Lattice Radiant Software 2026.1 Installation Guide for Linux/Ubuntu

June 26, 2026

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Type Conventions Used in This Document

Convention	Meaning or Use
Bold	Items in the user interface that you select or click. Text that you type into the user interface.
<*Italic*>	Variables in commands, code syntax, and path names.
Ctrl+L	Press the two keys at the same time.
`Courier`	Code examples. Messages, reports, and prompts from the software.
`...`	Omitted material in a line of code.
`.` `.` `.`	Omitted lines in code and report examples.
`[ ]`	Optional items in syntax descriptions. In bus specifications, the brackets are required.
`( )`	Grouped items in syntax descriptions.
`{ }`	Repeatable items in syntax descriptions.
`|`	A choice between items in syntax descriptions.

Contents

Introduction

This document provides instructions on installing Lattice Radiant™ software in a Linux/Ubuntu environment.

Radiant software supports iCE40 UltraPlus™ CertusPro™-NX (LFCPNX) Certus™-NX (LFD2NX) CrossLink™-NX (LIFCL) Certus™-NX-RT (UT24C) CertusPro™-NX-RT (UT24CP), Certus™-N2 (LN2-CT-ES), Avant™ (LAV-AT), MachXO4™ (LFMXO4), and MachXO5™-NX (LFMXO5).

Note

The devices available vary depending on the type of license.

System Requirements

The following are the basic system requirements for Radiant software on Linux/Ubuntu:

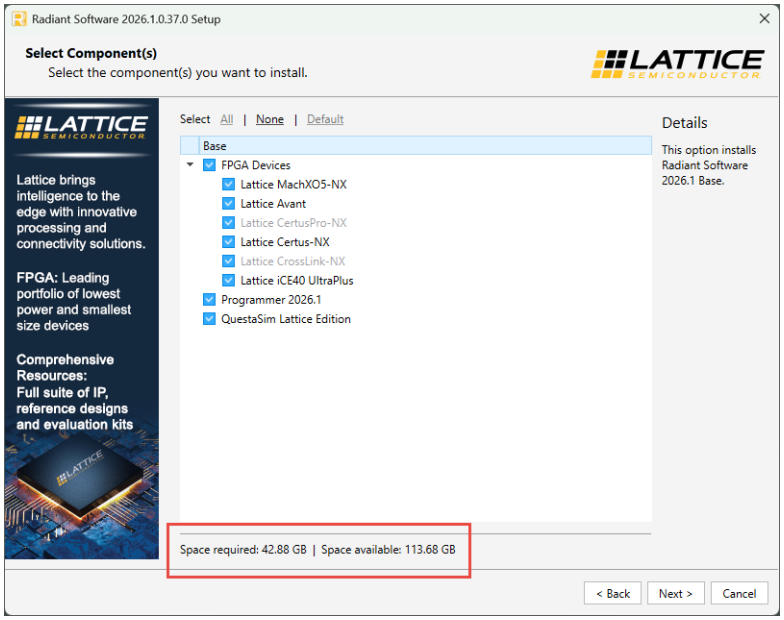
- Intel Pentium or Pentium-compatible PC, or AMD Opteron system support:

  For Radiant Programmer:

  - Radiant software contains a 64-bit driver to support the 64-bit system.
- Red Hat Enterprise Linux version 8.10 operating system.
- Ubuntu version 22.04 or 24.04 LTS operating system.
- CentOS version 7.9 or 8.4 operating system.
- Installation on an NFS-mounted location is supported.
- The host operating system can only be 64-bit.

  - Radiant software is available in a 64-bit version and can only be installed on a 64-bit system.
- Approximately 50 GB free disk space.

  The required disk space varies based on the features selected during installation. In the installation wizard, the note displaying the space requirement updates dynamically whenever you modify the selected features.



- Network adapter and network connectivity.

Note

A floating license requires access to the license server, so both a network adapter and connectivity are required.

- 1024 x 768 graphics display.
- JavaScript-capable Web browser.

Contacting Technical Support

FAQs

The Answer Database provides solutions to questions that many of our customers have already asked. Lattice Applications Engineers are continuously adding to the database.

To access the Answer Database, go to www.latticesemi.com > Support > Answer Database.

For Technical Support Assistance

Submit a technical support case via technical support case portal or go to www.latticesemi.com > Support > Technical Support Request.

For Local Support

Contact your nearest Lattice Sales Office.

Installer Contents

The Radiant software installation package is available for download from https://www.latticesemi.com/latticeradiant. In the **Software Downloads & Documentation** section, go to **Downloads > Downloadable Software** tab. Some documents and downloads are not visible to anonymous visitors. To view all items, please log in to your Lattice account. Follow the product download instructions and uncompress the software.

The following describes the contents of the Radiant software installer.

- The Lattice Radiant, Power Estimator, Programmer, and Reveal file names are as follows:
  - 2026.1.0.37.0_Radiant_lin.run
  - 2026.1.0.37.0_Radiant_PowerEstimator_lin.run
  - 2026.1.0.37.0_Radiant_Programmer_lin.run
  - 2026.1.0.37.0_Radiant_Reveal_lin.run
- The Radiant software “base” installation file installs Radiant software and Synplify Pro for Lattice.
- The Lattice Power Estimator installation file installs the stand-alone Radiant Power Estimator. It is not necessary to install this package if the Radiant software Base is installed. See “Installing Stand-Alone Power Estimator” on page 19 for more information.
- The Radiant Programmer installation file installs the stand-alone Radiant Programmer. It is not necessary to install this package if the Radiant Base is installed. See “Installing Stand-Alone Radiant Programmer” on page 18 for more information.
- The Lattice Reveal installation file installs the stand-alone Radiant Reveal Analyzer. It is not necessary to install this package if the Radiant software Base is installed. See “Installing Stand-Alone Reveal Analyzer” on page 17 for more information.
- The Installation Notice contains installation and licensing information.

Radiant Software Installed Directory Structure

Table 1 shows the Radiant software directory structure after installation:

Table 1: The Radiant Software Directory Structure

File or Directory	Description
bin/lin64/	This directory contains files for running the Radiant software 64-bit GUI.
cae_library/	This directory contains synthesis header libraries for Synplify Pro in both Verilog and VHDL formats. It also contains the libraries for interface kits (ispLSI® design and simulation libraries).
data/	This directory contains files for the Radiant software.
docs/	This directory contains Radiant software documentation, including manuals, tutorials, and the online Help.
examples/	This directory contains Lattice design examples.
ip/	This directory contains files, documentation, and example for the ip.
ispfpga/	This directory contains files for the Radiant software.
license/	This directory contains the license agreement.
questasim/	This directory contains files for the QuestaSim for Lattice software.
programmer/	This directory contains files for Radiant Programmer.
scripts/	This directory contains Lattice script files.
synpbase/	This directory contains files for the Synplify Pro for Lattice software.
tcltk/	This directory contains tcl/tk related files.

