READ CAREFULLY !!!

General Rules of License Management of KEIL Products

Keil's software is offered in three variants of licenses:

- **Single-User License** – allows to use the software by the single user (owner, his employee or subcontractor) only on rights owner benefit. For user convenience, it allows to install software on two computers (for example on desktop and on mobile laptop) which are in possession of license owner. It doesn't change the rule that exactly one person can use it.
- **FlexLM License** – allows to use the software by the multiple users in parallel (owner, his employees or subcontractors) on multiple LAN workstations only on rights owner benefit. The number of current users is limited to the number of bought seats and is controlled by LAN server administrator. The license can be "borrow" from the server for defined period of time and used outside without LAN access. FlexLM License is a new recommended solution of the net installation. It is available for any number of users.
- **Floating-User** – allows to use the software by the multiple users in parallel (owner, his employees or subcontractors) on multiple LAN workstations only on rights owner benefit. The number of current users is limited to the number of bought seats and is controlled by LAN server administrator. The license can be "borrow" from the server for defined period of time and used outside without LAN access. Floating-User License is a traditional solution of the net installation no more recommended. It is available for minimum three users.

Single-User License is connected to the physical computer (hardware dongle is not available). Installation requires registration on Keil's server via internet. On base of Product Serial Number (PSN) and Computer ID (CID) the dedicated License ID Code (LIC) is generated. On this base the software is activated on specified computer. License can be uninstalled from the computer, unregistered on Keil's server and after that moved to another computer and user. Install and uninstall operations are monitored to avoid permanent transfers between different users.

Floating licenses allows to use the software by multiple users in parallel. In case of FlexLM license the management is based on Flextera Software solution as typical Client-Server configuration. The License Administrator installed on LAN server hosts the Flex licenses by distribution of Uniform Resource Locator URL. Software installed on any number of workstations is activated by license server. In case of Floating-User license a Floating License File (FLF) is created on LAN server. Software can be installed on any number of the workstations similarly to Single-User License. The number of current users is limited by the access to the file FLF.

Computer ID code CID that identify computer is generated on base of installed hardware components and operating system. Any change of software or hardware configuration cause the change of CID. This will block possibility of license reinstallation and transfer to another computer or user. So …

> **Any computer hardware change or operating system reinstallation requires uninstallation of the license**

The license owner manages his licenses himself remotely via internet using Keil's server. The user is responsible for consequences of his incorrect actions. Between others it's important during license registration to fulfill the frame with correct contact data. Antispam filters should accept e-mail address licmgr@keil.com to get installation codes and important information. Please during registration use the real data of license owner and software user.

<div style="border:1px solid red">

Take care of license management

</div>

The owner of the license is obligated to secure his rights. He takes responsibility of aware or unaware giving access to the license codes to the third parties. He should reduce access only to the authorized persons as for example an IT administrator.

<div style="border:1px solid black">

Product Serial Number PSN should be secured as a confidential information

</div>

From the same reason we will not publish PSN to persons not authorized by the license owner.

To avoid problems we recommend to read following documents available on Keil web:
- License Agreement
    http://www.keil.com/support/man/docs/license/license_agreement.htm
- The rules of product maintenance – technical support & updating
    http://www.keil.com/product/maintenance.asp
- License Management User's Guide
    http://www.keil.com/support/man/docs/license/license_management.htm
- Installation Errors List
    http://www.keil.com/support/man/docs/license/license_errors.htm

In case of any problem we are on your disposal. Please contact immiediatelly authorized distributor or Keil technical support. Because …

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Not controlled repeating of installation procedures can cause overflow of the limit numer of allowed product registrations. This can block a license and can require special action on Keil's server

</div>

Please follow precisely steps of installation procedure described in this manual and on Keil's web. To allow us to correct in any problem case, we recommend …

<div style="border:1px solid black">

Save PSN, LIC, TRN codes and dates of installation/desinstallation operations

</div>

<div style="border:1px solid black">

Customers whose Software & Maintenance contract has expired are not covered by Keil's free of charge technical support and update service.

</div>

Manufacturer	Autorized distributor
KEIL An ARM Company	**WG Electronics Sp. z o.o.**
E: support.intl@keil.com	E: wg@wg.com.pl
	T: +48 22 847 97 20

Installing a Single-User License

Installation should be performed by the authorized person. Free access to PSN number allows not controlled installation.

