EMACS Extensions

That you too might find useful

2010   Igor Lapitski, Hyde Park

"Emacs is not an editor.   Emacs is a way of thinking about the world, and as such is a way of thinking about editors. When you ask what Emacs does, you are asking a question with no answer, because Emacs doesn't do, it is done to. Emacs just is ... I hope this makes things clearer." –

Scott Dorsey

Why is it called – Emacs?
The name 'Emacs' was originally chosen as an abbreviation of **E**ditor **MAC**ro**S** and was created by Free Software Foundation.

__This document includes highlights of some new and existing features and fine points in this customised version of Emacs.__
This customised version based on the Smallworld additions to Emacs issued with GE Smallworld 4.0.

 All comments and suggestions please forward to <igor@hydepark-consulting.com> . You can download this Emacs from www.hydepark-consulting.com/Emacs .

- Custom Toolbar and Tab-bar (use <Ctrl-Tab> to navigate between tabs).
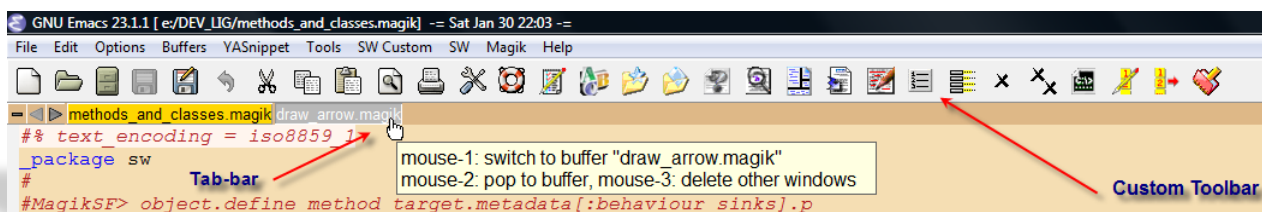
- Save/Restore editing Sessions, which allows you with one click of a button to load multiple files from a previous closed editing session. Even a cursor positions in the open files will be preserved from the previous session.
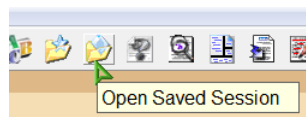
- **Dynamic Abbreviation** - it is standard function in the Emacs, but, from my experience, not everybody knows about. It is allowing you to write just a few characters of words you've written earlier to be able to expand them. Possible completions searched in the text in the current buffer, and if not found there, in all open buffers. To expand a word, just put the point right after the word and press **<Alt-/>**. As soon as you start typing – you are able to use this feature. Typing a next letter will automatically narrow your possible completions.

- **Dynamic Abbreviation with Expansion of Multiple choices** – press the same key second time and you will get a multi-choice candidates in a tooltip.

- **Predictive Abbreviation**. It's fairly similar to Dynamic Abbreviation expansion, which works based on the contents of the current buffer (or other buffers). Predictive abbreviation expansion works based on the previously written text. Unlike Dynamic Abbreviation, the text is analysed during idle time, while Emacs is doing nothing else. As you type you will be offered possible expansion for the word at the left from the cursor position. Typing new characters will automatically offer different completion. If the correct completion is offered – just press **<Tab>** to complete the word. Light blue colour indicates that there are possible different candidates for the expansion. To see other candidates – press **<Tab>** once again and choice of possible completions will be shown. If the completion is shown in the dark blue colour – that's mean this is the only possible candidate.

- <mark>Auto Complete</mark> - provides a way to complete any strings you expected by a graphical pull down menu. It looks like what Visual Studio provides as IntelliSense, Eclipse provides as CodeAssist. It is not configured to start automatically, you will need to use <mark><Alt-[></mark> to get Auto Complete menu and <mark><Alt-]></mark> to close it if you not finding suitable candidate. But it is possible to configure that Auto Complete will start automatically after you typed few characters. If this is enabled – then you will see the list of possible completions as you type. Use <Tab> to navigate through the list.
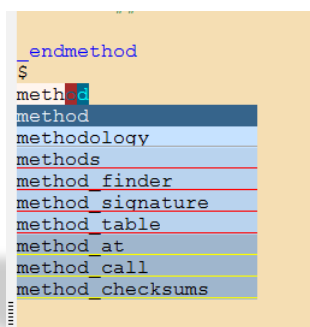
Auto Complete unlike previous expansion tools working with the Method Finder. All possible candidates are shown from the <mark>Classes and Methods available in the current application image</mark>.   Candidates are shown in accordance with the code font locking – Classes fetched by the Method Finder underlined in <mark>red</mark>, Methods found by the Method Finder underlined in <mark>yellow</mark>, words found in open buffers shown without underlining.

