cadence®

AWR Design Environment Installation Guide

Product Version 22.1

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QUICK REFERENCE for Experienced Administrators

1. FLEXlm SETUP

Cadence® AWR Design Environment® platform software conforms to standard FlexLM™ guidelines. The vendor daemon name is `cdslmd`. Cadence requires version 11.15 or later of lmgrd and cdslmd.

The AWR Design Environment client software uses the `CDS_LIC_FILE` environment variable to find the server for floating license configuration in AWR Design Environment V16 and later software. The client queries the server to determine what features are available, and presents those features so you can select the desired configuration. The AWR Design Environment client software uses the `AWRD_LICENSE_FILE` environment variable for both locked and floating licenses in AWR Design Environment V15 and earlier software.

2. USER DIRECTORY CONFIGURATION

The AWR Design Environment platform software writes data to several locations. In an environment where users have limited rights, you can configure the directories the software uses. See "Configuring Program File Locations (optional)" for more information.

3. COMMAND LINE INSTALLATION

See "AWR Design Environment Installation Program" for options for installing the AWR Design Environment platform software from the command line.

Chapter 1. Introduction

1.1. AWR Software Installation and Licensing

The Cadence® AWR Design Environment® platform software employs the FLEXlm™ licensing scheme. FLEXlm can be used in either locked or floating configurations. Locked licensing dedicates a license to a particular machine. Floating licensing allows multiple users to share a license over a network via a client-server architecture that grants or denies licenses based on availability. With floating licensing, the license is assigned to a machine defined as the license server, and each client workstation running the AWR Design Environment platform software (Cadence Microwave Office® software/Cadence Visual System Simulator™ (VSS) communications and radar systems design software) requests licenses from the server as needed.

FLEXlm user license keys are stored in a license file. The license key can be calculated from the Ethernet address of the computer's network card, disk volume serial number, or from the serial number of an Cadence AWR®-supplied hardware dongle attached to the machine's parallel or USB port.

You can purchase a license with full functionality (for example, in the AWR Design Environment platform: linear simulator, nonlinear simulator, EM simulator(s), layout tool, and VSS software), or with one or more limited features. The license keys in the license file activate only the purchased features.

1.2. About This Guide

This guide describes how to install the AWR Design Environment platform software. It also provides complete details for configuring and troubleshooting your site for FLEXlm licensing in both locked and floating configurations, using either software- or hardware-based keys. Chapter 2 covers basic AWR Design Environment platform software installation, chapter 3 details FLEXlm configuration, and chapter 4 discusses FLEXlm troubleshooting issues. Appendix A provides information on the installation and Addin programs.

The latest version of this guide (*install.pdf*) is available at Install.pdf. Comments and suggestions regarding this guide are welcome and should be e-mailed to `awr.install@cadence.com`.

This guide assumes that you have an intermediate level of knowledge as a PC user or administrator.

1.2.1. Typographical Conventions

This document uses the following typographical conventions.

Item	Convention
Anything that you select (or click on) in the AWR Design Environment program, such as menus, nested submenus, menu options, dialog box options, buttons, and tab names	Shown in a bold alternate font. Nested menu selections are shown with a "**>**" to indicate that you select the first menu item and then select the submenu item: Choose **File > New Project**.
Text that you enter using the keyboard	Shown in a bold within quotation marks: Enter "**my_project**" in **Project Name**.
Keys or key combinations that you press	Shown in a bold alternate font with initial capitals. Key combinations using a "+" indicate that you press and hold the first key while pressing the second key: Press **Alt+F1**.

Item	Convention
File names and directory paths	Shown in italics: See the *DEFAULTS.LPF file*.
Contents of a file, fields within a file, command names, command switches/arguments, or output from a command at the command prompt	Shown in a mono-spaced font: Define this parameter in the `$DEFAULT_VALUES` field.
Optional arguments in a command	Shown in a mono-spaced font in square brackets: The command line format is: `dir [/w]`
Variables for which you must specify values	Shown in a mono-spaced font in angle brackets: `awrde_<version_build>.exe`

Chapter 2. Installing the AWR Design Environment

This chapter describes how to install the Cadence® AWR Design Environment® platform which includes the Cadence Microwave Office® software, Cadence Visual System Simulator™ (VSS) communications and radar systems design software, Cadence Analyst™ 3D FEM EM analysis software; and Cadence Analyst™-MP multi-physics simulator. A procedure for performing command line installations is also included.

The installation procedures are intended for evaluators and licensed users who wish to install the AWR Design Environment platform software with a FLEXlm license dedicated to their particular machine. For licensing configurations, see "*Configuring FLEXlm*".

2.1. Installation Overview

You can download and install the AWR Design Environment platform software from the Cadence website or from the Cadence Downloads page. You can access vendor libraries from within the AWR Design Environment platform program via the Elements Browser and through the Support portal on the Cadence website.

After installing the software you need to configure your FLEXlm licensing before using the software. For FLEXlm licensing information see "*Configuring FLEXlm*".

2.1.1. Licensing and Available Features

You may have purchased a complete Microwave Office/VSS license with full functionality (for example: linear simulator, nonlinear simulator, EM simulator, and layout tool), or you may have purchased a license for one or more features. In either case, the complete application is installed and your license determines the specific Microwave Office and/or VSS functions that are available to you. The default program installation directory for 64-bit operating systems is *C:\Program Files (x86)\AWR\AWRDE\[version_number]*.

2.2. Preparing for Installation

Before you start the installation:

1. Ensure that the computer on which you want to install the AWR Design Environment platform software meets the minimum requirements. For recommended hardware requirements see the Cadence website: Minimum Requirements.
2. When installing an upgrade to the AWR Design Environment platform, retain your existing version until you verify that your projects work successfully in the new version. (To uninstall the AWR Design Environment platform, choose **Programs and Features** from the Windows Control Panel, select the program and follow the instructions.)
3. **Ensure that you have Administrative rights on the computer.** The AWR Design Environment platform and FLEXlm licensing software both require Administrator privileges for installation and configuration.
4. (Optional) Disable your spyware and/or virus checking programs if interference is probable. Re-enable these programs after installation.
5. The AWR Design Environment platform software does not support Unicode languages. For proper software operation, ensure you have set your operating system set to English as the language for non-Unicode programs. If you are unsure how to check this, see Trouble Entering Text in the Cadence AWR Knowledge Base.

2.3. Installing the Software

To install the AWR Design Environment platform:

1. Download the software from the Cadence website or from the Cadence Downloads page, browse to the download folder and run *awrde_<version_number>.exe* to display the AWR Setup Wizard screen.
2. After accepting a license agreement, you proceed with the installation and are prompted to specify the following:

Option	Description
Select the installation folder	Browse to the directory in which you want to install the AWR Design Environment platform software. **DO NOT INSTALL THE SOFTWARE IN THE SAME DIRECTORY AS A PREVIOUS INSTALLATION**.
Set the default Units value	Choose the default units to use in schematics and layouts (and affect the default sizes for components such as transmission lines). The default is **Microns**. You can alternatively set this default within the program; see the *AWR Design Environment User Guide* for details.
Choose the file extensions to open with the AWR Design Environment platform program.	Specify the file type(s) you want to open with the AWR Design Environment platform program by selecting the option(s) for the associated file extension.

   Your installation progress is shown.
3. When installation is complete click **Close** to close the screen. For most users, the installation is now complete. The following sections describe custom installation procedures that are not typically used.

2.3.1. Setting Up a Group Policy

The AWR Design Environment platform software installer is based upon Windows Installer technology, which allows installations to be managed through a Group Policy. By setting up a Group Policy, you can automate the installation of the software for specific users or computers within a domain. For more information on how to configure Group Policies, see Microsoft's Support Website.

2.4. Configuring Program File Locations (optional)

By default, the AWR Design Environment platform program looks for files and folders in specific directories. You can optionally change these default directories to accommodate roaming users.

To view the location of the directories and files that the AWR Design Environment platform program uses, choose **Help > Show Files/Directories** to display the Directories dialog box.

The AWR Design Environment platform software uses three primary base locations:

- *application* - the AWR Design Environment platform installation directory
- *appdatacommon* - items common to all user accounts
- *appdatauser* - items specific to a single user

The installation directory is user-specified during program installation. The location of the *appdatacommon* and *appdatauser* directories is determined by calling the Windows SHGetFolderPath API. An administrator can set the physical location of these directories. The default locations on Windows machines are:

application:

C:\Program Files (x86)\AWR\AWRDE\[version_number]

appdatacommon:

C:\ProgramData\AWR\Design Environment\[version_number]

appdatauser:

C:\Users\[username]\AppData\Local\AWR\Design Environment\[version_number]

A fourth virtual location, *appdata*, is set to either *appdatacommon* or *appdatauser* depending on a configuration setting. All other subdirectories, with the exception of projects are under one of the three primary directories.

