

ModusToolbox™ usage: How to export to Keil µVision

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public

Scope of work

- ModusToolbox™ software includes a variety of ways to use applications with 3rd party tools.
- This document helps application developers understand how to export a ModusToolbox™ application to Keil µVision.
- The content of this document is divided into the following sections:
  - Software environment
  - Hardware connection
  - How to export an application to Keil µVision (Single-core)
  - How to export an application to Keil µVision (Multi-core)

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Software environment

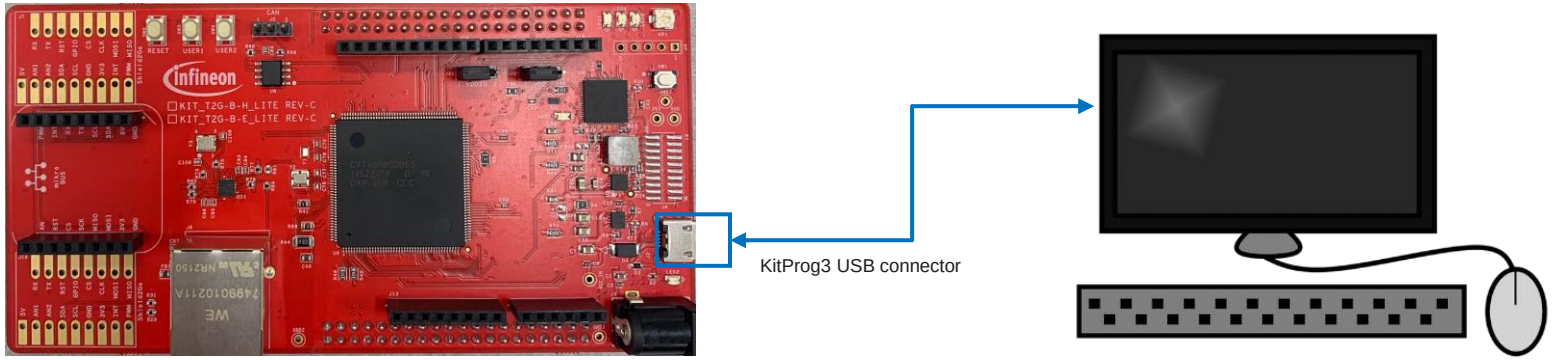
This section describes the software environment.

- ModusToolbox™ 3.0 software and application
- Python 3.8
- Keil µVision version 5.38.0.0 or later
- TAVEO™ T2G KIT_T2G-B-H_LITE with KitProg3 firmware

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Hardware connection

– **Connect the PC and kit board using an USB cable.**

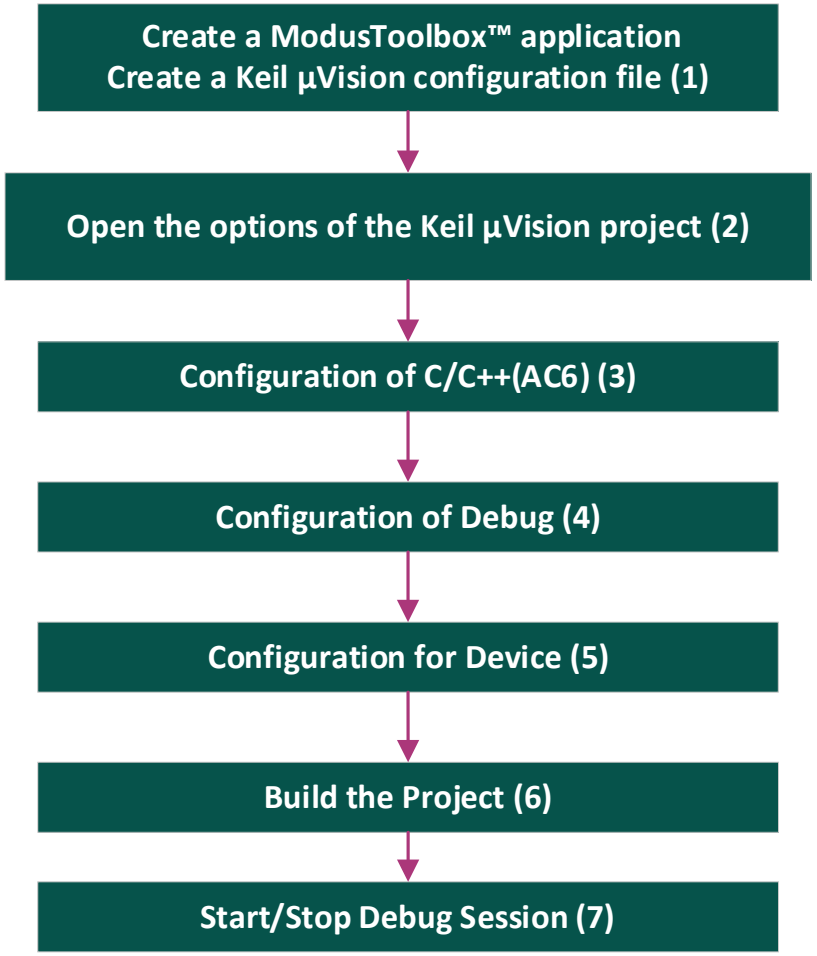


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How to export an application to Keil µVision (Single-core)

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The following flow chart shows a simple setup process for single-core debugging with Keil µVision.