I am planning to place ON/OFF toggles on the Toolbar for Auto Complete and Predictive Abbreviation modes in order for users to decide which mode is preferable.
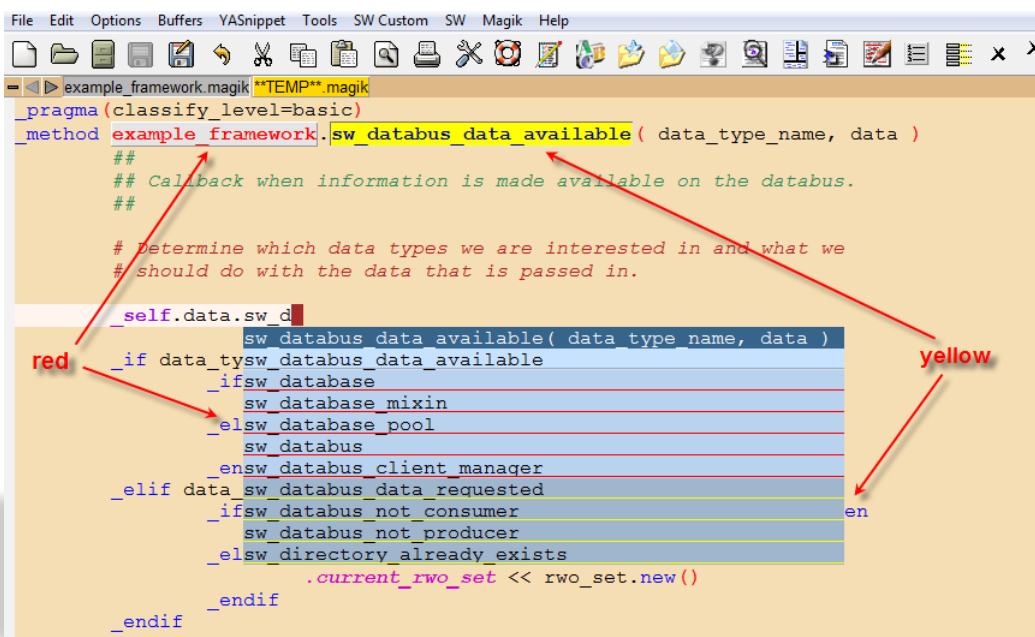
- <mark>Automatic insertion of corresponding ({[and ".</mark> Thus typing `(' will normally insert `()' and put cursor between them. Otherwise, when the <mark>region</mark> is active, it will be <mark>wrapped in the parentheses</mark>.

- Use <mark>Options menu</mark> to activate/deactivate those modes.

- <mark>Highlight text matching PATTERN</mark>. Examples: In a source code highlight a variable to quickly see all places it is modified or referenced. New occurrences of that variable will be highlighted as they are typed. In a *gis* or other buffer that is showing lots of output, highlight the parts of the output you're interested in. Those patterns will be highlighted as soon as they appear in the buffer. Useful if you have a lot of output during debugging. This option is located on the <mark>Edit menu</mark>.
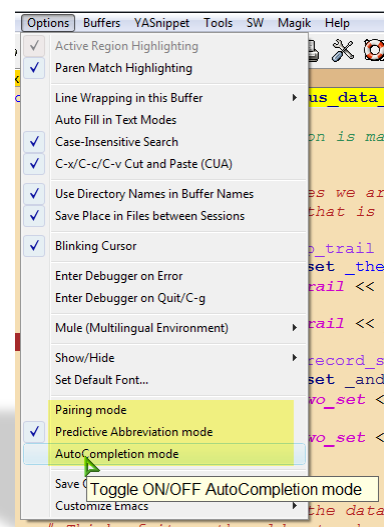
- Additional menu item for visiting files that were operated on recently
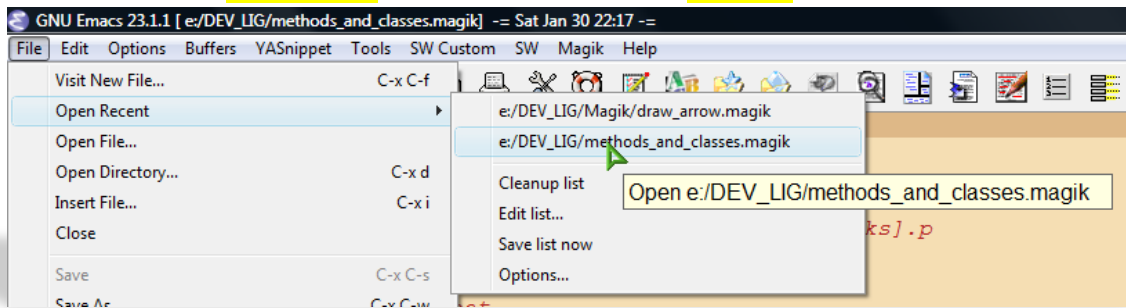
- Snippets for Magik. It allows you to type an abbreviation and automatically expand it into function templates (similar to electric-magik). Navigation between snippet fields – using <Tab>. Templates will expand automatically as you type them and they are available via menu too.
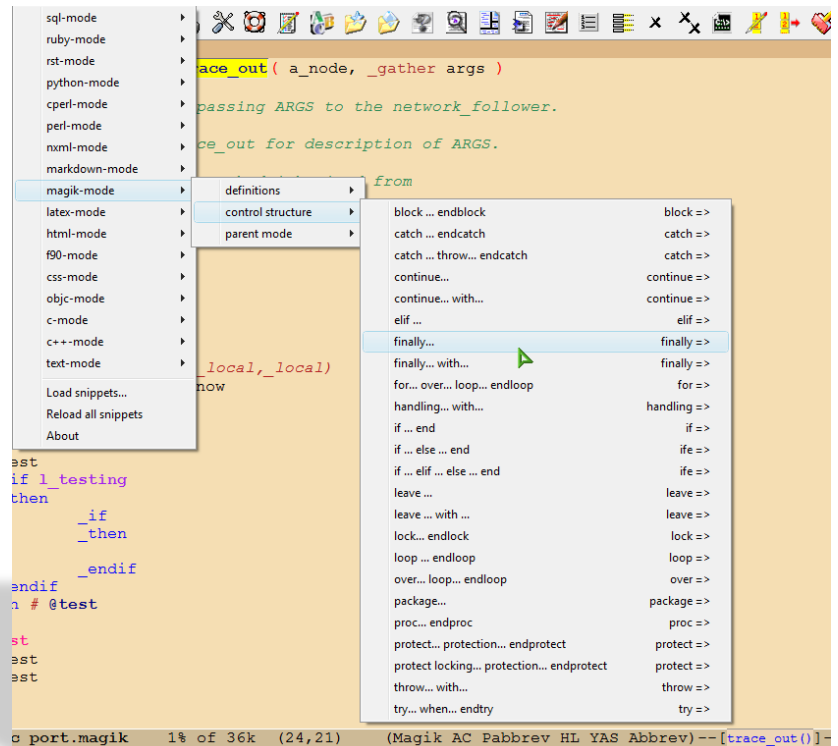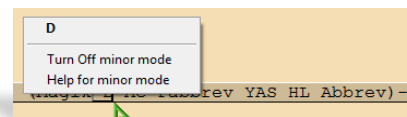

