



v13.03

Installation Guide

ni.com/awr



Installation Guide

NI AWR Design Environment v13.03 Edition

1960 E. Grand Avenue, Suite 430

El Segundo, CA 90245

USA

Phone: +1 310.726.3000

Fax: +1 310.726.3005

Website: www.ni.com/awr

awr.support@ni.com

U.S. Technical Support phone: 888.349.7610

LEGAL NOTICES

© 2017 National Instruments. All rights reserved.

Trademarks

- Analog Office, APLAC, AWR, AWR Design Environment, AXIEM, Microwave Office, National Instruments, NI, ni.com and TX-Line are registered trademarks of National Instruments. Refer to the Trademarks section at ni.com/trademarks for other National Instruments trademarks.
- Other product and company names mentioned herein are trademarks or trade names of their respective companies.

Patents

For patents covering NI AWR software products/technology, refer to ni.com/patents.

The information in this guide is believed to be accurate. However, no responsibility or liability is assumed by National Instruments for its use.

Table of Contents

QUICK REFERENCE for Experienced Administrators	v
1. FLEXlm SETUP	v
2. USER DIRECTORY CONFIGURATION	v
3. COMMAND LINE INSTALLATION	v
4. NETWORK INSTALLATION	v
1. Introduction	1-1
1.1. NI AWRDE and Analyst Installation and Licensing	1-1
1.2. About This Guide	1-1
1.2.1. Typographical Conventions	1-1
2. Installing the NI AWR Design Environment	2-1
2.1. Installation Overview	2-1
2.1.1. Licensing and Available Features	2-1
2.2. Preparing for Installation	2-1
2.3. Installing the Software	2-2
2.3.1. Setting Up a Group Policy	2-2
2.4. Configuring Program File Locations	2-2
2.4.1. Searching mwoffice.ini	2-3
2.4.2. Searching user.ini	2-3
2.4.3. Customizing File Locations	2-3
2.4.4. Overriding appdatacommon and appdatauser Locations	2-4
2.5. Running the Software	2-5
2.5.1. Specifying License Features	2-5
2.5.2. Specifying a Foundry Library	2-5
2.5.3. Accessing User Resources	2-5
2.6. Command Line Installation	2-6
2.6.1. Limiting User Interface Display	2-6
2.6.2. Specifying a Target Directory	2-6
2.6.3. Removing Previous Installations During Install	2-6
2.6.4. Uninstalling the Current Version	2-6
3. Installing Analyst	3-1
3.1. Installation Overview	3-1
3.1.1. Licensing and Available Features	3-1
3.2. Preparing for Installation	3-1
3.3. Installing the Software	3-1
3.4. Running the Software	3-2
4. Configuring FLEXlm	4-1
4.1. Configuring Locked Licensing	4-1
4.1.1. Configuring Locked Licensing with a Software-Based Key	4-1
4.1.2. Configuring Locked Licensing with a Hardware-Based Key	4-1
4.2. Configuring Floating Licensing	4-2
4.2.1. Configuring Floating Licensing on the License Server	4-2
4.2.2. Configuring Floating Licensing on Client Workstations	4-3
5. Troubleshooting FLEXlm	5-1
5.1. FLEXlm Troubleshooting Walk-through	5-1
5.1.1. Checking License File Location	5-1
5.1.2. Checking License Server Configuration	5-1
5.1.3. Restarting the License Server	5-1
5.1.4. Checking the Debug Log	5-2
5.1.5. Verifying that a License Can Be Checked Out	5-2

- 5.1.6. FLEXlm Diagnostic Tools 5-3
- 5.2. Solutions to FLEXlm-Related Problems 5-3
- A. Installation Program Reference A-1
 - A.1. NI AWRDE Installation Program A-1
 - A.1.1. Description A-1
 - A.1.2. Command Line Format A-1
 - A.2. Administrative (Network) Installation A-1
 - A.2.1. Description A-1
 - A.2.2. Command Line Format A-2
 - A.3. Addin Manager: ADDINMANAGER.EXE A-2
 - A.4. NI AWRDE Analyst Installation Program A-2
 - A.4.1. Description A-2
 - A.4.2. Command Line Format A-3
 - A.5. Job Scheduler Service Installation A-3
 - A.5.1. Description A-3
 - A.5.2. Command Line Format A-3

