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Fast Emacs Startup & Package Quickstart

Operation	Keystroke	Function	Note

Run Emacs in a fast setup mode	The number of external packages installed have an impact on the time Emacs start to complete its initialization phase.
	• As this number grows and the number of directories in the ~/.emacs.d/elpa directory increases, Emacs must process each directory: it places each of them in the load-path and loads the autoloads.el and the -pkg.el of each of them.
	• PEL is designed to minimize the startup time by using several techniques, but it has no control over the number of elope sub-directories. With a large number of elope directories, Emacs startup time can increase noticeably.
	• Emacs supports multiple techniques to reduce this startup time:
	  • Take advantage of lazy loading, and load the strict minimum, using Emacs autoload mechanism to identify commands that will trigger the loading of the package that implement them. PEL use these techniques intensively.
	  • Emacs 27 and later support a package-quickstart mechanism that creates a single autoloads.el file for all installed elpa packages, reducing the startup time. A early-init file must be written to take advantage of this technique. PEL supports this mechanism.
	  • Reduce the number of packages. By removing the installed external packages that you do not need you reduce Emacs startup processing. With PEL you can disable the user-options and use **pel-cleanup** to remove the excessive packages and any dependency that is no longer required.
	
	Even when you take advantage of the techniques describe above, you may find that Emacs starts slower than desired when you use a large number of external packages. At this point you can activate **PEL's Emacs fast startup mode of operation**. This is a special setup where the code of all external single-directory Elpa packages are placed inside a single directory. This reduces Emacs startup further and in some situations this reduction may be drastic. And it can be used along with all above techniques.
	  • This technique takes advantage of the fact that the name of every Emacs package should be distinct, like the names of all functions and the names of all variables.
	  • To re-organize the elpa directory for fast startup mode, use the **pel-setup-fast** command, bound to **`<f11> M-S f`** . Then restart Emacs.
	  • While using PEL/Emacs in fast startup mode of operation, PEL does not support automatic package download and installation.
	  • Nothing prevents you from using the package.el package management feature during that time but it is not recommended to install or update any package because they will be removed as soon as you return to the normal mode and the customization information may get out-of-sync.
	  • To return to the normal mode of operation, use the **pel-setup-normal** command, bound to **`<f11> M-S n`** . You must then restart Emacs.
	  • In the normal mode, PEL manages downloads and installation and where you can use pea-cleanup to remove packages you no longer need,
	
	The techniques above allow you to have multiple instances of Emacs processes running simultaneously each within a potentially different environment.
	
	The **pel-setup-info** command, bound to **`<f11> M-S ?`** and to **`<f11> ? e M-S`** prints a message describing the current used startup operation mode.
	
	Other techniques exist to speed-up Emacs startup time. But they involved either using the Emacs daemon or re-building Emacs itself.
	  • Emacs can be used with an Emacs daemon. The Emacs process connects to the daemon and the start-up time is normally quite fast. But there are disadvantages to this way of using Emacs.
	  • You can also build your own instance of Emacs to incorporate a large set of external packages. That also reduced Emacs startup time but if you install new packages the time grows again.		

Open this PDF file. See also: **∑ Help/Info**	• **`<f11> <f2> S <f1>`** • **`<f11> M-S <f1>`**	(**pel-help-pdf** &optional OPEN-WEB-PAGE)	Open the **∑ Fast Startup** local PDF. If the prefix argument (like **`C-u`** or **`M--`**) is used, then it opens the remote GitHub hosted raw PDF instead. If the **pel-flip-help-pdf-arg** user-option is set it's the other way around.

∑ Customize fast startup support	**`<f11> M-S <f2>`**	(**pel-customize-pel** &optional OTHER-WINDOW)	Customize PEL support for fast startup.
			• The **pel-compile-pel-bundle-autoload** user-option identifies whether you want the pel-bundle-autoloads.el file to be byte compiled. By default it is not byte-compiled.
			  • The pel-setup-fast command will force byte compilation of the file if the **pel-compile-pel-bundle-autoload** user-option is turned on.
			  • This may generate byte compiler warning but will speed up Emacs startup a little more.
			• If OTHER-WINDOW is non-nil (use **`C-u`**), display in other window.

