



User-based Licensing

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Administration Guide

Non-Confidential

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User-based Licensing Administration Guide

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1. Introduction

This guide describes administration of the licenses for Arm products licensed under the user-based licensing model.

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. 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, <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 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 User Guide	102516	Non-Confidential
User-based Licensing: License Server Setup video tutorial	•	Non-Confidential
User-based Licensing: License Removal and Decommissioning Server video tutorial	•	Non-Confidential

1.3 Other information

See the Arm website for other relevant information.

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

2. Getting started with user-based licensing

User-based licensing (UBL) is a new licensing model from Arm, replacing previous license solutions. UBL provides benefits to both the management of the licenses within your organization, as well as usability improvements for the end users of UBL managed tools. UBL provides a user with unlimited access to tools enabled by that license across multiple devices.



Note

The user-based licensing license server software is different from, and incompatible with, other license models used by Arm development tools, including:

- FlexNet Publisher node-locked and floating
- Keil® node-locked and floating
- Allinea node-locked and floating

Types of user-based licensing deployment

UBL allows you to deploy licenses in the following ways:

- *Local License Server (LLS)*

A license server is installed and maintained within your organization. The administrator registers the license server and populates the server with products from their account on the Arm portal. The administrator selects the number of available licenses for each product that are available on the license server.

A user obtains a license by activating a product using the license server URL as the license source. The license allows the user to access all tools available in the product on any device. Once a day, when the user starts an Arm development tool, the user license is renewed. If the user does not renew a license within seven days, the license becomes available on the license server for other users.

- *Cloud License Server (CLS)*

The administrator obtains a license activation code for a single user from the Arm portal. The administrator makes the activation code available to the user, for example by email.

A user obtains a license by activating a product using the activation code as the license source. The license allows the user to access to all tools available in the product on any device. The user keeps the license until the administrator revokes the activation code on the Arm portal.

Which deployment is right for you?

Review the following features of LLS and CLS to decide which deployment is suitable:

- Features of LLS:
 - Requires internal infrastructure to manage and maintain a local license server
 - Easy to manage many licenses on a single server
 - Allows deployment of licenses to a large developer population

- Generates local usage diagnostics
- Features of CLS:
 - No internal infrastructure requirements
 - The administrator must manage each activation code
 - Requires Internet access to activate and to refresh licenses

Arm recommends LLS for licensing a large number of developers and CLS for licensing a few developers. If your users are spread across multiple sites or networks, you can use both types of deployment.

3. Installing and populating the license server

Describes how to install, configure, and register the license server for Arm products licensed under the user-based licensing model. The license server is then populated with product licenses.

3.1 Hardware and software requirements

The hardware and software requirements presented in this section are for the Arm user-based licensing license server software. In a typical deployment setup, the license server software runs on a dedicated license-managed device, separate from Arm development tools running on client devices.

Hardware requirements

The license server has the following minimum hardware requirements:

- Processor: A dual core 64-bit x86 2GHz processor (or equivalent)
- Memory: 4GB
- Storage: 500MB

Supported operating systems

The license server is supported on the following operating systems:

- Red Hat Enterprise Linux or CentOS 7
- Red Hat Enterprise Linux or CentOS 8
- Ubuntu 20.04 LTS

Required system software

The license server and utilities require the following software to be installed and, where applicable, running:

- Common Linux utilities: `bash`, `tar`, `sed`, `getopt`, `uname`, `sleep`, and `grep`
- `systemd` Linux service manager
- Python 3.6 or higher. The PyYAML module must be installed.
- One of the following Java Virtual Machine (JVM) implementations:
 - Oracle Java SE 8
 - OpenJDK 8
 - OpenJDK 11

3.2 License server administrator account requirements

To install the Arm user-based licensing license server you must have access to product licenses that you can add to the license server.

