





Emacs support for Python ⚠️

| Description  | Keystroke   | Function   | Note   |
|--|---|--|--|
| Python Support   | <p>Python support is very basic, it is not yet fully implemented nor fully documented. This is currently evolving.</p> <p>👤 Important aspects of Python source code management are customizable with PEL user option variables.</p> <p><b>PEL customization for Python:</b></p> <ul style="list-style-type: none"><li>Emacs customization group: <b>pel-pkg-for-python</b> (To edit change, use <b>&lt;f12&gt; &lt;f2&gt;</b> , see below).<ul style="list-style-type: none"><li><b>pel-python-tab-width</b>: The width of a tab used for c-mode files. Defaults to 4.<ul style="list-style-type: none"><li>This concept differs from indentation: you can have an indentation of 3 and tab width of 8: <b>M-i</b> will move point to columns that are multiple of 8 <b>&lt;tab&gt;</b> will indent to a column that is a multiple of 3. PEL stores this value inside the <b>tab-width</b> variable for python-mode buffers.</li></ul></li></ul></li><li>The values for those user option variables can also be stored inside directory local files and even as file local variables. You can also modify them for each buffer and view their current settings using the commands listed in the following set of rows. See <a href="#">🔗 File/Directory Variables</a> for more info.</li><li>None of the commands below change PEL default; they change the value for the current buffer only.</li></ul> <p>📖 PEL provides the following set of <b>mode-specific key prefixes</b>:</p> <ul style="list-style-type: none"><li><b>&lt;f11&gt; SPC p</b></li><li><b>&lt;f12&gt;</b></li><li><b>&lt;M-f12&gt;</b></li></ul> <p>The first one is always available. The other two prefixes are only available in c-mode buffers. The <b>&lt;M-f12&gt;</b> prefix helps the typing flow when the next key is a Meta key. For simplification, the <b>&lt;f11&gt; SPC p</b> prefix is normally omitted in the table.</p> |  |  |
| Open this PDF file. See also: <a href="#">🔗 Help/Info</a>                                  | <b>&lt;f11&gt; SPC p &lt;f1&gt;</b>   | (pel-help-pdf & optional OPEN-WEB-PAGE)                        | Open the local copy of the <b>📖 - Python</b> PDF file unless a command prefix (like <b>C-u</b> ) was used. In that case it opens the Github-hosted file instead.   |
| <a href="#">🔗 Customize</a> PEL Python support   | <b>&lt;f11&gt; SPC p &lt;f2&gt;</b>   | (pel-customize-pel & optional OTHER-WINDOW)                    | Customize PEL Python support: python, python-flymake.  |
|  | <b>&lt;f12&gt; &lt;f2&gt;</b>   |  | <ul style="list-style-type: none"><li>If OTHER-WINDOW is non-nil (use <b>C-u</b>), display in another window.</li></ul>  |
| <a href="#">🔗 Customize</a> Emacs Python support   | <b>&lt;f11&gt; SPC p &lt;f3&gt;</b>   | (pel-customize-library & optional OTHER-WINDOW)                | Customize Emacs Python support: python, python-flymake.  |
|  | <b>&lt;f12&gt; &lt;f3&gt;</b>   |  | <ul style="list-style-type: none"><li>If OTHER-WINDOW is non-nil (use <b>C-u</b>), display in another window.</li></ul>  |
| Comments   |   |  |  |
| Toggle display of comments in buffer or active region See also: <a href="#">🔗 Comments</a> | <b>&lt;f11&gt; ; ;</b>  | (hide/show-comments-toggle & optional START END)               | Toggle hiding/showing of comments in the active region or whole buffer. <ul style="list-style-type: none"><li>If the region is active then toggle in the region. Otherwise, in the whole buffer.</li></ul> <p>📦 This requires the <a href="#">hide-comnt.el</a> package (see <a href="#">🔗 Comments</a>). <a href="#">👤</a> PEL activates it when the <a href="#">pel-use-hide-comnt</a> user option is t.</p>   |
| Navigation   | The following navigation commands are specialized for Python and complement what is described in the <a href="#">🔗 Navigation</a> section.  |  |  |
| Find definitions using iMenu   | <ul style="list-style-type: none"><li><b>C-c C-j</b></li></ul>  | (imenu INDEX-ITEM)   | Opens the imenu buffer in the minibuffer window with a list of all definitions. <ul style="list-style-type: none"><li>This provides the same list as the MenuBar Index: the list of important entry points in the file.</li><li>Use TAB completion to select entry: on TAB, lists all top level function and classes. Type the name of the class than a period and TAB lists all members of the class.</li></ul>   |