Installation of the Keil's Single-User Licensed products is performed in following steps:
- Installation of the downloaded software on the workstation.
- Registration of the product on Keil's web
- Activation of the software with obtain LIC

Installation procedure is realized remotely via Internet but it's also possible to install the product on the workstation without connection to Internet.

A Single-User License allows using a Keil product by exactly one person on a maximum of two computers. Single-User Licenses are available for all Keil Software products.

Installation procedure is described at Keil's web:
> http://www.keil.com/support/man/docs/license/license_sul_install.htm

To Activate a Single-User License:

1. Prepare PSN number of the software product.
2. Install the software downloaded at https://www.keil.com/download/product/ on the workstation.
3. Obtain a LIC to activate the Single-User License as follows:

Obtain a LIC for Computers Connected to the Internet...

1. Login with an account that has administration rights.
2. Right-click the µVision icon and select Run as Administrator from the context menu.
3. Open the dialog File>License Management and select the Single-User License tab.
4. Click the button Get LIC via Internet, then click the button OK to register the product. This action opens the License Management page on the Keil web site.
5. Enter the Product Serial Number (PSN) for the Single-User License along with your contact information and click the button Submit. An e-mail is sent back with the License ID Code (LIC) within a few minutes.
6. To activate the Software Product, enter the LIC in the field New License ID Code (LIC) of the dialog License Management and click Add LIC.

Obtain a LIC for Computers Not Connected to the Internet...

1. From another computer that is connected to the Internet, visit the web page http://www.keil.com/license/install.htm and enter the requested product information. The Computer ID (CID) must be obtained from the dialog File>License Management of the target computer where the license will be installed.

2. On the target computer, continue with the steps 1, 2, 3, and 6 of the section above.

Notes:

- Keil monitors installation and uninstallation operations. The number of them is limited to avoid permanent license transfer between different users. This is not allowed by License Agreement. From the same reason there is also defined minimum time period between uninstallation and installation that has to passed.
- If the PSN is missing or on any other problem, contact the Keil Software Sales Department or the local Keil Software Distributor.
- Do not change any Network Connection on the target computer during the registration process. The CID encodes various parameters including network adapter information. After product activation, the network adapter may change as it is the case on Notebooks with various network connections.
- The CID encodes several computer parameters including a time stamp. This causes the CID to change daily. However, a LIC can be installed at any time, provided that the same Network Connection is active. Remember to uninstall Keil software in case you change any hardware or operating system on your workstation.

Uninstalling a Single-User License

You may uninstall a Single-User License to transfer the license to a different computer. Uninstallation of the Keil's software products is performed in following steps:

- Shut down of the software on the workstation
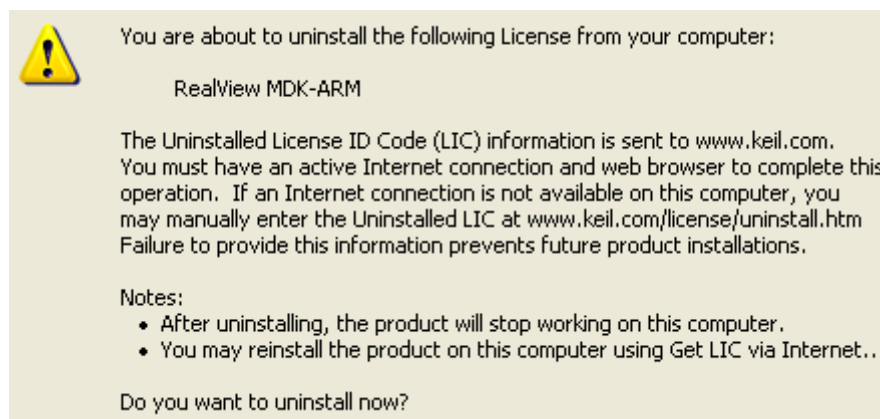- Canceling of registration of the product on Keil's web

Uninstallation procedure is realized remotely via Internet but it's also possible to uninstall the product on the workstation without conection to Internet.

Uninstallation procedure is described at Keil's web:

http://www.keil.com/support/man/docs/license/license_sul_uninstall.htm

For Computers Connected to the Internet...

1. In µVision, select the Single-User License tab of the File>License Management dialog.
2. Select the product you want to uninstall from the list.
3. Click on the Uninstall button and select Yes to the prompt.

