# Licensing Guide



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## **Preface**

Welcome to the Licensing Guide. It contains detailed information about how to install an IAR Systems product that uses a network license and how to manage your licenses. You will also get detailed reference information on the IAR License Manager.

For information about how to install and license an IAR Systems product that uses a mobile or PC-locked single-user license, see the *Installation and Licensing Quick Reference* booklet in your product box.

## Who should read this guide

You should read this guide if you:

- Are about to install a Network license and need more information about installation and licensing than is available in the Quick Reference booklet
- Have a Network license and are about to install the license server
- Are about to upgrade your existing license
- Need to transfer your license to another computer
- Are about to use the IAR License Manager.

## What this guide contains

This guide contains these chapters:

- Introduction gives a general introduction to the installation and licensing procedure and describes the differences between the different license types with the main focus on network licenses.
- Installing a product with a network license gives a step-by-step description of how
  to install both the license server software and the client software in a multi-user
  environment. This chapter also describes how to upgrade both the license server and
  your IAR Systems product clients.
- License management gives step-by-step descriptions of how to perform some typical tasks for network licenses.
- Reference information on the IAR License Manager gives reference information on the IAR License Manager—a tool for managing your licenses.

• Licensing concepts lists and describes terms related to licensing in general.

#### **FURTHER INFORMATION**

If this guide does not answer your questions or solve your problems concerning the installation or licensing, you can:

- Read the release notes for recent information that might not be included in this
  guide. The release notes are available in the Information Center and on the product
  installation media.
- See the technical notes on the Technical Support pages on the IAR Systems web site: www.iar.com/support
- Contact IAR Systems Technical Support for technical support. Information about how to access our Technical Support can be found on the IAR Systems web site: www.iar.com/support.

Be prepared to provide the following information: your license number, the type of license lock you use, when and where you purchased the product, and a detailed description of the problem.

### **Document conventions**

When, in the IAR Systems documentation, we refer to the programming language C, the text also applies to C++, unless otherwise stated.

When referring to a directory in your product installation, for example doc, the full path to the location is assumed, for example

 $\verb|c:\Program Files\IAR Systems\Embedded Workbench | n.n \\| cpuname \\| doc$ 

or

 $\verb|c:\operatorname{Program}| Files \\| IAR Systems \\| visual STATE | n.n \\| doc.$ 

#### TYPOGRAPHIC CONVENTIONS

The IAR Systems documentation set uses the following typographic conventions:

Style	Used for
computer	Source code examples and file paths.
	Text on the command line.
	<ul> <li>Binary, hexadecimal, and octal numbers.</li> </ul>
parameter	A placeholder for an actual value used as a parameter, for example
	filename.h where filename represents the name of the file.

Table 1: Typographic conventions used in this guide

Style	Used for
[option]	An optional part of a command.
[a b c]	An optional part of a command with alternatives.
{a b c}	A mandatory part of a command with alternatives.
bold	Names of menus, menu commands, buttons, and dialog boxes that appear on the screen.
italic	<ul><li>A cross-reference within this guide or to another guide.</li><li>Emphasis.</li></ul>
	An ellipsis indicates that the previous item can be repeated an arbitrary number of times.
9	Identifies helpful tips and programming hints.
A	Identifies warnings.

Table 1: Typographic conventions used in this guide (Continued)

Document conventions

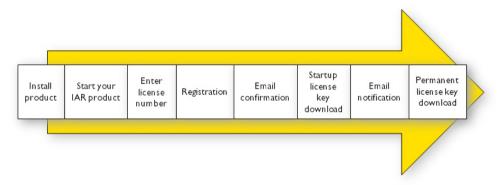
## Introduction

This chapter introduces the IAR Systems licensing system. It gives an overview of the installation and license activation procedure, and of the different license types.

## How IAR Systems licensing works

Each product from IAR Systems comes with a software license.

When you start your IAR Systems product for the first time after you have installed it, you activate your license by entering your License Number and registering the license. A license wizard will guide you through the process:



In the welcome letter of your product package, you will find a license number. The automatic activation will give you a *Startup license* that allows you to start using the product immediately after installation and 30 days onward.

When you have finished your purchase, you will be able to activate your permanent license. You are now also entitled to up to one year of free updates and prioritized technical support, depending on your purchased product.

A license manager is installed together with your IAR Systems product to help you manage your licenses. For more information about how to use the IAR License Manager, see *License management*, page 27.

#### **LICENSE TYPES**

There are three kinds of permanent licenses:

- Mobile license—a single-user license locked to a dongle (hardware lock)
- PC-locked license—a single-user license locked to the computer where the software is installed
- Network license for multiple users.

This guide describes the Network license and how to manage it. For more information about the Mobile and PC-locked license types, see the *Quick Reference* booklet supplied in the product package.

## Introduction to the IAR License Manager

This section introduces you to the IAR License Manager.

#### BRIEFLY ABOUT THE IAR LICENSE MANAGER

The IAR License Manager is a program—automatically installed when you install your IAR Systems product or the IAR License Server Tools—that you can use to administrate your licenses.

The IAR License Manager is local to a specific installation directory and automatically detects all IAR Systems products that use this version of the licensing system and are installed in the same directory.

Start the IAR License Manager either from the Windows **Start** menu or from the **Help** menu in your IAR Systems product.

#### **BRIEFLY ABOUT THE LICENSE WIZARD**

The License Wizard leads you step by step through the license activation process. It will start automatically when you start your IAR Systems product if there are installed products without valid licenses. You can also start it from the **License** menu in the IAR License Manager.

### **Network licenses**

A Network license is a multi-user license that is located on a license server *computer*. A license server computer is a PC with the IAR License Server Tools installed. Individual installations of IAR Systems products are installed on other computers (clients) in the same network.

The network license makes it possible to use your IAR Systems product from any of the client computers on the network. The network license allows for a maximum number of concurrent users, and the license server keeps track of the current number of users.

The network license is locked to the computer where the license server is installed, either to the computer itself or to an attached dongle. With the dongle, you can easily transfer the license server to a different server computer.

The license server is generic and you can use it for all IAR Systems products you install.

#### USING DIFFERENT VERSIONS OF LICENSE SERVERS TOOLS

Your IAR Systems product requires version 2.x of IAR License Server Tools. Note that some IAR Embedded Workbench products require version 1.4x or older of the license server tools. A new and an old version of the IAR License Server Tools cannot coexist on the same computer unless virtual machines are used.