- Dedicated mode - when a buffer is "dedicated" or locked, Emacs will not select files into that buffer. Dedicated buffers will have "D" shown in the mode line and marked lock icon. I found it very useful to lock the *gis* buffer. NOTE: All minor modes are shown in the mode line and you can use mouse to switch it OFF or get Help on the specific mode.

- NXML <-> SGML/XML mode switch
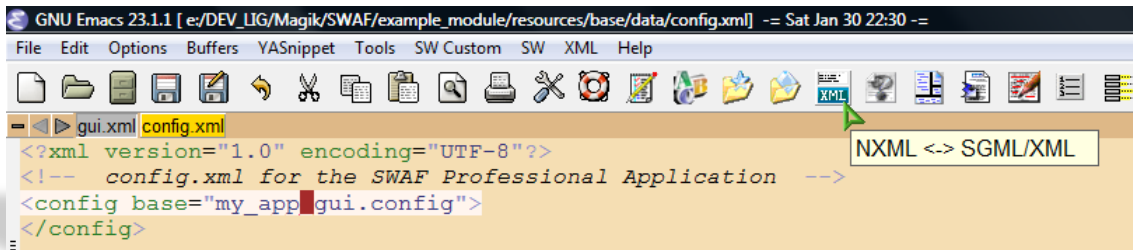
- Class Browser – F3-j / F3-b – allows you to go back in the File Navigation history, so you are able to return to the point in a code where you came from during your F3-j key journey.
- F4-m / F12-m – copy current magik method to the Work (**Temp**.magik) buffer. Very helpful while making temporary changes in the code or just testing/debugging.
- F2-b – to compile message files <*.msg> directly from Emacs.
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- ECB – Emacs Code Browser which displays a number of informational windows that allow for easy source code navigation and overview.
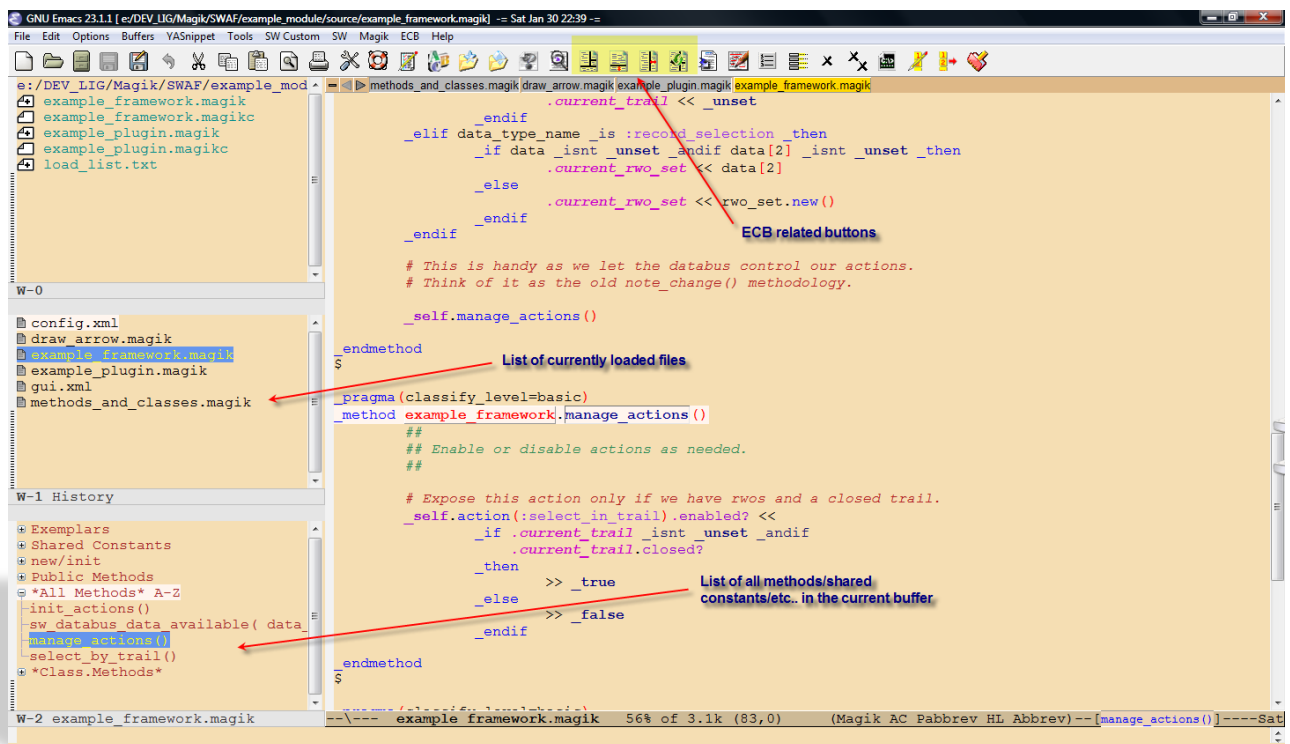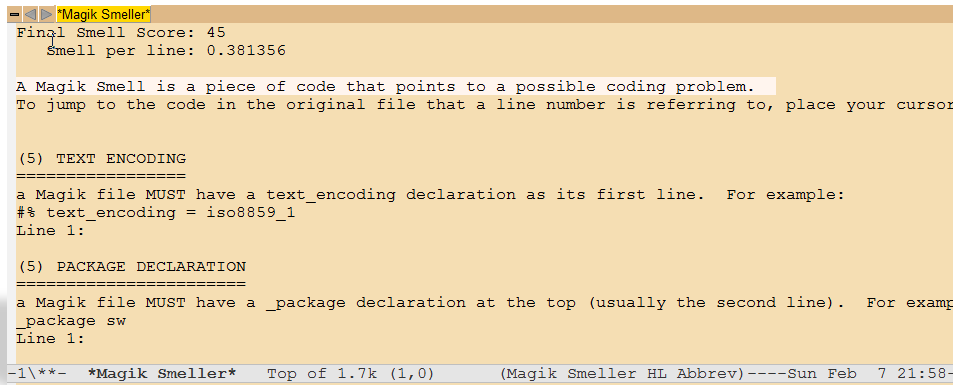
- Integration with an External Editor. This will allow you to load the file from the Emacs, if necessary, into an external editor of your choice to do some additional editing/searching or other file manipulations.

