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 can obtain Altera software from the Download Center of the Altera website. The Altera Complete Design Suite DVDs are available by request via the Altera IP and Software DVD Request Form website.

Related Information

- **Download Center**
- **Altera IP and Software DVD Request Form**

Altera Software

You can choose from one of three installation methods (combined, individual, or ISO files) to download the following software and device support files, which you can then install on your local machine.

- Altera software:

  - Quartus II Subscription Edition software v14.1 (includes the Nios II EDS and Altera IP Library)

  - Quartus II Web Edition software v14.1 (includes the Nios II EDS and Altera IP Library)
  - Quartus II Help
  - ModelSim-Altera Edition software v10.3c for Quartus II software v14.1 (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 Arria®, Cyclone®, MAX®, or Stratix® device families must be installed as part of the Quartus II installation.

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The available Altera Complete Design Suite Subscription Package v14.1 DVDs include:

- Quartus II Subscription Edition software for Windows DVD
- Quartus II Subscription Edition software for Linux DVD
- Devices DVD 1 (contains all devices except Arria series)
- Devices DVD 2 (contains Arria series devices)
- Quartus II Web Edition software DVD (contains Windows and Linux software, and devices available with the Quartus II Web Edition software)

Related Information
Operating System Support

Altera Download Center

The following items are available from the Download Center of the Altera website:

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

Related Information

- **Altera Software** on page 1
- **Download Center**

Installation Options

Altera provides several options for downloading and installing Altera software products. When you download Altera software, you can choose between three options:

- Combined files—Download Quartus II software and device support packages as multiple **.tar** files or one large **.tar** file.
- Individual files—Download Altera software and device family support for the Quartus II software as individual executable files.
- ISO files—Download DVD files that you can burn to a disc.

Install software on multiple systems using the same set of installation files to reduce overall download time.

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 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.

Related Information

- **Altera Software** on page 1
- **Download and Installation Prerequisites** on page 3

- **Downloading and Installing Altera Software with Combined Files** on page 4
- **Downloading and Installing Altera Software Updates** on page 5
- **Accessing Quartus II Internet Resources on the Web**

System Requirements

To successfully 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 768x1024 display resolution
- Adequate disk space as described in the *Quartus II Software Device Support Release Notes*
- DVD drive (DVD installation 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

About Downloading and Installing Altera Software

The following are prerequisites and instructions for downloading and installing Altera software.

Download and Installation Prerequisites

Read the following information before you download and install Altera software:

- Ensure there is at least 20 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.
- The following RPM packages are required to run the Altera Complete Design Suite (ACDS) on systems running Red Hat Linux Enterprise 6 and 7:

  - X Window libraries: libX11.i686, libXau.i686, libXdmcp.i686, libXext.i686, libXft-devel.i686, libXft.i686, libXrender.i686, libXt.i686, and libXtst.i686.
  - 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 6 and 7:

  - 32-bit libraries: unixODBC-libs, unixODBC, ncurses, ncurses-libs, libzmq3, libXext, alsa-lib, libXtst, libXft, libxml2, libedit, libX11, libXi.
- The Microsoft Visual C++ 2008 Redistributable Package (x86) is required to run the ModelSim-Altera Edition software on Windows systems.
- 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 (multiuser) license, make sure to set up the license server option to use a license server.
- If you are running the Bitdefender antivirus software, you should temporarily disable the software when downloading and installing the Quartus II software.

Related Information

- **Setting Up a Floating Network License** on page 18
- **Managing Quartus II Projects**
- **Microsoft Visual C++ 2008 Redistributable Package (x86)**

Downloading and Installing Altera Software with Combined Files

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

1. On the Download Center of the Altera website, select Subscription Edition or Web Edition.
2. Verify that you have sufficient free disk space to contain copies of uncompressed versions of the software files.
3. In the **Combined Files** tab, download the software and device support packages.
4. Extract the files into the same temporary directory.
5. Run the **setup.bat** file for Windows, or **setup.sh** for Linux to launch the installation wizard. The installation wizard guides you through the download and installation process.

Related Information

Additional Installation Procedures on page 6

Downloading and Installing Altera Software Updates

Follow these steps to download updates to the Altera software when updates are available.

1. Ensure that the current version of the Altera software is installed, as described in **Downloading and Installing Altera Software with Combined Files** on page 4.
2. On the Download Center of the Altera website in the **Updates** tab, select the latest software and IP updates.
3. Download the software update file(s) into a temporary directory.
4. Run the executable file to launch the installation wizard. The installation wizard guides you through the installation process.

