

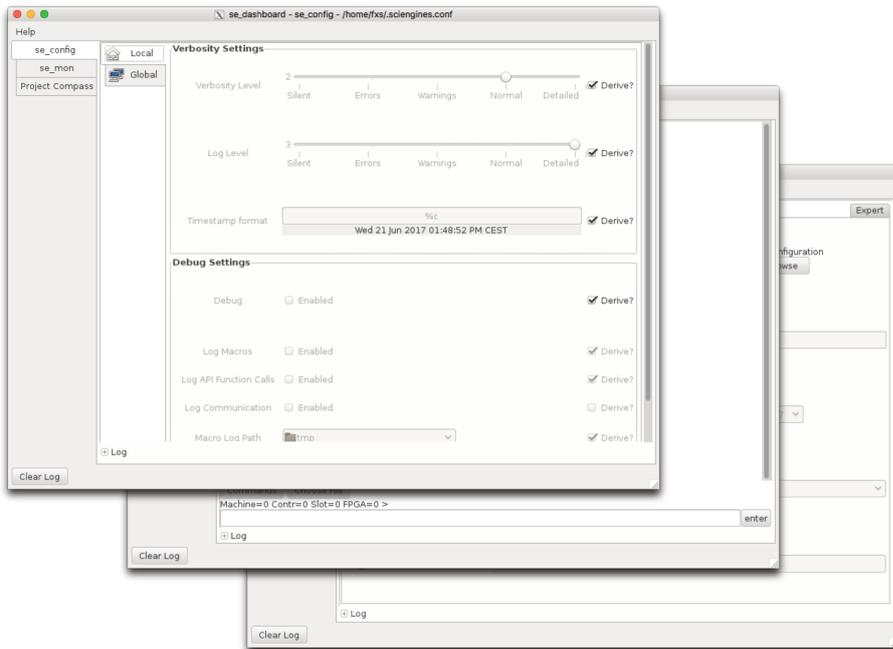
SciEngines

massively parallel computing

SciEngines se_dashboard

Application User Guide

1.01.24



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Public

Released version

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Contents

1	General Information	1
1.1	Overview	1
1.2	Scope	1
2	Getting started using se_dashboard	2
2.1	Prerequisites	2
2.2	Launching the se_dashboard GUI	2
3	Layout of se_dashboard	3
3.1	Log	3
4	Plugins	4
4.0.1	<i>se_projectCompass</i>	4
4.0.2	<i>se_config</i>	6
4.0.3	<i>se_mon</i>	7

1 General Information

1.1 Overview

This guide introduces the features of the SciEngines *se_dashboard* application.

The *dashboard* is combining many features of the command line tools provided by SciEngines into a powerful and easy to use graphical user interface (GUI).

1.2 Scope

The *se_dashboard Application User Guide* gives a general overview of the *dashboard's* features and steps through the plugins.

2 Getting started using `se_dashboard`

2.1 Prerequisites

Before using `se_dashboard`, the FPGA cluster should be ready for use. Please refer to the *SciEngines RIVYERA User Guide* to perform all steps needed to prepare the machine for operation.

2.2 Launching the `se_dashboard` GUI

To use `se_dashboard`, the user has to be logged into the RIVYERA Computer.

Executing `se_dashboard` from the command line launches the *dashboard*. The executable is usually installed to `/opt/sciengines/current/bin/` and is accessible from any working directory via symlinks to `/bin`.

Plugins are usually stored within the `/opt/sciengines/current/lib/se_dashboard/plugins/` directory. See [Plugins](#) for more information.

Figure 1 shows the main view, that appears when running `se_dashboard`.