> You are about to uninstall the following License from your computer:
>
> RealView MDK-ARM
>
> The Uninstalled License ID Code (LIC) information is sent to www.keil.com. You must have an active Internet connection and web browser to complete this operation. If an Internet connection is not available on this computer, you may manually enter the Uninstalled LIC at www.keil.com/license/uninstall.htm Failure to provide this information prevents future product installations.
>
> Notes:
> - After uninstalling, the product will stop working on this computer.
> - You may reinstall the product on this computer using Get LIC via Internet...
>
> Do you want to uninstall now?

4. The Single-User License Uninstallation page on the Keil website opens and the Uninstall License ID Code (LIC) is entered automatically.
5. Click on the Submit button to finalize the uninstall process.

For Computers Not Connected to the Internet...

1. In µVision, open the Single-User License page of the File>License Management**...** dialog.
2. Select the product you want to uninstall from the list.
3. Click on the Uninstall button and select Yes to the prompt.
4. The message Uninstall should appear in the right column and the LIC should change to the Uninstall License ID Code starting with TRN… Write down this TRN code from the License Management dialog.

5. Visit the following web page (on a other computer with internet access)

   http://www.keil.com/license/uninstall.htm

   and enter the Uninstall License ID Code (TRN...).

After uninstalling a license, you may obtain a new LIC on a different computer for the software product.

Notes:

- Keil monitors installation and uninstallation operations. The number of them is limited to avoid permanent license transfer between different users. This is not allowed by License Agreement. From the same reason there is also defined minimum time period between uninstallation and installation that has to passed.
- On any other problem, contact the Keil Software Sales Department or the local Keil Software Distributor.
- Remember to uninstall Keil software in case you change any hardware or operating system on your workstation.

Installing **FlexLM License**

> **Installation should be performed by the authorized person. Free access to PSN number allows not controlled installation.**

Installation of the Keil's FLexLM Licensed products is performer in two steps:
- installation of software on the workstations
- installation of the floating license software server on the network server

The floating license software server controls the number of copies of the licensed product component in use, up to the maximum number of licenses purchased.

License servers can be installed on Windows and Unix/Linux machines. Client machines must be able to access the server machines over the Local Area Network (LAN).

MDK-ARM supports single-server floating license installations. You can only use the ARM License Manager to set up single-server floating licenses. A multiple server floating license configuration must be set up manually.

Installation procedure is described at Keil's web:
http://www.keil.com/support/man/docs/license/license_flex_install.htm

Installing FlexLM License on the Workstation

1. Install the software downloaded at https://www.keil.com/download/product/ on the workstation. Administration rights are required.
2. Connect the workstation to the network.
3. Obtain the URL from the system administrator. The URL should have the form *portNumber@hostServer*.