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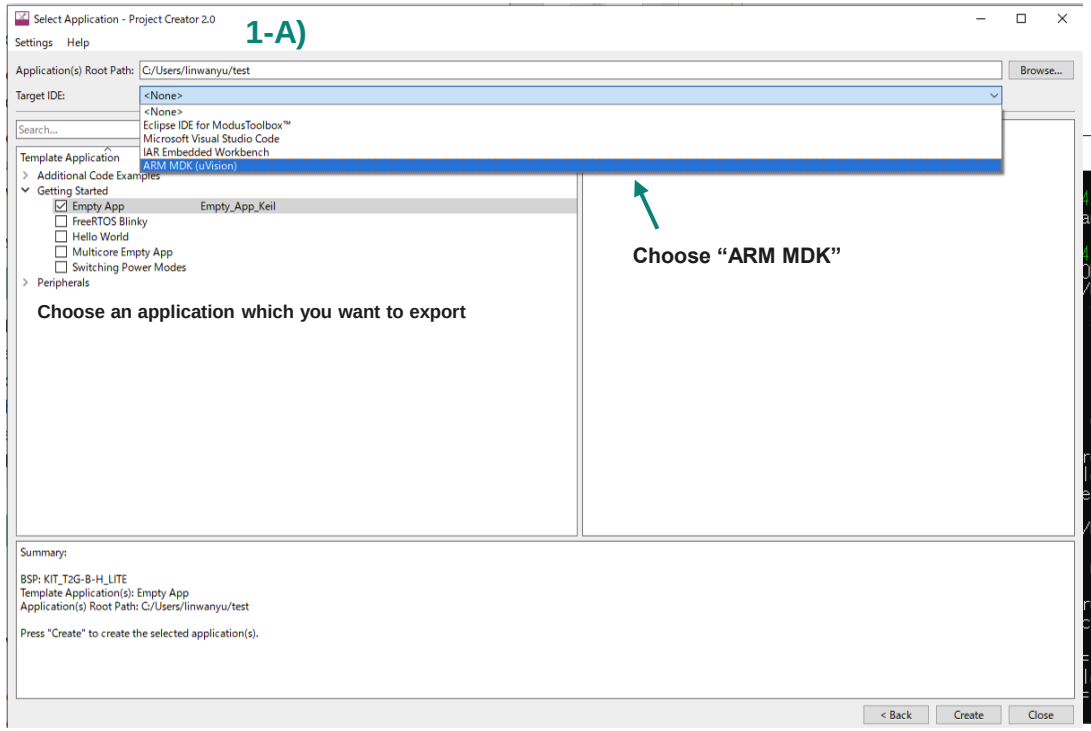
This section explains how to set up single-core debugging using µVision IDE with CE “Empty_App”.

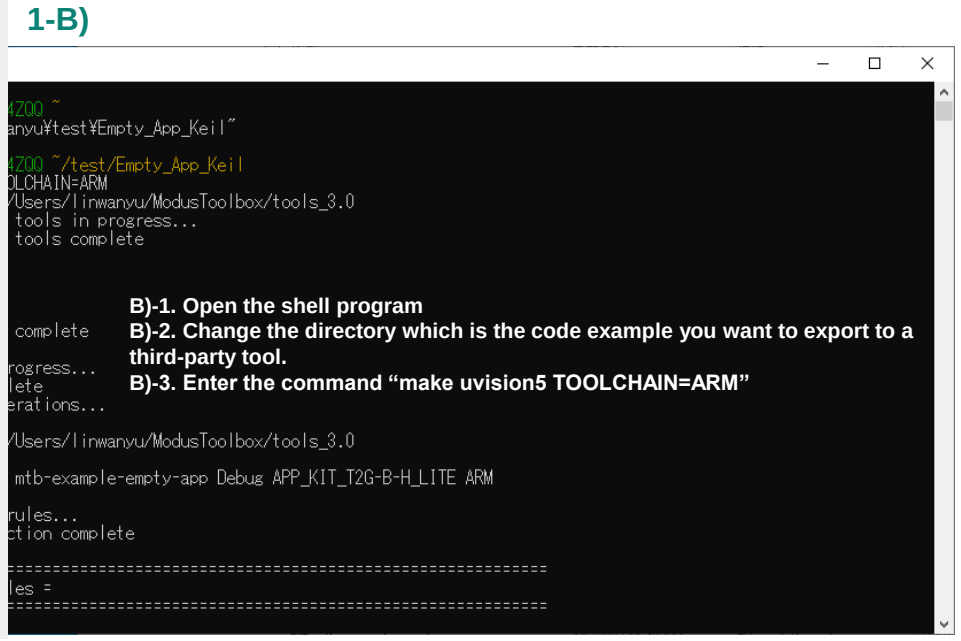
1. Create a ModusToolbox™ application and a Keil µVision configuration file

– There are two ways to generate a Keil µVision configuration file.

A) If you use the Project Creator tool, choose “ARM MDK” from the Target IDE pull-down menu.

B) If you use the command line, open an appropriate shell program (see **CLI Set-up Instructions**), navigate to the application directory, and run the following command: ***make uvision5 TOOLCHAIN=ARM***