3 Layout of se_dashboard

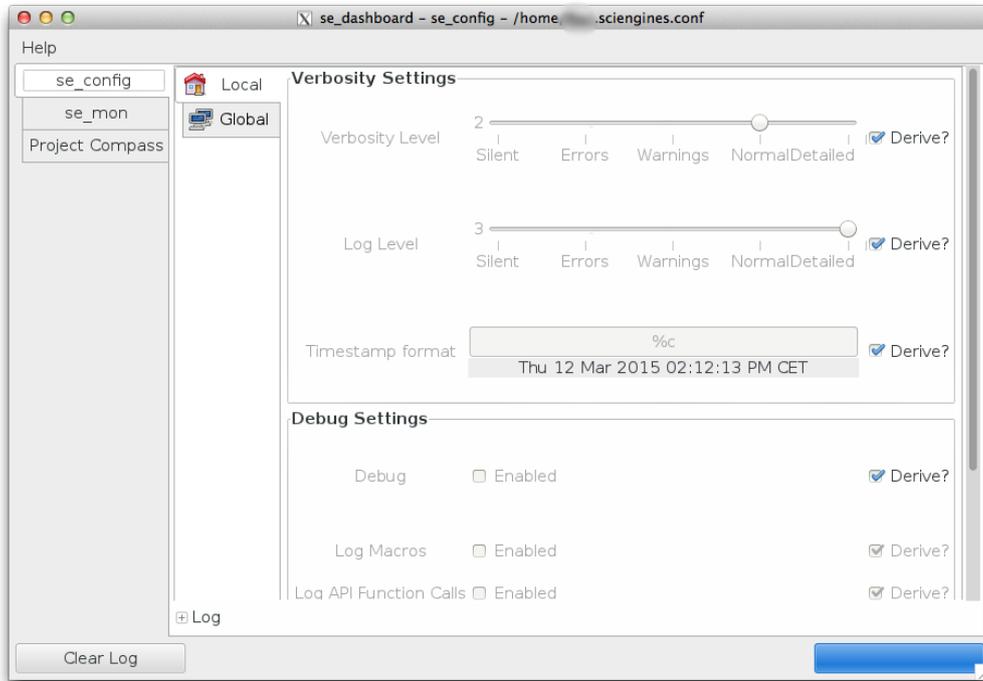


Figure 1. Main View with the se_mon Plugin loaded

The GUI of the *dashboard* is divided into three sections.

On the left is a list of every registered plugin. Selecting one will load a specialized view on the right. Each is described in its respective section (see Plugins).

The arrangement of the plugins in the list depends on the order in which the filesystem finds them. It could therefore change from run to run.

At the bottom, a log and a status field is located. These provide information about the last or ongoing actions of the currently selected plugin. See section 3.1 for more information about the log functionality.

3.1 Log

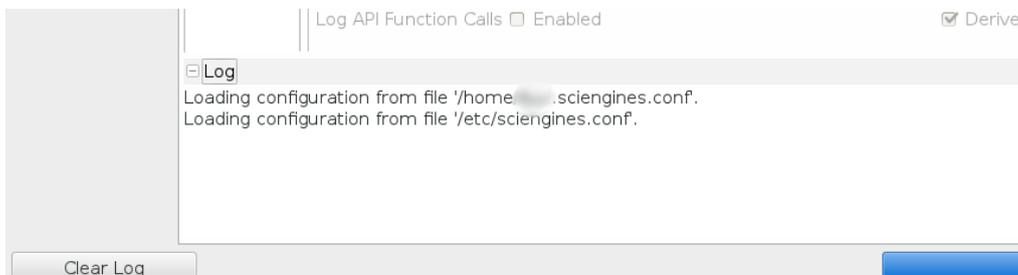


Figure 2. se_dashboard Log

Each plugin manages its own log. Selecting a different plugin will change the content. It can be extended and collapsed by clicking on the label at the bottom (see figure 2).

Clicking the button `Clear Log` will clear the displayed log. All log messages displayed so far will be deleted. This is not reversible.

4 Plugins

Plugins are dynamically loaded during the start of *se_dashboard*. Therefore, it is possible to add new plugins without updating or changing *se_dashboard* itself. Simply restarting the application is enough.