For Computers Connected to a Network

1. Open the dialog File>License Management.
2. Select the tab FlexLM License.
3. Click the button Edit and enter the URL into the pop-up window.
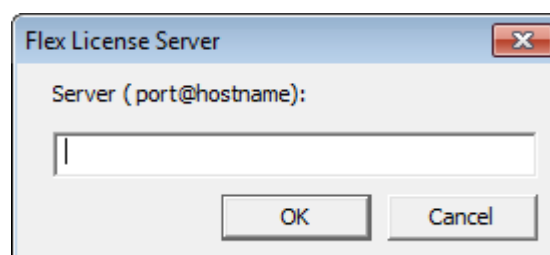
4. Click OK.
5. Enable Use Flex Server. The dialog shows all available product licenses.
6. Click on a product row in the license table. Click Set as Active Product to use the license.
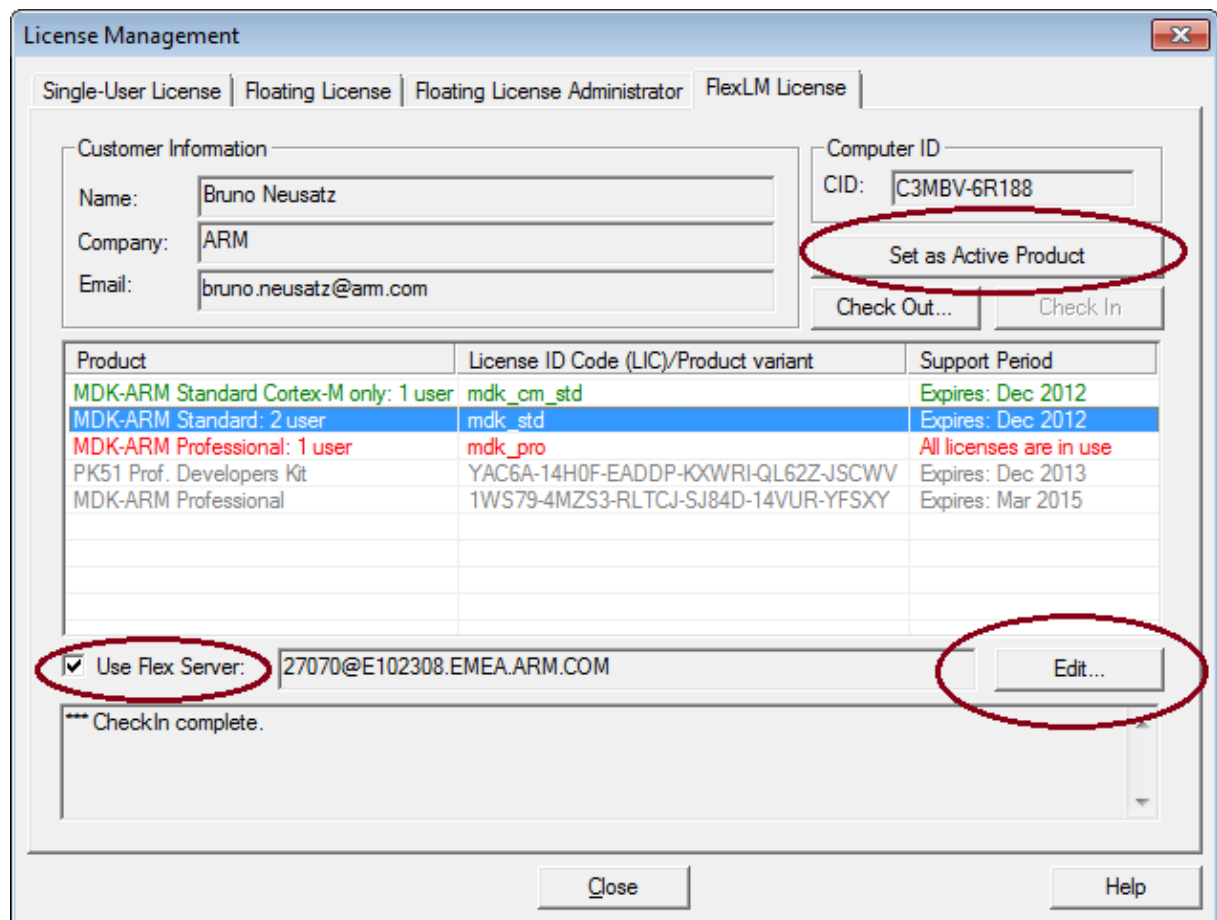
7. The colors of the records on the list identify the status of the software products

- ■ – identifies the FlexLM license currently active on your workstation.
- ■ – identify FlexLM licenses that cannot be used. The licenses are all in use by other parties or the Flex License Server cannot be accessed.
- ■ – identify available licenses. Any of these records can be made active.
- ■ – show the locally installed licenses

Licenses are checked-in and -out automatically, as needed by the compiler or debugger. Editor is available any time without number of users limit restriction. The default checked-out period is one hour, after which the license is checked in automatically. The PC has to be connected to the network for the check-in and check-out process. Once the FlexLM License has been installed, you can Check out (borrow) the license for an extended period.

Installing FlexLM License on the Server

Retrieve a License File

1. Login to the ARM's License Management Home Page - https://silver.arm.com/. Login is required. If you haven't got it, you have to register for an ARM account.

