



# User-based Licensing

Version 1.1

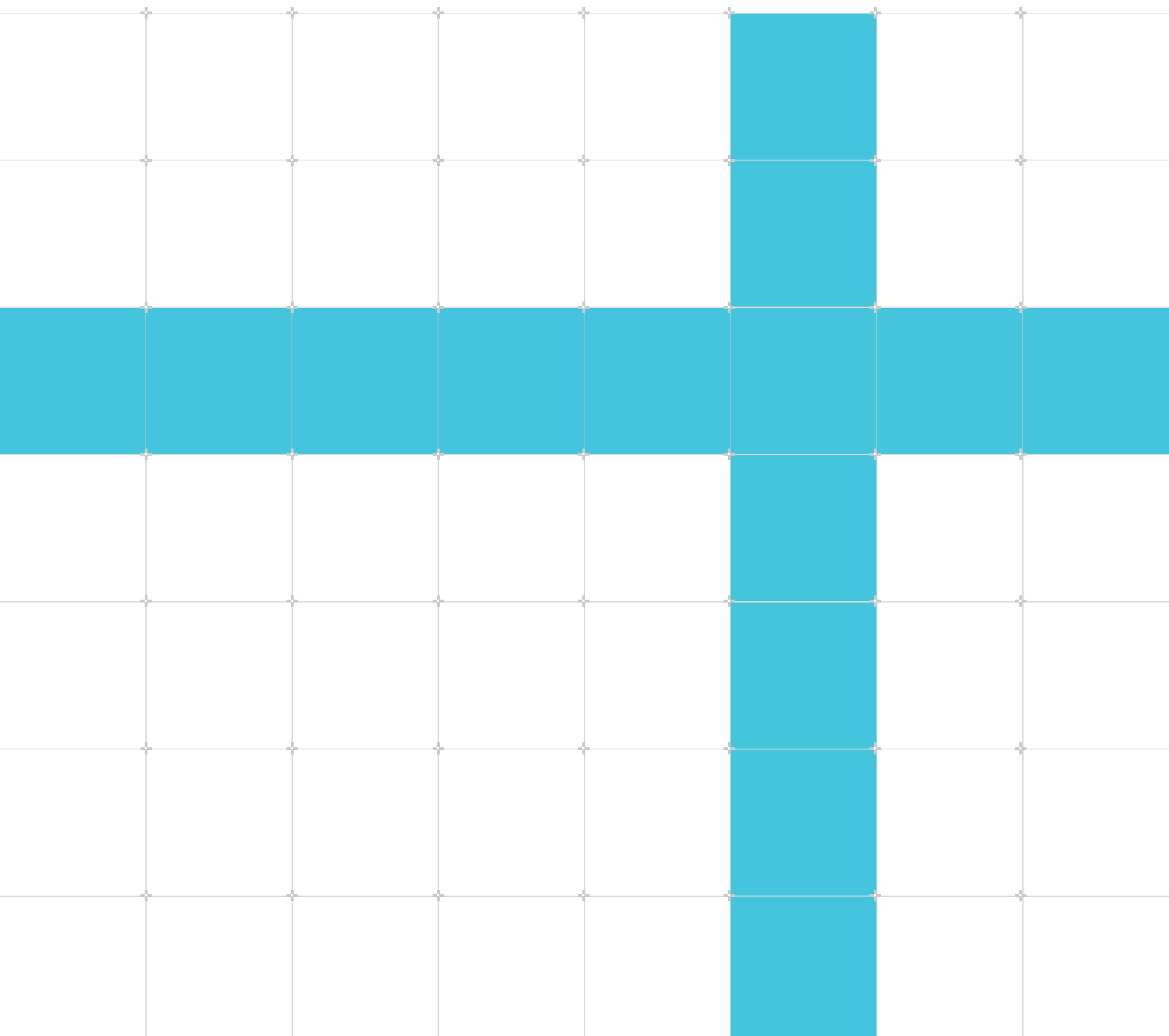
## User Guide

### Non-Confidential

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## User-based Licensing User Guide

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The information in this document is Final, that is for a developed product.