   Note: For information about the latest updates, refer to the update release notes on the Altera web site.

Installing Support for Device Families and Other Altera Software

After you install the Quartus II software, you can download and then install device support and other Altera software, including Quartus II Help, DSP Builder, and ModelSim-Altera Edition software.

You can download the device family support and other Altera software from the **Individual Files** and **Additional Software** tabs on the version-specific download page accessed from the Download Center of the Altera website. You must install the other Altera software in the same directory as the Quartus II software. You must download the device family support to the same directory as the Quartus II software, and then install it through the Quartus II software.

Installing Device Family Support

To install device family support:

1. To begin, use one of the following methods:

   • In the Quartus II software click **Tools** > **Install Devices**.
   • For Microsoft Windows, on the Windows Start menu, point to **All Programs** > **Altera <version number>**.

2. Point to **<software name> <version number>** > **<software name> <version number> Device Install**.

   The installation wizard appears and guides you through the process to add device family support. Install the device family support to the same location as the Quartus II software.

Uninstalling Altera Software

To uninstall Altera software:

Uninstalling on Microsoft 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>*).

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.
- Mounting and unmounting the Altera Complete Design Suite DVDs—you can mount and unmount the Altera Complete Design Suite DVDs on Linux workstations if your Linux operating system does not automatically mount DVDs inserted into your DVD drive.
- 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
About Installing Altera Software

Configuring the Linux User Environment

Perform the following steps for each user before starting the Quartus II software for Linux for the first time:

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 **bin** directory in the Quartus II system directory. The **bin** directory is usually *<home directory>* **/altera/** *<version number>* **/quartus/bin** directory for Linux, 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. 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.

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 General Environment Variables** on page 26
- **Setting the LM_LICENSE_FILE Environment Variable in the Linux Workstation C Shell Resource File (.cshrc)** on page 19

About Starting the Quartus II Software

This topic describes starting and licensing the Quartus II software. The Quartus II software prompts for license information if undetected on startup.

Related Information
Evaluating the Quartus II Software on page 10

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

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

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

Licensing Altera Software

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

1. Select a licensing option.
2. Obtain a license file.
3. Set up the license file.
4. If you have a network license, set up the FLEXlm license manager server.

Related Information

- **Licensing Options** on page 8
- **License Files** on page 10
- **Setting Up the License File** on page 17
- **Upgrading or Setting Up a License Manager Server** on page 22

Licensing Options

Altera provides licensing options for Altera software products.

An Altera software subscription enables the Quartus II software (includes the Altera IP Library) and the ModelSim-Altera Starter Edition software.

When you purchase a Quartus II software license, 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.

Understanding Supported Software Subscriptions

Altera offers the following types of software subscriptions for the Quartus II software:

- Fixed license—a stand-alone (node-locked, single-user) license tied to the network interface card (NIC) ID.
- Floating license—a floating network (multiuser) license for users running the Quartus II software on Windows PCs or Linux workstations. Floating licenses are not operating system-specific. 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 is available for purchase and does not require a separate license file; however, you must specify your license file for the ModelSim-Altera Edition software.

Related Information

- **License.dat Example Files** on page 31
- **Specifying the License for the ModelSim-Altera Edition Software** on page 21

Licensing Intellectual Property (IP) Cores

The Altera IP Library, which allows you to use the OpenCore or OpenCore Plus evaluation of Altera IP cores, is automatically installed with the Quartus II software. 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.

The Qsys features are fully integrated into the Quartus II software and do not require separate license files. Components that are not available in the default installation of Qsys software are included with the MegaCore IP Library.

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 Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4

If you require access to the Mentor Graphics AXI Verification IP Suite Altera Edition Bus Functional Models and Inline Monitor (Mentor VIP AE) for AXI3 or AXI4, and want to upgrade to the Quartus II Subscription Edition software version 12.1 from a previous version, you must regenerate your license file.

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.

You can generate and manage license files for the IP Suite and other Altera software and IP products, by visiting the Self-Service Licensing Center of the Altera website.

Related Information
Self-Service Licensing Center

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

Installing Non-Licensed 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.

Altera University Program Software Licenses

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

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.

Related Information

- **License Files** on page 10
- **Setting Up the License File** on page 17
- **Buy Design Software**

License Files

Licensing Requirements

You can obtain a **license.dat** file from the Self-Service Licensing Center of the Altera website.