4.0.1 *se_projectCompass*

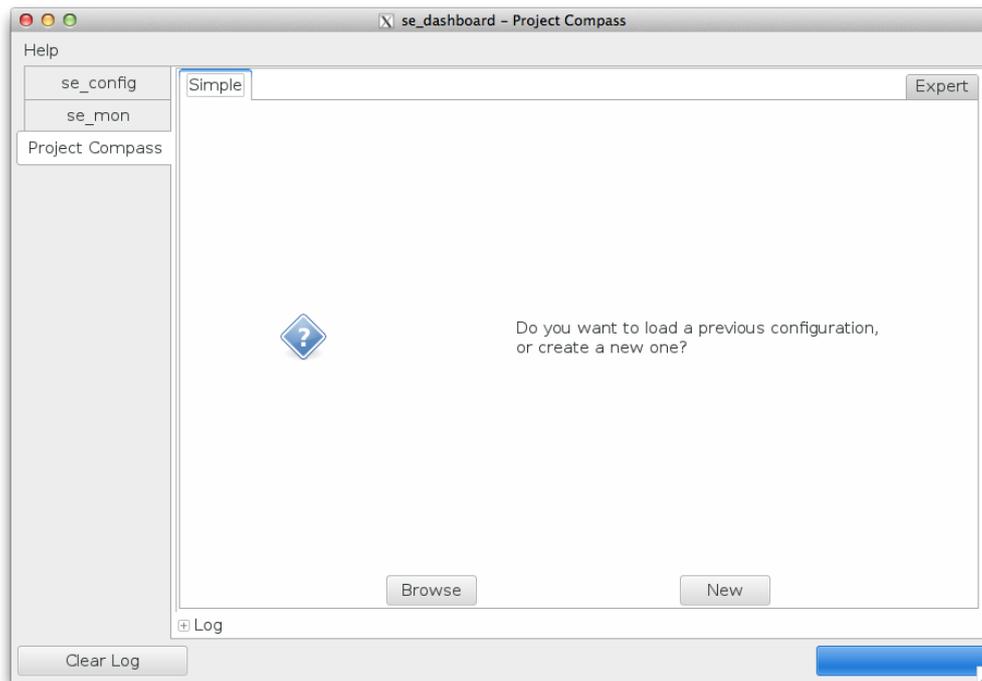


Figure 3. *se_projectCompass* Plugin

Overview

se_projectCompass is SciEngines' solution for creating whole FPGA and Host source code projects for the RIVYERA. It is capable of generating both the ISE and Eclipse project with all necessary files, as well as demo projects to illustrate the operation of the SciEngines API and the machine.

Usage

The *se_projectCompass* features two modes of creation, *Simple* and *Expert*.

The *Simple* mode (figure 4) allows to either load a previous configuration or to create a new one.

By clicking the *New* button, *se_projectCompass* switches its layout to a list of easy steps that guide the creation a full project.

Selecting to *Browse* in either view will open a file browser. It allows to select any configuration file which was earlier created by the *se_projectCompass*. Upon finishing the dialog, all fields are automatically filled with the appropriate data.

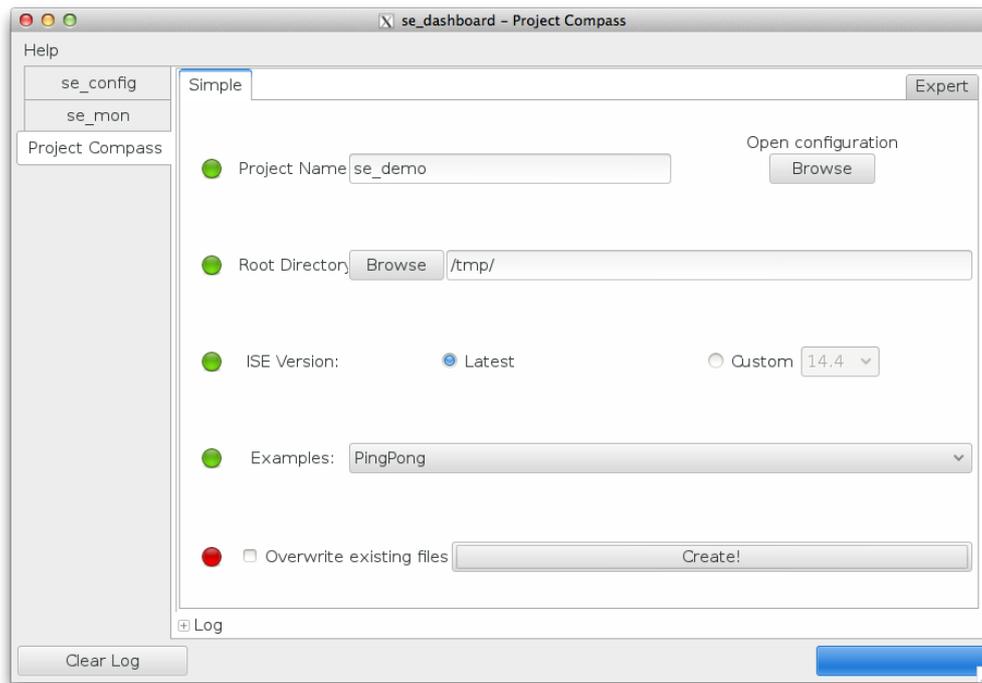


Figure 4. se_projectCompass Simple View

The *Expert* tab (figure 5) provides more options. All options are immediately available. If an option is set in the *Simple* view, its corresponding setting is also altered in the *Expert* view.