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To provide feedback on the document, fill the following survey: <https://developer.arm.com/documentation-feedback-survey>.

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# 1. Introduction

User-based licensing binds the entitlement to use an Arm product to the user. This binding allows a single user license to be used by that user for the same product on multiple devices.

## 1.1 Conventions

The following subsections describe conventions used in Arm documents.




### Glossary




The Arm Glossary is a list of terms used in Arm documentation, together with definitions for those terms. The Arm Glossary does not contain terms that are industry standard unless the Arm meaning differs from the generally accepted meaning.

See the Arm® Glossary for more information: [developer.arm.com/glossary](https://developer.arm.com/glossary).

### Typographic conventions

Arm documentation uses typographical conventions to convey specific meaning.

Convention	Use
<i>italic</i>	Citations.
<b>bold</b>	Interface elements, such as menu names.  Terms in descriptive lists, where appropriate.
monospace	Text that you can enter at the keyboard, such as commands, file and program names, and source code.
monospace <u>underline</u>	A permitted abbreviation for a command or option. You can enter the underlined text instead of the full command or option name.
<and>	Encloses replaceable terms for assembler syntax where they appear in code or code fragments.  For example:  <pre>MRC p15, 0, &lt;Rd&gt;, &lt;CRn&gt;, &lt;CRm&gt;, &lt;Opcode_2&gt;</pre>
<b>SMALL CAPITALS</b>	Terms that have specific technical meanings as defined in the <i>Arm® Glossary</i> . For example, <b>IMPLEMENTATION DEFINED</b> , <b>IMPLEMENTATION SPECIFIC</b> , <b>UNKNOWN</b> , and <b>UNPREDICTABLE</b> .
 Caution	Recommendations. Not following these recommendations might lead to system failure or damage.
 Warning	Requirements for the system. Not following these requirements might result in system failure or damage.
 Danger	Requirements for the system. Not following these requirements will result in system failure or damage.

Convention	Use
 Note	An important piece of information that needs your attention.
 Tip	A useful tip that might make it easier, better or faster to perform a task.
 Remember	A reminder of something important that relates to the information you are reading.

## 1.2 Useful resources

This document contains information that is specific to this product. See the following resources for other useful information.

Access to Arm documents depends on their confidentiality:

- Non-Confidential documents are available at [developer.arm.com/documentation](https://developer.arm.com/documentation). Each document link in the following tables goes to the online version of the document.
- Confidential documents are available to licensees only through the product package.

Arm product resources	Document ID	Confidentiality
<a href="#">User-based Licensing License Server Administration Guide</a>	107573	Non-Confidential

## 1.3 Other information

See the Arm website for other relevant information.

- [Arm® Developer](#).
- [Arm® Documentation](#).
- [Technical Support](#).
- [Arm® Glossary](#).

## 2. User-based licensing overview

User-based licensing binds the entitlement to use an Arm product to the user. A user is entitled to use an Arm product license with no limits on concurrent usage, including using the same product on multiple devices. For example, you could use a single license with a service account to automatically build and test your products with Arm development tool on any number of devices.

You can get a license using one of the following methods:

- Entering an activation code
- Accessing a license server managed by a local administrator



This approach is different from the previous Arm licensing models; node-locked and floating licensing.

---

### 2.1 Backwards compatibility

User-based licensing does not apply to Arm development tools released before 2022.

User-based licensing is to be gradually adopted in releases from 2022. This is in addition to existing node-locked and floating licensing implementations.

### 2.2 Interoperability with previous software licensing implementations

You can use a combination of Arm development tools with user-based and other pre-existing licensing implementations, on the same device or the same network.

Arm development tools that implement user-based licensing automatically choose user-based licensing over other technologies, as long as a valid user-based license is found. Otherwise, Arm development tools use pre-existing licensing implementations.

