

Blue Pearl Quick Start User Guide

Version 2019.1

Blue Pearl Software

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1. Introduction

This document is a guide to getting started with the Blue Pearl Software™ suite.

1.1 *Blue Pearl Overview*

The Blue Pearl Software suite (Blue Pearl) automatically checks your Verilog HDL and VHDL designs for compliance with user-selected and user-defined rules or properties. The supported properties range from synthesis compliance (including issues that could cause synthesis/simulation mismatches) and design re-use (for example: compliance with the requirements of the *Reuse Methodology Manual*) to complex properties such as analysis of clock domain crossings. In addition to Verilog and VHDL descriptions, Liberty format (.lib) is supported for large macros such as memory blocks. Additional licensing levels are available to automatically analyze your HDL and determine if paths that might be analyzed by timing analysis tools are false.

1.2 *Who Should Use Blue Pearl*

Blue Pearl is intended for use by designers and verification engineers who are verifying digital logic designs written primarily in synthesizable Verilog and VHDL RTL code. Companies that are committed to creating re-usable code, designs that are testable and designs that have high MTBF requirements will benefit from using Blue Pearl. Also companies that are interested in reducing cycle times by spotting problems early on will find Blue Pearl's advanced analysis a great addition to their capabilities.

Blue Pearl is not intended for use on non-synthesizable test-bench code.

2. Verifying your Installation with the Blue Pearl GUI

The installation includes a sample design that you can use to verify that the Blue Pearl Software Suite works in GUI mode.

2.1 Initial GUI window

1. Start the Blue Pearl GUI under Linux by invoking the executable BluePearlVVE (for Visual Verification Environment) found in the `<installation directory>/BluePearl/bin/` directory. Under Windows, select **Start** → **All Programs** → **Blue Pearl Visual Verification Environment** → **Blue Pearl Visual Verification Environment** or double-click the **Blue Pearl Visual Verification Environment** desktop shortcut created by the installation script. A GUI window will appear as shown below.

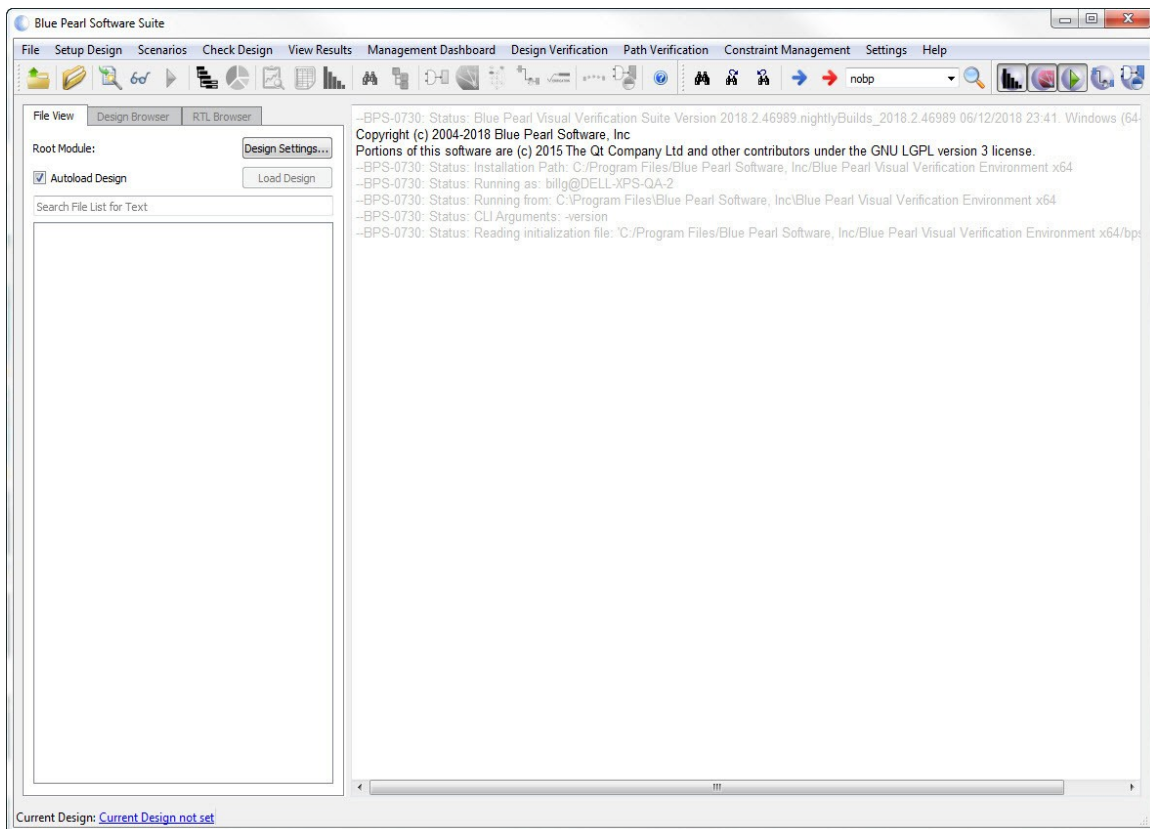


Figure 1: Initial GUI window

2. Inspect the five license buttons in the upper right of the main window. The second and third should be active and selected. The others will be active if you have the corresponding license.

2.2 Tool bar Shortcuts

Immediately below the menu bar is a set of tool bar icons. These icons provide shortcuts to various functions. You will use the fifth (the *Green Triangle*) and the sixth (the *Clipboard*).

