

MaxRT eRTOS 1.0 SDK

INSTALLATION GUIDE

IntervalZero

MaxRT
eRTOS

MaxRT eRTOS 1.0 SDK Installation Guide

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Contents

Software Requirements	2
Operating System Requirements	2
Microsoft Visual Studio Requirements	2
Administrator Privileges	4
Installing and Activating eRTOS SDK	5
Before You Begin	5
Installing MaxRT eRTOS	6
Activating eRTOS SDK	7
Ideal SDK License	7
Licensing Workflow	8
Using MaxRTActivationUtil.exe	10
Activating to a Machine	12
Activating to a Dongle	13
VSIX Packages	16
Uninstalling	17
Next Steps	18
System Modifications During Installation	19
System Modifications During Installation	19
Support	20
Third-Party Support	20
Contacting Technical Support by Phone	20
Before Calling Technical Support	20
Online Support Resources	20

1

Software Requirements

This chapter lists software requirements for eRTOS Software Development Kit (SDK).

Note: This SDK installation does not include eRTOS Runtime. To run real-time applications, you must install the separate Runtime product. See the *eRTOS Runtime Installation Guide* for more information.

Operating System Requirements

eRTOS SDK is supported on any 64-bit operating system.

Note: eRTOS SDK cannot be installed on a 32-bit operating system.

Microsoft Visual Studio Requirements

eRTOS SDK requires that you have Microsoft Visual Studio 2022 or 2019 installed if you wish to build eRTOS programs with the Visual Studio IDE.

- **Visual Studio 2022 LTSC** (Enterprise, Professional, and Community editions supported)

Important: The eRTOS SDK requires the **Desktop development with C++** Visual Studio 2022 workload.

If this workload is not currently installed for Visual Studio 2022, you must manually install it using the appropriate Visual Studio installer file (`vs_<edition>.exe`). For example, `vs_professional.exe`. To do this, follow the steps below:

1. Browse for and open the Visual Studio 2022 installer file (`vs_<edition>.exe`).
2. Under **Workloads / Windows**, select **Desktop development with C++**.
3. Under **Summary**, make sure that the optional feature of this workload **MFC and ATL support (x86 and x64)** is selected.
4. Click **Install**.
5. After the new workload is installed, click **Launch**.

Note: If the above workload is not installed, projects and samples created with the eRTOS application templates will not build.

Important: eRTOS application templates require the Windows 10 SDK version 2004 (10.0.19041.0) or later, which is included in the **Desktop development with C++** Visual Studio 2022 workload.

- **Visual Studio 2019 Version 16.11** (Enterprise, Professional, and Community editions supported)

Note: eRTOS SDK requires the **Desktop development with C++** Visual Studio 2019 workload.

If this workload is not currently installed for Visual Studio 2019, you must manually install it using the appropriate Visual Studio installer file (`vs_<edition>.exe`). For example, `vs_professional.exe`. To do this, follow the steps below:

1. Browse for and open the Visual Studio 2019 installer file (`vs_<edition>.exe`).
2. Under **Workloads / Windows**, select **Desktop development with C++**.
3. Under **Summary**, make sure that the optional feature of this workload **MFC and ATL support (x86 and x64)** is selected.
4. Click **Install**.
5. After the new workload is installed, click **Launch**.

Note: If the above workload is not installed, projects and samples created with the eRTOS application templates will not build.

Note: The eRTOS application templates require a Windows 10 SDK version, which is not included in the Visual Studio 2019 installation by default. You must manually select the Windows 10.0 SDK option during installation of Visual Studio 2019.

Administrator Privileges

Administrator privileges are required for installing and uninstalling the eRTOS SDK product.

2

Installing and Activating eRTOS SDK

Before You Begin

Before you begin the installation, do the following:

- Verify that your configuration meets the requirements described earlier in this document.
- Ensure that you have administrator privileges on the system.
- Install Microsoft Visual Studio (see Software Requirements for supported versions). This is required if you plan to use supported features.
- If you have previously installed Mando Beta SDK, please uninstall it before installing.