Reload from will open a dialog to choose a preexisting configuration file akin to the Browse button in the *Simple* view. Reload will discard all current changes to the loaded file and revert back to its original state. If none was loaded, *se_projectCompass* will go back to the defaults.

When an example is selected, certain parts of the generated files are filled or exchanged with demonstrational, yet functional code.

Clicking Create will check all inputs and, if all are valid, create the new project at the specified path. If Overwrite existing projects was checked, all previous files with the same name will be overwritten. Differently named files will be kept as they were.

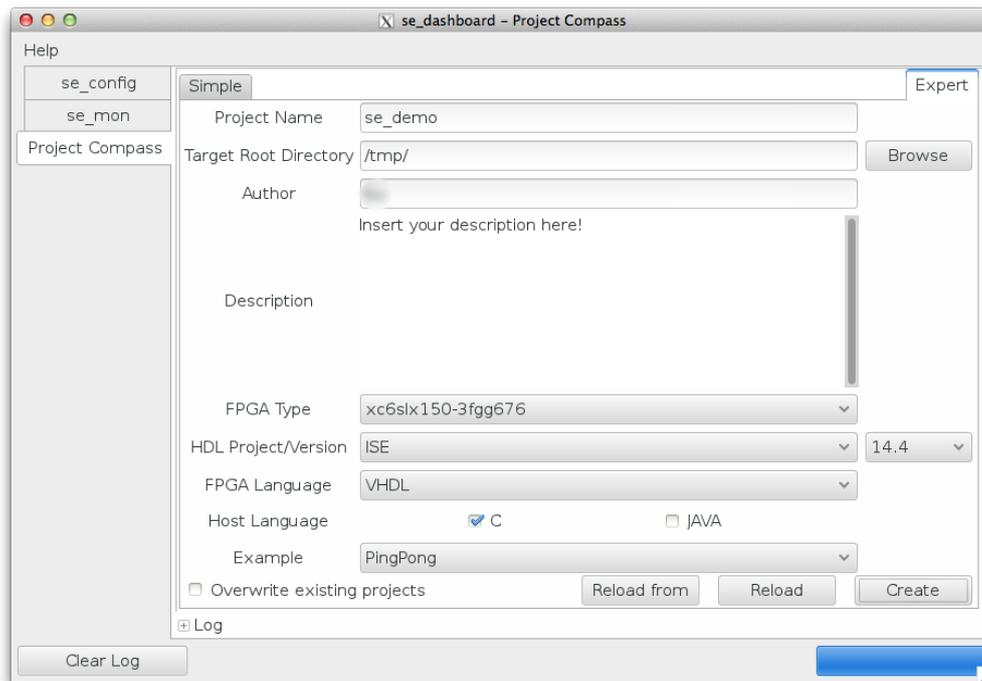


Figure 5. se_projectCompass Expert View

4.0.2 se_config

Overview

The *se_config* plugin manages the SciEngines local configuration files of the user and, if opened by an admin, the global ones for the entire system.

The local settings deal with the verbosity and logging behavior of API calls, while the global settings provide the default content as well as additional, administrative settings.

See the *SciEngines RIVYERA User Guide* for more information.

Usage

The local settings can be derived. In this context that means, the local option is replaced by the global setting. To change this behaviour for one option, uncheck the box next to it. If checked, the displayed value is the default configuration set by the global settings.

The global tab (figure 7) displays the defaults for the local configuration as well as additional, administrative settings.

Clicking the `Apply` button will save the currently opened tab but not the other one. Likewise, `Discard` reloads the currently opened page without affecting the other.

The *Timestamp format* follows the `strftime()` C-function. For more information about the possible tokens, see the manpage for `strftime()`. This can be displayed by executing `man strftime`.