Edit with Ext. Editor
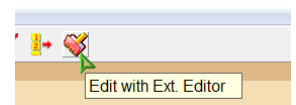
- <mark>Magik Smeller</mark>, which helps you to find possible problems in the code. A tool to interactively report actual or possible code syntax problems that are acceptable to the Magik compiler but do not meet development standards or may be considered inefficient.

  A new buffer called ***Magik Smeller*** will appear showing a list of all possible code "smells", their line number in the Magik file and a short description. To jump back to a line of code that has been reported as a smell, place your cursor on that line in the ***Magik Smeller*** and press "**F3-j**".
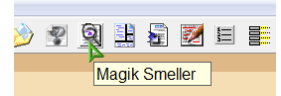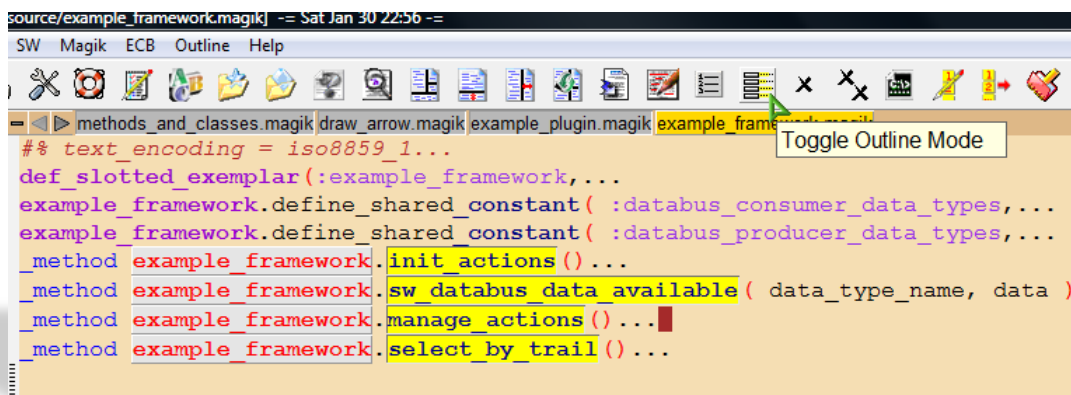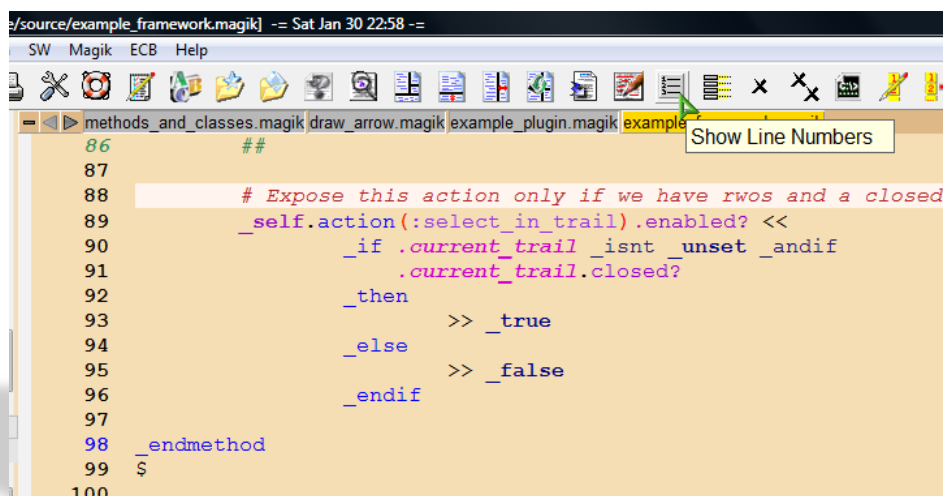