| <ul style="list-style-type: none"><li>by block</li></ul>                                   | The following commands move point through Python code blocks  |  |  |
| Go backward to beginning of the previous block of code                                     | <b>M-a</b>  | (python-nav-backward-block & optional ARG)                     | Go backward to the beginning of the previous block of code (if there is one). <ul style="list-style-type: none"><li>Blocks are the following statements: if, else, for, while, def, class, ...</li><li>With ARG, repeat.</li><li>Shift marking is available</li></ul>  |
| Go forward to the beginning of the   | <b>M-e</b>  | (python-nav-forward-block & optional ARG)                      | Go forward to the next block of code <ul style="list-style-type: none"><li>Blocks are the following statements: if, else, for, while, def, class, ...</li><li>With ARG, repeat. With negative argument, move ARG times backward to previous block.</li><li>Shift marking is available</li></ul>  |
| Go up in the block hierarchy   | <ul style="list-style-type: none"><li><b>C-M-u</b></li><li><b>C-M-&lt;up&gt;</b></li><li><b>C-[ C-u</b></li><li><b>Esc C-u</b></li><li><b>Esc C-&lt;up&gt;</b></li></ul>  | (python-nav-backward-up-list & optional ARG)                   | Go backward out of one level of parentheses (or blocks). <ul style="list-style-type: none"><li>With ARG, do this that many times.</li><li>A negative argument means move forward but still to a less deep spot.</li><li>This command assumes point is not in a string or comment.</li><li>⚠️ With PEL: if you want to use <b>Esc C-&lt;up&gt;</b> binding you must ensure that <b>pel-windmove-on-esc-cursor</b> user option is set to nil.</li><li><b>C-M-u</b> : ➡ Shift marking is available in graphics mode, <b>not in terminal mode</b>.</li><li><b>C-M-&lt;up&gt;</b> : ➡ Shift marking works with this command.</li><li>❖ <b>C-M-&lt;up&gt;</b> does not work on Windows, but <b>R-&lt;up&gt;</b> does.</li></ul>  |
| <ul style="list-style-type: none"><li>by class/ function definition</li></ul>              | The commands move point by function and class definitions. <p>👉 The <b>&lt;f6&gt;</b> cursor key mappings use <b>&lt;up&gt;</b> and <b>&lt;down&gt;</b> to move to the beginning of the function/class definition, and <b>&lt;left&gt;</b> and <b>&lt;right&gt;</b> to the end of the function/class definition.</p> <p>⚠️ These work with function definitions and allow moving forward to the end of a class definition, but not backward to the beginning or end of a class definition. 🚧</p>  |  |  |
| Backward to beginning of function definition   | <ul style="list-style-type: none"><li><b>C-M-a</b></li><li><b>C-M-&lt;home&gt;</b></li><li><b>&lt;f6&gt; p</b></li><li><b>&lt;f6&gt; &lt;up&gt;</b></li><li><b>C-[ C-a</b></li><li><b>Esc C-a</b></li></ul>   | (beginning-of-defun & optional ARG)                            | Move backward to the beginning of a defun. <ul style="list-style-type: none"><li>With ARG, do it that many times. Negative ARG means move forward to the ARGth following beginning of defun.</li><li>➡ Shift marking is available in graphics mode, <b>not in terminal mode</b> (for <b>C-M-a</b> and <b>C-M-&lt;home&gt;</b>). However <b>&lt;f6&gt; p</b> handles Shift-marking fine in terminal mode.</li><li>⚠️ This command moves to the beginning go the next function or of the same nesting level of the current location. It skips the functions and methods that are more deeply nested.</li></ul>   |
| Forward to end of function and class definition  | <ul style="list-style-type: none"><li><b>C-M-e</b></li><li><b>C-M-&lt;end&gt;</b></li><li><b>&lt;f6&gt; &lt;right&gt;</b></li><li><b>C-[ C-e</b></li><li><b>Esc C-e</b></li></ul>   | (end-of-defun & optional ARG)                                  | Move forward to next end of defun. With argument, do it that many times. Negative argument -N means move back to Nth preceding end of defun. <ul style="list-style-type: none"><li>➡ Shift marking is available in graphics mode, <b>not in terminal mode</b> (both keys).</li><li>⚠️ This command moves to the end of the next <b>top-level</b> function or class. It skips the nested functions and methods.</li></ul>   |