QUICK REFERENCE for Experienced Administrators

1. FLEXlm SETUP

NI AWR Design Environment™ (NI AWRDE) conforms to standard FlexLM™ guidelines. The vendor daemon name is `awrd` for the NI AWR. NI AWR requires version 11.14 or later of `lmgrd` and `awrd`.

The NI AWRDE client software uses the `AWRD_LICENSE_FILE` environment variable to find the server. The client queries the server to determine what features are available, and presents those features so you can select the desired configuration.

NI AWRDE versions after AWRDE 2006 use the “awrd” vendor daemon. If you need to support versions earlier than AWRDE 2006 contact AWR Support to request the “awr” vendor daemon.

2. USER DIRECTORY CONFIGURATION

The NI AWRDE 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”](#) for more information.

3. COMMAND LINE INSTALLATION

See [“Command Line Installation”](#) for options for installing the NI AWRDE `.msi` from the command line.

4. NETWORK INSTALLATION

If you are installing the software on a network drive and users will run the software from that location, each user machine still requires some setup to operate correctly. See [“Administrative \(Network\) Installation”](#).

Chapter 1. Introduction

1.1. NI AWRDE and Analyst Installation and Licensing

The NI AWR Design Environment™ (NI AWRDE) 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 NI AWRDE (Microwave Office (MWO)/Visual System Simulator™ (VSS)/Analog Office (AO)) 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 NI 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 NI AWRDE: linear simulator, nonlinear simulator, EM simulator(s), HSPICE, layout tool, and Visual System Simulator), 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 NI AWRDE and Analyst™. 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. Chapters 2 and 3 cover basic NI AWRDE and Analyst program installations, chapter 4 details FLEXlm configuration, and chapter 5 discusses FLEXlm troubleshooting issues. Appendix A provides information on the installation and Addin programs.

The latest version of this book (*install.pdf*) is available at [Install.pdf](#). Comments and suggestions regarding this book are welcome and should be e-mailed to awr.install@ni.com.

This book 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 Microwave Office or Analog Office design environment, such as menus, submenus, menu items, dialog box options, button names, and tab names	Shown in a bold alternate type. Nested menu selections are shown with a ">" to indicate that you select the first menu item and then select the second menu item from the menu: Choose File > New Project .
Text that you enter using the keyboard	Shown in bold type within quotes: Enter " my_project " in Project Name
Keys or key combinations that you press	Shown in a bold alternate type 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
Filenames and directory paths	Shown in italics: See the <i>DEFAULTS.LPF</i> file.
Contents of a file, fields within a file, command names, output from a command at the command prompt	Shown in an alternate type: Define this parameter in the \$DEFAULT_VALUES field.
Optional arguments in a command	Shown in square brackets: The command line format is: dir [/w]
Variables for which you must specify values	Shown in angle brackets: To run the program from a network server, enter: msiexec /a AWR_Design_Environment_<version_build>.msi

Chapter 2. Installing the NI AWR Design Environment

This chapter describes how to install the NI AWR Design Environment™ (NI AWRDE) which includes Microwave Office (MWO), Visual System Simulator™ (VSS), and Analog Office (AO). A procedure for performing command line installations is also included.

The installation procedures are intended for evaluators and licensed users who wish to install MWO, VSS, and AO 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 NI AWRDE from the NI AWR website (www.ni.com/awr) or request a CD for installation. You can access vendor libraries from within the NI AWRDE via the Element Browser, and on the NI AWR website.

The Analyst™ 3D EM simulator is a separate download and installation process. See “[Installing Analyst](#)” for information about installing Analyst if you plan to use this simulator.