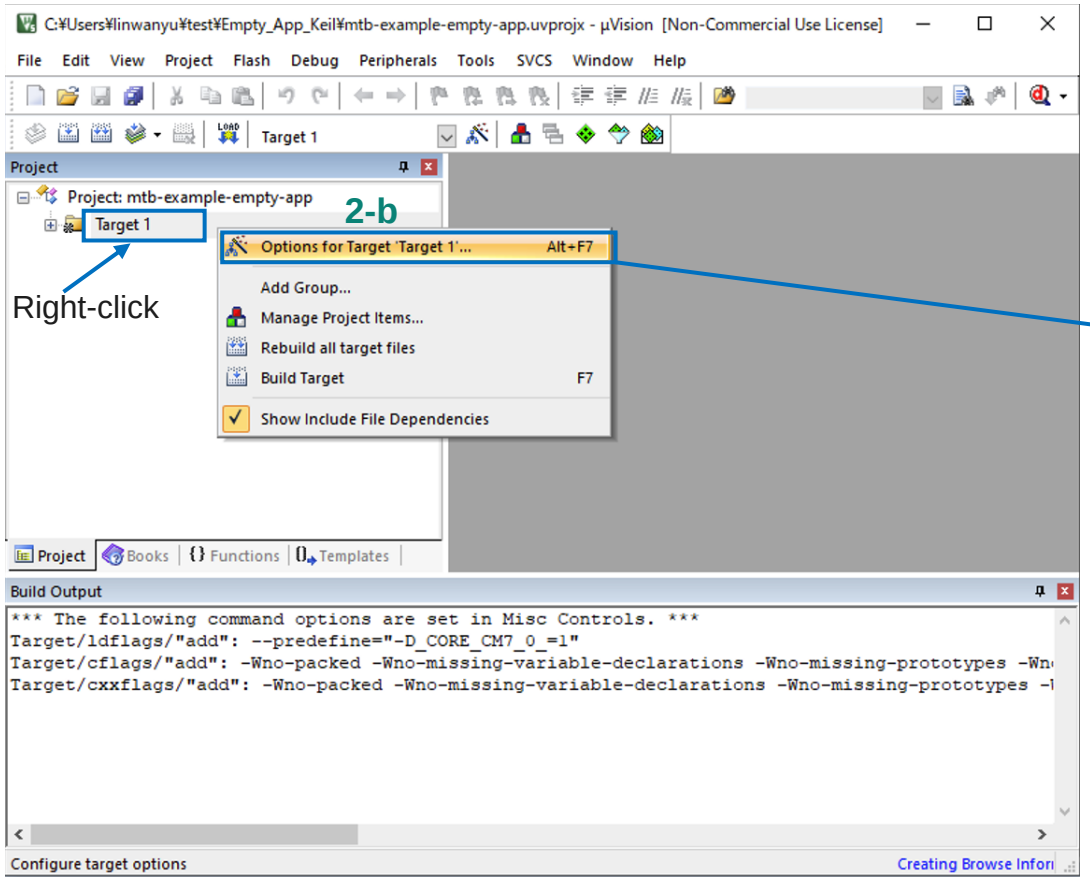


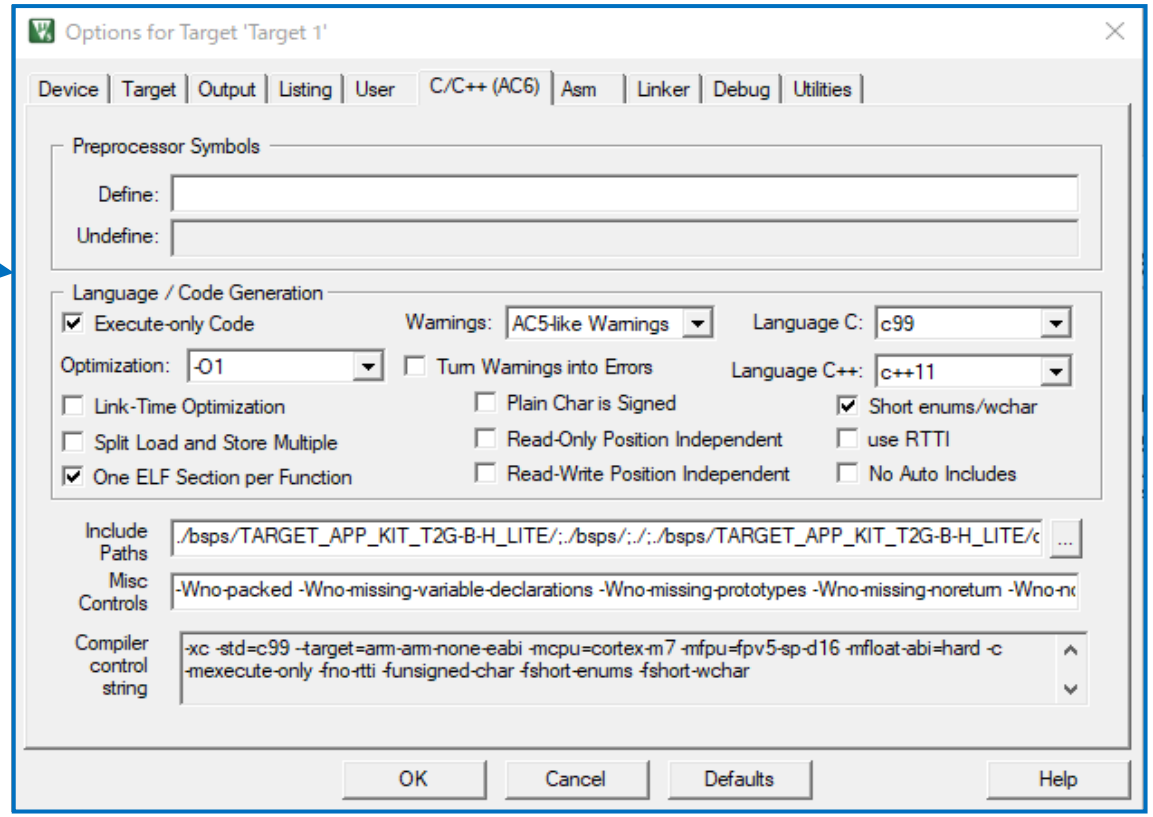


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How to export an application to Keil µVision (Single-core)

2. **Go to the options of the Keil µVision project**
   a. The configuration file generates in the application directory. Double-click "*Empty_App_Keil.cprj*" - Empty_App_Keil.cprj ".
   b. Right-click on Target 1, and select "*Options for Target 'Target 1'". You also can select from "Project-> Options for Target 'Target 1'".*