| Forward to start of next function definition   | <ul style="list-style-type: none"><li><b>&lt;f6&gt; n</b></li><li><b>&lt;f6&gt; &lt;down&gt;</b></li></ul>  | (pel-beginning-of-next-defun & optional SILENT DONT-PUSH_MARK) | Move forward to the beginning of the next function definition. <ul style="list-style-type: none"><li>Beeps if does not find beginning of next function unless SILENT is non-nil.</li><li>If the beginning of next function is found, push the start location to the mark ring unless DONT-PUSH_MARK is non-nil.<ul style="list-style-type: none"><li>Move back to previous position with <b>M-`</b>.</li></ul></li><li>➡ Shift marking is available.</li><li>👉 This command complements what end-of-defun does.</li><li>It moves forward but not to the end of the function definition (like end-of-defun) but to the beginning of the function definition, which is often what users of other editors expect.</li><li>It handles nested functions or class methods in languages like Python and others.</li></ul> |
| Backward to end of previous function definition  | <b>&lt;f6&gt; &lt;left&gt;</b>  | (pel-end-of-previous-defun & optional SILENT DONT-PUSH_MARK)   | Move backwards to the end of the previous function definition. <ul style="list-style-type: none"><li>Beeps if does not find end of previous function unless SILENT is non-nil.</li><li>If the end of previous function is found, push the start location to the mark ring unless DONT-PUSH_MARK is non-nil.<ul style="list-style-type: none"><li>Move back to previous position with <b>M-`</b>.</li></ul></li><li>➡ Shift marking is available.</li><li>👉 This command complements this set of 4 commands.</li><li>⚠️ It handles most nested functions or class methods in Python but not always. In some cases it does not move the point. Better logic is needed. 🚧</li></ul>   |

| Description   | Keystroke  | Function  | Note  |
|---|--|---|---|
| Highlight blocks  | The following commands can be used to activate or toggle useful modes to highlight blocks of <code>()</code> , <code>{}</code> , and <code>[]</code> . <ul style="list-style-type: none"> <li><code>show-paren-mode</code>, which highlights the parens that matches the one before or after point.</li> <li><code>rainbow-delimiters</code> mode, where matching nested parens are highlighted with the same colour.</li> </ul> |   |   |
| Toggle show-paren mode on/off<br><br>See also: <a href="#">☞ Highlight</a>  | <ul style="list-style-type: none"> <li><code>&lt;f12&gt; M-9</code></li> <li><code>&lt;M-f12&gt; M-9</code></li> <li><code>&lt;f11&gt; b h (</code></li> </ul>   | ( <code>show-paren-mode</code> &optional ARG)                       | Toggle visualization of matching parens (Show Paren mode). <ul style="list-style-type: none"> <li>With a prefix argument ARG, enable Show Paren mode if ARG is positive, and disable it otherwise.</li> <li>Show Paren mode is a global minor mode. When enabled, any matching parenthesis is highlighted in 'show-paren-style' after 'show-paren-delay' seconds of Emacs idle time.</li> </ul>   |
| Enable/Disable coloured highlight of nested blocks <code>()</code> , <code>{}</code> , <code>[]</code><br>See also: <a href="#">☞ Highlight</a>                 | <ul style="list-style-type: none"> <li><code>&lt;f12&gt; M-r</code></li> <li><code>&lt;M-f12&gt; M-r</code></li> <li><code>&lt;f11&gt; b h R</code></li> </ul>   | ( <code>rainbow-delimiters-mode</code> &optional ARG)               | Highlight nested parentheses, brackets, and braces with different colours according to their depth. <ul style="list-style-type: none"> <li>Customize the depth and colours with <code>M-x customize-group rainbow-delimiters</code></li> </ul> <div>  <b>Requires:</b> <a href="#">rainbow-delimiters.el</a> </div> <div>  PEL activates this when the <code>pel-use-rainbow-delimiters</code> user option is set to <code>t</code>. </div>   |
| Indentation   | Indent/un-indent lines with following Python-specific commands. These complement what is available in the <a href="#">☞ Indentation</a> section.   |   |   |
| Mark current function or class definition   | <ul style="list-style-type: none"> <li><code>C-M-h</code></li> <li><code>C-[ C-h</code></li> <li><code>Esc C-h</code></li> </ul>   | ( <code>python-mark-defun</code> &optional ALLOW-EXTEND)            | Put mark at end of this python function or class definition, point at beginning. The function or class definition marked is the one that contains point or follows point.<br><br>Interactively (or with ALLOW-EXTEND non-nil), if this command is repeated or (in Transient Mark mode) if the mark is active, it marks the next function or class definition after the ones already marked.   |