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 MWO/VSS/AO 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 MWO and/or VSS and/or AO 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 PC on which you want to install the NI AWRDE software meets the following minimum requirements (recommended requirements are shown in parentheses):
 - Hardware: Core 2 CPU (latest multi-core processor), 2GB (4GB) RAM, 1.5 GB (10 GB) available disk space.
 - Software: Microsoft® Windows® 7, Windows 8, or Windows 10 64-bit operating systems

For the latest recommended hardware requirements see the NI AWR website: [Minimum Requirements](#). NI AWR recommendations are based upon tests performed using Intel processors.

2. When installing an upgrade to the NI AWRDE, retain your existing version until you verify that your projects work successfully in the new version. (To uninstall the NI AWRDE suite, 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 PC.** The NI AWRDE 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 NI AWRDE does not support unicode languages. For proper operation of the software, you need to make sure you have set your operating system to use English for the language for non-unicode programs. If you are unsure how to check this, see our Knowledge Base at: www.awrcorp.com/support/help.aspx?id=9

2.3. Installing the Software

To install the NI AWRDE suite:

1. If you downloaded the software from www.ni.com/awr, browse to the download folder and run *AWR_Design_Environment <version number>.msi* to display the NI AWRDE Setup Wizard screen. If you downloaded the *AWRDE_Analyst <version number>.exe* file to install the NI AWRDE with the Analyst 3D EM simulator, run this file to start the installation and see “[NI AWRDE Analyst Installation Program](#)” for details about using the bootstrapper. First, the NI AWRDE is installed, then the Analyst Setup Wizard screen displays, and finally, the Intel® MPI Library is installed if needed.

If you have the program CD, place it into the CD drive and run the appropriate installation file.

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 NI AWRDE. 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 <i>User Guide</i> for details.
Choose the file extensions to open with the NI AWRDE	Specify the file type(s) you want to open with the NI AWRDE 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.

2.3.1. Setting Up a Group Policy

The NI AWRDE installer uses 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

By default, the NI AWRDE looks for files and folders in specific directories. You can change these default directories to accommodate roaming users.

To view the location of the directories and files that the NI AWRDE uses, choose **Help > Show Files/Directories** to display the Directories dialog box.

The NI AWRDE uses three primary base locations:

- *application* - the NI AWRDE 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 AWRDE 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 NI AWRDE behaves, and a section that tells the software to change the default primary directory locations.

You can change the behavior of the NI AWRDE 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 NI AWRDE gets the locations of the *appdatacommon* and *appdatauser* default locations from the system. As noted in [“Configuring Program File Locations”](#), 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 NI AWRDE. 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 NI AWRDE data under a common directory is to specify the *AppDataDirectory* instead of the *CommonDirectory* and *UserDirectory* individually. When you use the *AppDataDirectory* key, the NI AWRDE 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 NI AWRDE is run from a network location or from multiple machines.

For instance, you have two machines with the NI AWRDE 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 NI AWRDE 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 NI AWRDE, from the Windows **Start** menu, choose **All Programs > AWRDE [version_number] > AWR Design Environment [version_number]**.

If an error occurs while running the NI AWRDE, check [“Solutions to FLEXlm-Related Problems”](#) to see if it is listed. If not, contact NI AWR Technical Support by e-mail at awr.support@ni.com or by phone at the number listed on the inside title page of this book.

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.

Many of the Analog Office (AO) standard examples and Getting Started projects use the AWR Generic Library, called the GenBic35 process. This library is available in the *\$AWR/Library/example_pdk/genbic35/* folder. If you choose **File > New with Library** and then browse to the *Generic_GenBic35.ini* file in this directory, the software remembers the location of this library.

2.5.3. Accessing User Resources

The *Getting Started Guide* (*gettingstarted.pdf* on the NI AWR website or NI AWRDE CD) 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**.

2.6. Command Line Installation

The NI AWRDE is distributed as a Windows Installer (MSI) file on Windows. In addition to a typical installation where the installation file is launched by double-clicking in the Windows Explorer, and removed using the Control Panel **Add or Remove Programs** or **Programs and Features** option, a *msiexec.exe* command line utility offers additional features such as command line installation.

