arm

User-based Licensing

Version 1.3

User Guide

User-based Licensing User Guide

Start reading

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Intended audience

This document is intended for Arm development tool users to provide information on how you can license your Arm development tools.

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.

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.

Contents

1. 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 tools 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

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Note

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

1.1 Backwards compatibility

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

The following table lists the Arm development tool versions that initially supported user-based licensing:

Table 1-1: First Arm development tool versions that support user-based licensing

Arm Development Tool	First version that supports user-based licensing
Arm® Compiler for Embedded	6.18
Arm Compiler for Embedded FuSa	6.16.2
Arm Development Studio (Gold version)	2022.0
Arm Development Studio (Platinum version)	2022.a
Keil® MDK	5.37
Arm Fast Models	11.17.1
Arm® Socrates™	1.7.0
Arm Performance Model Library	1.2
AMBA® Viz	1.1.25

Licensing older Keil software

The following Keil products do not support user-based licensing but can be licensed with a user-generated node-locked license:

- MDK 5.36 and earlier

- PK51

- PK166

- DK251

Note

- The node-locked license can only be generated when the user of the older Keil software has a current user-based licensing product that includes Keil MDK Professional.

- A node-locked license must be generated and activated on each user device that uses the older Keil software. The same user-based licensing license can be used to generate node-locked licenses on multiple devices for a single user.

- Node-locked licenses have the same expiry date as your product entitlement. The expiry date is shown in the output when you generate a node-locked license.

- For an overview of how to generate a node-locked license, watch the Enabling Legacy Editions of Keil MDK video tutorial (2:22 minutes).

To generate a node-locked license:

1. Download the latest Arm licensing utilities to the device where you want to run the Keil software. For more details see Activate a license without installing tools.

2. Activate a license for an Arm user-based licensing product containing Keil MDK Professional on the device. You can use an installed Arm development tool or the latest Arm licensing utilities to activate the license.

3. From the command line, change directory to the directory containing the latest Arm licensing utilities.

4. Change directory to the `bin` directory.

5. Run the following command to generate node-locked licenses:

```
armlm genlic
```

The output from this command provides node-locked license codes for the appropriate Keil software. For example:

```
Detected user-based license for Hardware Success Kit (Early Access), Order ID:
 0009132634, License expiry: April 21, 2024

Computer ID (CID): CDQC9-4QYA1
License ID Codes (LIC):
  - For Keil MDK:     8MZ70-VT1M1-F270K-C7TX3-3FT8N-5EIHB
  - For Keil PK51:    WH72V-8FI8T-28FU5-UUG9Y-EABNS-K9D06
  - For Keil PK166:   SDETC-RPZW7-KYI1H-962WS-BNS98-D5AQJ
  - For Keil DK251:   8DIGR-E2G7R-WQYEI-6FVVA-X9RMT-7LG15

Should you contact Support, please provide information regarding your user-based
 license, as the LIC is not linked to a registered Keil Product Serial Number
 (PSN).

The generated LICs were saved into file C:\Users\allusr01\.armlm\logs
\2024-03-26_11-05-32_16076.log
```

1.2 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.

1.3 License lifecycle for user-based licensing

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

The details of these phases are:

Activation phase

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 7 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.

For devices that do not have the required network access, you can use Proxy activation. This type of activation can also be used to quickly active licenses on multiple machines, for example, in *Continuous Integration* (CI) cloud environments.

Usage phase

When your Arm development tool runs, it checks the cached license in the device local license cache to make sure you are entitled to use the product.

Each day your development tool runs, the development tool automatically makes one attempt to renew the cached license for another 7 days by connecting to the license server or activation code URL. If the cached license cannot be renewed for 7 days, it becomes invalid. Unmet network requirements are only reported if the cached license becomes invalid.

Note

For license server licenses, if you do not use your development tool for 7 days, your license becomes available to other license server users. If all licenses on the license server are activated by other users, you cannot renew your cached license. As a result, you will be unable to use your development tools on any devices.

Deactivation phase

You can remove the entitlement of a user to use an Arm product on a device. For more details, see Deactivate and reactivate a product license.

1.4 Network requirements for user-based licensing

Describes the network requirements for Arm user-based licensing.

Two phases 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 usage requires network access at least once every 7 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.

Note

Users can work completely offline when using user-based licensing. For more details, see Proxy activation.

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

Note

The following information about the URLs could help when configuring your firewall to allow access:

- Protocol: HTTP with SSL.

- TCP port: 443.

- Hostnames: api.arm.com and arm.compliance.flexnetoperations.eu. The use of IP addresses is not recommended because the IP addresses of the URLs are not static.

You can check if you have access to each URL by using one of the following methods:

- Using a web browser on your system, copy and paste these URLs into the address field of your web browser.

- Using another tool that can access a URL. For example, `curl` can check URLs as follows:

   - For the https://api.arm.com/p-software-licensing URL:

   ```
   curl https://api.arm.com/p-software-licensing/v1/health
   ```

   The following output from this test confirms that the URL is accessible:

   ```
   {
     "health": "up"
   }
   ```

   Any other response means you cannot access the URL.