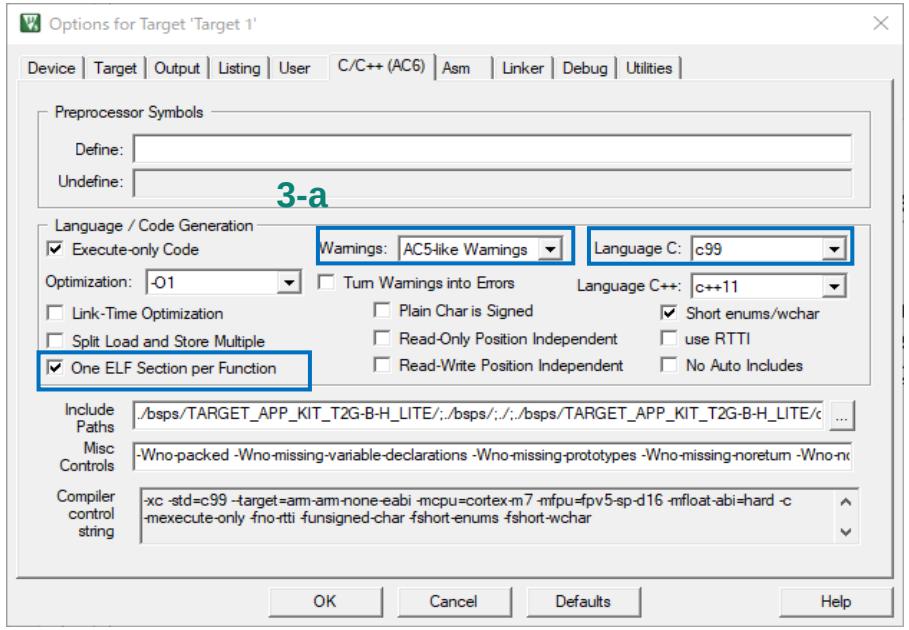


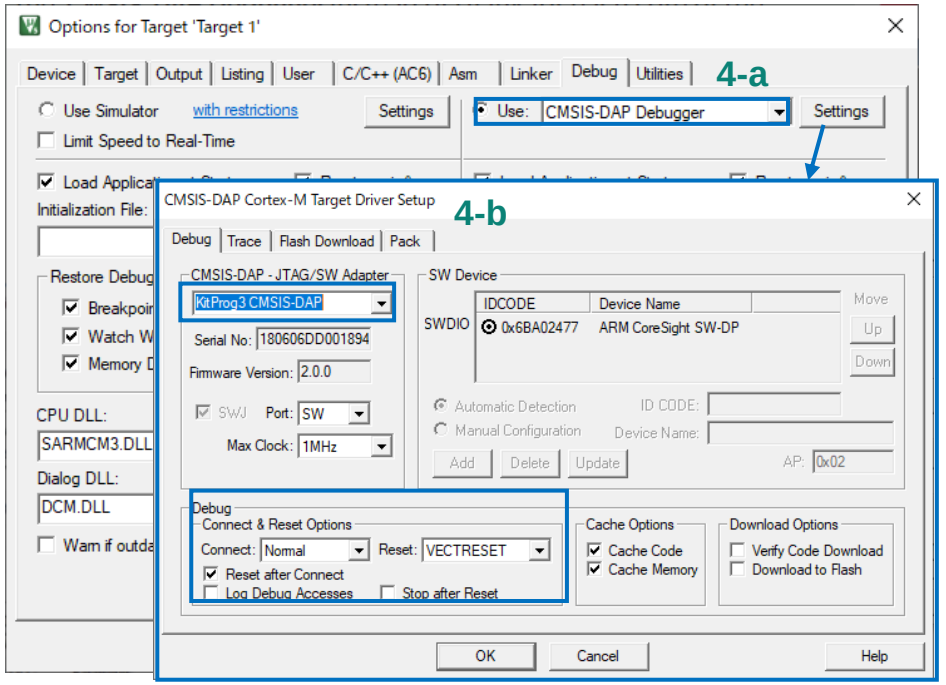


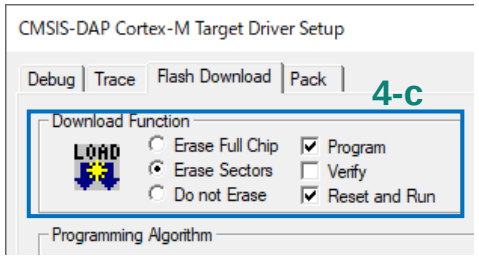
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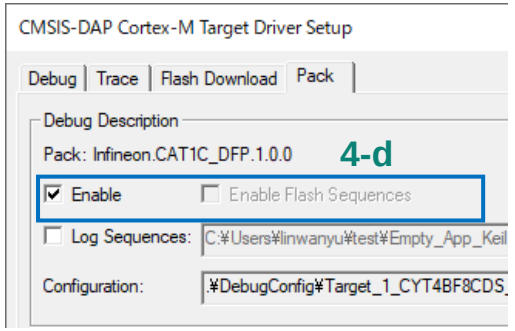
How to export an application to Keil µVision (Single-core)

3. **Configuration of "*C/C++(AC6)*"**
   a. Change the settings according to **Figure 3-a** (blue box).
4. **Configuration for "*Debug*"**
   a. Change the Debug settings as highlighted in the blue box in **Figure 4-a**.
   b. Click the "*Settings*" button, and make changes as highlighted in the blue box in **Figure 4-b**.
   c. Switch to the "*Flash Download*" tab and make changes as highlighted in the blue box in **Figure 4-c**.
   d. Switch to the "*Pack*" tab and make changes to it as highlighted in the blue box in **Figure 4-d**, and click "*OK*".





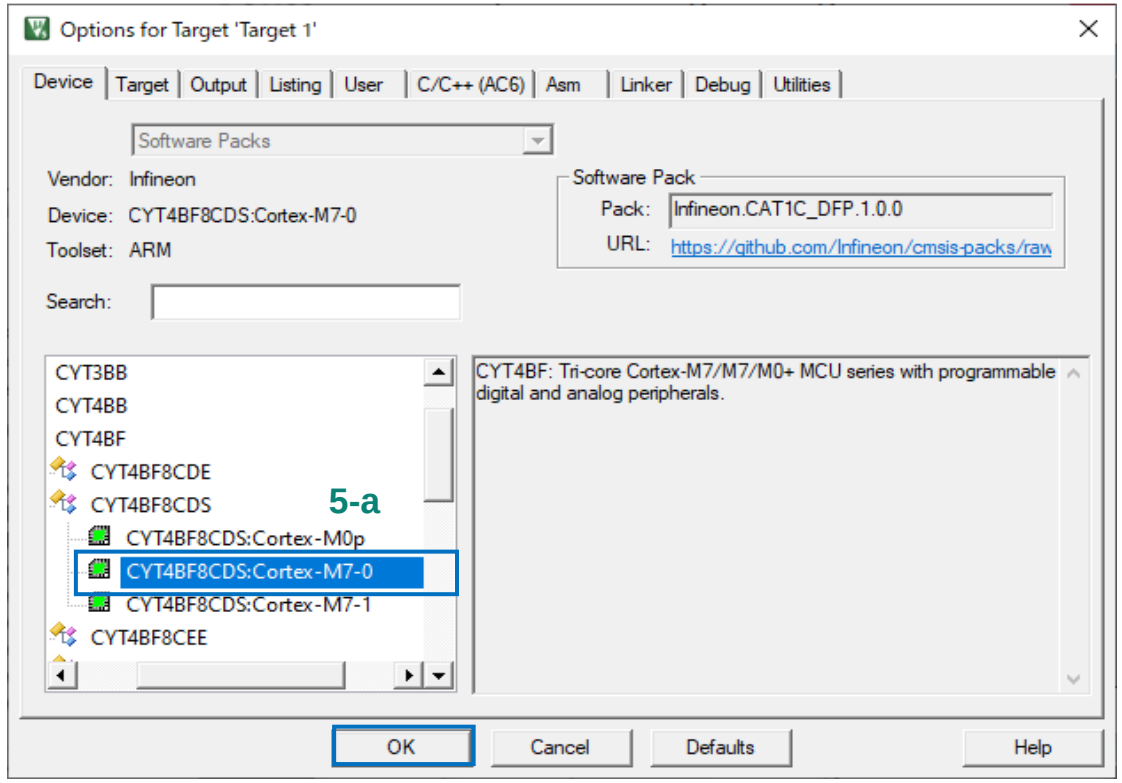




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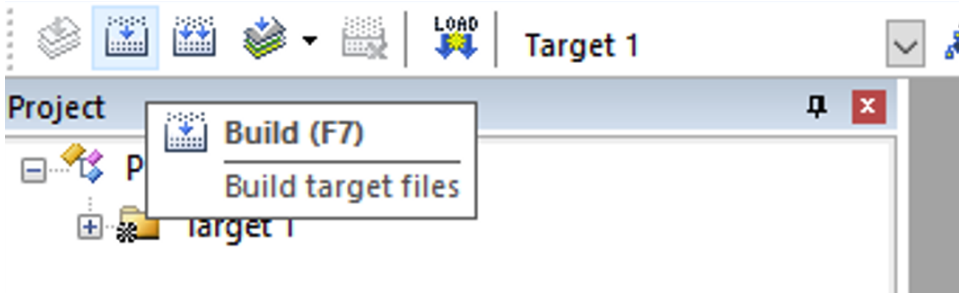
5. **Device configuration**
   a. Select the "*Device*" tab in the Options for Target dialog and make sure that the **M7** core is selected. Then click "*OK*".