Installing Radiant Software on a 64-Bit Platform

Installation Procedure

Download the installation files from the Lattice Semiconductor Web site. For more information on how to download Radiant software, go to http://www.latticesemi.com/latticeradiant. In the **Software Downloads & Documentation** section, go to **Downloads > Downloadable Software** tab. Some documents and downloads are not visible to anonymous visitors. To view all items, please log in to your Lattice account. Follow the product download instructions and uncompress the software.

Radiant software is installed with the **2026.1.0.37.0_Radiant_lin.run** installation file. The file installs all Lattice Semiconductor FPGA devices on your 64-bit system, as well as Synplify Pro for Lattice. The following step guides you through the installation procedure.

To install the Radiant software on 64-bit systems:

1. After downloading the Radiant installer, open a terminal and navigate to the folder where the file is stored.

   ```
   % cd <directory_with_RUN_file>
   ```

2. Execute the .run file to start the installation:

   ```
   % ./2026.1.0.37.0_Radiant_lin.run
   ```

3. The Install Lattice Radiant Software 2026.1 page opens.
4. Click **Next** to go to the Select Installation Folder page.
5. The default destination folder is $HOME/lscc/radiant/2026.1. Click **Browse** to change the destination folder.
6. Click **Next** to go to the Select Components page.
7. Choose the Radiant software components that you want to install by selecting or clearing each of the listed options.

The FPGAs product option has additional options for selecting the Lattice FPGA devices that you want to install. To set the additional options, select **FPGAs** and click the device.

Click **Next** to open the License Agreement page.

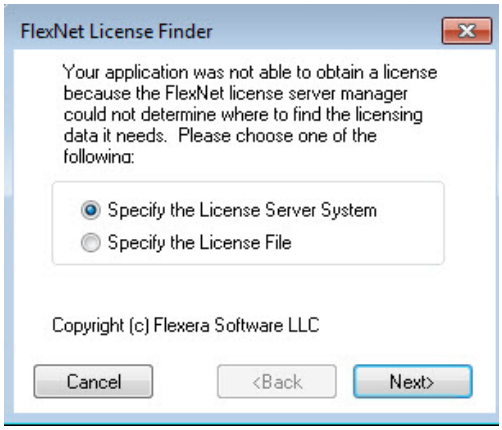
8. Read the license agreement. If you agree, click **I accept the license** to continue the installation process.
9. Click **Next** to go to the Installation Summary page and review the current settings. If everything is correct, select **Install** to start the installation.
10. In the Installation Wizard Complete dialog box, read the confirmation note and click **Finish**.

Note

Do not close the installation window. The window automatically closes once the installation is completed.

If you have never installed any Lattice Software before, the FlexNet License Finder dialog box will pop up to ask you for the license. Select the desired license option and click **Next** to complete the license installation.

Figure 1: Flex License Finder



To Install the Radiant Software Using Console Mode

Go to Radiant software installers directory and execute the command in one line.

```
% cd <directory_with_RUN>
% ./2026.1.0.37.0_Radiant_lin.run --console --prefix
<install_path>
```

Table 1: Installation Options

Option	Description
--prefix	Specifies the installation directory. Can be a local or NFS-mounted drive. If NFS is selected, disk space requirements apply to the NFS drive.
--console	Runs the installer in console mode.
-v, --verbose	Verbose mode. Prints out more information.

Setting the TMPDIR Environment Variable

During installation, Radiant creates temporary files that are stored in a directory defined by the **TMPDIR** environment variable.

By default, most Linux systems use **/tmp** for temporary storage. In some environments, such as systems with limited /tmp space or when using **tmpfs**, you may need to explicitly set TMPDIR to a different location. If TMPDIR is not set, the default temporary storage location is /tmp.

The installation process may require up to 256 MB of temporary storage. If the default /tmp directory does not have enough space, the installation may fail or encounter errors.

When installing on systems with NFS-mounted directories or restricted temporary storage, make sure the chosen directory has sufficient free space.

Set TMPDR if:

- You encounter errors related to insufficient space in /tmp.
- You are installing on a system with a limited or memory-backed /tmp.
- You want to direct temporary files to a specific location with more available space.

To set TMPDIR:

Before running the installer, set the TMPDIR environment variable to a directory with at least 256 MB of free space. For example:

```
export TMPDIR=/path/to/tempdir
```

To verify available space:

```
df -h /path/to/tempdir
```

After installation, you can unset the variable or close the terminal session to revert to the default behavior.

System Library Dependencies

The Radiant software package depends on a set of packages that provide 64-bit system libraries. Some of these packages may depend on lower level packages, or indirect dependencies. To fulfill this dependency, these packages must be installed before Radiant software can be installed.

The following are the packages 2026.1.0.37.0_Radiant_lin.run depends on. This list does not include packages that are included with Radiant software 2026.1.

Installing System Library Packages on a Red Hat 64-bit Operating System

Check which packages are already present on your system by entering the following command and confirming that the named package appears in the results.

```
rpm -qa | grep <package name>
```

The command to install package:

```
sudo yum install <package name>
```

Installing system library packages manually

You can type the following command to determine the required libraries.

```
% ./bin/lin64/check_systemlibrary_radiant.csh
```

