Altera Software Installation and Licensing
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About Altera Software Installation and Licensing

The *Altera Software Installation and Licensing* manual provides comprehensive information for installing and licensing Altera® software, including the Quartus® II software, ModelSim-Altera Edition software, Nios® II Embedded Design Suite, and related software on Windows and Linux operating systems.

You download and license Altera software using the Download Center and Self-Service Licensing Center on the Altera website. The Download Center provides the following downloads:

- Software and components
- Programming software
- Board layout and test software
- Altera legacy design software
- License daemons

This document provides instructions to help you:

- Download and install software using the Download Center
- License software using the Self-Service Licensing Center

**Note:** If you are a single user of Quartus II software for Windows or Linux, use the quick start to get your software up and running quickly. For more detailed instructions, refer to the chapters on downloading, installing, and licensing software.

Related Information

- Download Center
- Self-Service Licensing Center
System Requirements and Prerequisites

System Requirements

To install and run Altera software your system must meet the following minimum requirements.

Minimum Hardware Requirements

Installation requires the following minimum hardware:

- Windows PC or Linux workstation. Refer to the Operating System Support page of the Altera website for the most up-to-date Altera software operating system requirements
- A monitor capable of at least 1024 x 768 display resolution
- Adequate disk space as described in the Quartus II Software Device Support Release Notes
- DVD drive (DVD installation using downloaded .iso files only).

Related Information

- Operating System Support
- Quartus II Software Device Support Release Notes

Cable and Port Requirements

Installation requires the following minimum cables and ports:

- USB port for connecting a USB-Blaster™ or USB-Blaster II™ download cable
- 10/100 Mb Ethernet connection for connecting a EthernetBlaster or EthernetBlaster II download cable

Software Requirements

Installation requires the following minimum software:

- Mozilla Firefox version 3.6 or later, Microsoft Internet Explorer version 8.0 or later, or Google Chrome with an internet connection for Quartus II software internet resources
- Adobe Flash Player version 7.0 or later, for the Quartus II Getting Started Tutorial
- The KDE or GNOME window manager (version included with your Linux operating system installation)
- The native XServer software for Linux
Download and Installation Prerequisites

General Prerequisites

- Ensure there is at least 31 GB of free disk space to contain copies of uncompressed version installation files. Disk space requirements for individual components are described on the Download Center of the Altera website.
- When you specify the installation directory, use only alphanumeric characters and do not type any special characters or symbols, such as !$%^&*<>, or non-English characters. Including special characters may invalidate the installation location.
- By default, Altera installs software in the <drive>:\altera\<version number> system directory for Windows, and the <home directory>/altera/<version number> directory for Linux, where <home directory> is the default directory of your Linux workstation, or as set by your system administrator. If you use a different directory name, substitute the appropriate name for <system directory> in the installation steps.
- You can install multiple copies of the same version of Altera software on the same computer.
- If you want to preserve project compilation databases from an earlier version of the Quartus II software before installing a newer version, Altera recommends that you open the design in the earlier version of the software and export a version-compatible database for the design.
- To run the Quartus II software using a network (multi-user) license, you must set up and use a license server. Refer to the topic on setting up a floating network license for more information.
- If you are running the Bitdefender antivirus software, you should temporarily disable the software when downloading and installing the Quartus II software.

Linux Prerequisites

- The following RPM packages are required to run the Altera Complete Design Suite (ACDS) on systems running Red Hat Linux Enterprise 5 and 6:
  - GIMP toolkit: GTK+2.
  - For more information about RPM packages, visit the Red Hat website.
- The following additional RPM packages are required to run the ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 5 and 6:
  - 32-bit libraries: unixODBC-libs, unixODBC, ncurses, ncurses-libs, libzmq3, libXext, alsa-lib, libXtst, libXft, libxml2, libedit, libX11, libXi.

Windows Prerequisites

- The Microsoft Visual C++ 2008 Redistributable Package (x86) is required to run the ModelSim-Altera Edition software on Windows systems.

Related Information

- Setting Up a Floating Network License on Your Local Computer on page 5-13
- Setting Up or Upgrading a License Manager Server on page 5-16
- Microsoft Visual C++ 2008 Redistributable Package (x86)
Downloading and Installing Quick Start

This quick start provides streamlined instructions for downloading, installing, and licensing Altera software. These instructions assume that you are a single user of the software, and are using Windows or Linux.

You download software from the Download Center on the Altera website. Use one of the following methods:

- Download a bundled set of software and device files, in .tar format
- Download individual executable files for customized download and installation
- Download DVD .iso files that you burn to a disc and install in different locations

The method you choose depends on your download speed, design requirements, and method of installation. If you want the complete Altera software package and device support for all supported families, you should use the .tar or .iso formats. If you want to download select elements of the software, additional software, or additional device support, you should use the individual executable files.

Note: If you use a 64-bit Linux operating system, you must install certain 32-bit libraries to run the ModelSim-Altera Edition software. Refer to the software prerequisites for complete details.

This quick start describes how to download software using the .tar format. To download using other methods, refer to the detailed download and installation instructions.

Related Information
System Requirements and Prerequisites on page 2-1

Windows Download Manager

If you are using the Windows operating system, the Akamai DLM3 Download Manager should automatically download and install on your local machine. The download manager controls the download of the files you select and allows you to pause and restart the download at any time.

Note: If you are on the Linux operating system or if the download manager does not work on your computer, you must individually download all the files.
**Downloading and Installing with .tar Files**

Follow these steps to download and install Altera software with .tar files:

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus II Subscription Edition or Quartus II Web Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. Verify that you have sufficient free disk space to contain copies of uncompressed versions of the software files.
4. On the version-specific download page, click **Combined Files**.
5. Choose which files to download:
   - Single, complete .tar file.
   - Quartus II Subscription Edition .tar file and one or more device-specific .tar files.
   - Quartus II Web Edition, which includes device files.

   To verify the software and device support included in each file, view the file contents by hovering your mouse over the information icon.

6. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.
   - Linux: Click the download button next to each file name.

   **Wait for all of the files to download completely before beginning installation.**

7. Extract the file(s) into the same directory. If you extract the files to different directories, the installer will not install all of the components. Software and device installation files are stored in the **components** subdirectory.

   Windows: You must unzip the .tar files to extract the installation files. WinZip, 7-Zip, and WinRAR are examples of unzipping tools. You must unzip the files to the same directory. In WinZip, click the **Unzip** button and then click **Unzip to a selected folder**. Do not use unzip program shortcuts, such as 1-Click Unzip.

8. Run the **setup.bat** (Windows) or **setup.sh** (Linux) script to launch the installation wizard. The installation wizard guides you through installation.

**Installing Programming Cable Drivers**

You must install the appropriate programming cable drivers before you can use an Altera download cable or programming unit to program devices with the Quartus II software.

The programming cable drivers are located in the following directories:

- **Windows**: `<drive>:\altera\<version number>\quartus\drivers`
- **Linux**: `<home directory>\altera<version number>\quartus\drivers`

**Related Information**

*Cable and Adapter Drivers Information*
Configuring the Linux User Environment

Before starting the Quartus II software for Linux for the first time, you must set up the Linux user environment.

1. Update each user’s `PATH` environment variable in the `.cshrc` file or `.bashrc` file, which is located in the home directory, to include the Quartus II `bin` directory. The `bin` directory is usually located at `<home directory>/altera/<version number>/quartus/bin` directory, where `<home directory>` is the default directory of your Linux workstation or as set by your system administrator. To update the `PATH` environment variable, type the following command at a command prompt:
   - C shell:
     
     ```
     setenv PATH ${PATH}:/<Quartus II system directory>/bin
     ```
   - Bash shell:
     
     ```
     export PATH=${PATH}:/<Quartus II system directory>/bin
     ```

   If you run the Quartus II software for Linux with a script, you can run the latest installed version of the Quartus II software with the `quartus` executable either by specifying the latest version of the Quartus II software, or the full path for the `quartus` executable in the `PATH` environment variable.

2. Review (and update as appropriate), each user’s `QUARTUS_ROOTDIR_OVERRIDE` environment variable, which specifies the name of the Quartus II system directory, and each user’s Quartus II general environment variables.

3. Optional: If you are using the `LM_LICENSE_FILE` environment variable to specify your license file or license server address, modify the value of `LM_LICENSE_FILE` to point to your `license.dat` file.

   Purchased versions of Altera software require a license; you can specify the license using the `LM_LICENSE_FILE` environment variable or from within the software. Refer to the licensing instructions for more information.

4. Save the changes to the `.cshrc` file or `.bashrc` file, and then type the following at a command prompt:
   - C shell:
     
     ```
     cd
     source .cshrc
     ```
   - Bash shell:
     
     ```
     cd
     . ~/.bashrc
     ```

Related Information
- [Quartus II Environment Variables](#)
- [Setting the LM_LICENSE_FILE Environment Variable in the Linux Workstation C Shell Resource File (.cshrc)](#)

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**Altera Software Installation and Licensing Quick Start**

Send Feedback
Starting the Quartus II Software on Linux

To start the Quartus II software, type the following command at the command prompt:
<path to quartus installation>\quartus\bin\quartus

Note: Make sure you do not run the quartus command in the /<Quartus II system directory>/linux64 directory. If you start the Quartus II software in a platform-specific directory, the software may not function correctly.

Licensing Quick Start

Purchased versions of Altera software require a license.

An Altera license enables the software version that you purchased, as well as all previous versions, and all versions that are released within one year of the purchase date. A license for the Quartus II software also enables the Altera IP library. The license does not expire; you can use these products indefinitely.

The ModelSim-Altera Edition software requires a valid license. This license expires 15 months after the date of purchase. Every 15 months you must regenerate your license file in the Self-Service Licensing Center to renew your license for the specific ModelSim-Altera Edition software version that you purchased.

Note: The Quartus II Web Edition and ModelSim-Altera Starter Edition Software do NOT require a license. If you are using this software, you can skip the licensing step and begin using the software.

This quick start describes how to license the Quartus II Subscription Edition software for a single user on one computer. For other licensing options, refer to the detailed licensing instructions.

Note: Development kits that include the Quartus II software include instructions for obtaining a license for that software.

Licensing the Quartus II Software for a Single User, Single Computer

To license the Quartus II software, you can direct the software to retrieve a license file automatically, or you can manually request a license file from the Self-Service Licensing Center of the Altera website and install it.

To obtain a license file, follow these steps:

1. Start the Quartus II software. If the software does not detect a license, you are prompted to evaluate, license, or buy the software.