#### THE IAR LICENSE SERVER PACKAGE

When you order a network license, you receive:

- One installation media with the IAR License Server Tools
- One dongle (only if explicitly ordered)
- One installation media with your IAR Systems product.

The IAR License Server Tools consist of two components:

- The IAR License Manager, which is used for administrating licenses. The IAR License Manager is also installed with your IAR Systems product to administrate licenses on the client computers.
- The Sentinel RMS License Manager, which is the actual license server.

Install the IAR License Server Tools on a computer that you want to use for the license server.

#### YOUR IAR SYSTEMS PRODUCT

The IAR Systems product can be installed on as many client computers as you want.

Using a network license, the IAR Systems product requests permission to run from the license server when you perform an activity that requires a license, for example compiling and linking.

When the activity is finished, the permission to use the network license remains locked to that client for another 30 minutes before it is released to another client. In the IAR License Manager you can view the status of the license.

The requested license is cached on the client. The cache is valid for 20 minutes, during which no contact between the client and the license server is needed. When the cache expires, the license is still reserved to the client for another ten minutes. If the client makes a new license request within those ten minutes, the license becomes locked to the client for another 30 minutes and cached for another 20 minutes.

#### CLIENTS WITH COMMUTER AUTHORIZATION

A network license includes a commuter feature, which makes it possible to use your IAR Systems product for a limited number of days without being connected to the license server. For more information, see *Checking out a product for commuter authorization*, page 28.

#### **SYSTEM REQUIREMENTS**

For information about systems requirements:

- For client computers, see the *Release notes* on the installation media
- For the IAR License Server Tools computer (network licenses only), see the Release notes for the IAR License Server Tools.

**Note:** To install and activate the product, you must have administrator privileges on the computer and an internet connection. If IAR License Manager cannot get access to the internet, see *Activating your license while offline*, page 28.

#### **NETWORK REQUIREMENTS FOR THE LICENSE SERVER**

If you have a network license, each client installation will automatically search for license servers on the subnet.

The client–server communication is handled via the UDP protocol at port 5093 on an IP network.

If a firewall or network bridge is installed on the license server computer, for example Windows Firewall, UDP packets must be allowed to be routed through server port 5093.

In network configurations where the broadcast function is not available or the license server is on a different subnet, you must manually point out the server from the client. For information about how to do this, see *Servers dialog box*, page 55.

UDP broadcast packets at port 5093 are also used every time your IAR Systems product is started and periodically for as long as the IAR License Manager is running. The broadcasts are made to find available license servers on the network. No broadcasts are made during the time that a licensed product is being used.

The IAR License Manager uses the https communication protocol to fetch license keys from IAR Systems. The Windows settings for internet proxy are used.

# Installing a product with a network license

This chapter gives information to the system or network administrator about how to install the IAR License Server Tools on the designated server computer and the IAR Systems products on the client computers.

For information about network licenses, see Network licenses, page 10.

## Installing a product using a network license

The recommended way to install a product with a network license is the following three-stage procedure:

- I Install the IAR License Server Tools on a server computer.
- **2** Activate and register the license using the IAR License Manager on the server.
- 3 Install your IAR Systems product on the client computers and start using the network license.

**Note:** To install products from IAR Systems, you must have administrator privileges to the system.

Important: If you wish to add a network license to an already installed instance of IAR License Server Tools, go directly to *Activating the license*, page 18, for instructions. Ignore the installation procedure described below.

#### INSTALLING THE IAR LICENSE SERVER TOOLS

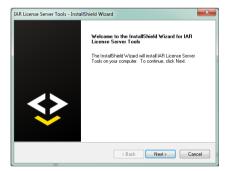
**Note:** Unless you use a dongle, it is important that you decide from the beginning which computer to use for the license server, because the license server will be locked to that computer.

- I Choose a suitable server computer for the license server; see the release notes for your license server tools regarding system requirements.
- **2** Remove any dongles.
- **3** Install the IAR License Server Tools (autorun.exe).

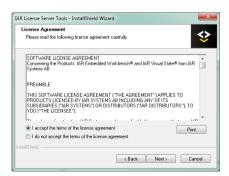
**4** Click Install the IAR License Server Tools.



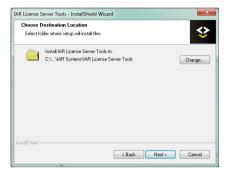
5 Click **Next** to first install the IAR License Manager and then immediately continue with the Sentinel RMS License Manager.



**6** Click **Next** to confirm that you have read and understood the license agreement.



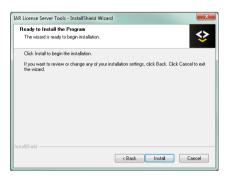
**7** Choose the destination folder where the IAR License Manager will be installed.



**8** Select the folder for the program icon on the **Start** menu.



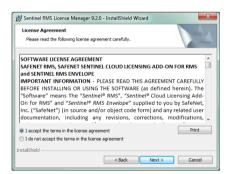
**9** In the next step, click **Install**, unless you want to go back and change any of your installation settings.



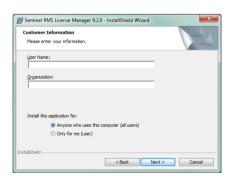
**10** When the IAR License Manager has been installed, the installation of the Sentinel RMS License Manager starts.



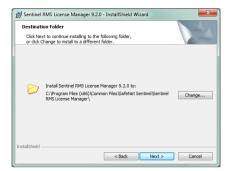
II Click Next to confirm that you have read and understood the RMS license agreement.



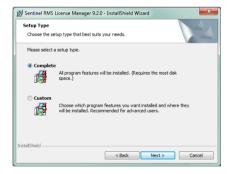
**12** Fill in the customer information.



**13** Choose a destination folder where the license server will be installed. The default directory is C:\Program Files\Common Files\SafeNet Sentinel\Sentinel RMS License Manager.



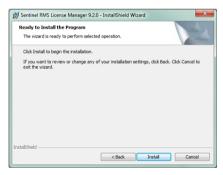
**14** On the Setup Type page, select either **Complete** or **Custom** (by default, this does not install the dongle drivers).



**15** On the next page you should unblock the systems firewall for the Sentinel RMS License Manager. This is necessary for the client computers to access the server.