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- <mark>Print in colour or black&white</mark> directly from the Emacs. Preview in colour – will create HTML page with current fontlocking highlights in the code.
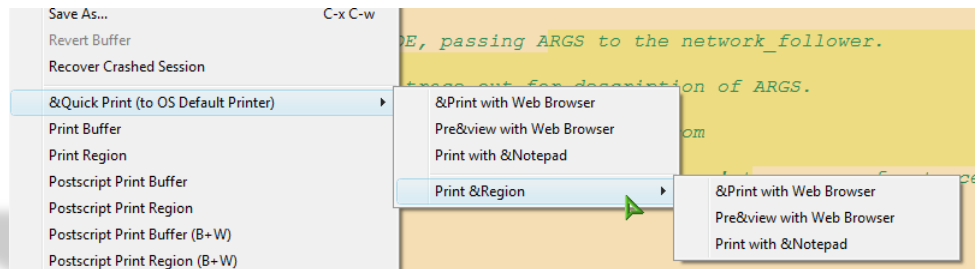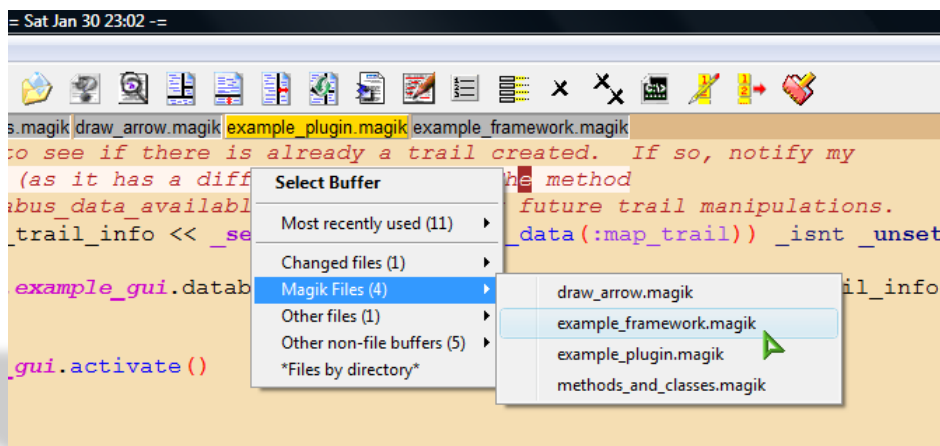

- <mark>Outline mode</mark> for Magik files. Using keys <mark><Alt>+Up/Down</mark> in the Outline mode the Magik file can be collapsed to display only the method names and methods can be unfolded one by one for editing.
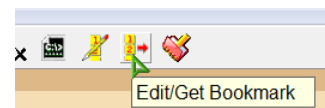
- Show/hide Line numbers in a buffer.

- Buffer selection- <Ctrl>+<left mouse button> will bring up the floating menu at the cursor position OR use <Ctrl>+<Tab> to navigate between tabs in the Tab-bar.

- Save all file backups (*.magik~) in the single configurable directory (system %TEMP% – by default).

- Use icons to work with bookmarks OR use 'breadcrumbs' <Esc-Spc> or <Alt-Spc> - a series of breadcrumb bookmarks with quick cycling though them using <F5-b>. Bookmarks are persistent across Emacs editing sessions.

- <mark>Method name in the mode</mark> line always visible

- Show <mark>Methods menu</mark> allowing quickly navigate between methods.