2.4.1. Searching mwoffice.ini

A search is performed for the *mwoffice.ini* file in the following locations:

1. the *appdatauser* version specific directory
2. the *appdatacommon* version generic directory
3. the *application* directory
4. If not found, this file is created in the *appdatacommon* directory.

The first location in which the file is found is the location that is used.

2.4.2. Searching user.ini

A search is performed for the *user.ini* file in the following locations:

1. the *appdatauser* version specific directory
2. the *appdatacommon* version generic directory
3. the *application* directory
4. If not found, this file is created in the *appdatauser* directory.

The first location in which the file is found is the location that is used.

2.4.3. Customizing File Locations

You can customize the default AWR Design Environment platform directories by creating a file named *REDIRECT.INI* in the *Documents* folder for a single user, or in the *application* directory for multiple user configurations. The default location for the *Documents* folder for Windows is *C:\Users\[user]\Documents*.

This file has a section that allows you to configure how the AWR Design Environment platform program behaves, and a section that tells the software to change the default primary directory locations.

You can change the behavior of the AWR Design Environment platform program by specifying one or more of the following flags under the [Design Environment] section. For example:

```
[Design Environment]

CommonDirectory=D:\All Users\AWRDE\Data
```

2.4.4. Overriding appdatacommon and appdatauser Locations

By default, the AWR Design Environment platform program gets the locations of the *appdatacommon* and *appdatauser* default locations from the system. As noted in "Configuring Program File Locations (optional)", an administrator can change the location of these directories. Doing so, however, causes a system-wide change and affects all programs. There are circumstances when you may want to change the location for only the AWR Design Environment platform program. You can do so by adding entries to the *REDIRECT.INI* file to override the *appdatacommon* and *appdatauser* directories as follows:

```
[Design Environment]
CommonDirectory=D:\All Users\AWRDE\Data
UserDirectory=D:\[username]\AWRDE\Data
```

A convenient way to place all of your AWR Design Environment platform data under a common directory is to specify the *AppDataDirectory* instead of the *CommonDirectory* and *UserDirectory* individually. When you use the *AppDataDirectory* key, the AWR Design Environment platform program automatically appends to the specified path "All Users" for the *appdatacommon* directory, and the user name to the *appdatauser* directory.

For example, specifying:

```
[Design Environment]
AppDataDirectory=C:\Data\AWRDE
```

results in:

appdatacommon:

C:\Data\AWRDE\All Users

appdatauser:

C:\Data\AWRDE\[username]

You can also redirect directories based on the machine name, the user account name, or both. This is useful in a group setting when the AWR Design Environment platform software is run from a network location or from multiple machines.

For instance, you have two machines with the AWR Design Environment platform software installed, one in your office and one in a meeting room. The machine in the meeting room is shared by multiple users, however, when you use it, you want it to use the customizations and cache files from your desktop machine. You can do this by adding a username category to the *REDIRECT.INI* file on the meeting room machine, and redirecting the *appdatacommon* and *appdatauser* directories to your desktop machine as follows.

```
[yourusername]
CommonDirectory=\\YOURMACHINENAME\AWRDE\CommonData
UserDirectory=\\YOURMACHINENAME\AWRDE\username
```

NOTE: You need to log on to the meeting room machine using your own account.

When looking for path overrides, the AWR Design Environment platform program searches categories in this order:

[machine_username]

[username]

[machine]

[Design Environment]

If both the *CommonDirectory* and *AppDataDirectory* are found in a given category, the path specified for *CommonDirectory* is used. If both *UserDirectory* and *AppDataDirectory* are found in a given category, the path specified by *UserDirectory* is used. The first successful override that it finds is used.

2.5. Running the Software

NOTE: Before using the software you need to configure your FLEXlm licensing. For FLEXlm licensing information, see "*Configuring FLEXlm*" .

To run the AWR Design Environment platform program, from the Windows **Start** menu, choose **AWRDE [version_number] > AWR Design Environment [version_number]**.

If an error occurs while running the AWR Design Environment program, check "Solutions to FLEXlm-related Problems" to see if it is listed. If not, contact Technical Support for AWR Products.

2.5.1. Specifying License Features

To specify with which license features you want to run, start the program and in the Select License Features dialog box choose the primary and optional features (licenses) available to you. You can access this dialog box within the program by choosing **File > License > Feature Setup**. After selecting the desired features, you can specify to always run with them or to be prompted for feature selection upon program startup, and to create a desktop icon for your selection.

2.5.2. Specifying a Foundry Library

To load a foundry library for use with a new project, start the program and choose **File > New with Library**. If installed, a list of foundry libraries displays, or you can browse to locate a foundry configuration (*.ini*) file. The name of the foundry library is saved in your project file. Whenever you reopen the project, the associated foundry library is automatically loaded.

2.5.3. Accessing User Resources

The *AWR Design Environment Getting Started Guide* is included with the software to help explore the suite and learn how to perform tasks. For easy access to this guide choose **Help > Getting Started**. A concise, comprehensive *Quick Reference* resource is also available by choosing **Help > Quick Reference**.

Chapter 3. Configuring FLEXlm

This chapter describes how to configure your site for FLEXlm licensing.

FLEXlm can be configured in a locked or floating licensing environment using either software- or hardware-based keys. For instructions on configuring your machine for locked licensing using either type of key, see "Configuring Locked Licensing". For instructions on configuring your site for floating licensing, see "Configuring Floating Licensing".

If you cannot successfully configure FLEXlm, see "*Troubleshooting FLEXlm*" for troubleshooting information.

NOTE: FLEXlm licensing software requires Administrator privileges for installation and configuration.

3.1. Configuring Locked Licensing

FLEXlm locked licensing can use either a software-based or hardware-based key. For instructions on configuring FLEXlm using a software-based key, see "Configuring Locked Licensing with a Software-Based Key". For instructions on configuring FLEXlm with a hardware-based key, see "Configuring Locked Licensing with a Hardware-Based Key".

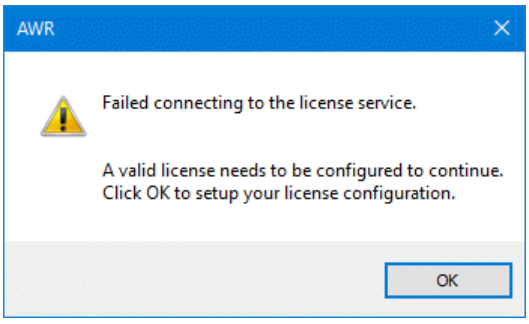
These instructions assume that the Cadence® AWR Design Environment® platform software is installed on your machine. For installation instructions, see "*Installing the AWR Design Environment*".

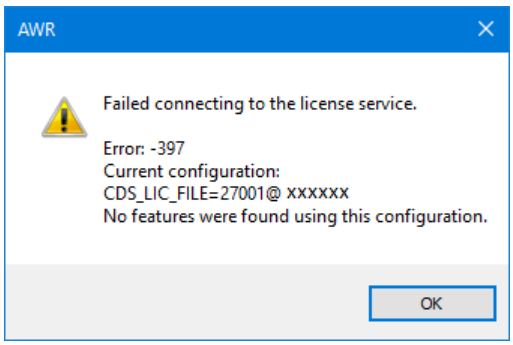
3.1.1. Configuring Locked Licensing with a Software-Based Key

The following steps configure your machine for FLEXlm locked licensing with a software-based key. In this configuration, the AWR Design Environment platform software is installed on and licensed to your particular machine.

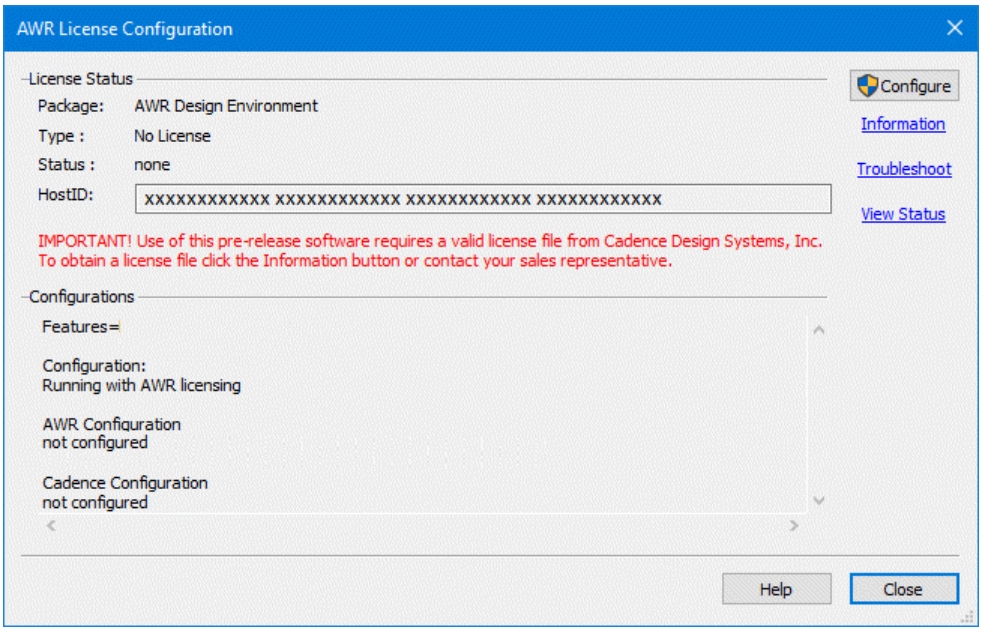
1. From the Windows® **Start** menu, choose **AWRDE [version_number] > AWR Design Environment [version_number]**.