   - For the https://arm.compliance.flexnetoperations.eu/instances URL:

   ```
   curl https://arm.compliance.flexnetoperations.eu/api/1.0/instances/ping
   ```

   The output from this test includes the following that confirms that the URL is accessible:

   ```
   "database" : {
     "connectionCheck" : "success"
   },
   ```

If you cannot access these URLs, check if a firewall is preventing access to these URLs.

1.5 Find the License Management Utility version

Find the version of the License Management Utility for your Arm development tool.

Procedure
View the License Management Utility version using one of the following methods:

- For License Management Utility version 1.2.6 and later:

   1. Open the License Management Utility using the instructions in the development tool documentation.

   2. The version of the License Management Utility is displayed in the titlebar.

Figure 1-1: License Management Utility version in titlebar
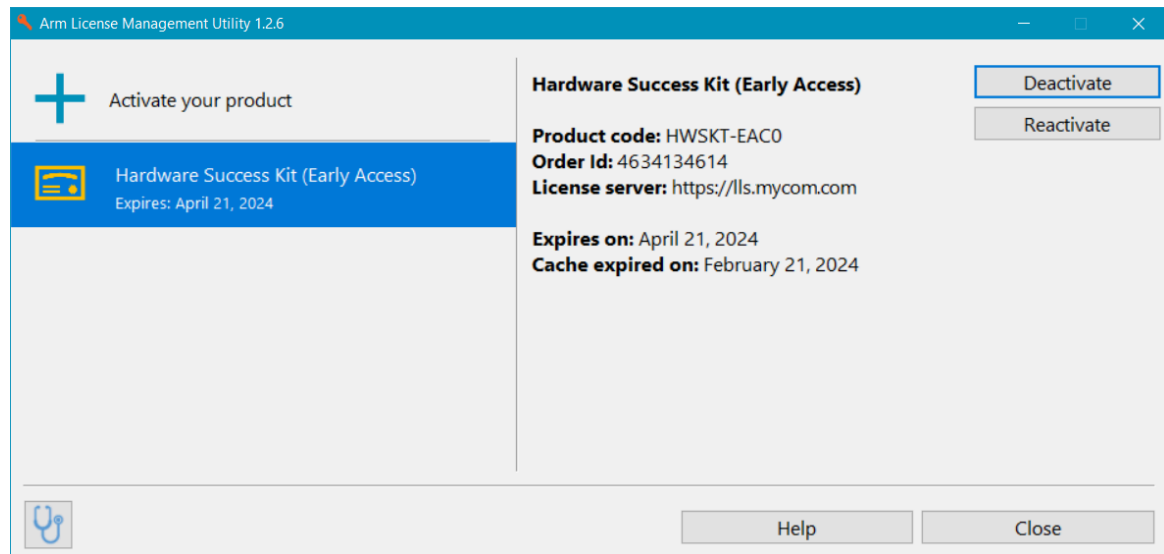
- ◦ From the command line:

  1. Change to the directory containing the `armlm` command-line tool. For example, the `bin` directory in the Arm development tool installation location.

  2. To show the License Management Utility version, enter the following command:

  ```
  armlm --version
  ```

  The following is an example output from this command:

  ```
  Arm License Management Utility 1.2.5+30ca6b4f0f0d1118f5951999bfaf19d5645af48e
  Copyright (C) 2020-2023 Arm Limited (or its affiliates). All rights reserved.
  ```

1.6 User-based licensing utilities release history

The following table describes the Arm user-based licensing utilities versions that have the functional changes. For detail of finding the version of the user-based licensing utilities, see Find the License Management Utility version.

For details of how to update to the latest version of the Arm user-based licensing utilities, see Patch user-based licensing.

Table 1-2: Release history for user-based licensing utilities

Utility version	Functional changes
1.1	First product release.

Utility version	Functional changes
1.2	• You can use the command line or the License Management Utility to view recently deactivated licenses and reactivate a deactivated license. For more details see Deactivate and reactivate a product license.
	• You can use the License Management Utility to provide a diagnostic report that is useful for providing your licensing details to Arm support. For more details see Create a diagnostic report.
1.2.6	• You can use the command line or the License Management Utility to manually extend a license for another 7 days. For more details see Extend your license.
	• The version of the License Management Utility is now displayed in the titlebar.
1.3	• The latest version of the Arm licensing utilities are available from an Arm website. For more details see Patch user-based licensing.
	• If you have a product that includes Keil MDK Professional, you can create node-locked licenses for Keil products that do not support user-based licensing. For more details see Backwards compatibility.

1.7 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 (UUI), 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.

Note

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 7 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.

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.

2. 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 or your intranet. You can deactivate and reactivate your license, for example to investigate license errors.

Note

- Activating a license binds the license to the user for a minimum of 7 days. A bound license cannot be used by another user.

- 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.

- Usernames are case sensitive and must be identical on all devices.

