



C++TESK Testing ToolKit: **Installation Guide**

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C++TESK Testing ToolKit can be downloaded from the page <http://forge.ispras.ru/projects/cpptesk-toolkit>.

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Please let us know about your proposals and problems while using C++TESK Testing ToolKit sending them to cpptesk-support@ispras.ru. The forum <http://hw-forum.ispras.ru> can be also used for such a purpose.

Introduction

This document contains the steps which should be passed during the installation process of C++TESK Testing ToolKit (later simply C++TESK). To support verification of HDL-models written in Verilog, Icarus Verilog (<http://iverilog.icarus.com>) and additional tool for VPI-interconnection named VeriTool (<http://forge.ispras.ru/projects/veritool>) are recommended for installation.

System Requirements

1. 32/64-bit Linux OS;
2. Bash 4.2 or higher;
3. GNU GCC 4.1 or higher;
4. Java Runtime Environment (JRE) 1.6 or higher¹;
5. Browser Mozilla Firefox 4.0 or higher²;
6. Packages which are dependencies of Icarus Verilog 0.9.5³: gperf, bison, flex, and g++;
7. Graphviz 2.28 or higher⁴.

Installation

To have C++TESK installed you should pass the following steps:

1. Download the latest version of C++TESK from page <http://forge.ispras.ru/projects/cpptesk-toolkit/files>. It'll be an archive named `cpptesk-toolkit-src-*.tar.gz`.
2. Unzip the file (`tar xf cpptesk-toolkit-src-*.tar.gz`) and start executable script named `install.sh`, using the following parameters:
 - a. `no parameters` — install C++TESK only (version 1.0);
 - b. `--install-veritool` — install⁵ C++TESK (version 1.0), simulator Icarus Verilog (version 0.9.5), and VeriTool (version 0.2.1), if they haven't been installed⁶;
 - c. `--force-install-veritool` — install⁵ C++TESK (version 1.0), simulator Icarus Verilog (version 0.9.5), and VeriTool (version 0.2.1) (Icarus Verilog and VeriTool will be installed even if they have been installed already).

¹ To ensure execution of report generator.

² To ensure execution of distributed testing Web-interface.

³ To ensure execution of VeriTool.

⁴ To ensure visualization of test traces.

⁵ Internet connection is required for the automatic installation of Icarus Verilog and VeriTool. In the other case they are to be installed separately and manually, see chapter *Separated installation of Icarus Verilog and VeriTool*.

⁶ Availability status of Icarus Verilog and VeriTool is checked by means of environment variables `ICARUS_HOME` and `VERITool_HOME` respectively: if the variables are set the installation will not be started; in the other case, the tools will be installed and the variables will be set.

The installation catalogues for all the tools will be chosen according to the following rules:

1. If the environment variable `ISPRAS_HOME` is not defined, the installing C++TESK user's home folder path will be assigned to the variable.
2. If the environment variable `CPPTESK_HOME` is not defined, `$ISPRAS_HOME/tools/cpptesk-toolkit` will be assigned to the variable.
3. If the environment variable `ICARUS_HOME` is not defined, `$ISPRAS_HOME/tools/verilog` will be assigned to the variable.
4. If the environment variable `VERITool_HOME` is not defined, `$ISPRAS_HOME/tools/veritool` will be assigned to the variable.
5. C++TESK is installed into the folder `$CPPTESK_HOME`.
6. Icarus Verilog (if it is required) is installed into the folder `$ICARUS_HOME`.
7. VeriTool (if it is required) is installed into the folder `$VERITool_HOME`.

Separated installation of Icarus Verilog and VeriTool

If the computer is not connected to Internet, separated manual installation of Icarus Verilog and VeriTool is required. First, the installation packages are to be downloaded using the following links: <http://sourceforge.net/projects/iverilog/files/iverilog/0.9.5/verilog-0.9.5.tar.gz> and <http://forge.ispras.ru/projects/veritool/files>.

For manual installation of Icarus Verilog the following steps should be passed:

1. If the system variable `$ICARUS_HOME` is not set, the path where you want Icarus Verilog to be installed should be assigned to. E.g., try the following command sequence:

```
export ICARUS_HOME=<path_for_Icarus_Verilog_installation>
echo "export ICARUS_HOME=$ICARUS_HOME" >> "$HOME/.profile"
echo "export ICARUS_HOME=$ICARUS_HOME" >> "$HOME/.bashrc"
```
2. If the folder `$ICARUS_HOME` does not exist, it should be created:

```
mkdir -p "$ICARUS_HOME"
```
3. Change the directory to the one with installation package of Icarus Verilog and apply the following commands:

```
tar xf verilog-0.9.5.tar.gz
cd verilog-0.9.5
./configure --prefix="$ICARUS_HOME"
make && make install
```

For manual installation of VeriTool the following steps should be passed:

1. If the system variable `$VERITool_HOME` is not set, the path where you want Veritool to be installed should be assigned to. E.g., try the following command sequence:

```
export VERITool_HOME=<path_for_VeriTool_installation>
echo "export VERITool_HOME=$VERITool_HOME">>"$HOME/.profile"
echo "export VERITool_HOME=$VERITool_HOME">>"$HOME/.bashrc"
```
2. If the folder `$VERITool_HOME` does not exist, it should be created:

```
mkdir -p "$VERITool_HOME"
```
3. Change the directory to the one with installation package of VeriTool and apply the following commands:

```
tar xf veritool-<version-number>.tar.gz
cd veritool-<version-number>
./configure --prefix="$VERITool_HOME"
make all && make install
```

Command-line tools

There are a number of command-line tools available in C++TESK after installation.

1. `$CPPTESK_HOME/bin/version.sh` shows C++TESK version number;
2. `$CPPTESK_HOME/bin/update.sh` allows updating C++TESK;
3. `$CPPTESK_HOME/bin/report.sh` generates the test report based on the test trace;
4. `$CPPTESK_HOME/bin/graphviz.sh` visualizes state graph dumped in the test trace;
5. `$CPPTESK_HOME/bin/install-veritool.sh` allows installing or reinstalling of Icarus Verilog and VeriTool separately from C++TESK installation or reinstallation but still requires Internet connection.