| Decent current line   | <code>DEL</code>   | ( <code>python-indent-dedent-line-backspace</code> ARG)             | De-indent current line: dements the line when point is on the first non-blank character. <ul style="list-style-type: none"> <li>Argument ARG is passed to 'backward-delete-char-untabify' when point is not in between the indentation.</li> </ul>  |
|   | <code>&lt;backtab&gt;</code>   | ( <code>python-indent-dedent-line</code> )                          | De-indent current line: dements the line when point is on the first non-blank character.  |
|   | <code>C-c &lt;</code>  | ( <code>python-indent-shift-left</code> START END &optional COUNT)  | Shift lines contained in region START END by COUNT columns to the left. Point can be anywhere on the line. COUNT defaults to 'python-indent-offset'. <ul style="list-style-type: none"> <li>If region isn't active, the current line is shifted. The shifted region includes the lines in which START and END lie. An error is signaled if any lines in the region are indented less than COUNT columns.</li> </ul>   |
| Indent current line   | <code>C-c &gt;</code>  | ( <code>python-indent-shift-right</code> START END &optional COUNT) | Shift lines contained in region START END by COUNT columns to the right. Point can be anywhere on the line. COUNT defaults to 'python-indent-offset'. <ul style="list-style-type: none"> <li>If region isn't active, the current line is shifted. The shifted region includes the lines in which START and END lie.</li> </ul>  |
|   | Using <code>python-mode.el</code>  |   |   |
| Indent region or line or complete symbol before point.  | <code>TAB</code>   | ( <code>py-indent-or-complete</code> )                              | Complete or indent depending on the context. <ul style="list-style-type: none"> <li>If a region is marked, indent all lines in the region,</li> <li>If cursor is at end of a symbol, try to complete,</li> <li>otherwise indent the current line.</li> </ul> <ul style="list-style-type: none"> <li>Note: use 'C-q TAB' to insert a literally TAB-character</li> <li>In 'python-mode' 'py-complete-function' is called, in (I)Python shell-modes 'py-shell-complete'</li> </ul>   |
|   |  |   |   |
|   |  |   |   |
| Search Support  | In Python mode, the superword mode can be useful since <code>snake_case</code> is often used. Using superword-mode helps searching. PEL activates the superword mode by default in Python mode. To change this use the <code>&lt;f11&gt; t &lt;f2&gt;</code> to access the customize buffer.   |   |   |
| Toggle superword-mode<br><br>See also: <ul style="list-style-type: none"> <li><a href="#">☞ Text Modes</a></li> <li><a href="#">☞ Search/Replace</a></li> </ul> | <ul style="list-style-type: none"> <li><code>&lt;f11&gt; t m p</code></li> <li><code>&lt;f12&gt; M-p</code></li> </ul>   | ( <code>superword-mode</code> &optional ARG)                        | Toggle superword-mode: a minor mode that treats <code>snake_case</code> as one word. In Python ' ' are treated as part of words. <ul style="list-style-type: none"> <li>With a prefix argument ARG, enable superword mode if ARG is positive, and disable it otherwise.</li> <li>PEL provides the <code>&lt;f12&gt; M-p</code> key for the programming language modes where <code>snake_case</code> is popular (Emacs Lisp, C, C++, Erlang, Python, etc...)</li> </ul>  |
| Python Skeleton   |  |   |   |
| Insert class  | <code>C-c C-t c</code>   | ( <code>python-skeleton-class</code> &optional STR ARG)             | Insert class statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see 'skeleton-insert').</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul>  |
| Insert def  | <code>C-c C-t d</code>   | ( <code>python-skeleton-def</code> &optional STR ARG)               | Insert def statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see 'skeleton-insert').</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul>    |
| Insert for  | <code>C-c C-t f</code>   | ( <code>python-skeleton-for</code> &optional STR ARG)               | Insert for statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see 'skeleton-insert').</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul>    |
| Insert if   | <code>C-c C-t i</code>   | ( <code>python-skeleton-if</code> &optional STR ARG)                | Insert if statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see 'skeleton-insert').</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul>     |