For current command usage you can type `msiexec /?` in a command prompt window.

To initiate a command line installation anagrammatically, type the following from a command line:

```
msiexec /i AWR_Design_Environment_<version>.msi
```

The following additional parameters can be passed at the end of this command line.

2.6.1. Limiting User Interface Display

The amount of user interface displayed is controlled by the following `/q` options:

`/qn` to indicate no interface

`/qb` to indicate use of a basic interface using only a small progress dialog box

2.6.2. Specifying a Target Directory

`TARGETDIR` determines the root/installation directory of the software, for example:

```
TARGETDIR="C:\AWRDE [version_number]>"
```

The default `TARGETDIR` is `[ProgramFilesFolder]\AWR\AWRDE\[version_number]`.

2.6.3. Removing Previous Installations During Install

`REMOVEOLDVERSION=YES` uninstalls previous installations of the software during install. Only installations of the same major version number are uninstalled.

```
msiexec /i AWR_Design_Environment_<version>.msi REMOVEOLDVERSION=YES
```

The default is `REMOVEOLDVERSION=NO`.

2.6.4. Uninstalling the Current Version

```
msiexec /x AWR_Design_Environment_<version>.msi
```

Chapter 3. Installing Analyst

This chapter describes how to install the Analyst™ 3D Electromagnetic EM simulator.

3.1. Installation Overview

The Analyst simulator is not included in the main NI AWR Design Environment™ (NI AWRDE) installation, you must use a separate installer. You can download and install Analyst from the NI AWR website (www.ni.com/awr) or request a CD for installation.

3.1.1. Licensing and Available Features

You may have purchased one of several Analyst licenses with different features. The complete application is installed and your license determines the Analyst features that are available to you. The default program installation directory is *C:\Program Files\AWR\Analyst\[version_number]*.

3.2. Preparing for Installation

Before you start the installation:

1. Ensure that the PC on which you want to install the Analyst software meets the following minimum requirements (recommended requirements are shown in parentheses):
 - Hardware: Core 2 (best in market multi-core, 64-bit processor), 2GB (as much as possible) RAM
 - Software: Microsoft® Windows® 7, Windows 8, or Windows 10 64-bit operating systems
2. When installing an upgrade to Analyst, retain your existing version until you verify that your projects work successfully in the new version. (To uninstall Analyst, choose **Programs and Features** from the Windows Control Panel, select Analyst and follow the instructions.)
3. **Ensure that you have Administrative rights on the PC.** Analyst requires 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.

3.3. Installing the Software

To install Analyst:

1. Analyst comes in a bootstrapper which installs the NI AWRDE and Analyst. If you downloaded the software from www.ni.com/awr, browse to the download folder and run *AWRDE_Analyst_<version_number>.exe* to start the installation. See “[NI AWRDE Analyst Installation Program](#)” for details about using the bootstrapper. First, the NI AWRDE is installed if needed, then the Analyst Setup Wizard screen displays, and finally, the Intel® MPI Library is installed if needed.
2. After accepting a license agreement, you proceed with the installation and are prompted to specify the following:

Option	Description
Select Installation Folder	Browse to the directory in which you want to install Analyst. DO NOT INSTALL ANALYST IN THE SAME DIRECTORY AS A PREVIOUS INSTALLATION.

Your installation progress is shown.

3. When the Analyst installation is complete click **Close** to close the screen.

3.4. Running the Software

Analyst is run from within the NI AWRDE, see [“Running the Software”](#) for details.

Chapter 4. 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.

4.1. 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 NI AWRDE is installed on your machine. For installation instructions, see [“Installing the NI AWR Design Environment”](#).

4.1.1. 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 NI AWRDE is installed on and licensed to your particular machine.

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

Alternatively, double-click My Computer on your desktop, open the folder where you installed the program and double-click *MWOffice.exe* 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 NI AWRDE.