If you wish to install system library packages manually, the following is a list of commands to install required libraries:

```
sudo yum install glibc-2.17
```

```
sudo yum install libjpeg
sudo yum install libieee1284
sudo yum install libusb-0.1.4
sudo yum install libX11
sudo yum install libICE
sudo yum install libSM
sudo yum install libXt
sudo yum install libXext
sudo yum install libXrender
sudo yum install libXi
sudo yum install libXft
sudo yum install libxslt
sudo yum install libXrandr
sudo yum install libXfixes
sudo yum install libXdamage
sudo yum install libXcursor
sudo yum install libXcomposite
sudo yum install libGL
sudo yum install libXinerama
sudo yum install libXScrnSaver
sudo yum install libxcb
sudo yum install libxkbcommon
sudo yum install libxkbcommon-x11
sudo yum install libXau
sudo yum install libXv
sudo yum install libnsl
sudo yum install xcb-util-wm
sudo yum install xcb-util-image
sudo yum install xcb-util-keysyms
sudo yum install xcb-util-renderutil
sudo yum install nss-softokn-freebl
sudo yum install atk
sudo yum install cairo
sudo yum install nss
sudo yum install pango
sudo yum install mesa-dri-drivers
sudo yum install pulseaudio
sudo yum install gstreamer1
sudo yum install cdparanoia-libs
sudo yum install opus
sudo yum install libtheora
sudo yum install iso-codes
sudo yum install libvisual
sudo yum install libglvnd-glx
sudo yum install libglvnd
sudo yum install gstreamer1-plugins-base
sudo yum install libX11-devel
sudo yum install libXext-devel
sudo yum install libXfixes-devel
sudo yum install libXdamage-devel
sudo yum install mesa-libGL-devel
sudo yum install nss-tools
sudo yum install nss-devel
sudo yum install nss-softokn
sudo yum install nss-util-devel
sudo yum install nss-softokn-freebl-devel
sudo yum install nss-softokn-devel
sudo yum install libxcb-devel
sudo yum install libxkbcommon-devel
```

```
sudo yum install libXau-devel
sudo yum install libglvnd-opengl
sudo yum install libglvnd-egl
sudo yum install libglvnd-devel
sudo yum install libglvnd-core-devel
sudo yum install mesa-libEGL
sudo yum install libxkbfile
sudo yum install xcb-util-cursor
sudo yum install libXtst
sudo yum install libusbx
```

Installing System Library Packages on Ubuntu 64-bit Operating System

Check which packages are already present on your system by entering the following command and confirming that the named package appears in the results.

```
dpkg -l | grep <package name>
```

The command to install package:

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

Installing system library packages manually

You can type the following command to determine the required libraries.

```
% ./bin/lin64/check_systemlibrary_radiant.bash
```

If you wish to install system library packages manually, the following is a list of required libraries:

```
atk
cairo
pango
pulseaudio
libc6
libjpeg-dev
libieee1284-3
libusb-0.1.4
libnss3
libice
libgl
libgl1
libglx0
libgl-mesa-glx
libsm
libxt
libxtst6
libdbus-1-3
libxext
libxrender
libxi
```

```
libxft
libxslt
libxrandr
libxfixes
libxdamage
libxcursor
libxcomposite
libxinerama
libxss1
libxcb-image0
libxcb-keysyms1
libxcb-render-util0
libxcb-xkb1
libxcb-shape0
libxcb-xinput0
libxcb-xinerama0
libxkbcommon0
libxkbcommon-x11-0
libxcb-icccm4
libx11
libgl1-mesa-dri
libgstreamer1.0-0
libxv1
cdparanoia
opus
libtheora
iso-codes
libvisual
gstreamer1.0-plugins-base
curl
libcurl3-gnutls:amd64
libcurl4:amd64
python3-pycurl
libopengl0
libegl1
libxkbfile1
libxcb-cursor0
libxcb-randr0
```

Installing Stand-alone Tools

This section describes how to install Radiant software tools including Stand-Alone Reveal Analyzer and Stand-Alone Programmer.

Installing Stand-Alone Reveal Analyzer

Reveal Analyzer is included in the Radiant software installation, but can be used without installing the Radiant software. Use one of the following files to install the stand-alone version of Radiant Reveal Analyzer:

- 2026.1.0.37.0_Radiant_Reveal_lin.run for 64-bit systems.

To install the stand-alone Reveal Analyzer:

1. Close all applications before starting installation
2. Go to Radiant software installers directory and execute the Radiant Reveal run file.

```
% cd <directory_with_RUN>
% ./2026.1.0.37.0_Radiant_Reveal_lin.run
```

3. The Welcome To Lattice Radiant Reveal setup dialog box opens.
4. Click **Next** to open the Installation Folder dialog box.
5. The default destination folder is /home/lattice/lscc/reveal/radiant/2026.1. Click **Browse** to change the destination folder.
6. Click **Next** to open the Select Components dialog box.
7. Click **Next** to open the License Agreement dialog box.
8. Read the license agreement. If you agree, click **I accept the license** to continue the installation process.

9. Click **Next** to Ready to Install dialog box. Review the destination folder and components selected. If everything is correct, select **Install** to start the installation.
10. In the Installation Wizard Complete dialog box, read the note and click **Finish**.

Installing Stand-Alone Radiant Programmer

Radiant Programmer is included in the Radiant software installation and consists of four tools:

- Radiant Programmer
- Deployment Tool
- Download Debugger
- Programming File Utility

If you want to use Radiant Programmer, Deployment Tool, Download Debugger, or Programming File Utility, without installing Radiant software, use one of the following files to install the stand-alone Radiant Programmer:

- 2026.1.0.37.0_Radiant_Programmer_lin.run for 64-bit systems.

To install the stand-alone Radiant Programmer:

1. Close all applications before starting installation
2. Go to Radiant software installers directory and execute the Radiant Programmer run file.

```
% cd <directory_with_RUN>
% ./2026.1.0.37.0_Radiant_Programmer_lin.run
```

3. The Welcome To Lattice Radiant Programmer setup dialog box opens.
4. Click **Next** to open the Installation Folder dialog box.
5. The default destination folder is /home/lattice/lscc/programmer/radiant/2026.1. Click **Browse** to change the destination folder.
6. Click **Next** to open the Select Components dialog box.
7. Click **Next** to open the License Agreement dialog box.
8. Read the license agreement. If you agree, click **I accept the license** to continue the installation process.
9. Click **Next** to Ready to Install dialog box. Review the destination folder and components selected. If everything is correct, select **Install** to start the installation.
10. In the Installation Wizard Complete dialog box, read the note and click **Finish**.

Installing Stand-Alone Power Estimator

Power Calculator is included in the Radiant software installation, but can be used without installing the Radiant software. Use one of the following files to install the stand-alone version of Radiant Power Estimator:

- 2026.1.0.37.0_Radiant_PowerEstimator_lin.run for 64-bit systems.

To install the stand-alone Power Estimator:

1. Close all applications before starting installation
2. Go to Radiant software installers directory and execute the Radiant Power Estimator run file.