Table 1: Required Information for Each License Type

License Type	Requirements
Fixed license	NIC ID or software guard ID for Windows PCs **(1)**
Floating license	NIC ID for Windows or Linux license servers Host ID for UNIX license servers
Intellectual Property (IP) and Development Kit License	Variable **(2)**

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 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.

To find your Windows NIC ID using FLEXlm utilities

- Type the following command at a command prompt:

```
<drive>:<Quartus II system directory>\bin\lmutil lmhostid
```

To find your Windows NIC ID, which is the physical address of your ethernet device

- 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.

To 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.

12   To find your NIC ID if the Quartus II software is installed on your...

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To find your NIC ID if the Quartus II software is installed on your computer

- Click **Tools** > **License Setup**. Your NIC ID appears under **Local System info** in the **Network Interface Card (NIC) ID** field.

Locating Your Hard-Disk Serial Number

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 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 11

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.

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.

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.
- To manually request a license file, use the procedures in the Self-Service Licensing Center. If you have a triple redundant license server, 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 an email with the license file text and an attached file. Use the attached license file if you have a fixed 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>*. If you have a **license.dat** file for both the Quartus II and 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 at the mySupport section of the Altera website.

The FLEXlm licensing scheme allows you to set up three redundant license servers to serve a floating license. You can request a license file for redundant servers from the Self-Service Licensing Center.

4. Set up your license file.

Related Information

- **About Starting the Quartus II Software** on page 7
- **Requesting a License from the Self-Service Licensing Center** on page 13
- **Setting Up the License File** on page 17
- **Self-Service Licensing Center Website**
- **Altera Licensing**
- **Legacy License Generator**
- **mySupport**

Requesting a License from the Self-Service Licensing Center

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

- **License Files** on page 10
- **Renewing a License** on page 16
- **Rehosting a License** on page 15
- **Activating a License** on page 16
- **Adding Floating Seats** on page 15
- **Managing Licensed Users** on page 17
- **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.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. Click **Create New License**.
4. Expand a list of products, double-click to select one or more products from the **Unlicensed Products** table, and then click **Next**.
5. Select a computer to which you want to assign your license from the **Available Computers** table, and then click **Next**.
6. Click **Confirm Selection** to generate the license file.

Your license file is sent to the email address specified for your licensed user. If you have not specified an email address, your license file is sent to the email address in your myAltera account profile. Your software license type must match the license type of any license you want to assign your computer.

Related Information

- **Activating a License** on page 16
- **Renewing a License** on page 16
- **Creating a Computer Profile** on page 14

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**.
11. 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

    - **Licensing Requirements** on page 10
    - **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** diaog 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 14
- **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 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

You can activate a new license with the Self-Service Licensing Center. You must first purchase your new license, for example, from the Buy Design Software page of the Altera website, before activating the new license.

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 the License File

You must modify the **license.dat** file for your specific licensing options. Use the following procedures to modify your license file.

License File Conditions

If you modify the **license.dat** file, ensure that the following conditions are met:

- The text editor does not append **.txt** or any other file extension to the file name, for example **license.dat.txt**.
- A carriage return (new line) is present at the end of the last FEATURE line.
- Any FEATURE line that wraps to a second or third line contains 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.

Setting Up a Fixed License

To set up a fixed license file, follow these steps:

1. Make a backup copy of any existing **license.dat** file for reference.
2. Save the new **license.dat** file on your local hard drive. You should save and use the **license.dat** file attached to the licensing email you received from Altera.
3. If you are using the Quartus II software version 7.2 or earlier, attach the software guard to a parallel or USB port on your computer.
4. After you save the **license.dat** file on your local hard drive, proceed to one of the following procedures to specify your license. Each procedure provides an alternative method to set up your license file.

Related Information

Setting Up a Floating Network License

To set up a floating license, 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, proceed to one of the following procedures to set up your license. Each procedure provides an alternative method to set up your license file.

Related Information

Specifying the License File with the LM_LICENSE_FILE Environment Variable

Altera recommends specifying the Quartus II software license location with the `LM_LICENSE_FILE` environment variable. Additionally, third-party tools provided by Altera require that you specify the license location with the `LM_LICENSE_FILE` environment variable.

The license file specification 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.

Setting the LM_LICENSE_FILE Environment Variable in the Windows Control Panel

You can specify the location of your license file outside the Quartus II software for Windows by setting system variables in the Windows System Control Panel.