Before you begin

Before installing the license server you must:

- Have an account on the Arm license portal
- Have licenses allocated to your products

Procedure

1. Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>.
2. Check you have the correct licenses available. The entry page list your products and **Allocated Seats** shows the number of licenses available for each product.

3.3 Install your license server

To install the license server, use the following procedure.

Before you begin

- Download the license server Linux installation package from <https://lm.arm.com/downloads>.
- If you have previously installed a license server for Arm products licensed under the user-based licensing model, you must first uninstall that server:
 - If you are upgrading your license server and want to retain the existing licenses, you must keep all existing license server data. For details, see [Upgrade the license server](#).
 - If you are installing a new license server on a device, you must delete all existing license server data after the licenses have been removed. For details, see [Obsolete a license server](#). License data for all users of the device must be removed.



For security reasons, Arm recommends the license server runs as the `flexnetls` user and group. Arm recommends against changing this user to `root`. If you require a different user and group, create them before starting the installation.

- watch the [License Server Setup video tutorial](#) for an overview of the installation process.

About this task

The installation requires elevated privileges to:

- Create a new group and user for the license server service.

The default user created is `flexnetls`. This user has limited access to the host and does not have a home directory, making the user less of a security risk.

- Create the installation directory (`/opt/flexnetls-armlmd` by default) using the `root` user.

This ensures that files in the installation directory cannot be modified by other users and processes. Using the `root` user to install also allows the license server to be registered as a `systemd` service. This allows the license server to be started and shut down automatically as the host starts up and shuts down.

- Create the data storage directory (`/var/opt/flexnetls-armlmd` by default).
- Register the license server service with `systemd` and start the service.



- The `root` user is required for any action that starts or stops the license server.
- Following security best practice, all other license server commands should be run by a non-root user. Any command that modifies the license server configuration or discloses sensitive information about the host will request the license server `admin` password.

Procedure

1. From the command line, change directory to the directory containing the downloaded software bundle and then extract it using the following command:

```
tar -xf flexnetls-armlmd-<version>.tar.gz
```

The extraction creates the installer directory, `flexnetls-armlmd-<version>`.



The `flexnetls-armlmd-<version>` installation directory can be placed in any disk location and can be deleted after the installation process has completed.

2. Install the license server by running the following command as root:

```
sudo [-E] flexnetls-armlmd-<version>/install_license_server [--port <port>] [--install-dir <installation_directory>] [--data-dir <data_directory>] [--user <user>] [--group <group>]
```

Where:

- The `-E` parameter preserves the environment of the current user when running the command as root. This might be required if the location of the Java Virtual Machine (JVM) relies on the `JAVA_HOME` environment variable set in the environment of the current user.
- `<port>` specifies the TCP network port that the license server listens on. If the `--port` parameter is not specified, the port defaults to 7070. You cannot specify a port number of 1024 or lower because this port range is reserved for processes running as `root`.
- `<installation_directory>` is the installation directory for the license server software. If the `--install-dir` parameter is not specified, the installation directory defaults to `/opt/flexnetls-armlmd`.
- `<data_directory>` is the directory used to store the license server state files and logs. If the `--data-dir` parameter is not specified, the data directory defaults to `/var/opt/flexnetls-armlmd`.

- `<user>` is the user name that the license server runs under. If the `--user` parameter is not specified, the license server runs as the `flexnetls` user.
- `<group>` is the group name that the license server runs under. If the `--group` parameter is not specified, the license server runs as the `flexnetls` group.

The license server is automatically started after the installation process completes. The license server also starts automatically when the server device is restarted.

3. Check that the license server is running.

After the license server is installed, it should start automatically. If the server does not start, this can indicate problems with the installation. Check the server status using the following command:

```
armlm_check_server_status
```

If the license server is not running, try to start it using the following command:

```
sudo systemctl start flexnetls-armlmd
```

If the server does not start with this command, check for errors in the `systemctl` logs. For example, use the following command to print all license server service events logged since the operating system started:

```
journalctl -u flexnetls-armlmd.service -b
```

Results

The license server is running. The license server service is configured to start and stop automatically with the operating system.