### 2.3 License lifecycle for user-based licensing

Configuring and using Arm development tools that implement user-based licensing are split into the phases activation, use, and deactivation.

The details of these phases are:



1. Product activation. Configures licensing for a specific Arm product and user, on a device. Activating a product creates a license in the local license cache for the device. This cached license is valid for seven days. For more details see:
  - [Activate your product using a license server](#)
  - [Activate your product using an activation code](#)
  - [Activate a license on multiple devices](#)
  - [Activate your product if your device is offline](#)
2. Product use. When your Arm development tool runs, it checks your entitlement to use the product by connecting to the license server or activation code URL. If the development tool cannot connect to the license server or activation code URL, the cached license in the device local license cache is used. As long as the cached license remains valid, unmet network requirements are not reported.

Each day your development tool runs, the development tool automatically attempts to renew the cached license for another seven days.

3. Product deactivation. Removes the entitlement of a user to use an Arm product on a device. For more details, see [Deactivate your product license](#).

## 2.4 Network requirements for user-based licensing

Describes the network requirements for Arm user-based licensing.

The phase of the license [lifecycle](#) require network access:

- Product activation requires network access to enable delivery of a license to the device local license cache
- Product use requires network access at least once every seven days to renew the license
- Product deactivation does not require network access, as the product is only deactivated locally

The network access required depends on the type of licensing used; activation code or license server.



Users can work completely offline when using user-based licensing. For more details see [../activate-license/activate-license-offline](#).

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### Network requirements for license server

Users require access to the user-based licensing license server set up by your local administrator.

### Network requirements for activation codes

A user device requires access to the following URLs:

- <https://api.arm.com/p-software-licensing>

- <https://arm.compliance.flexnetoperations.eu/instances>

A simple way to check whether you have access to these resources is to copy and paste these URLs into the address field of your web browser:

- A successful test returns a 404 `Not Found` error, which means the end-point responded.
- A failed test returns a non-404 error, such as, connection timeout, server unreachable, and so on. If this happens, check to see if a firewall is preventing access to these websites.

## 2.5 User-based licensing terminology

Describes the terms used in Arm user-based licensing documentation.

The following terms are used in user-based licensing documentation:

### Activation

The act of fulfilling an entitlement for a specific user. When an Arm product is activated in an Arm development tool, a license to use the tool is activated.

### Activation code

Sequence of letters and digits, formatted as a Universally Unique Identifier (UUID), which represents a seat of a product entitlement for a specific end-user or service account.



Licenses can also be activated using a license server.

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### Development tool

An Arm software tool that requires a user license.

### Cached license

The license information stored in the local license cache. This license is valid for seven days but is extended when your Arm product successfully connects to the license server or activation code URL.

### Device

Generic term for all computing devices capable of running Arm development tools. A device can be a workstation, a virtual machine, a server, or a mobile device such as a phone or a tablet.

### End-user

A person interacting with the Arm development tool.

### Floating

A license that is held centrally and handed out on-demand, checked out, to clients. The license is checked out for the duration that a license-managed feature is in use, and ends with the license being checked back in. A floating license is locked to a license server that serves the license to clients. This model is referred to as a concurrent licensing model,

because it enforces maximum concurrent use. Unless the license is borrowed or cached, the client must maintain a network connection with the license server for the entire duration that the license-managed feature is in use.

## License

Output of an activation, representing an entitlement for a user. A license is also referred to as a certificate. A license is typically stored on the local file system of the device used when activating your Arm development tool.

## License server

A local server used to activate licenses.



You can also activate a license with an activation code.

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## Node-locked

A license that is locked to the device where the license-managed development tool runs. This model is referred to as a device-based licensing model.

## Product

An Arm product entitlement defining the Arm development tools a user is entitled to use. A product allows the user to use one or many Arm development tools.

## Seat

An abstract term for counting the number of licenses that are available or purchased. Under the user-based licensing model, there is exactly one seat for each user, regardless of the number of devices on which your Arm development tool is installed or run.