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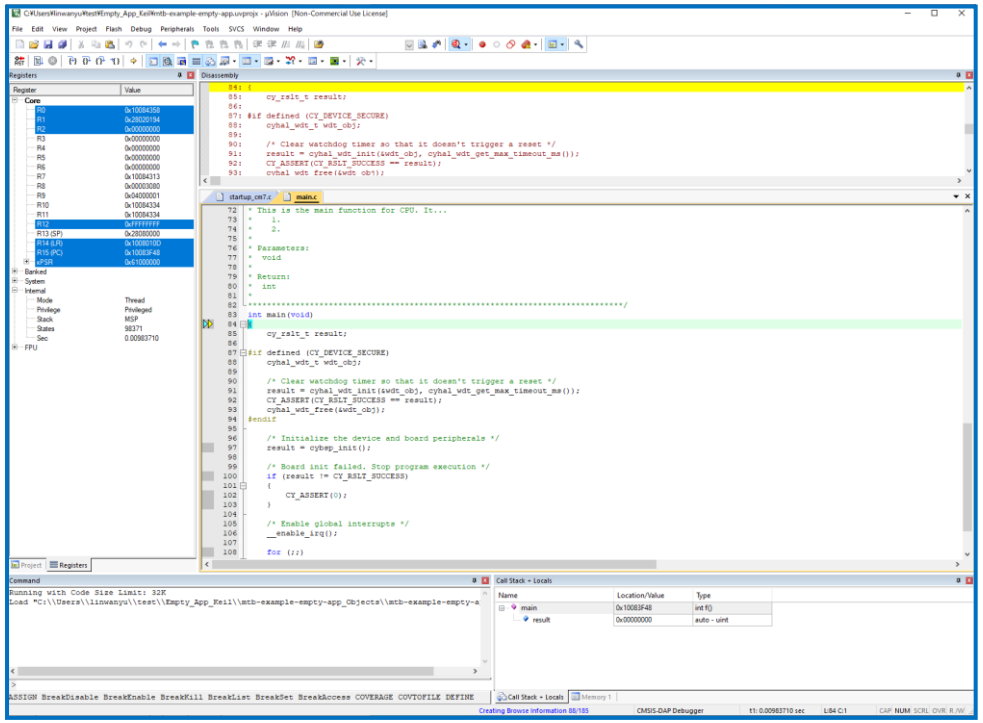
How to export an application to Keil µVision (Single-core)

6. Click *"build*  *"* to build the project.



7. Connect the kit to the host PC. Then, Click "Start/Stop Debug Session  " to start the debug session.



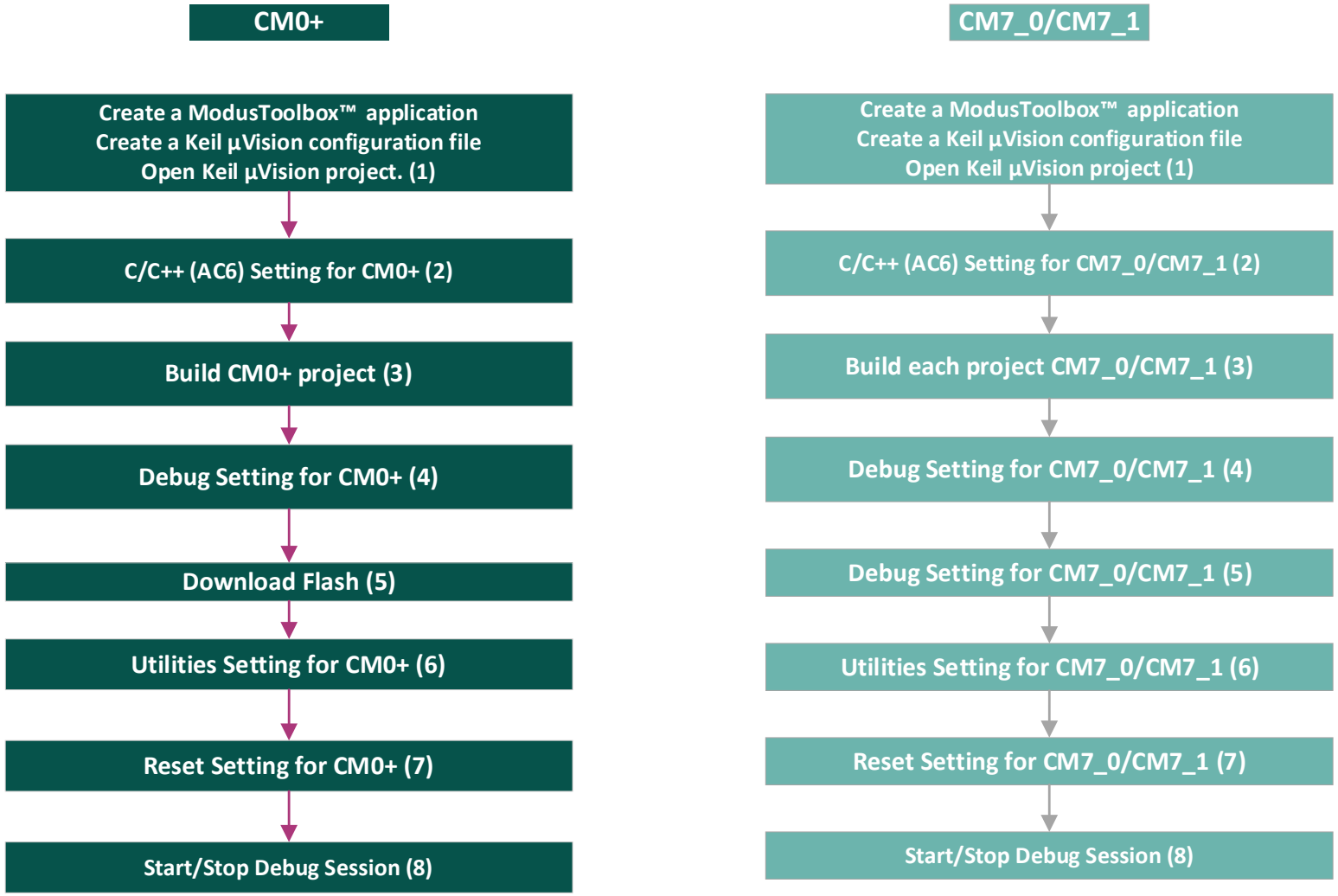


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How to export an application to Keil µVision (Multi-core)

How to export an application to Keil µVision (Multi-core)

The following flow chart shows a simple setup process for multi-core debugging with Keil µVision.