The installation directory has the following content:

- `bin` contains the administration utilities.
- `etc` contains the `paths` text file detailing the paths to the data and server directories.
- `server` contains the license server daemon and related configuration files.
- `license_terms` contains the software license agreement.
- `VERSION` text file details the license server version.

Next steps

[Configure your license server](#)

3.4 Configure your license server

After the license server has been installed, you must configure the server.

Before you begin

- [Install your license server](#)

Procedure

1. Set the `PATH` environment variable on the license server device to include the `bin` directory in the license server installation directory. For example:

```
export PATH=/opt/flexnetls-armlmd/bin:$PATH
```
2. You must change the default installed administrator user (`admin`) password because you cannot use this password to perform administration tasks. Run the `arlm_change_admin_password` command to change the password.



Caution

You should ensure that the administrator password is not lost, because it is difficult to reset the password. See [Reset the administrator password](#) for more information.

The new password must meet the following criteria:

- Between 8 and 64 characters in length
- At least one digit
- At least one uppercase character
- At least one special character (for example, `^*$-+?_&=!%{}/#@`)
- No whitespace characters.

The password change tool asks you to confirm the new password by entering it again.

The following is output when the administration password is successfully changed:

```
Administrative account password changed successfully
```

3. When you install the license server, the installation process selects a `hostid`. Several other `hostids` could be available, depending on the hardware configuration of the host. You must check that the selected `hostid` is appropriate, for example to ensure the most stable `hostid` is used.



Note

- The licenses generated for a license server are locked to the `hostid` of the license server. You cannot change the license server `hostid` after you have registered your license server.
- The `hostid` of the license server must be constant and stable. For example, the `hostid` must not change when restarting the license server host or when switching between wired and wireless networks.

Use the following command to review the selected `hostid`:

```
arlm_show_hostid
```


The password for `admin` is requested. The output shows the selected `hostid` and the available `hostids`. For example:

```
{
  "selected" : {
    "hostidType" : "ETHERNET",
    "hostidValue" : "0800270AA6FF"
  },
  "hostids" : [ {
    "hostidType" : "ETHERNET",
    "hostidValue" : "0800270AA6FF"
  }, {
    "hostidType" : "ETHERNET",
    "hostidValue" : "080027503FFF"
  } ]
}
```

If you want to change the `hostid` used by the license server:

- a) Edit the `<installation_directory>/server/local-configuration.yaml` file.
- b) Uncomment the following line:
`#active-hostid:`
- c) Add one of the `hostids` identified by `armlm_show_hostid` command as the `active-hostid` value in the format `<hostid>/ETHERNET`. For example:
`active-hostid: 080027503FFF/ETHERNET`
- d) Restart the license server using the following command:

```
sudo systemctl restart flexnetls-armlmd
```

4. During installation, you can set the license server port number. If not set during installation, the port number defaults to 7070. You can change the port number as follows:
 - a) Edit the `<installation_directory>/server/local-configuration.yaml` file.
 - b) Change the `port` value. For example:
`port: 7071`
 - c) Restart the license server using the following command:

```
sudo systemctl restart flexnetls-armlmd
```

Next steps

[Register your license server](#)

3.5 Register your license server

You must register your license server on the Arm licensing portal.

Before you begin

- [Configure your license server](#)

Procedure

1. Make sure the license server is running using the following command:

```
armlm_check_server_status
```

If the server is not running, start it using the following command:

```
sudo systemctl start flexnetls-armlmd
```



Note

If the license server fails to start, you can check for errors in the systemctl logs. For example, use the following `journalctl` command to print all `flexnetls-armlmd` service events that have been logged since the operating system was last started:

```
journalctl -u flexnetls-armlmd.service -b
```

2. Create an identity file for the license server, in your current directory, using the following command:

```
armlm_generate_server_identity --identity-file identity.bin
```

The password for `admin` is requested.

