



User-based licensing

Version 1.0

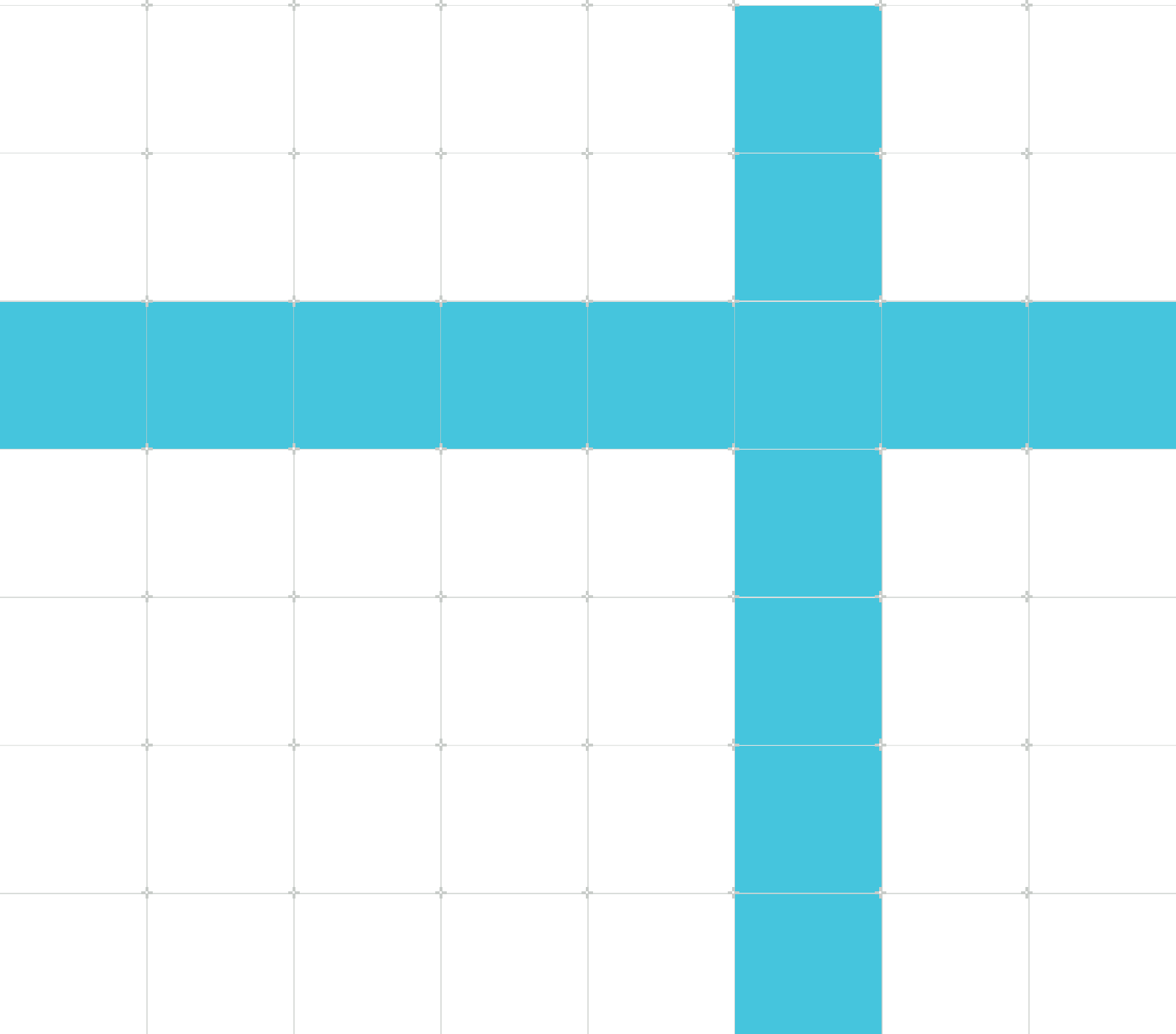
User Guide

Non-Confidential

Copyright © 2022 Arm Limited (or its affiliates).
All rights reserved.

Issue 00

102516_1.0_00_en



User-based licensing

User Guide

Copyright © 2022 Arm Limited (or its affiliates). All rights reserved.