**16** Click **Install** to install the Sentinel RMS License Manager.

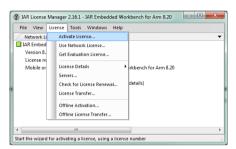


Normally, you do not need to start the license server manually. It will automatically start after the installation and restart every time you restart the computer. If you for some reason need to start the license server manually, see *Manually starting and stopping the license server*, page 38.

#### **ACTIVATING THE LICENSE**

Before you can use your network license, you must activate it.

I On the license server computer, start the IAR License Manager from the Windows Start menu.



#### 2 Choose License>Activate License.

Alternatively, if the IAR License Manager cannot get access to the internet, you can renew your license by selecting **Offline Activation** from the **License** menu and enter your license number.

- **3** If you have a dongle, attach it to your computer.
- **4** Type your license number and click **Next**. The license number can be found in the Welcome letter.



5 In the next step, click **Register**.



**6** The License Wizard opens a registration web page at IAR Systems where you register your license.



When you have completed the registration form, an email will be sent to the address you specified. Open the email when you receive it and click on the link in this email to verify the registration. The registration procedure is now completed.

Click **Next** in the License Wizard to continue with the license activation.

7 Click Next to confirm that you want to activate the license on the computer you are using.



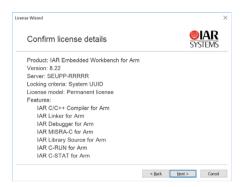
**8** If your network license is using a dongle, you must now lock the license to the dongle. (If your license will not use a dongle, skip this step.) Connect the dongle to your computer, and make sure that no other dongle is connected.



Alternatively, if your dongle has not arrived, you can temporarily lock your license to your computer. Select the corresponding check box.

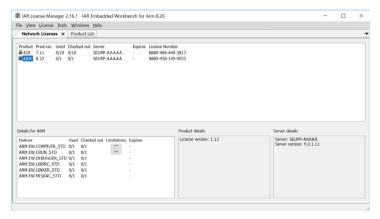
**Note:** It is possible to lock the license to another dongle than the one provided with the product package, for example, if you want to lock several products to the same dongle. In that case, carefully consider the consequences. Once the dongle is confirmed, the lock cannot be undone.

9 The License Wizard now confirms your license details. Click Next to finish the activation.



**Note:** Your permanent license might include a time-limited evaluation of features that are not part of the license you have bought.

10 In the IAR License Manager, choose View>Network Licenses to view the installed licenses.



- 1 You can now close the IAR License Manager. The license server will be running in the background and you can at any time start the IAR License Manager again to view or administrate the licenses.
- **12** You will receive a notification by email when the permanent license is available.

To get your permanent license, perform the following steps on your license server computer:

- I Start the IAR License Manager from the Windows **Start** menu.
- 2 On the License menu, choose Check for License Renewal and follow the instructions.

Alternatively, if the IAR License Manager cannot get access to the internet, you can renew your license by selecting **Offline Activation** from the **License** menu and enter your license number.

# INSTALLING AN IAR SYSTEMS PRODUCT ON CLIENT COMPUTERS

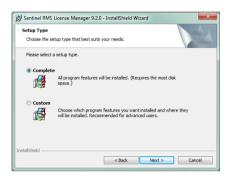
The following steps should be repeated on each client computer.

If you already have the new version of the product installed (an evaluation version), go directly to step eight.

- I Insert the installation media. The installation program should start automatically. If it does not, run the autorun.exe program from the installation media.
- **2** Click **Install...** to start the installation.
- **3** Read and accept the license agreement when prompted.

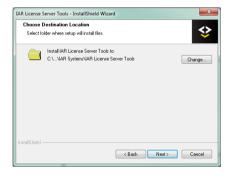


4 If prompted, select either a **Complete** or a **Custom** installation:

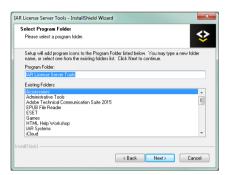


If you select **Custom**, select the components you want to install in the next dialog box. Note that this step does not always apply.

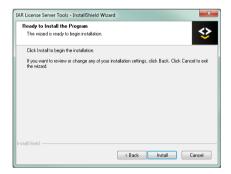
**5** Accept the default installation directory or specify a directory of your choice:



**6** Choose a folder in the Windows **Start** menu where you want to place the IAR Systems product start shortcut.



7 Review the settings for the installation and click **Install** to install the program files.



You are now finished with the IAR Systems product installation.

Make sure to repeat the steps above on each client computer where you want to be able to run your IAR Systems product.

- **8** When you first start your IAR Systems product on a client computer, it will find the license server and suggest that you use it. If the client does not find the license server automatically, you can point it out manually, see *Servers dialog box*, page 55.
- **9** You can now start using your IAR Systems product.

**Note:** If you are upgrading from a size-limited IAR Embedded Workbench version, make sure to perform a **Rebuild All** command when you build your project for the first time using the new version.

Installing a product using a network license

# License management

This chapter describes how to perform some tasks related to license management.

## Managing your licenses

This section gives information about some tasks that you might need to perform. For some of the tasks there are also step-by-step descriptions.

More specifically, you will get information about:

- Switching between different licenses for a product
- Checking out a product for commuter authorization
- Maximum number of commuter authorizations
- Activating your license while offline
- Transferring your license to another computer while offline
- Choosing a network license server manually
- Updating a product that uses a network license
- Adding more users to a network license
- Transferring network licenses
- Manually starting and stopping the license server.

See also the *Quick Reference booklet* for information about transferring a license to another computer.

# SWITCHING BETWEEN DIFFERENT LICENSES FOR A PRODUCT

You can have several licenses for the same product installed on your computer. The license that was last activated will be used. To switch to an older version of the license, to another product variant, or to a network license, follow this procedure:

- In the IAR License Manager, choose View>Product List and double-click the product to display the License Details dialog box.
- 2 Select the license you want to use from the Selected license drop-down list.

# CHECKING OUT A PRODUCT FOR COMMUTER AUTHORIZATION

To check out a license from a network server:

- I Start the IAR License Manager.
- 2 Right-click on the product and choose Check Out.
- **3** In the **Check Out** dialog box that is displayed, specify for how many days (maximum 15 days) you want to check out a product with commuter authorization.

You can now use the product without being connected to the license server.

**4** To terminate the commuter authorization before it expires automatically, right-click on the product and choose **Check In**.

The license will automatically be returned after the specified number of days.