3. Register your license server with Arm:
 - a) Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>.
 - b) Click **Manage License Servers** and then click **Register Local License Server**.
 - c) Click **Browse**, select the `identity.bin` file, and then click **Open**.
 - d) Click **Upload**. After a short while, you are returned to the **Manage License Servers** page with your license server shown in the list of license servers. The name of the server is the license server hostid.

Next steps

[Allocate products to the license server](#)

3.6 Allocate products to the license server

After you have registered your license server, allocate your product licenses to the server.

Before you begin

- [Register your license server](#)

Procedure

1. Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>.
2. Click **Manage License Servers**.

3. Select the products you want to add to your server as follows:
 - a) Click **Manage Server** on the required license server. The server page displays the products associated with your server. For a new license server, there are no products to display.
 - b) Click **Add Products**. The **Add Products to License Server** page shows the available products with licenses (seats) already allocated and the product expiry date.
 - c) In the **Quantity** field, enter the number of licenses to transfer to your license server.
 - d) Click **Add Products**.

You are returned to the server page, which displays the added product(s).

4. If the product license file has not automatically downloaded, click **Download all licenses allocated to this server** to download the license file.
The license file name is `licenses-<server_ID>-<timestamp>.bin`, where `<server_ID>` is the license server name and `<timestamp>` is the date and time the license file was created.
5. If required, transfer the product license file to the license server device.
6. Load the product licenses using the following command on the license server device:

```
armlm_update_licenses --data-file <license_file>
```

Where `<license_file>` is the name of the product license file. The password for `admin` is requested.

The following output confirms that no further action is required:

```
Licenses have been successfully updated. No confirmation is required.
```

Next steps

[User license activation](#)

Related information

[List licenses and usage](#) on page 22

[Modify number of licenses](#) on page 23

3.7 User license activation

After the license server has been registered, you must inform your users how to activate the licenses for their Arm products. In this case, a user could be a human using an Arm development tool or an automated process. Users can license a development tool using one of the following methods:

- [Activate your product using a license server](#)
- [Activate your product if your device is offline](#)



- The server URL that users use to activate their product license must only contain the server base. For example, `http://myserver:5999` is a valid server URL but `http://myserver:5999/api/1.0/instance/~` is not valid.

- Users can obtain a product license from the license server by setting the `ARMLM_ONDEMAND_ACTIVATION` environment variable to `<product_code>@<server_URL>`.
 - Before setting this environment variable, the user must use the following command to check that the license server URL is valid and the required product license is available:

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

If the user can connect to the server, this command returns the different product licenses available on the license server and the licenses used by the user on the device.

- 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.

After activation, the user is assigned to the product license for seven days. Subsequent use of any Arm development tool that supports user-based licensing on the same device by that user renews the license for the next seven days by contacting the activation code URLs (for details see [Network requirements for user-based licensing](#)) or license server.

If you cannot extend the product license, you can still use the product as licensed until the 7-day limit expires. This could occur if your device cannot contact the license server.

Activating licenses on multiple devices

The product license assigned to a user can be used on multiple devices. You can make the license assigned to a user available on another device using one of the following methods:

- On the new device, activate the product license for an Arm development tool that has the same user.
- The cached Arm product license details are stored in the `.armlm` directory. Other devices using an Arm development tool can use the cached license by, for example:
 - Copying the `.armlm` directory to a local directory on the new device.
 - Copying the `.armlm` directory to a network directory. On the new device, set the `ARMLM_CACHED_LICENSES_LOCATION` environment variable to the location of `.armlm` on the network drive.

4. License server administration

Describes how you can administer the Arm user-based licensing license server, including the available license server commands.

4.1 Stop the license server

The license server is automatically started after installation and when the server device is restarted.

Procedure

Stop the license server with the following command:

```
sudo systemctl stop flexnetls-armlmd
```

Related information

[Find the license server status](#) on page 22

[Start the license server](#) on page 21

4.2 Start the license server

The license server is automatically started after installation and when the server device is restarted.

