

# MPLAB® XC Compiler FAQs

## Why isn't the MPLAB® XC PRO Compiler comparable to the MPLAB XC Functional Safety Compiler?

The MPLAB XC Functional Safety Compiler provides the necessary functional safety qualifications and documentation that are not available with the MPLAB XC PRO Compiler. Development tools for functional safety applications must be qualified for use, and the MPLAB XC PRO Compiler is not qualified.

## How many machines can the MPLAB XC license be installed on?

- **The Workstation License** can be activated on three machines for a single user.
- **The Network Server License** can be activated on one machine, which is usually a server or PC on a local network. The Network license has several components: the network server software (Reprise License Manager or RLM), the network license file and the client machine. The license file is installed on the network server. The RLM is also installed on the server. MPLAB X Integrated Development Environment (IDE) should be installed on the client machine, and the MPLAB XC Compiler should also be installed on that machine as a network client. When MPLAB X IDE is launched on the client machine, it will check if a license file is available on the local machine and the server. If a license is available, it will be checked out to that client machine. The license is available on a first-come, first-served basis, so no other client machines can “check out” that license until the first client stops using it. The license will then be automatically checked back in on the license server. Other network clients will have to wait 60 minutes before they can check out the license from the server.
- **Network Server Site Licenses** also run from a server. A license file with the list of host IDs that can use the license is installed on the network server along with the RLM. While the Network License is a single license file for multiple users, the Site License is purchased as multiples “seats.” Each seat is assigned to the specific host ID for a client machine so the user can check out a license file at any time without being affected by a time delay.
- **A Subscription License** can be installed on a single workstation machine. It allows one user per license and is available only in the PRO mode.
- **The MPLAB XC Dongle License** is a plug-and-play license that can be used interchangeably among workstations and users. The license file is installed on a dongle (USB Flash drive) and is intended for multiple users and mobile use. Just plug it into the workstation’s USB port and go. Note: please remove any other license files from the computer that relate to the compiler you wish to use before you plug in the dongle.
- **A MPLAB XC Virtual Machine License for Network License** is required if you are using a virtual machine as the Network License or Site License server. Purchase this additional license here: [MPLAB XC Virtual Machine License](#).
- MPLAB XC Compilers and license files can be installed on every major platform, including Linux®, Windows® and macOS® operating systems.

## What are the minimum system requirements for installation of the MPLAB XC Compilers?

Microsoft Windows 7 Professional/Windows 8/Windows 10

- Processor: 800 MHz Intel Pentium III or equivalent
- Memory: 512 MB

Ubuntu 9.10:

- Processor: 800 MHz Intel Pentium III or equivalent
- Memory: 512 MB

macOS X 10.5:

- Processor: Dual-Core Intel (32- or 64-bit)
- Memory: 512 MB

## Other Configurations

The compiler may also run on the various other Linux distributions such as Oracle Enterprise Linux 5, Ubuntu 8.x and 10.04, Red Hat Enterprise Linux and many others.

## What are the different modes that the MPLAB XC Compiler offers? What are the typical optimization levels of the different modes of the compiler?

MPLAB XC compilers can be operated in two different modes: PRO and Free. You need to purchase an activation key to use the PRO mode. The Free mode allows you to run any compiler version at a reduced level of optimization. However, when you install the MPLAB XC Compiler you can download a free 60-day evaluation of the PRO compiler that can only be used once.

### PRO:

- 50-60% smaller code than the Free mode
- Much faster execution speed than Free mode
- Includes 12 months of High Priority Access (HPA) support

### Free:

- Perpetually free with minimal level of optimization

Commercial use of the PRO and FREE mode compiler is permitted. New device support is included in new versions of the MPLAB XC Compiler. If you are running a PRO license, then you must renew the HPA each year. If it expires, PRO optimizations of the compiler will no longer run with your license file.