Release information

Document history

Issue	Date	Confidentiality	Change
1.0-00	10 March 2022	Non-Confidential	New document for v1.0

Proprietary Notice

This document is protected by copyright and other related rights and the practice or implementation of the information contained in this document may be protected by one or more patents or pending patent applications. No part of this document may be reproduced in any form by any means without the express prior written permission of Arm. No license, express or implied, by estoppel or otherwise to any intellectual property rights is granted by this document unless specifically stated.

Your access to the information in this document is conditional upon your acceptance that you will not use or permit others to use the information for the purposes of determining whether implementations infringe any third party patents.

THIS DOCUMENT IS PROVIDED "AS IS". ARM PROVIDES NO REPRESENTATIONS AND NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, SATISFACTORY QUALITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE DOCUMENT. For the avoidance of doubt, Arm makes no representation with respect to, has undertaken no analysis to identify or understand the scope and content of, third party patents, copyrights, trade secrets, or other rights.

This document may include technical inaccuracies or typographical errors.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL ARM BE LIABLE FOR ANY DAMAGES, INCLUDING WITHOUT LIMITATION ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF ANY USE OF THIS DOCUMENT, EVEN IF ARM HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This document consists solely of commercial items. You shall be responsible for ensuring that any use, duplication or disclosure of this document complies fully with any relevant export laws

and regulations to assure that this document or any portion thereof is not exported, directly or indirectly, in violation of such export laws. Use of the word “partner” in reference to Arm’s customers is not intended to create or refer to any partnership relationship with any other company. Arm may make changes to this document at any time and without notice.

This document may be translated into other languages for convenience, and you agree that if there is any conflict between the English version of this document and any translation, the terms of the English version of the Agreement shall prevail.

The Arm corporate logo and words marked with ® or ™ are registered trademarks or trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. All rights reserved. Other brands and names mentioned in this document may be the trademarks of their respective owners. Please follow Arm’s trademark usage guidelines at <https://www.arm.com/company/policies/trademarks>.

Copyright © 2022 Arm Limited (or its affiliates). All rights reserved.

Arm Limited. Company 02557590 registered in England.

110 Fulbourn Road, Cambridge, England CB1 9NJ.

(LES-PRE-20349)

Confidentiality Status

This document is Non-Confidential. The right to use, copy and disclose this document may be subject to license restrictions in accordance with the terms of the agreement entered into by Arm and the party that Arm delivered this document to.

Unrestricted Access is an Arm internal classification.

Product Status

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

Feedback

Arm® welcomes feedback on this product and its documentation. To provide feedback on the product, create a ticket on <https://support.developer.arm.com>

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

Inclusive language commitment

Arm values inclusive communities. Arm recognizes that we and our industry have used language that can be offensive. Arm strives to lead the industry and create change.

We believe that this document contains no offensive language. To report offensive language in this document, email terms@arm.com.

Contents

List of Tables.....	6
1 Introduction.....	7
1.1 Conventions.....	7
1.2 Other information.....	8
2 User-based licensing overview.....	9
2.1 Backwards compatibility.....	9
2.2 Interoperability with previous software licensing implementations.....	9
2.3 Network requirements for user-based licensing.....	9
2.4 Activate your Arm software product.....	10
2.5 Deactivate your Arm software product.....	12
2.6 User-based licensing terminology.....	12
3 Diagnose licensing issues with user-based licensing error codes.....	14
3.1 100 - No license found.....	14
3.2 101 - Product activation conflict.....	14
3.3 200 - Expired cached license.....	15
3.4 201 - Support and maintenance contract expired.....	15
3.5 202 - Expired license.....	15
3.6 300 - Corrupted license.....	15
3.7 301 - Corrupted license storage.....	15
3.8 400 - Unauthorized user.....	16
3.9 500 - Unexpected error.....	16
3.10 501 - Library communication error.....	17

List of Tables

Table 2-1: Phases and network requirements..... 10

1 Introduction

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.

Typographic conventions

Arm documentation uses typographical conventions to convey specific meaning.