- For an overview of the license setup from the command line using a license server, watch the End-user Setup video tutorial.

2.1 Activate your product using a license server

You can activate your product using a local license server.

About this task
Activating a license binds the license to you for a minimum of 7 days. A bound license cannot be used by another user.

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

Note

The server URL must:

- Include the `http://` or `https://` protocol prefix.

- Include the port number, unless the port number is a default port number. The default port number are `80` for `http://` and `443` for `https://`.

- Not include a path after the address or port number. For example, `http://myserver:5999` is a valid server URL, but `http://myserver:5999/api/1.0/instance/~` is not valid.

---

2. Check access to the license server URL, availability of licenses, and currently used licenses using the following command:

```
armlm inspect --server <license server URL>
```

Use this command to check:

- The server address is correct and you can connect to the server from your device.

- The different product licenses available on the server. If your product license is not available, your license server administrator might need to make more product licenses available.

- The product licenses you already have on this device.

3. Activate your product using one of the following methods:

- From the command line:

  a. Change directory to the directory containing the `armlm` command-line tool. 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**.

Figure 2-1: Activating your license using a license server
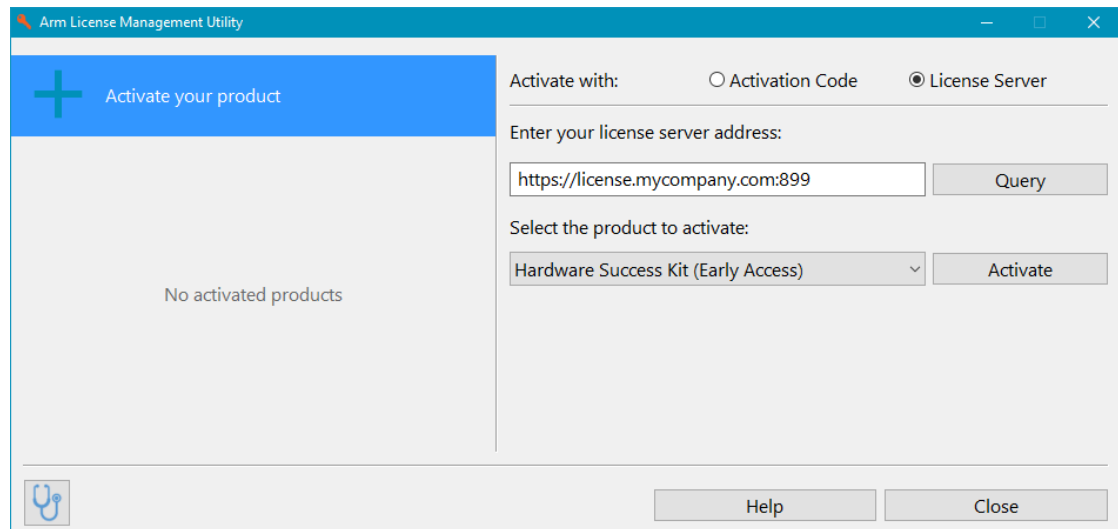
d. Select the product to activate from the drop-down list and then click **Activate**.

e. Click **Close** and apply the change in your development tool.

- Set the `ARMLM_ONDEMAND_ACTIVATION` environment variable to `<product_code>@<server_URL>`, where:

   ° `<product_code>` is the product code

   ° `<server_URL>` is the URL to access the license server

   For example, `HWSKT-STD0@http://license.serv.mycom.com:5999`.

	This method might not be suitable where a large number of parallel processes can make initial license requests, because the license server could time-out some of the requests.
Note	

Results

After activation, the product license is bound to the username of the end-user or service account for 7 days.

When you start an Arm development tool that supports user-based licensing on the same device, the software makes one attempt each day to contact the license server:

- If the software successfully connects to the server, the product license is extended for the next 7 days.

- If the software cannot contact the license server, you can still use the product license but the license is not extended. In this case, the product license expires on the device after the current 7-day period ends. If the product license expires, you are unable to use any Arm development tool that supports user-based licensing on the device.

Usernames are case sensitive and must be identical on all devices.

Related information
Activate a license on multiple devices on page 19
Proxy activation on page 18
Extend your license on page 20

2.2 Activate your product using an activation code

You can activate your product with an activation code.

About this task
Activating a license binds the license to you for a minimum of 7 days. A bound license cannot be used by another user.