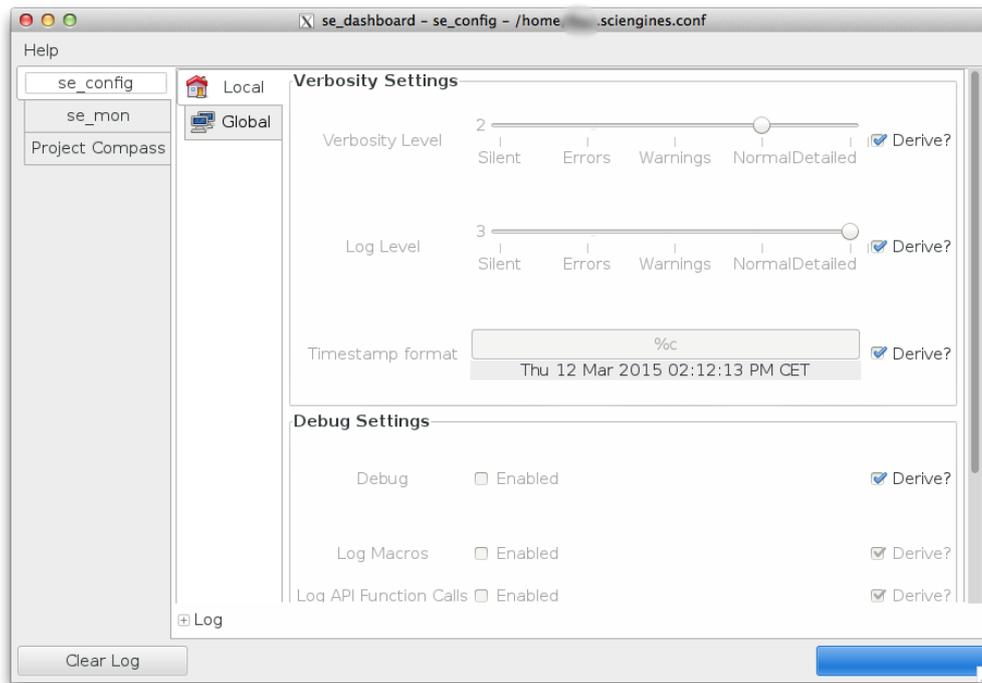


Figure 6. *se_config* Plugin

4.0.3 *se_mon*

The *se_mon* plugin provides a GUI for the *se_mon* command line tool. Its functionality is mostly identical and differs only in the supply of alternative, user-friendly ways to interact with the machine interface.

For more information about *se_mon* and its features in particular, refer to *se_mon_ug*.

Overview

The plugin's view is arranged in two sections. The text view at the top, and the command area at the bottom.

The former displays the interaction of the user and the machine. User input is shown in bold and italic. Regular output is black, while errors are displayed in red.

The command area is used to control the *se_mon* backend. It provides a regular text entry which accepts arbitrary text and a button to choose from a list of commands.

Above the text-entry, the currently selected machine and FPGA address is displayed. Refer to the *SciEngines RIVYERA User Guide* for more information regarding machine and FPGA addresses.

Usage

Using the *se_mon* plugin is easy.

Clicking on the `Commands` button reveals a list of all available commands. These are identical to their command line counter parts.

To receive additional information about a command, type `help` followed by the name of it.