- Additional <mark>highlighting</mark> during the incremental search
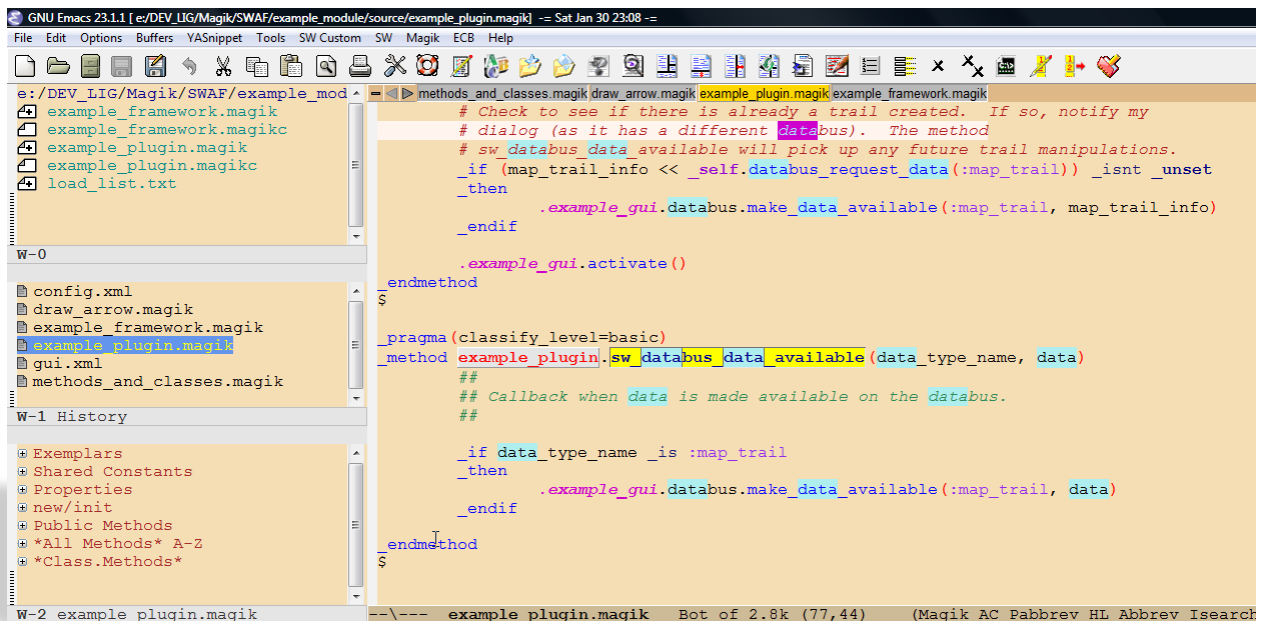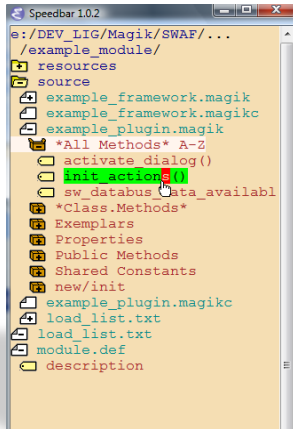
- **Speedbar (F11)** - a special skinny frame with a specialized directory listing in it. This listing will have both directories and filtered files in it. You can then load files into your Emacs buffer, or expand the files to display all the methods/progs/constants/…. in them and jump to those tags. You can also expand multiple directories into your Speedbar frame.

- Use **'Alt-x all <Enter>'** or the icon to list\EDIT all lines matching a given regexp in *All* buffer. ***Changes made in the *All* buffer is propagated to the original buffer.*** Use **'F3-j'** from *All* buffer to go to a match in the original file. **Note that changes to the `*All*' buffer are propagated back to the original buffer.**
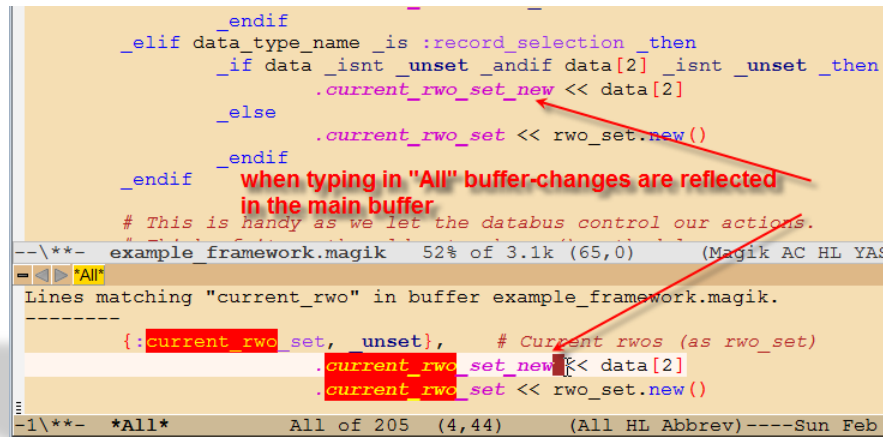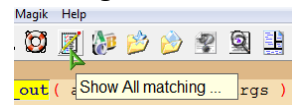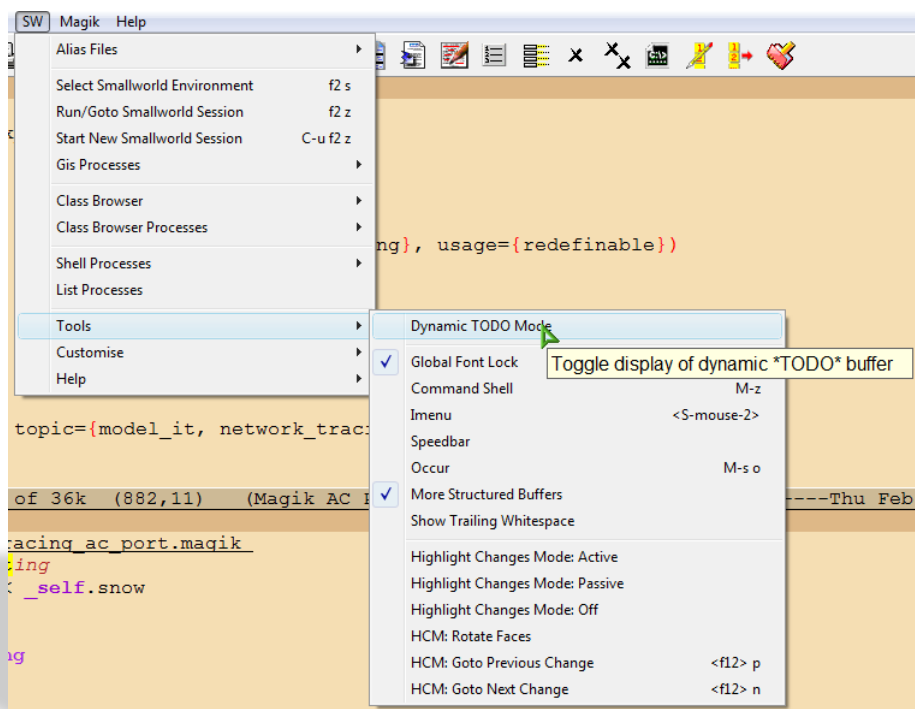