Setting the LM_LICENSE_FILE Environment Variable in the Linux Workstation C Shell Resource File (.cshrc)

To specify the license file on each client (user) workstation, make sure that you update the `LM_LICENSE_FILE` environment variable that is specified in the **.cshrc** file located in each user's home directory.

Related Information

Setting the LM_LICENSE_FILE Environment Variable

Specifying the License File within the Quartus II Software

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

Related Information

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

Setting Up Floating Network Licenses on the License Server

Setting up a floating network license server is typically performed by a system administrator. 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.

Altera software uses the FLEXlm software to administer licensing for single or multiple users in a network installation. Follow the procedure in Modifying the Network License File, and then set up and start the FLEXlm license manager.

Related Information

- **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 mgcld` *<path to daemon executable>* `port=`*<user-defined port number>*

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

Variable Name	Description
<host name>	The host name of the server; for example, `my_server`.
<host port number> **(1)**	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.
`alterad` *"<path to daemon executable>"* **(2) (3)**	Path to the Altera vendor daemon executable **alterad**. • *<Quartus II system directory>*\\`bin\alterad.exe` (Windows) • /*<Quartus II system directory>*/`linux/alterad` (Linux) • /*<Quartus II system directory>*/`solaris/alterad` (Solaris) **(5)**
`mgcld` *"<path to daemon executable>"* **(2) (3) (4)**	Path to the Mentor Graphics vendor daemon executable **mgcld**. • *<ModelSim-Altera system directory>*\\`win32aolem\mgcld.exe` (Windows) • /*<ModelSim-Altera system directory>*/`linuxaloem/mgcld` (Linux) • /*<ModelSim-Altera system directory>*/`sunos5aloem/mgcld` (Solaris) **(5)**
`port=`*<user-defined port number>*	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=*<number>* 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. ```\nSERVER myServer 0123456789ab 1800\nVENDOR alterad ./alterad port=1801\nVENDOR mgcld ./mgcld port=1802\n```

Variable Name	Description
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
License File Conditions on page 17

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**

or

<Quartus II system directory>/**linux/linuxaloem** (when installed using the Altera Complete Design Suite for Linux DVDs)

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 *<port>@<hostname>* notation **(1900@set)**, where *<port>* is the license port number and *<hostname>* is the server's host name.

To set the `LM_LICENSE_FILE` environment variable to the location and file name of the ModelSim-Altera license file for Windows or Linux.

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 20
- **Specifying the License File with the LM_LICENSE_FILE Environment Variable** on page 19
- **Self-Service Licensing Center**

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

Transferring a License File

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

Related Information

Upgrading or Setting Up 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.

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.

Related Information

Determining 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

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.

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 11.11.1, 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 20
- **Setting Up the License File** on page 17
- **Upgrading or Setting Up a License Manager Server** on page 22
- **Configuring a New License Server** on page 23

Rereading the License File on a License Server for Windows

1. Type the following command at a command prompt:

   ```
   <Quartus II system directory> \bin\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 `linux` 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>\bin\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 23

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>\bin\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 23

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 **linux** or **solaris**.

2. Copy the following files from the *<Quartus II system directory>*\, *<Quartus II system directory>*/**linux,** 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.

Related Information
Additional Installation Procedures on page 6

Installing a USB Software Guard

If your installation of the Quartus II software for Windows uses a node-locked (single-user) fixed license and includes a USB software guard, you must install the Sentinel driver and software guard before you specify a license file.

The Sentinel driver is required for all computers running the Quartus II software for Windows that use a USB software guard. The Sentinel driver is installed automatically with the Quartus II software for Windows.

If you want to use a USB software guard with the 64-bit version of the Quartus II software for Windows, and you want to run the Quartus II software with Remote Desktop Connection, you must set up the software guard specifically for this function.

Related Information
Quartus II Help: Installing a Sentinel Software Guard

About Quartus II Environment Variables

The Quartus II software installation process initializes general and NativeLink environment variables.

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 3: Environment Variable Location and Format

Shell	Location	Format
C	**.cshrc** file	`setenv <environment variable> <value>`

Shell	Location	Format
Bourne or Korn	**.profile** file	`set <environment variable> = <value>`
Bash	**.bashrc** file	`export <environment variable> = <value>`

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.

Quartus II General Environment Variables

The Quartus II software installation process initializes the following variables, but you can edit them 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).

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_64BIT`—The `QUARTUS_64BIT` environment variable specifies the 64-bit version of the Quartus II software for Linux. To turn on 64-bit processing in the Quartus II software for Linux, set the environment variable to 1 before running the Quartus II software. This environment variable is supported only by Linux systems with 64-bit processing.
- `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 to use the following command line tools:

- **qsys-edit**
- **qsys-generate**
- **ip-catalog**
- **ip-make-ipx**

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
# Companion ID 2-N/A
# Product License Summary:
# - ModelSim-Altera Edition Software, 1 Seat(s)
# Maintenance Expiration of 2011.04
```