   Alternatively, double-click **This PC** on your desktop, open the folder where you installed the program and double-click *MWOffice.exe* to display one of the following dialog boxes.





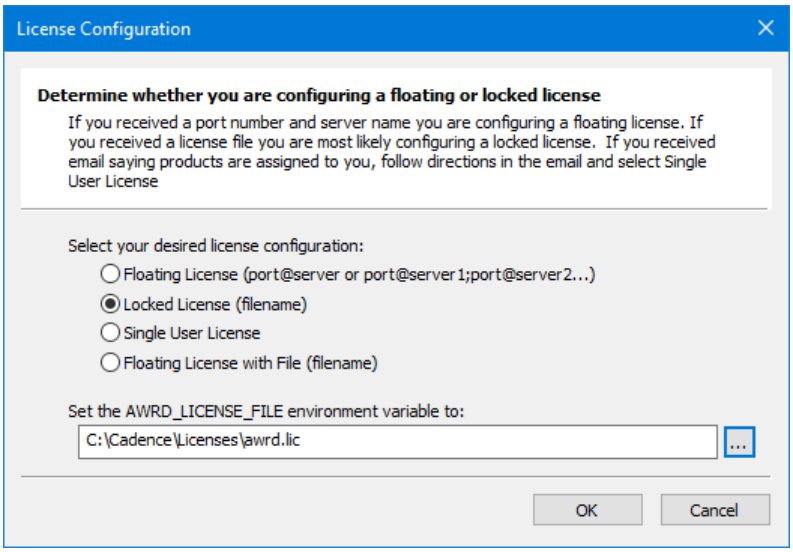
2. Click **OK** to display the AWR License Configuration dialog box.



After your initial license file configuration you can access this dialog box by choosing **File > License > Configuration** while in the AWR Design Environment platform program.

3. To obtain a valid license file from Cadence, click **Information** and follow the instructions. **NOTE:** Evaluators must complete the registration process to obtain an evaluation license. See Get Evaluation License for registration information.

4. When you receive your license, copy it to your computer and then click the **Configure** button on the AWR License Configuration dialog box to display the License Configuration dialog box.



Specify your license configuration as **Locked license (filename)** and set the environment variable by browsing to the location of your locked license file or manually entering the path, then click **OK**.

FLEXlm locked configuration using a software-based key is complete. To verify FLEXlm operation, see "Verifying that a License Can Be Checked Out".

3.1.2. Configuring Locked Licensing with a Hardware-Based Key

The following procedure configures your machine for FLEXlm locked licensing with a hardware-based key calculated from the serial number of the hardware dongle attached to your machine's USB port. Cadence supplies you with the hardware key. In this configuration, the AWR Design Environment platform software is installed on your machine, but the license can be transferred between machines simply by moving the hardware dongle.

Installing with a USB Hardware Key

To install with a USB hardware key:

1. Download and install the latest Sentinel HASP4 device driver from http://sentinelcustomer.safenet-inc.com/sentineldownloads/, or run the *HASPUserSetup.exe* file from the FLEXlm Utilities in the Cadence AWR Knowledge Base.
2. Cadence supplies you with a license file. When you receive your license, copy it to your computer and then in the AWR License Configuration dialog box, click the **Configuration** button. In the License Configuration dialog box, specify the desired license configuration and directory path.

FLEXlm locked configuration using a hardware-based key is complete. To verify FLEXlm operation, see "Verifying that a License Can Be Checked Out".

3.2. Configuring Floating Licensing

In a FLEXlm floating licensing configuration, the license file is assigned to a machine designated as the FLEXlm license server. Each client workstation runs the Cadence Microwave Office® software or Cadence Visual System Simulator™ (VSS) communications and radar systems design software, requesting licenses from the server when needed. If you have a floating license server running for other Cadence products, you do not need to set up a new service, but you may need to get and add the awrd.exe license daemon to your cdslmd.exe daemon location.

Cadence tools require FlexLM version 11.15 or later. You can download the FLEXlm drivers and tools as described in "Obtaining the License File".

3.2.1. Configuring Floating Licensing on the License Server

Perform the following steps on the machine designated as the FLEXlm license server to configure the server.

NOTE: These steps direct you to create a *C:\awr_flexlm* folder for download of FLEXlm utilities. The "FLEXlm Utilities" link in the first step provides several download locations for the utilities. If you choose to download the utilities from the Cadence download site they are installed in a *C:\Cadence\LicenseManager* folder. All steps in this procedure apply when working from this folder as well.

Obtaining the License File

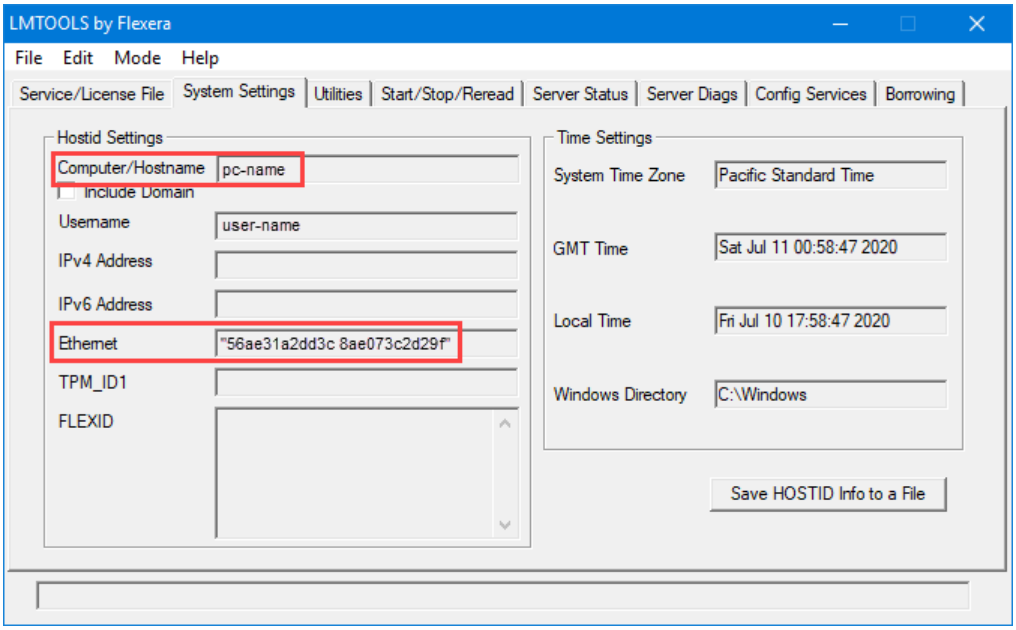
Skip this section if you already received your license file.

To obtain the FLEXlm license file:

1. Create a *C:\awr_flexlm* directory and download the FLEXlm Utilities from the Cadence AWR Knowledge Base. These files run, debug, and maintain the FLEXlm license manager. Cadence license files are sent as *.txt* files. You

can configure the server using this file, but LMTOOLS filters for *.lic* files, so you need to either override the filter or change the file extension.

2. To obtain a valid FLEXlm license file, you must provide the machine's Ethernet address (hostID) as well as the hostname. Locate and launch the *lmtools.exe* program included with the FLEXlm files. The LMTools dialog box displays.
3. Click the **System Settings** tab.
4. E-mail the value in **Ethernet**, the value in **Computer/Hostname**, and your name, company name, address, phone number, and purchase order number or invoice number to Cadence at `awr.licenses@cadence.com`.



Editing the License File

1. After you receive the license file, Cadence highly recommends you rename the file to *awrd.lic* and place it in your *C:\awr_flexlm* directory.
2. Open *awrd.lic* in a text editor and check the line starting with "SERVER". If you see "Cadence_SERVER" as shown here, replace it with the correct machine name and save the file.