   ```
   % cd <directory_with_RUN>
   % ./2026.1.0.37.0_Radiant_PowerEstimator_lin.run
   ```

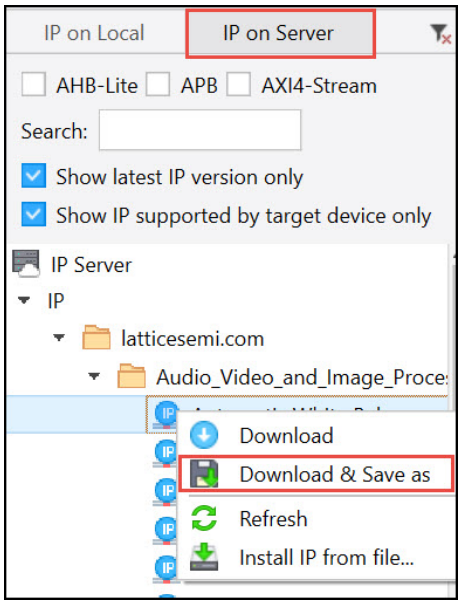
3. The Welcome To Lattice Radiant Power Estimator setup dialog box opens.
4. Click **Next** to open the Installation Folder dialog box.
5. The default destination folder is /home/lattice/lscc/powerestimator/radiant/2026.1. Click **Browse** to change the destination folder.
6. Click **Next** to open the Select Components dialog box.
7. Click **Next** to open the License Agreement dialog box.
8. Read the license agreement. If you agree, click **I accept the license** to continue the installation process.
9. Click **Next** to Ready to Install dialog box. Review the destination folder and components selected. If everything is correct, select **Install** to start the installation.
10. In the Installation Wizard Complete dialog box, read the note and click **Finish**.

Downloading a Soft IP from IP Catalog

From the IP on Server tab of IP Catalog, you can download and save an IP package to a folder in your local machine or network. This is especially helpful when you need to share an .IPK file in facilities without internet access.

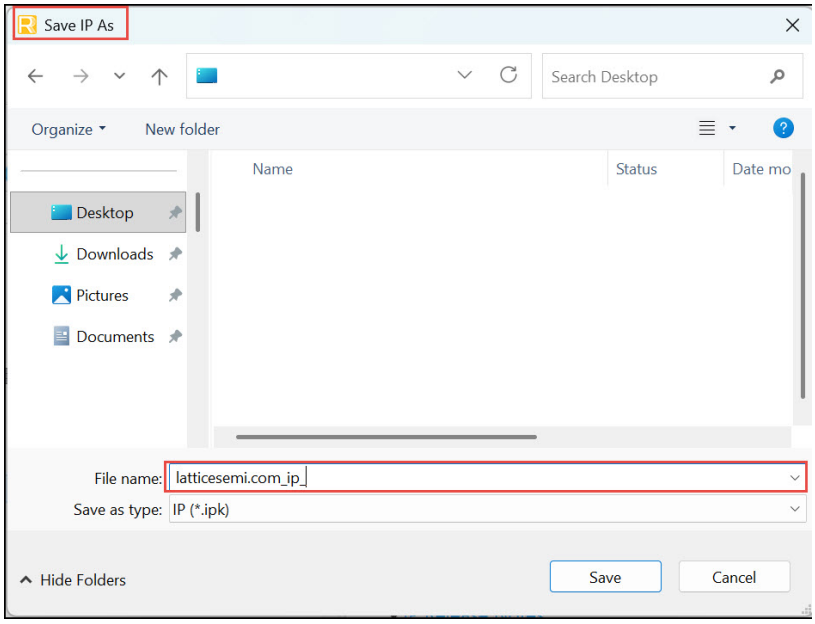
To download and save a Soft IP:

1. In the **IP on Server** tab of **IP Catalog**, right-click the IP and select **Download & Save as**.



   The **Save IP As** dialog box opens.

2. Select or create a location for the IP.
3. If preferred, give the IP a new name in the “File name” box.


Save IP As
Search Desktop
Organize
New folder
Name
Status
Date mo
Desktop
Downloads
Pictures
Documents
File name:
latticesemi.com_ip_
Save as type:
IP (*.ipk)
Hide Folders
Save
Cancel

4. Click **Save**.

Installing and Configuring USB Cables

This section provides information on USB cable installation and configuration. These instructions are applicable for 64-bit Linux/Ubuntu/CentOS systems.

Lattice USB Download Cable Configuration

Radiant Programmer software can directly access USB devices using libusb, which accesses the USB file system. To verify that you have the USB library installed, do the following:

1. Plug in the USB cable.
2. In the command line, type:

   ```
   $ lsusb
   ```

   Lattice USB2A

   You should see an entry similar to the following:

   ```
   > Bus 001 Device 004: ID 1134:8001
   ```

   HW-USBN-2B (FTDI)

   You should see an entry similar to the following:

   ```
   > Bus 001 Device 003: ID 0403:6010 Future Technology Devices
   International, Ltd FT2232C/D/H Dual UART/FIFO IC
   ```

3. If you get an error after you enter `lsusb`, you might not have libusb installed. To install libusb, go to:

   http://libusb.sourceforge.net/

   The recommended version to install is libusb-0.1.4-3.el7.x86_64.rpm

4. Unplug the USB cable.

Note

The USB cable must be disconnected from the PC when performing the installations. You must have root access and be able to log in as a super user.

Giving Lattice USB2A Drivers Read/ Write Permission to Selected Individuals

1. Plug in the USB cable.
2. In the command line, type:

   ```
   % lsusb
   ```

   You should see an entry similar to the following:

   ```
   > Bus 001 Device 004: ID 1134:8001
   ```

3. This means the USB2A is in Bus 001 and device 004. Go to the directory

   ```
   % cd /dev/bus/usb/001
   ```

4. Grant execute permissions to the device. On the command line, type:

   ```
   % sudo chmod 777 004
   ```

Giving HW-USBN-2B (FTDI) USB Drivers Read/Write Permission to Selected Individuals

1. Plug in the USB cable.
2. In the command line, type:

   ```
   % /lsusb
   ```

   You should see an entry similar to the following:

   ```
   > Bus 001 Device 003: ID 0403:6010 Future Technology Devices
   International, Ltd FT2232C/D/H Dual UART/FIFO IC
   ```

3. This mean the FTDI chip is in Bus 001 and device 003. Go to the directory

   ```
   % cd /dev/bus/usb/001
   ```

4. Grant execute permissions to the device. On the command line, type:

   ```
   % sudo chmod 777 003
   ```

5. Unload the ftdi_sio driver if it is attached to your device.

   ```
   % sudo /sbin/rmmod ftdi_sio
   ```

6. Unload the usbserial driver if it is attached to your device.

```
% sudo /sbin/rmmod usbserial
```

Note

If you got error "rmmod: ERROR: Module usbserial is builtin." when running command "sudo /sbin/rmmod usbserial" on RedHat OS, please ignore it and go on.