Before you begin

The license server has been [stopped](#) by the administrator.

Procedure

Start the license server with the following command:

```
sudo systemctl start flexnetls-armlmd
```



Note

If the license server fails to start, you can check for errors in the systemctl logs.

For example, use the following `journalctl` command to print all `flexnetls-armlmd` service events that have been logged since the operating system was last started:

```
journalctl -u flexnetls-armlmd.service -b
```

Related information

[Find the license server status](#) on page 22

4.3 Restart the license server

Restart the license server.

Before you begin

The license server must be running.

Procedure

Restart the license server using the following command:

```
sudo systemctl restart flexnetls-armlmd
```



Note

If the license server fails to start, you can check for errors in the systemctl logs. For example, use the following `journalctl` command to print all `flexnetls-armlmd` service events that have been logged since the operating system was last started:

```
journalctl -u flexnetls-armlmd.service -b
```

Related information

[Find the license server status](#) on page 22

4.4 Find the license server status

Find the status of your license server.

Procedure

Check the license server service status using the following command:

```
armlm_check_server_status
```

Related information

[Restart the license server](#) on page 21

[Stop the license server](#) on page 21

[Start the license server](#) on page 21

4.5 List licenses and usage

List the product licenses and their usage on your license server.

Before you begin

The license server must be running.

Procedure

List the product licenses on your license server using the following command:

```
armlm_list_products
```

The following is an example of the output from this command:

```
3 product(s) found on license server

Hardware Success Kit Standard, HWSKT-STD0, 60 seat(s), 33 seat(s) used
  Order 273591004, valid until: 2023-02-24, 50 seat(s), 28 seat(s) used
  Order 273591034, valid until: 2023-12-31, 10 seat(s), 5 seat(s) used

Keil MDK Professional, KEMDK-PRO0, 20 seat(s), 12 seat(s) used
  Order 273591003, valid until: 2023-02-15, 20 seat(s), 12 seat(s) used
```

Related information

[List users](#) on page 25

4.6 Modify number of licenses

Modify the number of product licenses available on the license server.

Before you begin

The license server must be running.

Procedure

1. On the Arm user-based licensing portal, modify the number of product licenses allocated to the license server as follows:
 - a) Access the user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>.
 - b) Click **Manage License Servers** to display the list of servers.
 - c) Click **Manage Server** on the required license server. The server page displays any product licenses associated with server.
 - d) Click **Edit seats** on the required product.
 - e) The number of seats currently allocated for this product are shown under **Total seat count**. Modify the number of licenses under **Total seat count** and then click **Confirm Changes**. If the number of licenses has been reduced, a warning dialog is shown and you must click **Confirm Changes** in this dialog.

A file containing the new license data is downloaded. This file has the following filename:

```
licenses-<server_ID>-<timestamp>.bin
```

Where <server_ID> is the identifier of the server and <timestamp> is the time the file was created.



If you have reduced the number of licenses for a product, you cannot change the number of licenses for that product until a confirmation file is uploaded (see step 3).

2. Transfer the file to the license server device and use the following license command to load the modified license data:

```
armlm_update_licenses --data-file licenses-<server_ID>-<timestamp>.bin
```

The password for `admin` is requested. The output determines if further action is required:

- If licenses are removed, the following output confirms that further action is required:

```
Licenses have been successfully updated. A confirmation file needs to be
generated to complete this process.
Please run the "armlm_generate_server_confirmation" command and upload the
generated file to the licensing portal.
```

- If licenses are added, the following output confirms that no further action is required:

```
Licenses have been successfully updated. No confirmation is required.
```

3. If licenses have been removed, a confirmation is required:

- a) Use the following license server command to generate a confirmation file:

```
armlm_generate_server_confirmation --confirmation-file confirmation.bin
```

The password for `admin` is requested.