   SERVER Cadence_SERVER 00abcdef1234 5280
3. In the "SERVER" line, there is a port number assigned for use with the server. By default the port number assigned is **5280** per the previous example. You can use this port number or replace it with a different number. If there is a port number currently used with the Cadence license server, for simplicity you should use that port number.

Installing the FLEXlm Server

These instructions cover a simple FLEXlm license server installation. More complex configurations are described in the *License Administration Guide* included with the FLEXlm Utilities in the Cadence AWR Knowledge Base.

To install the FLEXlm Server:

1. If applicable, copy to your *C:\awr_flexlm* directory the *awrd.exe*, *lmflex.exe*, *lmgrd.exe*, *lmtools.exe*, *lmutil.exe*, *cdslmd.exe*, and *lmutil.exe* files by downloading the FLEXlm Utilities.
2. If the Cadence license file *awrd.lic* is in the same folder as *awrd.exe* and *cdslmd.exe* you can proceed to the next step, otherwise you need to edit the license file with a text editor to include the absolute path to *awrd.exe* and *cdslmd.exe*.
3. Start *lmtools.exe*. The LMTOOLS dialog box displays.
4. Click the **Service/License File** tab.
5. If you previously installed and set up FLEXlm services, select **Config Services** and specify **AWR License Manager**. If you have not previously installed FLEXlm services, proceed to the next step.
6. Click the **Config Services** tab and verify that your settings match the following:

   Service Name: **"AWR License Manager"**

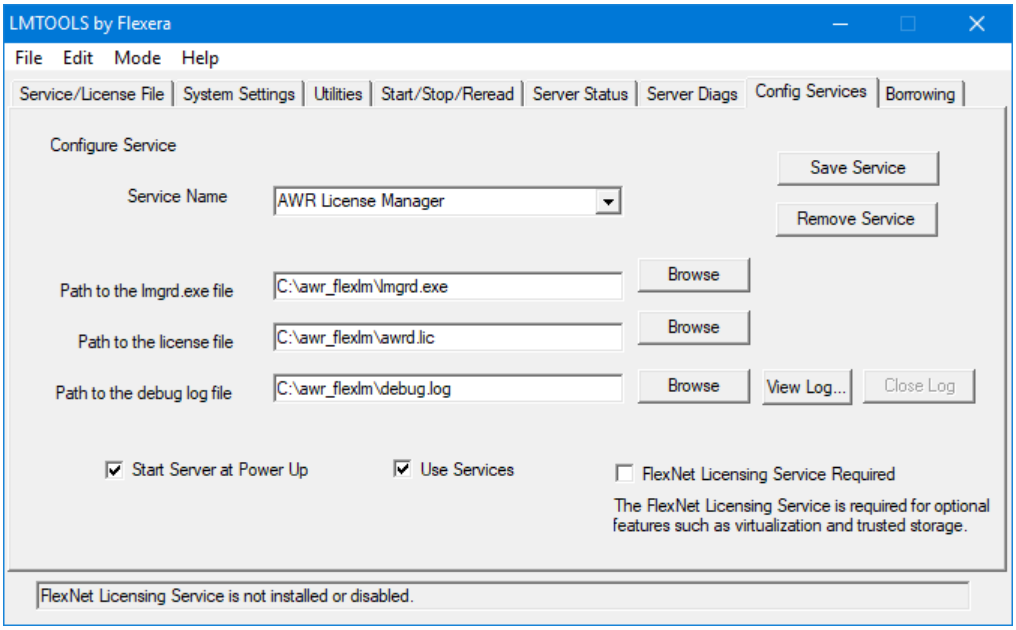
   Path to the lmgrd.exe file: **"C:\awr_flexlm\lmgrd.exe"**

   Path to the license file: **"C:\awr_flexlm\awrd.lic"**

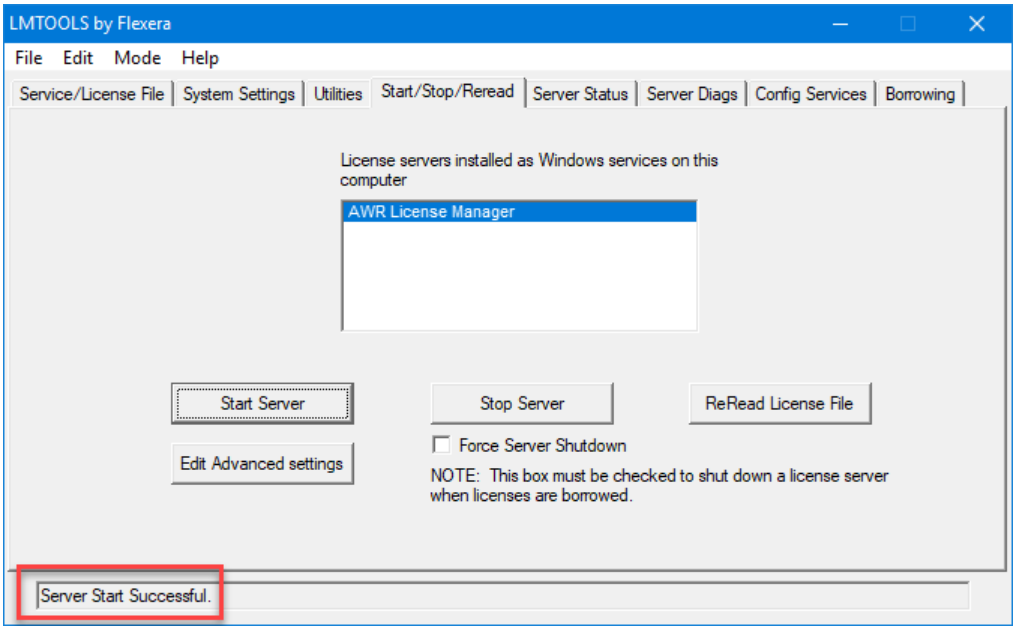
   Path to the debug log file: **"C:\awr_flexlm\debug.log"**

   Use Services: (selected)

   Start Server at Power Up: (selected)



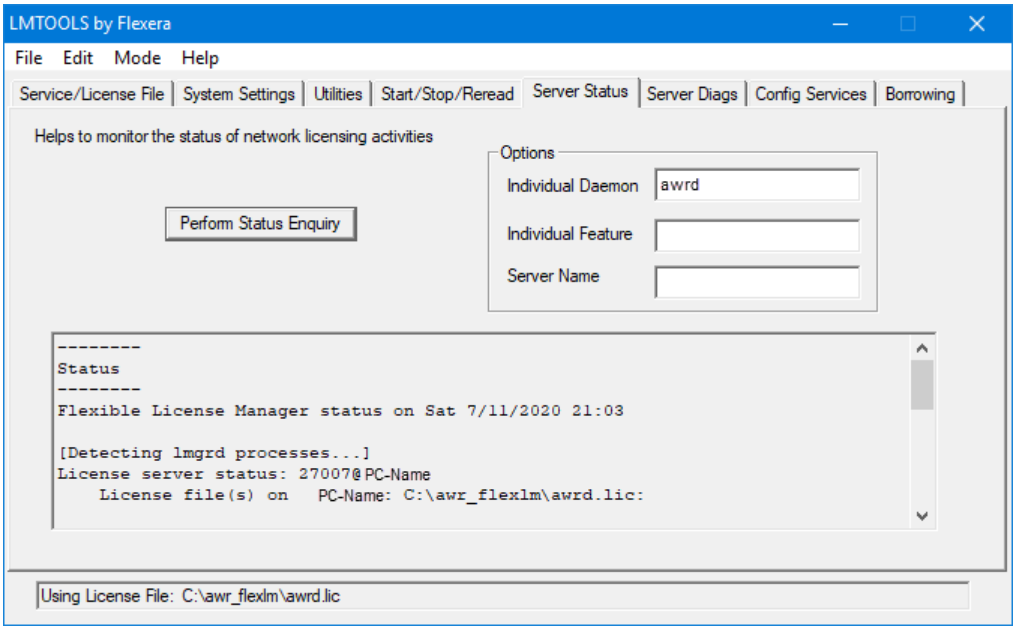
7. Click **Save Service** to save these settings. When asked to confirm saving the settings for the license server, click **Yes**.
8. Click the **Start/Stop/Reread** tab and click the **Start Server** button to start the FLEXlm license server.