Driver Setup for Lattice USB2A and HW-USBN-2B (FTDI) USB Download Cable on Red Hat Enterprise Linux 8

Automated UDEV Method Configuration:

1. Create an entry called “plugdev” in the /etc/group file, and then add anyone logging into the system into that group. Make sure /usr/bin/id shows you as a member of the plugdev group. Log out if required. Example:

   ```
   plugdev:x:501:username
   ```

2. Type the following command to execute the script:

   ```
   % sudo <install_path>/data/vmdata/udevsetup_rh7_8
   ```

   Notice

   1. Finish creating "plugdev", please reboot. If "plugdev" existing on /etc/group, please go to step 2.
   2. Type "id" on Linux command line, check if the "plugdev" existing.

Manual UDEV Method Configuration:

1. Find your username which is given in /etc/group file. Log out if required. Example:

   ```
   username:x:1000:username
   ```

2. Create a working file called 10-local.rules.
3. Add the following information to the 10-local.rules file:

```
#Lattice
SUBSYSTEM=="usb",ACTION=="add",ATTRS{idVendor}=="1134",ATTRS{idProduct}=="8001",MODE==
"0660",GROUP=="username",SYMLINK+="lattice-%n"
#FTDI
SUBSYSTEM=="usb",ACTION=="add",ATTRS{idVendor}=="0403",ATTRS{idProduct}=="6010",MODE==
"0666",GROUP=="username",SYMLINK+="ftdi-%n"
SUBSYSTEM=="usb",ATTRS{idVendor}=="0403",ATTRS{idProduct}=="6010",RUN+="/bin/sh -c
'basename %p > /sys/bus/usb/drivers/ftdi_sio/unbind'"
```

Notes

1. Replace the username with your username in above rules.
2. Each SUBSYSTEM entry must be a single line or a split line using the "\" line continuation character.

4. Copy the file into the /etc/udev/rules.d/10-local.rules directory. If a file by this name already exists, simply append the working file to it.
   Example:

   ```
   % sudo cp 10-local.rules /etc/udev/rules.d/
   ```

   Or, if the file already exists:

   ```
   % sudo cat 10-local.rules >>/etc/udev/rules.d/10-local.rules
   ```

5. Give permission to 10-local.rules as follows :

   ```
   % sudo chmod 755 10-local.rules
   ```

6. Now reload the udev rules by adding the following:

   ```
   % sudo udevadm control --reload-rules
   ```

7. Plug in the USB cable.

Driver Setup for Lattice USB2A and HW-USBN-2B (FTDI) USB Download Cable on Ubuntu 18.04/20.04 LTS

Note

User needs to download and install libusb-0.1.4 first in Ubuntu 18.04.

Automated UDEV Method Configuration

1. Create an entry called "plugdev" in the /etc/group file, and then add anyone logging into the system into that group. Make sure /usr/bin/id shows you as a member of the plugdev group. Log out if required.
   Example:

   ```
   plugdev:x:501:username
   ```

2. Type the following command to execute the script:

```
% sudo <install_path>/data/vmdata/udevsetup_ubuntu
```

The script should terminate with a “Setup successful” output

Manual UDEV Method Configuration:

1. Create an entry called “plugdev” in the /etc/group file, and then add anyone logging into the system into that group. Make sure /usr/bin/id shows you as a member of the plugdev group. Log out if required. Example:

```
plugdev:x:501:username
```

2. In the /etc/udev/rules.d/ directory, change the permission of the 70-persistent-net.rules file

```
% sudo chmod 755 /etc/udev/rules.d/ 70-persistent-net.rules
```

If the file does not exist, create a working file called 70-persistent-net.rules.

3. Add the following information to the 70-persistent-net.rules:

```
#Lattice
SUBSYSTEM=="usb", ACTION=="add", ATTRS{idVendor}=="1134", ATTRS{idProduct}=="8001",
MODE="0666", GROUP="plugdev", SYMLINK+="lattice-%n"
#FTDI
SUBSYSTEM=="usb", ACTION=="add", ATTRS{idVendor}=="0403", ATTRS{idProduct}=="6010",
MODE="0666", GROUP="plugdev", SYMLINK+="ftdi-%n"
SUBSYSTEM=="usb", ATTRS{idVendor}=="0403", ATTRS{idProduct}=="6010", RUN+="/bin/sh -c
'basename %p >/sys/bus/usb/drivers/ftdi_sio/unbind'"
```

Note

Each SUBSYSTEM entry must be a single line, or split using the “\” line continuation character.

4. Save and close the file. Make the new UDEV settings active, as follows:

```
% sudo udevadm control --reload-rules
% sudo udevadm trigger
```

5. Plug in the USB cable.

Licensing the Radiant Software

The Radiant software development tool is licensed software. In order for you to launch the tool you must configure a FlexLM license. The license can be either node-locked to the local machine, or acquired from a license server accessible from a LAN or WiFi connection. The default location of the license file is `<install_path>/license/license.dat`. If this location is changed, you must set the LATTICE_LICENSE_FILE environment variable to include the new path name.

The following environment user variables can be configured.

- **LATTICE_LICENSE_FILE** – A variable for lattice license file setting.
- **SALT_LICENSE_SERVER** – A variable required for launching QuestaSim's **latticeqsim** feature.
- **MGLS_LICENSE_FILE** – A variable required for launching ModelSim's **latticemsim** feature.

Notes

- Radiant software permits the creation of configuration bitstreams for all of Lattice Semiconductor's FPGAs. However, a license is required for some devices.
- To use the included Questa Lattice OEM simulator, you need a license with the latticeqsim license feature. The licenses generated for use with the Modelsim Lattice OEM simulator have the latticemsim license feature and must be updated to the new feature to use Questa Lattice OEM. To start qsim, you need to set either the LM_LICENSE_FILE, SALT_LICENSE_SERVER or MGLS_LICENSE_FILE.
- In order to change the LATTICE_LICENSE_FILE variable, you may need to edit the .cshrc or .bashrc configuration file located in your home directory.

License Management Versions

Table 1 lists the version numbers of the FlexLM lmutil utility, the FlexLM lmgrd utility, and the Lattice daemon used for license management for 64-bit systems.

Table 1: License Management Utility Versions

Filename	Version	Description
lmutil	11.19.4.1	FlexLM license server utility
lmgrd	11.19.4.1	FlexLM end-user utility
lattice	11.19.4.1	The Lattice Semiconductor licensing daemon

Obtaining a License

To register and license your Radiant software:

1. Obtain the host ID of your license server with the following command:

   ```
   % <install_path>/ispfpga/bin/lin64/lmutil lmhostid
   ```

2. Go to the Licensing section of the Lattice Semiconductor Web site (www.latticesemi.com/license) and follow the on-screen instructions.