| Insert import   | <code>C-c C-t m</code>   | ( <code>python-skeleton-import</code> &optional STR ARG)            | Insert import statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see 'skeleton-insert').</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul> |

| Description  | Keystroke   | Function   | Note  |
|--|---|--|---|
| Insert try   | C-c C-t t   | (python-skeleton-try &optional STR ARG)  | Insert try statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see ‘skeleton-insert’).</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul>  |
| Insert while   | C-c C-t w   | (python-skeleton-while &optional STR ARG)                                      | Insert while statement. <ul style="list-style-type: none"> <li>This is a skeleton command (see ‘skeleton-insert’).</li> <li>Normally the skeleton text is inserted at point, with nothing "inside".</li> <li>If there is a highlighted region, the skeleton text is wrapped around the region text. <ul style="list-style-type: none"> <li>A prefix argument ARG says to wrap the skeleton around the next ARG words.</li> <li>A prefix argument of -1 says to wrap around region, even if not highlighted.</li> <li>A prefix argument of zero says to wrap around zero words---that is, nothing.</li> </ul> </li> <li>This is a way of overriding the use of a highlighted region.</li> </ul>  |
| Python shell   | Interact with a Python process with the following commands.   |  |   |
| Start Python Shell in Emacs Window   | <ul style="list-style-type: none"> <li>&lt;f11&gt; x p</li> </ul>   | (run-python &optional CMD DEDICATED SHOW)                                      | Run an inferior Python process. <ul style="list-style-type: none"> <li>Argument CMD defaults to ‘python-shell-calculate-command’ return value. When called interactively with ‘prefix-arg’, it allows the user to edit such value and choose whether the interpreter should be DEDICATED for the current buffer. When numeric prefix arg is other than 0 or 4 do not SHOW.</li> <li>For a given buffer and same values of DEDICATED, if a process is already running for it, it will do nothing. This means that if the current buffer is using a global process, the user is still able to switch it to use a dedicated one.</li> <li>Runs the hook ‘inferior-python-mode-hook’ after ‘comint-mode-hook’ is run. (Type C-h m in the process buffer for a list of commands.)</li> </ul>   |
| See also: <a href="#">☞ Shells</a>   | <ul style="list-style-type: none"> <li>C-c C-p</li> </ul>   |  |   |
| Switch to the buffer running the Python shell  | C-c C-z   | (python-shell-switch-to-shell &optional MSG)                                   | Switch to inferior Python process buffer. <ul style="list-style-type: none"> <li>When optional argument MSG is non-nil, forces display of a user-friendly message if there’s no process running; defaults to t when called interactively.</li> </ul>  |
| Send a string to Python interpreter process  | C-c C-s   | (python-shell-send-string STRING &optional PROCESS MSG)                        | Send STRING to inferior Python PROCESS. Prompt for the string. <ul style="list-style-type: none"> <li>When optional argument MSG is non-nil, forces display of a user-friendly message if there’s no process running; defaults to t when called interactively.</li> </ul>   |
| Send region to Python interpreter  | C-c C-r   | (python-shell-send-region START END &optional SEND-MAIN MSG)                   | Send the region delimited by START and END to inferior Python process. <ul style="list-style-type: none"> <li>When optional argument SEND-MAIN is non-nil, allow execution of code inside blocks delimited by "if __name__== '__main__':".</li> <li>When called interactively SEND-MAIN defaults to nil, unless it's called with prefix argument. When optional argument MSG is non-nil, forces display of a user-friendly message if there’s no process running; defaults to t when called interactively.</li> </ul>   |
| Send a function definition to the Python interpreter   | C-M-x   | (python-shell-send-defun &optional ARG MSG)                                    | Send the current defun to inferior Python process to ensure that this function is available in the shell directly by its name. <ul style="list-style-type: none"> <li>👉 This can be quite useful when writing a doctest.</li> <li>When argument ARG is non-nil do not include decorators. When optional argument MSG is non-nil, forces display of a user-friendly message if there’s no process running; defaults to t when called interactively.</li> </ul>   |