2. Request a license file using one of the following methods:
   - Select **Perform automatic web license retrieval**. The software attempts to retrieve the license automatically from the Altera website.
   - Manually request a license file using the Self-Service Licensing Center.

   Note: You need to know your computer's network interface card (NIC) ID number to manually request a license.
If the Quartus II software is able to retrieve a fixed license file successfully, you can skip the remaining licensing steps and begin using the software.

3. If you requested a license file manually, Altera emails you the license file text and an attached file. Use the attached license file to set up a fixed license.

If you do not receive an email from Altera within 12 hours of requesting a license, or if you do not know all the required information to complete the process, file a service request at the mySupport section of the Altera website.

Identifying Your NIC ID

A network interface card (NIC) ID is a 12-digit hexadecimal string embedded in the network card that uniquely identifies the PC where the software or license server is installed.

You can find the NIC ID by running a command-line utility on your computer.

Note: If you purchased a floating license and are setting up a license manager server, you can use the FLEXlm licensing scheme to configure up to three redundant license servers. The first server specified is the master. Use the master server’s NIC ID or host ID when obtaining a license from Self-Service Licensing Center.

Find Your Windows NIC ID

• Type the following command at a command prompt:
  ipconfig /all

In the output of the command, the NIC ID is the physical address without the dashes. If your PC has more than one network card, you can use the NIC ID of any network card connected to the computer that is turned on when the Quartus II software is in use.

Find Your Linux NIC ID

• Type the following command at a command prompt:
  /sbin/ifconfig eth0

In the output of the command, the NIC ID is the ID to the right of HWaddr, without the colons.

Find Your NIC ID If the Quartus II Software Is Installed

• Your NIC ID appears under Local System info in the Network Interface Card (NIC) ID field.

Setting Up a Fixed License

To set up a fixed license file (single user, single computer), follow these steps:

1. Make a backup copy of any existing license.dat file for reference.

2. Save the license.dat file (that was attached to the licensing email you received from Altera) on your local hard drive.

   Altera recommends that you store the license.dat file in a directory named C:\licenses\flexlm (Windows) or /usr/local/flexlm/licenses (Linux).

   When you specify the license file location, use only alphanumeric characters and do not type any special characters or symbols, such as !$%^&*<>`, empty spaces, or non-English characters in the license file directory name. Special characters may invalidate the license file location.

3. Use one of the following methods to specify your license:
• Specify the license within the Quartus II software.
• Specify the license file using an environment variable.

If you are using the Quartus II software version 7.2 or earlier, you must also use a software guard. Attach the software guard to a parallel or USB port on your computer.

Related Information
• Specifying the License File within the Quartus II Software on page 3-6
• Specifying the License File with the LM_LICENSE_FILE Environment Variable on page 3-6

Specifying the License File within the Quartus II Software
You can specify a fixed or floating license file within the Quartus II software.

To specify the license file within the Quartus II software, follow these steps:

1. Start the Quartus II software. If the Quartus II software cannot detect a valid license file, you are prompted to license, evaluate, or buy the software.
2. Select Specify valid licence file. The License Setup page on the Options dialog box appears.
3. In the License file box, specify the full path name of the license.dat file.
4. Click OK.

After you specify the location of the license file, you can begin using the software.

Related Information
Quartus II Help: Specifying the License File within the Quartus II Software

Specifying the License File with the LM_LICENSE_FILE Environment Variable
You can specify the Quartus II software license location with the LM_LICENSE_FILE environment variable.

To specify the license file:

1. Close the software if it is open.
2. Set the LM_LICENSE_FILE environment variable using the Control Panel (Windows) or by editing your .cshrc or .bashrc file (Linux).

   Note: Linux: You must source your .cshrc or .bashrc file before restarting the Quartus II software. See the topic on setting up the Linux environment for more details.

3. Start the Quartus II software.

   Note: The license file setting in the License Setup dialog box supersedes the LM_LICENSE_FILE environment variable setting.

The Quartus II software does not support the <vendor daemon>_LICENSE_FILE environment variable.

Related Information
Configuring the Linux User Environment on page 3-3

Setting Windows Environment Variables
To set environment variables in Windows, follow these steps:
1. Click Windows Start menu > Control Panel (or open the Control Panel app in Windows 8).
2. Click System and Security.
3. Click System.
4. Click Advanced system settings.
5. Click the Advanced tab in the System Properties dialog box.
6. Click Environment Variables.
7. Select a variable in the Environment Variables dialog box.
8. Click Edit.
9. Type a value in the Variable value box in the Edit Variable dialog box.
Introduction

This section provides detailed instructions for downloading and installing Altera software.

You download software from the Download Center on the Altera website. You have several options for downloading software:

- Download a bundled set of software and device files, in .tar format
- Download individual executable files for customized download and installation
- Download DVD .iso files that you burn to a disc and install in different locations

The method you choose depends on your download speed, design requirements, and method of installation. If you want the complete Altera software package and device support for all supported families, you should use the .tar or .iso formats. If you want to download select elements of the software, additional software, or additional device support, you should use the individual executable files.

Note: If you use a 64-bit Linux operating system, you must install certain 32-bit libraries to run the ModelSim-Altera Edition software. Refer to the software prerequisites for complete details.

Related Information

Download Center
Altera Software Available in the Download Center

- Altera software:
  - Quartus II Subscription Edition software v15.0 (includes the Nios II EDS and Altera IP Library)
  - Quartus II Web Edition software v15.0 (includes the Nios II EDS and Altera IP Library)
  - Quartus II Help
  - ModelSim-Altera Edition software v10.3d for Quartus II software v15.0 (32-bit)
  - DSP Builder
  - FLEXlm license server software
  - JNEye
  - Stand-alone Quartus II Programmer and Tools
  - SoC Embedded Design Suite (EDS)
  - Altera SDK for OpenCL
  - Device support for Stratix®, Arria®, Cyclone®, or MAX®, device families must be installed as part of the Quartus II installation.

Note: You can also obtain older versions of software and legacy software from the Download Center.

Related Information
Operating System Support

Windows Download Manager

If you are using the Windows operating system, the Akamai DLM3 Download Manager should automatically download and install on your local machine. The download manager controls the download of the files you select and allows you to pause and restart the download at any time.

Note: If you are on the Linux operating system or if the download manager does not work on your computer, you must individually download all the files.

Downloading and Installing Software

Downloading and Installing with .tar Files

Follow these steps to download and install Altera software with .tar files:

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus II Subscription Edition or Quartus II Web Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. Verify that you have sufficient free disk space to contain copies of uncompressed versions of the software files.
4. On the version-specific download page, click Combined Files.
5. Choose which files to download:
   - Single, complete .tar file.
   - Quartus II Subscription Edition .tar file and one or more device-specific .tar files.
   - Quartus II Web Edition, which includes device files.
To verify the software and device support included in each file, view the file contents by hovering your mouse over the information icon.

6. Download using one of the following methods:
   - Windows: Select the files and click the Download Selected Files button.
   - Linux: Click the download button next to each file name.

   **Wait for all of the files to download completely before beginning installation.**

7. Extract the file(s) into the same directory. If you extract the files to different directories, the installer will not install all of the components. Software and device installation files are stored in the components subdirectory.
   - Windows: You must unzip the .tar files to extract the installation files. WinZip, 7-Zip, and WinRAR are examples of unzipping tools. You must unzip the files to the same directory. In WinZip, click the Unzip button and then click Unzip to a selected folder. Do not use unzip program shortcuts, such as 1-Click Unzip.

8. Run the setup.bat (Windows) or setup.sh (Linux) script to launch the installation wizard. The installation wizard guides you through installation.

### Downloading and Installing with Individual Executable Files

Follow these steps to download and install Altera software with individual executable files.

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus II Subscription Edition or Quartus II Web Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. On the version-specific download page, click Individual Files.
4. Download using one of the following methods:
   - Windows: Select the files and click the Download Selected Files button.
     
     **Note:** The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

To verify the software and device support included in each file, view the file contents by hovering your mouse over the information icon.

5. Run the QuartusSetup-<version> or QuartusSetupWeb-<version> file to begin installation. The main Quartus II software installer launches, automatically detects all other software and device support installation files in the same directory, and installs the software and device support.

### Downloading and Installing with .iso Files

Follow these steps to download and install Altera software with .iso files:

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus II Subscription Edition or Quartus II Web Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. On the version-specific download page, click DVD .iso Files.
4. Download using one of the following methods:
Installing Additional Device Support and Other Altera Software

If you did not install the complete Altera software package and device support, you can download and install additional device support or software (such as Quartus II Help, DSP Builder, or the ModelSim-Altera Edition software).

You download device family support and other Altera software from the Individual Files and Additional Software tabs on the version-specific download page on the Download Center of the Altera website.

- Download device family support files to the same directory as the Quartus II software, and then install it through the Quartus II software.
- Install other Altera software in the same directory as the Quartus II software.

Downgrading and Installing Additional Device Support

If you have installed the Quartus II software, you can download additional device support.

1. On the Download Center on the Altera website, choose whether you want the Quartus II Subscription Edition or Quartus II Web Edition software.
2. Verify that your operating system is correct, or select a different OS.
3. On the version-specific download page, click Individual Files.
4. Download using one of the following methods:
   - Windows: Select the files and click the Download Selected Files button.
     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

Wait for all of the files to download completely before beginning the installation process.
5. Run the Quartus II software.
6. Choose Tools > Install Devices. The installation wizard guides you through installation. Install the device family support to the same location as the Quartus II software.

Windows: If you do not see the Install Devices command, point to All Programs > Altera <version number> (Windows Start menu).

Downgrading and Installing Additional Software

If you have installed the Quartus II software, you can download additional software, such as Quartus II Help.
1. On the Download Center on the Altera website, choose whether you want the Quartus II Subscription Edition or Quartus II Web Edition software.
2. Verify that your operating system is correct, or select a different OS.
3. On the version-specific download page, click Additional Software.
4. Download using one of the following methods:
   - Windows: Select the files and click the Download Selected Files button.
     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.
   Wait for all of the files to download completely before beginning the installation process.
5. Run the software name Setup-<version> file to begin installation. The installation wizard guides you through installation.

**Additional Installation Procedures**

In addition to the procedures described in this manual, you can perform the following installation procedures for Altera software:

- **Installing software at the command line**—You can install Altera software at the command line with a custom installation script using command-line arguments.
- **Setting up the Quartus II software with a JTAG server on a network**—You can set up the Quartus II software to allow the JTAG server to run JTAG services, which is necessary if you install the Quartus II software for Windows on a network drive and have a JTAG server.
Related Information

Quartus II Help: About Installing Altera Software

TalkBack Feature

The TalkBack feature helps Altera to understand how customers use the Quartus II software and devices so that Altera can focus on improving features most important to users.