   Note

   Lattice Semiconductor offers licensing for either a single server or a set of three redundant servers. For redundant server setups, make sure to include all three server host IDs on the License File/Registration Form. Note that the three-server license option is not available through the free license on the website. To enable this feature, you will need to submit a support ticket.

   Lattice Semiconductor will email your Radiant software license file (license.dat) to you within one working day. After you receive the license file, copy the license.dat file to the Radiant software license directory as follows:

   ```
   % <install_path>/license/license.dat
   ```

Editing the License File

You need to edit the floating license file to include the server name and the path to the Lattice daemon. Do not make any other changes, as this could cause license issues.

The following example shows part of a floating license file:

```
SERVER nodename 1234abcd 1710
DAEMON lattice daemon_path
FEATURE LSC_RADIANT lattice 2025.06 12-jun-2025 1 4AB180876D89
```

```
\
VENDOR_STRING=LSC_RADIANT
FEATURE LSC_SYNPLIFYPRO1 lattice 2025.06 12-jun-2025 1
D86E40930FFB \
VENDOR_STRING="ispLEVER System with
Synplicity Pro 1"
FEATURE LSC_CTL_PROPBLD lattice 2025.06 12-jun-2025 1
8AE4CA6C0D82 \
VENDOR_STRING=LSC_CTL_PROPBLD
FEATURE LSC_CTL_PROPSDK_PFR lattice 2025.06 12-jun-2025 1 \
45FBE5EEB71D
VENDOR_STRING=LSC_CTL_PROPBLD
```

Edit the SERVER line by replacing the *nodename* with the host name and the port ID (1710). The port ID, 1710 in this example, must be assigned a TCP/IP port number that is not already in use on the server, so you might need to change it.

Edit the Lattice DAEMON line, replacing *daemon_path* with the path to Radiant software. For lmgrd V11, the path is:

```
% <install_path> /ispfpga/bin/lin64/lattice
```

Edit the QuestaSim DAEMON line, replacing *daemon_path* with the path to QuestaSim Lattice Edition. For QuestaSim, the path is:

```
% <install_path>/radiant/2026.1/questasim/license_server/saltd
```

This applies if the line reads “DAEMON saltd....” If your license file shows “DAEMON mgcld...”, simply edit it by replacing “mgcld” with “saltd” and then add saltd path in the daemon_path.

When editing these lines, type them exactly as you received them. All entries are case-sensitive.

Note

The encryption codes are in hexadecimal format (digits 0-9, and lower-case letters a-f or upper-case letters A-F).

$HOME/.flexlmrc can be used to set LATTICE_LICENSE_FILE variable, and you should do the cleanup if it is necessary.

Starting the License Manager

Type the following command on one line to start the license manager daemon:

```
% <install_path>/ispfpga/bin/lin64/lmgrd
  -l <install_path>/license/license.log
  -c <install_path>/license/license.dat
```

Redirecting output to a log file is helpful when you debug licensing problems. The -l switch tells the license manager to send its output to a log file (license.log), and -c tells it which license to serve. The log file contains

information on the status of the server and the daemon and TCP port in use. It also shows which users have checked out the license and the checkout time.

Stopping the License Manager

If it is necessary to stop the FlexLM license manager, follow this procedure:

1. Confirm that the daemon is running by typing the following command:

   ```
   % ps -ef | grep lmgrd
   ```

2. If **lmgrd.exe** is running, type the following command on one line to stop the daemon:

   For 64-bit systems:

   ```
   % <install_path>/ispfpga/bin/lin64/lmutil lmdown -c
   <install_path>/license/license.dat
   ```

   The following prompt appears:

   ```
   Shutting down FlexLM on nodes: <hostname>
   Are you sure? [y/n]:
   ```

3. Type **Y** and press **Enter** to shut down the license daemon.

Installing and Running the License Manager on a Remote Server

You can install and run the License Manager from a location other than the default directory.

To install the License Manager to a different location, copy the files lattice, lmgrd, and lmutil from the following directory:

```
% <install_path>/ispfpga/bin/lin64/
```

to the desired location. For example:

```
% <remote_server_install_path>/my_machine/lattice_license/
```

Starting the License Manager from a Remote Server

Type the following command on one line to start the license manager daemon:

```
% <remote_server_install_path>/lmgrd
  -l <install_path>/license/license.log
  -c <install_path>/license/license.dat
```

Stopping the License Manager on a Remote Server

If it is necessary to stop the FlexLM license manager running on a remote server, follow this procedure:

1. Confirm that the daemon is running by typing the following command:

   ```
   % ps -ef | grep lmgrd
   ```

2. If lmgrd.exe is running, type the following command on one line to stop the daemon:

   ```
   % <remote_server_install_path>/lmutil lmdown -c
   <install_path>/license/license.dat
   ```

   The following prompt appears:

   ```
   Shutting down FlexLM on nodes: <hostname>
   Are you sure? [y/n]:
   ```

3. Type **Y** and press **Enter** to shut down the license daemon.

Setting Up a Floating License on Linux/Ubuntu

The licensing steps outlined in the previous sections can be performed on a centralized license server. Then each client points to the license file on that machine.

To gain access to the licenses on the remote license server, you need to set the environment variable LATTICE_LICENSE_FILE value to *license_port_number@linux/ubuntu_host_name*.

Installing System Library Packages to Set up Floating License Server

If the dynamic linker/loader ld-lsb-x86-64 cannot be found, it is an indication that LSB packages are missing.

Installing system library package on Red Hat 64-bit Operating System manually

If you wish to install system library package manually, the following is the command to install required library:

```
sudo yum install redhat-lsb
```

Installing system library package on Ubuntu 64-bit Operating System manually

For Ubuntu 22.04 and earlier:

If you wish to install system library package manually, use the following command to install the required library:

```
sudo apt-get install lsb-core
```

For Ubuntu 24.04 and later:

The lsb-core package is no longer available. To set up the floating license server, manually create a symbolic link by running the following commands:

```
sudo mkdir -p /lib64
sudo ln -s /lib64/ld-linux-x86-64.so.2 /lib64/ld-lsb-x86-
64.so.3
sudo apt update
sudo apt install lsb-release lsb-base
sudo ldconfig
```

Note

Radiant software uses the following network communication ports (TCP/IP socket ports):

- Port 80 – This is the standard HTTP web access port. Radiant software uses this port in the following cases:
  - When the Radiant software has updates from the Lattice web site.
  - IP or reference designs are downloaded from the Lattice web site.
  - When message ID's are sent.
- Port 7788 – This is the port used by the Radiant software to check the floating license between the software and license server. This port is configurable by changing the license files.