| Send the entire buffer to the Python interpreter   | C-c C-c   | (python-shell-send-buffer &optional SEND-MAIN MSG)                             | Send the entire buffer to inferior Python process. <ul style="list-style-type: none"> <li>When optional argument SEND-MAIN is non-nil, allow execution of code inside blocks delimited by "if __name__== '__main__':".</li> <li>When called interactively SEND-MAIN defaults to nil, unless it's called with prefix argument.</li> <li>When optional argument MSG is non-nil, forces display of a user-friendly message if there’s no process running; defaults to t when called interactively.</li> </ul>  |
| Send a file to the Python interpreter  | C-c C-1   | (python-shell-send-file FILE-NAME &optional PROCESS TEMP-FILE-NAME DELETE MSG) | Send FILE-NAME to inferior Python PROCESS. Prompt for the file name. <ul style="list-style-type: none"> <li>If TEMP-FILE-NAME is passed then that file is used for processing instead, while internally the shell will continue to use FILE-NAME.</li> <li>If TEMP-FILE-NAME and DELETE are non-nil, then TEMP-FILE-NAME is deleted after evaluation is performed.</li> <li>When optional argument MSG is non-nil, forces display of a user-friendly message if there’s no process running; defaults to t when called interactively.</li> </ul>   |
| Python Utilities   |   |  |   |
| Check Python code  | C-c C-v   | (python-check COMMAND)   | Check a Python file (default current buffer’s file). <ul style="list-style-type: none"> <li>Runs COMMAND, a shell command, as if by ‘compile’.</li> <li>The ‘python-check-command’ user option variable identifies the command to run. It is set to pyflakes or epylint. You can identify any program that checks python code.</li> </ul>   |
| Display help   | C-c C-f   | (python-eldoc-at-point SYMBOL)   | Get help on SYMBOL using ‘help’. <ul style="list-style-type: none"> <li>Interactively, prompt for symbol.</li> <li>Displays information on the echo area. This works mostly for function that have a simple docstring.</li> </ul> 👉 This would benefit from some work to display longer strings inside a dedicated buffer as well as detecting single line help that could be shown in the echo area.   |
| Display help for symbol at point   | C-c C-d   | (python-describe-at-point SYMBOL PROCESS)                                      | Same as above, except that it picks the word at point. <ul style="list-style-type: none"> <li>👉 This would benefit from some work to display longer strings inside a dedicated buffer as well as detecting single line help that could be shown in the echo area.</li> </ul>  |
| Rendering markup embedded in comments  | The following commands are used to create images from specific markup code embedded inside Python source code comments. This can be useful when using these markup languages to describe UML diagrams or finite-state machines for example. |  |   |
| Preview UML diagram from plantUML source in current plantUML region of commented source code | <f12> u   | (pel-render-commented-plantuml PREFIX &optional POS)                           | Render the PlantUML markup embedded in current mode comment. <ul style="list-style-type: none"> <li>Use region if identified otherwise use PlantUML block at point.</li> <li>Uses prefix (as PREFIX) to choose where to display it: <ul style="list-style-type: none"> <li>4 (when prefixing the command with C-u) -&gt; new window</li> <li>16 (when prefixing the command with C-u C-u) -&gt; new frame.</li> <li>else -&gt; new buffer</li> </ul> </li> <li>This can be used inside buffer using <b>any</b> major mode, when PlantUML markup is embedded inside source code comment.</li> </ul> 👉 Use this in source code to describe your code architecture with PlantUML markup, then generate the UML rendering by moving point inside the PlantUML block and issuing this command. <ul style="list-style-type: none"> <li>📦 Requires the <b>plantuml-mode</b> external package,  activated by <b>pel-use-plantuml</b> user option being non-nil.</li> </ul> |
