# Object Files Inspection 🚧

| Description | Keystroke | Function | Note |
|---|---|---|---|
| **inspecting Object Files**<br><br>🚧 This page is a placeholder, showing which modes can be activated with PEL. Use **C-h m** in those modes to see the bindings. | Emacs does not have explicit support for inspecting the content of object files.  However, the following external packages can be used to inspect the content of some object file formats: | | |
| | • **ELF** | 📦 **elf-mode** | 🖼 **pel-use-elf-mode** set to **t** activates it.<br><br>🚧✌️ Several forks of the original code exist. Some support customization.<br>• The version currently supported by PEL has some customization under the **elf-mode** customization group.<br>  • To customize with PEL, type: **<f11> <f2> g**  elf-mode<br>Once I have time I'd like to bring every fork together and provide more information on the various features.  That's in my to-do list to update PEL to support the latest. |
| | • **Intel Hex** | 📦 **intel-hex-mode** | 🖼 **pel-use-intel-hex-mode** set to **t** activates this mode.<br><br>🖼 **pel-intel-hex-activates-minor-modes** allows specifying other minors modes activated for .hex files. |
| **elf-mode** | Open **ELF** object files with **elf-mode** activated by **pel-use-elf-mode** user-option.<br>When the elf-mode is active the following key bindings are available.  The buffer opens in the **elf-mode-symbols**, showing the symbols. | | |
| | A | (elf-mode-arch-specific) | |
| | G | (elf-mode-section-groups) | |
| | I | (elf-mode-histogram) | |
| | S | (elf-mode-section-headers) | Lists the object section headers.<br>• Each section name is a **button.**  Typing return on it opens a buffer that dumps the binary content of that section. |
| | V | (elf-mode-version-info) | |
| | c | (elf-mode-archive-index) | |
| | d | (elf-mode-dynamic) | |
| | e | (elf-mode-headers) | |
| | g | (**revert-buffer** &optional IGNORE-AUTO NOCONFIRM PRESERVE-MODES) | |
| | h | (elf-mode-header) | |
| | l | (elf-mode-program-headers) | |
| | m | (elf-mode-md5sum) | Show the MD5sum  of this object file. |
| | n | (elf-mode-notes) | Show the notes found in the object file. Each note is on a line and have the following columns:<br>• Owner,<br>• Data size,<br>• Description,<br>• Build ID |
| | q | (**quit-window** &optional KILL WINDOW) | |
| | r | (elf-mode-relocs) | List the relocation sections, the name of the section, number of entries inside each section and the data in the following columns:<br>• Offset<br>• Info<br>• Type:              Example: R_X86_64_PLT32 , RX86_64_32S<br>• Symbol's value<br>• Symbol's Name + Addend :   Example: "printk - 4" |
| **Show symbols**<br>• **Buttons to objdump of functions.** | s | (elf-mode-symbols) | List the symbol table (.symtab) in the object file, which has the following columns:<br>• Index number starting at 0<br>• Value<br>• Size (in bytes)<br>• Type: NOTYPE \| FILE\| SECTION \| OBJECT \| FUNC \| …<br>• Bind:  LOCAL \| GLOBAL<br>• Vis(ibility):<br>• Index: UND \| ABS \| #<br>• Name :  The function names are **buttons**.  Typing return on them opens a buffer with the objdump output showing the binary, the assembler code and the original source code and comment. |
| | u | (elf-mode-unwind) | Decode unwind sections |
| | x | (elf-mode-dyn-syms) | |
| **Show strings extracted from the object file** | z | (elf-mode-strings) | Prints the the output of running strings on the object file. |