



# PetaLinux SDK Installation Guide

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## About this Guide

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This document provides information on how to install PetaLinux SDK.

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

## Related Documents

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The following other documents exist to help you to make the most of your PetaLinux experience:

- Getting Started with PetaLinux SDK
- Creating and Debugging User Applications in PetaLinux SDK
- Guide to QEMU System Simulation in PetaLinux SDK

You can also find PetaLinux documentation online at

- <http://www.petalogix.com/resources/documentation>

## PetaLinux SDK Installation

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**If you have any problems during the installation, please refer to “Troubleshooting” section at the end of this document.**

### Prerequisites

PetaLinux installation tool assumes the following prerequisites have been satisfied:

- Minimum workstation requirements:
  - 2Gb RAM
  - Pentium 4 2GHz CPU clock or equivalent
  - 5 GB free HDD space
  - Recommended OS: Ubuntu 10.04 (32 or 64-bit)

- You have registered and obtained the PetaLinux release package and your license file.
- A number of common system packages and libraries are required to be installed on your workstation, and the installation process will check for these. See .... for more details.

## Extract the PetaLinux Package

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

Extract the compressed PetaLinux package by running the following command on your workstation:

```
$ tar xzf petalinux-v2.1-final-full.tar.gz
```

PetaLinux will be installed in the `petalinux-v2.1-final-full` directory, directly underneath the working directory of this command.

So, if you extract the package from your home directory `/home/user`, PetaLinux will be installed in `/home/user/petalinux-v2.1-final-full`

You may move the resulting `petalinux-v2.1-final-full` directory to a preferred location before continuing.

## Install License

PetaLinux license file is delivered by email. If you haven't received your license file, please contact [sales@petalogix.com](mailto:sales@petalogix.com) to apply.

If you have got your license file, please save it to this directory:

```
${HOME}/.PetaLogix/PetaLogix.lic
```

## Setup PetaLinux Working Environment

After extracting the package, the remainder of the setup is completed automatically.

1. Go to the PetaLinux root directory by running this command on the command console:

```
$ cd <path-to-installed-PetaLinux>
```

e.g.:

```
$ cd /home/user/petalinux-v2.1-final-full
```

2. Source the appropriate PetaLinux setup script by running this command on the command console:

- **For Bash:**

```
$ source settings.sh
```

- **For C Shell:**

```
$ . settings.csh
```

**Notes on the settings script:**

- Only run one of these scripts – whichever is appropriate for your command shell
- You must run the settings script each time you open a new terminal window or shell. PetaLinux SDK will not operate correctly otherwise.
- You must be within the PetaLinux root directory (e.g. `/home/user/petalinux-v2.1-final-full`) to source the settings file.

The first time the setup script is sourced, it will perform some post installation tasks to check system dependencies, initialise the Linux kernel source tree and install your PetaLinux license file.

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

```
$ source settings.sh
PetaLinux environment set to '/home/user/petalinux-v2.1-final-
full'
INFO: Finalising PetaLinux installation
INFO: Checking free disk space
INFO: Checking installed tools
INFO: Checking installed development libraries
INFO: Checking network and other services
INFO: Checking for sudo permissions - you may be prompted to
enter your password
Password: *****
INFO: Validating license
INFO: PetaLinux license file has been successfully installed
INFO: Initialising kernel tree. Please be patient.
INFO: PetaLinux post-installation completed successfully
```

If you haven't installed the license file when sourcing the settings file, you will be prompted to input the path to your license file:

```
$ source settings.sh
PetaLinux environment set to '/home/user/petalinux-v2.1-final-
full'
INFO: Finalising PetaLinux installation
INFO: Checking free disk space
INFO: Checking installed tools
INFO: Checking installed development libraries
INFO: Checking network and other services
INFO: Checking for sudo permissions - you may be prompted to
enter your password
Password: *****
Please enter the path to your license file:
/path/to/PetaLogix.lic
license file: /path/to/PetaLogix.lic
INFO: Validating license
INFO: PetaLinux license file has been successfully installed
INFO: Initialising kernel tree. Please be patient.
INFO: PetaLinux post-installation completed successfully
```

The post-install step only occurs once. Subsequent runs of the settings script should be much quicker, and simply output a confirmation message such as that shown below:

```
$ source settings.sh
PetaLinux environment set to '/home/user/petalinux-v2.1-final-
full'
```

3. Verify that the PetaLinux working environment has been set:

```
$ echo $PETALINUX
/home/user/petalinux-v2.1-final-full
```

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

## PetaLinux BSP Installation Procedure

PetaLinux includes reference designs for you to start working with and customise for your own projects. These are provided in the form of installable BSP (Board Support Package) files, and include all necessary design and configuration files, including pre-built and tested hardware and software images, ready for download to your board or for booting in the QEMU system simulation environment..