Convention	Use
<i>italic</i>	Citations.
bold	Interface elements, such as menu names. Signal 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 bold	Language keywords when used outside example 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, <Rd>, <CRn>, <CRm>, <Opcode_2></pre>
SMALL CAPITALS	Terms that have specific technical meanings as defined in the <i>Arm® Glossary</i> . For example, IMPLEMENTATION DEFINED , IMPLEMENTATION SPECIFIC , UNKNOWN , and UNPREDICTABLE .
 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 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 is a technological implementation of software license management for Arm software products that is additional to node-locked and floating licensing implementations. It follows a change in the way Arm software products are commercialized, and in particular, what a license seat represents. This approach is different from the previous node-locked and floating licensing models.

With user-based licensing, the entitlement to use Arm software products is bound to the end user. For an end user entitled to use an Arm software product, there are no imposed limits on concurrent uses of the license, which includes installation on multiple devices.

When Arm software products are run non-interactively, the entitlement is bound to the service account running the products. For example, when using an automated system to build and test your products with Arm software products.

2.1 Backwards compatibility

User-based licensing does not apply to Arm software products released before 2022. Releases from 2022 are going to gradually adopt user-based licensing, 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 software products with user-based and other pre-existing licensing implementations, on the same device or the same network.

Arm software products 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 software products use pre-existing licensing implementations.

2.3 Network requirements for user-based licensing

Configuring and using Arm software products that implement user-based licensing are split into three phases.

The phases are:

1. Product activation. Configures licensing for a specific Arm software product and end-user, on a device. Activating a product delivers a license to the device local storage that is valid for 30 days. This local storage allows your Arm software product to function without needing to meet

the network requirements for user-based licensing for the next 30 days. See [Activate your Arm software product](#) for more details.

2. Product use. When your Arm software product runs, it checks your entitlement to use the product. Also, each day your product runs, the product automatically attempts to renew the license held in the device local storage. The license in the local device storage is only renewed if it has expired and you meet the network requirements. If the cached license remains valid, unmet network requirements are not reported.
3. Product deactivation. Removes the entitlement to use your Arm software product on a device, for a specific end-user. See [Deactivate your Arm software product](#) for more details.

Each phase has different network requirements, as follows:

Table 2-1: Phases and network requirements

Phase	Network requirements
Product activation	<p>Requires access to https://api.arm.com/p-software-licensing and https://arm.compliance.flexnetoperations.eu/instances</p> <p>A simple way to check whether you have access to these resources is to copy and paste these URLs above into the address field of your web browser.</p> <p>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 timeouts, server unreachable, and so on.</p>
Product use	<p>A network connection is required at least once every 30 days, with the same network requirements as product activation. To work completely offline, see the Activating your Arm software product on a device which cannot meet the network requirements section in Activate your Arm software product.</p>
Product deactivation	None.

2.4 Activate your Arm software product

To enable your Arm software product to work with your user-based product entitlement, you must activate your product.

For each end-user and service account, Arm or your license administrator provides you with an activation code. 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-xxxxxxxxxxxxxx

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



- Activation codes are different from codes or serial numbers used by other licensing technologies.
- After activation, the license is bound to the username of the end-user or service account. The username is the identifier for the end-user or service account, which is an important consideration when you are activating for the same end-user or service account on multiple devices.
- Sharing the same username for more than one end-user is not permitted by your license agreement.
- If by error, you activated the license with an incorrect username, contact your license administrator to revoke the activation code and generate a new one.
- When activated, the license is assigned to the username for a maximum of 30 days.

As described in the [Network requirements for user-based licensing](#) section, after activation, you can use your Arm software product without meeting these requirements for a maximum of 30 days.

Activate your Arm software product from the command-line interface

Arm software products implementing user-based licensing contain a command-line utility named `armlm`. This utility is typically located with other executables for that product, for example in the `bin/` directory at the product installation location.

To activate, ensure that you meet the network requirements and run the following command:

```
armlm activate --code <your activation code>
```

Activate your Arm software product on multiple devices

Activating a product on multiple devices with the same activation code is permitted, if it is for the same end-user or service account. However, the username must be identical on all devices.

Activate your Arm software product on a device which cannot meet the network requirements

To activate your Arm software products installed on a device that cannot meet the [Network requirements for user-based licensing](#), do the following:

1. From a device that meets the network requirements, generate a transfer file using your activation code and the username of the device used to run the product:

```
armlm activate --code <your activation code> --as-user <username> --to-file <name of transfer file>
```

2. Move the generated transfer file on to the target device.
3. Activate the product using the transfer file instead of the activation code:

```
armlm import --file <name of the transfer file>
```

You must repeat this process every 30 days, otherwise the product ceases to function.