Important: A *Typical* installation of Visual Studio 2022 or 2019 does not include the Visual C++ programming language required by the eRTOS application template. If the Visual C++ feature is not installed, the eRTOS application template fails with an exception. You can add the Visual C++ feature to Visual Studio 2022/2019 via Programs and Features in the Windows Control Panel.

- Exit all Windows programs, including any open instances of Visual Studio.

Installing MaxRT eRTOS

About the Environment Variable

ERTOSSDKDIR indicates the pathname of the directory containing the eRTOS SDK.

For more information, see [System Modifications During Installation](#).

About the VSIX Package

eRTOS SDK installs the VSIX package for Visual Studio 2022 and 2019.

Note: Installation of VSIX packages can take a considerable amount of time.

For more information on VSIX packages, see [VSIX Packages Installed with the eRTOS SDK](#).

To install eRTOS SDK:

1. Download the zip file `MaxRT_eRTOS_1.0_SDK_Setup.zip` from the eRTOS download site.
2. Extract the contents of the zip file.
3. Double-click the self-extracting executable `MaxRT_eRTOS_1.0_SDK_Setup.exe`.
4. Click **Next** in the IntervalZero eRTOS installation Start window.
5. Read the End User License Agreement, select **I accept the terms in the license agreement** and then click **Next**.
6. Optionally, on the Destination Folder screen, choose a destination location other than the default:
`<InstallDrive>\Program Files\IntervalZero\MaxRT\eRTOS SDK\`
7. Click **Next** on the Destination Folder screen.
8. In the Custom Setup screen, optionally select the features you want to install, and then click **Next**.
9. Click **Install** to begin the installation.
10. Click **Finish** on the Installation Completed screen.

Activating eRTOS SDK

You can use the eRTOS Activation command line utility, `MaxRTActivationUtil.exe`, to activate eRTOS SDK. This utility requires a valid activation key, which you can find in the email you received from IntervalZero Sales when you purchased eRTOS or by viewing your orders in the IntervalZero Customer Center. You can activate eRTOS SDK to a machine or IntervalZero-provided dongle.

Ideal SDK License

The ideal SDK license is the license with the most recent issue date. In the event there are multiple licenses of the same type with the same issue date, the ideal license will be determined by the order in which it appears in the license file, with the ideal license being the top-most entry.

In this section:

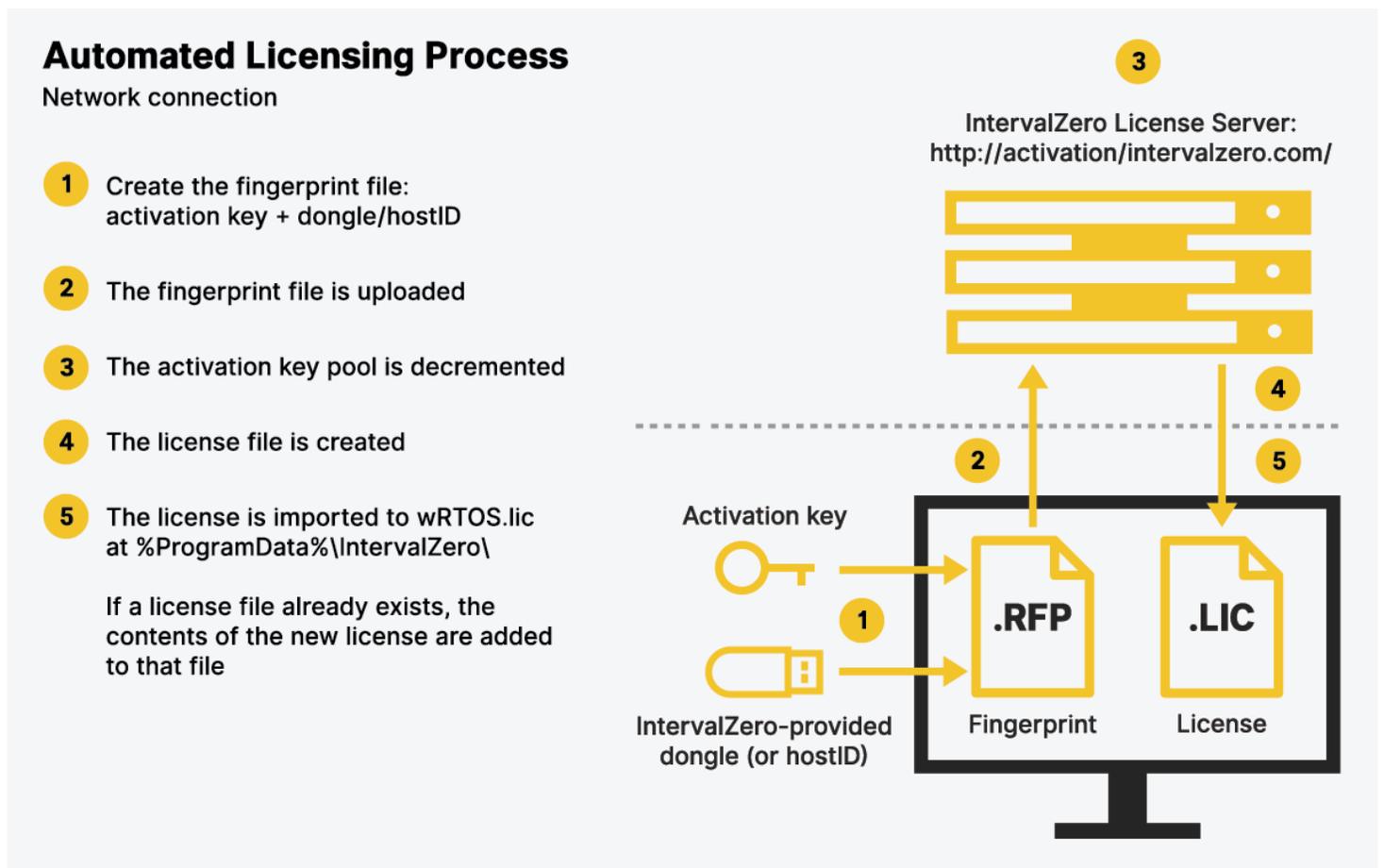
- [eRTOS SDK Licensing Workflow](#)
- [Using MaxRTActivationUtil.exe](#)
- [Activating eRTOS SDK to a Machine](#)
- [Activating eRTOS SDK to a Dongle](#)

Licensing Workflow

The process for licensing eRTOS SDK differs depending on whether the machine on which the SDK is installed is connected to a network. There are two distinct licensing processes: *Automated* and *Manual*. The diagrams below show the workflow for each process.

Automated Licensing

When the machine is connected to the network, the licensing process occurs automatically once a valid Activation Key is provided and activated through the eRTOS Activation command line utility.