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-XXXXXXXXXXXX
```

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 tool, 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**.

Figure 2-2: Activating your license using an activation code
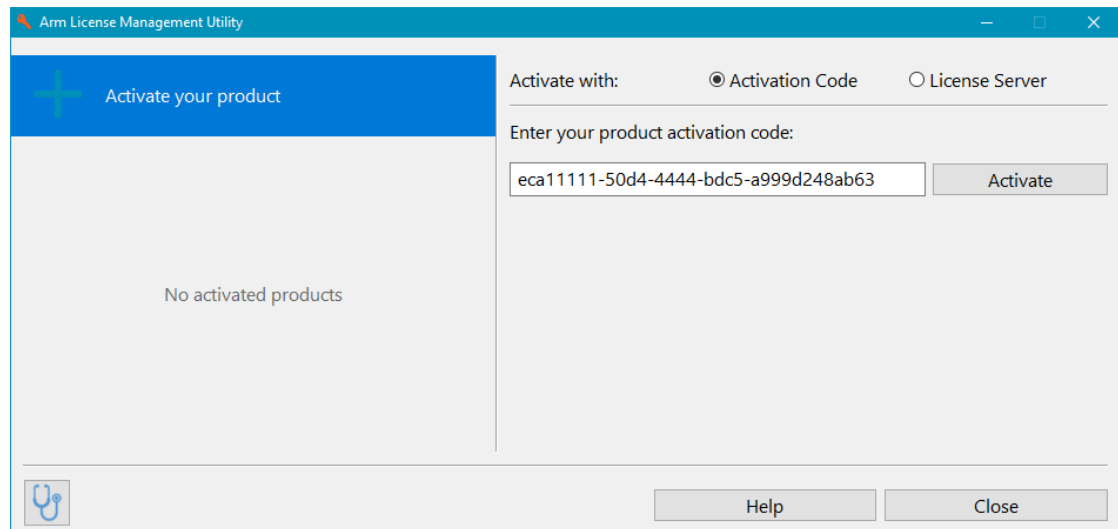
d. Click **Close** and apply the change in your development tool.

Results

After activation, the product license is bound to the username of the end-user or service account for 7 days.

When you start an Arm development tool that supports user-based licensing on the same device, the software makes one attempt each day to contact the activation code URLs (for details see Network requirements for user-based licensing):

- If the software successfully connects to the activation code URLs, the product license is extended for the next 7 days.

- If the software cannot contact the license server, you can still use the product license but the license is not extended. In this case, the product license expires on the device after the current 7-day period ends. If the product license expires, you are unable to use any Arm development tool that supports user-based licensing on the device.

	- If you accidentally activated the license with an incorrect username, contact your license administrator to revoke the activation code and generate a new one.
Note	- Usernames are case sensitive and must be identical on all devices.

Related information

Activate a license on multiple devices on page 19
Proxy activation on page 18
Activate a license without installing tools on page 20
Extend your license on page 20

2.3 Proxy activation

Proxy activation allows users to create a license activation file on one device and then use that file to provide licenses on one or many other devices. These "target devices" can include local devices or devices running in the cloud.

Typically, proxy activation is used when:

- The target device does not meet the network requirements to activate a product. For details of network requirements, see Network requirements for user-based licensing.

- Your workflow activates the same product for the same username on many devices in parallel. For example, *Continuous Integration* (CI) can use this type of workflow.

- You want to protect your workflow from failures to activate a product that can, for example, be caused by intermittent network or license server access.

Before you begin

- Install your Arm development tool on the target device.

- Install an Arm development tool or install the Arm licensing utilities on another device that has the required network access.

- When activating a product using a license server, the license server administrator must provide the license server URL and the Arm product code.

- When activating a product using an activation code, 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.

Note

Activating a license binds the license to the user for a minimum of 7 days. A bound license cannot be used by another user.

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:

    ```
    C:\<development tool installation directory>\bin\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:

    ```
    C:\<development tool installation directory>\bin\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 target device

- `<transfer_filename>` is any file name for the transfer file

2. Make the transfer file available to the target device, for example by copying the generated transfer file to one of the following:

- The target device

- A network drive that can be accessed by the target device

3. To activate the product, run the `armlm import` command on the target device. 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 7 days or earlier, otherwise the Arm development tools stop working. If you repeat this process daily, Arm development tools on the target device do not try to access:

- The internet to validate an activation code license.

- Your intranet to validate a license server license.

2.4 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

2.5 Activate a license without installing tools

You can activate a license without installing an Arm development tool, by installing the Arm licensing utilities.

About this task

This process can be useful when creating a license file or activating a license cache on one device that is used to provide licensing for Arm developer tools on another device. For more information see Proxy activation and Activate a license on multiple devices.