Optionally, you can turn on the TalkBack feature by turning on Turn on the Quartus II software TalkBack feature in the TalkBack Options dialog box. This dialog box appears at the end of the installation process if the option is not already turned on.

Note: The TalkBack feature is turned on by default when you install the Quartus II Web Edition software.

Quartus II Environment Variables

The Quartus II software installation process initializes environment variables. You can modify these variables using the Windows Control panel or by editing your Linux shell environment settings to optimize your system performance.

- `QUARTUS_ROOTDIR_OVERRIDE` — The `QUARTUS_ROOTDIR_OVERRIDE` environment variable specifies the name of the Quartus II system directory. The default directory is `<home directory>/altera/<version number>` (Linux) or `<Quartus II system directory>/altera/<version number>/quartus` (Windows).

  Note: If the system displays an error message indicating that Quartus II software files cannot be found when you start the program, you should set the `QUARTUS_ROOTDIR_OVERRIDE` environment variable to the name of the Quartus II system directory.

- `QUARTUS_LIBRARY_PATHS` — The `QUARTUS_LIBRARY_PATHS` environment variable specifies user-defined library paths. You can use this environment variable to define multiple library paths at the same time instead of individually adding each path to the user library.

  You must add `$QSYS_ROOTDIR` to the `PATH` variable (`$QSYS_ROOTDIR` locates the directory at `$QUARTUS_ROOTDIR/sopc_builder/bin`).

Setting Windows Environment Variables

To set environment variables in Windows, follow these steps:

1. Click Windows Start menu > Control Panel (or open the Control Panel app in Windows 8).
2. Click System and Security.
3. Click System.
4. Click Advanced system settings.
5. Click the Advanced tab in the System Properties dialog box.
6. Click Environment Variables.
7. Select a variable in the Environment Variables dialog box.
8. Click Edit.
9. Type a value in the Variable value box in the Edit Variable dialog box.

Setting Linux Environment Variables

Depending on your shell type, you can find environment variables in the directories listed in the following table. Set your environment variables with the shell type specific format.
Table 4-1: Environment Variable Location and Format

<table>
<thead>
<tr>
<th>Shell</th>
<th>Location</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>.cshrc file</td>
<td>setenv &lt;environment variable&gt; &lt;value&gt;</td>
</tr>
<tr>
<td>Bourne or Korn</td>
<td>.profile file</td>
<td>set &lt;environment variable&gt; = &lt;value&gt;</td>
</tr>
<tr>
<td>Bash</td>
<td>.bashrc file</td>
<td>export &lt;environment variable&gt; = &lt;value&gt;</td>
</tr>
</tbody>
</table>

Configuring the Linux User Environment

Before starting the Quartus II software for Linux for the first time, you must set up the Linux user environment.

1. Update each user’s PATH environment variable in the .cshrc file or .bashrc file, which is located in the home directory, to include the Quartus II bin directory. The bin directory is usually located at <home directory>/altera/<version number>/quartus/bin directory, where <home directory> is the default directory of your Linux workstation or as set by your system administrator. To update the PATH environment variable, type the following command at a command prompt:
   - C shell:
     
     ```bash
     setenv PATH ${PATH}:/<Quartus II system directory>/bin
     ```
   - Bash shell:
     
     ```bash
     export PATH=${PATH}:/<Quartus II system directory>/bin
     ```

2. Review (and update as appropriate), each user’s QUARTUS_ROOTDIR_OVERRIDE environment variable, which specifies the name of the Quartus II system directory, and each user’s Quartus II general environment variables.

3. Optional: If you are using the LM_LICENSE_FILE environment variable to specify your license file or license server address, modify the value of LM_LICENSE_FILE to point to your license.dat file.

   Purchased versions of Altera software require a license; you can specify the license using the LM_LICENSE_FILE environment variable or from within the software. Refer to the licensing instructions for more information.

4. Save the changes to the .cshrc file or .bashrc file, and then type the following at a command prompt:
C shell:
```
cd
source .cshrc
```

Bash shell:
```
cd
. ~/.bashrc
```

Related Information
- Quartus II Environment Variables on page 4-6
- Setting the LM_LICENSE_FILE Environment Variable in the Linux Workstation C Shell Resource File (.cshrc)

Installing Programming Cable Drivers

You must install the appropriate programming cable drivers before you can use an Altera download cable or programming unit to program devices with the Quartus II software.

The programming cable drivers are located in the following directories:

- **Windows**: `<drive>`:\altera\<version number>\quartus\drivers
- **Linux**: `<home directory>`/altera\<version number>/quartus/drivers

Related Information
- Cable and Adapter Drivers Information

Starting the Quartus II Software

You can run the Quartus II software on Windows and Linux.

For purchased versions, the Quartus II software prompts you for license information if it does not detect a license upon startup. You are prompted to evaluate, buy, or retrieve a license.

**Note:** You can evaluate the Quartus II software at no cost for a period of time.

Related Information
- Evaluating the Quartus II Software on page 5-3

Starting the Quartus II Software on Windows

To start the Quartus II software:

1. To start the Quartus II software on Windows, complete one of the following steps:

   - On the Windows Start menu, point to *All Programs* > *Altera* > *Quartus II* <version number>(64-bit)
   - Type the following command at a command prompt: `<drive>:\<Quartus II system directory>\bin64\quartus`
Starting the Quartus II Software on Linux

To start the Quartus II software, type the following command at the command prompt:

<path to quartus installation>/quartus/bin/quartus

**Note:** Make sure you do not run the quartus command in the /<Quartus II system directory>/linux64 directory. If you start the Quartus II software in a platform-specific directory, the software may not function correctly.

Uninstalling Altera Software

**Uninstalling on Windows**

1. On the Windows Start menu, point to All Programs > Altera <version number>.
2. Point to <software name> <version number> > Uninstall <software name> <version number>.

   The installation wizard appears and guides you through the uninstallation process.

**Uninstalling on Linux**

- Make sure that none of your project files are contained in the Altera software directory, and then delete the Altera software directory (default name is altera<version number>).
Licensing Overview

Most Altera software requires you to use a license to enable the software. The license is provided in a file named `license.dat`. The free Quartus II Web Edition and ModelSim-Altera Starter Edition software do not require a license.

An Altera software subscription enables the Quartus II software (including the Altera IP Library) and the ModelSim-Altera Edition software. When you purchase a Quartus II software subscription, the license file supports the version of the Quartus II software you purchase, all previous versions, and all versions released within a year of the purchase date. You can use the version of the Quartus II software you purchase, and all related software, including the ModelSim-Altera Edition software and the Altera IP Library, indefinitely.

Altera also uses licenses to enable additional software, such as purchased MegaCore functions, the Altera SDK for OpenCL, and the SoC Embedded Design Suite (EDS).

Licensing Altera Software

To set up your license for Altera software, follow these steps:

1. Determine which software you are licensing, e.g., the Quartus II software, a purchased Altera MegaCore function, etc.
2. Obtain a license file for that software from the Altera Self-Service Licensing Center.
3. Set up the license file on your computer.
4. For floating network licenses only: set up the FLEXlm license manager server.

A FLEXlm license manager server issues floating licensing to computers on a network. For more information about floating licenses, refer to Setting Up or Upgrading a License Manager Server.

Related Information

Setting Up or Upgrading a License Manager Server on page 5-16

Software License Types

Altera provides licenses for purchased versions of the Quartus II software as well as other software such as purchased MegaCore functions, development kits, and the ModelSim-Altera software.
Licensing the Quartus II and ModelSim-Altera Software

When you purchase a Quartus II subscription, you choose between a single-user license that is fixed to a specific computer and a multi-user floating license in which the license(s) are shared among computers on a network.

- **Fixed license**—A stand-alone (node-locked, single-user) license is tied to the network interface card (NIC) ID of the computer on which you installed the Altera software.
- **Floating license**—A floating network (multi-user) license is for users running the Quartus II software on multiple computers connected on a network. A license server issues licenses to computers on demand. Floating licenses are not operating system-specific. If you want to run the Altera software on additional computers, you can purchase additional seats to add to your floating license after its original purchase.

**Note:** Altera continues to support operating system-specific floating licenses for the Quartus II software version 6.1 and earlier.

The ModelSim-Altera Edition software requires a valid license. This license expires 15 months after the date of purchase. Every 15 months you must regenerate your license file in the Self-Service Licensing Center to renew your license for the specific ModelSim-Altera Edition software version that you purchased.

The ModelSim-Altera Edition software does not require a separate license file. If you purchase this software, your Quartus II license file includes a `FEATURE` line to enable it. You must, however, specify the location of license file for the ModelSim-Altera Edition software using an environment variable before you can use it. Refer to the topic about specifying a ModelSim license file for more information.

**Related Information**
- [License.dat Example Files](#) on page 6-5
- [Specifying the License for the ModelSim-Altera Edition Software](#) on page 5-15

Licensing the Quartus II Web Edition and ModelSim-Altera Starter Edition Software

Altera offers the entry-level Quartus II Web Edition and ModelSim-Altera Starter Edition software. This software supports selected devices, provides limited feature support, and does not require license files.

Licensing Intellectual Property (IP) Cores

When you install the Quartus II software, the Altera IP Library is installed automatically. You can use the OpenCore or OpenCore Plus features to evaluate Altera IP cores before you purchase them. After purchase, you obtain a license to generate programming files that you may use for an unlimited time. Third-party IP cores are delivered by the partner for evaluation with the appropriate license.

You must have a full license for all Altera MegaCore soft IP or Nios II soft processor cores to generate programming files that you may use for an unlimited time. You can purchase a license through your local Altera sales office or distributor, and then download a license file from the Self-Service Licensing Center of the Altera website.

**Related Information**
- [Self-Service Licensing Center](#)
- [Intellectual Property and Reference Designs](#)
- [AN 320: OpenCore Plus Evaluation of Megafunctions](#)
- [AN 343: OpenCore Evaluation of AMPP Megafunctions](#)
Licensing Development Kits Containing the Quartus II Software

Development kits that include the Quartus II software include instructions for obtaining a license for that software.

You can purchase development kits from the Development Kits, Daughter Cards & Programming Hardware page on the Altera web site or through your local Altera sales office or distributor.