- b) Access the user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>.
- c) Click **Manage License Servers** to display the list of servers.
- d) Click **Manage Server** on the required license server. The server page displays any product licenses associated with server.
- e) Your product with the reduced number of licenses has an **Upload Confirmation** link. Click this link.
- f) In Server Configuration File, click **Browse** to select the `confirmation.bin` file. Click **Upload Confirmation**.

After the file has uploaded successfully, you are returned to the server page.

Related information

[List licenses and usage](#) on page 22

4.7 Migrate licenses to a new license server

Migrate licenses from an existing license server to a new license server.

Before you begin

The license server must be running.

Procedure

1. Obsolete the license server using the instructions in [Obsolete a license server](#).
2. Create a new license server. Follow the instructions in:
 - [Install your license server](#)
 - [Configure your license server](#)
 - [Register your license server](#)
 - [Allocate products to the license server](#)

Next steps

- If you have changed the license server URL, you should inform your users that they will need to enter the new URL into their Arm development tool.
- If you have not changed the license server URL, users should not be affected. When the user starts the Arm development tool, the existing license is recognised as broken due to an incorrect hostid. The development tool automatically contacts the license server to obtain a new license that has the correct hostid.

4.8 List users

List the users on your license server and their associated products.

Before you begin

The license server must be running.

Procedure

List the users on your license server using the following command:

```
armlm_list_users
```

The following is an example of the output from this command:

User	Product Code	Product Name	Last Access	Held Until
adlxho	HWSKT-STD0	Hardware Success Kit	2022-Apr-19 10:13:19 UTC	2022-May-19
hxyiso	HWSKT-STD0	Hardware Success Kit	2022-Apr-14 09:08:38 UTC	2022-May-14
jxycot	HWSKT-STD0	Hardware Success Kit	2022-Apr-12 09:58:42 UTC	2022-May-12
jxyche	HWSKT-STD0	Hardware Success Kit	2022-Apr-03 00:25:09 UTC	2022-May-03

Related information

[List licenses and usage](#) on page 22

4.9 License server version location

The license server version number is provided in the `<installation_directory>/VERSION` file, where `<installation_directory>` is the license server installation directory. If you did not change the installation directory during installation, this directory defaults to `/opt/flexnet1s-arm1md`.

4.10 Change the administrator password

You can change the administrator password from the command line.

Before you begin

The license server must be running.

Procedure

1. From the command line, run the `armlm_change_admin_password` command.
2. Enter the existing password.



If you have forgotten the administrator password, you can reset the password using the instructions in [Reset the administrator password](#).

3. Enter the new password. The new password must meet the following criteria:
 - Between 8 and 64 characters
 - At least one digit
 - At least one uppercase character
 - At least one special character (for example, `^*$-+?_&=!%{}/#@`)
 - No whitespace characters
4. Confirm the new password by entering it again.

Results

The following is output when the administration password is successfully changed:

```
Administrative account password changed successfully
```

4.11 Reset the administrator password

Reset the administrator password if the original password was lost. If you know the original password, use the [Change the administrator password](#) procedure instead.

Before you begin

The license server is unavailable during the password reset procedure. This can take some time as you must uninstall the server, re-install the server, and load the licenses back into the server. You should schedule this procedure accordingly and let your users know when the license server will be unavailable.

Procedure

1. Create a file containing the latest license data:
 - a) Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>.
 - b) Click **Manage License Servers** and then, on the required license server, click **Manage Server**.
 - c) Click **Download all licenses allocated to this server** and a license file containing the license data is downloaded. The license file name is `licenses-<server_ID>-<timestamp>.bin`, where `<server_ID>` is the license server name and `<timestamp>` is the date and time the license file was created.
 - d) If the license file was not downloaded to the license server device, transfer the file to this device.