#### **MAXIMUM NUMBER OF COMMUTER AUTHORIZATIONS**

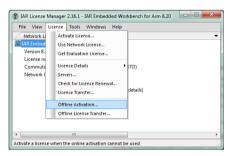
To set the maximum number of commuter authorizations to be, for example, 25% of the total number of licenses, use the LSERVOPTS environment variable with the -com option on your license server computer:

LSERVOPTS=-com 25

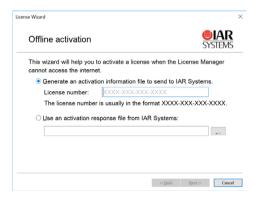
#### **ACTIVATING YOUR LICENSE WHILE OFFLINE**

To activate your license even if the IAR License Manager cannot access the internet:

In the IAR License Manager, choose License>Offline Activation.



**2** In the wizard that appears, type your license number to generate an *activation information file* and click **Next**.



**3** On the next page, specify whether the license should be locked to your computer or to a dongle. If your license should be locked to a dongle, but you have not received it yet, select **Yes, but I have not received the dongle yet**. You will then be able to lock the license temporarily to your computer while you wait for the dongle.



**4** If you chose to lock the license to a dongle directly (by selecting **Yes** on the previous page) you will be asked to connect the dongle before proceeding.



Connect the dongle and click Refresh dongle list.

**5** Next, specify where to save the activation information file.



**6** Next, the wizard displays the URL https://register.iar.com/activate.



**7** Go to a computer with internet access and browse to that web page. There you will be able to upload the generated activation file.



**8** If you have not registered your license you will be asked to do that before proceeding.



**9** At the end of the activation process you will be able to download an activation response file



Bring that file to the computer where you want to use your license.

10 On the computer where you want to use your license, click Next in the wizard. Browse to the activation response file and click Next again.



You have now activated your license.

- II If you have temporarily locked your license to the computer and finally receive your dongle, repeat the offline activation, but choose to lock the license to the dongle.
- **12** When your license has been approved by IAR Systems, repeat the offline activation again to finally activate your permanent license.

# TRANSFERRING YOUR LICENSE TO ANOTHER COMPUTER WHILE OFFLINE

A transfer involves deactivating and activating the license. Note that this procedure does not apply to Mobile licenses. For information about online license transfers, see the *Quick Reference* booklet.

- On a computer with internet connection, go to https://register.iar.com/deactivate.
- **2** Type the license number you want to deactivate.
- **3** As a response you will get a *deactivation permission* file to download. Bring that file to your computer.
- 4 In the IAR License Manager, choose License >Offline License Transfer.
- **5** In the dialog box that appears, locate the permission file and click **OK**. A *deactivation confirmation* file will now be created.
- **6** Bring that file to the computer with an internet connection and return to the web page.

**7** Upload the deactivation ticket and your license is now ready to be activated on another computer.

#### **CHOOSING A NETWORK LICENSE SERVER MANUALLY**

- From the IAR License Manager, choose Licence>Use Network License to open the wizard.
- **2** In the list, select the server that you want to use and click **Next**:



**3** Alternatively, if the server is not in the list, click **Add a server**. In the dialog box that appears, click **Add** and type the name or IP number of your server:



Note: Entering an incorrect server name might slow down the IAR License Manager.

Click **OK** to return to the wizard.

4 In the wizard, select the right server and click **Next**.

#### **UPDATING A PRODUCT THAT USES A NETWORK LICENSE**

To update a product that uses a network license, follow this three-stage procedure:

- Updating the IAR License Server, page 35. This step is only applicable if you have received an update of the IAR License Server in addition to the updated IAR Systems product.
- Renewing a network license, page 35.
- Updating your IAR Systems product, page 36.

A product update is performed on the same computer where the previous version of the product is installed. The same license type and license lock are used after you have installed the update.

#### **Updating the IAR License Server**

If you have received an update of the license server, perform the following steps on the computer where you have the current license server installed.

Note: The installation procedure will shut down the license server and make all network licenses temporarily unavailable.

The setup program will uninstall the old version of the license server.

Follow the instructions in *Installing the IAR License Server Tools*, page 13.

You are now finished with the IAR License Server update.

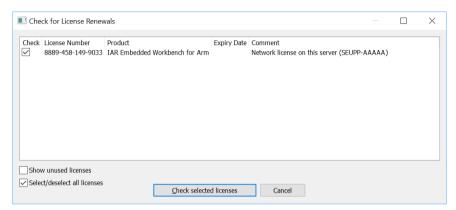
#### Renewing a network license

When you receive a product update, your license must be renewed.

**Note:** The network licenses should not have any commuter authorizations checked out while the license is renewed.

I Start the IAR License Manager on the license server computer.

2 In the Check for License Renewals dialog box that is displayed, select the license for which you want to check for renewals.



Click **Check selected licenses**. The IAR License Manager contacts IAR Systems to check whether there are any renewals available for the selected license.

- 3 The Available Renewals dialog box is displayed and lists the licenses for which there are new licenses available. Make sure to select the license you want to renew and click Install selected.
- 4 On the client computers, you might need to restart your IAR Systems product or start the IAR License Manager to make it detect the renewed licenses.

You are now finished and the updated license can be used.

#### **Updating your IAR Systems product**

Before you install your updated IAR Systems product on the client computers, decide whether you wish the update to completely *replace* your existing product installation, or whether you wish to keep your existing installation and install the update in another directory.

If you want to use multiple versions in parallel, make sure to install the new version in a different directory.

If you wish to replace your existing installation, first do as follows:



- Make copies of any product files that you have modified in your existing installation. These files will otherwise be overwritten. Your own files will remain intact.
- Uninstall the current version of the product.

• If you are using IAR Embedded Workbench, uninstall the runtime library source code (this step is only applicable if such source code has previously been installed).

Then follow the instructions in *Installing an IAR Systems product on client computers*, page 23, for each client computer with the previous version of your IAR Systems product installed, that you want to update.

You are then finished with the update.

#### ADDING MORE USERS TO A NETWORK LICENSE

If the number of concurrent users permitted by your network license is not sufficient, you can add more users to the license. To do this, you must contact your software distributor or IAR Systems to purchase an extended network license.

You will get an email notification when your purchase is finished. To activate your license with the new entitlements, perform one of these steps:

- Renewing a network license—looking for renewals for all activated licenses on the
  computer. If you have many licenses installed this might take some time (roughly up
  to one minute per license number). In this case, it might be better to perform the
  second step instead.
- Activating the license—renewing a specific license. You will need to specify the same license number as when the original license was activated. One advantage with this alternative is that only that license number is checked. This option can also be used if renewals fail due to, for example, a changed locking criterion.