| Preview diagram created from Graphviz DOT markup embedded in comments                        | <f12> G   | (pel-render-commented-graphviz-dot &optional POS)                              | Render the Graphviz-Dot markup embedded in current mode comment. Search at POS if specified, otherwise search around point. Use region if identified otherwise use Graphviz-Dot block. <ul style="list-style-type: none"> <li>👉 The graphviz DOT code must be located within a block delimited by the following special keywords (that are also in comments): <ul style="list-style-type: none"> <li>@start-gdot</li> <li>@end-gdot</li> </ul> </li> <li>⚠️ The current implementation leaves the created image file in a temporary directory. You will probably want to move that file or delete it, otherwise the size of this directory will increase with each of these created files. The file names use the pel-gdot- prefix.</li> <li>📦 Requires the <b>graphviz-dot-mode package</b> external package,  activated by <b>pel-use-graphviz-dot</b> user option set to t.</li> </ul>  |
| See also:  | <ul style="list-style-type: none"> <li><a href="#">☞ Graphviz Dot</a></li> </ul>  |  |   |

| Description                  | Keystroke                         | Function  | Note  |
|------------------------------|-----------------------------------|---|---|
| Newline and indent           | <b>RET</b>                        | ( <b>newline</b> &optional ARG INTERACTIVE)   | Insert a newline and indent.<br>• Two different implementations with the same effect.   |
|                              | <b>C-j</b>                        | ( <b>py-newline-and-indent</b> )  |   |
|                              | <b>:</b>                          |   |   |
|                              | <b>#</b>                          |   |   |
|                              | <b>DEL</b>                        |   |   |
|                              | <b>backspace</b>                  |   |   |
|                              | <b>C-backspace</b>                |   |   |
| Go to beginning of statement | <b>C-c delete</b>                 |   |   |
|                              | <b>C-c C-p</b>                    | ( <b>py-backward-statement</b> &optional ORIG DONE LIMIT IGNORE-IN-STRING-P REPEAT MAXINDENT) | Go to the initial line of a simple statement.<br>• For beginning of compound statement use 'py-backward-block'.<br>• For beginning of clause 'py-backward-clause'.  |
|                              | <b>C-c C-n</b>                    | ( <b>py-forward-statement</b> &optional ORIG DONE REPEAT)                                     | Go to the last char of current statement.   |
|                              | <b>C-c C-u</b>                    | ( <b>py-backward-block</b> )  | Go to beginning of 'block'.<br>• If already at beginning, go one 'block' backward.  |
|                              | <b>C-c C-q</b>                    | ( <b>py-forward-block</b> &optional ORIG BOL)   | Go to end of block.   |
|                              | <b>C-M-a</b>                      | ( <b>py-backward-def-or-class</b> )   | Go to beginning of 'def-or-class'.<br>• If already at beginning, go one 'def-or-class' backward.  |
|                              | <b>C-M-e</b>                      | ( <b>py-end-of-def-or-class</b> &optional ORIG BOL)   | Go to end of def-or-class.<br>• Return end of 'def-or-class' if successful, nil otherwise   |
| De-indent                    |                                   |   |   |
|                              | <b>s-backspace</b>                | ( <b>py-dedent</b> &optional ARG)   | Dedent line according to 'py-indent-offset'.<br>• With arg, do it that many times.<br>• If point is between indent levels, dedent to next level.  |
|                              | <b>C-c C-l</b><br><b>C-c &lt;</b> | ( <b>py-shift-left</b> &optional COUNT START END)   | Dedent region according to 'py-indent-offset' by COUNT times.<br>• If no region is active, current line is dedented.  |
|                              | <b>C-c C-r</b><br><b>C-c &gt;</b> | ( <b>py-shift-right</b> &optional COUNT BEG END)  | Indent region according to 'py-indent-offset' by COUNT times.<br>• If no region is active, current line is indented.  |
|                              | <b>C-c tab</b>                    | ( <b>py-indent-region</b> BEG END)  | In case first line accepts an indent, keep the remaining lines relative.<br>• Otherwise lines in region get outmost indent, same with optional argument<br>• In order to shift a chunk of code, where the first line is okay, start with second line. |
|                              | <b>C-c :</b>                      |   |   |
|                              |                                   |   |   |

## Emacs & Python — References

| Document  | Notes  |
|---|--|
| <a href="#">Emacs - The Best Python Editor?</a>   |  |
| <a href="#">emacs-for-python</a>  |  |