2. From the menu on the left side select Resources>Licensing>Generate
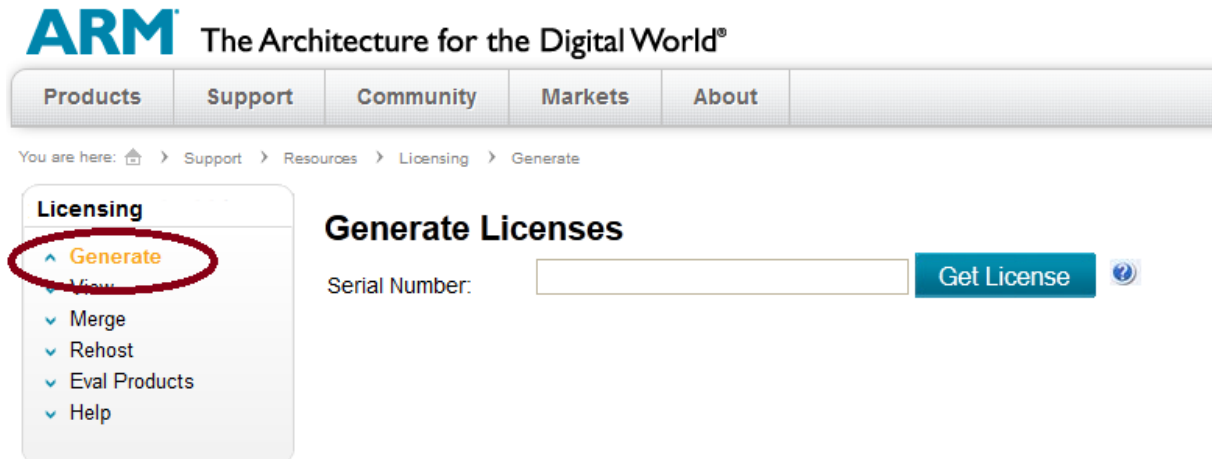
3. Enter Product Serial Number PSN and click Get License
4. On the next page fullfill required ID codes and click Generate
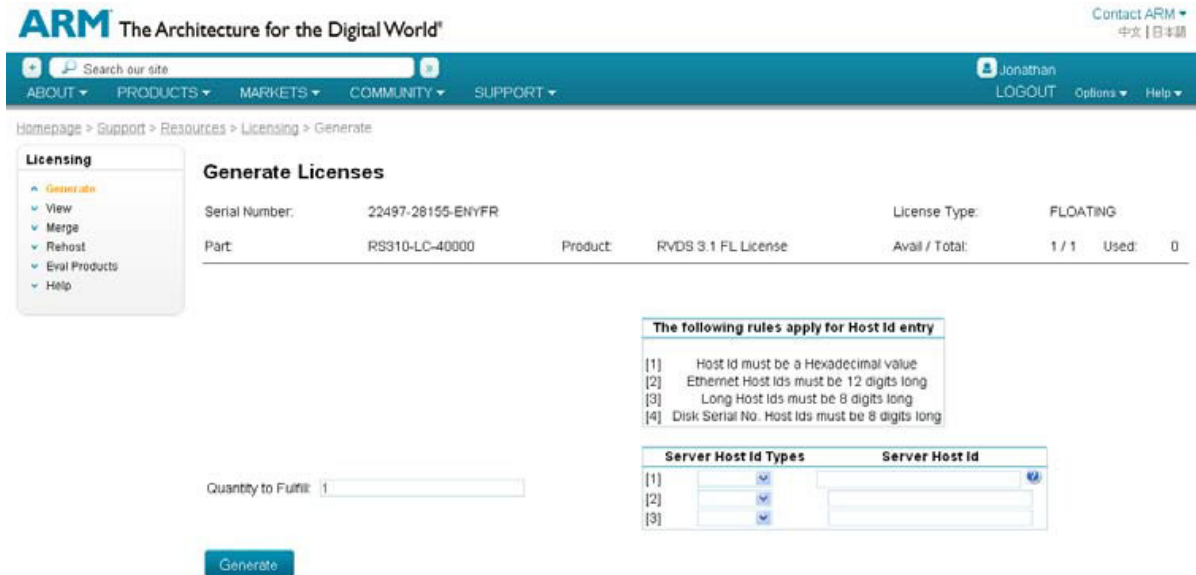
5. On the next one verify data and click Confirm or go back by clicking Back

6. Click **View** to display the license file, then **Save** to save your license file for farther adaptation.
7. Return to Self-Service portal https://silver.arm.com/

Download License Server Software

8. From menu on the left side select Resources>Downloads
9. From the list of available products select Utilities>FLEXnet binaries and utilities
10. On the right side click Download Now
11. Click Save to store the file on the local machine. Follow the on-screen prompts.

Install the Server Software

12. Install the license server software on the machine, which acts as a floating license server. The software contains:

   - armlmd - the ARM vendor daemon.
   - lmgrd - the FlexNet server daemon
   - lmutil - the FlexNet licensing utilities
   - lmtools.exe - the graphical user interface for FlexNet licensing utilities. This tool is only available on Windows.

13. Extract the binary files for your matching OS and copy them to a dedicated folder of your license server.
14. On Unix/Linux server, change to your license utilities directory, and type: sh ./makelinks.sh

Adapt the Floating License File

15. Move the license file to a known location on the server. A suitable place for the license file is the same directory as your floating license server software.

16. The suggested file name is license.dat, and this name is used throughout this document to refer to the license file.

17. Open a text editor to modify your license.dat file.

18. Replace *this_host* in the license file with the corresponding server name. If the host ID in the license file is incorrect or if the server host ID has changed, you must apply to ARM for a new license file.