#### TRANSFERRING NETWORK LICENSES

A network license can only be transferred to another server computer if the license is locked to a dongle. If you must transfer a network license that is locked to the server computer, you must contact IAR Systems.

To transfer the network licenses to a new license server computer, for example in the case of server failure, do as follows:

- I Install the IAR License Server on the new computer as described in *Installing the IAR License Server Tools*, page 13. Do not activate the license or register the product.
- **2** Connect the dongle to the new license server computer.
- **3** Start the IAR License Manager and activate your product, using the license number, see *Activating the license*, page 18. If you have more than one product, you must repeat this step for each license number.

- **4** On the client computers, start the IAR License Manager and choose the new license server as the license provider:
  - Choose License>Use Network License
  - Select your product and click Next
  - Select the new license server and click Next.

You have now transferred the license server to the new computer.

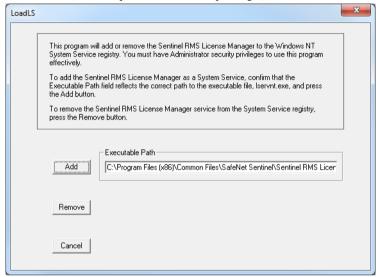
# MANUALLY STARTING AND STOPPING THE LICENSE SERVER

Normally, you do not need to start or stop the license server manually. It starts automatically when the computer is started. But if you for some reason need to start it manually, it is possible.

The license server runs as a Windows service. To find out if it is running, you can check the Windows list of services. How to display that list depends on which Windows version you are using. The service is called *Sentinel RMS License Manager*.

The executable file for the service is located where you installed the Sentinel RMS License Manager during the installation of the IAR License Server Tools. The default directory depends on Windows version and language, but would typically be something like this: C:\Program Files\Common Files\SafeNet Sentinel\Sentinel RMS License Manager

In that directory there is a subdirectory WinNT where the server files are located. The name of the server executable file is Lservnt.exe. To start and stop it, you run loadls.exe (which requires administrator privileges).



Click **Add** or **Remove** to start or stop the service. If you accidentally click **Add** when the service is already running, or **Remove** when the service is not running, your will get an error message.

# Reserving user groups for network licenses

You can create a reservation file that specifies groups of users that have exclusive right to use a feature, and groups that may not use a feature.

#### To reserve a user group:

Edit the user group file using a text editor. Use this file syntax:

```
feature_name, feature_version: group_name: reserved_tokens: user_1
... user_N
where:

feature_name is for example, XXX.EW.COMPILER_STD.
feature_version is for example, 1.01.
```

group\_name is a name that identifies the group.

reserved\_tokens is the number of license users reserved for the group.

user\_1...user\_N is a list of user names or host IDs, separated by white space.

For example, this file will make the server hold two tokens exclusively for the users at the workstations PC-ADAM and PC-ADA, for the compiler and debugger features, while the user of PC-GUEST will be unable to use the specified features at all:

```
XXX.EW.COMPILER_STD,1.01:include_grp:2:$PC-ADAM $PC-ADA XXX.EW.COMPILER_STD,1.01:exclude_grp:0:$PC-GUEST XXX.EW.DEBUGGER_STD,1.01:include_grp:2:$PC-ADAM $PC-ADA XXX.EW.DEBUGGER_STD,1.01:exclude_grp:0:$PC-GUEST
```

Note that a license normally has a number of features. You can find the feature names and versions in the IAR License Manager. Double-click a product to open the **License Details** dialog box.

2 Save the file as, for example, C:\IARSystems\LicenseManagement\lreserv.txt.

**3** Use the LSRESERV environment variable to set the destination of the user group file.

For example: LSRESERV=C:\IARSystems\LicenseManagement\lreserv.txt

- 4 Restart the license server.
- **5** Using the license is now restricted according to your specification:
  - If the number of reserved tokens for the group is the same as the number of users allowed for the license, no one outside the group can use the license.
  - If the number of reserved tokens for the group is zero, no one in the group can use the license.

# Logging license server activities

You can activate logging of a license server's activities. Typically, this is useful for monitoring which users are using which licenses and how much.

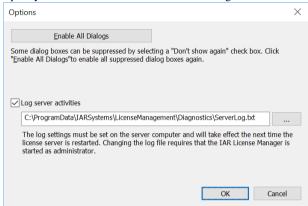
These tasks are described:

- Enabling the logging, page 41
- Specifying the size of the log files, page 41
- Backing up the log files, page 41
- Disable backing up log files, page 42

• The log file format, page 42

#### **ENABLING THE LOGGING**

To enable logging, choose **Tools>Options** and enable the option **Log server activities**. Specify the filename and the location of the log file.



You must make these settings on the server computer and they will take effect the next time the license server Windows service is restarted. To modify these settings, you must start the IAR License Manager as an administrator.

Alternatively, to enable logging, set this environment variable on the license server computer: LSERVOPTS=-1 path\_to\_log\_file

For example: LSERVOPTS=-1 C:\ServerLog\logfile.txt

You must restart the license server Windows service for the changes to take effect.

**Note:** If the environment variable is set globally (for example in Windows system properties), it might affect other products.

#### SPECIFYING THE SIZE OF THE LOG FILES

Use the -z option to specify the maximum size of the log file. The size can be specified in bytes, for example -z 2000 for 2000 bytes, in kilobytes, for example -z 2k for two kilobytes, or in megabytes, for example -z 2m for two megabytes.

For example: LSERVOPTS=-z 2m -1 C:\ServerLog\serverlog.txt

#### **BACKING UP THE LOG FILES**

If the maximum size of the file is reached, as specified by the -z option, the license server copies (renames) the original log file to a backup file, which has the same name

but with two numeric digits appended to its name. The logging continues in the file with the original name.

#### Assume this example:

The administrator has specified the maximum size of the log files as 2 Mbytes. When the size reaches 2 Mbytes, the license server adds a suffix at the end of the log files. For example: serverlog.txt.00, serverlog.txt.01, serverlog.txt.02 up until serverlog.txt.99. Once this limit is reached, the license server starts generating the backup files using the same log file name series starting from 00, which means the old log files will be overwritten. If you need more log files, you must write your own script which will back up the first 100 log files to another location (storing the content), which means it is no longer a problem when the first log files are overwritten.