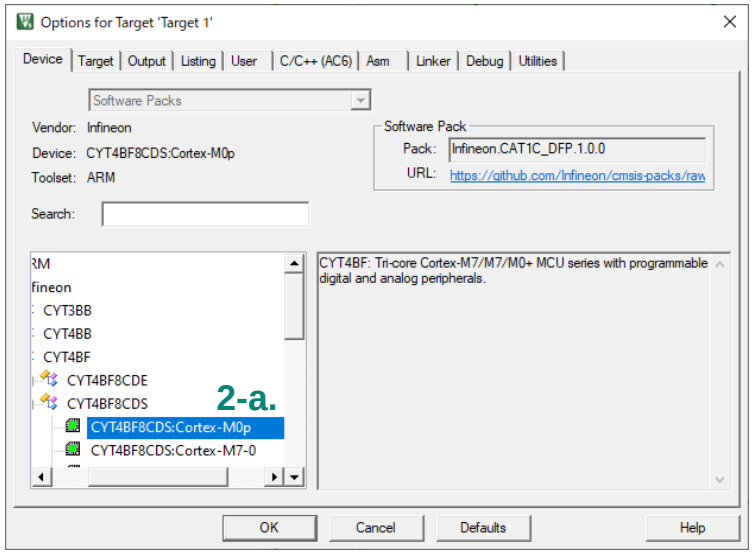


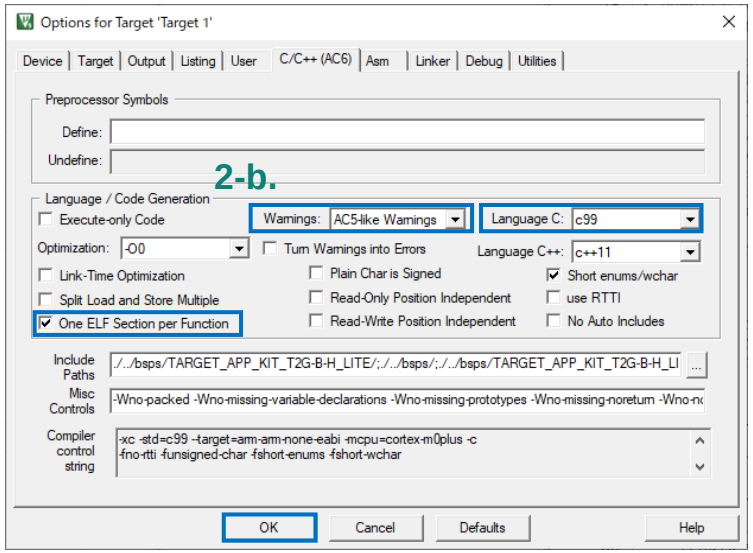
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How to export an application to Keil µVision (Multi-core)

This section explains how to set up multi-core debugging using µVision IDE with CE "Multicore_Empty_App".

1. **Opening µVision multi-core projects[7]**
   a. After you create a multi-core application for use with µVision, navigate to the project for one of the cores and double-click the project description file.
   b. Repeat the same process for the CM7_0/CM7_1 project(s).
2. **C/C++(AC6) setting for CM0+/CM7_0/CM7_1 projects**
   a. Go to "*Project > Options for Target 'Target 1'*", switch to the "*Device*" tab, and check that the M0p core is selected. Also check the CM7_0/CM7_1 project and make sure **M7_0** and **M7_1** are selected.
   b. Switch to the "*C/C++(AC6)*" tab, and make changes to it as shown in the following figure. Then click "*OK*".
3. **Click "build[8] " for each project.**



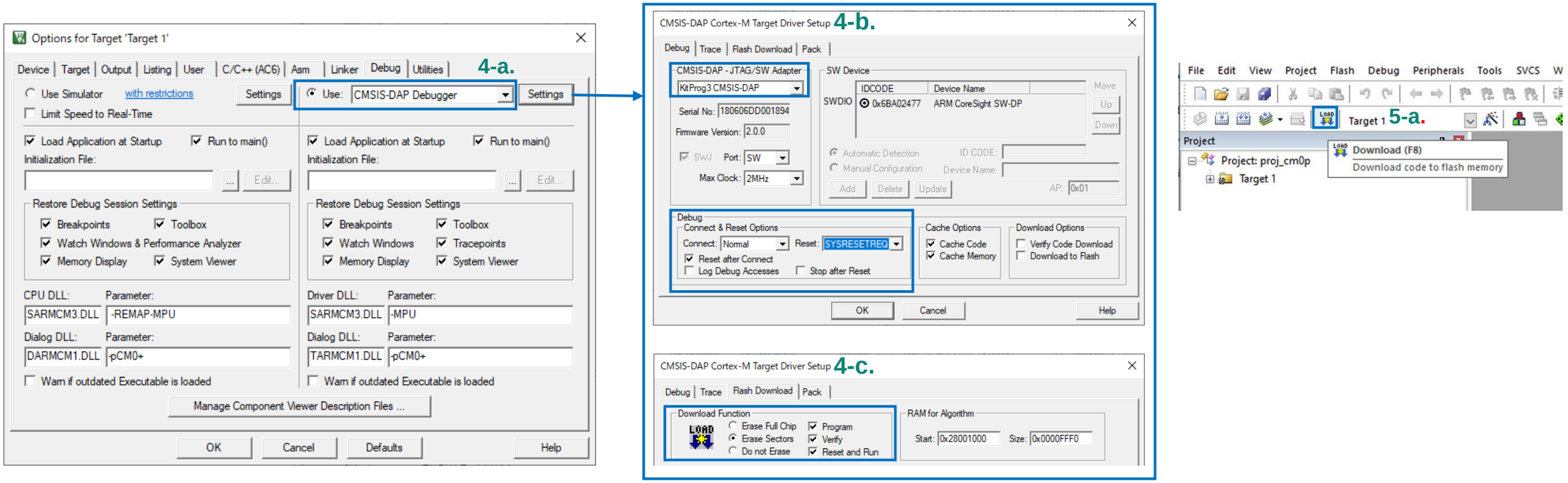


[7] Please refer to "How to export an application to Keil µVision (Single-core)" it shows how to open the options of a project.
[8] Please refer to "How to export an application to Keil µVision (Single-core)" it shows how to build a project.