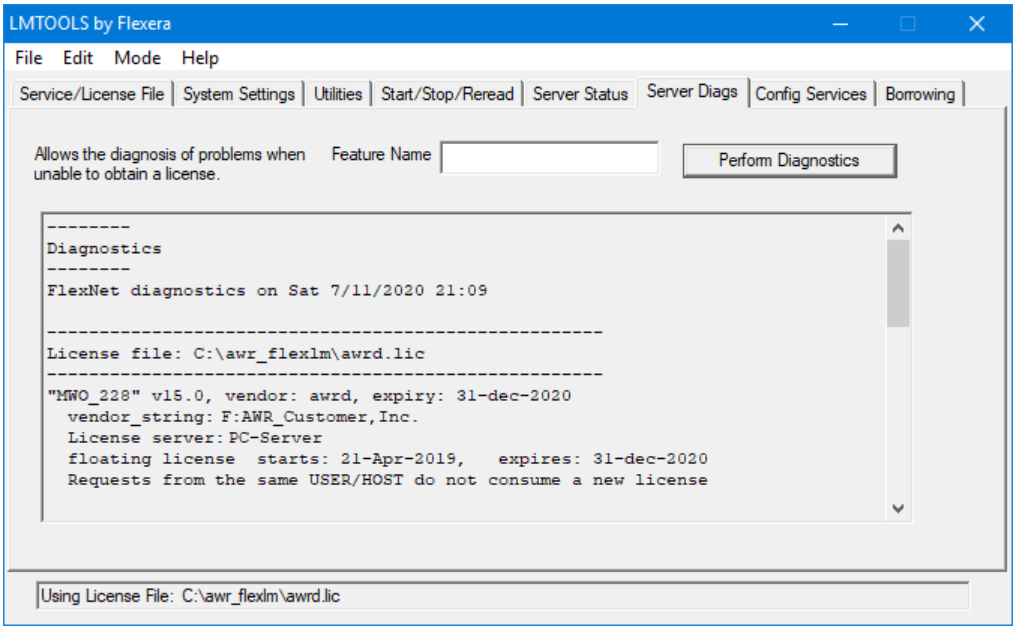
Note the "Server Start Successful" message that displays in the Status bar at the bottom of the dialog box.

9. Click the **Server Status** tab and specify **awrde** as the **Individual Daemon**, then click **Perform Status Enquiry** to display information about the server status.

   NOTE: The first few times you start the license server, you should view the debug file *C:\awr_flexlm\debug.log* for any messages. You may first need to stop the license service if it has a lock on the file.



10. If necessary, click the **Server Diags** tab and then click the **Perform Diagnostics** button to diagnose any problems.



11. Choose **File > Exit** to close the LMTOOLS license service.

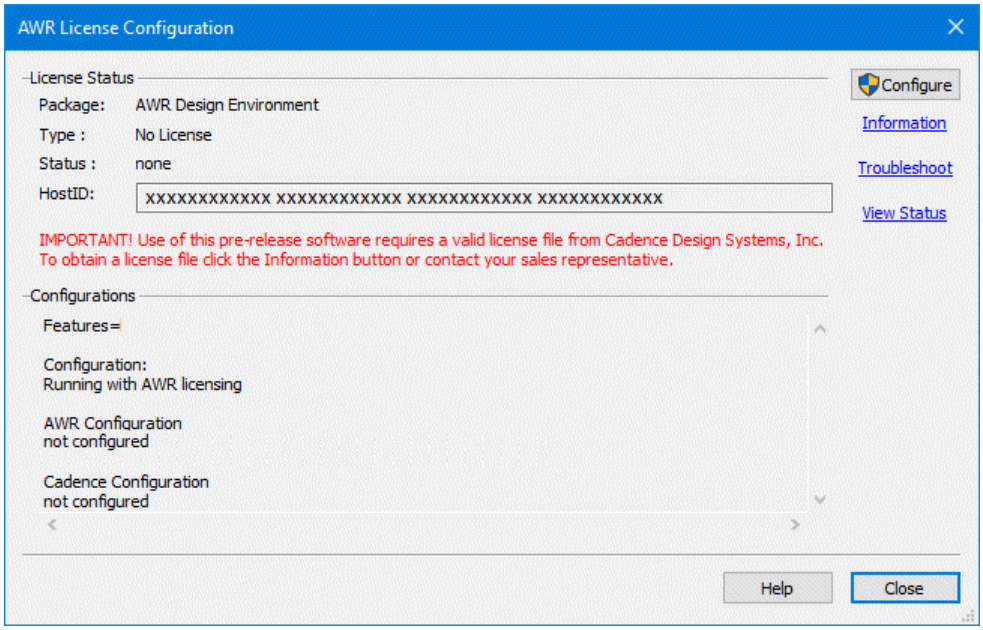
FLEXlm server configuration is complete. To verify FLEXlm server operation, see "Verifying that a License Can Be Checked Out".

3.2.2. Configuring Floating Licensing on Client Workstations

The AWR Design Environment platform software must be installed on the client machines. For instructions on installing the program, see "*Installing the AWR Design Environment*".

Perform the following steps on the client machines to configure FLEXlm clients:

1. In the AWR License Configuration dialog box, click the **Configure** button to display the License Configuration dialog box and set the `CDS_LIC_FILE` environment variable.



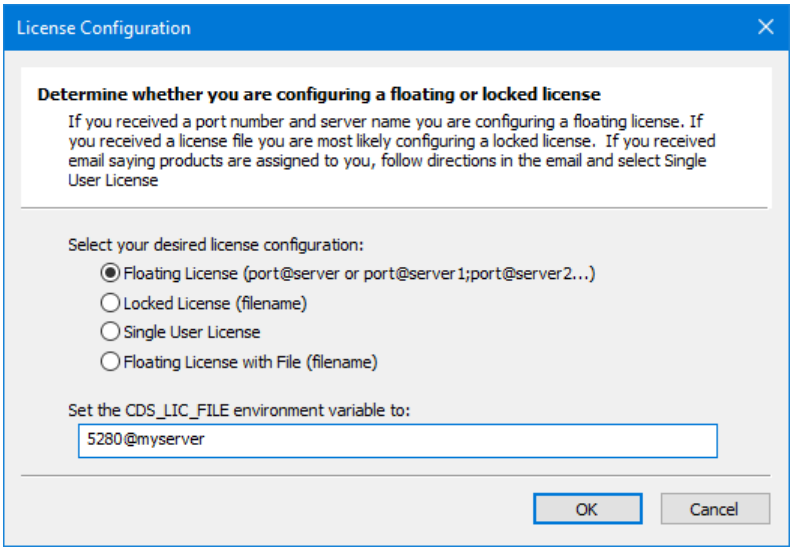
2. In the License Configuration dialog box, select **Floating license (port@server or port@server1;port@server2...)** to set **<portNumber>@<serverName>**

   where `<portNumber>` is the port number described in the license file and `<serverName>` is the name of the server machine. These variables are defined on the `SERVER` line of the license file in the following format:

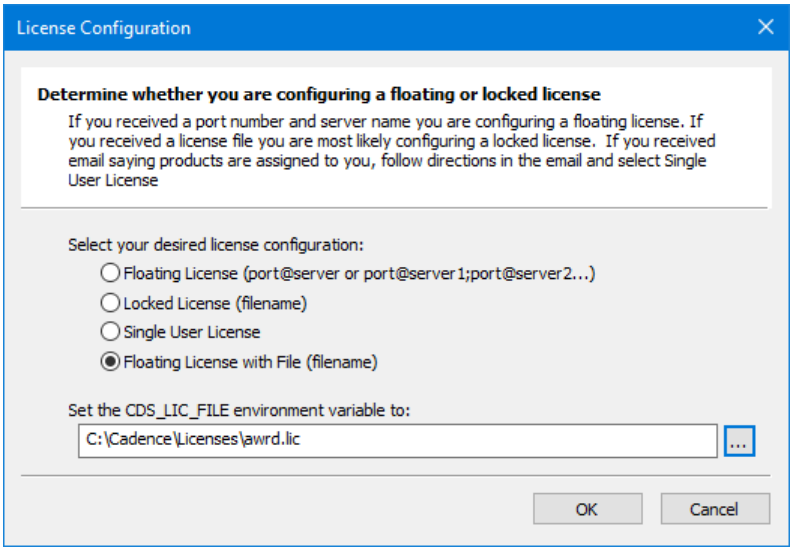
   ```
   SERVER <serverName> <hostID> <portNumber>
   ```

   For example:

   ```
   SERVER myserver 00abcdef1234 5280
   ```



To use the floating license file directly, select **Floating license with file (filename)** to specify the file name. This option only works if the client computers can access the network location where the license file is located. In this mode, the port number and host name are read directly from the license file instead of setting them directly. The advantage of this method is that if you need to change port numbers, you can change the license file only, with no need to update client machine settings.



3. If applicable, copy the *lmflex.exe*, *lmutil.exe*, and *lmtools.exe* files FLEXlm Utilities in the Cadence AWR Knowledge Base to your *C:\awr_flexlm* directory. These utilities are used to troubleshoot the FLEXlm licensing configuration.