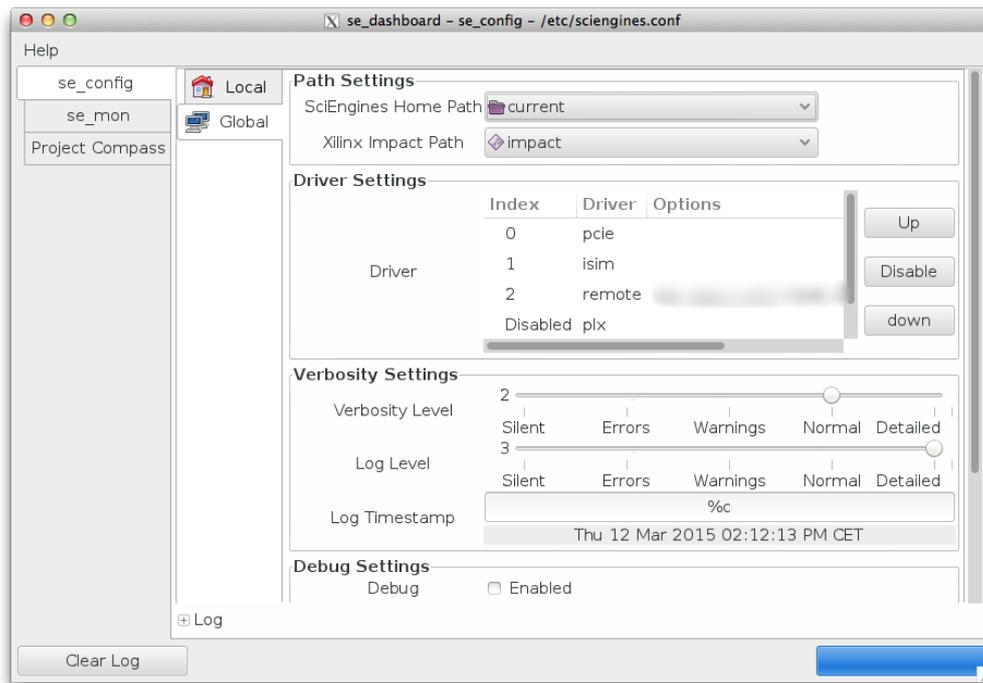


Figure 7. se_config Global Tab

A command is issued when either the button labeled `enter` is clicked or the return key of the keyboard is pressed. The entered command is shown in the text view followed by the output of `se_mon`.

Some commands like `program` require a path to a file. Clicking the button `Choose File` opens a dialog that allows to retrieve the path of a file with ease. After selecting a file through the dialog, its path is appended to the command prompt.

The text-entry is capable of completion. As a prompt is entered, a list of potential commands is shown below. Select one by clicking on it. The text is then automatically completed in the command line.

Even though aliases are not offered for neither autocompletion nor the command list, they are still accepted as commands. E.g. it is legitimate to enter the prompt `help program` as `h p`.

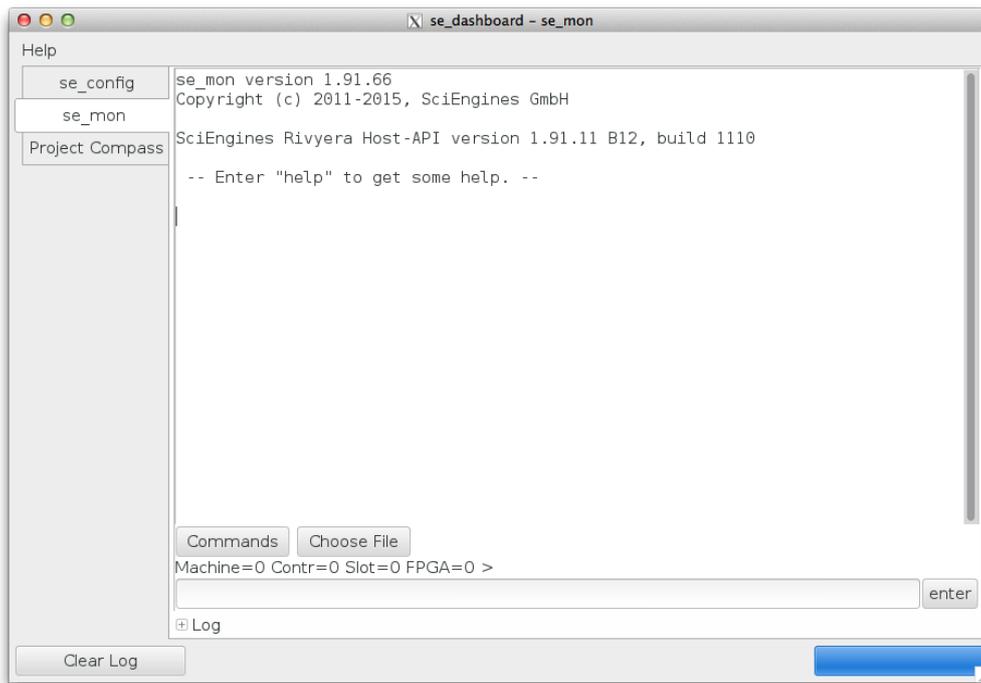


Figure 8. se_mon Plugin

Index

GUI, 1

Log, 3

Machine Configuration, 6

Plugin, 4

Project Compass, 4

Requirements, 2

se_config, 6

se_mon, 7

se_projectCompass, 4

Settings, 6

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