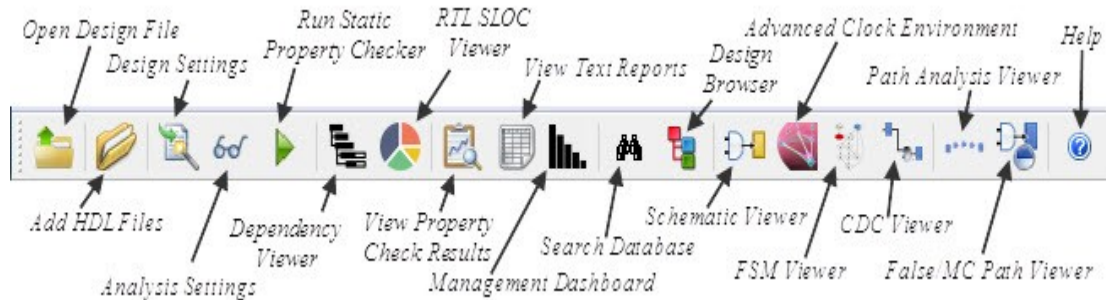


Figure 2: Tool bar Shortcuts

2.3 Run the Example

1. From the main menu, run the command **Help** → **Open Example Project** → **1-Rule Checking** → **1-Base Design**.
2. The design directory will be copied to the location specified under **Settings** → **Preferences**, and the project file will be opened. If no previous example has been run, the **Select Examples Directory** dialog box may appear. Select (or create) a directory and click *Open*.
3. Select all active license buttons.
4. Click the fifth icon (the *Green Triangle*) to run the analysis. Verify that the analysis runs to completion.
5. Click the eighth icon (the *Clipboard*) to open the **Analysis Results** window.
6. The number of messages will depend on the enabled licenses. With no CDC and no SDC, there are 0 errors, 0 warnings and 4 informationals. Enabling the CDC license will result in 2 additional informational messages for a total of 6 unfiltered messages, as shown in Figure 3. Enabling an SDC license will result in 4 more informationals, for a possible total of 10 with all licenses on.

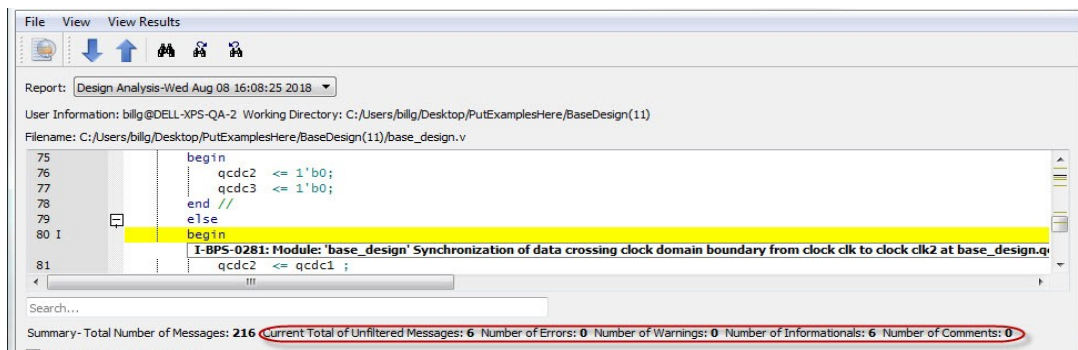


Figure 3: Analysis Report window

That's it! The Blue Pearl Software suite has been successfully installed and verified.

7. Close all Blue Pearl windows.

3. Running in Command-Line Mode

We **strongly recommend** use of the GUI for new users and for initial setup of the input files. Please see Section 3 of the *Blue Pearl Analyze and Blue Pearl CDC Reference Manual* for more details about command line options.

3.1 Creating Template Files from the GUI

The easiest way to run in command-line mode, and the only way to ensure that you can return to the GUI to view the results, is to use the GUI to create template input files.

- 1 In the working directory, create a *design.f* file (where *design* is the top module name), which consists of a list of HDL files followed by an “includir” statement, if necessary, in the format `+includir+source/include` where *source/include* is the path to your “include” directory.
- 2 Start the GUI as described in the previous section.
- 3 Open the **Design Settings** dialog (**Setup Design** → **Design Settings** or the second shortcut).
- 4 Go to the **Design Files** menu, check the **-f File:** check-box, and click “...” to open the **Select -f File** dialog.
- 5 Locate and select the *design.f* file that you created earlier.
- 6 Click **Open** in the **Select -f File** dialog.
- 7 Click the **Load -f File** button to translate the commands in the *design.f* file into the equivalent settings within the GUI.
- 8 Click **OK** in the **Design Settings** dialog. This opens the **Save to Design File** dialog.
- 9 In the **Save to Design File** dialog, enter the top module name as the **File name:** and click **Save**. This saves the *design.bps* file, which is in XML format. This file is used to re-open the GUI and view the results from your command-line run.
- 10 Exit the GUI.
- 11 In the **Results** directory, you will find three files called *design.bluepearlgenerated.f*, *design.settings.tcl*, and *bluepearl.runme.tcl*. Move or copy these into the working directory.

You now have in your working directory the files and directories needed to run in command-line mode and view the results using the GUI.

- 12 Modify these files as desired according to the information found in the *Blue Pearl Analyze and Blue Pearl CDC Reference Manual*.
- 13 Run the Visual Verification Suite under command-line mode as follows:


```
<installation directory>/BluePearlCLI -f \
design.bluepearlgenerated.f
```

3.2 Database Access Script

You may also wish to use the `<installation directory>/scripts/reports.pl` Perl script to access the information from the **Results/results.db** SQLite database file. Feel free to copy it into your working directory and modify it, if you wish. Browse the script and run it with the **-help** option to learn more.