19. Add the port number after the host ID. By default, the port number is 8224.

20. Save your edited license file as a plain text file. You can download the original license file from the ARM web licensing portal at any time.

For example, if the web-generated license file contained the following line:
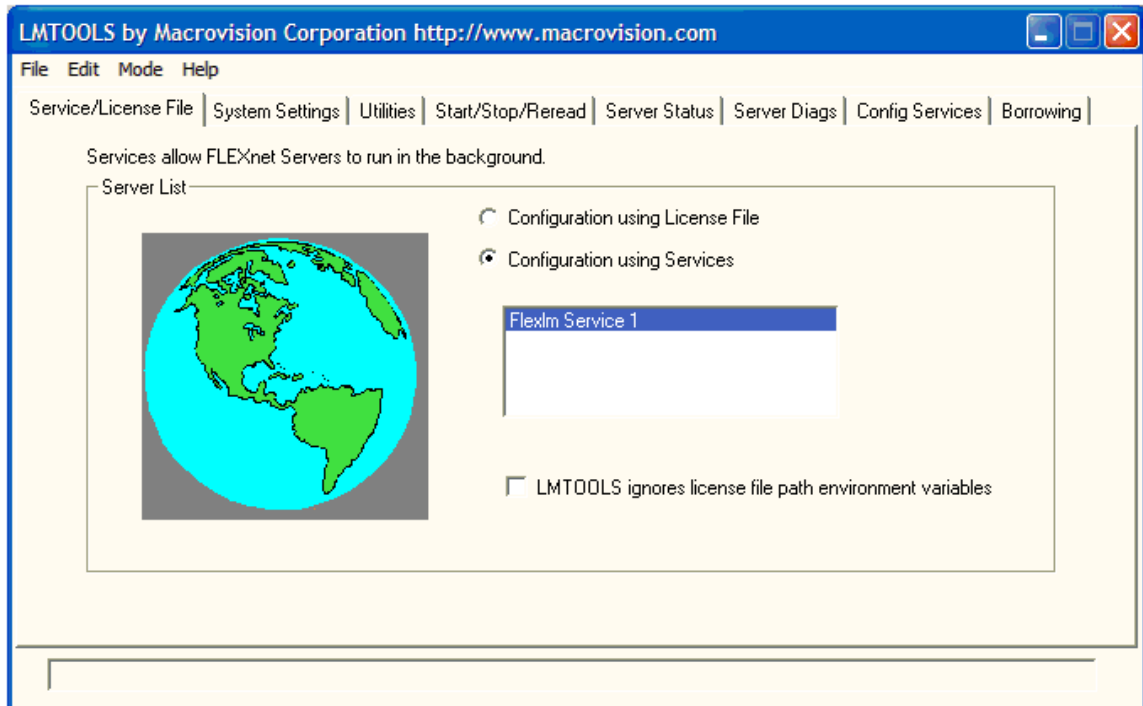
```
SERVER this_host 001002A34BC5
```

and you wanted to use port number 8224 on your floating license server called *synchrotron*, you must change the line to:

```
SERVER synchrotron 001002A34BC5 8224
```