#### **DISABLE BACKING UP LOG FILES**

To disable the automatic backing up of log files, add the -x option to the LSERVOPTS environment variable on the license server computer.

#### THE LOG FILE FORMAT

The log information is recorded in the log file, one entry per line in this format:

Element	Description
Server-LFE	Customer-defined log file encryption level as specified by the license server -lfe option.
License-LFE	Vendor-defined log file encryption level. If this is non-zero, this element overrides Server–LFE.
Checksum	A checksum for the entry.
Date	The date the entry was created, in the format: Day-of-week Month Day Time (hh:mm:ss) Year, for example Wed Jan 10 08:40:46 2018.
Time-stamp	The timestamp of the entry.
Feature	The name of the feature.
Ver	The version of the feature.

Table 2: The log file elements

	Explicit entries:
	0 - A license is issued.
	1 - A license is denied.
	2 - The licensed application released the license token (when the
	release API is called)
	3 - A queued key is issued and the client is placed in a queue. When the
	license would be available (after other clients release any token), this
	client is allowed to get that license.
	4 - The queuing request failed.
	5 - The queuing request succeeded. However, instead of obtaining a
	queued key, the client receives the normal key and is not placed in the
	queue.
	6 - A queued license is converted to an actual license. This happens
	when the client obtains the license that was released by some other
	client (and a queued client is allowed to call the VLSgetQueuedClient
	API to get the key). Thereafter, the client is removed from the queue.
	7 - A queued license key that was issued earlier is released because it
	could not be converted into an actual license key (non-queued key)
	after a certain time period.
	8 - A commuter license is checked out.
	9 - A commuter license is checked in.
	17 - Explicit request entry of a shared license token
	18 - Explicit release entry of a shared license token
	Implicit entries:
	10 - Implicit license release entry when the License Manager performs
	cleanup of in use keys before shutdown.
	11 - Implicit license release entry when the License Manager reclaims
	tokens after the key lifetime period has expired.
	12 - Implicit license release entry when any of the following
	transactions takes place:
	* License A is released at midnight when license switches to License B.
	*The license is released after actual revocation takes place for a deferred
	revocation case.
	* License A is released when License B is dynamically added.
able 2. The log file eleme	uta (Cautiunad)

Table 2: The log file elements (Continued)

Element

Trans

Description

The transaction type.

Element	Description
Trans (continued)	13 - Implicit license release entry when the usage log file is changed under any of the following scenarios:  * When the backup usage log file is created (in case of overflow), a license release entry in the backup log file.  * When the log file is changed by calling the usage log function VLSchangeUsageLogFileName, a license release entry in the previous log file  14 - Implicit license request entry under the scenarios when update calls are converted into request. For example:  * When clients are running and the heartbeat message is sent after the License Manager restart  * When heartbeat messages are sent after the key lifetime expiration 15 - Implicit license request entry under any of the following scenarios  * When the backup usage log file is created (in case of overflow), a license request entry in the new log file.  * When the log file is changed by calling the usage log function VLSchangeUsageLogFileName, a license request entry in the new log file.  16 - Implicit release entries in the usage log file of the follower server, when the original leader comes back after going down (in the case of redundant License Manager setup).
Numkeys	The number of licenses in use after the current request/release. (Encrypted if encryption level is set to 3 or 4.)
Keylife	How long, in seconds, the license was used. Only applicable in a license release entry.
User	The user name of the application associated with the entry.  This element can be logged anonymously if the anonymous logging option is set.  If the License Manager is not started with the extended log option,  LM_SERVER appears as the user name.  If the License Manager is started with the extended log option, the actual user name appears in the user name field of each dummy record If clients are connected to the License Manager when the backup file is created, dummy records are created only for in-use license tokens in the backup file (and not for the tokens whose key lifetime has expired). Correspondingly, their dummy records are created in the new file. the dummy entries are differentiated from the rest of the entries by specific transaction IDs (13 and 15).
Host	The host name of the application associated with the entry.  This element can be logged anonymously if the anonymous logging option is set.

Table 2: The log file elements (Continued)

Element	Description
LSver	The version of the Sentinel RMS Development Kit license server.
Currency	The number of licenses handled during the transaction. (Encrypted if the encryption level is set to $3$ or $4$ .)
Comment	The text passed by the license application.  This element can be logged anonymously if these conditions are met:  * Anonymization of comments is allowed in the licensed application.  * The system administrator has set the License Manager anonymous logging option.  Further, the comment can be fully or partially anonymized depending on the vendor's implementation.
Queue key ID	If license queuing is enabled, this value denotes the queue ID—a unique identifier of the queued key. Otherwise, it contains a hyphen as in the example below.
Absolute position	If license queuing is enabled, this value denotes position of the queued client in the queue. Otherwise, it contains a hyphen as in the example below.
Group position	If the system administrator has created a group reservation file and license queuing is enabled, this value denotes the position of the queued client in its group. Otherwise, it contains a hyphen as in the example below.
Group name	If the system administrator has created a group reservation file and the queued key is granted from the reserved group, (as specified in the reservation file) the group name will appear. Otherwise, it contains a hyphen as in the example below.
Queue length	If license queuing is enabled, this value denotes the queue length—the total number of clients existing in the queue at that particular time.  Otherwise, it contains a hyphen as in the example below.
Capacity flag	<ul><li>0 - Capacity licensing is not used.</li><li>1 - Capacity licensing is used.</li></ul>
License capacity	If capacity licensing is used, this field contains the license capacity.  Otherwise, it contains a hyphen as in the example below.
Team capacity	If capacity licensing is used, this field contains the team capacity.  Otherwise, it contains a hyphen as in the example below.
User capacity	If capacity licensing is used, this field contains the user capacity.  Otherwise, it contains a hyphen as in the example below.
Record number	Encrypted record number

Table 2: The log file elements (Continued)

Element	Description
Client ID	A 16-byte value that uniquely identifies each client request and is logged in the following transaction types: 0, 2, 10, 11, 12, 13, 14, 15, 16, 17, and 18. Using the client ID, each request log entry can be mapped with the corresponding release log entry.  Also note the following behavior:  * The client ID is shown in extended logs only. In plain logs, a hyphen will be logged instead of the client ID.  * The client ID will not be maintained for commuter and queued clients. In such cases, a hyphen will be logged instead of the client ID.  * For clients earlier than v8.5.5, the client ID in the case of transaction ID 14 will not be maintained, instead a fresh client ID will be assigned.
Readable checksum	Readable checksum of the record
Encrypted checksum	Encrypted cumulative checksum