Troubleshooting a Floating License

The following procedures can be useful in troubleshooting common floating license issues.

Check the Network

Use the ping command to check network status. For example, type:

```
% ping <license_server>
```

If the license server is running, you can expect a return as follows:

```
64 bytes from <license_server> <IP_address>
```

To end, type **CTRL+C**.

Check License File with lmutil

Use the lmutil tool to troubleshoot the status of your license file. The lmutil tool is located in the following location:

<*install_path*>/ispfpga/bin/lin64

The **lmstat** command determines the features of your license file.

- The -a argument displays all information.
- The -c argument uses the specified license files.

The following is an example of using the **lmutil lmstat** command to check the license file status:

```
% ./lmutil lmstat -a -c <license_port>@<license_server>
```

The license status is returned, including feature lines, number of licenses issued, and licenses in use.

Running the Radiant Software

Running Radiant Software from the GUI

Radiant software 2026.1 has a graphical user interface (GUI). When you run the Radiant software 2026.1 executable file, the software automatically performs the environment setup.

To start the Lattice Radiant Software GUI:

1. Set up the license as follows:

   If your license file (license.dat) is not under <*install_path*>/2026.1/license, you must set the LATTICE_LICENSE_FILE variable to the location of your license file. For example:

   For CSH users:

   ```
   % setenv LATTICE_LICENSE_FILE$LATTICE_LICENSE_FILE (/
   <license_directory>/license.dat)
   ```

   For BASH users:

   ```
   % export LATTICE_LICENSE_FILE=$LATTICE_LICENSE_FILE:/
   <license_directory>/license.dat
   ```

2. Run the Radiant software executable file in the command line as follows:

   ```
   % <install_path>/bin/lin64/radiant &
   ```

   With the Radiant software script, you can also run the following tools in stand-alone mode.

   To invoke stand-alone Reveal Analyzer, run:

   ```
   % revealrva
   ```

Refer to the Radiant software online Help for more information about the Radiant software GUI.

Finding the Installation History

The Radiant software records a log of your installation history. You can find the history in the Radiant software main window.

To view the installation history:

1. Open the Radiant software GUI.
2. Choose **Help > About Lattice Radiant Software.**

Running Radiant Software from the Command Line

There are two ways to run the Radiant software from the command line:

- Through Radiant Tcl Console.
- By running executable files directly.

Running Stand-Alone Radiant Tcl Console

Radiant software development environment includes Tcl Console, which allows you to run scripts for automating common tasks. Tcl Console is also available outside of the user interface in order to run custom scripts. To launch the stand-alone Tcl Console, enter the following on a command line:

```
% <install_path>/bin/lin64/radiantc
```

These commands configure the environment allowing all of the underlying design tools to be run. Refer to the online Help for more information about the command line.

Running Using CSH or BASH Interpreters

BASH users must run the following commands:

```
% export bindir=<install_path>/bin/lin64
% source $bindir/radiant_env
```

Next, you can run the executable files directly. For example, you can invoke the Radiant software GUI by using:

```
% <install_path>/bin/lin64/radiant &
```

Or, you can run Power Calculator by running:

```
% <install_path>/bin/lin64/pwcmain &
```

Running Synplify Pro for Lattice

To run Synplify Pro for Lattice, do the following:

1. Open the Radiant software GUI.
2. Open any project to enable the commands on the Tools menu.
3. Choose **Tools > Synplify Pro for Lattice**.

Running Stand-Alone Radiant Reveal Analyzer

After the installation, you can invoke the stand-alone Radiant Reveal Analyzer in the command line:

```
% <install_path>/bin/lin64/revealrva &
```

Running Stand-Alone Radiant Power Estimator

After the installation, you can invoke the stand-alone Radiant Power Estimator in the command line:

```
% <install_path>/bin/lin64/powercal est &
```

Running Stand-Alone Radiant Programmer

After the installation, you can invoke the stand-alone Radiant Programmer in the command line:

```
% <install_path>/programmer/bin/lin64/programmer &
```

Running Stand-Alone Deployment Tool

After Programmer installation, you can invoke the stand-alone Deployment Tool in the command line:

```
% <install_path>/programmer/bin/lin64/deployment &
```

Running Stand-Alone Debugger

After Programmer installation, you can invoke the stand-alone Debugger in the command line:

Running Download Debugger on 64-bit systems:

```
% <install_path>/programmer/bin/lin64/debugger &
```

Running Stand-Alone Programming File Utility

After the installation, you can invoke the stand-alone Programming File Utility in the command line:

```
% <install_path>/programmer/bin/lin64/fileutility &
```

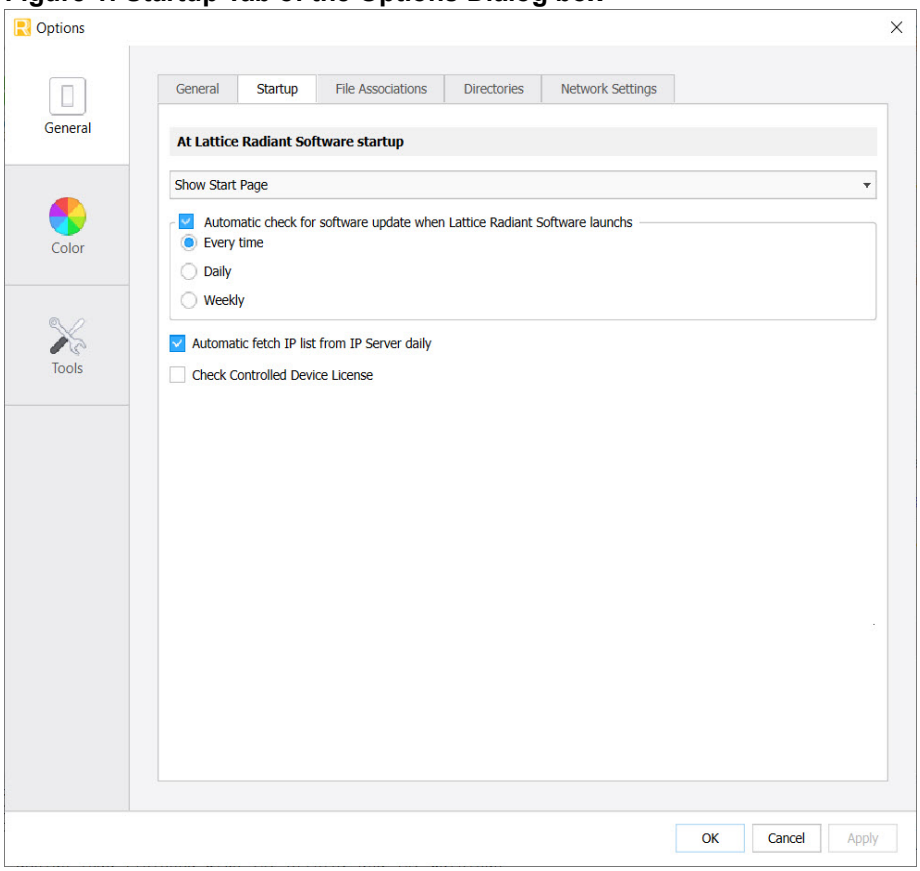
Updating Lattice Radiant Software

After you have registered and licensed your installation, check the Lattice Semiconductor Web site for new software updates, device support, and enhancements. Make sure that you have the latest software by checking for updates regularly.