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 4: Elements of the SERVER and VENDOR Lines for Floating Licenses

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

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 670A 3C5D BF03 9391 3476 D1DA 14E7 56FA \
0F63 1EE2 77C8 41C9 3495 A238 FF7C F507 6573 54FA F46C D42B C0B3"
# FEATURE END
################################################################
```

```
INCREMENT alteramtivsim mgcld 2011.04 13-aug-2011 uncounted \
6D7CE8FDD113FDB05C51 \
VENDOR_STRING=2A865E73 HOSTID=GUARD_ID=T000012345 ISSUER="Altera" \
SN=23912821 SIGN2="03BB 4774 F8FA 6E7A 4B71 5E3B FB9C 92B5 7B2F \
3581 49EF 4558 0945 260B 23C6 1DE0 2BD4 3709 6945 5A70 CAD6 C22B \
7A4E 67B7 C8FF 90BB B360 022C E3DC 32F8"
# FEATURE END
```

Table 5: Elements of the FEATURE and INCREMENT Code Lines

Element Name	Description
name	The feature name.
daemon	The name of the vendor daemon that manages the feature. This name corresponds to a VENDOR line in network/server licenses.
version	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.
expiration	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.
# of licenses	The number of concurrent users that can run each feature. For some license types, the entry is uncounted.
authcode	An authorization code generated by Altera.
vendor_strings	Specified for certain third-party license features.
hostid_lock	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. • Software guard: HOSTID=GUARD_ID= *<Software guard number>* • Network interface card (NIC): HOSTID=*<NIC ID>* • Hard-disk serial number: HOSTID=DISK_SERIAL_NUM=*<Hard-disk ID>*
issuer	The name of the ModelSim license issuer.
sign	An authorization code generated by Altera.
TS_OK	Enables remote login for fixed license Quartus II software (includes Altera IP, Nios II Software Build Tools for Eclipse, and DSP Builder).

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: Available Altera License Features

Feature Name	Description
quartus	Quartus II software
alteramtivsim	ModelSim-Altera VHDL and Verilog HDL Simulator **(1)**
alteramtivlog	ModelSim-Altera Verilog HDL Simulator **(2)**

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_p1and 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:

    ```
    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:

    ```
    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:

```
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 23

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.

```
####################################################################
FEATURE START
# The following is a feature line for ModelSim Altera Edition
# Number of seat licenses is 1
# No license expiration date
INCREMENT alteramtivsim mgcld 2011.04 13-aug-2011 uncounted \
     6D7CE8FDD113FDB05C51 \
     VENDOR_STRING=2A865E73 HOSTID=GUARD_ID=T000012345 \
     ISSUER="Altera" \
     SN=23912821 SIGN2="03BB 4774 F8FA 6E7A 4B71 5E3B FB9C 92B5 \
     7B2F 3581 49EF 4558 0945 260B 23C6 1DE0 2BD4 3709 6945 5A70 \
     CAD6 C22B 7A4E 67B7 C8FF 90BB B360 022C
# FEATURE END
####################################################################
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 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 670A 3C5D BF03 9391 3476 D1DA 14E7 \
     56FA 0F63 1EE2 77C8 41C9 3495 A238 F507 6573 54FA F46C FF7C \
     D42B C0B3"
# FEATURE END
####################################################################
```

```
End of Altera Corporation Software and/or Intellectual Property
License File.
Issued 5/13/2010
```