Related Information
Development Kits, Daughter Cards and Programming Hardware

Licensing for the Nios II Embedded Design Suite

You can create, compile, and generate time-limited FPGA programming files for Nios II hardware systems without obtaining a license file. To generate non-time-limited FPGA programming files and flash programming files, you must obtain a license for the Nios II processor core or Nios II development kit.

You do not need a license to develop software using only the Nios II Software Build Tools for Eclipse.

Licensing Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4


If you are using a version of Quartus II software prior to version 12.1 and want to upgrade your software, you must regenerate your license file before continuing to use the Mentor Graphics AXI Verification IP Suite Altera Edition Bus Functional Models and Inline Monitor (Mentor VIP AE) for AXI3 or AXI4.

If you want to access Mentor VIP AE with the Quartus II Web Edition software, you must upgrade to version 12.1 or higher and purchase seat licenses by contacting your Altera sales representative.

Altera University Program Software Licenses

The Altera University Program offers licensed and unlicensed Altera software to participating universities.

For use in teaching, the University Program recommends the Quartus II Web Edition software, which does not require a license. The licensed commercial version of the Quartus II Subscription Edition software is available for installation in university laboratory facilities. Refer to the University Program pages on the Altera website for more information.

Related Information
Altera University Program

Evaluating the Quartus II Software

You can evaluate the Quartus II software at no cost for a period of time.
When you start the Quartus II software, if the software cannot detect a valid license file, a dialog box with the following options appears:

- **Buy the Quartus II Subscription Edition software**—launches your default internet browser and displays the Buy Design Software page of the Altera website, where you can view and purchase Altera software options.
- **Start the 30 day evaluation period with no license file**—allows you to use the Quartus II software for 30 days without programming file support.
- **Perform automatic web license retrieval**—for fixed licenses, this option allows the Quartus II software to retrieve the license file automatically from the Altera website.
- **If you have a valid license file, specify the location of your license file**—displays the License Setup page of the Options dialog box, where you can specify the location of your license file.

Choose the 30 day evaluation option to evaluate the software before purchase.

Related Information

- [License Files](#) on page 5-4
- [Setting Up Your License File](#) on page 5-11
- [Buy Design Software](#)

### License Files

**Hardware Information Required when You Request a License**

You obtain licenses from the Self-Service Licensing Center of the Altera website. To request a license, you need to provide information about the computer on which you want to install the license.

Most licenses require a network interface card (NIC) ID, which is the physical address of your Ethernet card.

**Table 5-1: Required Information for Each License Type**

<table>
<thead>
<tr>
<th>License Type</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed license</td>
<td>NIC ID or software guard ID for Windows PCs (1)</td>
</tr>
<tr>
<td>Floating license</td>
<td>NIC ID for Windows or Linux license servers</td>
</tr>
<tr>
<td></td>
<td>Host ID for UNIX license servers</td>
</tr>
<tr>
<td>Intellectual Property (IP) and Development Kit</td>
<td>Variable (2)</td>
</tr>
<tr>
<td>License</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Software guards are supported for the Quartus II software version 7.2 and earlier.
2. Because Intellectual Property (IP) and development kit licenses are added as feature lines in the Quartus II software license file, the licensing requirements depend on the Quartus II software license type.
Related Information
- Self-Service Licensing Center
- Legacy License Generator

Identifying Your NIC ID
A network interface card (NIC) ID is a 12-digit hexadecimal string embedded in the network card that uniquely identifies the PC where the software or license server is installed.

You can find the NIC ID by running a command-line utility on your computer.

**Note:** If you purchased a floating license and are setting up a license manager server, you can use the FLEXlm licensing scheme to configure up to three redundant license servers. The first server specified is the master. Use the master server’s NIC ID or host ID when obtaining a license from Self-Service Lincensing Center.

**Find Your Windows NIC ID**
- Type the following command at a command prompt:
  ```
ipconfig /all
  ```
  In the output of the command, the NIC ID is the physical address without the dashes. If your PC has more than one network card, you can use the NIC ID of any network card connected to the computer that is turned on when the Quartus II software is in use.

**Find Your Linux NIC ID**
- Type the following command at a command prompt:
  ```
  /sbin/ifconfig eth0
  ```
  In the output of the command, the NIC ID is the ID to the right of `HWaddr`, without the colons.

**Find Your NIC ID If the Quartus II Software Is Installed**
- Your NIC ID appears under **Local System info** in the **Network Interface Card (NIC) ID** field.

**Find Your Windows NIC ID Using FLEXlm Utilities**
- Type the following command at a command prompt:
  ```
  <drive>:<Quartus II system directory>\bin\lmutil lmbhostid
  ```

Identifying Your UNIX Host ID
The license server host ID is an eight-digit hexadecimal number, which identifies the UNIX workstation that serves Quartus II software licenses. The license server host ID for UNIX is equivalent to the NIC ID.

**Related Information**
**Identifying Your NIC ID** on page 3-5

**Locating Your Hard-Disk Serial Number**
Some versions of Altera software use the hard disk serial number for licensing. A hard-disk serial number is an eight-character hexadecimal ID that identifies the PC with the Altera license. If the ID is not eight characters, include a leading zero.
To find the hard-disk serial number on a Windows PC

- Type the following command at a command prompt:
  ```
  vol c:
  ```

  In the output of the command, the hard-disk serial number is the volume serial number.

To find the hard-disk serial number if the Quartus II software is installed on your computer

- Click **Tools > License Setup**. The hard-disk serial number appears under **Local Systems info** in the **C: drive serial number** field. Verifying the hard-disk serial number with the Quartus II software ensures that you use the correct hard-disk serial number if your PC has multiple hard drives.

Identifying Your USB Software Guard ID

Altera supports USB software guards for licensing the Quartus II software. A USB software guard ID is a ten-character alphanumeric number beginning with the letter T.

You can find the software guard ID on the printed label on the guard, or if the Quartus II software is installed and the guard is attached, on the **License Setup** dialog box from the Tools menu. Your software guard ID appears under **Local System info** in the **Software Guard ID** field.

Requesting a License File

You can direct the Quartus II software to retrieve a license file automatically, or you can manually request a license file from the Self-Service Licensing Center of the Altera website.

**Note:** If you want to obtain a license file for Altera software or IP with an expiration date prior to January 1, 2009, visit the Legacy License Generator page on the Altera website.

To obtain a license file, follow these steps:

1. Start the Quartus II software.
2. Request a license file using one of the following methods:
   - Select **Perform automatic web license retrieval** to request a license file automatically from the Altera website.
   - Manually request a license file using procedures in the Self-Service Licensing Center. (If you have a triple redundant license server for floating licenses, you must manually request a license file.)

   If the Quartus II software is able to retrieve a fixed license file successfully from the Altera website, you can skip the remaining steps of this procedure. If not, you are guided through the licensing procedure.

3. Altera sends you an email with the license file text included in the body of the email and an attached file. Use the attached license file as is if you have a fixed, single-user license. If you have a floating license, you must edit the attached license file to update the `<hostname>`, `<port number>` and `<path to daemon executable>` to point to your license server. If you want to use both the Quartus II and legacy MAX+PLUS II software, save the `license.dat` file in a top-level directory named `<drive>\flexlm`.

   If you do not receive an email from Altera within 12 hours of requesting a license, or if you do not know all the required information to complete the process, file a service request on the mySupport section of the Altera website.

   If you have a floating, multi-user license, the FLEXlm licensing scheme allows you to set up three redundant license servers to serve licenses. You must request a license file for redundant servers from the Self-Service Licensing Center (you cannot retrieve it automatically).

4. Point to your license file in the Quartus II software or by using environment variables.
The Self-Service Licensing Center is an online licensing center that allows you to view, obtain, activate, and manage your Altera software licenses. You can perform the following tasks with the Self-Service Licensing Center:

- Obtain license files—you can obtain license files for your existing and new licenses.
- View existing licenses—you can view all of your existing licenses, including their expiration dates, available rehosts, and licensed users.
- Renew licenses—you can renew your existing licenses.
- Rehost licenses—you can transfer your existing licenses from one computer to another. You have a total of three rehosts for each license.
- Activate a new license—you can activate new licenses after purchase.
- Add seats to a floating license—you can add seats to your existing floating licenses.
- Manage license users—you can specify the licensed user for each of your existing licenses.
- View license history—you can view the license file history for each computer that you add to your myAltera account.

Additionally, you can also split a floating license, obtain a checkout license, or obtain a companion license with the Self-Service Licensing Center.

You can access the Self-Service Licensing Center from the Altera Licensing page, the mySupport page, or from the Download Center. You must have a myAltera account to access the Self-Service Licensing Center.

Related Information

- Self-Service Licensing Demonstrations
- Self-Service Licensing Center
- Using the Self-Service Licensing Center
- mySupport

Selecting a New, Existing, or Renewed License File

You can obtain a license file for an existing, new, or renewed license. If you want to obtain a license file for a new or renewed license, you must first activate or renew the license.
Creating a Computer Profile

You can create computer profiles for your myAltera account to which you can assign licenses.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the Computer and License Files tab, click Add Computer.
4. In the Add Computer dialog box, select the License Type for your computer. Your software license type must match the license type of any license you want to assign your computer.
5. Select the Primary Computer Type for your computer. The primary computer type is the NIC ID, Host ID, or software guard ID.
6. Type your computer name in the Primary Computer Name box. You can specify any name meaningful to you in this box.
7. Type your NIC ID, Host ID, or software guard ID number in the Primary Computer ID box.
8. If you have a fixed license and want to use your license for multiple computers, you can specify up to two companion IDs in the Companion ID and Companion ID 2 boxes. Your companion ID is your NIC ID, Host ID, or software guard ID. You can use your license or associated companion license only on one computer at a time.
9. If you have a floating license, you can set up your license on up to three redundant license servers. Type the NIC ID or Host ID for redundant servers in the Redundant Server ID 2 and Redundant Server ID 3 boxes.
10. Click Submit.

To edit an existing computer profile, follow these steps:
   a. Click the Update Computer icon next to the computer that you want to edit in the My Computers table.
   b. Make changes in the Update Computers dialog box.
   c. Click Submit when you are finished making changes.

Related Information
   • Hardware Information Required when You Request a License on page 5-4
Self-Service Licensing Demonstrations

Rehosting a License
You can rehost or transfer a license from one computer to another. You can rehost each license up to three times within your maintenance period.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. To rehost a license, follow these steps:
   a. In the Computers and License Files tab, locate the product you want to rehost.
   b. In the Update Computer column, click the pencil icon.
   c. In the Update Computer dialog box, change the host ID in the Primary Computer ID box, and click the Submit button.
4. Click Get License.