Manual Licensing

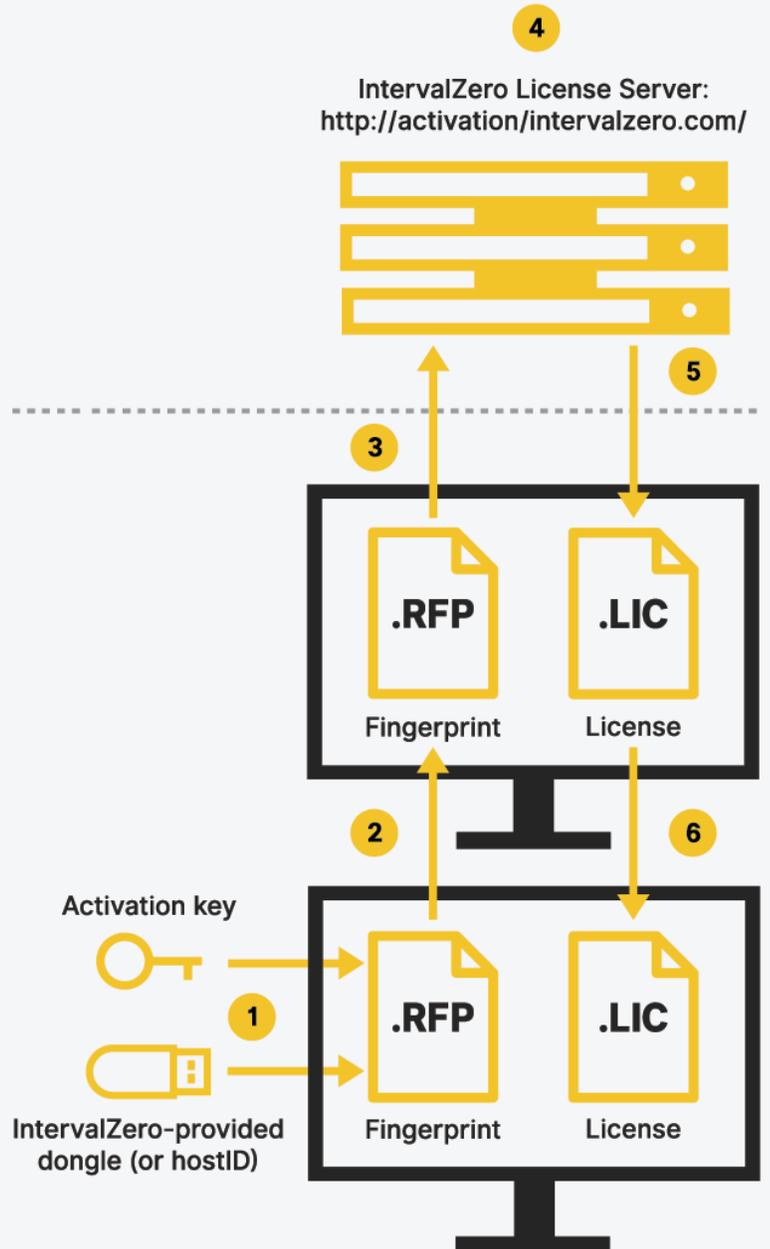
When there is no network connection, there are additional steps that must be completed manually, as shown in the below diagram.

Manual Licensing Process

No network connection

- 1 Create the fingerprint file:
activation key + dongle/hostID
- 2 Locate a system with network access to the IntervalZero License Server to create the license file
- 3 Upload the fingerprint file
- 4 The activation key pool is decremented
- 5 The license file is created
- 6 Import the license to wRTOS.lic at %ProgramData%\IntervalZero\

If a license file already exists, the contents of the new license are added to that file



Using MaxRTActivationUtil.exe

You can use the eRTOS Activation command line utility, `MaxRTActivationUtil.exe`, to activate eRTOS SDK. This utility requires a valid activation key, which you can find in the email you received from IntervalZero Sales when you purchased eRTOS or by viewing your orders in the IntervalZero Customer Center. You can activate eRTOS SDK to a machine or IntervalZero-provided dongle.

Note: You must run `MaxRTActivationUtil.exe` as Administrator to successfully activate eRTOS components.

Usage

```
MaxRTActivationUtil.exe [-a Key] [-af Key File] [-ef Key File] [-listdongles] [-lf File] [-aa Key] [-dongle] [-nodongle] [-detectdongle]
```

Parameters

-a Create and activate the eRTOS license. Requires an activation key.

Example:

```
MaxRTActivationUtil.exe -a <activation key>
```

-af Auto export a fingerprint file on next reboot.

-ef Export a fingerprint file.

-listdongles Provides a list of the dongles connected to the machine.

-lf Import the license file.

-aa Automatically activate the key on the next reboot of the system.

-dongle Force activation to the dongle.

-nodongle Force activation to the machine.

`-detectdongle` Detects the ID of the dongle connected to the machine.

Error Returns

`MaxRTActivationUtil.exe` returns 0 when it succeeds. When it fails, it returns an error code. The table below lists the possible error codes returned by `MaxRTActivationUtil.exe`.

Error value	Error code	Meaning
0	ERROR_SUCCESS	Success
1	ERROR_INVALID_FUNCTION	Returns for all error cases that are not translated to Windows errors
5	ERROR_ACCESS_DENIED	Windows Administrator permissions are required
6	ERROR_INVALID_HANDLE	Could not retrieve the process handle
13	ERROR_INVALID_DATA	Failed to find server location or license file
87	ERROR_INVALID_PARAMETER	Could be several reasons, such as: invalid values for RTSS or Windows processors; conflicting flags. arguments that failed to process
126	ERROR_MOD_NOT_FOUND	Could not retrieve the process
648	ERROR_DEVICE_ENUMERATION_ERROR	Two or more dongles are connected to the machine

Activating to a Machine

Use the appropriate option described below to activate wRTOS SDK to a machine. To activate components to a dongle, see [Activating eRTOS SDK to a Dongle](#). The appropriate option will depend on whether the machine is connected to the Internet.

