`isearch-forward`).

r Incremental backward search (`isearch-backward`).

`RET` Re-execute the previous mint command (`mint-rerun`).

`DEL` Scroll down (`scroll-down`).

`SPC` Scroll up (`scroll-up`).

mouse-1 Goto location in source, or fix error, depending on the active text.

The following variables set the display faces for the highlighted text in the mint buffer:

`mint-proc-face`
: Face for procedure names.

`mint-warning-face`
: Face for warnings.

`mint-error-face`
: Face for errors.

`mint-note-face`
: Face for notes (usually '`on line`').

11 Maple

The command line version of Maple can be started in a buffer. All or portions of the code in the MapleV buffer can be passed directly to the Maple process. Maple commands can be directly executed in the buffer.

11.1 Running Maple

The following commands in the MapleV buffer affect the Maple engine:

C-c C-c b Send the entire buffer to the Maple engine (`cmaplev-send-buffer`).

C-c C-c p Send the current procedure to the Maple engine (`cmaplev-send-procedure`).

C-c C-c r Send the marked region to the Maple engine (`cmaplev-send-region`).

C-c C-c g Goto the Maple buffer (`cmaplev-goto-buffer`).

C-c C-c i Interrupt the Maple engine (`cmaplev-interrupt`).

C-c C-c k Kill the Maple engine (`cmaplev-kill`).

These commands are available through the menubar, *MapleV -> Maple*.

11.2 Cmaple mode

The command line version of Maple is run in a buffer with the mode `cmaple-process-mode` that is based on `comint-mode`. See Info file `emacs`, node '`Shell Mode`' for more information. In addition to the normal `comint` commands, the following commands are available:

?

C-? Display a Maple help topic (see Chapter 12 [Help pages], page 20).

M-? Display a Maple expression (see Chapter 13 [Viewing], page 21).

12 Help pages

Help pages can be read from the Maple help databases and displayed in a buffer with major mode `maplev-help-mode`. Text in the buffer is highlighted and cross references are activated.

12.1 Displaying help pages

The following commands display Maple help pages:

C-? Query for a help topic, using the word at point as a default. Display the help page in a buffer (`maplev-help-at-point`).

S-mouse-2
Display the Maple help page for the topic at the click (`maplev-help-follow-mouse`).

Help pages are displayed in a buffer with major mode `maplev-help-mode`.

12.2 MapleV help mode

The major mode `maplev-help-mode` is active in the buffer that displays Maple help pages. Section headers are font locked and text in the '`See Also`' section is activated so that clicking on it opens the help page for the topic. The following commands are available:

s Incremental forward search (`isearch-forward`).

p Previous help topic (`maplev-prev-item`).

n Next help topic (`maplev-next-item`).

P Parent help topic (`maplev-help-parent`).

r Redraw help page (`maple-redo-item`).

?
C-?
RTN Query for a help topic (`maplev-help-at-point`).

M-? Query for a procedure (`maplev-proc-at-point`).

SPC Scroll down.

DEL Scroll up.

MapleV help mode keeps a history of the help topics displayed. Use the command `maplev-clear-history` to erase the history.

The help page for a chosen topic is displayed by sending the string '`?TOPIC`' to the Maple engine and capturing the output. If the Maple engine is busy an error message, '`Maple busy`', is displayed in the message window.

13 Viewing

Maple code for modules and procedures stored in Maple libraries, or otherwise known to Maple, can be displayed in a buffer with major mode `maplev-view-mode`. The code is font-locked the same as in MapleV mode.

13.1 Displaying procedures

The following commands display Maple procedures:

M-?
: Query for a procedure name, using the word at point as the default. Read the procedure from the Maple library and display it in a buffer (`maplev-view-at-point`).

M-S-mouse-2
: Read the procedure at the click from the library and display it in a buffer (`maplev-view-follow-point`).

Procedures are displayed in a buffer with major mode `maplev-view-mode`.