Your license file is sent to the email address specified for your myAltera account profile. Your software license type must match the license type of any license you want to assign your computer.

Related Information
- Creating a Computer Profile on page 5-8
- Self-Service Licensing Demonstrations

Adding Floating Seats
You can add floating seats to an existing floating license to increase the number of users available. Adding additional seats to an existing floating license may affect its maintenance expiration date.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the Add Seat License tab, click Add Seats to access the My Add Seat License page.
4. On the Add Seats page, select a product to which you want to add additional seats, and click Next.
5. Select the product with the seats you want to apply and click Next.
6. Type the number of additional seats you want to add to your floating license in the Number of Seats to Add box.

When you add additional seats to an existing floating license, the new maintenance subscription term of the floating license is calculated by adding the total number of maintenance months for the existing and new seats, and then dividing by the total number of seats. Any partial number is rounded up to the nearest whole number.

Example 5-1: Floating License Example
If you have an existing floating license with ten seats that expires in five months and you purchase two additional seats, your updated floating license maintenance subscription would expire in seven months for all twelve seats.

Related Information
Self-Service Licensing Demonstrations
Renewing a License

You can renew an existing license with the Self-Service Licensing Center. You must first purchase your license renewal, for example, from the Buy Design Software page of the Altera website, before applying a renewal.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the Renewal License tab, click Apply Renewals to access the Apply Renewals page.
4. Select the product you want to renew, and click Next.
5. Select the renewal product you want to apply, and click Next.

Related Information
- Self-Service Licensing Demonstrations
- Buy Design Software

Activating a License

After you purchase new software, you must activate it before you can request a license to enable it. You activate new licenses with the Self-Service Licensing Center.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. If the product you want to license is not listed, click Find it with Your License Activation Code.
4. Type your license activation code or Quartus II software serial number in the Find/Activate Products page, and click Search.
5. Select the products that you want to activate in the Activate Products table.
6. Click Activate Selected Products.

Related Information
- Self-Service Licensing Demonstrations
- Buy Design Software

Managing Licensed Users

You can assign or change users for your existing licenses. Licensed users are granted access to their assigned licenses.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the Products and Users tab, click the License User icon for the license you want to update in the Licensed User column of the My Altera Software and IP Products table.
4. In the User Information box, type the name and email address of the licensed user, and then click Save.

The licensed user receives an email notifying them that they have been added as a licensed user and now have access to the specific license that they have been assigned.

Related Information
Self-Service Licensing Demonstrations
Setting Up Your License File

You can use fixed, single-user licenses as is without modification. However, you must modify floating, multi-user licenses before using them.

Setting Up a Fixed License

To set up a fixed license file (single user, single computer), follow these steps:

1. Make a backup copy of any existing license.dat file for reference.
2. Save the license.dat file (that was attached to the licensing email you received from Altera) on your local hard drive.

   Altera recommends that you store the license.dat file in a directory named C:\licenses\flexlm (Windows) or /usr/local/flexlm/licenses (Linux).

   When you specify the license file location, use only alphanumeric characters and do not type any special characters or symbols, such as !$%^&*<>,' empty spaces, or non-English characters in the license file directory name. Special characters may invalidate the license file location.
3. Use one of the following methods to specify your license:
   • Specify the license within the Quartus II software.
   • Specify the license file using an environment variable.

   If you are using the Quartus II software version 7.2 or earlier, you must also use a software guard. Attach the software guard to a parallel or USB port on your computer.

Related Information

• Specifying the License File within the Quartus II Software on page 3-6
• Specifying the License File with the LM_LICENSE_FILE Environment Variable on page 3-6

Specifying the License File within the Quartus II Software

You can specify a fixed or floating license file within the Quartus II software.

To specify the license file within the Quartus II software, follow these steps:

1. Start the Quartus II software. If the Quartus II software cannot detect a valid license file, you are prompted to license, evaluate, or buy the software.
2. Select Specify valid licence file. The License Setup page on the Options dialog box appears.
3. In the License file box, specify the full path name of the license.dat file.
4. Click OK.

After you specify the location of the license file, you can begin using the software.

Related Information

Quartus II Help: Specifying the License File within the Quartus II Software

Specifying the License File with the LM_LICENSE_FILE Environment Variable

You can specify the Quartus II software license location with the LM_LICENSE_FILE environment variable.

To specify the license file:
1. Close the software if it is open.
2. Set the \texttt{LM\_LICENSE\_FILE} environment variable using the Control Panel (Windows) or by editing your \texttt{.cshrc} or \texttt{.bashrc} file (Linux).

\textbf{Note:} Linux: You must source your \texttt{.cshrc} or \texttt{.bashrc} file before restarting the Quartus II software. See the topic on setting up the Linux environment for more details.

3. Start the Quartus II software.

\textbf{Note:} The license file setting in the \texttt{License Setup} dialog box supersedes the \texttt{LM\_LICENSE\_FILE} environment variable setting.

The Quartus II software does not support the \texttt{<vendor daemon>\_LICENSE\_FILE} environment variable.

\textbf{Related Information}
\texttt{Configuring the Linux User Environment} on page 3-3

\textbf{Setting Windows Environment Variables}
To set environment variables in Windows, follow these steps:

1. Click \texttt{Windows Start menu > Control Panel} (or open the Control Panel app in Windows 8).
2. Click \texttt{System and Security}.
3. Click System.
4. Click \texttt{Advanced system settings}.
5. Click the \texttt{Advanced} tab in the \texttt{System Properties} dialog box.
6. Click \texttt{Environment Variables}.
7. Select a variable in the \texttt{Environment Variables} dialog box.
8. Click \texttt{Edit}.
9. Type a value in the \texttt{Variable value} box in the \texttt{Edit Variable} dialog box.

\textbf{Setting Up Floating Licenses}
Floating multi-user licenses require you to set up the license on the computer running the Quartus II software and on the license manager server. In both cases, you must modify the license file (\texttt{license.dat}) to include your license server host name, port, and paths.

\textbf{Editing the license.dat License File}
When you modify the \texttt{license.dat} file, ensure that the following conditions are met so that your license is not corrupted:
The text editor does not append .txt or any other file extension to the file name, for example, license.dat.txt, otherwise the software cannot find the license.

A carriage return (new line) must be present at the end of the last FEATURE line.

Any FEATURE line that wraps to a second or third line must have a backslash (\) at the end of each line to indicate that it continues. However; there is no backslash (\) at the end of the lines if the VENDOR_STRING line wraps to multiple lines. The backslash should only be added outside the line with double quotation marks (").

If you are using a 64-bit version of the Quartus II software, ensure a space exists between the closing double quotation mark (") and backslash (\) at the end of the VENDOR_STRING line.

No hidden control characters exist in the license file.

If you open the license file with any software other than a plain text editor, the software may add hidden characters. For example, WYSIWYG editors such as Microsoft Excel, Word, or WordPad, may insert special control characters such as a tab or carriage return. If special control characters are pasted into another plain text document, the license file can be corrupted by characters that may not be visible in a plain text editor.

If you edit the license file in one operating system, copy the license file in another operating system, and then copy the license file to the Windows operating system, the second operating system may insert unwanted control characters into the license file if you do not correctly convert the file.

Refer to About Altera License Files for information about the contents of a license file and example licenses.

Related Information

About Altera License Files on page 6-1

Setting Up a Floating Network License on Your Local Computer

To set up a floating license on your local computer, follow these steps:

1. Obtain the port number and host name from the network or system administrator. This information can also be found in the license file line beginning with SERVER.

   SERVER<hostname> <8 or 12 character host or NIC ID> <port>

   The license location for the user is <port>@<hostname>. If a port is not listed in the license.dat file, specify @<hostname>.

2. After you obtain the port number and host name, use one of the following methods to set up your license:
   - Specify the license file within the Quartus II software.
   - Specify the license file using an environment variable.

Related Information

- Specifying the License File with the LM_LICENSE_FILE Environment Variable on page 3-6
- Specifying the License File within the Quartus II Software on page 3-6
- Setting Up Floating Network Licenses on the License Server on page 5-13

Setting Up Floating Network Licenses on the License Server

Setting up a floating network license server is typically performed by a system administrator. Altera software uses the FLEXlm software to administer licensing for single or multiple users in a network installation.
You can set up a floating network license on a Windows, Solaris, or Linux license server using the FLEXlm license manager software provided by Altera.

1. Modify your license file to include information about your license server (e.g., host name).
2. Set up the FLEXlm license manager on your license server.
3. Start the license server.

To set up a new or updated license on an existing license server, follow the instructions for rereading the license file.

Related Information
- Modifying the Network License File on page 5-14
- Quartus II Help: Setting Up Floating Network Licenses on the License Server

Modifying the Network License File

The license.dat file must be modified before it can be used by the license server.

To modify and save the license file, in the license.dat file, type the variables that are described in the following table. The host or NIC ID is already included in the license file. The host and daemon lines are of the format:

```
SERVER <host name> <host/NIC ID> <host port number>
VENDOR alterad <path to daemon executable> port=<user-defined port number>
VENDOR mgcl <path to daemon executable> port=<user-defined port number>
```

Table 5-2: Variables to Modify in the License File (license.dat)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;host name&gt;</code></td>
<td>The host name of the server; for example, my_server.</td>
</tr>
<tr>
<td><code>&lt;host port number&gt;</code> (1)</td>
<td>The port number for the license manager service on the server; for example, 1800. The port number is required for Windows systems and should be outside of the 27000-28000 range and be unique on the machine.</td>
</tr>
<tr>
<td><code>alterad&quot;&lt;path to daemon executable&gt;&quot;</code> (2) (3)</td>
<td>Path to the Altera vendor daemon executable alterad.</td>
</tr>
<tr>
<td><code>mgcl &lt;path to daemon executable&gt;&quot;</code> (2) (3) (4)</td>
<td>Path to the Mentor Graphics vendor daemon executable mgcl.</td>
</tr>
</tbody>
</table>

- `<Quartus II system directory>`\bin64\alterad.exe (Windows)
- `/<Quartus II system directory>/linux64/alterad (Linux)
- `/<Quartus II system directory>/solaris/alterad (Solaris) (5)

- `<ModelSim-Altera system directory>`\win32aolem\mgcl.exe (Windows)
- `/<ModelSim-Altera system directory>/linuxaloem/mgcl (Linux)
- `/<ModelSim-Altera system directory>/sunos5aloem/mgcl (Solaris) (5)
<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>port=\langle user-defined port number\rangle</td>
<td>Optional, user-defined port numbers for the mgcld and alterad daemons. The FLEXlm software works with Internet firewalls that require you to specify port numbers. You must specify a port number on the SERVER line in the license file. You must also specify different port numbers on each VENDOR or DAEMON line with the PORT=\langle number\rangle syntax. Finally, you must allow firewall access to those port numbers. The following example shows how to specify port numbers in a floating license file. To provide access through a firewall for the following example, specify ports 1800, 1801, and 1802.</td>
</tr>
</tbody>
</table>

```plaintext
SERVER myServer 0123456789ab 1800
VENDOR alterad ./alterad port=1801
VENDOR mgcld ./mgcld port=1802
```

Notes:

1. If you do not specify a port number, the FLEXlm license manager automatically chooses a free port between 27000 and 27009. However, in Windows systems you must specify an explicit port number.
2. If the license server does not provide the necessary vendor daemon, copy the required daemon from another machine, save the file in a location on the license server, and specify the daemon location on the license server in the license file.
3. If the server path has spaces in it, enclose the full path in quotation marks.
4. If you are not using a license file for the ModelSim-Altera software, you may delete this line.
5. Quartus II software versions 8.0 and later do not support the Sun Solaris operating system. However, Altera software does support Sun Solaris license servers.