## Service account

The operating system account that coordinates the automated use of development tools.

## User

A generic term used to identify the entity interacting with the Arm development tool; can be an end-user or service account.

## Username

The name identifying an account on an operating system. The username is associated with the operating system processes running the Arm development tool.

## 3. Activate and deactivate your product license

To enable your Arm development tools to work with your user-based product entitlement, you must activate your product by connecting to a license server or using an activation code. You can also activate your license on a device that cannot access the Internet.



- You can activate a product on multiple devices using the same username and, if used, the same activation code.
- Your license agreement does not permit the sharing of the same username by more than one user.

### 3.1 Activate your product using a license server

You can activate your product using a local license server.

#### Procedure

1. Obtain the license server URL and the Arm product code from your license server administrator.



The server URL must only contain the server base. For example, `https://myserver:port` is a valid server URL but `https://myserver:port/api/1.0/instance/~` is not valid.

2. Activate your product using one of the following methods:
  - From the command line:
    - a. Change directory to the directory containing the `armlm` command-line utility. For example, the `bin` directory in the Arm development tool installation location.
    - b. Activate your product using the following command:

```
armlm activate --server <server_URL> --product <product_code>
```

Where:
      - `<server_URL>` is the license server URL
      - `<product_code>` is the product code for the required product
  - Use the Arm License Management Utility:
    - a. Open the License Management Utility using the instructions in the development tool documentation.
    - b. Select **License Server**.

- c. Enter the license server URL and click **Query**.
  - d. Select the product to activate from the drop-down list and then click **Activate**.
  - e. Click **Close** and apply the change in your development tool.
- Set the `ARMLM_ONDEMAND_ACTIVATION` environment variable to the following:

```
<product_code>@<server_URL>
```

Where `<product_code>` is the product code and `<server_URL>` is the URL to access the license server. For example, `HWSKT-STD0@https://license.serv.mycom.com`.



Note

Users can use the `ARMLM_ONDEMAND_ACTIVATION` environment variable to obtain a license from the license server. This method might not be suitable where a large number of parallel processes can make initial license requests, as the license server could time-out some of the requests.

## Results

After activation, the product license is bound to the username of the end-user or service account for a maximum of seven days. Any time you use an Arm development tool that supports user-based licensing on the same device, the software attempts to extend the license for the next seven days by contacting the license server. If your device cannot contact the license server, you can still use the product until the 7-day limit expires.

## Related information

[Activate a license on multiple devices](#) on page 15

[Activate your product if your device is offline](#) on page 14

## 3.2 Activate your product using an activation code

You can activate your product with an activation code.

### Procedure

1. Obtain the activation code from Arm or your license administrator. An activation code is a sequence of letters and digits that have the following pattern, where x represents any letter or digit:  
`xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxx`



Note

An activation code is not associated with any user or service account until its first use in the product activation process.

2. Activate your product using one of the following methods:
  - From the command line:

- a. Change directory to the directory containing the `armlm` command-line utility, for example the `bin` directory in the Arm development tool installation location.
- b. Activate your product using the following command:

```
armlm activate --code <activation_code>
```

- Use the Arm License Management Utility:
  - a. Open the License Management Utility using the instructions in the development tool documentation.
  - b. Select **Activation Code**.
  - c. Enter the activation code and click **Activate**.
  - d. Click **Close** and apply the change in your development tool.

## Results

After activation, the product license is bound to the username of the end-user or service account for a maximum of seven days. Any time you use an Arm development tool that supports user-based licensing on the same device, the software attempts to extend the license for the next seven days by contacting the activation code URLs (for details see [Network requirements for user-based licensing](#)). If your device cannot contact the activation code URLs, you can still use the product until the 7-day limit expires.



If you accidentally activated the license with an incorrect username, contact your license administrator to revoke the activation code and generate a new one.