Table 2: The log file elements (Continued)

#### A typical entry might appear as:

- # Startup Sentinel RMS License Manager v8.6.0.0036 Mon Aug 25 15:36:27 2014 1408961183 Machinel 197 1708
- 2 1 ODA= Mon Aug 25 15:36:27 2014 1408961187 f1 v1 0 1 0 JSmith Machine1 8.6.0.0036 1 request\_comment - - 0 - MA== 3724690 MTQxMjY4NTg3Nw==
- # Shutdown Sentinel RMS License Manager v8.6.0.0036 Mon Aug 2515:36:43 2014 1408961203 Machinel 1708 Mg== 522318

If the License Manager is started with extended log option, an entry in the log file might appear as:

- # # Startup Sentinel RMS License Manager v8.6.0.0036 Mon Aug 25 15:22:34 2014 140890354 Machinel 25 5976 v2.0 437875
- 2 1 ODA= Mon Aug 25 15:27:55 2014 1408960675 f1 v1 15 1 0 JSmith Machine1 8.6.0.0036 1 request\_comment - - 0 - 3fd76b2d23b445e5a1e253068b3f1 MA== 295147 NzMzMDI0

Shutdown Sentinel RMS License Manager v8.6.0.0036 Mon Aug 25 15:28:48 2014 1408960728 Machinel 5976 Ng== 642326 OTclMjUx

# Reference information on the IAR License Manager

This chapter describes how to use the IAR License Manager—a tool for managing your IAR Systems product licenses.

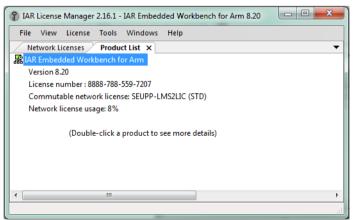
## Reference information

This section gives reference information about these windows and dialog boxes:

- IAR License Manager main window, page 47
- Available Renewals dialog box, page 51
- Check for License Renewals dialog box, page 52
- License Details dialog box, page 53
- Servers dialog box, page 55

# IAR License Manager main window

The IAR License Manager is available from the **Help** menu in your IAR Systems product. Alternatively, the IAR License Manager is also available from the Windows **Start** menu.



Use this window to manage your IAR Systems product licenses.

#### File menu

The menu contains this command:

**Exit** Exits the IAR License Manager.

#### View menu

The menu contains these commands:

**Refresh** Updates network license usage information, dongle status,

etc. This is automatically done every 15 seconds.

**Product List** Opens the **Product List** page in the display area, which lists

all installed products. Double-click a product in the list to display a dialog box where you can get detailed information about the licenses for that product, see *License Details* 

dialog box, page 53.

Network Licenses Opens the Network Licenses page in the display area,

which lists all available network licenses.

Network License Users Opens the Network License Users page in the display area,

which lists all users on the local network using network

licenses.

**Dongle List** Displays a dialog box where all connected dongles are

listed.

#### License menu

The menu contains these commands:

Activate License Starts the License Wizard to activate a license using a

license number.

**Use Network License** Starts the License Wizard to start using a network license

from a license server.

**Get Evaluation License** Starts the License Wizard to get an evaluation license.

License Details Displays the License Details dialog box, see *License* 

Details dialog box, page 53.

Servers Displays the Servers dialog box which lists all

automatically identified servers and manually added

servers. See Servers dialog box, page 55.

Check for License Displays the Check for License Renewals dialog box, see

**Renewal** Check for License Renewals dialog box, page 52.

**License Transfer** Displays the **License Transfer** dialog box where you can

select a PC-locked license that you want to transfer to another computer. Note that this command can only be

performed a limited number of times per year.

Offline Activation Starts a wizard for activating your license when your

license server cannot access the internet.

For more information, see Activating your license while

offline, page 28.

Offline License Transfer Displays a dialog box where you can choose to deactivate

your license even if your computer is not connected to the internet. Typically, you do this if you want to transfer your

license to another computer.

For more information, see Transferring your license to

another computer while offline, page 33.

#### Tools menu

The menu contains these commands:

**Options** Displays the **Options** dialog box, where you can re-enable

all previously suppressed dialog boxes.

Extract Optional

**Packages** 

Extracts source code libraries that were delivered with your

product.

#### Windows menu

The menu contains this command:

Closes the currently selected page in the display area of the

IAR License Manager main window.

#### Help menu

The menu contains these commands:

Collect Diagnostic Information

Displays the **Collect Diagnostic Information** dialog box and starts collecting diagnostic information. The progress is displayed in the dialog box. When finished, click **Explore Results** to view the information. Typically, this information can be useful if you contact IAR support.

Installation and Licensing Quick Reference Opens the Installation and Licensing Quick Reference

booklet as a PDF.

**Licensing Guide** 

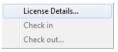
Opens the *Licensing Guide* as a PDF.

About

Displays information about the IAR License Manager.

#### Context menu (product list)

This context menu is available on the **Product List** page:



These commands are available:

**License Details** Displays the **License Details** dialog box, see *License* 

Details dialog box, page 53.

Check in Checks in a network license which you previously have

checked out with commuter authorization.

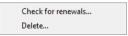
**Check out** Checks out a network license with commuter authorization

which means you can use it as a PC-locked license for a

limited time.

#### Context menu (network licenses)

This context menu is available on the **Network License** page:



This command is available:

Check for renewals Displays the Check for License Renewals dialog box. see

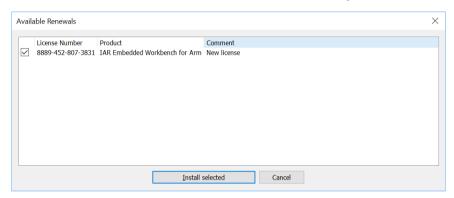
Check for License Renewals dialog box, page 52.

Delete Deletes the selected network license from the server. This

can only be performed on the license server computer.

## Available Renewals dialog box

The Available Renewals dialog box is displayed when the Check selected licenses button has been clicked in the Check for License Renewals dialog box.



This dialog box lists any new versions available for the licenses selected in the Check for License Renewals dialog box.

The IAR License Manager contacts IAR Systems to check whether the local licenses are up to date. If there are any new versions available, you will get the opportunity to renew them.

See also Renewing a network license, page 35.

#### Display area

Lists licenses in these columns:

Checkbox Select the license you want to renew.

License Number The license number for the product.