You will have received one or more BSP files when you purchased PetaLinux. For a list of all available BSPs, or to purchase additional BSPs, please contact

- [sales@petalogix.com](mailto:sales@petalogix.com)

Below are the steps to install a PetaLinux BSP:

1. Run `petalinux-install-bsp` command on the command console:

```
$ petalinux-install-bsp <Path-to-BSP0> [Path-to-BSP1]...
```

To install a single BSP, simply provide the path to the .bsp file:

```
$ petalinux-install-bsp ~/bsps-to-install/Xilinx-SP605-v1.1-
final-rc1.bsp
```

You will see output similar to the following:

```
INFO: Processing BSP package 'Xilinx-SP605-v1.1-final-rc1.bsp'  
  
INFO:   BSP package contents:  
      * Xilinx-SP605-MMU-BSRD-11.3  
INFO:   Extracting package...  
INFO:   Updating BSP(s)...  
INFO: Default BSP settings restored  
INFO: BSP successfully installed.
```

**The command texts are all in one line.**

You may install more than one BSP at a time, simply specified the filenames of each on the command line. You may also install all available BSPs in a single directory, as follows:

```
$ petalinux-install-bsp ~/path/to/*.bsp
```

## Going further

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Congratulations, you have completed the installation of PetaLinux SDK! Next, please refer to the “Getting started with PetaLinux SDK” document to build and boot your first PetaLinux projects.

## Renew License

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When you have got a renewed license from PetaLogix, you will need to install the new license file. In such a case, please follow the following instructions to update your license:

- Check if there is “.PetaLogix/PetaLogix.lic” file in your home directory:

```
$ ls ~/.PetaLogix/PetaLoigx.lic
```

- If the file doesn't exist, it means it is your first time to install PetaLinux, please refer to “PetaLinux SDK Installation” section to install PetaLinux.
- If the directory exists, replace the old license file with the renewed one:

```
$ cp <Path-to-your-new-license> ~/.PetaLogix/PetaLoigx.lic
```

- Go to the PetaLinux installed directory:

```
$ cd <path-to-installed-PetaLinux>
```

- Source the PetaLinux settings file to confirm the new license:

For Bash shell:

```
$ source settings.sh
```

For Cshell:

```
$ source settings.csh
```

If there is any errors from the command, please refer to “Troubleshooting” section.

## 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. Please open a support ticket via <http://www.petalogix.com/support>, and attach the log file to that ticket.

| Problem/Error Message  | Description and Solution  |
|--|---|
| WARNING: You have less than 1Gbyte free space on the installation drive    | <p><b><i>Problem Description:</i></b></p> <p>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><i>Solution:</i></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> |
| WARNING: No tftp server found - please install or enable before continuing | <p><b><i>Problem Description:</i></b></p> <p>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><i>Solution:</i></b></p> <p>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>WARNING: You do not have sudo permission - please refer to "PetaLinux SDK Installation Guide" for its impact and solution</p>  | <p><b><u>Problem Description:</u></b></p> <p>This warning message tells that you don't have <code>sudo</code> permission. If you don't have <code>sudo</code> permission, you cannot use the PetaLinux Software Simulator system (QEMU)</p> <p><b><u>Solution:</u></b></p> <p>Please contact your system administrator to get <code>sudo</code> permission.</p>    |
| <p>ERROR: GCC is not installed - unable to continue. Please install and retry</p>   | <p><b><u>Problem Description:</u></b></p> <p>This error message tells that you don't have <code>gcc</code> installed on your workstation.</p> <p><b><u>Solution:</u></b></p> <p>Please install <code>gcc</code> 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:<br/>&lt;missing-tools-list&gt;</p> <p><b>OR</b></p> <p>ERROR: You are missing these development libraries required by PetaLinux:<br/>&lt;missing-library-list&gt;</p> | <p><b><u>Problem Description:</u></b></p> <p>This error message tells that you don't have the required tools or libraries listed in the “&lt;missing-tools-list&gt;” or “&lt;missing-library-list&gt;”.</p> <p><b><u>Solution:</u></b></p> <p>Please install the packages of those missing tools referring to section “Required Tools and Libraries Packages”.</p> |