---

## Related information

[Activate a license on multiple devices](#) on page 15

[Activate your product if your device is offline](#) on page 14

## 3.3 Activate your product if your device is offline

Your device might not be able to access the networks required for product activation. In this case, you can use this process to activate a product on an offline device.

### Before you begin

- Install your Arm development tool on your local device.
- Install an Arm development tool on another device that has the required networks access.

On this device, update the `PATH` environment variable to include the directory containing the `armlm` command-line utility. For example, this directory could be the `bin` directory in the Arm development tool installation location.

- When activating a product using a user-based licensing license server, the license server administrator must provide the license server URL and the Arm product code.
- When activating a product using a user-based licensing activation code, Arm or your license administrator must provide an activation code for each end-user and service account. An activation code is not associated with any user or service account until its first use in the product activation process.

## About this task

- You can activate a product on multiple devices with the same username and, if used, the same activation code.
- Your license agreement does not permit the sharing of the same username by more than one user.

For details of network requirements, see [Network requirements for user-based licensing](#).

## Procedure

1. From the command line on the device that meets the network requirements, use one of the following commands to create a file to transfer the license information:

- To create a file using a license server, run the following command:

```
armlm activate --server <server_URL> --product <product_code> --as-user  
<user_name> --to-file <transfer_filename>
```

- To create a file using an activation code, run the following command:

```
armlm activate --code <activation_code> --as-user <user_name> --to-file  
<transfer_filename>
```

Where:

- <server\_URL> is the license server URL
  - <product\_code> is the product code for the required product
  - <user\_name> is the name of the Arm product user on the offline device
  - <transfer\_filename> is any file name for the transfer file
2. Move the generated transfer file to the target device.
  3. To activate the product, run the `armlm import` command. The `--file` parameter is used to specify the transfer file. For example:  

```
C:\<development tool installation directory>\bin\armlm import --file  
<transfer_filename>
```

## Next steps

You must repeat this process every seven days, otherwise the product ceases to function.

## 3.4 Activate a license on multiple devices

Your license can be used on multiple devices using one of the following methods:

- On a new device, activate the license for an Arm development tool as usual.
- The Arm license details are stored in your local license cache. By default, your local license cache is in your home location under the `.armlm` directory. The following are typical default locations:
  - Windows: `C:\Users\<your username>\.armlm`
  - Linux: `/home/<your username>/.armlm`
  - macOS: `/Users/<your username>/.armlm`

Other devices using Arm development tools can use the cached license by, for example:

- Copying the `.armlm` directory to your home directory on a new device.
- Copying the `.armlm` directory to a network directory. On a new device, set the `ARMLM_CACHED_LICENSES_LOCATION` environment variable to the location of `.armlm` on the network drive.

### Related information

[Activate your product using a license server](#) on page 12

[Activate your product using an activation code](#) on page 13

[Activate your product if your device is offline](#) on page 14

## 3.5 Deactivate your product license

Deactivating a product removes the license for your Arm product from a device.

### About this task

There is no need to deactivate your product when using your Arm product on a different device, because the license is associated with the user and not the devices that the license is used on.

You may be required to deactivate your product to:

- Activate a different product with overlapping capabilities, for example when upgrading from an evaluation to a full product.
- Investigate license configuration issues.



Deactivating a license is an activity local to your device. It does not affect the reservation of the corresponding license seat on the license server.

---



## Procedure

Deactivate your product using one of the following methods:

- Use the Arm License Management Utility:
  1. Open the License Management Utility using the instructions in the development tool documentation.
  2. In the left-hand side of the Arm License Management Utility, select the license to deactivate.
  3. Click **Deactivate** and click **Yes** in the confirmation dialog box.
  4. Click **Close** and apply the change in your development tool.
- From the command line:
  1. Change directory to the directory containing the `armlm` command-line utility, for example the `bin` directory in the development tool installation location.
  2. Deactivate the license:
    - If using a license server:

```
armlm deactivate --product <product_code>
```

---



You can find your product code using the `armlm inspect` command.