## How can I purchase a compiler?

Compiler license activation keys can be purchased from one of Microchip's distributors or from Microchip's online purchasing site at [www.microchipdirect.com](http://www.microchipdirect.com). Search for "XC" or search on one of the part numbers below:

MPLAB XC8 Compiler Licenses:

- MPLAB XC8 PRO Compiler Network Server License - SW006021-2N
- MPLAB XC8 PRO Compiler Workstation License - SW006021-2
- MPLAB XC8 PRO Compiler Subscription License - SW006021-SUB
- MPLAB XC8 PRO Compiler Dongle License - SW006021-DGL

MPLAB XC16 Compiler Licenses:

- MPLAB XC16 PRO Compiler Network Server License - SW006022-2N
- MPLAB XC16 PRO Compiler Workstation License - SW006022-2
- MPLAB XC16 PRO Compiler Subscription License - SW006022-SUB
- MPLAB XC16 PRO Compiler Dongle License - SW006022-DGL

MPLAB XC32/32++ Compiler Licenses:

- MPLAB XC32/32++ PRO Compiler Network Server License - SW006023-2N
- MPLAB XC32/32++ PRO Compiler Workstation License - SW006023-2
- MPLAB XC32/XC32++ PRO Compiler Subscription License - SW006023-SUB
- MPLAB XC32/32++ PRO Compiler Dongle License - SW006023-DGL

Note: Site licenses can only be purchased through Microchip sales offices.

All license activation keys, except for the Subscription License and Dongle Licenses, come with a one-year High Priority Access (HPA) that entitles you to:

- 12-month maintenance and support contract
- New compiler version release support
- Major version updates
- Access to the latest Windows, Linux and OSX compatible versions of the compiler
- Priority technical support for compiler-related queries

## What is the activation key?

The activation key is used for creating a license file for the computer Host ID (MAC address) that will be installed on your computer. Activation keys are in the format 'nnnn-nnnn-nnnn-nnnn' and are registered in your account on [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware). Activation keys contain a High-Priority Access (HPA) timer that will expire 12 months after you create the first license file from the key.

## What is the license file?

The license file is created from the activation key for the computer's host ID. The license file will allow compiling with your chosen optimization options from -O1 -O2 -O3 or -Os. License files and activation keys are affected by the status of the HPA.

## What is HPA?

High Priority Access (HPA) is a 12-month support package that is available on the Workstation, Network and Site license activation keys. It acts like a timer that counts down 12 months from the first time you create a license file from the key and it then expires.

When the HPA expires, any license files that were created from the key will still allow optimizations with versions of the compiler released before the expiration date of the HPA. If a new compiler version is installed after the HPA has expired on your activation key, the license files from the key will not allow optimizations with the new compiler version.

The HPA can be renewed at any time. It should **only be renewed in the account where the compiler license activation key is registered**. The HPA cannot be moved from one account to another.

After you renew the HPA, you will need to manually apply it to the original key in your account. Any license files will need to be downloaded again to your computer to take advantage of the new HPA.

## Is it possible to reset my MPLAB XC Compiler license so that I can install it on other machines?

The MPLAB XC Compiler license is created from the activation key for a specific machine's host ID. Therefore, the License file is tied to that host ID and cannot be used elsewhere. If you are planning to move to a new computer, you will need to create a new license file from the activation key in your account on either [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware) or [www.microchipdirect.com](http://www.microchipdirect.com). When you have used all three of the activation spaces on a Workstation license activation key, you will need to contact [SW.Licensing@Microchip.com](mailto:SW.Licensing@Microchip.com) for assistance.

If you need to create new Network or Site license files or have any issues with your Subscription licenses, please contact [SWLicensing@microchip.com](mailto:SWLicensing@microchip.com) for assistance.

## How can I register my newly purchased MPLAB XC compiler license key?

If you purchased your license through microchipDIRECT, the MPLAB XC activation key will automatically be registered to your microchipDIRECT account. However, if you purchased it through a distributor, you must create a mySoftware account at [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware). If you already have a microchipDIRECT account, you will also have a mySoftware account. Use your microchipDIRECT login credentials to access your account at [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware).

If you do not have a microchipDIRECT account, you will need to create a mySoftware account. After you have logged into your mySoftware account, click on the 'Activate and Register MPLAB software' link in the left column of selections and follow the instructions to activate and register the license.

## **I have a Workstation license, but I need a Network Server license. Is there a way to change my license type from Workstation license to Network Server license?**

Older versions are supported by existing license files only if the MPLAB XC Compiler version was released before the HPA on the activation key expired.

## **Can I install multiple compilers on the same machine?**

Yes, you can install different versions of MPLAB XC compiler on the same machine, e.g. you can install MPLAB XC16 v1.00 and XC16 v1.10 on the same machine in different paths.