When you complete all modifications, ensure the license file conditions are met.

Related Information

[Editing the license.dat License File](#) on page 5-12

---

**Specifying the License for the ModelSim-Altera Edition Software**

The ModelSim-Altera Edition software supports licenses using the Mentor Graphics license daemon mgcld. You can find the mgcld daemon in the following directories:

- Windows: `<ModelSim-Altera system directory>\win32aloem`
- Linux: `<ModelSim-Altera installation directory>/linuxaloem`

**Note:** The ModelSim-Altera Starter Edition software versions 6.4g and later do not require a license.

Before starting the ModelSim-Altera software, set the MGLS_LICENSE_FILE environment variable to the location and file name of the ModelSim-Altera license file. For example, `MGLS_LICENSE_FILE (\<ModelSim Altera installation directory> /licenses/eda/license.dat) or with the \langle port\rangle@\langle hostname\rangle notation (1900@set), where \langle port\rangle is the license port number and \langle hostname\rangle is the server’s host name.

The ModelSim-Altera Edition software license expires 15 months after the date of purchase, at which point you can no longer use the software. You must obtain an updated Quartus II software subscription license file from the Self-Service Licensing Center every 15 months to renew your license for the specific
ModelSim-Altera Edition software version that you purchase. You can use only the version of ModelSim-Altera Edition software that you purchase with the updated license.

Related Information
- Modifying the Network License File on page 5-14
- Specifying the License File with the LM_LICENSE_FILE Environment Variable on page 3-6
- Self-Service Licensing Center

Transferring a License File to Another Computer

If you want to transfer your license file to another computer, you can rehost your license.

You rehost licenses on the Self-Service Licensing Center on the Altera website.

Related Information
Rehosting a License on page 5-9

Setting Up or Upgrading a License Manager Server

The Quartus II software uses the FLEXlm license manager software to administer licensing for single or multiple users in a network installation. This section provides instructions for upgrading and setting up the FLEXlm server software for Windows and instructions for configuring network licensing for Linux.

Note: Quartus II software versions 8.0 and later do not support the Solaris operating system. However, Altera software does support Solaris license servers.

To run the FLEXlm lmgrd license server manager on a Linux workstation, make sure that the /usr/tmp directory exists.

A system administrator should perform these steps to configure license servers after the Quartus II software is installed.

Configuring a New License Server

The Quartus II software uses the FLEXlm license manager server software to administer licensing for single or multiple users in a network installation. If you do not have an existing FLEXlm license server, you must configure a new license server before starting the Quartus II software for the first time.

Note: You should be aware of the following information before you configure a new license server:

- You must have system administration (Administrator) privileges on Windows.
- You must have a valid license file.
- These instructions assume that you saved the license.dat file in the <drive>:\flexlm directory (Windows) or the /usr/local/flexlm/licenses directory (Linux). If you installed the license file in a different directory, substitute the directory path.

To launch a new license server, type the following command at a command prompt:

Windows:
<Quartus II system directory>\bin64\lmgrd -c <drive>:\flexlm\license.dat
Linux or Solaris:

`<Quartus II system directory>/<operating system>/lmgrd -c /usr/local/flexlm/licenses/license.dat`

Where `<operating system>` is `linux` or `solaris`.

Related Information
Quartus II Help: Upgrading or Setting Up a License Manager Server

Upgrading the FLEXlm License Manager Server Software

To support network licensing, the Quartus II software requires the FLEXlm license manager server software version 11.11.1 or later. The installation process for Windows installs the FLEXlm software version 11.11.1 for all Windows and Linux platforms. However, you should also verify that the FLEXlm software version of the license server is 11.11.1.

**Note:** FLEXlm version 9.5 is the newest software version available for Solaris license servers.

To upgrade an older version of the FLEXlm software, follow these steps:

1. Make a backup copy your current `lmgrd` and `alterad` daemons.
2. Copy the new versions of the files to the computer running the license server over your current daemons. You may have to shut down the license server software to complete this step. If you installed the FLEXlm software using the Quartus II installer, the current versions of the `lmgrd` and `alterad` daemons are located in the following directories:

   **Windows:**
   ```
   <drive>:\<Quartus II system directory>\bin64\alterad
   <drive>:\<Quartus II system directory>\bin64\lmgrd
   ```

   **Linux or Solaris:**
   ```
   /<Quartus II system directory>/<operating system>/alterad
   /<Quartus II system directory>/<operating system>/lmgrd
   ```

   Where `<operating system>` is `linux64` or `solaris`.
3. Copy the FLEXlm software utility `lmutil` from the Quartus II system directory to the license server computer.
4. Restart the FLEXlm license server by typing the following commands at a command prompt:

   **Windows:**
   ```
   <FLEXlm system directory>\lmutil -c lmdown <license file path>
   <FLEXlm system directory>\lmgrd -c <license file path>[-l<optional log path>]
   ```

   **Linux or Solaris:**
   ```
   /<FLEXlm system directory>/lmutil -c lmdown <license file path>
   /<FLEXlm system directory>/lmgrd -c <license file path> [-l<optional log path>]
   ```
Determine the FLEXlm Software Version

On the computer running the FLEXlm software, type the following commands at a command prompt:

- **Windows:**
  \`
  <FLEXlm system directory>\lmgrd -v
  <FLEXlm system directory>\alterad -v
  \`

- **Linux or Solaris:**
  \`
  /<FLEXlm system directory>/lmgrd -v
  /<FLEXlm system directory>/alterad -v
  \`

If the `lmgrd` or `alterad` daemons are not from the FLEXlm software version 10.8, you must upgrade both daemons with the versions provided with the Quartus II software.

Related Information

Upgrading or Setting Up a License Manager Server

Rereading an Existing License File

If you change the license file, you must reread the license file or restart the license server before you can run the Quartus II software again. If you have an existing FLEXlm license server with an existing license file for the MAX+PLUS II software, or software from another vendor, and the FLEXlm license manager server software is version 11.1.1, you can copy and paste the Altera `FEATURE` lines from your Quartus II `license.dat` file into your existing license file. Make sure you modify the `FEATURE` lines for your server.

**Note:** You can see a list and description of the available FLEXlm options by typing `lmgrd -help` at a command prompt.

Related Information

- **Modifying the Network License File** on page 5-14
- **Setting Up Your License File** on page 5-11
- **Setting Up or Upgrading a License Manager Server** on page 5-16
- **Configuring a New License Server** on page 5-16

Rereading the License File on a License Server for Windows

1. Type the following command at a command prompt:
   \`
   <Quartus II system directory> \bin64\lmutil lmreread
   \`

2. (Or) Follow these steps:
   a. In the LMTOOLS dialog box, click **Configuration using Services**.
   b. Select the name of the license server, usually **Flexlm License Server**.
   c. Click the **Start/Stop/Reread** tab.
   d. Click **ReRead License File**.
Rereading the License File on a License Server for Linux or Solaris

1. Type the following command at a command prompt:

   `<Quartus II system directory>/<operating system>/lmutil lmreread`

   Where `<operating system>` is `linux64` or `solaris`.

2. (Or) Restart the license server.

Starting and Stopping the License Server

When configuring the license server, you can start and stop the license server with the LMTOOLS dialog box. Before you start or stop the license server, you must configure a new license server as a Windows service.

To start or stop the license server with the LMTOOLS dialog box, follow these steps:

1. Type the following command at a command prompt:

   `<Quartus II system directory>/bin64/lmtools`

2. In the LMTOOLS dialog box, click `Configuration using Services`.
3. Select the name of the license server, usually `Flexlm License Server`.
4. Click the `Start/Stop/Reread` tab.
5. Click `Start Server` or `Stop Server`.

Related Information

- Configuring a New License Server on page 5-16

Starting the License Server Automatically

When configuring the license server, you can set up the license server to start automatically at startup with the LMTOOLS dialog box. You must configure a new license server as a Windows service before you set up the license server to start automatically at startup.

To start the license server automatically at startup with the LMTOOLS dialog box, follow these steps:

1. Type the following command at a command prompt:

   `<Quartus II system directory>/bin64/lmtools`

2. In the LMTOOLS dialog box, click `Configuration using Services`.
3. Select the name of the license server, usually `Flexlm License Server`.
4. Click the `Config Services` tab.
5. Turn on `Use Services`.
6. Turn on `Start Server at Power Up`.

Related Information

- Configuring a New License Server on page 5-16

Installing the FLEXlm License Manager Server Software on Another License Server

To install the FLEXlm license manager server software on an additional license server, follow these steps:

1. Create one of the following directories on the additional license server.

   - Windows—`<Quartus II system directory>/`
   - Linux or Solaris—`<Quartus II system directory>/<operating system>`
Where <operating system> is **linux64** or **solaris**.

2. Copy the following files from the `<Quartus II system directory>`, `<Quartus II system directory>/linux64`, or `<Quartus II system directory>/solaris directory` of your original Quartus II software into the new directory:

   - lmgrd
   - lmutil
   - alterad
   - lmtools (Windows)

You can also install the FLEXlm software on another license server with the **Install** button next to **FLEXlm Server** in the Altera Complete Design Suite DVDs setup program.
License File Troubleshooting

If you have trouble modifying your license file, you can use the topics about license file formats to troubleshoot.