| <b>Problem/Error Message</b>   | <b>Description and Solution</b>   |
|--|---|
| ERROR: Unable to reach PetaLogix server - please check your internet connection and HTTPS proxy settings | <p><b><u>Problem Description:</u></b></p> <p>This error message tells that your workstation failed to access PetaLogix server. This is required for license file validation.</p> <p><b><u>Solution:</u></b></p> <p>Please check your network connection and settings. HTTPS access is required – if you are behind a firewall or proxy server please check with your system/network administrator on the correct values for the <code>\$http_proxy</code> and <code>\$https_proxy</code> environment variables.</p>   |
| ERROR: Invalid node ID   | <p><b><u>Problem Description:</u></b></p> <p>This error message tells that the MAC address of your workstation is not the one registered to PetaLinux.</p> <p><b><u>Solution:</u></b></p> <p>Confirm that the NodeID (MAC address) in your license file (<code>~/.PetaLogix/PetaLogix.lic</code>) matches the MAC address of your workstation.</p> <p>Confirm you have installed the license file correctly.</p> <p>Please raise a support ticket and attach the <code>post-install.log</code> file and the output of command <code>"/usr/sbin/ifconfig -a"</code>.</p> |

| Problem/Error Message   | Description and Solution  |
|---|---|
| <p>ERROR: Bad license signature</p> <p><b>OR</b></p> <p>ERROR: Invalid license file.</p> <p><b>OR</b></p> <p>ERROR: Invalid license</p> | <p><b><i><u>Problem Description:</u></i></b></p> <p>This error message tells that your license file is corrupted..</p> <p><b><i><u>Solution:</u></i></b></p> <ol style="list-style-type: none"> <li>1. Check whether the license file “\${HOME}/.PetaLogix/PetaLogix.lic” is license file you have got. To make sure, you should just replace the file with the license file you have got from PetaLogix.</li> <li>2. Source the settings file again.</li> <li>3. If the error continues, please raise a support ticket and attach the <code>post-install.log</code> file.</li> </ol> |
| <p>ERROR: License key not valid yet</p> <p><b>OR</b></p> <p>ERROR: License key has expired</p>  | <p><b><i><u>Problem Description:</u></i></b></p> <p>This error message tells that your PetaLinux license is not valid yet, or has expired.</p> <p><b><i><u>Solution:</u></i></b></p> <ol style="list-style-type: none"> <li>1. Please contact <a href="mailto:sales@petalogix.com">sales@petalogix.com</a> to renew or update your license file.</li> </ol>   |

| <b>Problem/Error Message</b>                          | <b>Description and Solution</b>   |
|---|---|
| ERROR: Unable to perform initial kernel tree checkout | <p><b><i>Problem Description:</i></b></p> <p>This error message tells that you failed to checkout the Linux kernel tree.</p> <p><b><i>Solution:</i></b></p> <ol style="list-style-type: none"><li>1. Check whether the \$PETALINUX/software/linux-2.6.x exists.<br/><br/>If this directory doesn't exist, it probably means that the PetaLinux package extraction failed to complete, possibly due to a lack of disk space. Make sure you have at least 5Gbyte free space on your installation drive at first, and then extract PetaLinux from the PetaLinux package again.</li><li>2. Source the settings script again in the PetaLinux root directory.</li><li>3. If this error continues, please raise a support ticket and attach the <code>post-install.log</code> file.</li></ol> |

## Required Tools and Libraries Packages

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 |
|--------------|--|-------------------------------|
| dos2unix     | dos2unix                               | tofrodo                       |
| ip           | iproute                                | iproute                       |
| gcc          | gcc                                    | gcc                           |
| git          | git                                    | git-core                      |
| gpg          | gnupg                                  | gnupg                         |
| make         | gnutls-devel                           | Make                          |
| netstat      | net-tools                              | net-tools                     |
| ncurses      | ncurses-devel                          | ncurses-dev                   |
| tftp server  | tftp-server                            | tftpd                         |
| zlib         | zlib-devel                             | zlib1g-dev                    |

For RedHat/CentOS/Fedora type systems, the 'yum' package manager is used. To install a package, perform the following command:

```
$ sudo yum install -y <yum-package-name>
```

For Debian/Ubuntu type systems, the 'apt' package manager is used. To install a package, perform the following command:

```
$ sudo apt-get install -y <apt-package-name>
```

## Revision History

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| Date       | Version | Notes  |
|------------|---------|--|
| 11/26/2009 | 1.00    | Initial version for SDK 1.1 release                              |
| 12/4/2009  | 1.01.a  | Updated host package dependency list                             |
| 12/02/2010 | 1.3     | Updated supported OS list  |
| 04/04/11   | 2.1     | Updated for PetaLinux SDK 2.1 release – 64-bit Ubuntu supported. |