Starting a Windows Server using lmtools.exe

21. Start the lmtools.exe program.
22. On the Server/License File tab, select the Configuration using Services option.

23. Click the Config Services tab to display the dialog. This example shows the dialog with typical paths entered.
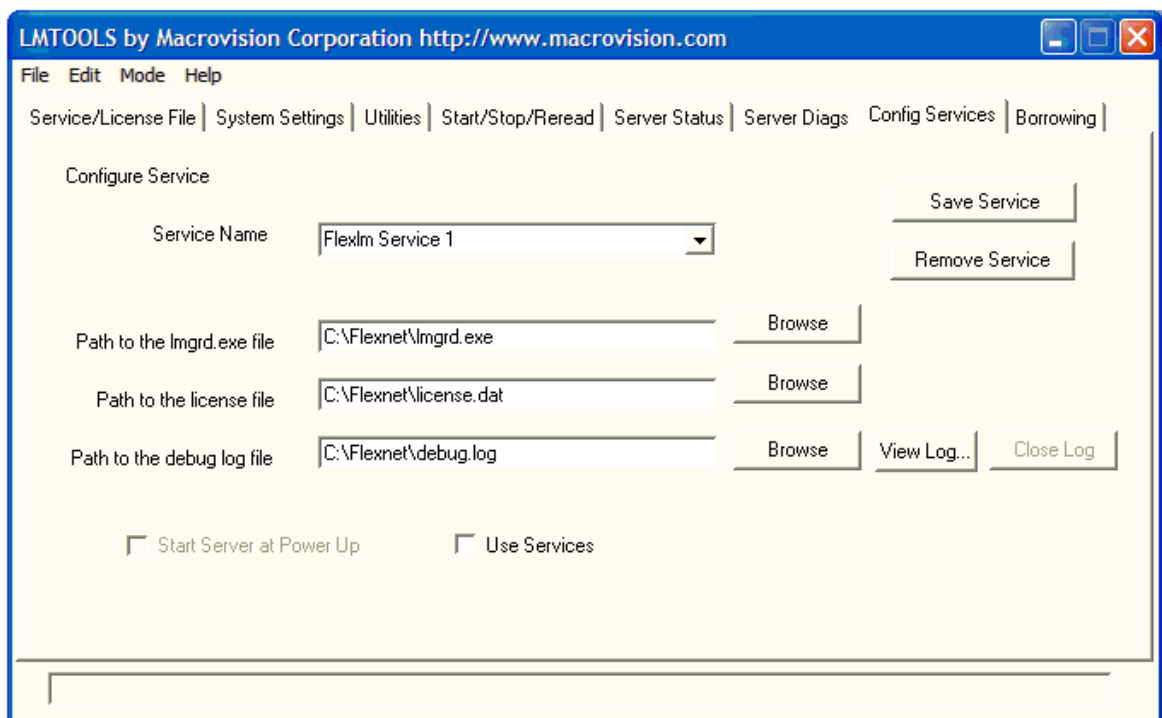
24. Enter the paths that specify the required files, or click the browse buttons to locate and select the files. You must specify paths for the:

- executable file lmgrd.exe.
- license file license.dat.
- log file, which is debug.log in this example.

25. If you require the server software to start running automatically when the server computer is turned on:
   - Enable Use Services.
   - Enable Start Server at Power Up.

26. Click Save Service.

27. At the prompt, confirm saving the FlexNet License Manager service.

28. Click the Start/Stop/Reread tab, and ensure that the FlexNet License Manager service is selected.

29. Click Start Server to start running the floating license server software.

30. Check whether the floating license server started successfully:
   - Click the Server Status tab
   - Click Perform Status Enquiry

The status information shows that the floating license server and vendor daemon are both UP, followed by a licensed feature usage list. Any floating license server errors are shown in the status information.

After you have started the floating license server, you can use a text editor, such as Notepad, to inspect the server debug log file.

Starting a Windows server from the command line

To start the floating license server on Windows using the command line:

31. Go to the directory where the floating license server software is installed.

32. Type:

    lmgrd -c *license_file_name* -l *logfile_name*

    where
      license_file_name specifies the fully qualified path name of the license file

      logfile_name   specifies the fully qualified path name to a server debug log file. The server log file can become very large, so it might be necessary for you to control its size.

After you have started the floating license server, you can use a text editor, such as Notepad, to inspect the server debug log file.

Starting a Unix/Linux Server

To start the floating license server software on a Unix/Linux server:

33. Go to the directory containing the floating license server software.

34. Type:

> nohup lmgrd -c *license_file_name* -l *logfile_name*

> where

> *license_file_name*   Specifies the fully qualified path name of the license file.

> *logfile_name*   Specifies the fully qualified path name to a server debug log file. The debug log file must be on a local storage device to avoid network problems. The server log file can become very large, so it might be necessary for you to take action to control its size.

> Note
> - lmgrd does not require root privileges, ARM recommends that you start the server as a non-privileged user, instead of giving it root privileges.

After you have started the floating license server, you can type, for example:

tail -f logfile_name

to see the most recent output from the floating license server.

For more details on how to start and configure a floating license server on Unix/Linux, see the Flexera Software documentation.

Note:
- If you are adding a new license to a system with a running floating license server, you must
  - Shut down the server
  - Point the server to the new license file
  - Restart the server
  If this is not done, the new license information might not be recognized by the license daemons.
- ARM does not recommend the use of the lmreread command

Check Out & Check In the FlexLM License

Installed license can be borrow from the server for the longer time and used on field without LAN access. To check out a license:
1. Open the dialog File>License Management.
2. Click the tab FlexLM License
3. Click Check Out and select on the calendar how long to check out a license
4. Anytime you can click Check In to free a license manually. The license is freed immediately.
The PC has to be connected to the network for the check-in and check-out operations.