Related Information

• Quartus II Help: License File Troubleshooting
• Software Licensing Troubleshooter
• Support Center
• Altera Licensing

License File Components

This topic describes the different parts of the Altera license file (license.dat).

License File Header

Altera license files have headers that contain identifying information specific to the license, such as the type of license, the primary computer and companion IDs, issue and expiration dates, and a product license summary.

The example below shows the header of a fixed license file that contains a license for the Quartus II software and the ModelSim-Altera Edition software. This license file works on a PC that has software guard number T000012345 attached to its parallel port. The license was issued on May 13, 2010, is a perpetual license with no defined companion IDs, and has a maintenance expiration date of April 2011.

# Altera Corporation Software and/or Intellectual Property License File
# Issued 13 May 2010
# Perpetual-No License Expiration
# Upgrade to these products will no longer be available after the
# Maintenance Expiration date unless licenses are renewed.
# Fixed Node License
# Primary Machine Name-scenario 1
# Primary Machine ID-Guard ID T000012345
# Companion ID-N/A
SERVER, VENDOR, and USE_SERVER Lines

A floating license file starts with SERVER, VENDOR, and USE_SERVER lines to describe the license server. Fixed license files do not contain these entries. These license lines are structured as shown in the following example:

SERVER <hostname> <8 or 12 character host or NIC ID> <port>
VENDOR <daemon> <path>
USE_SERVER

The USE_SERVER line designates the license file as a floating license.

You can configure up to three redundant network license servers with the FLEXlm licensing scheme. In this case, there are three SERVER lines, one for each license server machine. The first server specified is the master.

Typically, a license file contains multiple VENDOR lines; one for each required license vendor daemon. Some license files might use the DAEMON keyword instead of VENDOR.

Table 6-1: Elements of the SERVER and VENDOR Lines for Floating Licenses

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Editable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hostname</td>
<td>yes</td>
<td>The host name of the server in the license.dat file.</td>
</tr>
<tr>
<td>8- or 12-character host or NIC ID</td>
<td>no</td>
<td>The PC NIC or UNIX Host ID of the server. You must supply this ID to Altera when purchasing the license.</td>
</tr>
<tr>
<td>port</td>
<td>n/a</td>
<td>The port number.</td>
</tr>
<tr>
<td>daemon</td>
<td>no</td>
<td>The vendor daemon name:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• alterad daemon: Quartus II software</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• mgcld daemon: ModelSim-Altera software</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• armld daemon: ARM features of the ARM Development Suite (ADS)</td>
</tr>
<tr>
<td>path</td>
<td>yes</td>
<td>The path to the vendor daemon on the server. You must edit this entry.</td>
</tr>
</tbody>
</table>

FEATURE and INCREMENT Lines

All Altera license files contain FEATURE, and possibly INCREMENT lines, to describe the software features that are licensed by the license.dat file. Certain features use INCREMENT lines, which are structured similarly as FEATURE lines. The FEATURE line is structured as shown in the following example:

FEATURE <name> <daemon> <version> <expiration> <# of licenses> <authcode> [<vendor_string>] [<hostid_lock>] [SIGN] [SUPERCEDE] [<issuer>]
A backslash (\) character indicates that the FEATURE or INCREMENT line continues on the next line in the text file. The last line of each FEATURE line does not require the backslash. Elements in brackets [ ] are present only in some license FEATURE or INCREMENT lines. The example below shows a FEATURE line, followed by an INCREMENT line.

```
FEATURE START
# The following is a feature line for Quartus II Subscription Edition
Fixed
# Number of seat licenses is 1
# No license expiration date
FEATURE maxplus2 alterad 2011.04 permanent uncounted 6D103456930D \ 
HOSTID=GUARD_ID=T000012345 SIGN="0116 7EF5 F487 4771 3456 9278 \ 
4DA6 80CF 4131 95C6 1F1E D54F 8429 C807 6A8B 0A13 BC80 A11D 0F6E \ 
AC08 4FA8 0B6E C267 9BBB 5791 C037 0FAD FB9E FFD8 5CF4" 
FEATURE quartus alterad 2011.04 permanent uncounted 08E2123438D3 \ 
HOSTID=GUARD_ID=T000012345 TS_OK SIGN="0403 403E CF63 6460 \ 
3C3D 2AA7 60B3 A074 77A7 6D0A 3C5D BF03 9391 3476 D1DA 14E7 56FA \ 
0F63 1EE2 77C8 41C9 3495 A23B FF7C F507 6573 54FA F46C D42B C0B3" 
# FEATURE END
```

### Table 6-2: Elements of the FEATURE and INCREMENT Code Lines

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>The feature name.</td>
</tr>
<tr>
<td>daemon</td>
<td>The name of the vendor daemon that manages the feature. This name corresponds to a VENDOR line in network/server licenses.</td>
</tr>
<tr>
<td>version</td>
<td>Any version of software released up to and including this date is licensed. Software with a later version date does not function using this license file.</td>
</tr>
<tr>
<td>expiration</td>
<td>The date after which the software or service pack cannot be used. The expiration date applies to trial licenses. For Altera license subscriptions, the expiration is permanent.</td>
</tr>
<tr>
<td># of licenses</td>
<td>The number of concurrent users that can run each feature. For some license types, the entry is uncounted.</td>
</tr>
<tr>
<td>authcode</td>
<td>An authorization code generated by Altera.</td>
</tr>
<tr>
<td>vendor_strings</td>
<td>Specified for certain third-party license features.</td>
</tr>
</tbody>
</table>
### Element Name

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hostid_lock</td>
<td>Specified if a feature is node-locked to a software guard, NIC ID, or hard-disk serial number. Intellectual property (IP) MegaCore functions often contain node-locked feature lines in floating licenses.</td>
</tr>
<tr>
<td></td>
<td>- Software guard: <code>HOSTID=GUARD_ID=&lt;Software guard number&gt;</code></td>
</tr>
<tr>
<td></td>
<td>- Network interface card (NIC): <code>HOSTID=&lt;NIC ID&gt;</code></td>
</tr>
<tr>
<td></td>
<td>- Hard-disk serial number: <code>HOSTID=DISK_SERIAL_NUM=&lt;Hard-disk ID&gt;</code></td>
</tr>
<tr>
<td>issuer</td>
<td>The name of the ModelSim license issuer.</td>
</tr>
<tr>
<td>sign</td>
<td>An authorization code generated by Altera.</td>
</tr>
<tr>
<td>TS_OK</td>
<td>Enables remote login for fixed license Quartus II software (includes Altera IP, Nios II Software Build Tools for Eclipse, and DSP Builder).</td>
</tr>
</tbody>
</table>

The following table describes the available Altera license features. This table does not include license features for any intellectual property (IP), development kits, or special license codes used for the Quartus II Web Edition software.

**Table 6-3: Available Altera License Features**

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>quartus</td>
<td>Quartus II software</td>
</tr>
<tr>
<td>alteramtivsim</td>
<td>ModelSim-Altera VHDL and Verilog HDL Simulator (1)</td>
</tr>
<tr>
<td>alteramtivlog</td>
<td>ModelSim-Altera Verilog HDL Simulator (2)</td>
</tr>
</tbody>
</table>

**Notes:**

1. The `alteramtivsim` license subscription supports both VHDL and Verilog HDL, but the software does not support mixed language simulation for ModelSim-Altera version 6.4a and later. For ModelSim-Altera version 6.3g_p1 and earlier, the `alteramtivsim` license subscription supports VHDL only.
2. The ModelSim-Altera `alteramtivlog` license subscription supports Verilog HDL only and is available for ModelSim-Altera Edition version 6.3g_p1 and earlier.

### Using a FLEXlm Options File

If your license file contains `FEATURE` and `INCREMENT` lines for the same software but different maintenance dates, the license server may grant newer licenses from the `FEATURE` line to users running older versions of software, which leaves fewer licenses for users running newer versions of software.

By default, the license server uses licenses from the first matching `FEATURE` or `INCREMENT` line in the license file. If all the licenses in the first `FEATURE` or `INCREMENT` line are in use, the license server attempts
to use the next FEATURE or INCREMENT if one is available, until it reaches the end of the license file. You can use a FLEXlm options file to control which users can access which licenses by creating pools of licenses for each FEATURE and INCREMENT line.

To create a FLEXlm options file to use with a floating license server, follow these steps:

1. In a new text file, add a GROUP line for each user group you want to create, with a list of user names, separated by spaces for each group, as follows:

   ```plaintext
   GROUP <group name> <username 1> <username 2>
   
   Users can be members of more than one group as shown in the following example:
   
   GROUP quartus2010 kjones bknight root administrator
   GROUP quartus2009 bknight cface root administrator
   ```

2. Add an INCLUDE line for each INCREMENT and FEATURE line in your license file for the product you wish to control. The VERSION keyword must be set to the maintenance date or version date on the INCREMENT or FEATURE line from the license file. The GROUP field controls which group or groups can use the license line as follows:

   ```plaintext
   INCLUDE <product name>:VERSION=<maintenance date> GROUP <group name>
   
   For example:
   
   ```
   
   INCLUDE quartus:VERSION=2010.12 GROUP quartus2010
   INCLUDE quartus:VERSION=2009.06 GROUP quartus2009
   INCLUDE ip_base:VERSION=2010.12 GROUP quartus2010
   INCLUDE ip_base:VERSION=2009.06 GROUP quartus2009
   ```

3. Save the options file `<filename>.dat`.

4. Add the options file as the last option on the VENDOR line in your license file, as shown in the following example:

   ```plaintext
   VENDOR alterad "C:\lic\alterad.exe" "C:\lic\alteraOptions.dat"
   ```

5. Restart your FLEXlm license server or reread your license file.

Related Information

Rereading an Existing License File on page 5-18

License.dat Example Files

This topic includes several example license.dat files. License files vary, depending on the type of licenses and the software that is enabled. License examples in this section should be used only for reference; they are not valid for actual licensing.

Fixed PC Software Guard License Example

The example below shows a license.dat file that contains a license for the Quartus II software and the ModelSim-Altera Edition software. This license file works on a PC that has software guard number T000012345 attached to its parallel port.