13.2 MapleV view mode

The major mode `maplev-view-mode` is active in the buffer that displays Maple modules and procedures read from a Maple library. It font-locks the code, highlighting keywords the same as MapleV mode does. Clicking on a name in the buffer displays its source code or opens a help page for them. A history mechanism stores the previously displayed procedure.

The following commands are available:

s
: Incremental forward search (`isearch-forward`).

p
: Previous procedure (`maplev-prev-item`).

n
: Next procedure (`maplev-next-item`).

r
: Redraw procedure (`maple-redo-item`).

?
C-?
RTN
: Query for a help topic (`maplev-help-at-point`).

M-?
: Query for a procedure (`maplev-view-at-point`).

SPC
: Scroll down.

DEL
: Scroll up.

MapleV help mode keeps a history of the help topics displayed. Use the command `maplev-clear-history` to erase the history.

A procedure is read from a library and displayed by using the Maple procedure '`maplev_print`' that is assigned when the Maple engine is started. If the Maple engine is busy an error message, '`Maple busy`', is displayed in the message window.

Appendix A Installation

This section describes how to install MapleV into GNU Emacs.

A.1 Emacs Files

Install the Emacs lisp files, those with extension `.el`, into the directory `~/.emacs.d/maple`. The tilde, `~`, corresponds to your home directory.

Byte-compile them from Emacs with the command

C-u 0 M-x byte-recompile-directory RET ~/emacs.d/maple RET

Add the following line to your `.emacs` file

```
(add-to-list 'load-path (concat user-emacs-directory "maple"))
(autoload 'maplev-mode "maplev" "Maple editing mode" 'interactive)
```

To have Emacs auto-magically start in MapleV mode when editing Maple source, add the following to your `.emacs` file, modifying the regular expression as needed.

```
(setq auto-mode-alist
      (cons '("\\.mpl\\'" . maplev-mode) auto-mode-alist))
```

A.2 Maple Files

A Maple archive file, `maplev.mla`, containing code used by `maplev-view`, is provided with the distribution. If desired it can be rebuilt from source by removing the existing file and executing

```
maple maple/maplev.mpl
```

The file `maplev.mla` should be installed at `~/maple/toolbox/emacs/lib`.

A.3 Customizing

Some of MapleV's default settings must be customized for your installation. Most significantly, you must specify the locations of the executable files for `mint` and `maple`, the command-line version of Maple. Multiple versions of `mint` and `maple` can be assigned and selected. The easiest method is to invoke `customize` using the following commands:

```
M-x load-library RET maplev RET
M-x customize-group RET maplev RET
```

Select the **MapleV Executables** subgroup and customize `maplev-executable-alist`. It is a list of sublists. Each sublist contains four items: an identifier, the path to the Maple tty executable, the path to the a Maple initialization file, and the path to the `mint` executable. An example of a sublist is

```
("maple17" "/usr/local/maple17/bin/maple" nil "/usr/local/maple17/bin/mint")
```

The identifier is arbitrary. To determine the name and path to the `maple` and `mint` executables, launch `maple` and execute `kernelopts(mapledir)`, that returns the directory in which Maple is installed.

On Linux or Mac, the shell commands are locate in the `bin` subdirectory of the installed directory and are named `maple` and `mint`.

On Windows the shell commands are usually in the `bin.wnt` subdirectory of the installed directory and are named `cmapleXXXX.exe` and `mintXXXX.exe`, where `XXXX` is the Maple release. When entering the path to the binaries, use forward slashes (`/`) as the directory separators.

After setting the values, click the '`Apply and Save`' button.

A.4 Info documentation

Install the included `maplev.info` file to a directory in the Info load path and then edit the `dir` to point to it. I add the following menu item to my `dir` file:

```
* MapleV: (maplev).       MapleV reference manual.
```

Appendix B Evolution

B.1 Bugs

If you encounter a bug in this package, wish to suggest an enhancement, or want to make a smart remark, then send an email to me:

Joseph S. Riel (Joe Riel) `jriel@maplesoft.com`

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