The name of the product. Comment Information about the license.

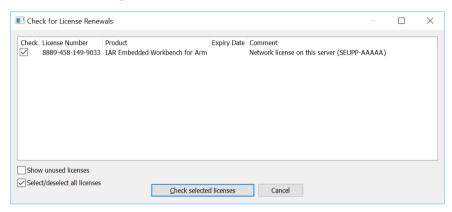
**Buttons** 

**Product** 

Install selected Installs the selected license.

# Check for License Renewals dialog box

The Check for License Renewals dialog box is available from the View menu in the IAR License Manager.



This dialog box lists the currently used license for each installed IAR Systems product on the local machine, and the installed licenses on the local license server (if any).

See also Renewing a network license, page 35.

#### Display area

Lists licenses in these columns:

Check	Select the license for which you want to check for new licenses and click <b>Check selected licenses</b> . The <b>Available Renewals</b> dialog box is displayed if there are any new licenses.
License Number	The license number for the product.
Product	The name of the product.
<b>Expiry Date</b>	The date for the license expiration.
Comment	Information about the license.

#### **Show unused licenses**

Lists also unused licenses, in other words, licenses that are not currently selected for use. Selecting **Show unused licenses** also lists network licenses that have been installed and then deleted.

Typically, this option can be useful if you are using a temporary license that you have received from IAR Systems support. When you receive an update, you must select this option before you can select your ordinary license for renewal.

#### Select/deselect all licenses

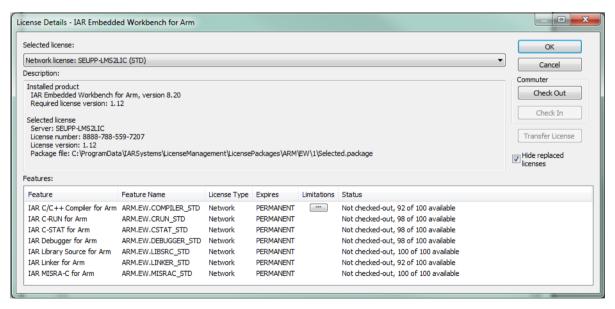
Selects or deselects all licenses listed in the display area.

#### **Buttons**

Check selected licenses Checks whether there are any new licenses available for the licenses selected in the Check column.

### License Details dialog box

The License Details dialog box is displayed when you double-click on a selected product in the Product List in the IAR License Manager.



Use this dialog box to choose between available licenses and to get detailed information about the selected license.

#### Selected license

Lists all licenses that you have activated for this product and available network licenses. Select the license that you want to use.

#### **Description**

Lists detailed information for the selected license.

#### **Features**

Displays all licensable features in the product and their license status in these columns:

Feature The name of the feature

Feature name The internal feature name.

**License Type** The license type.

**Expires** Can be either:

The expiration date, for time-limited licenses

Permanent, for permanent licenses.

**Limitations** Limitations in, for example, time or size.

**Status** The status of the license; either OK or an error message.

#### **Buttons**

These buttons are available:

Check Out Checks out a network license with commuter authorization

which means you can use it as a PC-locked license for a limited

time.

**Check In** Checks in a network license which you previously have

checked out with commuter authorization.

**Transfer License** Deactivates the selected license, which means that you can

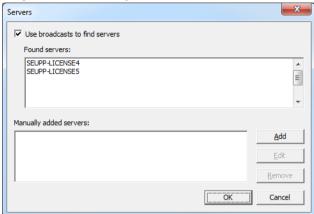
activate it on another computer. Note that this command can only be performed a limited number of times per year.

#### Hide replaced licenses

Hides replaced licenses. A license is replaced when you renew your licenses, for example when you replace the startup license with the permanent license or when you activated a later version. Note that the replaced licenses are still available.

# Servers dialog box





Use this dialog box to manually point out license servers that the IAR License Server for some reason does not automatically detect.

Note that manually added non-existing servers will seriously increase response times in the IAR License Manager.

#### Use broadcasts to find servers

Enables broadcasts to find servers automatically on a subnet. If you disable this option, you must manually add the servers that you want to use. All references to automatically found servers will be removed.

#### Found servers

Lists automatically detected license servers.

#### Manually added servers

Lists manually added license servers.

#### **Buttons**

These buttons are available:

Add Adds a license server to the list. Click Add and type the name

or IP number of the license server that you want to add.

**Edit** Edits the name of an already added license server. Select a

license server and click **Edit** to edit the license server.

Remove

Removes an already added license server. Select a license server and click **Remove** to remove the license server.

# Licensing concepts

This chapter lists terms related to licensing.

#### Commuter authorization

A network license that you can check out from the server and use as a PC-locked license for a limited time.

#### **Entitlement**

The features your license entitles you to. In other words, the features that will be enabled and the period they can be used for.

#### **Evaluation license**

A free license that is limited in time or in function. For a time-limited evaluation license, the same product version can only be evaluated once on a specific computer.

#### **Feature**

A feature in the installed software that is enabled or disabled depending on the entitlement in your license. There is a license key for each feature.

#### License activation

The procedure to get the license keys from IAR Systems.

#### License key

A string that contains information that allows the license to verify your entitlements.

#### License number

A unique identifier of a license, which is used in the license activation and in contact with IAR Systems support.

#### License package

License keys and license information stored in a file. A license package is created on your computer when you activate a license.

#### License registration

All licenses must be registered with IAR Systems. During registration, contact information about the license owner is collected, most notably the email address. At the end of the registration process an email is sent to the registered address to verify that it is correct.

#### License server

A PC with the IAR License Server installed.

#### License transfer

Deactivating a license and returning it to IAR Systems, to be able to reactivate it on another computer.

#### Mobile license

A single-user license that is locked to a dongle, and thus can be used on any computer where the product is installed when the dongle is connected.

#### **Network license**

A multi-user license that is located on a license server computer. This license can be used by any computer on the local network.

#### Offline activation

License activation requires the IAR License Manager to connect to IAR Systems over the internet. If that is not possible, there is a backup routine called *Offline activation*.

#### **PC-locked license**

A single-user license that is locked to the computer hardware and can be used on this computer only.

#### Permanent license

A license without a time limit.

#### **Product**

The product is what you have bought from IAR Systems. In addition to the software you have installed, the documentation, and optionally a dongle, it is a license package that entitles you to use a number of the features in the software.

#### Startup license

A time-limited license that you get immediately when you activate your newly purchased product.

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