

# PetaLinux Tools User Guide

## *Installation Guide*

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## Revision History

| Date       | Version | Notes   |
|------------|---------|---|
| 2009-11-26 | 1.1     | Initial version for SDK 1.1 release                               |
| 2009-12-04 | 1.2     | Updated host package dependency list                              |
| 2010-12-02 | 1.3     | Updated supported OS list   |
| 2011-04-04 | 2.1     | Updated for PetaLinux Tools 2.1 release - 64-bit Ubuntu supported |
| 2012-08-03 | 3.1     | Updated for PetaLinux Tools 3.1 release                           |
| 2012-09-03 | 12.9    | Updated for PetaLinux Tools 12.9 release                          |
| 2012-12-17 | 2012.12 | Updated for PetaLinux Tools 2012.12 release                       |
| 2013-04-29 | 2013.04 | Updated for PetaLinux Tools 2013.04 release                       |
| 2013-11-25 | 2013.10 | Updated for PetaLinux Tools 2013.10 release                       |
| 2014-06-03 | 2014.2  | Updated for PetaLinux Tools 2014.2 release                        |

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## Online Updates

Please refer to the PetaLinux v2014.2 Master Answer Record ( [Xilinx Answer Record #55776](#) ) for the latest updates on PetaLinux Tools usage and documentation.

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## About this Guide

This document provides information on how to install the PetaLinux Tools.

*Please note: the reader of this document is assumed to have basic Linux knowledge such as how to run Linux commands.*

## Prerequisites

This getting started document assumes that the following prerequisites have been satisfied:

- Minimum workstation requirements:
  - 2GB RAM (recommended minimum for Xilinx tools)
  - Pentium 4 2GHz CPU clock or equivalent
  - 5 GB free HDD space
  - Supported OS:
    - RHEL 5 (32-bit or 64-bit)
    - RHEL 6 (32-bit or 64-bit)
    - SUSE Enterprise 11 (32-bit or 64-bit)
- Default shell `"/bin/sh"` is bash.
- PetaLinux release package downloaded. You can download PetaLinux from [Xilinx Downloads](#).
- Common system packages and libraries are installed on your workstation. The installation process will check for these. See the section Required Tools and Libraries for more details.



**IMPORTANT:** *If you are using a 64-bit Linux host, you must install the appropriate 32-bit compatible libraries. Please refer to section Required Tools and Libraries.*

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- Xilinx hardware tools (Vivado) and JTAG cable drivers are installed if you will be working with hardware projects and boards. PetaLinux v2014.2 only works with Vivado 2014.2.
- Xilinx tool XSDK is installed if you will package boot file for Zynq with PetaLinux.

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## PetaLinux Tools Installation

### Run PetaLinux Tools Installer

Assuming all the prerequisites described in the last subsection are satisfied, PetaLinux installation is very straight forward.

PetaLinux tools does not require a license to install or run.

Without any options, the installer will install as a subdirectory of the current directory. Alternatively, an installation path may be specific.

E.g. to install PetaLinux Tools under `"/opt/pkg"`:

```
$ cd /opt/pkg
$ petalinux-v2014.2-final-installer.run
```

or

```
$ petalinux-v2014.2-final-installer.run /opt/pkg
```

Both approaches will install the SDK into `"/opt/pkg/petalinux-v2014.2-final"` directory.

### Setup PetaLinux Tools Working Environment

After the installation, the remainder of the setup is completed automatically.

1. Source the appropriate settings script:

- For Bash:

```
$ source <path-to-installed-PetaLinux>/settings.sh
```

- for C shell:

```
$ source <path-to-installed-PetaLinux>/settings.csh
```

Below is an example of the output from sourcing the setup script for the first time:

```
$ source /opt/petalinux-v2014.2-final/settings.sh
PetaLinux environment set to '/opt/petalinux-v2014.2-final'
INFO: Finalising PetaLinux installation
INFO: Checking free disk space
INFO: Checking installed tools
INFO: Checking installed development libraries
INFO: Checking network and other services
```

2. Verify that the working environment has been set:

```
$ echo $PETALINUX
/opt/petalinux-v2014.2-final
```

Environment variable `"$PETALINUX"` should point to the installed PetaLinux path. Your output may be different from this example, depending upon where you installed PetaLinux.

## PetaLinux Tools Licensing

PetaLinux tools do not require a license to install or run.

By default, webtalk option is enabled to send tools usage statistics back to Xilinx. You can turn off the webtalk feature by running the `petalinux-util --webtalk off` command as follows:

```
$ petalinux-util --webtalk off
```

## Going Further

PetaLinux Tools installation is complete. Please refer to the *PetaLinux Tools Getting Started Guide (UG977)* document to build and boot your first PetaLinux projects.

## Troubleshooting

This section describes some common issues you may experience when installing PetaLinux, and ways to solve them.