The Arm licensing utilities have the following license terms:

Your use of an Arm tool is subject to your acceptance of the End User License Agreement for Arm Software Development Tools, located within the `license_terms` folder of the downloaded archive. By installing and using the Arm tool, you agree to be bound by the terms and conditions of the end user license agreement.

Procedure

1. Download the Arm licensing utilities file from the Arm website:

   - Windows x86 64-bit

   - Linux x86 64-bit

   - Linux Arm 64-bit

   - macOS Universal (x86 64-bit and Arm 64-bit)

2. Unpack the `*.tar.gz` file onto the required device and location on that device. For example, using the following command:

   ```
   tar -xf armlm-1.3.0-lin-arm_64-none-gui.tar.gz
   ```

   In this topic, this location is referred to as the `<installation_directory>` directory.

3. Set up the Arm licensing utilities:

   - If using the `armlm` command line tool to activate the license, change directory to the `<installation_directory>/bin` directory.

   - If using the GUI to activate the license, open the GUI by running the `<installation_directory>/bin/armlm-gui` executable. For example, on Windows, double-click the `armlm-gui.exe` file.

4. Activate your license using an activation code or license server URL.

2.6 Extend your license

Your product license is valid for 7 days after activation. When you use an Arm development tool that supports user-based licensing, the software makes one attempt each day to extend the license for another 7 days. You can extend the license yourself. For example, when you keep your Arm development tool open for longer than 7 days or you have limited access to the internet.

Procedure

Depending on your License Management Utility version, use one of the following methods to extend your license:

- For License Management Utility version 1.2.6 and later:

    - From the command line:

        1. Change directory to the directory containing the `armlm` command-line tool, for example the `bin` directory in the Arm development tool installation location.

        2. Enter the following command:

        ```
        armlm reactivate --product <product_code>
        ```

        Where `<product_code>` is the product code for the required product.

    - In the Arm development tool:

        1. Open the Arm License Management Utility using the instructions in the development tool documentation.

        2. Click the required product.

        Figure 2-3: Product details in the License Management Utility
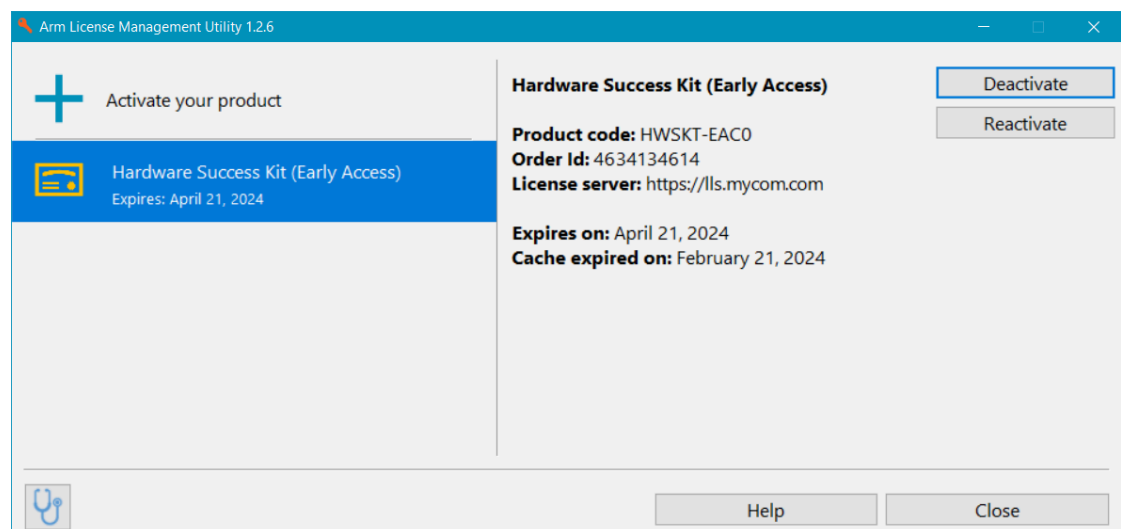
        The date the license expires is shown as **Cache expires on**.

        3. Click **Reactivate**.

If the product license has not been extended in the last 24 hours, the license is extended for the next 7 days. If the product license has been extended in the last 24 hours, the license is not extended.

◦ For License Management Utility version 1.2.5 and earlier, deactivate and then reactivate your license. For more details see Deactivate and reactivate a product license.

2.7 Deactivate and reactivate a product license

Deactivating a product removes the license for your Arm product from a device. From version 1.2 of the Arm License Management Utility, you can easily reactivate recently deactivated licenses.

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 a single device.

- Deactivation does not release the license so it can be used by another user:

  ◦ For activation codes, an administrator can release a license by revoking the activation code. The revoked license cannot be renewed by the user. However, the administrator cannot reallocate the revoked license to another user until 7 days after the current user renewed the license cache on any device.

  ◦ For a license server, a license is automatically released for use by another user when it has not been renewed for 7 days.

Note

Procedure

Deactivate and reactivate your product using one of the following methods:

◦ From the command line:

  1. Change directory to the directory containing the `armlm` command-line tool, for example the `bin` directory in the development tool installation location.

  2. List the active and deactivated licenses, with their product or activation codes, using the following command:

```
armlm inspect
```

3. To deactivate a license, use the following command:

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

Alternatively, if using an activation code, you can use the following command to deactivate the license:

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

4. To reactivate the license:

- In version 1.2 or later of the Arm License Management Utility, you can reactivate a recently deactivated license using the following command:

```
armlm reactivate --product <product_code>
```

Note You cannot reactivate a deactivated license that clashes with an active license.

- In version 1.1 of the License Management Utility, you need to activate the license again. For more information, see Activate your product using a license server or Activate your product using an activation code.

◦ Use the Arm License Management Utility:

1. Open the License Management Utility using the instructions in the development tool documentation.

2. To deactivate a license:

   a. In the left-hand side of the License Management Utility, select an active license from the license list.

   b. Click **Deactivate**, then click **Yes** in the confirmation dialog box.

   In version 1.2 or later of the Arm License Management Utility, the **Recently Deactivated** section in the license list displays all recently deactivated licenses.

Figure 2-4: A deactivated license

3. To reactivate a license:

- In version 1.2 or later of the Arm License Management Utility, you can reactivate a recently deactivated license:
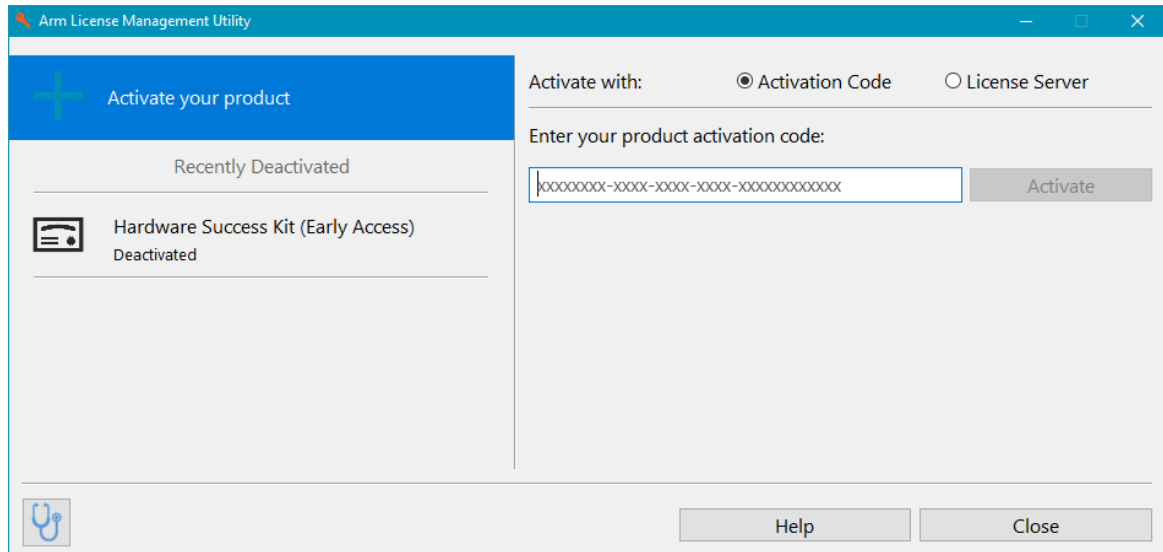
  a. In the left-hand side of the License Management Utility, select a deactivated license in the **Recently Deactivated** section in the license list.

  b. Click **Reactivate**, then click **Yes** in the confirmation dialog box.

  > **Note**
  >
  > You cannot reactivate a deactivated license that clashes with an active license.

  The reactivated license is displayed in the license list.

- In version 1.1 of the License Management Utility, you need to activate the license again. For more information, see Activate your product using a license server or Activate your product using an activation code.

3. Diagnose licensing issues

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 topics.

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.

3.1 100 - 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 13

3.2 101 - 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
   ```

   > **Note**
   > 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 support.

Related information

Activate and deactivate your product license on page 13

3.3 200 - Expired cached license

Your local license cache could not be renewed and has expired. This problem can happen for one of the following reasons:

- 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 Proxy activation.

- You cannot modify the local license cache. This could happen when:
  - You run out of space on the device storing the local license cache.

    To resolve this problem, delete files to make space available on your device or increase the disk quota on the device.

  - You do not have permissions to modify the local license cache.

    To resolve this problem, change the permissions on your local license cache directory so you can modify the directory and all files in the directory. By default, your local license cache directory is `.armlm` under your home location. The following are typical default locations:

    - Windows: `C:\Users\<your username>\.armlm`

    - Linux: `/home/<your username>/.armlm`

    - macOS: `/Users/<your username>/.armlm`

After you make these changes, restart your Arm development tool.

3.4 201 - 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 to 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.

3.5 202 - 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.

3.6 300 - 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
```

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

2. Deactivate and reactivate your product. For details see Deactivate and reactivate a product license.

If reactivating your product does not solve the problem, contact support.

Related information
Activate and deactivate your product license on page 13

3.7 301 - 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
    ```

    > **Note**
    >
    > 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`

    > **Note**
    >
    > 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. For details see Deactivate and reactivate a product license.

If reactivating your products does not solve your issue, contact support.

Related information
Activate and deactivate your product license on page 13

3.8 400 - 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 have a username that is different on different devices

- 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. Check your username. Usernames are case sensitive. Check that the upper and lower case in your username is idential on all devices.

   - Check the username by running `whoami` in a console window. On Windows, ignore the groupname that is also returned as part of the string.

2. 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
   ```

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

   ---

3. Deactivate and reactivate all Arm products. For details see Deactivate and reactivate a product license.

If reactivating your products does not solve your issue, contact support.

3.9 500 - 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.

You need to contact support.

3.10 501 - 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, contact support.