2. To obtain a valid license file from AWR Corporation, click **License Info** and follow the instructions. **NOTE:** Evaluators must complete the registration process to obtain an evaluation license. See [Get Evaluation License](#) for registration information.
3. When you receive your license, copy it to your computer and then specify the directory path by clicking the **Set Location** button on the License Configuration dialog box.

FLEXlm locked configuration using a software-based key is complete. To verify FLEXlm operation see [“Verifying that a License Can Be Checked Out”](#).

4.1.2. 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. AWR supplies you with the hardware key. In this configuration, the NI AWRDE 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/Windows/Hardware Key* directory on the NI AWRDE CD.
2. AWR supplies you with a license file. When you receive your license, copy it to your computer and then specify the directory path by clicking the **Set Location** button on the License Configuration dialog box.

FLEXlm locked configuration using a hardware-based key is complete. To verify FLEXlm operation, see [“Verifying that a License Can Be Checked Out”](#).

4.2. 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 Microwave Office (MWO)/Visual System Simulator (VSS)/Analog Office (AO) application, requesting licenses from the server when needed.

AWR tools require FlexLM version 11.14 or later. You can download the FLEXlm drivers and tools as described in [“Obtaining the License File”](#).

4.2.1. Configuring Floating Licensing on the License Server

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

Obtaining the License File

To obtain the FLEXlm license file:

1. Create a *C:\awr_flexlm* directory and download the "FLEXlm Drivers and Tools" from the NI AWR website at www.ni.com/awr under Support Resources > Customer Resources > Download Site on the **Products** tab after logging in. Alternatively, the FLEXlm files are available in the *FlexLM* directory on the NI AWRDE CD. These files run, debug, and maintain the FLEXlm license manager.
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 Address**, the value in **Computer/Hostname**, and your name, company name, address, phone number, and purchase order number or invoice number to AWR at awr.license@ni.com.
5. When you receive the license file, rename it to *awrd.lic* and place it in your *C:\awr_flexlm* directory.
6. Open *awrd.lic* in a text editor and check the first line (the line starting with "SERVER"). If you see "ReplaceWithServerName" replace it with the correct machine name and save the file.

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 files available from www.ni.com/awr under Support Resources > Download Site on the Products tab or available in the *FlexLM* directory on the NI AWRDE CD.

To install the FLEXlm Server:

1. If applicable, copy to your *C:\awr_flexlm* directory the *awrd.exe*, *awrcheckout.exe*, *lmgrd.exe*, *lmtools.exe*, and *lmutil.exe* files from the appropriate *Flex_Tools* folder in the *FlexLM* directory on the NI AWRDE CD.
2. Start *lmtools.exe*. The LMTOOLS dialog box displays.
3. Click the **Service/License File** tab.
4. 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.
5. 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" (for initial setup enter this information)

Use Services: (selected)

Start Server at Power Up: (selected)

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

9. If necessary, click the **Server Diags** tab and then click **Perform Diagnostics** to diagnose any problems.
10. 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”](#).

4.2.2. Configuring Floating Licensing on Client Workstations

The NI AWRDE must be installed on the client machines. For instructions on installing the program, see [“Installing the NI AWR Design Environment”](#).

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

1. Set the `AWRD_LICENSE_FILE` environment variable in the AWR License Configuration dialog box by clicking **Set Location**.

`<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>
```

If a `<portNumber>` is not specified, you should specify the `SERVER` line of the license file (on the server machine) as

SERVER <serverName> <hostID> 27007

and you should stop and restart the server process.

2. If applicable, copy the `awrcheckout.exe`, `lmutil.exe`, and `lmtools.exe` files from the `FlexLM` directory on the NI AWRDE CD 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”](#).

Chapter 5. 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 NI AWR Design Environment™ (NI AWRDE) operations.

If you cannot solve a FLEXlm-related problem using this information, contact AWR Technical Support by e-mail at awr.support@ni.com or by phone at the number listed on the inside title page of this book.

For additional information on FLEXlm and FLEXlm management tools, see the *License Administration Guide* available on the NI AWRDE CD or on the product downloads page.

5.1. FLEXlm Troubleshooting Walk-through

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

5.1.1. Checking License File Location

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

1. In the NI AWRDE, choose **File > License > Configuration**. The AWR License Configuration dialog box displays.
2. Click **Set Location** to display the Select License File dialog box and set it to `<portNumber>@<servername>` where `<portNumber>` is the TCP/IP port number.

5.1.2. Checking License Server Configuration

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

1. Start *lmttools.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 NI AWRDE 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 NI AWRDE.)
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 11.14 or later and that the connection to the server was successful.

5.1.3. Restarting the License Server

To restart the license server on the server machine:

1. Start *lmttools.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.

5.1.4. 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 (v11.14)
```