2.5 Deactivate your Arm software product

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

Deactivating is required when you want to activate a different product with overlapping capabilities, for example when upgrading from an evaluation to a full product. Deactivating might also be required to investigate license configuration issues.



- No additional seats are used when using the same activation code, with the same username, across multiple devices. So, for the same username, when moving to another device, you do not have to deactivate your product.
 - 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.
-

To deactivate, run the following command with your activation code:

```
armlm deactivate --code <your activation code>
```

Or, alternatively, use the product code:

```
armlm deactivate --product <your product code, as shown by the inspect command>
```

2.6 User-based licensing terminology

Arm user-based licensing documentation uses a range of terms. These are listed below.

Activation

The act of fulfilling an entitlement for a specific end-user or service account. The output of an activation is a license.

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.

Device

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

End-user

The person interacting with the Arm product software.

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 an end-user or service account. 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 software product.

Node-locked

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

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 end-user or service account, regardless of the number of devices on which your Arm software product is installed or run.

Service account

The operating system account that coordinates the automated use of the software.

Username

The name identifying an account on an operating system. The username is associated with the operating system processes running the software product.

3 Diagnose licensing issues with user-based licensing error codes

Arm software products 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 `arm1m inspect` from your console.

3.1 100 - No license found

License information for your application could not be found. License information for other products might also be present.

You must activate your product using the information that was sent to you.

If you did not receive the instructions, then contact your license administrator or support representative for information.

3.2 101 - Product activation conflict

Product activation conflict detected when renewing licenses in your local storage.

A license for another Arm software product with overlapping capabilities is present in the local storage. This overlap can happen when the license definition is updated by Arm and now conflicts with the product that you activated.

To resolve this error, contact your support representatives.

3.3 200 - Expired cached license

The cached license information expiry date for the license has elapsed and could not be refreshed from the license server. This error occurs when the network requirements are not met for the preceding 30 days.

To resolve this error, ensure that you meet the network requirements and restart your Arm-licensed product. If your device cannot meet the network requirements, see [Activating on a device which cannot meet the network requirements](#).

3.4 201 - Support and maintenance contract expired

You cannot use this specific version of the Arm software product because your support and maintenance entitlement has expired.

To resolve this error, renew your support and maintenance contract through your usual sales channel.

3.5 202 - Expired license

You can no longer use the Arm software product because the associated product entitlement has expired.

To resolve this error, renew your product entitlement through your usual sales channel.

3.6 300 - Corrupted license

The cached license information on your workstation is corrupted or has been tampered with.

This issue is caused when the licensing information that is cached on your workstation is corrupted. The licensing file can also be corrupted if unauthorized editing of the license file is attempted.

To resolve this issue, reactivate your product.

If reactivating your product does not solve your issue, then contact your license administrator or support representative.

3.7 301 - Corrupted license storage

Your local license storage is corrupted or has been tampered with.

To resolve this error:

1. Find the location of the local license storage directory. By default, it is in the `user` home location, under the `.arm1m` directory.



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

-
2. Make a backup copy of the local license storage directory.
 3. Delete the local license storage directory.
 4. Reactivate your Arm software product.

If reactivating your product does not solve your issue, then contact your support representative with the backup copy of your local license storage directory.

3.8 400 - Unauthorized user

The `username` associated with the runtime process of your Arm software product does not match the information in the cached license. This mismatch can happen if you copied the local license storage from another end user. It can also occur if you changed the default location by setting the `ARMLM_CACHED_LICENSES_LOCATION` environment variable to a directory populated with license information for another end-user.

To resolve this error:

1. Find the location of the local license storage directory. By default, it is in the `user` home location, under the `.arm1m/` directory.
2. Make a backup copy of the local license storage directory.
3. Delete the local license storage directory.
4. Reactivate your Arm software product.

3.9 500 - Unexpected error

Your application has encountered an unexpected error with licensing.

Diagnostic messages and logs accompanying this error can help you investigate the issue.

Contact your license administrator or support representative with any diagnostic message or log file.

3.10 501 - Library communication error

Your application has encountered a licensing library communication error.

Reinstall your application to resolve this issue.

If you still have issues, contact your license administrator or support representative for help with this error.