Activate Over the Network (Internet)

Use this option to activate immediately using a valid activation key.

Note: These steps require the machine to be connected to the Internet.

To activate wRTOS SDK to a machine:

1. Launch a Windows Command Prompt as Administrator.
2. Type `MaxRTActivationUtil.exe -a <activation key>`.
3. Press **Enter**.

Generate a Fingerprint File (No Internet)

Use this option to create a fingerprint file with a valid activation key which you can then import.

To generate a fingerprint file:

1. Launch a Windows Command Prompt as Administrator.
2. Type `MaxRTActivationUtil.exe -ef <Activation Key> <path to output fingerprint file>`.
3. Press **Enter**. If a simple file name is given for the fingerprint file, the file will be saved on the desktop. You can also provide a full path.
4. Copy and paste the fingerprint file to an external device.

5. Connect the device to a machine with Internet connectivity.
6. Launch a web browser and navigate to <https://Activation.IntervalZero.com>.
7. Browse for and open the fingerprint file
8. Click **Activate** to generate a license (.lic) file.
9. Click **Save** if your browser prompts you to save the license file. Some browsers automatically save the downloaded license file without prompting.
10. Copy the file `License.lic` to the external device and transfer it to the machine on which eRTOS is installed.
11. Follow the steps under *Activate with a License File* below.

Import a License File

Use this option to import a valid license file, such as a license file created from a fingerprint file.

To import a license file:

1. Launch a Windows Command Prompt as Administrator.
2. Type `MaxRTActivationUtil.exe -lf <path to license file>`.
3. Press **Enter**.

Activating to a Dongle

Use the appropriate option described below to activate eRTOS SDK to a dongle. To activate components to a machine, see [Activating eRTOS SDK to a Machine](#). The appropriate option will depend on whether the machine is connected to the Internet.

Dongle Activation Options

You have three options when purchasing an IntervalZero-provided dongle and a product license at the same time:

- **Option 1 (default)** – IntervalZero activates the dongle for you when you purchase the software and a dongle. Simply plug in the dongle to use wRTOS.
- **Option 2** – Request that IntervalZero not activate the dongle for you when you purchase the software and a dongle. You will then need to activate the product to the dongle yourself, following the steps below.
- **Option 3** – Use an existing dongle. You will need to activate the product to the dongle yourself, following the steps below.

Note: You can also license eRTOS components to an IntervalZero-provided dongle using the Dongle Activation Utility. The IntervalZero-provided Dongle Activation Utility can be used to activate licensed components on other machines similar to the pre-activation service you can request from IntervalZero. You can download the Dongle Activation Utility from the IntervalZero Support Site.

Note: You cannot license eRTOS components to a dongle when more than one dongle is connected to the machine. You cannot license eRTOS components to a dongle from a remote connection.

Activate Over the Network (Internet)

Use this option to activate immediately using a valid activation key.

Note: These steps require the machine to be connected to the Internet.

To activate wRTOS SDK to a machine:

1. Launch a Windows Command Prompt as Administrator.
2. Type `MaxRTActivationUtil.exe -dongle -a <activation key>`.
3. Press **Enter**.

Generate a Fingerprint File (No Internet)

Use this option to create a fingerprint file with a valid activation key which you can then import.

To generate a fingerprint file:

1. Connect the dongle.
2. Launch a Windows Command Prompt as Administrator.
3. Type `MaxRTActivationUtil.exe -dongle -ef <Activation Key> <path to output fingerprint file>`.
4. Press **Enter**. If a simple file name is given for the fingerprint file, the file will be saved on the desktop. You can also provide a full path.
5. Copy and paste the fingerprint file to an external device.
6. Connect the device to a machine with Internet connectivity.
7. Launch a web browser and navigate to <https://Activation.IntervalZero.com>.
8. Browse for and open the fingerprint file
9. Click **Activate** to generate a license (.lic) file.
10. Click **Save** if your browser prompts you to save the license file. Some browsers automatically save the downloaded license file without prompting.
11. Copy the file `License.lic` to the external device and transfer it to the machine on which eRTOS is installed.
12. Follow the steps under *Activate with a License File* below.