## **My HPA is not active. Can I upgrade to a newer release of my compiler?**

Yes, you can upgrade to a newer version of the compiler at any time but remember if the HPA on your MPLAB XC Compiler license activation key is expired, you will not get the optimizations in MPLAB X IDE with the newer version. You will need to renew your HPA to be able use PRO mode in the upgraded version of the MPLAB XC Compiler. Be sure to renew your HPA in the account where the existing MPLAB XC Compiler activation key is registered.

For additional assistance, please read our [MPLAB XC HPA Renewal Instructions](#).

Microchip does offer part [support patch releases](#) for the MPLAB XC Compilers. The part support release consists of support files for the newer parts introduced with the newer compiler release and needs to be installed on top of your compiler installation. These support files do not provide any new features or contain any additional compiler architectural enhancements that may be needed for new devices.

## **How can I renew my HPA?**

To renew your HPA, log in to your account on [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware). Locate the MPLAB XC Compiler for which you would like to renew the HPA and select the “Renew HPA” option. The link will bring you to the HPA purchase page. Purchase the HPA, return to your account and use the “Apply HPA” option. Download the new license file to your existing or new host ID.

HPA part numbers are:

- SW006021-2H for all PRO Workstation Compiler License activation keys (XC8/XC16/XC32)
- SW006021-2NH for all PRO Network Compiler License activation keys (XC8/XC16/XC32)

## **Can the compiler license be activated through a command line?**

No, command line activation is no longer supported.

## **Why am I encountering issues evaluating the licenses?**

Evaluation mode provides PRO mode optimizations for 60 days and returns to Free mode optimizations after 60 days. No further evaluation is available after that time frame.

If you are encountering issues using the evaluation license, please check the status of your evaluation MPLAB XC License by executing this command, which will show you the number of days that are left on the evaluation license:

### **xclm –demostat <PRODUCT>**

Any of the following events will corrupt the evaluation license file:

- Modifying the system date or time after the installation of the license
- Modifying the ‘.lic’ file and trying to change its contents
- Deleting the compiler license ‘.lic’ file and re-running the evaluation license
- Downloading the evaluation license again from the Evaluation License page

If you want to maintain the same PRO optimization features after the evaluation period ends, purchase an MPLAB XC Compiler license activation key from microchipDIRECT or one of our distributors.

## How can I get an Evaluation license for the MPLAB XC Compiler?

- Go to the [Evaluation License](#) page to activate the license. If you have any issues with the Evaluation license file, please contact [SW.Licensing@Microchip.com](mailto:SW.Licensing@Microchip.com).

## How can the MPLAB XC Compilers be configured using MPLAB X IDE?

MPLAB X IDE should automatically configure the MPLAB XC Compiler. Here are steps you should follow:

- Download and install the latest version MPLAB X IDE for your OS from the [MPLAB X IDE](#) page
- Download and install the version of the MPLAB XC compiler for your OS from the [MPLAB XC Compilers](#) page
- Open MPLAB X IDE, and follow this path using the Tools drop down menu:
- Tools > Options > Embedded > Build Tools (Tab)

The installed compiler will be shown under the 'Tool-chain' list. If, for some reason, the compiler is not appearing there, click on 'Scan for Build Tools' to scan your machine for installed tools. When they are discovered, you can add the scanned compilers to the 'Tool-chain' list.

Note that if the compiler is not installed in its default location, the compiler will have to be added manually. You can do this by clicking on 'Add' and providing the '<Compiler-DIR>/bin' path.

## What is the simplest way to install an MPLAB XC Compiler and license it for optimization?

Install the version of the MPLAB XC8, XC16 or XC32 compiler that you require in Free mode. Log in to your My Software account at [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware) and download the license file from there and install it on your computer. When you launch MPLAB X IDE, it will scan your computer to see if any license files are installed. If it does find a license file, it will use it when you compile code with your MPLAB XC Compiler.

## Where can I go to download an MPLAB XC Compiler?

Go to the Downloads tab on the MPLAB XC Compilers page or download it from inside your account at [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware).

## Where can I go to download the license file?

You can do this inside your account at [www.microchip.com/mysoftware](http://www.microchip.com/mysoftware). You can also log into [www.microchipdirect.com](http://www.microchipdirect.com) and go to the MySoftware Products page. All your registered compiler license activation keys will be there.