- While you have a file loaded in to the Emacs buffer pressing **<F12-F12>** will open Windows Explorer in the directory of the current file.
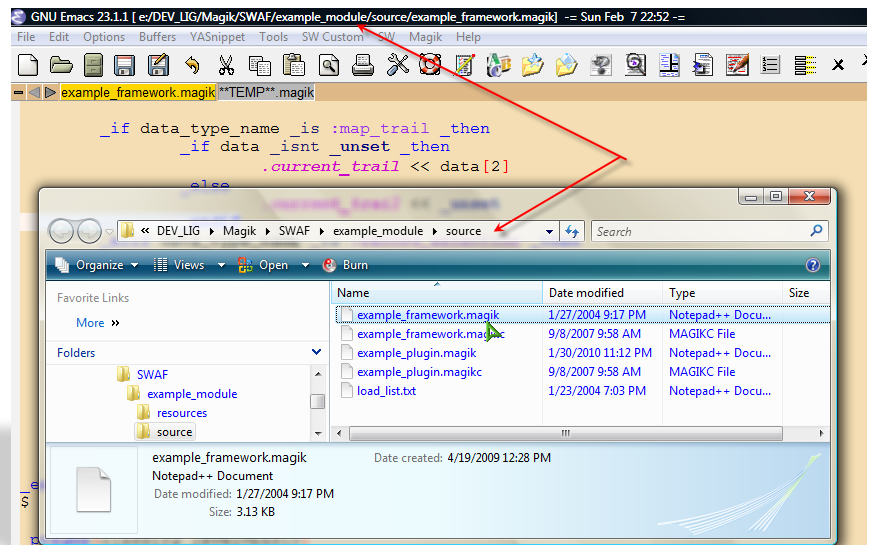
- <mark>Magik code folding</mark> – where large blocks of code can be distracting. With the code folding feature you can hide the code not important to your current work. Code folding cleans your work space. Use <Ctrl-.> key to hide the block of code while your cursor is inside the desired block.
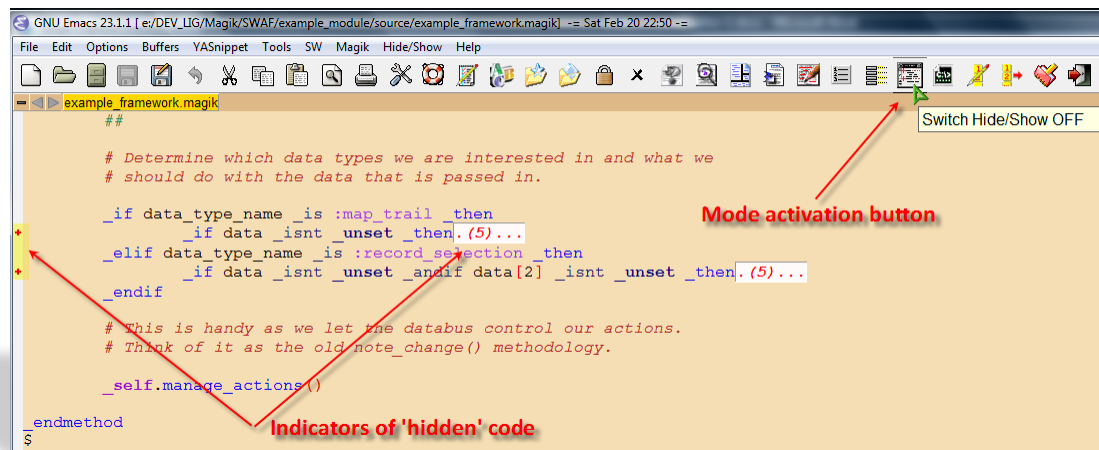
- Use set of <mark>very useful Tools</mark> available on the SW menu.

- Magik Language Reference available within Emacs.

- Use %USER_EMACS% environment variable in gis_aliases to load your local Emacs settings, like

  (setq programmer-tag "User Name, Company Name")

  (setq project-name "Project Name")

 (setq programmer-time-stamp-format "%:y-%02m-%02d"); %02H:%02M:%02S")

- [Alt-n] to insert-programmer-note;

  [Alt-m] to insert-programmer-modified-note;

  [Alt-c] to insert-change-note around selected block – just select the block of code and press <Alt-c> and note change comments will be placed around the selected code; OR just use this to create a note change.

[Alt-h] to insert-method-comment;

- **Save/Restore Emacs Sessions**. That allows you to organize your different projects into "sessions". Each Session has a name (file name). When you 'Save Session', the list of all opened files is saved into the current session and all the files you were editing will be reloaded the next time you 'Restore Session'. This allows you to keep different files open in different Emacs sessions. By using 'Save/Restore Session' you are activating 'Session auto-saving mechanism' - on Emacs exit current Session will be saved automatically.
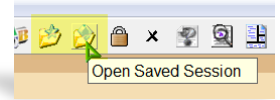
- To make prominent marks in '*gis*' buffer or comments in 'Magik' buffer use '@' at the beginning of the   line in '*gis*' buffer and '#@' in 'Magik' buffer. I found this useful when you have a lots of output in the *gis* buffer and you need to see specific line – just use this in your code *write("@Important info: ", a_variable)* and you will be able to see this line in the output very clearly.

```
# Determine which data types we are interested in
# should do with the data that is passed in.

#@ This is the comment that I want to see
#@ Review
_if data_type_name _is :map_trail _then
        _if data _isnt _unset _then
                .current_trail << data[2]
        _else
                .current_trail << _unset
```

- Use F2-b to send <*.msg> file to running GIS buffer. This will load current *.msg file into an open currently image.