Uninstalling a FlexLM License

Uninstalling FlexLM License on the Workstation

Uninstallation procedure is described at Keil's web:

http://www.keil.com/support/man/docs/license/license_flex_uninstall.htm

1. Open the dialog File>License Management
2. Select the tab FlexLM License.
3. Disable Use Flex Server

Shut down a FlexLM License Server

Uninstallation procedure is described at Keil's web:

http://www.keil.com/support/man/docs/license/license_flex_serv_stop.htm

Note:
- Avoid using the Windows Task Manager, or kill -9 on Unix/Linux, to terminate the floating license server daemons because the processes might not end gracefully. This might cause problems on server restart.
- If you must forcibly shut down a server, always stop lmgrd before armlmd.

Stopping a Windows Server

To use the graphical user interface to stop a Windows floating license server:

1. Start the lmtools.exe program.
2. Click the Start/Stop/Reread tab.
3. Click the Stop Server button to shut down the server.

To use the command line, see the instructions below Stopping a Unix/Linux Server.

Stoping Unix/Linux Server

1. Go to the directory containing the floating license server software.
2. At the command prompt, type:

   Lmutil lmdown –q –c *license_file_name*

   where
   license_file_name specifies the fully qualified path name of the license file that you used to start the server.

Installing Floating-User License

<div style="border:1px solid black; text-align:center; color:red; font-weight:bold;">
Installation should be performed by the authorized person. Free access to PSN number allows not controlled installation.
</div>

Installation of the Keil's Floating-User Licensed products is performed in following steps:
- Installation of the downloaded software on the workstations.
- Creating the Floating License File FLF
- Registration of the products on Keil's web
- Activation of the software with obtain LIC

Installation procedure is realized remotely via Internet but it's also possible to install the product on the workstation without connection to Internet.

Installation procedure is described at Keil's web:

> http://www.keil.com/support/man/docs/license/license_floating_admin.htm
> http://www.keil.com/support/man/docs/license/license_ful_install.htm

Creating the Floating License File FLF

1. Prepare PSN number of the software product.
2. Install the software downloaded at https://www.keil.com/download/product/ on the workstation. Administration rights are required.
3. Open the dialog File>License Management and select the tab Floating License Administrator

4. Enter the path where the Floating License File should be saved. This folder must be a network drive.
5. Enter the PSN of the Floating-User License
6. Click the button Create FLF

Note:
- It is impossible to change the path to the Floating License File after the first license has been obtained from the Keil web site.

Installing Floating-User License on the Workstation

1. Install the software downloaded at https://www.keil.com/download/product/ on the workstation. Administration rights are required.
2. Open a dialog File>License Management and select the tab Floating-User License
3. Click Add Product and enter the path to the Floating License File (*.FLF).

For Computers Connected to the Internet

The user should be switched to the License Management page on the Keil web.

4. If no – go to 5. If yes – go to 9

For Computers not Connected to the Inthernet

5. Open this file by clicking Open
6. Obtain the FLI (*ang. Floating License Identification*) and CID information for that computer.
7. Visit the webpage from the computer that is connected to the internet and enter the information.

<div align="center">https://www.keil.com/license/floating.htm</div>

8. Enter CID i FLI.
9. Enter your contact information and click on the Submit button

Within a few minutes you should receive a License ID Code (LIC) via an automated e-mail process. If not – contact authorized distributor or Keil technical support. Repeating of the procedure can cause license blocking.

10. Activate your software product, by entering the LIC in the field New License ID Code (LIC) and clicking Add LIC in the dialog window

In the dialog window License Management>Floating-User License new record should appear in central part with a description of a status of installed software.

Note:
- Do not change any Network Connection on your computer during the registration process. The CID encodes various parameters including network adapter information. After product activation, the network adapter can change, as it is the case on portable Notebooks with various network connections.

- The CID encodes several computer parameters including a time information. Therefore the CID changes daily. However, you may install a LIC at any time, provided the same Network Connection is active.

Check Out & Check In the Floating-User License

Installed license can be borrow from the server for the longer time and used on field without LAN access. To check out a license:

1. Open the dialog File>License Management.
2. Click the tab Floating -User License
3. Click Check Out and select on the calendar how long to check out a license
4. Anytime you can click Check In to free a license manually. The license is freed immediately.

The PC has to be connected to the network for the check-in and check-out operations.