Import a License File

Use this option to import a valid license file, such as a license file created from a fingerprint file.

To import a license file:

1. Launch a Windows Command Prompt as Administrator.
2. Type `MaxRTActivationUtil.exe -lf <path to license file>`.
3. Press **Enter**.

VSIX Packages

eRTOS SDK installs the following VSIX package to the folder `<InstallDrive>\Program Files\MaxRT\eRTOS SDK\VSExtensions\`:

- `eRTOSVSSupport2022.vsix` – MaxRT eRTOS Debugger and templates for creating eRTOS RTSS applications and RTDLLs for Visual Studio 2022 (requires Visual Studio 2022 to be selected in the SDK installer)
- `eRTOSVSSupport2019.vsix` – Templates for creating eRTOS real-time applications and RTDLLs for Visual Studio 2019 (requires Visual Studio 2019 to be selected in the SDK installer)

If you choose to install Visual Studio 2019, you can run the corresponding eRTOS VSIX package to install its functionality in Visual Studio without having to re-install eRTOS SDK in its entirety. This is typically useful in the scenario where support is needed for a supported version of Visual Studio that was installed after eRTOS SDK was installed.

To install the MaxRT eRTOS Debugger and templates for Visual Studio 2022:

Run the VSIX package `eRTOSVSSupport2022.vsix`.

To install templates for Visual Studio 2019:

Run the VSIX package `eRTOSVSSupport2019.vsix`.

Uninstalling

Follow the steps below to uninstall eRTOS SDK

Steps:

1. Close Microsoft Visual Studio if it is open.
2. Navigate to the **Windows Control Panel**.
3. Under *Programs*, click **Uninstall a Program**.
4. Select the **MaxRT eRTOS SDK** program and click **Uninstall**.
5. Click **Yes** to confirm.
6. Click **Finish** once the installation is complete.

Next Steps

Once you've successfully installed eRTOS SDK, we recommend you review the eRTOS SDK product Help available from the Start menu. See *Getting Started* for information on how to create a real-time application (RTProcess) using the eRTOS Application Template in Microsoft Visual Studio.

Appendix A

System Modifications During Installation

The following table describes the system modifications that are made during the eRTOS SDK installation.

System Modifications During Installation

Name	Description
eRTOSSDKDir1	This environment variable contains the path to the directory containing eRTOS SDK.

Support

Third-Party Support

If you are a customer who purchase an IntervalZero product through a third-party reseller, contact the reseller for support.

Contacting Technical Support by Phone

Location	Number	Hours
United States	1-781-996-4481 At the prompt, press 3 for Support.	Monday - Friday, 8:30 a.m. – 5:30 p.m. US Eastern Time (GMT-500), excluding holidays.
R.O.C. Taiwan	+ 886-2-2556-8117	Monday - Friday, 9:00 a.m. – 5:00 p.m. Taipei Standard Time (GMT+8), excluding holidays.

Before Calling Technical Support

Please have your Support ID ready before calling IntervalZero Technical Support. Customers who purchase direct support receive an e-mail address and password for use when accessing the IntervalZero support website.

Online Support Resources

Visit our website at www.intervalzero.com to log in to the Customer Support Portal (with valid credentials), access online product Help, and view Support and Lifecycle policies and Product Release Notices.

Index

A

- activating 7
 - from a command line 10
 - to a dongle 13
 - to a machine 12
 - using MaxRTActivationUtil.exe 10

I

- ideal SDK license 7
- installing 6
 - before you begin 5
 - system modifications during installation 19

L

- licensing
 - automated 8
 - ideal SDK license 7
 - manual 9
 - workflow 8

M

- MaxRTActivationUtil.exe 10
- Microsoft Visual Studio 2

O

- operating system requirements 2

R

- requirements
 - Microsoft Visual Studio 2

S

- software
 - operating system requirements 2
 - system modifications 19

U

- uninstalling 17