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How to export an application to Keil µVision(Multi-core)

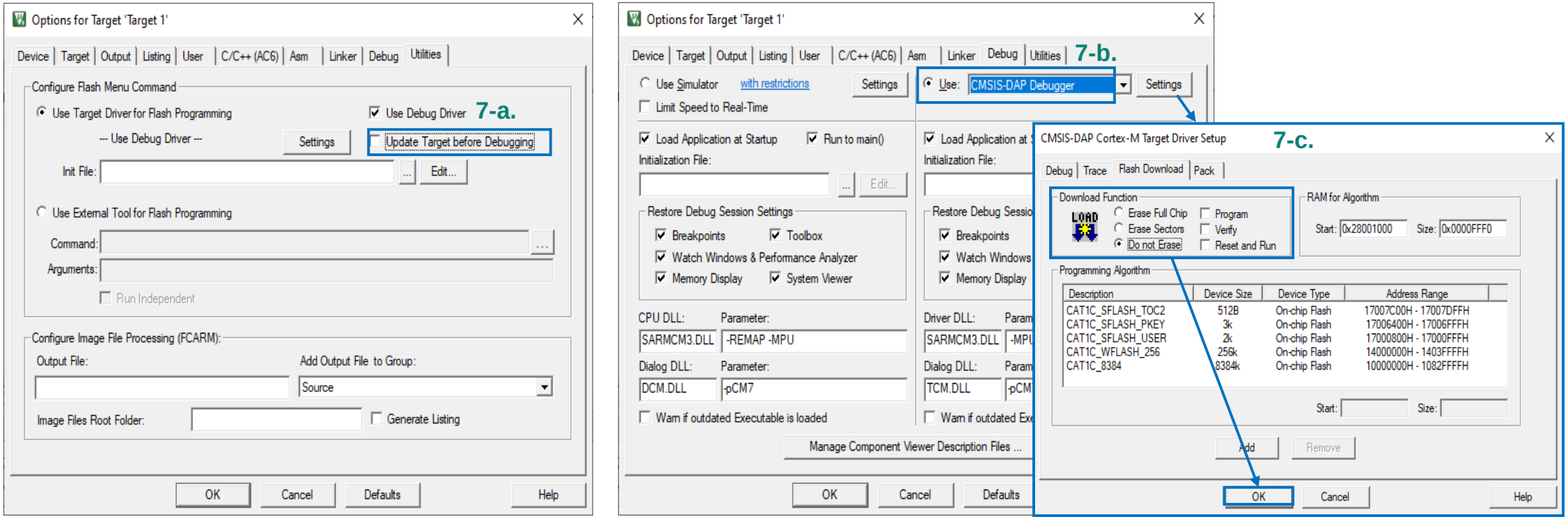
4. **Debug setting for CM0+/CM7_0/CM7_1 project(s)**
   a. Go to "*Project > Options for Target "Target 1"> Debug"* tab, and make changes as highlighted in the blue box in **Figure 4-a**.
   b. Click the "*Settings"* button to configure the target driver, and make changes as highlighted in the blue box in **Figure 4-b**.
   c. Switch to the "*Flash Download"* tab, and make changes to it as highlighted in the blue box in **Figure 4-c**. Then click "*OK"*.
5. **Connect the kit to the host PC. Then, click *"Download"* to download Flash (see Figure 5-a).**
   a. Repeat the same process for each project(s).



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How to export an application to Keil µVision(Multi-core)

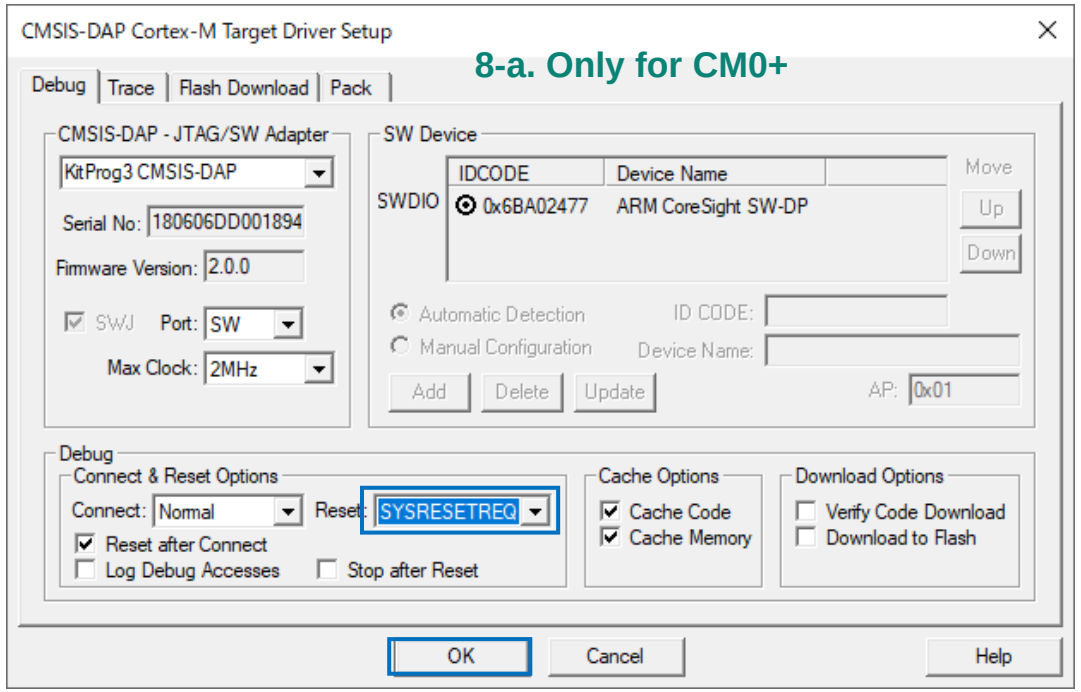
6. **Utilities setting for CM0+/CM7_0/CM7_1 project(s)**
   a. Go to "*Project* > *Options for Target "Target 1"* > *Utilities* tab". Deselect the *"Update Target before Debugging".*
   b. Switch to the "*Debug"* tab, and select the applicable debug probe as "*CMSIS-DAP Debugger"*.
   c. Click the "*Settings"* button switch to the "*Flash Download"* tab, and make changes as highlighted in the blue box.
   d. Repeat the same process for each project(s).