---

- If using an activation code:

```
armlm deactivate --code <activation_code>
```

## 4. Diagnose licensing issues with user-based licensing error codes

Arm development tools enabled by user-based licensing might report errors. Each error related to user-based licensing has a corresponding unique error code as described in the following sections.

Error codes allow you to troubleshoot a problem with your license. Using the various error codes and their descriptions, you can quickly determine a solution for your licensing problem.



When contacting Arm support, include the output of `armlm inspect` from your console.

---

### 4.1 100 - No license found

A license for your Arm development tool was not found in the local license cache.

To resolve this problem, activate your product using the information that was sent to you by your license administrator.

#### Related information

[Activate and deactivate your product license](#) on page 12

### 4.2 101 - Product activation conflict

A product activation conflict was detected during a license renewal. This problem is caused by Arm updating the license definitions and the update causing a conflict with older licenses in your local license cache.

To resolve this problem:

1. Review your currently activated products using one of the following methods:
  - Open the Arm License Management Utility using the instructions in the development tool documentation.
  - Run the following from the command line:

```
armlm inspect
```



If you do not have the complete activation code, contact your license administrator.

---

2. Deactivate all products you do not currently use.
3. For each of the remaining products:
  - a. Make a note of the activation code or the license server and product code. If you do not have the complete activation code, contact your license administrator.
  - b. Deactivate and reactivate the products one at a time.
  - c. If a product reactivation fails, there is a conflict between the product you have tried to reactivate and another product. The error message specifies the conflicting product.

Deactivate and reactivate the conflicting product.

If the problem persists, contact your license administrator or log a support case on <https://services.arm.com/support/s/contactsupport>.

### Related information

[Activate and deactivate your product license](#) on page 12

## 4.3 200 - Expired cached license

Your local license cache could not be renewed and has expired. This problem happens when you have no network connection to the license server.

To resolve this problem, make sure that your device meets the network requirements and then restart your Arm development tool. For more information about the network requirements, see [Network requirements for user-based licensing](#).

If your device cannot meet the network requirements, you must activate your product using another networked device. For more details see [Activate your product if your device is offline](#).

## 4.4 201 - Support and maintenance contract expired

You cannot use this version of the Arm development tool because your support and maintenance entitlement has expired. Support and maintenance allows you to use the most recent version of the tool within the time period defined in the support and maintenance entitlement.

To resolve this problem, renew your support and maintenance contract through your usual sales channel. Alternatively, you can continue using an earlier version of the tool.

## 4.5 202 - Expired license

You can no longer use this Arm development tool because the associated license has expired.

To resolve this problem:

1. Renew your product entitlement through your usual sales channel.
2. After the renewal has been processed:
  - If the renewal uses the same product code:
    - a. Ensure you meet the network requirements. For more details see [Network requirements for user-based licensing](#).
    - b. Restart your development tool to refresh your local license cache.
  - If the renewal uses a different product code, activate the product. For more details see [Activate and deactivate your product license](#).

## 4.6 300 - Corrupted license

The license for your Arm development tool has been corrupted. This is caused either by hardware failures, or by modifications to the files in the local license cache.

To resolve this problem, reactivate your product:

1. Obtain the activation code or license server and product code for your development tool using one of the following methods:
  - Open the Arm License Management Utility using the instructions in the development tool documentation. Click your product to display the product details.
  - Run the following from the command line:

```
armlm inspect
```



If you do not have the complete activation code, contact your license administrator.

2. Deactivate and reactivate your product.

If reactivating your product does not solve the problem, contact your license administrator or log a support case on <https://services.arm.com/support/s/contactsupport>.

### Related information

[Activate and deactivate your product license](#) on page 12

## 4.7 301 - Corrupted local license cache

Your local license cache has been corrupted. This is caused by either hardware failures, or modifications to the files in the local license cache.