```plaintext
FEATURE START
# The following is a feature line for ModelSim Altera Edition
# Number of seat licenses is 1
# No license expiration date

# The following is a feature line for Quartus II software
# Number of seat licenses is 1
# No license expiration date
```
Floating Network License Example

The example below shows a license.dat file that contains a license for the Quartus II software, the ModelSim-Altera Edition software, and the IP Base Suite. This license specifies that two users can run the software simultaneously and works when the PC with NIC ID 00B0D0ABCBA is set up as a license server and the users point to the license location.

SERVER <hostname> 00B0D0ABCBA <port number>
VENDOR alterad <path to daemon executable>
USE_SERVER

FEATURE START
# IP Base Suite (FIR, FFT, NCO, DDR, DDR2, DDR3, QDRII, DDR/DDR2
# Library, RLDRAM II, SerialLite II, S2GXGEMAC)
# Number of seat licenses is 2
# No license expiration date
PACKAGE ip_base alterad COMPONENTS="6AF7_0034 6AF7_0012 6AF7_0055 \
 6AF7_00A8 6AF7_00A7 6AF7_00A8 6AF7_00C2 6AF7_00BE 6AF7_00BF \
 6AF7_00A4 6AF7_00AC 6AF7_00AD 6AF7_0014" OPTIONS=SUITE \
IGN="1A76 FAF3 0CFA 9A0B D5A9 C867 4923 F223 AA3B C17B 6F11 \
98E6 8056 178E A795 1F63 7695 1260 3D0C F662 2657 4AFF 25BD \
3029 0C7C 1B3A 542A 3948 9F90 03CE" \
FEATURE ip_base alterad 2012.05 permanent 2 D756406983D \
VENDOR_STRING=iiiiiihidLKhIiiiiIIIUPDuiaaai1X38DDDDDDDDpjz5 \ncccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccco
# No license expiration date
FEATURE maxplus2 alterad 2012.05 permanent 2 71781799E9FF \
   SIGN="0D15 DBE8 1893 DA63 0658 4F28 D47C 64D8 A9AB 4E84 A3EE \ 
   4257 F592 753F E261 0FD9 C334 F2E9 C9A2 5316 CB42 EF0F 188D \ 
   7933 5134 6FDC 0BA8 6CCD FF8A 403D"
FEATURE quartus alterad 2012.05 permanent 2 8D7C83160D8A SIGN="15F3 \ 
   2C48 65E9 1EAC 5E5F 19A0 1C53 70F1 4BEA D4EA 422A 92C7 9CC0 \ 
   8B45 4A3D 0674 667C 1FB9 504E D960 8FC2 1B46 94C3 035B 3711 \ 
   651F D889 0B03 99F7 48EC"
# FEATURE END

# End of Altera Corporation Software and/or Intellectual Property
License File.
Issued 05/13/2010
Document Revision History

The following table shows the revision history for this document.

Table 7-1: Document Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015.05.04</td>
<td>15.0</td>
<td>• Reorganized the document.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Added a quick start for fixed, single user</td>
</tr>
<tr>
<td></td>
<td></td>
<td>licenses.</td>
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<tr>
<td>2015.03.09</td>
<td>14.1</td>
<td>• Updated the supported Red Hat Linux version</td>
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<td></td>
<td></td>
<td>number (5 and 6 instead of 6 and 7).</td>
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<tr>
<td></td>
<td></td>
<td>• Changed recommended screen resolution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from 768 x 1024 to 1024 x 768.</td>
</tr>
<tr>
<td>Date</td>
<td>Version</td>
<td>Changes</td>
</tr>
<tr>
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</table>
| 2014.12.15 | 14.1    | • Updated RPM package prerequisite information for Red Hat Linux Enterprise 7 and ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 7  
• Added Microsoft redistributable package requirements for ModelSim-Altera Edition  
• Updated FLEXlm license server version to 11.11.1  
• Updated available software in the "Altera Software" topic  
• Removed references to Windows XP and Windows Server 2003  
• Updated terminology in the "Adding Floating Seats" topic  
• Updated instructions for the "Setting Windows Environment Variables" topic  
• Added a firewall example to the "Modifying the Network License File" topic |
| 2014.18.08 | 14.0a10.0 | • Updated RPM package prerequisite information for Red Hat Linux Enterprise 6 and ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 6 |
| June 2014  | 14.0.0  | • Updated "Cables and Ports" topic.  
• Updated "Upgrading or Setting Up a License Manager Server" topic.  
• Updated "Quartus II General Environment Variables" topic.  
• Updated "Download and Installation Prerequisites" topic.  
• Removed references to 32-bit Quartus II software.  
• Added "Downloading and Installing Altera Software Updates" topic.  
• Updated "Rehosting a License" topic.  
• Updated 32-bit libraries in "Download and Installation Prerequisites" topic.  
• Updated "Modifying the Network License File" topic. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Changes</th>
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</thead>
<tbody>
<tr>
<td>November 2013</td>
<td>13.1.0</td>
<td>• Added references to Altera SDK for OpenCL in &quot;Altera Software&quot; topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated information about downloading .tar files in &quot;Installation Options&quot; topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removed note about installing software separately from &quot;Installing Device Family Support&quot; topic.</td>
</tr>
<tr>
<td>May 2013</td>
<td>13.0.0</td>
<td>• Removed references to the TCP/IP protocol in &quot;More Download, Installation, and Setup Procedures&quot; topic.</td>
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<tr>
<td></td>
<td></td>
<td>• Removed references to SOPC Builder in &quot;Supported Software Subscriptions&quot; topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removed the &quot;Individual Software Files&quot; topic, and &quot;Using the 64-Bit Version of the Quartus II Software for Linux&quot; topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated Altera Complete Design Suite DVD information in &quot;Altera Software&quot; topic.</td>
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<tr>
<td></td>
<td></td>
<td>• Removed reference to Windows Vista in &quot;Cables and Ports&quot; topic.</td>
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<tr>
<td></td>
<td></td>
<td>• Updated downloading, installing, and uninstalling Altera software information in &quot;Altera Download Center&quot; topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated information about installing the FLEXlm software in &quot;Upgrading the FLEXlm License Manager Server Software&quot; topic.</td>
</tr>
<tr>
<td>November 2012</td>
<td>12.1.0</td>
<td>• Updated Quartus II Web Edition information in &quot;Altera Software&quot; topic.</td>
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<tr>
<td></td>
<td></td>
<td>• Added GIMP toolkit to the list of RPM packages in “Download and Installation Prerequisites” topic.</td>
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<tr>
<td></td>
<td></td>
<td>• Updated the &quot;Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Self-Service Licensing Center” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the environment variable in “Specify the License for the ModelSim-Altera Edition Software” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removed the &quot;Quartus II NativeLink Environment Variables&quot; topic.</td>
</tr>
<tr>
<td>Date</td>
<td>Version</td>
<td>Changes</td>
</tr>
<tr>
<td>---------------</td>
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</table>
| June 2012     | 12.0.0  | - Updated Internet browser information in the “System Requirements” topic.  
- Updated the RPM package information in the “Download and Installation Prerequisites” topic.  
- Updated the “Obtaining a License File” topic.  
- Updated the Mentor Graphics vendor daemon executable paths in the “Modifying the Network License File” topic.  
- Updated the “Specify the License for the ModelSim-Altera Edition Software” topic.  
- Updated the “Quartus II NativeLink Environment Variables” topic. |
| November 2011 | 11.1.0  | - Updated the “Altera Software” topic.  
- Updated the “Hardware” topic.  
- Updated the “Uninstalling Altera Software” topic.  
- Updated the “Modifying Altera Software” topic.  
- Updated the “Download and Installation Prerequisites” topic.  
- Updated the “Quartus II Software Evaluation Period” topic.  
- Updated the “UNIX Host ID” topic.  
- Updated the “Setting Up a Fixed License” topic.  
- Updated the “Setting Up a Floating Network License” topic.  
- Added the “Using a FLEXlm Options File” topic. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2011</td>
<td>11.0.0</td>
<td>• Updated &quot;Installing Altera Software&quot; topic to incorporate changes with the Nios II Embedded Design Suite (EDS) installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Hardware” topic.</td>
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<tr>
<td></td>
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<td>• Updated the “Download and Installation Prerequisites” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Added the “Intellectual Property (IP) Cores” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Development Kits Containing the Quartus II Software” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Quartus II Software Evaluation Period” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Licensing Requirements” topic.</td>
</tr>
<tr>
<td></td>
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<td>• Updated the “Requesting a License File” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removed the “Specifying the License for Intellectual Property (IP) Cores, DSP Builder, or Intellectual Property (IP) and Development Kits” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Upgrading the FLEXlm License Manager Server Software” topic.</td>
</tr>
<tr>
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<td></td>
<td>• Updated the “Rereading an Existing License File” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the “Quartus II Getting Started Tutorial” topic.</td>
</tr>
<tr>
<td>December 2010</td>
<td>10.1.0</td>
<td>• New document template.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated &quot;Installing Altera Software” topic to incorporate changes with the Altera Complete Design Suite DVDs and device support installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Updated the default FLEXlm software version in “Upgrading or Setting Up a License Manager Server” topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Linked procedures to Help topics.</td>
</tr>
<tr>
<td>July 2010</td>
<td>10.0.0</td>
<td>Updated the manual to incorporate changes made to the Altera Installer and the Self-Service Licensing Center.</td>
</tr>
</tbody>
</table>
How to Contact Altera

To locate the most up-to-date information about Altera products, refer to the following table.

Table 7-2: Altera Contact Information

<table>
<thead>
<tr>
<th>Contact (1)</th>
<th>Contact Method</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical support</td>
<td>Website</td>
<td><a href="http://www.altera.com/support">www.altera.com/support</a></td>
</tr>
<tr>
<td>Technical training</td>
<td>Website</td>
<td><a href="http://www.altera.com/training">www.altera.com/training</a></td>
</tr>
<tr>
<td></td>
<td>Email</td>
<td><a href="mailto:custrain@altera.com">custrain@altera.com</a></td>
</tr>
<tr>
<td>Product literature</td>
<td>Website</td>
<td><a href="http://www.altera.com/literature">www.altera.com/literature</a></td>
</tr>
<tr>
<td>Nontechnical support (general)</td>
<td>Email</td>
<td><a href="mailto:nacomp@altera.com">nacomp@altera.com</a></td>
</tr>
<tr>
<td>Nontechnical support (software licensing)</td>
<td>Email</td>
<td><a href="mailto:authorization@altera.com">authorization@altera.com</a></td>
</tr>
</tbody>
</table>

Note to Table:
1. You can also contact your local Altera sales office or sales representative.

Related Information
- [www.altera.com/support](http://www.altera.com/support)
- [www.altera.com/training](http://www.altera.com/training)
- custrain@altera.com
- [www.altera.com/literature](http://www.altera.com/literature)
- nacomp@altera.com
- authorization@altera.com