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.

5.1.5. 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 NI AWRDE 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...

- 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.

5.1.6. 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
```

5.2. Solutions to FLEXlm-Related Problems

This section lists some of the FLEXlm-related problems you may encounter when starting or running the NI AWRDE. Additional troubleshooting information is available in the appendices of the *License Administration Guide* available on the NI AWRDE product download page or available on the supplied NI AWRDE CD. For an online License Troubleshooter, go to [License Troubleshooter](#).

Problem	Cause	Solution
A Choose Server or File dialog box displays.	The NI AWRDE 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” .

Problem	Cause	Solution
<p>A "License server does not support this version of this feature FLEXLM error: -25,147" message displays.</p>	<p>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 product releases:</p> <p>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) , 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</p>	<p>If you are on maintenance, request a new license file for the new version of the NI AWRDE from AWR. If you are not on maintenance, you will need to purchase an upgrade to run the new version.</p>
<p>A "Cannot connect to server" message displays.</p>	<p>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 AWRD_LICENSE_FILE in the form @<serverName>. Although this works on most machines, it can cause problems on some.</p>	<p>Specify a port number that does not conflict with any other servers in the SERVER line of the license file. (In the future, all NI AWRDE license files will use a specific port number to avoid this problem.) For example, if your current SERVER line is as follows: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 will also need to change the AWRD_LICENSE_FILE environment variables on all of the client workstations from @<serverName> to 27033@<serverName> .</p>
<p>An "(awrd) Invalid license key (inconsistent</p>	<p>The license file has been improperly edited or created.</p>	<p>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</p>

Problem	Cause	Solution
encryption code for ...)" message displays (this message can also display in the Debug.log file).		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 AWR at awr.license@ni.com for a purchased license or at awr.registrar@ni.com for an evaluation license, and NI AWR 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 NI AWR Design Environment™ (NI AWRDE) 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. NI AWRDE Installation Program

A.1.1. Description

This is the main installation program. The NI AWRDE is distributed as a Windows Installer (MSI) file on Windows.

A.1.2. Command Line Format

```
msiexec /argument AWR_Design_Environment_<version_build>.msi
```

Argument	Opt./Mand.	Description
/?		Displays current command usage for install, display, restart, logging, update, and repair options.
/i	optional	Command line installation. See “Command Line Installation” for details.
/a	optional	Administrative (network) installation. See “Administrative (Network) Installation” for details.

A.2. Administrative (Network) Installation

A.2.1. Description

This section addresses the administrative (network) installation. The NI AWRDE is distributed as a Windows Installer (MSI) file on Windows.

During an administrative installation, files contained in the installer are installed in the targeted network directory. A smaller *msi* file is also generated as part of the administrative installation within the targeted installation directory. With this generated *msi* and source image, clients can install the entire product locally, or choose to only install required components locally and run the rest of the application from the network location.

For example, the server can host an administrative installation on a network path:

```
msiexec /a AWR_Design_Environment_<version>.msi TARGETDIR=C:\path
```

where *path* is a shared directory on the server.

To install the NI AWRDE locally, you can run the above *msi* file without the additional command line options listed below. All files are installed on your local PC and the program is run locally.

To run the NI AWRDE from the network directory (there are still some required files and registry information stored locally), you need to specify the following properties with the *msiexec* command:

```
ADDLOCAL=mergemodules
```

```
ADDSOURCE=AWRFeature
```

For example (as one continuous command):