To resolve this error:

1. Obtain the activation codes or license server and product codes for all activated products using one of the following methods:

- Open the Arm License Management Utility using the instructions in the development tool documentation. Click on a product to display the product details.
- Run the following from the command line:

```
armlm inspect
```



If you do not have the complete activation code, contact your license administrator.

2. Find the location of your local license cache. By default, your local license cache is in the user home location under the `.armlm` directory. The following are typical default locations:

- Windows: `C:\Users\<your username>\.armlm`
- Linux: `/home/<your username>/.armlm`
- macOS: `/Users/<your username>/.armlm`



You might have overridden the default location by setting the `ARMLM_CACHED_LICENSES_LOCATION` environment variable.

3. Make a backup copy of the local license cache directory.
4. Delete the local license cache directory.
5. Deactivate and reactivate all Arm products.

If reactivating your products does not solve your issue, contact your license administrator or log a support case at <https://services.arm.com/support/s/contactsupport>. Include the backup copy of your local license cache directory in your request.

### Related information

[Activate and deactivate your product license](#) on page 12

## 4.8 400 - Unauthorized user

The user identifier associated with the runtime process of your Arm development tool does not match the information in the license.

This mismatch can happen for one of the following reasons:

- If you copied the local license cache from another user
- If you changed the default location of the local license cache to a directory populated with license information for another user

To resolve this error:

1. Obtain the activation codes or license server and product codes for all activated products using one of the following methods:
  - Open the Arm License Management Utility using the instructions in the development tool documentation. Click a product to display the product details.
  - Run the following from the command line:

```
armlm inspect
```



If you do not have the complete activation code, contact your license administrator.

2. Find the location of your local license cache. By default, your local license cache is in the user home location under the `.armlm` directory. The following are typical default locations:
  - Windows: `C:\Users\<your username>\.armlm`
  - Linux: `/home/<your username>/.armlm`
  - macOS: `/Users/<your username>/.armlm`



You might have overridden the default location by setting the `ARMLM_CACHED_LICENSES_LOCATION` environment variable.

3. Make a backup copy of the local license cache directory.
4. Delete the local license cache directory.
5. Deactivate and reactivate all Arm products.

If reactivating your products does not solve your issue, contact your license administrator or log a support case at <https://services.arm.com/support/s/contactsupport>. Include the backup copy of your local license cache directory in your request.

## Related information

[Activate and deactivate your product license](#) on page 12

## 4.9 500 - Unexpected error

Your Arm development tool has encountered an unexpected licensing error. Your license administrator or an Arm support representative needs to analyze this error.

Before you request help, create a backup copy of your local license cache directory. This directory contains diagnostic messages and logs useful to the analysis.

By default, local license cache directory is in the user home location under the `.armlm` directory. The following are typical default locations:

- Windows: `C:\Users\<your username>\.armlm`
- Linux: `/home/<your username>/.armlm`
- macOS: `/Users/<your username>/.armlm`



You might have overridden the default location by setting the `ARMLM_CACHED_LICENSES_LOCATION` environment variable.

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After you have created a backup copy of your local license cache directory, contact your license administrator or log a support case at <https://services.arm.com/support/s/contactsupport>. Include the backup copy of your local license cache directory in your request.

## 4.10 501 - Library communication error

Your Arm development tool has encountered an unexpected licensing library communication error.

To resolve this problem, re-install your Arm development tool.

If re-installing your tool does not resolve the problem:

1. Create a backup copy of your local license cache directory. This directory contains diagnostic messages and logs useful to the analysis.

By default, local license cache directory is in the user home location under the `.armlm` directory. The following are typical default locations:

- Windows: `C:\Users\<your username>\.armlm`
- Linux: `/home/<your username>/.armlm`
- macOS: `/Users/<your username>/.armlm`



You might have overridden the default location by setting the `ARMLM_CACHED_LICENSES_LOCATION` environment variable.

- 
2. Contact your license administrator or log a support case at <https://services.arm.com/support/s/contactsupport>. Include the backup copy of your local license cache directory in your request.