FLEXlm client configuration is complete. To verify FLEXlm client operation, see "Verifying that a License Can Be Checked Out".

3.3. Configuring Single User Licensing

The following steps configure your machine for Single User Licensing (SUL). In this configuration, the AWR Design Environment software is installed on and licensed to your particular machine. Licenses are individually assigned by the license administrator identified at your company.

3.3.1. Creating a Cadence Entitlement Management System Account

License administrators assign SUL licenses through the Cadence Entitlement Management System (EMS).

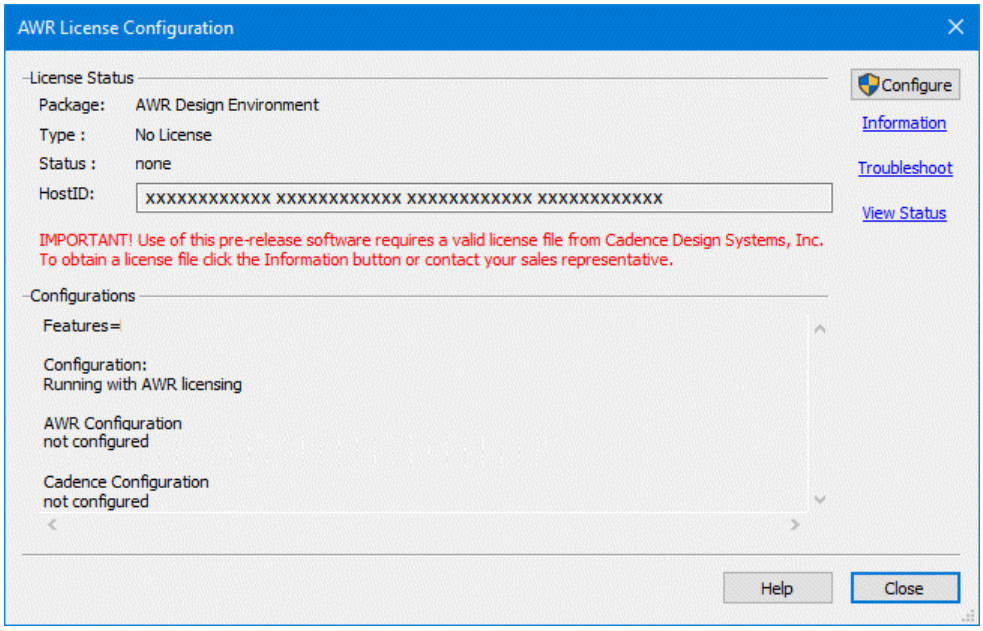
1. When you are identified as a SUL client, you receive an email with a link to register in EMS. The email and password that you register with are later used to download your license file.
2. Sign into EMS to see your entitlements (product licenses). You will receive an email whenever you are assigned new entitlements. Do not proceed with SUL setup until you are granted entitlements for the AWR Design Environment software.

3.3.2. Downloading the SUL File

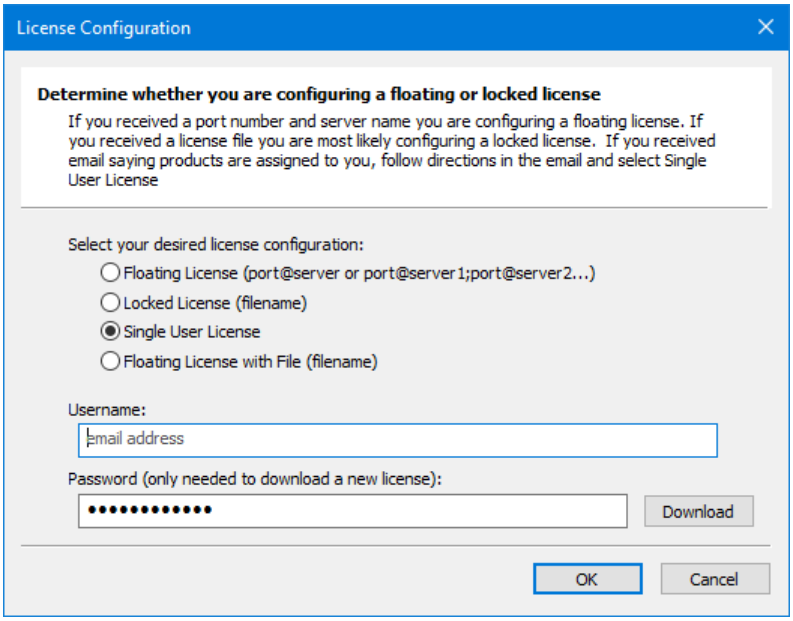
The AWR Design Environment software must be installed on your machine. For instructions on installing the program, see "*Installing the AWR Design Environment*". You must also have AWR Design Environment platform entitlements in EMS.

Perform the following steps on your machine to configure SUL:

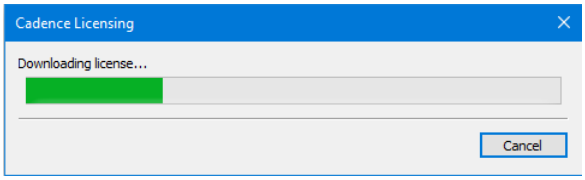
1. In the AWR License Configuration dialog box, click the **Configure** button to display the License Configuration dialog box.



2. In the License Configuration dialog box, select **Single User License**. Enter the **Username** and **Password** you used to register in EMS, then click **Download**.. Only your username is remembered on the machine. The password is never stored.



3. A status window displays the license generation and download progress. The entire process can take several minutes. When the download is complete, a new dialog box displays to indicate that your single user license is ready. Click **OK** to close the dialog box. The downloaded *license.txt* file is located in the *C:\Users\<USER_NAME>\AppData\Roaming\Cadence\VBL\AWR\license* folder where *<USER_NAME>* is your computer login name.



4. Once you have downloaded a SUL, there is no need to enter the password and download a license again, even when changing between license configurations, until there has been a change in your entitlements (product licenses).

Chapter 4. Troubleshooting FLEXlm

This chapter references the information and tools available to verify the operation of and troubleshoot a FLEXlm licensing environment. It provides a troubleshooting walk-through designed to verify FLEXlm operation and identify any errors made during FLEXlm configuration, includes descriptions of the command line programs and Windows®-based program (for example, FLEXlm Toolbox's LMTOOL program) that you can use during verification and troubleshooting, and provides solutions to the FLEXlm-related errors that may occur during Cadence® AWR Design Environment® platform operations.

If you cannot solve a FLEXlm-related problem using this information, contact Technical Support for AWR Products.

For additional information on FLEXlm and FLEXlm management tools, see the *License Administration Guide* available from the FLEXlm Utilities from the Cadence AWR Knowledge Base.

4.1. FLEXlm Troubleshooting Walk-through

You can use the following procedures to verify FLEXlm configuration and operation and identify the most common configuration errors.

4.1.1. Checking License File Location

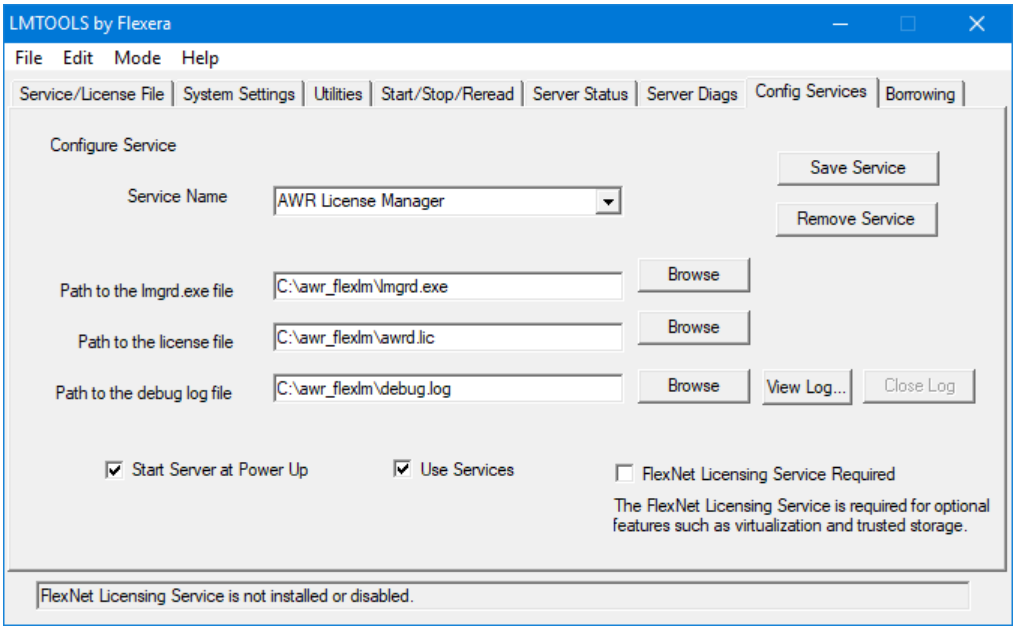
To check client settings, follow these steps on the client workstations:

1. In the AWR Design Environment program, choose **File > License > Configuration**. The AWR License Configuration dialog box displays.
2. Click **Configure** to display the License Configuration dialog box and set it to **<portNumber>@<servername>** where `<portNumber>` is the TCP/IP port number.