## How can I change the optimization options?

In the MPLAB X IDE Project Properties, go to XC\*Compiler > Optimizations > Set Value > Apply

- Open the Project Properties using the wrench symbol in MPLAB X IDE
- In Properties page chose the version of the MPLAB XC Compiler you are working with
- A new page will open, and you can choose the optimization options from the dropdown menu
- Set the optimization value and the use the Apply button

## Where can I find the host ID?

Open a command window and change the directory to the Compiler install location. Type `xclm -hostinfo` and choose the MAC address for the NIC. For Linux or macOS operating system users, open a terminal and use the `xclm -hostinfo` command.

## Where do I put the license file?

Do not put the license file anywhere. Download the zip folder and open it. Run the installer file from the zip folder and it will install the file for you.

## How do I get MPLAB X IDE to see the license file?

MPLAB X IDE will automatically see the file from the license path.

## Can I perform offline activation of the MPLAB XC compiler?

Currently, there is no way to perform offline activation on a demo (evaluation) version of the MPLAB XC Compiler. However, you can generate the license for the offline computer using an online computer and then transfer this license to the offline computer.

To obtain the host ID of the offline computer, execute the "xclm -hostinfo" command found in the bin directory of the compiler directory.

Go to the [Evaluation License](#) page on an online computer and follow the instructions to obtain a license for the MPLAB XC compiler. Copy this license into the "C:\ProgramData\Microchip\xclm\license" folder (Windows OS) on the offline computer and the compiler will be able to access the proper license to run in PRO mode.

Use these paths for copying the license file onto computers running Linux or macOS operating systems:

Linux: "/opt/microchip/xclm/license/"

macOS: "/Library/Application Support/Microchip/xclm/license/"

## Can you extend the evaluation period in my MPLAB XC Free compiler so that I can evaluate the MPLAB XC PRO compiler for a longer period of time?

No, the evaluation period of the compiler cannot be extended. If you wish to maintain the same level of functionality, you can purchase an MPLAB XC Compiler from microchipDIRECT or one of our distributors.

## How can I activate my Subscription license on a new host ID?

Contact [SW.Licensing@microchip.com](mailto:SW.Licensing@microchip.com) for assistance.

## How do I clear old activations from my list of keys?

Contact [sw.licensing@microchip.com](mailto:sw.licensing@microchip.com) for assistance.

## How can I convert my license for a MPLAB C Compiler to a MPLAB XC Compiler?

There is no migration path from MPLAB C to MPLAB XC compilers.

## Where can I find legacy compilers?

Contact [sw.licensing@microchip.com](mailto:sw.licensing@microchip.com) for assistance.

## How do I activate a Hi-Tech C Compiler?

Contact [sw.licensing@microchip.com](mailto:sw.licensing@microchip.com) for support.

## How is a MPLAB XC Compiler for Functional Safety different than the MPLAB XC PRO Compiler License?

It's best to think of the regular MPLAB XC Compiler and the MPLAB XC Compiler for Functional Safety as different tool chains with independent release schedules as they are completely different compiler products that address the needs of different markets. The MPLAB XC Compiler for Functional Safety requires extensive validation and rigorous process compliance documentation to meet functional safety standards. Along with the certificate from TÜV SÜD stating that we've met these standards, the development tool documentation is included in the product offering. This includes an extensive package of information including classification and classification review documents, Functional Safety Manuals, FMEA reports and validation strategies and results.

## What is included with the MPLAB XC PRO Functional Safety Compiler License?

A perpetual license that unlocks all versions of functional safety license is included, along with the following documentation:

TÜV SÜD certificates for all four standards:

- ISO 26262
- IEC 61508
- IEC 62304
- IEC 60730

## A functional safety manual for the functional safety compiler version of your choice

Safety plan and tools classification and qualification reports for:

- MPLAB XC compilers
- MPLAB X IDE
- All MPLAB debugger/programmers

## What licensing options are available?

The MPLAB XC Compiler for Functional Safety is available as a perpetual workstation license. This license will unlock all versions of functional safety compilers as they become available. If documentation is needed for other versions of functional safety compilers, then they can be purchased separately (when available).

## Can I upgrade my MPLAB XC PRO Compiler license to a MPLAB XC PRO Functional Safety Compiler license?

Yes, this is done through quote on an as-needed basis only. Please contact [SW.Licensing@microchip.com](mailto:SW.Licensing@microchip.com) for more information.