Note

The license data file should not be saved in either of the following directories on the license server device, as these directories are deleted when the license server is uninstalled:

- The license server installation directory (`/opt/flexnetls-armlmd` by default)
- The data storage directory (`/var/opt/flexnetls-armlmd` by default)

2. Uninstall the license server using the instructions in [Uninstall the license server](#). You must use the `--delete-storage` parameter to delete all license data.
3. Re-install the license server using the instructions in [Install your license server](#). This procedure creates a new administrator password.
4. Load the license data using the following command:
`armlm_update_licenses --data-file <license_file>`

Where `<license_file>` is the name of the license file. The password for `admin` is requested.

The output from the command is as follows, confirming no further action is required when adding licenses:

`Licenses have been successfully updated. No confirmation is required.`

4.12 Monitor the license server

Log files for the Arm user-based licensing license server are stored in the <data_directory>/logs directory, where <data_directory> is the data directory that was set up when the license server was installed. If no data directory was specified during installation, the logs are stored in /var/opt/flexnetls-armlmd/logs.

4.13 Obsolete a license server

When the license server is no longer required, you must delete the product licenses on the license server device and in the Arm user-based licensing portal. This process ensures that your Arm product licenses become available for other servers.

Before you begin

- The license server must be running.
- If your Arm users accessing the license server to be deleted still require Arm products, you must set up an alternative license server. For details see [Install your license server](#).
- Watch the [License Removal and Decommissioning Server video tutorial](#) for an overview of the process to obsolete a license server.

Procedure

1. Review the product licenses on the license server. For more details see [List licenses and usage](#).
2. Remove all Arm product licenses from the license server, including uploading confirmation files into Arm user-based licensing portal for all products on your server.
For more details, see [Modify number of licenses](#).
3. In the licensing portal, delete the license server as follows:
 - a) At the top level, click **Manage License Servers**.
 - b) In the list of servers on this page, click **Manage Server** on the server to obsolete.
 - c) Click **Obsolete Server** to remove the server from the Arm user-based licensing portal.
4. Uninstall the license server using the instructions in [Uninstall the license server](#).

4.14 Upgrade the license server

To upgrade your existing license server for Arm products licensed under the user-based licensing model to a later version of the license server, use the following procedure.

Before you begin

You must have previously installed a license server for Arm products licensed under the user-based licensing model.

Procedure

1. Download the latest version of the license server Linux installation package from <https://lm.arm.com/downloads>.

2. From the command line, change directory to a directory that is not in one of the following directories:
 - The license server installation directory (/opt/flexnetls-armlmd by default)
 - The data storage directory (/var/opt/flexnetls-armlmd by default)
3. Uninstall the license server using the following command:

```
sudo <installation_directory>/bin/armlm_uninstall_license_server
```

Where:

- <installation_directory> is the license server installation directory. If you did not change the installation directory during installation, this directory defaults to /opt/flexnetls-armlmd.



You must not use the --delete-storage option when upgrading the license server.

-
4. Follow the instructions in [Install your license server](#) to install the license server upgrade.



You must keep the data storage directory used in the previous installation (/var/opt/flexnetls-armlmd by default).

You must keep the hostID used in the previous installation.

-
5. Confirm that your existing licenses are available. See [List licenses and usage](#).

Related information

[Install your license server](#) on page 13

4.15 Uninstall the license server

Uninstall the license server including, optionally, the license data.

About this task



If you are not going to re-install the license server after uninstalling it, you must recover the Arm product licenses so they can be reused on other license servers. For details of how to do this, see [Obsolete a license server](#).

Procedure

1. From the command line, change directory to a directory that is not in one of the following directories:

- The license server installation directory (/opt/flexnetls-armlmd by default)
 - The data storage directory (/var/opt/flexnetls-armlmd by default)
2. Uninstall the license server using the following command:

```
sudo <installation_directory>/bin/armlm_uninstall_license_server [--delete-storage]
```

Where:

- <installation_directory> is the license server installation directory. If you did not change the installation directory during installation, this directory defaults to /opt/flexnetls-armlmd.
- --delete-storage is an optional parameter. When set, the uninstall process also deletes all license data, including the allocated licenses, administrator password, and license server configuration.