```
msiexec /i \\server\path\AWR_Design_Environment_<version>.msi ADDLOCAL=mergemodules  
ADDSOURCE=AWRFeature TARGETDIR=\\server\path
```

In this example, the mergemodules feature is installed locally and the NI AWRDE program is run from the network location.

When running the program from a network server, to uninstall the program you must uninstall the client installation before removing the network installation.

When repairing a network installation on a client, you should avoid the repair functionality in the Add/Remove Programs dialog box within the Windows Control Panel, and instead repair the installation on the commandline.

For example (as one continuous command):

```
msiexec /faumv \\server\path\AWR_Design_Environment_<version>.msi  
ADDLOCAL=mergemodules ADDSOURCE=AWRFeature TARGETDIR=\\server\path
```

Type `msiexec /?` for a full list of repair options.

A.2.2. Command Line Format

Argument	Opt./Mand.	Description
/a	mandatory	Administrative install - installs a product to a shared network server directory.
ADDLOCAL	optional	List features you want to run locally.
ADDSOURCE	optional	List features you want to run from a network location.

A.3. 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 NI AWRDE without needing to use the Windows Registry Editor (regedit.exe).

At startup, the NI AWRDE 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 NI AWRDE program directory.

A.4. NI AWRDE Analyst Installation Program

A.4.1. Description

NI AWRDE Analyst™ is distributed as an executable bootstrapper containing a set of executable files for installing NI AWRDE and Analyst. At run-time, the bootstrapper determines which of these files needs to be executed (and in what way) to complete the installation.

A.4.2. Command Line Format

AWRDE_Analyst_<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 "id display_name":"value"	optional	Passes additional arguments to components of the bootstrapper. Use this to install Analyst or NI AWRDE to a specific location from the command line.

Examples

Command line	Description
AWRDE_Analyst_<version>.exe	Install NI AWRDE Analyst in full user interface mode.
AWRDE_Analyst_<version>.exe /q	Install NI AWRDE Analyst in silent mode.
AWRDE_Analyst_<version>.exe /ComponentArgs "mwo":"TARGETDIR=D:\temp\awrde_install"	Install NI AWRDE to D:\temp\awrde_install and Analyst to the default location.
AWRDE_Analyst_<version>.exe /ComponentArgs mwo:"TARGETDIR=D:\temp\awrde_install /log mwoinstall.log"	Install NI AWRDE to D:\temp\awrde_install and Analyst to the default location. Also write the install log for MWO to mwoinstall.log
AWRDE_Analyst_<version>.exe /q /ComponentArgs "analyst":"TARGETDIR=""D:\temp\analyst_install newver""	Install Analyst silently to a path containing spaces (D:\temp\analyst_install newver) and NI AWRDE to the default location.

A.5. Job Scheduler Service Installation

A.5.1. Description

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

A.5.2. Command Line Format

The following command line syntax is for NI AWRDE installation. The installer writes the installation log to *awrde_install.log*.

```
msiexec /i awrde_vXX_XX_XXX.msi JOBSERVICE=YES /l*v .\awrde_install.log
```

The following command line syntax is for NI AWRDE with 3D Editor installation. The installer writes the NI AWRDE installation log to *awrde_install.log* and the 3D Editor installation log to *awrde_bootstrap.log*.

```
awrde_analyst_vXX_XX_XXXX.exe /ComponentArgs "mwo":"JOBSERVICE=YES /l*v .\awrde_install.log"  
/Log /LogFile .\awrde_bootstrap.log
```

After running the installers, you need to specify the license file location by either running the NI AWRDE, or by running *LicLocSetup.exe* from the NI AWRDE installation directory. You also need to restart the Job Scheduler service in order to configure the Job Scheduler for the newly set license. See the *Simulation and Analysis Guide* for details on managing the service. **NOTE:** Licensing changes always require a restart of the Job Scheduler 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 NI AWRDE installer again switches the version of the Job Scheduler service to that of the most recent installation. When installing multiple versions of the NI AWRDE 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.