To activate UPDATE:

1. To enable automatically check for software update when Radiant software is launched, if you do not see Update window pops up. In Start page do as follows:
   - Select the **Startup** tab of the Options dialog box in Tools, click “Automatically check for software update when Lattice Radiant Software launches” and choose how often it will check.

Figure 1: Startup Tab of the Options Dialog box

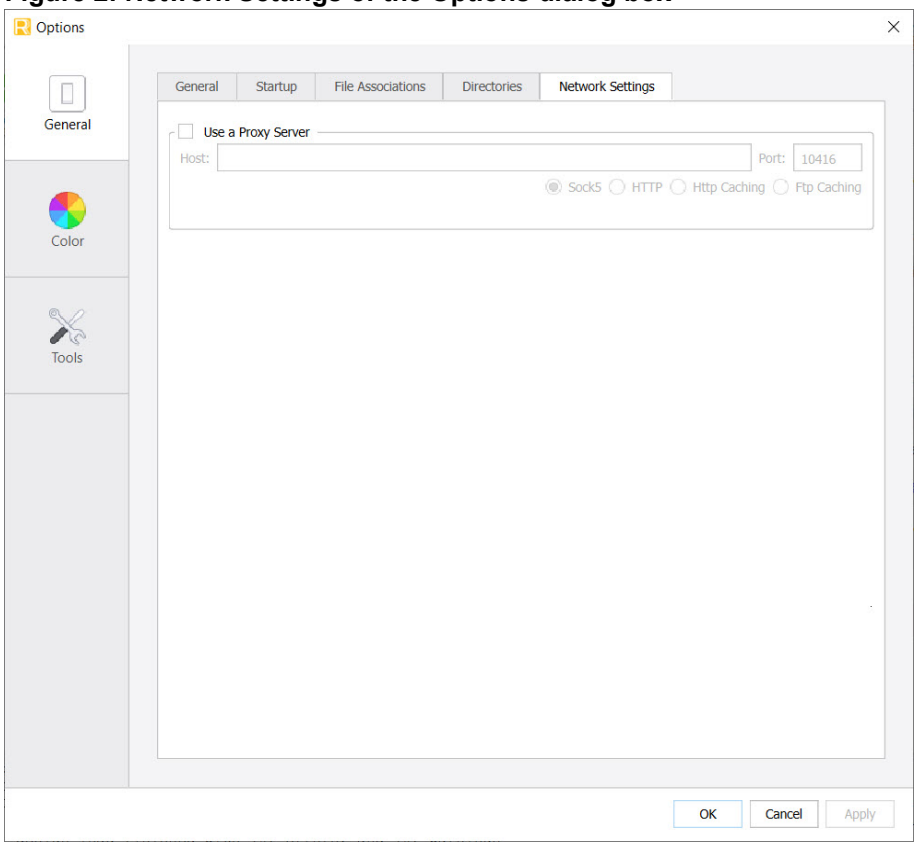


When Radiant software is launched, it will connect to the Internet automatically to check for updates.

Changing the Network Setting

To enable automatic checking, you must indicate how your computer accesses the Internet.

Figure 2: Network Settings of the Options dialog box



To change the Internet connection settings:

1. Select the **Network Setting** tab of the Options dialog box in Tools.
2. Select the **Use a Proxy Server** option if you must go through a proxy server before connecting to the Internet. The proxy server prevents outsiders from breaking into your organization's private network. Ask your system administrator for the URL address and port assignment. This option is turned on by default.

   If you use direct Internet access, do not select the **Use a Proxy Server** option on this tab.

Installing Updates

When you use the Auto Check feature, UPDATE notifies you whenever an update version of Radiant software becomes available. You receive notification when you open the Radiant software main window.

To check and install the recommended update:

- Launch Radiant software and the UPDATE software goes online to check for an update. If one is available, the Radiant software update version will be displayed in the **Available update versions** field.
- Click **Download** to save the update to a directory and install it later.
- Click **Install** to download and install the selected update version (as the version number specified in the **Available update versions** field) right away.

To install a downloaded update:

1. Close all Radiant tools.
2. Go to the location where you saved the update version.

Run the update file and follow the on-screen instructions.

Note

You can run multiple versions of Lattice software. The Radiant software enables you to run FPGA designs on platforms on which the Radiant software and previous Lattice Diamond/iCEcube are installed.

Revision History

The following table gives the revision history for this document.

Date	Version	Description
06/26/2026	2.8	Update for Radiant software 2026.1.
04/20/2026	2.7	Update for Radiant software 2025.2.1.
12/11/2025	2.6	Update for Radiant software 2025.2.
06/26/2025	2.5	Update for Radiant software 2025.1.
12/20/2024	2.4	Update for Radiant software 2024.2.
07/06/2024	2.3	▶ Update for Radiant software 2024.1. ▶ Added Questa.
11/28/2023	2.2	Update for Radiant software 2023.2
06/26/2023	2.1	▶ Update for Radiant software 2023.1. ▶ Added System Library Packages on both Red Hat and Ubuntu.
12/01/2022	2.0	Update for Radiant software 2022.1.
08/09/2022	1.9	Update for Radiant software 3.2.
12/06/2021	1.8	Update for Radiant software 3.1.
05/05/2021	1.7	Updates for Ubuntu system library.
12/07/2020	1.6	Updates for ModelSim floating license.
11/03/2020	1.5	Add ModelSim and update for Radiant software 2.2.
6/03/2020	1.4	Update for Radiant software 2.1.
12/2/2019	1.3	Update for Radiant software 2.0.
09/24/2019	1.2	Add CrossLink-NX.

Date	Version	Description
04/12/2019	1.1	▶ Update for Radiant software 1.1 ▶ Add Stand-Alone Radiant Power Estimator. ▶ Update hypertext.
02/13/2018	1.0	Initial Release.