- Emacs will display highlighting on whatever parenthesis matches the one before or after point. See message in Minibuffer describing the match when the matching parenthesis is off-screen. Message contains the linenumber.

```
                              :enabled?, _false,
                              :action_message, :select_by_trail|()|))
   endmethod
--\**-  example framework.magik   39% of 3.2k (47,72)    (Magik ns+ AC Pabbrev
Matches         self.add action(... [-7-]
```

- Use 'Ctrl-TAB' to switch\cycling between Emacs buffers.

- When using <Ctrl-x/Ctrl-b> to bring up Buffer Selection Menu – use following keys : <c> - to change the configuration; <s> - to save buffers marked with '*' ; <d> - to delete buffer

- List of key-bindings which might be useful in everyday Emacs operations with Smallworld environment:

<f2> RET	magik-transmit-thing	<f3> /	cb-and-clear
<f2> SPC	explicit-electric-magik-space	<f3> ?	cb-help
<f2> #	magik-comment-region	<f3> b	cb-jump-back
<f2> $	magik-transmit-$-chunk	<f3> c	cb-paste-class
<f2> X	dev-tools-object-inspector	<f3> d	toggle-transmit-magik-debug-p
<f2> b	magik-transmit-buffer	<f3> j	cb-jump-to-source
<f2> h	magik-heading	<f3> m	cb-paste-method
<f2> m	magik-transmit-method	<f3> <f3>	cb
<f2> q	fill-magik-public-comment		
<f2> r	magik-transmit-region	<f4>	magik-f4-map
<f2> t	magik-trace-curr-statement	<f4> c	magik-copy-method
<f2> x	deep-print	<f4> d	dev-tools-vsd-transmit-method
<f2> <down>	forward-method	<f4> e	magik-ediff-methods

<f2> <f7>	magik-transmit-method		<f4> m	magik-copy-method-to-buffer
<f2> <f8>	magik-transmit-region		<f4> n	magik-set-work-buffer-name
<f2> <up>	backward-method		<f4> o	dev-tools-object-inspector
<f2> M-#	magik-uncomment-region		<f4> r	magik-copy-region-to-buffer
<C-f2>	magik-translate-old-vec-notation		<f4> s	magik-add-debug-statement
<f2> TAB	hippie-expand		<f4> w	magik-compare-methods
<f2> e	electric-magik-mode		<f4> <f4>	magik-symbol-complete
<f2> k	sw-reload-dotemacs		<f4> b	bury-buffer
<f2> s	gis-version-selection		<f4> g	goto-line
<f2> z	gis		<f6>	magik-copy-method
<f2> g	gis		<f7>	magik-transmit-method
			<f8>	magik-transmit-region
			<f9>	magik-mark-method
<M-Spc>	set breadcrumb bookmark		<f11>	speedbar-get-focus
<M-f5>	breadcrumb-list		<f12> -	ecb-cycle-maximized-ecb-buffers
<f5> b	breadcrumb-next			
<f5> d	bookmark-delete		<f12> =	ecb-maximize-window-methods
<f5> e	edit-bookmarks		<f12> b	ecb-minor-mode
<f5> j	edit-bookmarks		<f12> c	ecb-toggle-compile-window
<f5> l	bookmark-load		<f12> e	send-file-to-external-editor
<f5> m	bookmark-set		<f12> h	ecb-toggle-compile-window-height
<f5> s	bookmark-write			
			<f12> q	ecb-redraw-layout
<f12> x	switch-xml-mode		<f12> r	ecb-restore-window-sizes
<f12> <f12>	w32shell-explorer-here		<f12> t	ecb-toggle-layout
<f12> m	magik-copy-method-to-buffer		<f12> u	ecb-rebuild-methods-buffer
<f12> n	highlight-changes-next-change		<f12> w	ecb-toggle-ecb-windows
<f12> p	highlight-changes-previous-change			
<M-/>	dabbrev-expand		<M-S-down>	buf-move-down
<M-d>	close window		<M-S-left>	buf-move-left
<M-b>	move cursor to another window		<M-S-right>	buf-move-right
<M-f>	move cursor to another frame		<M-S-up>	buf-move-up
<M-m>	insert-programmer-modified-note		<M-c>	insert-change-note
			<M-h>	insert-method-comment
<M-n>	insert-programmer-note		<C-Tab>	toggle between files

- For customisation of the empty magik file header and method comment – make necessary changes in the <~\site-lisp\custom-lisp\custom-magik-info.el> file.

Many of those settings are possible to customise, use the menu SW->Customose->Customise Smallworld Emacs.

The background colour of the custom version of the Emacs (wheat) also possible to change. All custom settings will be saved in the <.emacs-custom> file in your %HOME% directory. See http://www.hydepark-consulting.com/Emacs/ Emacs_colours.pdf for all possible colours.