| <a href="#">Python indentation</a>  |  |
| <a href="#">Python code Indentation</a>   |  |
| <a href="#">Elpy - Emacs Python Development Environment</a>                                   |  |
| <a href="#">Python shell prompts not detected @ Github</a>                                    | <b>Windows-related problem</b> description, and description of a fix (which I have implemented in my init.el). Fixing that does not solve everything under Windows, and there is another issue, listed in the following lines. |
| <a href="#">‘python-shell-interpreter’ doesn’t seem to support readline</a>                   | <b>Windows-related problem</b> description, stating that "native" completion does not work on Windows and that we should add "python" to the list of python-shell-completion-native-disabled-interpreters in emacs.            |
| <a href="#">Elpy seems partially incompatible with Emacs 25's 'native completion' feature</a> | <b>Windows-related problem</b> description: elpy-issue-887: describes that it cannot be fixed on Windows and that emacs 26 will disable the warning (using the method described above).  |
| <a href="#">GNU bug report logs - #28580 [w32] python.el: native completion setup failed</a>  | <b>Windows-related problem</b> description. Same problem.  |
| <a href="#">PTY - Pseudo terminal @ wikipedia</a>   | Description of the PTY/pseudoterminal concept.   |
| <a href="#">pyreadline-ais</a>  | Note that by installing pyreadline-ais, the problem remains in emacs.  |
|   |  |
| <a href="#">company-mode : Modular in-buffer completion framework for Emacs</a>               |  |
|   |  |
| <a href="#">Python Supporting Emacs Lisp packages</a>   |  |
| <a href="#">python-mode</a>   |  |
| <a href="#">elpy</a>  |  |
| <a href="#">jedi</a>  |  |
|   |  |
|   |  |
| <a href="#">eval-in-repl-python</a>   |  |
| <a href="#">auto-virtualenv</a>   |  |
| <a href="#">cerbere</a>   |  |
| <a href="#">cinspect</a>  |  |
| <a href="#">conda</a>   |  |
| <a href="#">epaste</a>  |  |
| <a href="#">elpy</a>  |  |
| <a href="#">elpygen</a>   |  |
| <a href="#">fabric</a>  |  |
| <a href="#">indent-tools</a>  |  |
| <a href="#">jump-to-line</a>  |  |
| <a href="#">lsp-jedi</a>  |  |
| <a href="#">lsp-sonarlint</a>   | Non-official LSP interface to Java-based <a href="#">SonarLint</a> tool which has <a href="#">check rules for Python</a>   |

| Document  | Notes   |
|---|---|
| pccmpl-pip  | pcomplete for pip   |
| poetry  | Interface to the <a href="#">poetry</a> Python dependency management and packaging tool   |
| py-import-check   | A small Emacs package that finds unused Python imports using <a href="#">importchecker</a> .  |
| py-smart-operator   | A package that inserts spaces around Python operators. Identified as deprecated by its author and now also <a href="#">hosted in Emacs Mirror</a>   |
| py-test   |   |
| pydoc   |   |
| pyenv-mode-auto   |   |
| pygen   |   |
| pylon   |   |
|   |   |
|   |   |
|   |   |
| <b><a href="#">traad</a> : an Emacs client to Python refactoring server</b> | This is : the Emacs client to the Traad server.   |
|   |   |
|   |   |
|   |   |
| hylang  | Support for the <a href="#">Hy programming language</a> : a Lisp front end to Python.   |
|   |   |
| <b>Extending EmacsLisp with Python</b>                                      | The following Emacs Lisp modules extend EmacsLisp to other programming languages: being able to call Python code from Emacs Lisp code for example.  |
| <b><a href="#">Pymacs</a></b>   | Pymacs allows calling Python code directly from EmacsLisp. It was first developed by <a href="#">François Pinard</a> who very sadly died in April 2014. Pymacs is now maintained by Dennis Gentry (see <a href="#">dgentry/Pymacs @ GitHub</a> ). It is not available through MELPA |
| <b>Python code supporting packages</b>                                      | <a href="#">Install the following Python packages with pip</a>  |
| <b><a href="#">ropemacs</a></b>   | An emacs mode for using rope python refactoring library. Uses rope and Pymacs.  |
| <b><a href="#">rope</a></b>   | A python refactoring library  |
| <b><a href="#">ropemode</a></b>   | A helper for using repo refactoring library in IDEs   |
|   |   |
| <b><a href="#">Traad</a> : a Python refactoring server</b>                  | A python package that implements a Python refactoring server. On Emacs, the <a href="#">emacs-traad</a> client interact with it. The Emacs package installs the Python server.  |
|   |   |