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 00B0D0ABCCBA is set up as a license server and the users point to the license location.

```
#####################################################################
SERVER <hostname> 00B0D0ABCCBA <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 D7564046983D \
VENDOR_STRING="iiiiiiiihdLkhIIIIIIIIUPDuiaaaaaaaa11X38DDDDDDDDpjz5
cddddddddJJJJJbqIhouuuuuuuuYYWiVVVVVVVVbp0FVHHHHHHHHBUEakffffffffD
2FFRkkkkkkkkWL$84" \
    DUP_GROUP=UHD SIGN="0A9A EB33 1A75 A16D 5949 B37B 015F 1A69 \
    9FD4 CED3 ABCE A628 9FDE 4846 455C 01E1 064B D881 C079 215C \
    FBAE 86B2 AC3F 4210 F471 6298 A340 CFC8 BCDA C218"
# FEATURE END
#####################################################################
FEATURE START
# The following is a feature line for Quartus II Subscription Edition
Floating
# Number of seat licenses is 2
# 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 7DF1 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 Intellectural Property
License File.
Issued 05/13/2010
```

Quartus II Help

The Quartus II software includes a platform-independent Help system that provides comprehensive documentation for the Quartus II software and more details about the specific messages generated by the software.

Related Information
Using Quartus II Help Effectively

Document Revision History

The following table shows the revision history for this document.

Table 7: Document Revision History

Date	Version	Changes
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

Date	Version	Changes
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 refences 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.
November 2013	13.1.0	• Added references to Altera SDK for OpenCL in "Altera Software" topic. • Updated information about downloading .tar files in "Installation Options" topic. • Removed note about installing software separately from "Installing Device Family Support" topic.
May 2013	13.0.0	• Removed references to the TCP/IP protocol in "More Download, Installation, and Setup Procedures" topic. • Removed references to SOPC Builder in "Supported Software Subscriptions" topic. • Removed the "Individual Software Files" topic, and "Using the 64-Bit Version of the Quartus II Software for Linux" topic. • Updated Altera Complete Design Suite DVD information in "Altera Software" topic. • Removed reference to Windows Vista in "Cables and Ports" topic. • Updated downloading, installing, and uninstalling Altera software information in "Altera Download Center" topic. • Updated information about installing the FLEXlm software in "Upgrading the FLEXlm License Manager Server Software" topic.

Date	Version	Changes
November 2012	12.1.0	• Updated Quartus II Web Edition information in "Altera Software" topic. • Added GIMP toolkit to the list of RPM packages in "Download and Installation Prerequisites" topic. • Updated the "Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4" topic. • Updated the "Self-Service Licensing Center" topic. • Updated the environment variable in "Specify the License for the ModelSim-Altera Edition Software" topic. • Removed the "Quartus II NativeLink Environment Variables" topic.
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. • Added the "Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4" 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.

Date	Version	Changes
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.
May 2011	11.0.0	• Updated "Installing Altera Software" topic to incorporate changes with the Nios II Embedded Design Suite (EDS) installation. • Updated the "Hardware" topic. • Updated the "Download and Installation Prerequisites" topic. • Added the "Intellectual Property (IP) Cores" topic. • Updated the "Development Kits Containing the Quartus II Software" topic. • Updated the "Quartus II Software Evaluation Period" topic. • Updated the "Licensing Requirements" topic. • Updated the "Requesting a License File" topic. • Removed the "Specifying the License for Intellectual Property (IP) Cores, DSP Builder, or Intellectual Property (IP) and Development Kits" topic. • Updated the "Upgrading the FLEXlm License Manager Server Software" topic. • Updated the "Rereading an Existing License File" topic. • Updated the "Quartus II Getting Started Tutorial" topic.

Date	Version	Changes
December 2010	10.1.0	- New document template. - Updated "Installing Altera Software" topic to incorporate changes with the Altera Complete Design Suite DVDs and device support installation. - Updated the default FLEXlm software version in "Upgrading or Setting Up a License Manager Server" topic. - Linked procedures to Help topics.
July 2010	10.0.0	Updated the manual to incorporate changes made to the Altera Installer and the Self-Service Licensing Center.
November 2009	9.1.0	The new manual merges content from the *Quartus II Software Installation & Licensing for Windows and Linux Workstations* manual and *AN 340: Altera Software Licensing*.

How to Contact Altera

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

Table 8: Altera Contact Information

Contact *(1)*	Contact Method	Address
Technical support	Website	www.altera.com/support
Technical training	Website	www.altera.com/training
	Email	custrain@altera.com
Product literature	Website	www.altera.com/literature
Nontechnical support (general)	Email	nacomp@altera.com
Nontechnical support (software licensing)	Email	authorization@altera.com

Note to Table:

1. You can also contact your local Altera sales office or sales representative.

Related Information

- **www.altera.com/support**

- **www.altera.com/training**
- **custrain@altera.com**
- **www.altera.com/literature**
- **nacomp@altera.com**
- **authorization@altera.com**