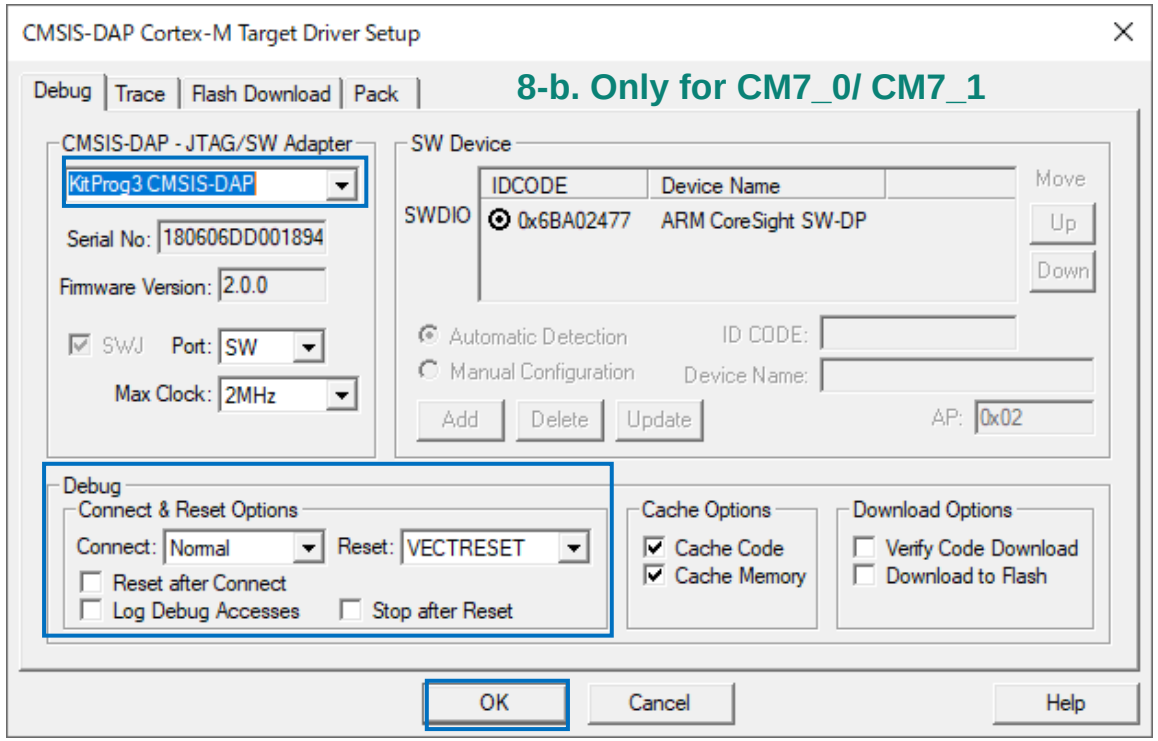


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How to export an application to Keil µVision(Multi-core)

7. **Reset Setting for CM0+/CM7_0/ CM7_1**
   a. Switch to the Settings > Debug tab, and select "*RESET*" as "*SYSRESTREQ*". (ONLY FOR CM0+)
   b. Switch to the Settings > Debug tab , and make changes as highlighted in the blue box (only for CM7_0/CM7_1)





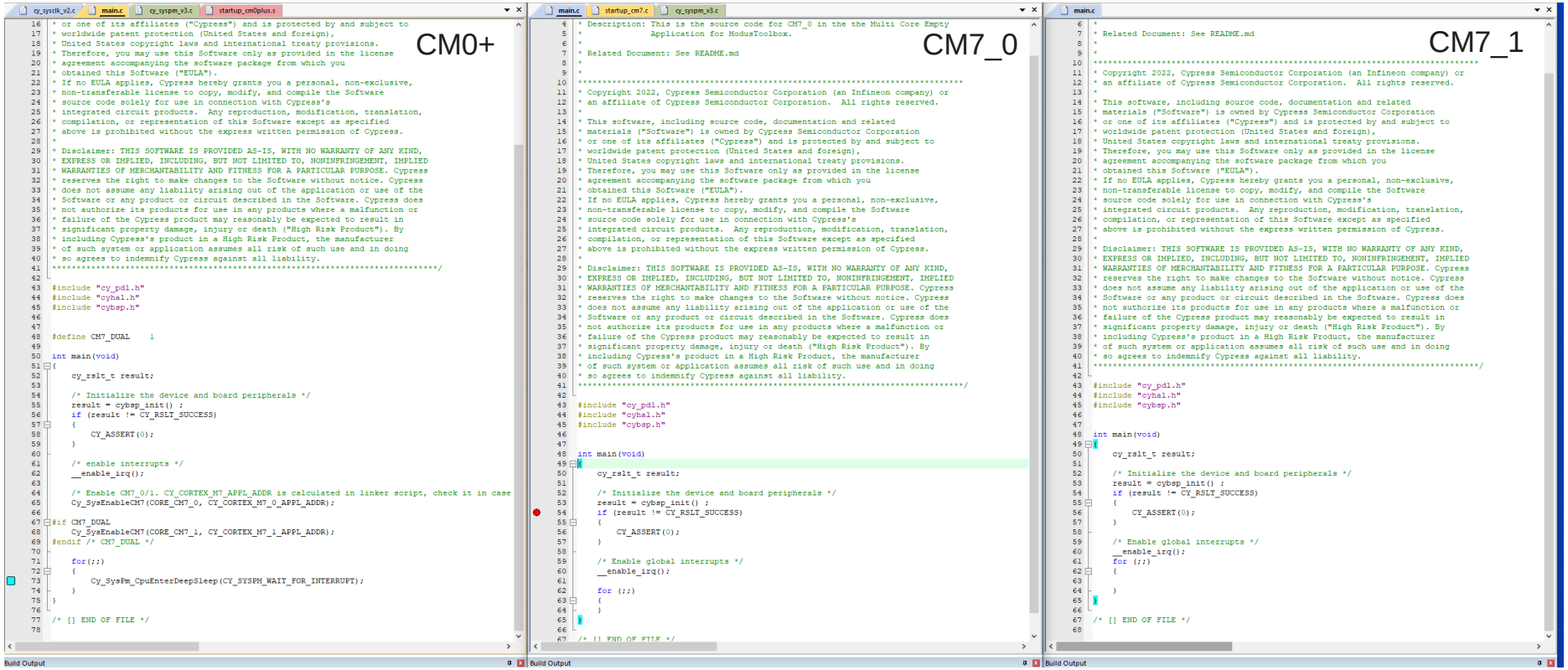
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How to export an application to Keil µVision(Multi-core)

8. **Click *"Start/Stop Debug Session*[9]  *"* **for each project.**



Multi-core running



[9] The number of open windows depends on the number of cores you want to run.

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References

User guides

- Eclipse IDE for ModusToolbox™ user guide
- ModusToolbox™ Device Configurator user guide
- ModusToolbox™ tools package user guide

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Revision history

Revision	ECN	Submission Date	Description of Change
**	7901890	2023/05/08	Initial release

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