3.11 Contact support

If you need support with licensing problems, contact your license administrator or contact Arm support. If contacting Arm support, log a support case on https://services.arm.com/support/s/contactsupport.

When you contact support, you should include as much information as possible about your license configuration:

- From version 1.2 of the Arm License Management Utility, you can create a diagnostic report zip file. For further information see Create a diagnostic report.

- For version 1.1 of the License Management Utility, include where possible:

  - A zip 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`

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

  - The location of your local license cache.

  - The host name and IP address of your machine and your operating system.

  - Your user name.

◦ The license product.

◦ License server URL or product code.

◦ Arm License Management Utility version.

◦ Details of Arm license environment variables (ARMLM_*, ARM_*, and LM_*).

3.12 Create a diagnostic report

When you contacting Arm support, you should include a diagnostic report zip file.

About this task

> **Note**
> This functionality is only available in Arm License Management Utility version 1.2 and later. If your Arm development tools have an earlier version of the License Management Utility, you can download the latest Arm licensing utilities and create a diagnostic report using these utilities. For more details see Activate a license without installing tools.

The diagnostic report zip file contains:

- Your local license cache

- Your license details

- License logs

- Any transient caches

- Relevant environment information including user name, host name, location of the local storage, License Management Utility version, operating system, and user-based licensing environment variables (ARMLM_*)

- Legacy licensing information including the content of `.flexlmrc` and relevant environment variables (ARM_* and LM_*)

Procedure

1. Create log files for your license interactions.
   Set the ARMLM_LOG_ENABLED environment variable to any value and then run through the failing license interactions again.

2. You can obtain the diagnostic report zip file using one of the following methods:

   - From the command line:

     a. Change directory to the directory containing the `armlm` command-line tool, for example the `bin` directory in the Arm development tool installation location.

     b. Enter the following command:

     ```
     armlm report [--to-file <filepath>]
     ```

Where `--to-file` can be used to specify the file path and file name for the diagnostic report file. If not used, the report file is saved in the current directory using the `armlm-report-<date and time>` file naming convention.

- In the Arm development tool:

    a. Open the Arm License Management Utility using the instructions in the development tool documentation.

    b. Click **Report** .

    c. In the new dialog box, choose the name and download location for the diagnostic report zip file.

3. Unset the ARMLM_LOG_ENABLED environment variable. This stops large license log files being created when using Arm products.

4. Troubleshooting

Describes how you can fix problems in user-based licensing.

4.1 Patch user-based licensing

You can patch user-based licensing to the use latest version.

About this task

Patching user-based licensing to the latest version version is useful when:

- User-based licensing is not working correctly in your current environment.

- You want to use a user-based licensing feature that is not available in the current version of user-based licensing of your Arm development tool. For details of the functional changes in the Arm user-based licensing utilities releases see User-based licensing utilities release history.

Procedure

1. Download the Arm licensing utilities file from the Arm website:

   - Windows x86 64-bit

   - Linux x86 64-bit

   - Linux Arm 64-bit

   - macOS Universal (x86 64-bit and Arm 64-bit)

2. Unpack the `*.tar.gz` file. For example, using the following command:

   ```
   tar -xf armlm-1.3.0-lin-arm_64-none-gui.tar.gz
   ```

   In this topic, this location is referred to as the `<installation_directory>` directory.

3. Locate the following licensing library files in the installation directory of the Arm development tool that requires the licensing patch:

   - Windows: `armlm.dll` and `armlm-ipc.exe`

   - Linux: `libarmlm.so` and `armlm-ipc`

   - macOS: `libarmlm.dylib` and `armlm-ipc`

   For example for Arm® Development Studio version 2023.1 on Windows, these licensing library files are installed into the following locations for a default installation:

   - `C:\Program Files\Arm\Development Studio 2023.1\sw\ARMCompiler6.21\bin`

   - `C:\Program Files\Arm\Development Studio 2023.1\sw\models\bin`

4. Review and record the permissions on the licensing library files.

5. As a backup, copy the licensing library files from the Arm development tool installation directory to a safe location.

6. Copy the latest version of the licensing library files from the `<installation_directory>/lib` directory.

7. Paste the licensing library files over all instances of the previously located files in the Arm development tool.
    Check the permissions on these files are the same as you recorded earlier. If they permissions are different, modify the permissions.

8. Test user-based licensing works as expected for the patched Arm development tool. For example:

    - Open the Arm License Management Utility and check that your product is still activated.

    - Run the `armlm inspect` command to view details of your licenses.

Appendix A Environment Variables

The topic describes the environment variables available for user-based licensing on the user device.

In the table, `<license_directory>` refers to the directory containing the license files. The following are typical default locations:

- Windows: `C:\Users\<your username>\.armlm`

- Linux: `/home/<your username>/.armlm`

- macOS: `/Users/<your username>/.armlm`

You can use the ARMLM_CACHED_LICENSES_LOCATION environment variable to override the default license file directory.