- You must not use --delete-storage when upgrading the license server.
- You must use --delete-storage when you [Obsolete a license server](#).

4.16 Change the maximum number of license server requests

The license server rate limit is the number of license requests the license server processes in a given time. If the server receives more requests than the rate limit, the additional license requests are rejected with an error code that instructs the client to wait a defined time and then retry. If the rate limit is constantly exceeded, the license server response time degrades and license requests fail as they exceed the client timeout.

Before you begin

The license server must be running.

About this task

By default, the license server rate limit is 10 license requests per second. If you are finding that your users are having problems with the time to process license requests or are having license requests rejected, you can:

- Modify the method of licensing. For example, if you have many devices trying to access the license server in a short time-period, use a transfer file that requires only one license server request. For further details see [Activate your product if your device is offline](#).
- For license server versions of 1.2022120.2 and later, you can change the rate limit as described in the following procedure.

**Note**

- Arm recommends that you do not change this default value. A sustained rate of more than 10 requests per second indicates unexpected behavior. You should investigate the cause of this behavior before changing the rate limit.
- Increasing the volume of requests can create a performance problem for the license server.

Procedure

1. Open the following file:

```
<installation_directory>/server/local-configuration.yaml
```

2. Modify the `rate-limit` parameter to change the rate limit. The default rate limit is 10 requests per second.
3. Save and exit the file.
4. Restart the license server.

Related information

[Restart the license server](#) on page 21

5. Activation code administration

Describes how you can administer the Arm user-based licensing activation codes.

5.1 Create an activation code

Creates an activation code for a user of Arm development tools under the user-based licensing model.

Procedure

1. Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>. Your products are displayed in a table at the end of this page.
2. On the required product, click **View Details**.
3. Select **Cloud Server** and then click **Generate Activation Code**.
A banner appear at the top of the page stating **Activation code generated successfully** and the Activation code appears in the list of activation codes with a status of **Ready for activation**.
4. Copy the activation code to your clipboard and make it available to the user. For example, by sending an email containing the activation code to the user.

Related information

[View activation codes](#) on page 32

[Revoke an activation code](#) on page 33

5.2 View activation codes

View the activation codes created for a product.

Procedure

1. Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>. Your products are displayed in a table at the end of this page.
2. On the required product, click **View Details**.
3. Select **Cloud Server**.
4. All activation codes that have been created and not been deleted are listed. Activation codes can have the following status:
 - **Ready for activation:** The code has not been activated by a user.
 - **Activated:** The code has been activated by a user.
 - **Revoked:** An activated code has been revoked but seven days have not elapsed since the user renewed the code. When the seven days have elapsed, the code is deleted.



The license seats associated with the listed activation codes are not available to create another activation code. A license seat becomes available when an activation code is deleted and is no longer listed. For further details see [Revoke an activation code](#).

5.3 Revoke an activation code

Revokes an activation code for a user of Arm development tools under the user-based licensing model. The license seat for a revoked activation code can take up to seven days to become available.

Procedure

1. Access the Arm user-based licensing portal on <https://developer.arm.com/support/licensing/user-based>. Your products are displayed in a table at the end of this page.
2. On the required product, click **View Details**.
3. Select **Cloud Server** and click **Revoke** on the activation code to revoke.

Results

The activation code is deleted immediately if:

- The activated code has a status of **Ready for activation**.
- The activated code has a status of **Activated** and the user has not used the development tool in the last seven days.

If the activated code has a status of **Activated** and the user has used their Arm development tool in the last seven days, the status of the activation code changes to **Revoked**. The user can no longer activate licenses on new devices and previously cached licenses are not renewed. The activation code is deleted when all cached licenses have expired. This is usually seven days after the user license was last renewed.



The license seat only becomes available when a revoked activation code is deleted.

Related information

[Create an activation code](#) on page 32