If the PetaLinux installation fails, the file "\$PETALINUX/post-install.log" will be generated in your PetaLinux installation directory.

| Problem/Error Message  | Description and Solution   |
|--|--|
| <p>WARNING: You have less than 1Gbyte free space on the installation drive</p> | <p><b>Problem Description:</b><br/>This warning message tells that installation drive is almost full. You may not have enough free space to develop your hardware project and/or software project after the installation.</p> <p><b>Solution:</b></p> <ul style="list-style-type: none"> <li>• Move the PetaLinux to another hard disk drive.</li> </ul> <p>Alternatively,</p> <ul style="list-style-type: none"> <li>• Cleanup the installation drive to clear some more free space.</li> </ul> |
| <p>WARNING: No tftp server found</p>   | <p><b>Problem Description:</b><br/>This warning message tells that you don't have a TFTP service running on your workstation. Without TFTP service, you cannot download Linux system images to your MicroBlaze system using u-boot's network/TFTP capabilities.</p> <p><b>Solution:</b><br/>Enable the TFTP service on your workstation. If you are unsure how to enable this service, please contact your system administrator.</p>   |



| Problem/Error Message   | Description and Solution   |
|---|--|
| <p>ERROR: GCC is not installed - unable to continue. Please install and retry</p>   | <p><b>Problem Description:</b><br/>This error message tells that you don't have gcc installed on your workstation.</p> <p><b>Solution:</b><br/>Please install gcc using your Linux workstation's package management system. If you are unsure how to do this, please contact your system administrator.</p>                              |
| <p>ERROR: You are missing the following system tools required by PetaLinux: <i>missing-tools-list</i><br/><b>OR</b><br/>ERROR: You are missing these development libraries required by PetaLinux: <i>missing-library-list</i></p> | <p><b>Problem Description:</b><br/>This error message tells that you don't have the required tools or libraries listed in the "<i>missing-tools-list</i>" or "<i>missing-library-list</i>".</p> <p><b>Solution:</b><br/>Please install the packages of the missing tools, Refer to section Required Tools and Libraries for details.</p> |

| Problem/Error Message                | Description and Solution  |
|--------------------------------------|---|
| <p>Failed to open PetaLinux lib.</p> | <p><b>Problem Description:</b><br/>           This error message indicates that a PetaLinux library failed to load. The cause of this issue is one of the following:</p> <ul style="list-style-type: none"> <li>• The PetaLinux "settings.sh" has not been loaded.</li> <li>• If the Linux Kernel you are running has SELinux configured. This can cause issues with regards to security context and loading libraries.</li> </ul> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1. Source the "settings.sh" script from the top-level PetaLinux directory.</li> <li>2. If you have SELinux enabled, determine if SELinux is in 'enforcing mode'.</li> </ol> <p>If SELinux is configured in 'enforcing mode' either reconfigure SELinux to 'permissive mode' (refer to SELinux manual), or change the security context of the libraries to allow access (see below for details).</p> <pre style="border: 1px solid black; padding: 5px; margin-top: 20px;">\$ cd \$PETALINUX/tools/common/petalinux/lib \$ chcon -R -t textrel_shlib_t lib</pre> |

## Required Tools and Libraries

PetaLinux requires a number of standard development tools and libraries to be installed on your Linux host workstation. The PetaLinux installation process checks for these packages, and reports an error if any are missing, however it does not attempt to install them - you must do this manually. This section describes the required packages, and how to install them on different Linux workstation environments.

| Tool/Library | YUM/RPM Package for RHEL/CentOS/Fedora                               | APT Package for Debian/Ubuntu             | RPM Package for SuSE       |
|--------------|--|---|----------------------------|
| dos2unix     | dos2unix   | tofrodos                                  | dos2unix                   |
| ip           | iproute  | iproute                                   | iproute2                   |
| gawk         | gawk   | gawk                                      | gawk                       |
| gcc          | gcc  | gcc                                       | gcc                        |
| git          | git  | git-core                                  | git-core                   |
| make         | gnutls-devel   | make                                      | make                       |
| netstat      | net-tools  | net-tools                                 | net-tools                  |
| ncurses      | ncurses-devel  | ncurses-dev                               | ncurses-devel              |
| tftp server  | tftp-server  | tftpd                                     | tftp-server                |
| zlib         | zlib-devel   | zlib1g-dev                                | zlib-devel                 |
| flex         | flex   | flex                                      | flex                       |
| bison        | bison  | bison                                     | bison                      |
| 32bit libs   | libstdc++-4.4.6-4.el6.i686<br>glibc.i686 libgcc.i686<br>libgomp.i386 | ia32-libs<br>lib32ncursesw5<br>lib32gomp1 | 32-bit runtime environment |



**WARNING:** Consult your system administrator if you are unsure about correct procedures for host system package management.

## Additional Resources

### References

- PetaLinux Tools Application Development Guide (UG981)
- PetaLinux Tools Board Bringup Guide (UG980)
- PetaLinux Tools Firmware Upgrade Guide (UG983)
- PetaLinux Tools Getting Started Guide (UG977)
- PetaLinux Tools Installation Guide (UG976)
- PetaLinux Tools QEMU System Emulation Guide (UG982)

PetaLinux Tools Documentation is available at <http://www.xilinx.com/petalinux>.