Table A-1: Environment variables available in user-based licensing

Environment variable	Description	Default if not set
ARMLM_CACHED_LICENSES_LOCATION	Specifies the full path to the directory containing the license files.	`.armlm` in the user home directory.
ARMLM_ECHO_LOG_CONTENT	Set the value to a non-empty string echoes to log errors to standard output and standard error streams. The same logging is always added to files in the `<license_directory>/logs` directory. If ARMLM_LOG_ENABLED is set, the licensing operation logs are also echoed to standard output and standard error streams.	Log files are not echoed to standard output and standard error streams.
ARMLM_LOG_ENABLED	Set the value to a non-empty string to create a log file containing details of all licensing operations. The log file is created in the `<license_directory>/logs` directory with a unique name. **Note:** Due to large number of log messages, you should only set this environment variable when diagnosing problems. For example, before creating a diagnostic report.	Only errors are logged.
ARMLM_MAX_LOG_FILES	Specifies the number of log files to keep in the `<license_directory>/logs` directory. A new log file is created for every error encountered. When the maximum number of log files is exceeded, the oldest log file is deleted.	10

Environment variable	Description	Default if not set
ARMLM_ONDEMAND_ACTIVATION	Specifies the license server and product always used to license Arm development tools. The value must have the `<product_code>@<server_URL>` format, where: • `<product_code>` is the product code • `<server_URL>` is the URL to access the license server For example, `HWSKT-STD0@http://license.serv.mycom.com:5999`.	Arm development tools are licensed using the license server and product specified in the license cache.

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PRE-1121-V1.0

Product and document information

Read the information in these sections to understand the release status of the product and documentation, and the conventions used in Arm documents.

Product status

All products and services provided by Arm require deliverables to be prepared and made available at different levels of completeness. The information in this document indicates the appropriate level of completeness for the associated deliverables.

Revision history

These sections can help you understand how the document has changed over time.

Document release information

The Document history table gives the issue number and the released date for each released issue of this document.

Document history

Issue	Date	Confidentiality	Change
1.3-02	31 July 2024	Non-Confidential	Documentation update 2 for v1.3
1.3-01	30 May 2024	Non-Confidential	Documentation update 1 for v1.3
1.3-00	26 April 2024	Non-Confidential	Updated document for v1.3
1.2-11	28 March 2024	Non-Confidential	Documentation update 11 for v1.2
1.2-10	27 February 2024	Non-Confidential	Documentation update 10 for v1.2
1.2-09	29 January 2024	Non-Confidential	Documentation update 9 for v1.2
1.2-08	21 November 2023	Non-Confidential	Documentation update 8 for v1.2
1.2-07	27 October 2023	Non-Confidential	Documentation update 7 for v1.2
1.2-06	30 September 2023	Non-Confidential	Documentation update 6 for v1.2
1.2-05	24 August 2023	Non-Confidential	Documentation update 5 for v1.2
1.2-04	29 June 2023	Non-Confidential	Documentation update 4 for v1.2

Issue	Date	Confidentiality	Change
1.2-03	18 May 2023	Non-Confidential	Documentation update 3 for v1.2
1.2-02	28 April 2023	Non-Confidential	Documentation update 2 for v1.2
1.2-01	29 March 2023	Non-Confidential	Documentation update 1 for v1.2
1.2-00	24 February 2023	Non-Confidential	Updated document for v1.2
1.1-05	27 January 2023	Non-Confidential	Documentation update 5 for v1.1
1.1-04	28 November 2022	Non-Confidential	Documentation update 4 for v1.1
1.1-03	28 October 2022	Non-Confidential	Documentation update 3 for v1.1
1.1-02	23 September 2022	Non-Confidential	Documentation update 2 for v1.1
1.1-01	22 July 2022	Non-Confidential	Updated document for v1.1
1.1-00	21 June 2022	Non-Confidential	Document update for v1.1 Beta
1.0-00	10 March 2022	Non-Confidential	New document for v1.0

Change history

The functional changes to the User-based licensing utilities are described in User-based licensing utilities release history.

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
italic	Citations.
bold	Interface elements, such as menu names. Terms in descriptive lists, where appropriate.

Convention	Use
`monospace`	Text that you can enter at the keyboard, such as commands, file and program names, and source code.
`monospace underline`	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: `MRC p15, 0, <Rd>, <CRn>, <CRm>, <Opcode_2>`
SMALL CAPITALS	Terms that have specific technical meanings as defined in the *Arm® Glossary*. For example, **IMPLEMENTATION DEFINED**, **IMPLEMENTATION SPECIFIC**, **UNKNOWN**, and **UNPREDICTABLE**.

Caution

We recommend the following. If you do not follow these recommendations your system might not work.

Warning

Your system requires the following. If you do not follow these requirements your system will not work.

Danger

You are at risk of causing permanent damage to your system or your equipment, or harming yourself.

Note

This information is important and 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.

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. 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
User-based Licensing Administration Guide	107573	Non-Confidential
User-based Licensing: Enabling Legacy Editions of Keil MDK video tutorial	-	Non-Confidential
User-based Licensing: End-user Setup video tutorial	-	Non-Confidential