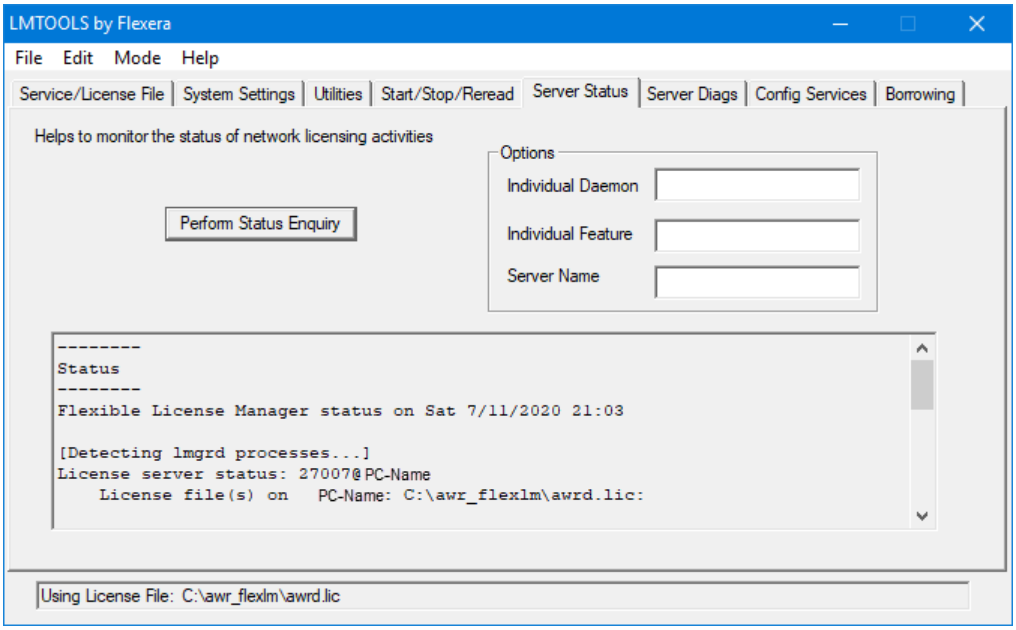
4.1.2. Checking License Server Configuration

To check the license server configuration, follow these steps on the server machine:

1. Start *lmtools.exe*. The LMTOOLS dialog box displays.
2. Click the **Config Services** tab.



3. If you have only one copy of FLEXlm running on the server, the **Service Name** should be **AWR License Manager**. If you have more than one copy, make sure the correct service name is selected.
4. Verify that **Path to the lmgrd.exe file** points to the AWR Design Environment platform version of the *lmgrd.exe* file. (Since each application using FLEXlm can ship its own version of *lmgrd.exe*, you must use the one shipped with the AWR Design Environment platform software.)
5. Verify that **Path to the license file** points to the full path name of the correct license file.
6. Verify that **Path to the debug log file** specifies a file name on the license server.
7. Click the **Server Status** tab, and then click **Perform Status Enquiry** to verify that the FLEXlm Version is 11.15 or later and that the connection to the server was successful.



4.1.3. Restarting the License Server

To restart the license server on the server machine:

1. Start *lmtools.exe*. The LMTOOLS dialog box displays.
2. Click the **Start/Stop/Reread** tab.
3. Click **Stop Server**, and wait for at least 10 seconds to ensure that all processes have stopped. If the license service was not running, this command fails. Continue regardless.
4. Click **Start Server**. A "Server Started" message should display.

4.1.4. Checking the Debug Log

To check the debug log file on the server machine:

1. On the **Config Services** tab of the LMTOOLS dialog box, click **View Log**, or open the *Debug.log* file in a text editor. Note that it can take up to 30 seconds for text to display in this file. If you get a message that another program has control of this file, stop the license server, then try to open the debug log file again.
2. Verify the relevant information in the file, as follows:

- Make sure that you are looking at the latest information by checking the time stamp.
- Check for:

  ```
  FLEXlm (v11.15)
  ```

  if you see a lower version, you are running the wrong *lmgrd.exe*.
- Check for:

  ```
  License file(s): <mwo_license_file>
  ```

where <mwo_license_file> is the name of the license file.

- Check for:

```
lmgrd tcp-port <nnnnn>
```

where <nnnnn> is the TCP/IP port on which FLEXlm is running. (The default port range is 27000-27009, however, other values can be set via the SERVER line in the license file.)

- Check for:

```
Started awrd (internet tcp_port 0 pid xxx)
```

to verify that the vendor daemon has started.

- Check for:

```
Server started on serverName
for: feature1, feature2, ..., featureN
```

to verify which features are being served. This list should match the features listed in your license file.

4.1.5. Verifying that a License Can Be Checked Out

To verify that a FLEXlm license can be checked out on the server or client machines, follow these steps on the machine:

1. At a command prompt, from the *C:\awr_flex* directory for servers, or from the program directory for clients, run *lmflex.exe*. The following table summarizes the different AWR Design Environment platform product features.
2. Enter a feature specified in your license file (for example, **"MWO_225"**). The command output tells you if the feature was successfully checked out.

```
MWO_225 checked out...press return to exit...
```

3. If the feature cannot be checked out, a dialog box displays to inform you. See "*Troubleshooting FLEXlm*" for instructions on finding possible causes for the problem.

4.1.6. FLEXlm Diagnostic Tools

To verify FLEXlm operation, you can either invoke the command line based *lmutil.exe* program or run the Windows-based FLEXlm Toolbox program. For complete details, see the *FLEXlm End Users Guide*.

Command Line Program: *lmutil.exe*

To determine who has licenses checked out, at the command prompt, change to the *C:\awr_flex* directory and run *lmutil.exe* as follows. The command output lists the status of the license manager, the number of licenses available, and who has licenses checked out. For example:

```
C:\awr_flexlm>  lmutil
lmstat -a
lmutil - Copyright (C) 1989-2009
Globetrotter Software, Inc.
Flexible License Manager status on Thu 8/25/2008
20:44
```

```
[Detecting lmgrd processes...]
License server status: 27007@mizar
License file(s) on mizar: C:\awr_flexlm\awrd.lic:
mizar: license server UP (MASTER) v9.1
Vendor daemon status (on deneb):
awrd: UP v9.2
Feature usage info:
Users of MWO-228:  (Total of 1 license
available)
"MWO-228" v8.0, vendor: awrd
floating license
slr Mizar Mizar (v8.0) (deneb/27007
103), start Thu 8/25 20:44
```

4.2. Solutions to FLEXlm-related Problems

This section lists some of the FLEXlm-related problems you may encounter when starting or running the AWR Design Environment software. Additional troubleshooting information is available in the appendices of the *License Administration Guide* available from the FLEXlm Utilities from the Cadence AWR Knowledge Base. For an online License Troubleshooter, see License Troubleshooter.

Problem	Cause	Solution
A Choose Server or File dialog box displays.	The AWR Design Environment software cannot connect to the license server. This could be because the license server is running on a different port, running on a machine different from the one specified, or not running at all.	Click **Cancel** in this dialog box and follow the instructions in "*Troubleshooting FLEXlm*".
A "License server does not support this version of this feature FLEXLM error: -25,147" message displays.	Each `FEATURE` line in the license file contains a version number field that determines what versions of the software it authorizes. This field displays after the "`awrd`" and before the date. The following are the license versions that correspond with the various AWR platform releases: Version: 22.1 ProductRelease: AWRDE V22.1 Version: 16.0 ProductRelease: AWRDE V16 Version: 15.0 ProductRelease: AWRDE V15 Version: 14.0 ProductRelease: AWRDE V14 Version: 13.0 ProductRelease: AWRDE V13 Version: 12.0 ProductRelease: AWRDE V12 Version: 11.0 ProductRelease: AWRDE V11 Version: 10.0 ProductRelease: AWRDE V10 Version: 9.03 ProductRelease: AWR Suite 2010 Version: 9.0 ProductRelease: AWR Suite 2009 (V9.0) Version: 8.0 ProductRelease: AWR Suite 2008 (V8.0) Version: 7.5 ProductRelease: AWR Suite 2007 (V7.5) Version: 1.7 ProductRelease: AWR Suite 2006 (V7.0)	If you are on maintenance, request a new license file for the new version of the AWR Design Environment software from Cadence. If you are not on maintenance, you will need to purchase an upgrade to run the new version.