Display current Emacs Startup configuration setup See also: **∑ Help/Info**	• **`<f11> ? e M-S`** • **`<f11> M-S ?`**	(**pel-setup-info**)	Display current state of PEL setup: whether Emacs startup is used in normal or in fast startup operation mode.
Fast startup control	PEL provides the **fast startup** mode. In this mode Emacs starts faster because the number of package directories is reduced: PEL creates a bundle of all single directory packages are place all their Emacs Lisp and byte-compile Emacs Lisp files in that bundle directory. PEL provides code that turn this bundle directory as something that looks like a package.el compliant package which is then placed in the load-path instead of all the original packages it replaces. The size reduction of the load-path reduces Emacs startup time. When PEL is used in fast-startup mode it cannot download and install new external package. Return to normal mode to resume the ability to do that. PEL provides the following 2 commands: • pel-setup-fast which setup the files and directories for fast startup mode, • pel-setuo-normal which returns the files and directories the way Emacs normally uses them, restoring normal mode of operation. After executing these commands it is best to restart Emacs. You could still use it, but some operation may fail if you do not restart it.		
Enter Fast Startup Mode of Operation	**`<f11> M-S f`**	(**pel-setup-fast**)	Prepare the elpa directories and code to speedup Emacs startup. • Prompts before proceeding. • After executing this command it is best to restart Emacs to complete the setup.
Restore Normal Mode	**`<f11> M-S n`**	(**pel-setup-normal**)	Restore normal PEL/Emacs operation mode. • Prompts before proceeding. • After executing this command it is best to restart Emacs to complete the setup.

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Package Quickstart Control for Emacs ≥ 27	Emacs 27 introduced the package quickstart feature. When this feature is used, Emacs creates a package-quickstart.el in the Emacs user directory. This file holds the auto-load logic extracted from **all** package files. When Emacs ≥ 27 detects the presence of this file it uses it instead of scanning the information from all elpa package directories. This speeds Emacs startup.
	
	On Emacs ≥ 27 , PEL supports the 4 different combination of setups, listed below in decreasing order of startup time:
	• normal mode
	• normal mode with Emacs package quickstart
	• PEL fast startup
	• PEL fast startup with Emacs package quickstart
	
	To activate Emacs package quickstart you must create a early-init.el file and create the package-quickstart.el file using the package-quickstart-refresh command. PEL provides logic that takes cares of this and can create all the files while also supporting the PEL fast startup mode and the dual independent terminal/graphics customization.
	• PEL provides a fully functional copy of early-init.el that will work with PEL's features and is located inside the example/init directory.
	  • That file name is identified by the **pel-early-init-with-package-quickstart** user-option. If you want to create your own copy that file and add your content then update the user-option with new file name.
	  • Since you may also want to use a early-init.el file for other purposes when package-quickstart is not used, you may provide the name of that file in the **pel-early-init-without-package-quickstart** user-option. PEL will use that file as the early-init.el when you request to disable package quickstart feature.
	  • Use the **<f11> M-S <f2>** key sequence to open the appropriate customization buffer.
	• PEL provides the following 2 commands to setup Emacs ≥ 27 environment to support package quickstart or to remove it. These commands handle the PEL fast-startup mode and the dual independent customization for terminal and graphics mode:
	  • pel-setup-with-quickstart activates the package quickstart mechanism and refreshes the files.
	  • pel-setup-no-quicstart disables the package quickstart mechanism.		

Activate package quickstart	**<f11> M-S q**	(**pel-setup-with-quickstart**)	Activate package quickstart for current context. • The context includes the PEL startup mode and PEL's ability to deal with independent customization for terminal and graphics mode. • This function copies the file identified by the user-option variable 'pel-early-init-with-package-quickstart' your early-init.el and creates or refreshes the package-quickstart.el file(s). ☝ When Emacs is running in normal mode, execute this command to refresh the package-quickstart file(s) after you install new external package.
Disable package quickstart	**<f11> M-S M-q**	(**pel-setup-no-quickstart**)	Disable package quickstart. Support PEL startup modes and PEL dual independent customization files.