Problem	Cause	Solution
	Version: 1.6 ProductRelease: AWR Suite 2004 (V6.5) Version: 1.5 ProductRelease: AWR Suite 2003 (V6.x) Version: 1.4 Product Release: AWR Suite 2002 (V5.x) Version: 1.3 Product Release: MWO 2001 (V4.02) Version: 1.2 Product Release: MWO 2000 (V3.22) Version: 1.1 Product Release: MWO V2.6	
A "Cannot connect to server" message displays.	FLEXlm has a default port range of 27000-27009. If the port specified in your license file is within this range, you can specify the `CDS_LIC_FILE` in the form `@<serverName>`. Although this works on most machines, it can cause problems on some.	Specify a port number that does not conflict with any other servers in the `SERVER` line of the license file. (All AWR Design Environment platform license files now use a specific port number to avoid this problem.) For example, if your current `SERVER` line is `:SERVER name 0000aaaabbbb` you would change it to: `SERVER name 0000aaaabbbb 27033` where "`27033`" is the TCP/IP port number now specified for your license file. You also need to change the `CDS_LIC_FILE` environment variables on all of the client workstations from `@<serverName>` to `27033@<serverName>` .
An "(awrd) Invalid license key (inconsistent encryption code for ...)" message displays (this message can also display in the Debug.log file).	The license file has been improperly edited or created.	Open the license file in a text editor such as Windows Notepad. If the license file is for a floating configuration, the first line starts with `SERVER` and the second line starts with `DAEMON`. Verify that the lines are not merged together and that there are no invalid control characters in the file. `FEATURE or INCREMENT` lines (are present in both floating and locked license files. The `FEATURE or INCREMENT` lines are usually line-wrapped, so they will always start with `FEATURE or INCREMENT` and end in a backslash, with the second line starting with `VENDOR_STRING`. For example:`FEATURE MWO_225 awrd 1.7 13-mar-2002 1 D25C75B75E80 \VENDOR_STRING=cg123 HOSTID=00104b72d5f7 ck=191` If the license file does not conform to these rules, it is probably because your e-mail program cannot interpret it correctly. Send the license file to Cadence at `awr.licenses@cadence.com` for a purchased license or at `awr.registrar@cadence.com` for an

Problem	Cause	Solution
		evaluation license, and Cadence will attempt to send it to you in a format that your e-mail program understands.

Appendix A. Installation Program Reference

This appendix provides information about the Cadence® AWR Design Environment® platform installation programs. These programs are automatically invoked by the installation program, but you can also run them from the Windows® **Start > Run** command or from a command prompt if, for example, you want to create script files to perform network rollouts.

A.1. Addin Manager: ADDINMANAGER.EXE

The Addin Manager allows you to enable/disable dynamically loadable DLLs to aid in troubleshooting. You can browse for a DLL and register it within the AWR Design Environment program without needing to use the Windows Registry Editor (regedit.exe).

At startup, the AWR Design Environment program first searches the program installation directory for a DLL. If the DLL isn't stored there, it locates and uses the registered version.

To open the Addin Manager choose **Tools > Manage Addins**. The Addin Manager displays with a list of add-in programs in several categories: **EM Simulators**, **General**, **Wizards**, and all of these categories, **(All)**. Select each option to view a brief description of it in the **Description** area of the dialog box. To disable the DLL for an addin, clear the associated check box.

You can also start the Addin Manager by launching AddinManager.exe from the AWR Design Environment program directory.

A.2. AWR Design Environment Installation Program

A.2.1. Description

The AWR Design Environment platform software is distributed as an executable bootstrapper containing a set of executable files for installing the AWR Design Environment software and dependencies. At run-time, the bootstrapper determines which of these files needs to be executed to complete the installation.

A.2.2. Command Line Format

```
awrde_<version>.exe [arguments]
```

Argument	Opt./Mand.	Description
`/?`	optional	Displays current command usage for install, user interface mode, logging, and component arguments
`/i`	optional	Command line installation
`/DisplayConfig`	optional	Displays the IDs and display names of the individual bootstrapper components
`/ComponentArgs "AWRDE":"value"`	optional	Passes additional arguments to the AWR Design Environment software installer.

Examples

Command line	Description
`awrde_<version>.exe`	Install the AWR Design Environment software in graphical user interface mode.
`awrde_<version>.exe /?`	Display installation options.
`awrde_<version>.exe /qb`	Install the AWR Design Environment software in basic silent mode to the default location.
`awrde_<version>.exe /ComponentArgs AWRDE:"TARGETDIR=C:\AWRDE /LOG /LogFile awrdeinstall.log"`	Install the AWR Design Environment software to C:\AWRDE and write the install log to awrdeinstall.log
`awrde_<version>.exe /q /ComponentArgs "AWRDE":"TARGETDIR=""C:\My Location\AWRDE""`	Install the AWR Design Environment software silently to a path containing spaces (C:\My Location\AWRDE)
`awrde_<version>.exe /x`	Uninstall the software.
`awrde_<version>.exe /ExtractCab`	Extract the embedded components from the exe. This allows access to the msi and other components.

ComponentArgs Examples

The default lpf installed is *MMIC.lpf*(2). To override this file, use the DEFAULTLPF_FILE and following chosen value:

```
MIC_english.lpf   DEFAULTLPF_FILE="1″
MMIC.lpf          DEFAULTLPF_FILE="2"
MIC_metric.lpf    DEFAULTLPF_FILE="3"
```

To disable a particular extension, set the following property on the msiexec command line:

```
EXTENSION_CAL=""
EXTENSION_DXF=""
EXTENSION_GDS=""
EXTENSION_SF=""
```

For example, to install the software by disabling all of these file extensions and writing the installation log to *awrinstall.log* in a *C:\Temp* folder, type the following:

```
awrde_<version>.exe /qb /LOG /Logfile C:\Temp\awrinstall.log /ComponentArgs "AWRDE":"
"EXTENSION_CAL=""" "EXTENSION_DXF=""" "EXTENSION_GDS=""" "EXTENSION_SF="""
```

A.3. Job Scheduler Service Installation

A.3.1. Description

This section provides information for installing the Job Scheduler service for remote computing.

A.3.2. Command Line Format

The following command line syntax installs the AWR Design Environment software with the Job Scheduler Service argument.

```
awrde_<version>.exe /ComponentArgs "AWRDE":"JOBSERVICE=YES" /LOG /LogFile awrdeinstall.log
```

The following example shows how to pass multiple arguments to the AWR Design Environment software installer. The following command line syntax installs the AWR Design Environment software with the Job Scheduler service to the specified directory C:\AWRDE\MyChosenLocation.

```
awrde_<version>.exe /ComponentArgs "AWRDE":"JOBSERVICE=YES
TARGETDIR=C:\AWRDE\MyChosenLocation" /LOG /LogFile awrdeinstall.log
```

After running the installer, you must configure the service to use the Cadence license daemon. The first step is to specify the license file location upon starting the AWR Design Environment software, or by running *LicLocSetup.exe* from the AWR Design Environment platform installation directory. The second step is to edit the *mwoffice.ini* file so that the Job Scheduler service uses the CDS_LIC_FILE environment variable instead of the AWRD_LICENSE_FILE environment variable. You need to complete the following steps on all scheduler and compute nodes:

1. Stop the Job Scheduler service.
2. Open the *mwoffice.ini* file with a text editor. The default location is: *C:\ProgramData\AWR\Design Environment\17.0\mwoffice.ini.*
3. Search for the "**[License]**" section. If it does not exist, add it.
4. Add "**Vendor = 2**" as follows:

```
[License]
Vendor=2
```

5. Restart the Job Scheduler service.

See the *AWR Design Environment Simulation and Analysis Guide* for details on managing the service.

After installation, open the Windows Task Manager and click the **Services** tab to verify that the AWR_JobScheduler service is listed with its **Status** as "Running". For further details and service options, click the **Services** button at the bottom of the window to display the Services window. After the Job Scheduler is registered as a service, it launches whenever Windows starts and serves jobs on that computer until the computer shuts down or you stop the service. See the *Simulation and Analysis Guide* for information on stopping and removing the Job Scheduler Service.

NOTE: Running the AWR Design Environment software installer again switches the version of the Job Scheduler service to that of the most recent installation. When installing multiple versions of the AWR Design Environment software on a remote computer, you should install from the lowest to the highest version number to ensure that the highest version of the Job Scheduler service is installed. See the *Simulation and Analysis Guide* for information on manually changing the service version.